Pakistan 100

Indicative Generation Capacity Expansion Plan

IGCEP 2047

Main Report

April 2020

Driven by the Future

Power System Planning
National Transmission and Despatch Company

List of Contents

List of Contents ... iii

List of Figures ... vi

List of Charts ... vii

List of Tables ... ix

List of Acronyms ... xi

Useful Links of Stakeholder Entities ... xvi

Foreword ... xviii

Acknowledgements ... xix

Executive Summary ... xxiv

1. Power System Planning – Gateway to NTDC ... 1

2. Setting the Perspective ... 6

2.1. Generation Planning – A Subset of Power System Planning ... 6

2.2. Preamble ... 7

2.3. Introduction ... 7

2.4. Objectives of the IGCEP ... 8

2.5 Initiative Pakistan @100 and IGCEP 2047 ... 9

2.6. Scope and Planning Horizon ... 9

2.7. Nature of the IGCEP ... 9

2.8. Rationale for Preparation of the IGCEP ... 10

2.9. Report Structure ... 10

2.10. Development Team ... 11

3. Power System of Pakistan: Where Do We Stand Today? ... 14

3.1. Economics of Pakistan Power Sector ... 14

3.2. Power Generation ... 14

3.3. Power Transmission ... 16

3.4. Power Distribution ... 17

4. IGCEP Methodology ... 22

4.1. Regulatory Compliance ... 22

4.2. Data Currency Log ... 22

4.3. Data Collection Process ... 22

4.3.1. IGCEP Data Sources and Associated Data Types ... 23

4.4. Financial Parameters ... 25

4.5. IGCEP Process Map 25
4.6. Different Criteria and Other Important Considerations for the IGCEP 25
4.6.1. Planning Timeframe 25
4.6.2. Economic Parameters 25
4.6.3. Generation System Reliability 26
4.6.4. Hydrological Risk 26
4.6.5. Renewable Energy (RE) Generation 26
4.6.6. Renewable Intermittency 27
4.6.7. Reserve 28
4.6.7.1. Contingency Reserve 28
4.6.7.2. Secondary Reserve 28
4.6.8. Scheduled Maintenance of the Generation Projects 28
4.6.9. System Load Characteristics 29
4.6.10. Fuel Prices Indexation 29
4.6.11. Renewable Energy Technology CAPEX Indexation 30
4.7. IGCEP Data Input Format 33
4.8. Strategy for Feedback 52
5. Long-term Energy and Demand Forecast 55
5.1. Energy and Demand Forecast 55
5.2. Forecasting Methodology 55
5.3. Defining the Demand Forecast 56
5.3.1. Demand Forecast Scenarios: Regulatory Requirement 56
5.3.2 Other Demand Forecast Scenarios 56
5.4. LF&GP-PSP Database 57
5.5. Preparation of Demand Forecast 58
5.6. Demand Forecast Numbers 59
5.7. Hourly Peak Demand Forecast 61
5.8. Modelling of Electric Vehicles and Naya Pakistan Housing Scheme 62
6. Inside the IGCEP 65
6.1. Introduction 65
6.2. Defining Base Case 65
6.3. Other Scenarios 65
6.4. Strategic Considerations 66

6.5. Approach and Methodology 67
6.6. Planning Basis 67
6.7. Assumption Set 68
6.8. Existing Power Generation of Pakistan 70
6.9. Retirement of Existing Power Plants 70
6.10. Committed Generating Units 76
6.10.1. Public Sector Committed Projects 76
6.10.2. Private Sector Committed Projects 77
6.11. New Generation Options 80
6.12. Hydro Projects and Screening 81
6.13. New Thermal Options 86
6.14. Other Generation Options 88
6.15. Development of the Base Case 88
6.16. Reliability Levels and System Expansion Costs 89
6.17. Generation Capacity Expansion Software 89
7. IGCEP Study Output – Base Case 94
7.1. Introduction 94
7.2. Future Demand and Capacity Additions (Base Case) 94
7.3. Annual Capacity Factors 149
7.4. Annual Energy Generation 170
7.5. Year-wise Discounted Prices and Un-Discounted Prices 207
7.6. Indigenization of Energy Mix 209
7.7. Clean and Green Power for Pakistan 210
7.8. Salient Features of the IGCEP 211
8. The Way Forward 233
8.1 Must Do Actions for the Future Generation Plans 233
8.2 Making Way for the High Share of Renewables in the Grid 233
8.3 Future is Here - Time to Understand, Accept and Adopt the New Norms 234
8.4 Getting Equipped and Ready for the Competitive Power Regime 236
8.5 Retirement of Existing Thermal Power Plants 236
8.6 Focusing on Indigenization through Harnessing the Potential of Local Coal 237
8.7 Thinking, Synergizing and Enhancing the Vision Beyond the Borders 237

List of Figures

Figure E1: Summary of Results of Base Case Scenario xxvi
Figure 1-1: Organogram of the Power System Planning, NTDC 2
Figure 2-1: Planning Cycle Leading to Procurement 6
Figure 2-2: The IGCEP Objectives 8
Figure 2-3: IGCEP Mind Map 11
Figure 4-1: IGCEP Input Data Sources 25
Figure 4-2: IGCEP Preparation Process 26
Figure 5-1: Process Flow of Methodology of Long-Term Forecast 55
Figure 6-1: IGCEP Data Modelling Approach 67
Figure 6-2: IGCEP 2047 Retirement Schedule 75
Figure 6-3: Committed Projects Criterion 76
Figure 6-4: Features of PLEXOS Energy Model 90
Figure 6-5: PLEXOS simulation phases 90
Figure 6-6: Data Structure in PLEXOS 91
Figure 7-1: IGCEP 2047: Generation Sequence (2020-30) 102
Figure 7-2: IGCEP 2047: Generation Sequence (2031-47) 103

List of Charts

Chart E1: Radar Chart of Installed Capacity (MW) Base Scenario by 2047 xxxii

Chart E2: Radar Chart of Installed Capacity (MW) of all Scenarios by 2047 -I xxxiii

Chart E3: Radar Chart of Installed Capacity (MW) of all Scenarios by 2047 -II xxxiii

Chart 3-1: GDP (million PKR) vs Sale of Electricity (GWh) 14

Chart 3-2: Installed Capacity as of FY 2018-19 15

Chart 3-3: Annual Energy Generation as of FY 2018-19 15

Chart 3-4: Historical Annual Energy Generation (GWh) from FY 2013-14 to FY 2018-19 16

Chart 3-5: Historical Peak Electricity Demand (MW) from FY 2013-14 to FY 2018-19 16

Chart 3-6: Percentage Mix of Number of Electricity Consumers 18

Chart 3-7: Percentage Mix of Category-wise Sale (GWh) of Electricity 18

Chart 3-8: Historical Trend of Consumer Wise Percentage Share in Electricity Consumption 18

Chart 5-1: Peak Demand (MW) Forecast 2019 – 47 61

Chart 6-1: Generation Mix (MW) as of December 2019 70

Chart 7-1: Nominal Capacity vs Peak Demand (MW) 2020-30 94

Chart 7-2: Annual Energy Generation vs Annual Energy Demand (GWh) 2020-30 95

Chart 7-3: Nominal Capacity Vs Peak Demand (MW) 2031-47 96

Chart 7-4: Annual Energy Generation vs Annual Energy Demand (GWh) 2031-47 96

Chart 7-5: IGCEP 2047 Base Case Indigenization Ratio of Primary Energy 210

Chart 7-6: IGCEP 2047 Annual CO_2 Emission and Emission per Unit of Power Generation 211

Chart 7-7: IGCEP Generation Mix 2020 (MW) 213

Chart 7-8: IGCEP Generation Mix 2025 (MW) 213

Chart 7-9: IGCEP Generation Mix 2030 (MW) 214

Chart 7-10: IGCEP Generation Mix 2035 (MW) 214

Chart 7-11: IGCEP Generation Mix 2040 (MW) 215

Chart 7-12: IGCEP Generation Mix 2047 (MW) 215

Chart 7-13: IGCEP Generation Mix 2020 (GWh) 216

Chart 7-14: IGCEP Generation Mix 2025 (GWh) 216

Chart 7-15: IGCEP Generation Mix 2030 (GWh) 217

Chart 7-16: IGCEP Generation Mix 2035 (GWh) 217

Chart 7-17: IGCEP Generation Mix 2040 (GWh) 218

Chart 7-18: IGCEP Generation Mix 2047 (GWh) 218

Chart 7-19: IGCEP Monthly Generation Mix 2019-24 (GWh) 219

Chart 7-20: IGCEP Monthly Generation Mix 2024-29 (GWh) 220

Chart 7-21: IGCEP Monthly Generation Mix 2029-34 (GWh) 221

Chart 7-22: IGCEP Monthly Generation Mix 2034-39 (GWh) 222
Chart 7-23: IGCEP Monthly Generation Mix 2039-43 (GWh) 223
Chart 7-24: IGCEP Monthly Generation Mix 2043-47 (GWh) 224
Chart 7-25: Sankey Diagram of Base Case Scenario by 2025 225
Chart 7-26: Sankey Diagram of Base Case Scenario by 2030 226
Chart 7-27: Sankey Diagram of Base Case Scenario by 2035 227
Chart 7-28: Sankey Diagram of Base Case Scenario by 2040 228
Chart 7-29: Sankey Diagram of Base Case Scenario by 2045 229
Chart 7-30: Sankey Diagram of Base Case Scenario by 2047 230

List of Tables

Table E1: Summary of Load Forecast (2020-47) xxiv

Table E2: Summary of Additional Scenarios of Load Forecast (2020-47) xxv

Table E3: Summary of Nominal Capacity (MW) of Scenarios by 2030 – I xxviii

Table E4: Summary of Nominal Capacity (MW) of Scenarios by 2030 – II xxix

Table E5: Summary of Energy Generation (GWh) of Scenarios by 2030 – I xxix

Table E6: Summary of Energy Generation (GWh) of Scenarios by 2030 -II xxx

Table E7: Summary of Nominal Capacity (MW) of Scenarios by 2047 - I xxx

Table E8: Summary of Nominal Capacity (MW) of Scenarios by 2047 - II xxxi

Table E9: Summary of Energy Generation (GWh) of Scenarios by 2047 - I xxxi

Table E10: Summary of Energy Generation (GWh) of Scenarios by 2047 - II xxxii

Table E11: Summary of Total Generation Cost Comparison of all Scenarios in billion US $ xxxiv

Table 3-1: Length of Transmission & Distribution lines (ckm) 17

Table 3-2: Voltage wise Grid Stations and MVA Capacities 17

Table 4-1: IGCEP Input Data Currency Log 22

Table 4-2: Fuel Price Indexation Factors 30

Table 4-3: CAPEX Indexation of Solar and Wind Based Technologies 32

Table 5-1: Description of Dependent and Independent Variables 59

Table 5-2: Annual Long-Term Energy and Peak Demand Forecast 61

Table 6-1: Generation Planning Criteria 68

Table 6-2: Retirement Schedule of Existing Power System 74

Table 6-3: Public Sector Committed Projects 77

Table 6-4: List of Committed Projects in the Private Sector 80

Table 6-5: Annualized Cost of Candidate Hydro Power Project 86

Table 6-6: Performance Characteristics of Generic Thermal Power Plants 87

Table 6-7: Economic Parameters of Generic Thermal Power Units 87

Table 6-8: Economic Parameters of Candidate Wind and Solar Blocks 88

Table 7-1: Future Generation Capacity Additions (2020-30) 99

Table 7-2: Future Generation Capacity Additions (2031-47) 101

Table-7-3: Name of Blocks for Wind and Bagasse Power Plants 109

Table-7-4a: Projects Optimized by PLEXOS (6 Scenarios) 121

Table-7-4b: Projects Optimized by PLEXOS (7 Scenarios) 132

Table 7-5: PLEXOS Annual Addition of Power Plants 2020-47 149

Table 7-6: Annual Capacity Factors (%age) 169

Table 7-7: Annual Energy Generation 2020-30 (GWh) 170

Table 7-8: Annual Energy Generation 2031-47 (GWh) 206
Table 7-9: Year wise Cost Breakup-Discounted Prices 208
Table 7-10: Year wise Cost Breakup-Un-Discounted Prices (k$) 209
Table 7-11: Year wise Nominal Capacity Addition (MW) 212

List of Acronyms

Acronym	Description
$/GJ	US Dollar per Giga joule
$/kW	US Dollar per kiloWatt
$/MWh	US Dollar per Mega Watt hour
ADB	Asian Development Bank
AGL	Attock Generation Limited
Agr	Agriculture
AJKPDO	Azad Jammu & Kashmir Power Development Organization
AJKPPC	Azad Jammu and Kashmir Private Power Cell
ARE	Alternative and Renewable Energy
BCF	Billion Cubic Feet
c/Gcal	Cents per Giga calorie
c/kWh	Cents per Kilowatt hour
ckm	Circuit Kilo Metre
CAPEX	Capital Expenditure
CASA	Central Asia South Asia
CCGT	Combined Cycle Gas Turbine
CCOE	Cabinet Committee of Energy
CFPP	Coal Fired Power Project
COD	Commercial Operation Date
Com	Commercial
CPEC	China Pakistan Economic Corridor
CPI	Consumer Price Index
CPPA-G	Central Power Purchasing Agency – Guarantee
Cumm.	Cumulative
Cus.	Customer
DISCO	Distribution Company
DOM	Domestic

Acronym	Description
DSM	Demand Side Management
EIA	US Energy Information Agency
EOI	Expression of Interest
EPA	Energy Purchase Agreement
EV	Electric Vehicle
FC	Financial Closure
FESCO	Faisalabad Electric Supply Company
FKPCL	Fauji Kabirwala Power Company Limited
FS	Feasibility Studies
FY	Fiscal Year
G.R.	Growth Rate
G/s	Grid Station
G2G	Government to Government
GDP	Gross Domestic Product
GENCOs	Generation Companies
GEPCO	Gujranwala Electric Power Company
GoP	Government of Pakistan
GT	Gas Turbine
GTPS	Gas Thermal Power Station
GWh	Gigawatt-hour
HCPC	Habibullah Coastal Power Company
HESCO	Hyderabad Electric Supply Company
HFO	Heavy Furnace Oil
HPP	Hydro Power Projects
HR&A	Human Resource and Administration
HSD	High Speed Diesel
IAEA	International Atomic Energy Agency
IDC	Interest During Construction

Acronym	Description
IEP	Integrated Energy Plan
IESCO	Islamabad Electric Supply Company
IGCEP	Indicative Generation Capacity Expansion Plan
IIEP	International Institute of Electric Power Ltd.
IMF	International Monetary Fund
Imp.	Imported
Ind	Industry
IPP	Independent Power Producer
JICA	Japan International Corporation Agency
K2	Karachi Coastal Nuclear Unit 2
KAPCO	Kot Addu Power Company
kcal/kWh	kilo calorie per Kilowatt hour
KE	K-Electric
KPI	Key Performance Indicator
KPK	Khyber Pakhtunkhawa
kV	kilo volts
LCP	Least Cost Plan
LESCO	Lahore Electric Supply Company
LF&GP-PSP Team	Load Forecast and Generation Planning of Power System Planning, NTDC
LNG	Liquified Natural Gas
LOI	Letter of Intent
LOLE	Loss of Load Expectation
LOLP	Loss of Load Probability
LOS	Letter of Support
LT	Long-term
M/s	Messers
MEPCO	Multan Electric Power Company
MoPD & R	Ministry of Planning Development & Reforms

Acronym	Description
MT	Medium Term
MVA	Mega volt ampere
MW	Megawatt
NEPRA	National Electric Power Regulatory Authority
NPCC	National Power Control Center
NPHS	Naya Pakistan Housing Scheme
NPP	National Power Plan
NPSEP	National Power System Expansion Plan
NTDC	National Transmission and Despatch Company
O&M	Operation and Maintenance
OLS	Ordinary Least Squares
PAEC	Pakistan Atomic Energy Commission
PASA	Projected Assessment System Adequacy
PC	Planning Code
PEDO	Pakhtunkhwa Energy Development Organization
PEPCO	Pakistan Electric Power Company
PESCO	Peshawar Electric Supply Company
PP	Project Planning
PPA	Power Purchase Agreement
PPDB	Punjab Power Development Board
PPIB	Private Power Infrastructure Board
PSP	Power System Planning, NTDC
QESCO	Quetta Electric Supply Company
RE	Renewable Energy
RFO	Residual Furnace Oil
RLNG	Re-gasified Liquid Natural Gas
ROR	Run of the river
RP	Resource Planning

Acronym	Description
Rs./kWh	Rupees per Kilowatt hour
RTPSS	Real Time Power System Simulator
SCADA	Supervisory Control & Data Acquisition
SEPCO	Sukkur Electric Power Company
SS	System Studies
SSRL	Sino Sindh Resources Limited
STs	Steam Turbines
T&D	Transmission and Distribution
TEL	Thar Energy Limited
TESCO	Tribal Electric Supply Company
TRP	Transmission Planning
TSEP	Transmission System Expansion Plan
TWh	Terawatt hour
USA	United States of America
USAID	United States Agency for International Development
VRE	Variable Renewable Energy
WAPDA	Water and Power Development Authority
WPP	Wind Power Project

Useful Links of Stakeholder Entities

Stakeholder Entity	Cyber Link
Alternative Energy Development Board (AEDB)	http://www.aedb.org/
Azad Jammu Kashmir Power Development Organization (AJKPDO)	http://ajkpdo.com/
Central Power Purchasing Agency (CPPA)	http://www.cppa.gov.pk/
Energy Department, Government of Punjab	http://www.energy.punjab.gov.pk/
Energy Department, Government of Sindh	http://sindhenergy.gov.pk/
Faisalabad Electric Supply Company (FESCO)	http://www.fesco.com.pk/
Federal Ministry of Energy	http://www.mowp.gov.pk/
Federal Ministry of Finance	http://www.finance.gov.pk/
Federal Ministry of Planning, Development & Reforms	https://www.pc.gov.pk/
Government of Azad Jammu and Kashmir	http://www.ajk.gov.pk/
Government of Baluchistan	http://www.balochistan.gov.pk/
Government of Gilgit Baltistan	http://www.gilgitbaltistan.gov.pk/
Government of Khyber Pakhtunkhwa	http://kp.gov.pk/
Government of Pakistan	http://pakistan.gov.pk/
Government of Punjab	https://www.punjab.gov.pk/
Government of Sindh	http://www.sindh.gov.pk/
Gujranwala Electric Power Company (GEPCO)	http://www.gepco.com.pk/
Hyderabad Electric Supply Company (HESCO)	http://www.hesco.gov.pk/
Islamabad Electric Supply Company (IESCO)	http://www.iesco.com.pk/
K-Electric (KE)	https://www.ke.com.pk/
Lahore Electric Supply Company (LESCO)	http://www.lesco.gov.pk/
Multan Electric Power Company (MEPCO)	http://www.mepco.com.pk/

Stakeholder Entity	Cyber Link
National Electric Power Regulatory Authority (NEPRA)	http://www.nepra.org.pk/
National Transmission and Despatch Company (NTDC)	http://www.ntdc.com.pk/
Pakhtunkhwa Energy Development Organization (PEDO)	http://www.pedo.pk/
Pakistan Atomic Energy Commission (PAEC)	http://www.paec.gov.pk/
Pakistan Bureau of Statistics	http://www.pbs.gov.pk/
Peshawar Electric Supply Company (PESCO)	http://www.pesco.gov.pk/
Private Power Infrastructure Board (PPIB)	http://www.ppib.gov.pk/
Quetta Electric Supply Company (QESCO)	http://www.qesco.com.pk/
Sukkur Electric Power Company (SEPCO)	http://www.sepco.com.pk/
Tribal Areas Electric Supply Company (TESCO)	http://www.tesco.gov.pk/
Water and Power Development Authority (WAPDA)	http://www.wapda.gov.pk/

Foreword

The Report on 'Indicative Generation Capacity Expansion Plan (IGCEP) 2047' presents the results of the latest expansion planning studies conducted by the Load Forecast and Generation Planning (LF&GP) of Power System Planning (PSP), National Transmission and Despatch Company (NTDC) as per the criteria specified in the Grid Code.

This report facilitates a comprehensive view of the future electricity demand forecast, existing generating system and future power generation options in addition to the expansion study results. It is pertinent to highlight that annual updating of this plan remains a regulatory obligation on the part of the NTDC.

In a bid to manage higher level of transparency as well as to make this report comprehensive, various aspects have been included such as complete results of all scenarios in addition to base case, list of stakeholder entities who have shared the input data; currency of input data for the IGCEP; software tools used along with their salient features; generation planning process, the Way Forward, etc. However, the LF&GP-PSP Team would certainly welcome suggestions and comments for adding further value to this important regulatory obligation of NTDC.

It is important to highlight that the preparation of IGCEP 2047 has largely been done by the NTDC professionals precisely the LF&GP-PSP Team with minimal external support. This team is young yet upbeat and committed to continue learning, delivering and growing. It is suggested that we need to encourage this team and invest on them as well as all local professionals of power sector to secure and sustain self-sufficiency in terms of outputs at par with the international standards.

یہی چراغ جلیں گے تو روشنی ہو گی

Engr. Muhammad Asad Uz Zaman

Chief Engineer, Load Forecast and Generation Planning

National Transmission and Despatch Company

20 April 2020

Acknowledgements

Commissioning of a study and preparation of a country wide power generation plan, such as the IGCEP, rely extensively on the input data provided by a wide range of stakeholders. In case of IGCEP 2047, these stakeholders include Pakistan Atomic Energy Commission (PAEC), Alternative Energy Development Board (AEDB), National Electric Power Regulatory Authority (NEPRA), Private Power Infrastructure Board (PPIB), Pakhtunkhwa Energy Development Organization (PEDO), Punjab Power Development Board (PPDB), Sindh Energy Board, Sindh Transmission & Dispatch Company (STDC), Azad Jammu & Kashmir Private Power Cell (AJKPPC) and Water and Power Development Authority (WAPDA); this output could have not been materialized without the contribution by these stakeholders.

The IGCEP also benefited from advice, suggestions, and value addition from various entities including CPPA, power sector professionals and colleagues from PSP-NTDC. The team is also indebted to the NTDC Board of Directors for their avid review and suggestions.

It would not be fair, on the part of the LF&GP team, if the proactive role of Mr. Zafar Abbas, Managaing Director, NTDC is not duly acknowledged for prcourement of modern software for generation planning & despatch optimization as well as for preparation of the IGCEP 2047. Through his excellent leadership skills, he was always been there for supporting the team and making way outs from tough situations while extending great trust in the team.

The LF&GP-PSP Team is, therefore, highly grateful to all those who contributed in preparation and finalizing of the IGCEP.

Learning, sharing and growing together – the IGCEP 2047 Development Team

There are dreamers and there are planners; the planners make their dreams come true... *Edwin Louis Cole*

Disclaimer

This Indicative Generation Capacity Expansion Plan (IGCEP) 2047 is prepared by NTDC under the obligations set in the chapter Planning Code of the Grid Code, major regulatory instrument for NTDC. The plan, as mentioned in its name, is indicative in nature, to be reviewed and approved by NEPRA – the electricity regulator, is to be updated every year. The IGCEP 2047 is developed to thereafter enable project executing agencies for procurement of power from generation facilities from both public and private sectors subject to the fulfillment of other pre-requisites, NTDC to formulate its Transmission System Expansion Plan and Transmission Investment Plan and assist policy makers for aligning the prevailing policies with the ongoing challenges and/or technological advancements.

The information contained herein exclusively does not make the power sector stakeholders including NTDC and CPPA liable to inter-alia procure power, allow commissioning of future power plants, regulate electricity tariff, perform economic dispatch of electric power and determine targets of any sort for the power sector of Pakistan. Confirmation of any new generation project(s) other than the committed ones for future implementation and procurement would only be made subject to its evacuation scheme included in the upcoming NTDC's Transmission System Expansion Plan based on the approved IGCEP 2047 and applicable policies, rules, regulations and SOPs. It is further highlighted that not all candidate projects may possibly be evacuated owing to technical difficulties and/or higher cost which may not leave it as part of the least cost scheme; activities subsequent to IGCEP may therefore lead to certain changes for the candidate projects optimized by the generation planning tool, PLEXOS.

Any other party using this plan for any purpose, or relying on this plan in any way, does so at its own risk. No representation or warranty, express or implied, is made in relation to the accuracy or completeness of the information presented herein or its suitability for any particular purpose.

Copyrights © NTDC 2020. All rights reserved.

Executive Summary

Executive Summary

Pursuant to the National Electric Power Regulatory Authority (NEPRA) Grid Code, National Transmission and Despatch Company (NTDC) has prepared Indicative Generation Capacity Expansion Plan (IGCEP) 2047 covering the future horizon of twenty-eight (28) years i.e. from 2020 to 2047 encapsulating electric power generation additions required in order to meet the future energy and power demand of Pakistan.

The report presents the results of the generation capacity expansion planning study carried out by Load Forecast and Generation Planning (LF&GP) component of Power System Planning (PSP), NTDC.

The generation planning study is composed of two key processes: 1) Load forecast; and then 2) Generation capacity expansion and despatch optimization exercises. Both processes involve complex statistical and computation efforts performed using dedicated software for forecasting and expansion planning.

Load forecast provides the basis for all the planning activities in the power sector. The forecast used for the generation planning exercise is based on multiple regression analysis using historical data for the period 1970 to 2019. Sale of electricity is regressed on electricity price, sector wise GDP, and number of consumers. Furthermore, corresponding quantum of losses and the impact of historical load management colloquially referred to as load shedding is included in the database, so the resulting equations estimate the actual energy demand.

Three scenarios of long-term forecast, as per Grid Code, are prepared for the Low, Normal and High GDP growth of 4.5%, 5.5% and 6.5% respectively. In addition to regulatory obligations, additional five (05) scenarios are developed i.e. i) International Monetary Fund (IMF) Projected GDP; ii) Inclusion of 25% of Total Load Management; iii) Inclusion of 50% of Total Load Management; iv) Excluding Load Management; and v) Excluding Load Management, EVs & NPHS.

Table E1 and Table E2 show a summary of the forecast results for the horizon 2020-2047.

FY	Low		Normal		High	
	Energy	Peak Demand	Energy	Peak Demand	Energy	Peak Demand
	GWh	MW	GWh	MW	GWh	MW
2019-20	155,203	26,844	156,840	27,128	158,365	27,391
2024-25	177,021	32,076	188,792	34,209	200,096	36,257
2029-30	212,418	39,111	237,996	43,820	264,595	48,718
2034-35	264,492	48,699	311,828	57,414	365,189	67,239
2039-40	336,026	61,870	418,798	77,110	519,636	95,676
2044-45	390,240	71,851	519,925	95,729	689,593	126,969
2046-47	411,379	75,744	559,765	103,065	759,041	139,756

Table E1: Summary of Load Forecast (2020-47)

For the base case, the load forecast also includes the impact of electric vehicles pursuant to a target set by GoP of 30% vehicles on electricity by the year 2030 and the Prime Minister's

initiative 'Naya Pakistan Housing Scheme' (5 million houses) on the electric power demand of Pakistan.

According to normal GDP growth scenario forecast, energy generation in GWh grows at Cumulative Average Growth Rate (CAGR) of 4%, 5%, 5.6%, 6.1% and 4.6% by 2025, 2030, 2030, 2035, 2040 and 2047 respectively. Similarly, peak demand in MW grows at CAGR of 4.9%, 5.3%, 5.6%, 6.1% and 4.6% by 2025, 2030, 2030, 2035, 2040 and 2047 respectively.

FY	IMF Projected GDP		25% LM		50% LM		No LM w/ EV_NPHS		No LM wo/ EV_NPHS	
	Energy	Peak Demand	Energy	Peak Demand	Energy	Peak Demand	Energy	Peak Demand	Energy	Peak Demand
	GWh	MW	GWh	MW	GWh	MW	GWh	MW	GWh	MW
2019-20	151,051	25,930	136,959	23,689	143,586	24,835	130,335	22,543	127,520	22,056
2024-25	172,719	29,874	185,149	33,549	185,149	33,549	185,149	33,549	185,149	33,549
2029-30	214,759	37,429	237,996	43,820	237,996	43,820	237,996	43,820	237,996	43,820
2034-35	277,301	48,701	311,828	57,414	311,828	57,414	311,828	57,414	311,828	57,414
2039-40	366,188	65,316	418,798	77,110	418,798	77,110	418,798	77,110	418,798	77,110
2044-45	482,138	85,998	519,925	95,729	519,925	95,729	519,925	95,729	519,925	95,729
2046-47	534,083	95,263	559,765	103,065	559,765	103,065	559,765	103,065	559,765	103,065

Table E2: Summary of Additional Scenarios of Load Forecast (2020-47)

The least cost, long-term generation expansion plan for NTDC system for the period 2019-20 to 2046-47 is developed using state-of-the-art generation planning software - PLEXOS. The IGCEP is developed through a rigorous data modelling and optimization exercise based on the existing and future generation power plants, security constraint economic despatch, existing policy framework, existing contractual obligations, natural resource allocations and assumptions as stipulated in the Grid Code.

The base case scenario covers targets set out in the draft Alternative and Renewable Energy (ARE) Policy 2019, normal scenario of long-term forecast, hydro optimization during the study horizon, existing contractual obligations and retirements of power plants, during the planning horizon of the IGCEP, as per terms of their respective Power Purchase Agreement (PPA).

For the purpose of sensitivity analysis, twelve (12) scenarios are developed, in addition to the base case scenario, which include i) Hydro Optimization Not Horizon Bound (HPP free scenario); ii) Demand Forecast on IMF Projected GDP (IMF scenario); iii) Government of Pakistan Renewable Targets are Ignored (No VRE policy scenario); iv) Low Demand Scenario of Long-term Forecast (Low demand scenario); v) High Demand Scenario of Long-term Forecast (High demand scenario); vi) Generic Candidate CCGTs and OCGTs on Local Gas; vii) No Generic Candidate CCGT and OCGT; viii) Normal Demand Scenario with Inclusion of 25% of Total Load Management; ix) Normal Demand Scenario with Inclusion of 50% of Total Load Management; x) Normal Demand scenario excluding Load Management ; xi) Normal Demand Scenario excluding Load Management, EVs & NPHS; and xii) Jamshoro CFPP (Unit-II) as candidate power plant. In all the scenarios, 11,511 MW of power generation capacity has been considered to retire by 2047.

In order to cater to the software pre-requisites, hourly demand forecast is developed especially to cater for the intermittency of variable renewable energy resources such as wind and solar. This is particularly important in view of the aggressive targets pertaining to renewable energy envisioned by the Government of Pakistan. Hence, the energy and peak demand forecast of 245,280 hours have been estimated form the fiscal year (FY) 2020 to FY 2047.

The generation capacity expansion results are divided into two horizon periods i.e. i) 2020-30 to comply with regulatory obligations pursuant to the Grid Code, ii) 2031-47 to give a future energy outlook till 2047 in line with the GoP's initiative 'Pakistan @100'. Figure E1 shows the summary of the simulation results of base case scenario.

The base case result shows that to meet a demand of 43,820 MW by the year 2030, a generation capacity of 76,391 MW is required. It is to highlight that to meet the demand by the year 2030 the share from variable renewable energy (VRE) resources i.e. 10,327 MW of Wind and 12,793 MW of Solar, respectively. In order to mitigate the intermittency of VRE and ensure substantial reserve provisioning, 4,868 MW of Open Cycle Gas Turbines (OCGTs) on Re-gasified Liquefied Natural Gas (RLNG) along with 6,055 MW of Steam Turbine (STs) on Thar coal and 20,737 MW of hydro are optimized by the optimization model. Consequently, salient features of this plan include i) aggressive inclusion of VREs; ii) Minimal reliance on imported fuels i.e. coal and Residual Furnace Oil (RFO) based technologies; and iii) increased share of hydropower as well as local coal. Inclusion of VREs, hydro and Thar coal will help in lowering the basket price of the overall system thus providing much needed relief, though in the long run, to the end consumers.

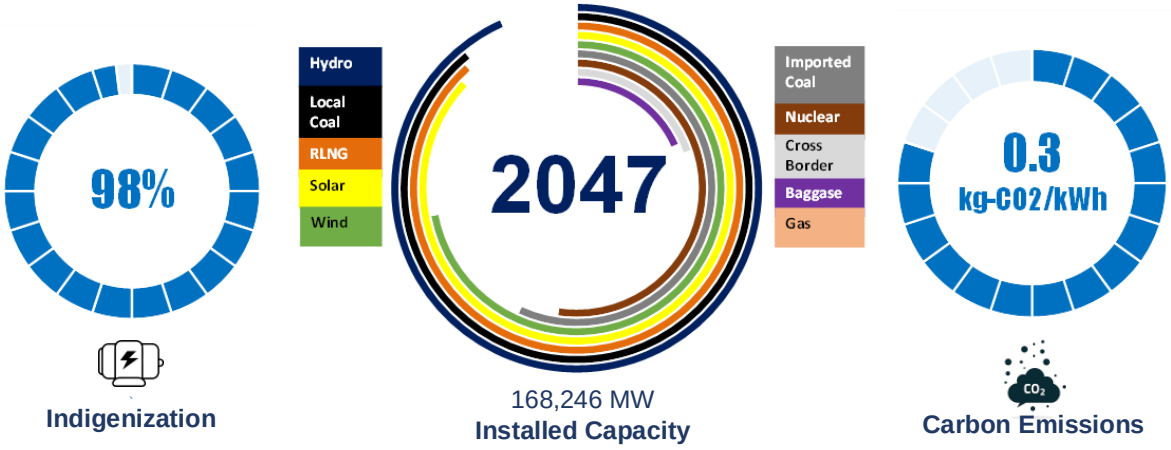


Figure E1: Summary of Results of Base Case Scenario

Similarly, in order to meet the demand of 103,065 MW by the year 2047, a total of 168,246 MW of nominal generation capacity is required. Amongst this, 32,948 MW of STs on Thar coal, 4,749 MW of CCGTs and 25,828 MW of OCGTs on RLNG, 55,836 MW of hydro, 1,000 MW of CASA, 913 MW of bagasse, 4,407 MW of nuclear, 5,297 MW of imported coal, 26,921 MW of solar and 10,327 MW of wind-based generation have been made available by the software. A total of 97,080 MW of nominal generation capacity has been optimized by the software during the period 2031-47.

The results presented in the report show a shift in the energy mix (GWh) from imported fuel to indigenous coal, renewables and a dominating share of hydropower. Year 2047 shows a major contribution from indigenous coal and hydropower plants i.e. 36% of local coal and almost

42% share of hydropower in the energy mix. There is minimal reliance on the imported fuel with RFO having no contribution at all. Imported coal is contributing just 1% in the total energy requirements. By the end of 2047 renewable accounts for the 15% of the overall energy mix.

In FY 2019-20, the self-sufficient ratio of primary energy i.e. the contribution of energy generation by indigenous power sources is 51.6%, where, as per base case scenario, indigenization of energy generation reaches to 98.4% by 2047 which indicates higher energy security in the country.

Similarly, the IGCEP also addresses the impact of carbon emissions due to addition of power generation in future. Carbon emissions in the country by power generation accounts for 0.406 kg-CO_2/kWh in FY 2019-20 and this indicator reduces to 0.32 kg-CO_2/kWh by FY 2046-47 which is even less than average of OECD countries. The value of the carbon emission indicator for Pakistan as per IGCEP 2047 is smaller than world average (.52) and non-OECD countries (.60).

It is evident from the results of the base case simulation that during the coming five years, the contribution of gas fired power plants in the generation mix (GWh) will decrease from 14% to mere 2%. Similarly, with the induction of new local coal based committed power plants in Thar, during the next 5 years, share of local coal in the generation mix will enhance to 19%; due to the lower fuel cost, more candidate local coal plants are being optimized. Tables E3, E4, E7 and E8 Show the nominal capacity (MW) by 2030 and by 2047 of all scenarios respectively.

The RLNG based plants, though installed and available are envisaged to have a decreasing share in the energy mix from 2020 to 2047 i.e. from 26% to 11% in 2025 and then eventually falling to merely 1% beyond 2034. Similar trend is there for imported coal-based plants whose contribution in the overall generation mix falls from 18% in 2020 to only 1% by the year 2047. Moreover, the share of wind and solar in the overall energy mix increases from about 3% in 2020 to 23% in 2030. Beyond 2030, share of solar and wind plants decreases due to the increase in the number of new local coal-based plants having greater capacity factors. Tables E5, E6, E9 and E10 show the energy generation (GWh) by 2030 and 2047 for all scenarios respectively.

It is assessed that due to higher construction cost of many hydropower plants, few hydropower plants are optimized by PLEXOS in the early years of plan horizon. This is why the contribution of local coal, in the overall energy mix, increases from 3% in 2020 to 13% by the year FY 2030.

The overall generation capacity in the system increases from 33,000+ MW in 2020 to around 168,200 MW in 2047. Major increase in the capacity is observed in the hydropower, local coal, VRE and RLNG based plants. New VRE plants are suggested by PLEXOS being cheaper source of energy. This results in the capacity addition of around 35,762 MW of solar and wind up till 2047. Moreover, the results also show the capacity of 45,929 MW hydropower, 1,562 MW imported coal, 32,345 MW local coal, 27,071 MW RLNG, 3,177 MW nuclear energy and 654 MW bagasse power plants are selected by the software. Chart E1 is showing the installed capacity of Base Scenario by 2047 followed by Chart E2 and Chart E3 showing the remaining 12 scenarios. It is pertinent to note that there is an increasing trend in the installed capacity of the RLNG based plants whereas the RLNG's share in the energy mix is reducing, and

eventually falls to only 1% in 2047. This increase in the installed capacity of RLNG based plants is thus to cater to the intermittencies of solar and wind power plants.

In addition to the base case, multiple scenarios have been developed. The comparison of the results shows that the base case, simulated using low demand forecast, has an increased share of hydro and a reduced share of local coal, in the total available capacity, by the year 2047, as compared with the same case of normal demand. The percentage share of the rest of the fuels is almost the same; for the low demand, hydro displaces the local coal. The pattern has certainly been reversed in the case of high demand forecast, where local coal is displacing hydro while the rest remains the same. For a high demand forecast scenario, local coal is set to contribute almost 50% energy in 2047 while hydro stands at 31%. For all three scenarios, rest of the technologies show somehow similar contribution in overall generation mix except for wind and solar i.e. contributing 5% and 7%, respectively.

Category	Base	HPP free	IMF Projected GDP	No VRE Policy	Low Demand	High Demand
	Nominal Capacity (MW) by 2030					
Imported Coal	5,297	5,297	5,297	5,297	5,297	5,297
Local Coal	6,055	6,055	4,751	7,943	3,934	7,346
RLNG	10,882	10,882	9,632	11,952	7,238	14,610
Gas	1,504	1,504	1,504	1,504	1,484	1,504
Nuclear	4,407	4,407	4,407	4,407	4,407	4,407
Bagasse	913	913	913	913	913	913
Solar	12,793	12,793	12,793	11,276	12,793	12,793
HPP	20,737	20,737	20,737	20,667	20,622	21,547
Cross Border	1,000	1,000	1,000	1,000	1,000	1,000
Wind	10,327	10,327	9,233	3,495	7,799	12,825
RFO	2,475	2,475	2,475	2,475	2,475	2,475
Total (MW)	**76,391**	**76,391**	**72,743**	**70,929**	**67,962**	**84,717**

Table E3: Summary of Nominal Capacity (MW) of Scenarios by 2030 – I

Category	CCGT/ OCGT on Gas	No new CCGT/ OCGT	Inclusion of 25% Load Manage-ment	Inclusion of 50% Load Manage-ment	Excluding Load Management	Excluding Load Management, EV & NPHS
	Nominal Capacity (MW) by 2030					
Imported Coal	5,297	5,297	5,297	5,297	5,297	5,297
Local Coal	6,055	9,611	4,574	4,826	4,541	4,541
RLNG	6,014	6,014	11,711	11,459	11,744	9,336
Gas	6,372	1,759	1,504	1,504	1,504	1,504
Nuclear	4,407	4,407	4,407	4,407	4,407	4,407
Bagasse	913	913	913	913	913	913

Category	CCGT/ OCGT on Gas	No new CCGT/ OCGT	Inclusion of 25% Load Manage-ment	Inclusion of 50% Load Manage-ment	Excluding Load Management	Excluding Load Management, EV & NPHS
	Nominal Capacity (MW) by 2030					
Solar	12,793	12,793	12,79-3	12,793	12,793	12,793
HPP	20,737	21,821	21,403	21,403	21,403	20,734
Cross Border	1,000	1,000	1,000	1,000	1,000	1,000
Wind	10,327	10,339	10,333	10,333	10,333	9,015
RFO	2,475	2,475	2,475	2,475	2,475	2,475
Total (MW)	**76,391**	**76,429**	**76,411**	**76,411**	**76,411**	**72,015**

Table E4: Summary of Nominal Capacity (MW) of Scenarios by 2030 – II

Category	Base	HPP free	IMF Projected GDP	No VRE Policy	Low Demand	High Demand
	Energy Generation (GWh) by 2030					
Imported Coal	6,557	6,557	6,594	6,459	5,149	9,439
Local Coal	31,927	31,927	23,719	55,616	15,568	44,063
RLNG	21,128	21,128	20,998	20,740	20,683	21,811
Gas	682	682	618	552	404	1,086
Nuclear	30,221	30,222	30,214	30,356	30,248	30,204
Bagasse	4,068	4,068	4,034	4,279	3,967	4,078
Solar	21,073	21,073	21,103	18,660	21,120	21,127
HPP	86,759	86,760	86,702	87,612	85,994	89,627
Cross Border	1,987	1,986	2,047	2,460	1,969	1,853
Wind	33,537	33,537	30,222	11,224	25,873	41,227
RFO	58	58	55	39	25	80
Total (MW)	**237,996**	**237,996**	**226,307**	**237,996**	**211,000**	**264,595**

Table E5: Summary of Energy Generation (GWh) of Scenarios by 2030 – I

Category	CCGT/ OCGT on Local Gas	No new CCGT/ OCGT	Inclusion of 25% Load Management	Inclusion of 50% Load Management	Excluding Load Management	Excluding Load Management EV & NPHS
	Energy Generation (GWh) by 2030					
Imported Coal	6,318	1,801	9,340	8,704	9,424	6,501
Local Coal	31,970	33,898	25,965	26,810	25,853	22,255
RLNG	20,498	20,467	21,415	21,318	21,427	20,957
Gas	1,542	61	893	816	904	605
Nuclear	30,226	30,201	30,214	30,225	30,229	30,229

Category	CCGT/ OCGT on Local Gas	No new CCGT/ OCGT	Inclusion of 25% Load Management	Inclusion of 50% Load Management	Excluding Load Management	Excluding Load Management EV & NPHS
	Energy Generation (GWh) by 2030					
Bagasse	4,068	4,029	4,032	4,035	4,031	4,031
Solar	21,074	21,048	21,135	21,154	21,128	21,098
HPP	86,774	90,714	89,077	89,076	89,129	86,549
Cross Border	1,990	2,055	2,009	2,036	2,004	2,016
Wind	33,537	33,722	33,853	33,760	33,802	29,682
RFO	0	0	65	63	66	53
Total (MW)	**237,996**	**237,996**	**237,996**	**237,996**	**237,996**	**223,977**

Table E6: Summary of Energy Generation (GWh) of Scenarios by 2030 -II

Category	Base	HPP free	IMF Projected GDP	No VRE Policy	Low Demand	High Demand
	Installed Capacity (MW) by 2047					
Imported Coal	5,297	5,297	5,297	5,297	5,297	5,297
Local Coal	32,948	50,707	27,649	34,500	19,175	57,516
RLNG	30,577	43,649	26,322	31,112	20,408	53,958
Gas	20	20	20	20	0	20
Nuclear	4,407	4,407	4,407	4,407	4,407	4,407
Bagasse	913	913	913	913	913	913
Solar	26,921	24,191	24,953	28,103	18,206	31,492
HPP	55,836	25,051	55,836	55,836	55,836	55,836
Cross Border	1,000	1,000	1,000	1,000	1,000	1,000
Wind	10,327	10,327	9,233	3,495	7,799	12,825
RFO	0	0	0	0	0	0
Total (MW)	**168,246**	**165,561**	**155,630**	**164,683**	**133,041**	**223,264**

Table E7: Summary of Nominal Capacity (MW) of Scenarios by 2047 - I

Category	CCGT/ OCGT on Local Gas	No new CCGT/ OCGT	Inclusion of 25% Load Management	Inclusion of 50% Load Management	Excluding Load Manage-ment	Excluding Load Management, EV & NPHS
	Nominal Capacity (MW) by 2047					
Imported Coal	5,297	5,297	5,297	5,297	5,297	5,297
Local Coal	31,067	55,462	33,193	32,575	32,365	31,648
RLNG	4,749	4,749	31,500	30,983	30,733	29,754
Gas	26,899	275	20	20	20	20

Category	CCGT/ OCGT on Local Gas	No new CCGT/ OCGT	Inclusion of 25% Load Management	Inclusion of 50% Load Management	Excluding Load Manage-ment	Excluding Load Management, EV & NPHS
	Nominal Capacity (MW) by 2047					
Nuclear	4,407	4,407	4,407	4,407	4,407	4,407
Bagasse	913	913	913	913	913	913
Solar	29,711	37,263	22,986	26,802	28,349	23,786
HPP	55,836	55,836	55,836	55,836	55,836	55,836
Cross Border	1,000	1,000	1,000	1,000	1,000	1,000
Wind	10,327	10,339	10,333	10,333	10,333	9,015
RFO	0	0	0	0	0	0
Total (MW)	**170,207**	**175,541**	**165,485**	**168,166**	**169,253**	**161,675**

Table E8: Summary of Nominal Capacity (MW) of Scenarios by 2047 - II

Category	Base	HPP free	IMF Projected GDP	No VRE Policy	Low Demand	High Demand
	Energy Generation (GWh) by 2047					
Imported Coal	6,964	6,397	9,274	7,517	3,032	5,964
Local Coal	199,715	327,053	162,651	219,569	86,568	381,161
RLNG	2,212	4,676	2,067	2,105	91	5,192
Gas	11	24	12	12	0	13
Nuclear	30,298	30,266	30,297	30,301	30,297	30,309
Bagasse	4,246	4,279	4,190	4,279	3,286	4,279
Solar	44,551	40,033	41,294	46,508	30,129	52,116
HPP	234,805	110,417	234,532	235,102	227,518	235,047
Cross Border	2,853	2,508	2,913	3,148	3,058	2,950
Wind	34,112	34,112	30,630	11,224	25,986	42,013
RFO	0	0	0	0	0	0
Total (MW)	**559,765**	**559,765**	**517,860**	**559,765**	**409,965**	**759,041**

Table E9: Summary of Energy Generation (GWh) of Scenarios by 2047 – I

Category	CCGT/ OCGT on Local Gas	No new CCGT/ OCGT	Inclusion of 25% Load Manage-ment	Inclusion of 50% Load Manageme nt	Excluding Load Management	Excluding Load Management EV & NPHS
	Energy Generation (GWh) by 2047					
Imported Coal	10,076	0	8,375	7,884	7,695	8,412
Local Coal	190,916	101,892	204,441	198,534	196,118	193,610
RLNG	0	0	2,261	2,478	2,546	2,067
Gas	3,394	1	11	12	13	11
Nuclear	30,301	29,819	30,297	30,299	30,297	30,303
Bagasse	4,246	3,249	4,256	4,256	4,256	4,256
Solar	49,170	58,449	38,040	44,355	46,915	39,364
HPP	234,698	332,530	234,809	234,781	234,824	234,933
Cross Border	2,853	1,346	2,981	2,900	2,805	2,918
Wind	34,112	32,481	34,293	34,266	34,297	29,902
RFO	0	0	0	0	0	0
Total (MW)	**559,765**	**559,765**	**559,765**	**559,765**	**559,765**	**545,775**

Table E10: Summary of Energy Generation (GWh) of Scenarios by 2047 - II

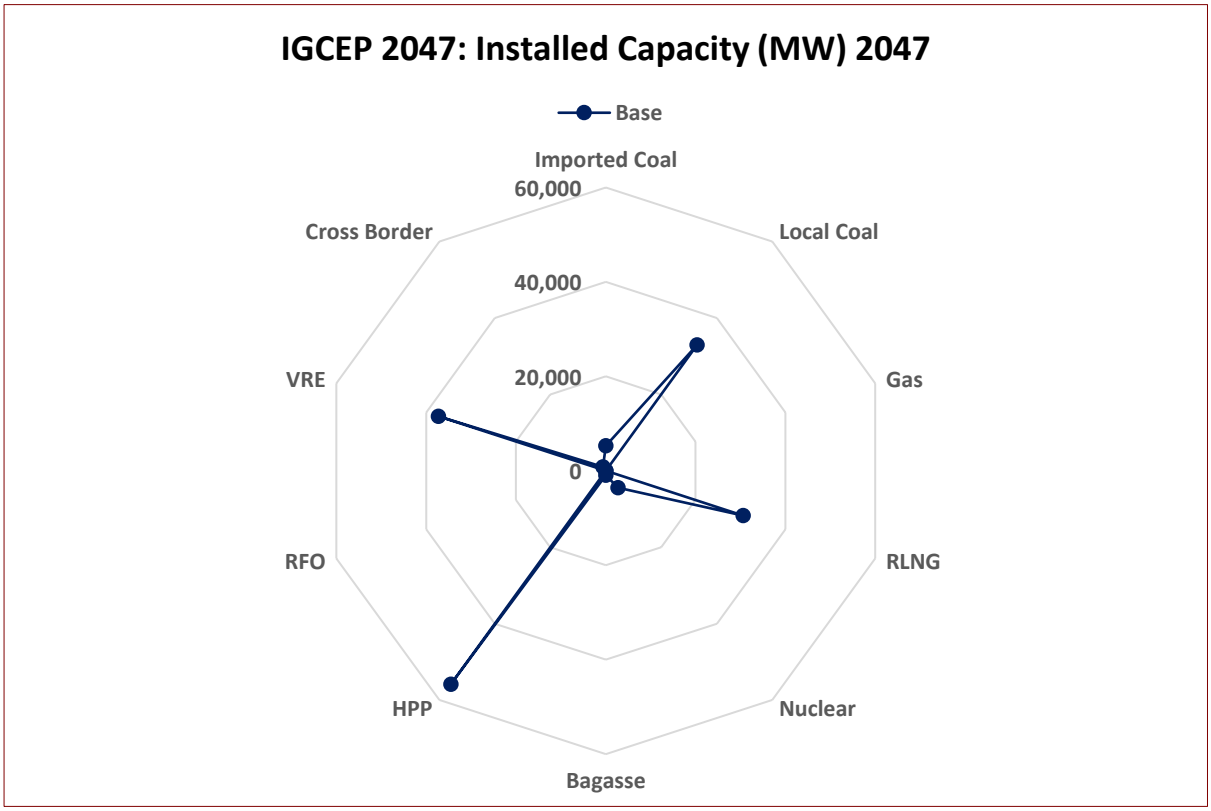


Chart E1: Radar Chart of Installed Capacity (MW) Base Scenario by 2047

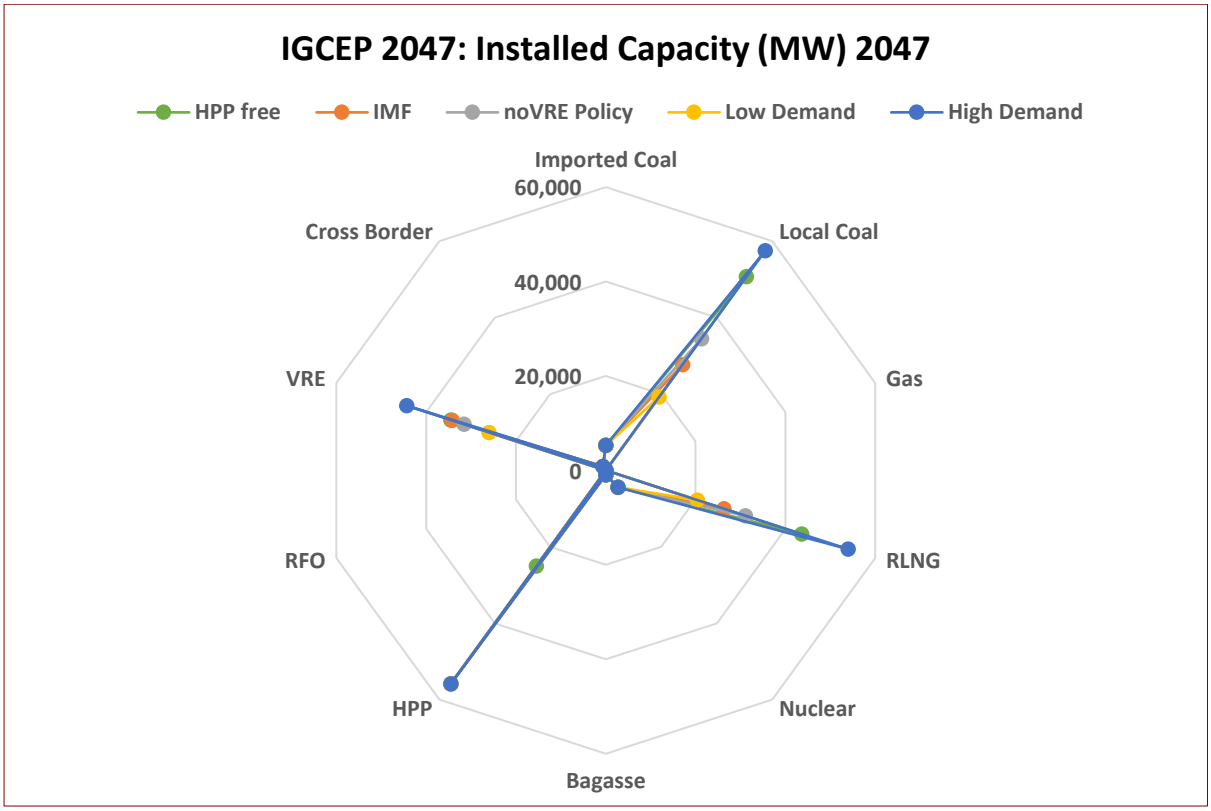


Chart E2: Radar Chart of Installed Capacity (MW) of all Scenarios by 2047 -I

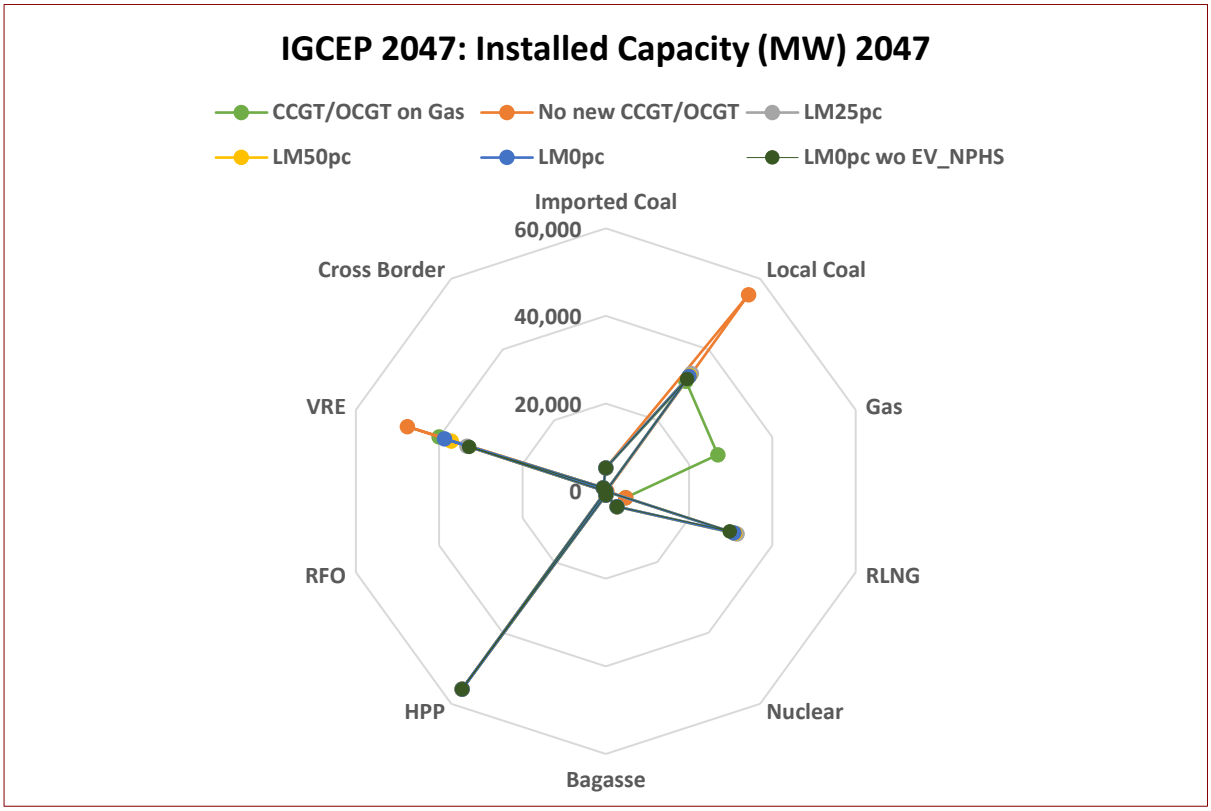


Chart E3: Radar Chart of Installed Capacity (MW) of all Scenarios by 2047 -II

PLEXOS also computes Net Present Value (NPV) of the power generation operations and investments of existing and future power plants by 2047 based on the objective function for the optimization exercise. Table E11 shows the total NPV required to manage generation infrastructure construction, operations and maintenance by 2047 separately for all scenarios.

The base case scenario indicates 69.8 billion US $ NPV investment requirements both in terms of CAPEX and OPEX of electric power generation.

Sr. #	PLEXOS Scenario	Total Investment Cost NPV (Billion US $)
1.	Base Case	69.8
2.	HPP Free	69.5
3.	IMF Scenario	65.1
4.	No VRE Policy	68.1
5.	Low Demand	58.3
6.	High Demand	83.0
7.	CCGT and OCGT on Gas	69.9
8.	No new CCGT and OCGT	69.9
9.	Inclusion of 25% of Total Load Management	65.8
10.	Inclusion of 50% of Total Load Management	66.9
11.	Excluding Load Management	64.8
12.	Excluding Load Management, EV & NPHS	59.9
13.	Jamshoro Coal Unit 2 as Candidate Plant	70.2

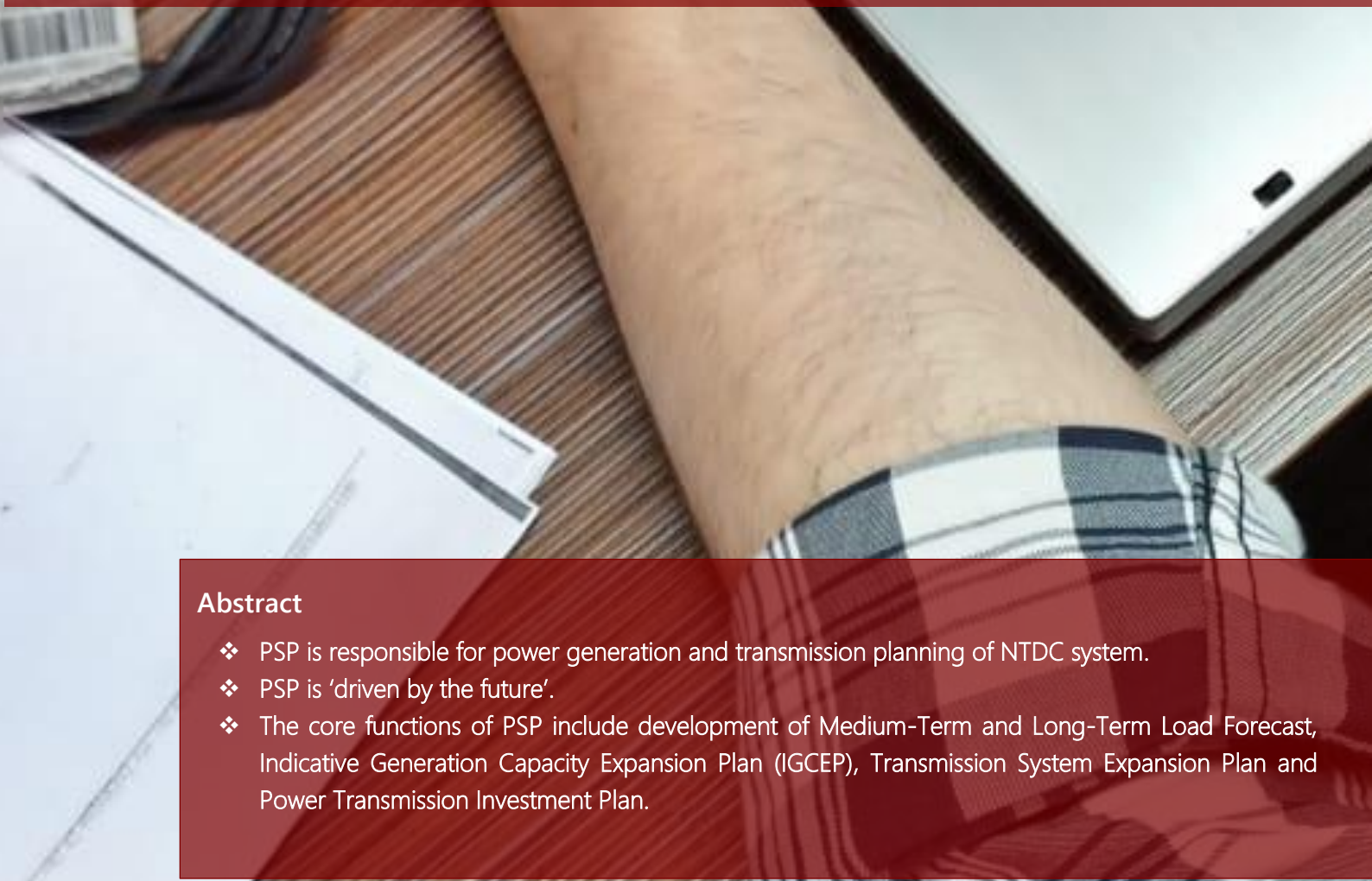
Table E11: Summary of Total Generation Cost Comparison of all Scenarios in billion US $

The generation planning exercise demands extensive data i.e. both validated and verified. Strenuous efforts are needed to streamline access to data for future exercises pertaining to forecasting and generation capacity expansion and despatch optimization. In addition to access to the available data, provision of certain key targets is essential for updating of the IGCEP that includes demand side management, net-metering, distributed generation etc.

The IGCEP 2047 also facilitates a food for thought through ‘The Way Forward’ with respect to structural changes in the power sector planning process with enhanced role of distributed generation and reduction in the large plants distant from the load centers. Further, indigenization of RE technologies through local manufacturing is also suggested to lower the basket price and thus providing a relief to the end consumer as well as saving precious foreign exchange while maximizing the nature’s endowment bestowed upon Pakistan.

The Annexures present the detailed results of all the scenarios and sensitivity studies conducted.

1. Power System Planning Gateway to NTDC



Abstract

- PSP is responsible for power generation and transmission planning of NTDC system.
- PSP is 'driven by the future'.
- The core functions of PSP include development of Medium-Term and Long-Term Load Forecast, Indicative Generation Capacity Expansion Plan (IGCEP), Transmission System Expansion Plan and Power Transmission Investment Plan.

1. Power System Planning – Gateway to NTDC

Pursuant to the NTDC Transmission License and Grid Code, NTDC is responsible for power system planning of the whole country. PSP is the gateway to NTDC and is mandated to undertake power system planning of the whole country except for Karachi which is being governed by K-Electric for all facets of the power system i.e. generation, transmission and distribution.

Vision

PSP as the spearhead component of NTDC is equipped with all it takes to confront the challenges pertaining to Pakistan power system planning; be it intellect, procedures and processes, and tools.

Mission

PSP endeavors becoming and sustaining a visionary and smart department of NTDC that offers optimized solutions at the most competitive cost through a highly upbeat and competent human resource equipped with modern tools, formalized systems and above all the performing culture aiming to achieve the objectives of NTDC in the most competitive, efficient and timely manner.

Strategic Goal

PSP to contribute proactively in the efforts for NTDC to be acknowledged as a trusted, professional and efficient power transmission utility owing to its competent and committed work force, internationally accepted working procedures, and excellent performance standards.

Approach

PSP believes in participatory approach: *seek commitment through involvement at all levels.*

Slogan

Driven by the future

Core Responsibility

PSP is primarily responsible for development of power transmission investment plan that encompasses demand forecast; generation expansion plan; transmission development plan; and the consolidated NTDC Investment Plan.

A Snapshot of Major Functions

Following are the core functions of the PSP mandated to manage power system planning of the NTDC network:

a. Development of Medium-Term and Long-Term Load Forecast and Indicative Generation Capacity Expansion Plan (IGCEP)

b. Preparation of Transmission System Expansion Plan

c. Development of Power Transmission Investment Plan

Major Challenges

a. Rapidly increasing load growth and corresponding size of the grid vis-à-vis Government policies to restrict public sector investment in the power sector

b. Optimal quantum of renewable energy in the national energy mix owing to various factors such as i) intermittent nature of renewable energy; ii) lack of a robust electricity grid; iii) extreme local temperature in the wind corridor; iv) Harmonic distortion due to the presence of inverters in the generation mechanism of solar power plants and the newer technology wind power plants; and v) lack of reliable weather forecast effecting efficient despatch

c. Brain drain, a tough challenge for the PSP for around three decades or so i.e. migration of professionals to other departments, companies and / or oversees for better opportunities, has adversely affected the intellectual strength of the PSP.

PSP Organogram

PSP is comprised of three different sections, each one is headed by a Chief Engineer, which include i) Load Forecast and Generation Planning, ii) Transmission Planning and iii) Resource Planning. Figure 1-1 provides the broad organogram of the PSP:

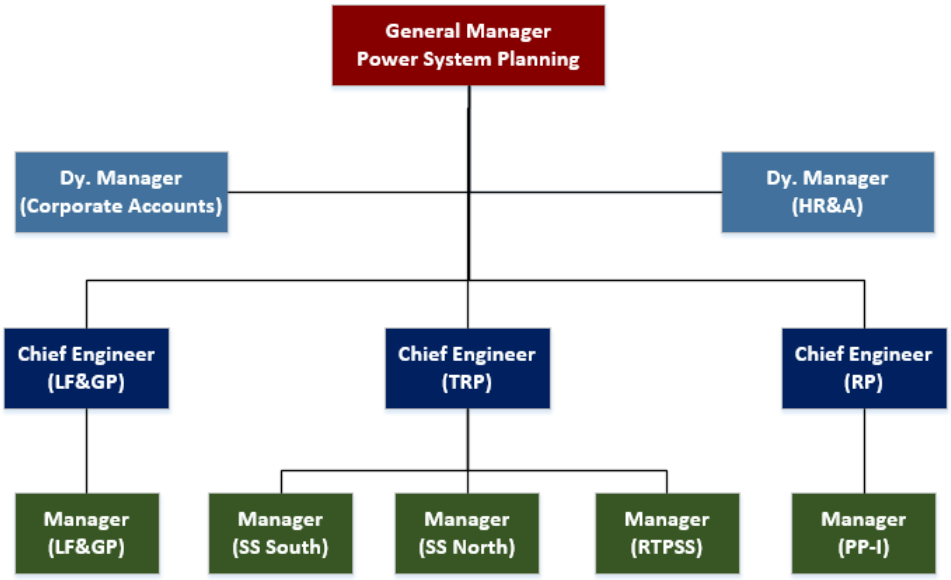


Figure 1-1: Organogram of the Power System Planning, NTDC

PSP Key Performance Indicators (KPI)

Following are the six KPIs to evaluate its success at reaching targets in the most optimal manner:

a. Regulatory Compliance

Regulatory obligations / submissions are managed in the most comprehensive and timely manner.

b. Relevance

Right person for the right job including task assignment, nominations for the trainings and meeting attendance.

c. Coherence

All three sections (Load Forecast and Generation Planning, Transmission Planning and Resource Planning) coordinating with each other in true sense for integrated planning.

d. Quality and Effectiveness

Performance excellence at par with the local market and best utility practices.

e. Sustainability

Impact of previous investments and efforts are reflected in the knowledge creation and outcome in an optimal manner.

f. Participation

Following participatory approach by involving all stakeholders including internal and external, where applicable.

2. Setting the Perspective

Abstract

- IGCEP 2047 is prepared under obligation provided in the NEPRA Grid Code.
- IGCEP identifies new generation requirements by capacity and by fuel, satisfies LOLP, caters for long term load forecast and reserve requirements, and provides a least cost optimal generation expansion plan for development of new generation sources.
- The horizon of IGCEP 2047 is 28 years (2020-2047) and it is prepared under initiative 'Pakistan 100'.
- IGCEP covers whole country except Karachi i.e. K-Electric. It includes 650 MW export to K-Electric from NTDC till 2022, and 1,150 MW onwards till 2047.

2. Setting the Perspective

2.1. Generation Planning – A Subset of Power System Planning

Power system planning is an important subset of the integrated energy planning. Its objective is, therefore, to determine a minimum cost strategy for long-range expansion of the power generation, transmission and distribution systems adequate to supply the load forecast within a set of prevailing technical, economic and political constraints.

Predominantly, power system planning is related to generation expansion planning; it is due to the fact that investment in transmission system is relatively a small fraction of the investment corresponding to the construction of power stations.

Generation expansion planning concerns decisions for investment pertaining to development of different types of power plants over a multi-decade horizon, in case of the IGCEP 2047 it remains 28 years, under various uncertainties. The goal of this study is to improve decision-making under different long-term uncertainties while assuring a robust generation expansion plan with low cost and risk over all the possible future scenarios.

As depicted in the Figure 2-1, generation planning is at the heart of planning cycle. In an idealistic scenario, the Integrated Energy Plan (IEP), a mandate of Ministry of Planning, Development and Reforms is meant to provide the fuel mix targets for all sectors of the economy including the power sector and such targets are adopted under the electricity policy. The IGCEP is prepared to ensure its maximum contribution in energy security, sustainability and affordability while considering policy inputs and broader macroeconomic perspectives. Under Section 32 of NEPRA Act, such integration should be ensured that brings the full dividends of the integrated planning.

However, in absence of the natural resource allocation targets for power generation, the IGCEP optimizes the generation costs to ensure that adequate generation is added at least-cost to meet the load of the future with its given load shape, which also brings tremendous benefits over back of the envelop based plans, leading to higher costs, shortages or surpluses.

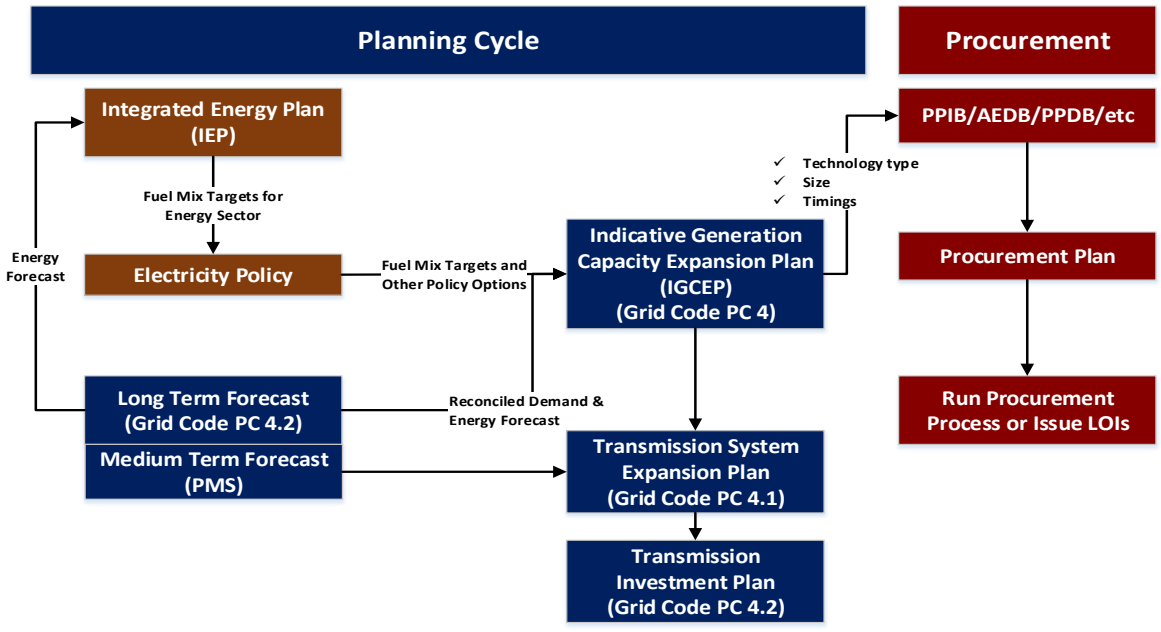


Figure 2-1: Planning Cycle Leading to Procurement

2.2. Preamble

Looking back at the relevant previous milestones, following four (04) major generation expansion plans have been formulated by the then WAPDA and now NTDC with the assistance of foreign consultants coupled with in-house efforts:

a. National Power Plan (NPP 1994-2018) developed by Canadian Consultant, M/s ACRES International Limited;
b. National Power System Expansion Plan (NPSEP 2011-2030) developed by Canadian Consultant, M/s SNC Lavalin;
c. Least Cost Plan (LCP 2016-2035) developed by Japanese Consultant, M/s International Institute of Electric Power, Ltd. (IIEP); and
d. Indicative Generation Capacity Expansion Plan (IGCEP 2040)

In order to ensure regulatory compliance pursuant to the Grid Code, and sustain it on annual basis, NTDC in collaboration with CPPA, formulated the IGCEP 2040 and submitted to the Authority in February 2019. However, the Authority asked NTDC to incorporate certain comments and suggestions and update the IGCEP using modern generation planning software.

In order to further the efforts, this year NTDC has formulated IGCEP 2047 using state of the art generation planning tool i.e. PLEXOS by considering all the existing as well as firm future power plants and candidate power plants.

2.3. Introduction

In view of its rapidly increasing dependence for enhanced access thereof, electricity is today recognized as the most critical pre-requisite for improving the lives of people of a country and Pakistan is not an exception. Therefore, certain electricity indices such as per capita consumption of electricity and access to electricity are used to express the economic strength of a country. Electricity is a unique kind of commodity since it is economically not viable to store its large quantum and it has to be consumed instantaneously. Further, certain ground realities such as seasonal variations, consumers' varying choices make the demand forecast process quite difficult. On the other hand, insufficient as well as surplus generation capacity adversely affects the economy. Careful planning of the power sector is, therefore, quite complex while carrying great importance since the decisions to be taken involve the commitment of large resources, with potentially serious economic risks for the electrical utility and the economy as a whole.

The function of an electric power system is to provide and sustain a 24/7 reliable and continuous source of electricity. In order to make it happen, each of the three main components of an electric power system — generation, transmission and distribution - must perform in the most optimal manner. The generation system consists of physical facilities that convert energy resources e.g. coal, oil, uranium, hydro, renewable, etc. into electricity. The transmission system then transports the generated electricity to the load centers. The distribution system ultimately provides the actual connection to each customer, and enables the customer to consume electricity upon demand. An electric power system is thus a dynamic system, which is a balance of supply and demand of electricity.

The power sector of Pakistan during the last few years has displayed resolute efforts to get rid of the menace of load shedding which had adversely affected entire socio-economic balance of the country. From being in state of scarcity in achieving the demand-supply balance, moving forward, it now has become essential to prepare and implement integrated plans in timely manner across the entire value chain of the electricity sector aiming to sustain the generation adequacy besides ensuring the affordability of electricity prices.

The integrated power planning calls for a well-coordinated planning not only within the electricity sector but also its integration with overall energy planning at the country level. In Pakistan, the generation capacity additions in past five to seven years have been remarkable. However, planning remained fragmented all-across the energy value chain of which electricity is a subset. The sector recognizes the importance of integrated planning as it will not only enhance investor's confidence by basing investments' decisions on transparent and predictable planning process but will also be a key factor in ensuring affordable and secure supply for the sector.

The best utility practices pertaining to planning methodologies are there for all the three main components of a power system, and each one is in itself a major field of study. Least cost generation planning is one of the important elements of overall integrated planning of electricity sector. Therefore, and further in compliance to NERPA's approved Grid Code clause PC-4 (Forecasts and Generation Expansion Plan) and PC-4.1 (Generation Capacity Additions), this long-term least cost generation plan or Indicative Generation Capacity Expansion Plan (IGCEP) is prepared for review and approval by NEPRA, the Regulator.

The IGCEP is prepared based on long-term electricity demand forecast prepared by NTDC, updated generation commitment schedule and other parameters updated as of 31st December 2019.

Figure 2-2: The IGCEP Objectives

2.4. Objectives of the IGCEP

The IGCEP is envisioned to meet the following objectives, as highlighted in the Figure 2-2:

a. **Identify** new generation requirements by capacity, fuel technology and commissioning dates on year-by-year basis;

b. **Satisfy** the Loss of Load Probability (LOLP) not more than 1% year to year, as initially set under the Grid Code: PC - 4.1;
c. **Cater** for the long-term load growth forecast and reserve requirements pursuant to the Grid Code; and
d. **Provide** a least cost optimal generation expansion plan for development of hydroelectric, thermal, nuclear and renewable energy resources to meet the expected load demand up to the year 2047

2.5 Initiative Pakistan @100 and IGCEP 2047

Government of Pakistan has launched an initiative Pakistan @100; under this initiative, it has been decided to prepare all the long-term plan up to 2047 to mark the 100th anniversary of Pakistan. IGCEP 2047 has thus been prepared under the initiative Pakistan @100. It is envisaged that IGCEP 2047 would contribute significantly towards building the real Pakistan through addition of new generation capacities in the most optimal manner.

2.6. Scope and Planning Horizon

The IGCEP covers the whole country except Karachi. K-Electric, a vertically integrated power utility, managing all three key stages – generation, transmission and distribution – of producing and delivering electrical energy to consumers within the geographical jurisdiction of the city of Karachi. However, the IGCEP 2047 includes a fixed export of 650 MW from NTDC system to K-Electric by the year 2022 and 1,150 MW onwards, till the end of study horizon. The planning horizon of the IGCEP is from the year 2020 to 2047.

Aiming at collecting and presenting country level information with respect to long-term demand forecast and generation optimization, NTDC has undertaken to model the K-Electric system using PLEXOS as an independent system. K-Electric has provided the relevant data and the results of long-term demand forecast and generation optimization will be finalized and shared shortly by NTDC.

2.7. Nature of the IGCEP

Overall purpose of the IGCEP is the fulfillment of outlines, actions, and strategies as stipulated in the relevant policies of Government of Pakistan, latest generation technologies, constraints and relevant regulatory obligations. The focus of this plan is to identify generation additions, by capacity and fuel type along with commissioning dates, for a certain plan period, through optimal use of all available generation resources. The system's optimum expansion is determined by the IGCEP considering various limitations and factors such as governmental policies, investment costs, operation costs, contractual obligations, fuels, reserve requirements, maintenance allowance, etc. For this purpose, state-of-the-art generation planning tool i.e. PLEXOS has been used to elaborate projected electric power demand 2020-47 and various other characteristics such as hydrology of existing and future hydro power projects, fuel costs estimations and all technical and financial data pertaining to existing and potential generation options i.e. feasible hydro power, thermal and renewables future projects potential generation options, simulation of different scenarios and optimization of all options. The IGCEP is developed as a suggested starting point for the preparation of a determinative Transmission System Expansion Plan as a part of the overall PSP process.

However, the IGCEP is meant to be considered as an indicative generation expansion plan, since it will be updated on yearly basis to account for any change in generation technologies trends, governmental policies, progress/priorities of different project execution entities and project sponsors in developing the generation facilities, etc.

2.8. Rationale for Preparation of the IGCEP

Pursuant to the provisions of the Grid Code i.e. Planning Code (PC) - 4 and PC - 4.1, NTDC is mandated for preparation of the IGCEP on annual basis for review and approval of NEPRA. This plan shall take-into account the objectives/criteria as mentioned under sub-section 1.1 above and shall be used as an input for NTDC's Transmission System Expansion Plan (TSEP) as stated in the PC 4.2. Relevant excerpts from the PC 4 of the Grid Code are as follows:

PC 4: "Each year, the NTDC shall prepare and deliver to NEPRA a Ten-Year "Indicative Generation Capacity Expansion Plan (IGCEP)" covering 0-10 Year timeframe. NTDC shall provide this IGCEP of NTDC Plan."

PC 4: "The Plan shall be subject to review and approval by NEPRA."

PC 4.1: "The NTDC Plan shall be based on a twenty-year Load Demand and Energy Forecast and shall be prepared according to a Loss of Load Probability (LOLP) methodology established under this Grid Code, and NEPRA Transmission Performance Standard Rules."

PC 4.1: "The NTDC Plan shall be submitted to NEPRA on or before April 15 for the next financial year."

The IGCEP plays a key role in the expansion of the power system. The Plan ensures that the demand in the system is adequately met by adding generation capacity on least cost basis. The plan takes long term view and therefore is indicative in nature in the long run, however, it provides a perspective to potential investors and other players in the market regarding the future demand and supply situation and the probable generation mix.

Along with serving as guiding document for procurement of power for regulated consumers, the IGCEP will also provide basis for the expansion of the transmission network. The IGCEP identifies the type of generation to be added to the system and also the location in case of hydro power plants. The IGCEP is used as one of the main inputs to the transmission along with spatial demand growth to work out the power evacuation requirements and serving the load in a reliable manner.

2.9. Report Structure

An illustration of the structure of IGCEP report through a mind map is provided for quick understanding and reference in the Figure 2-3.

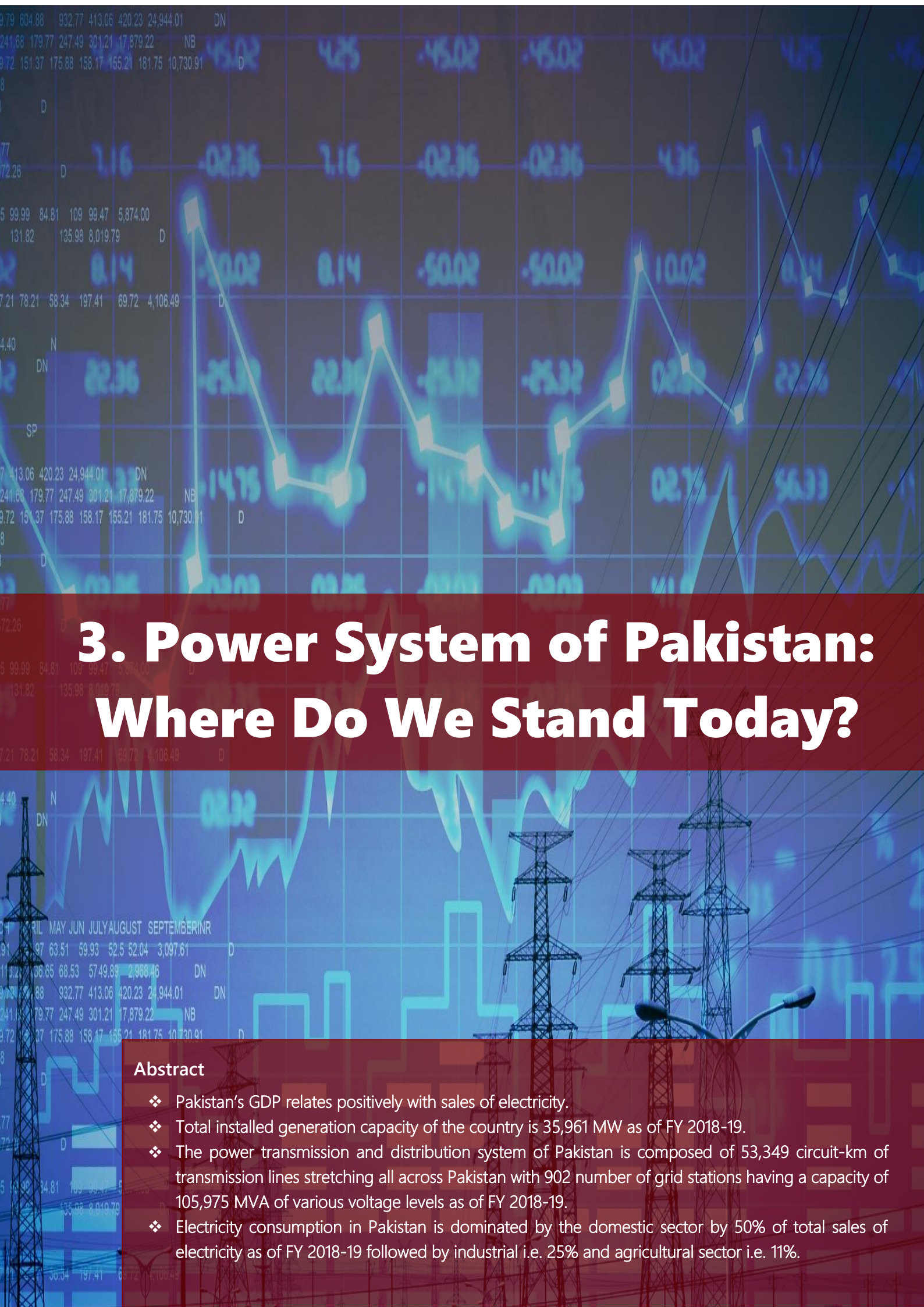
Figure 2-3: IGCEP Mind Map

2.10. Development Team

Following team members have contributed towards the preparation of the IGCEP 2047:

1. Engr. Salis Usman, General Manager, Power System Planning (Retired in March 2020)
2. Engr. Muhammad Asad Uz Zaman, Chief Engineer, Load Forecast and Generation Planning
3. Engr. Shahbaz Ahmed, Deputy Manager, Generation Planning and Optimization
4. Engr. Tauseef-Ur-Rehman Khan, Deputy Manager, Load Forecast
5. Engr. Ahmad Miraj Butt, Deputy Manager, Generation Planning and Optimization
6. Engr. Irfan Saqib, Assistant Manager, Generation Planning and Optimization
7. Mr. Shahid Abbas, Staff Economist, Power System Planning
8. Engr. Yasoon Aslam, Assistant Manager, Generation Planning and Optimization
9. Engr. Saad Mansoor Rana, Assistant Manager, Generation Planning and Optimization
10. Engr. Maham Shahzadi, Assistant Manager, Generation Planning and Optimization
11. Engr. Adeela Aslam, Assistant Manager, Generation Planning and Optimization
12. Engr. Bilal Ahmad Khan, Assistant Manager, Load Forecast

3. Power System of Pakistan: Where Do We Stand Today?



Abstract

- Pakistan's GDP relates positively with sales of electricity.
- Total installed generation capacity of the country is 35,961 MW as of FY 2018-19.
- The power transmission and distribution system of Pakistan is composed of 53,349 circuit-km of transmission lines stretching all across Pakistan with 902 number of grid stations having a capacity of 105,975 MVA of various voltage levels as of FY 2018-19.
- Electricity consumption in Pakistan is dominated by the domestic sector by 50% of total sales of electricity as of FY 2018-19 followed by industrial i.e. 25% and agricultural sector i.e. 11%.

3. Power System of Pakistan: Where Do We Stand Today?

3.1. Economics of Pakistan Power Sector

Electricity is a critical input for economic development and correspondingly power sector comprises an indispensable infrastructure in any economy. Providing adequate, reliable and affordable electric power is essential for economic development, human welfare and better living standards. The growth of economy along with its global competitiveness hinges on the availability of reliable and affordable power to all consumers throughout the country. Electricity is central to achieving economic, social and environmental objectives of sustainable human development. Development of different sectors of economy is impossible without matching development of the power sector.

As an emerging economy, country's demand for electricity is enormous and its GDP is positively related with the sale of electricity as shown in Chart 3-1. This is in concurrence with a similar trend with all developing nations where GDP and sale of electricity has a direct relationship and increased sale of electricity causes growth in GDP as opposed to the developed nations where the causal relationship between GDP and sale of electricity is either opposite than that of developing countries or the two determinants of economic growth are decoupled from each other.

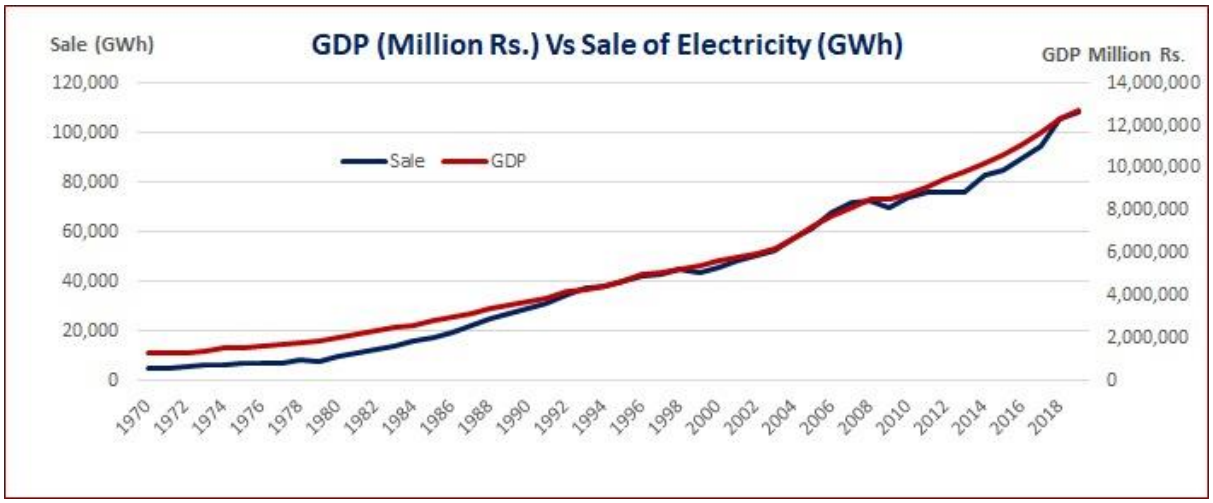


Chart 3-1: GDP (million PKR) vs Sale of Electricity (GWh)

During the fiscal year 2018-19, the country has seen 3.29% growth rate in total GDP (source: Economic Survey of Pakistan) whereas growth rates of 0.85%, 1.45% and 4.71% was observed in agriculture, industrial and commercial/services sectors, respectively.

Pakistan per capita consumption of electricity was 529 kWh in FY 2018-19 whereas India had per capita consumption of electricity of 1,181 kWh during the same period. Thus, there are a lot of opportunities to seize and gaps to be filled in the Pakistan power sector in order to serve the people of Pakistan with adequate, affordable, reliable and sustainable supply of electricity.

3.2. Power Generation

By the end of FY 2018-19, the total installed generation capacity in the country reached 35,961 MW of which 27.17% was hydro-electric plants, 63.54% was thermal plants which comprises of natural gas, local coal, imported coal, RFO and RLNG based technologies, 5.56%

renewable-based plants which includes solar, wind and bagasse based technologies, and 3.74% nuclear plants as shown in the Chart 3-2.

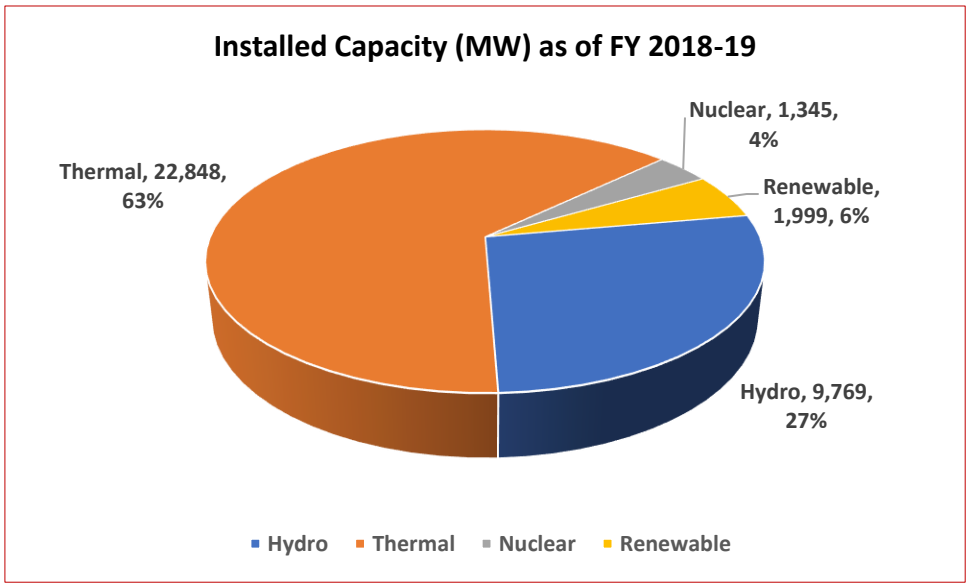


Chart 3-2: Installed Capacity as of FY 2018-19

The energy produced by power generation fleet during the fiscal year 2018-19 totaled 122,542 GWh and was contributed approximately 26.50% by hydroelectric plants, 62.24% by thermal plants which contains natural gas, local coal, imported coal, RFO and RLNG based technologies, 7.40% by nuclear plants, and 3.86% by renewable energy power plants which covers solar, wind and bagasse based technologies as shown in the Chart 3-3.

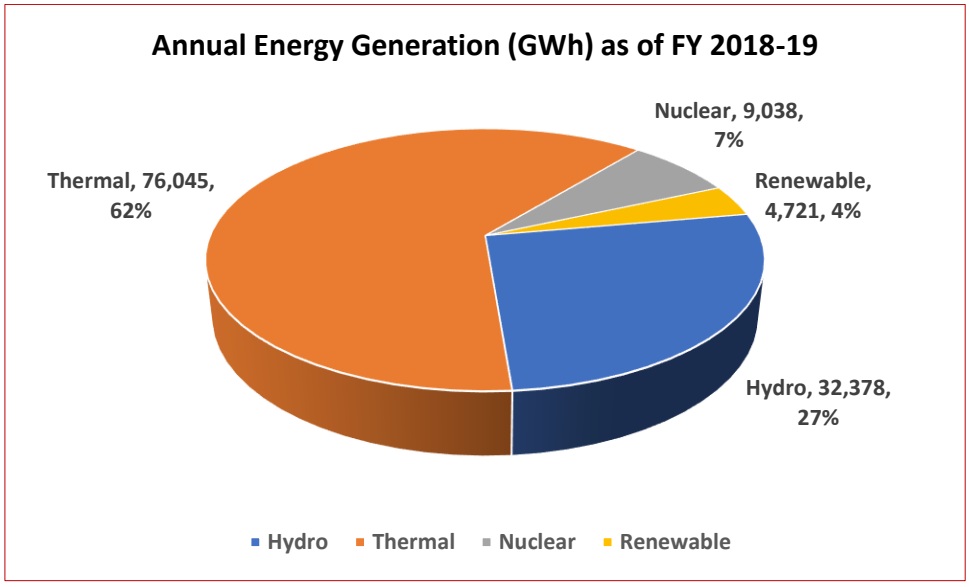


Chart 3-3: Annual Energy Generation as of FY 2018-19

Furthermore, there has been an increasing trend in the electricity generation statistics from 2013 to 2019 as shown in the Chart 3-4.

Besides, electricity generation has increased significantly in the past few years, the demand of electricity has been growing steadily with improved developments of electricity supply in the country as it is evident from the electricity peak demand trend from FY 2013-14 to FY 2017-18. However, in FY 2018-19 due to a steep fall in the economic activity in the country, the peak demand for electricity was also somewhat subdued as shown in the Chart 3-5.

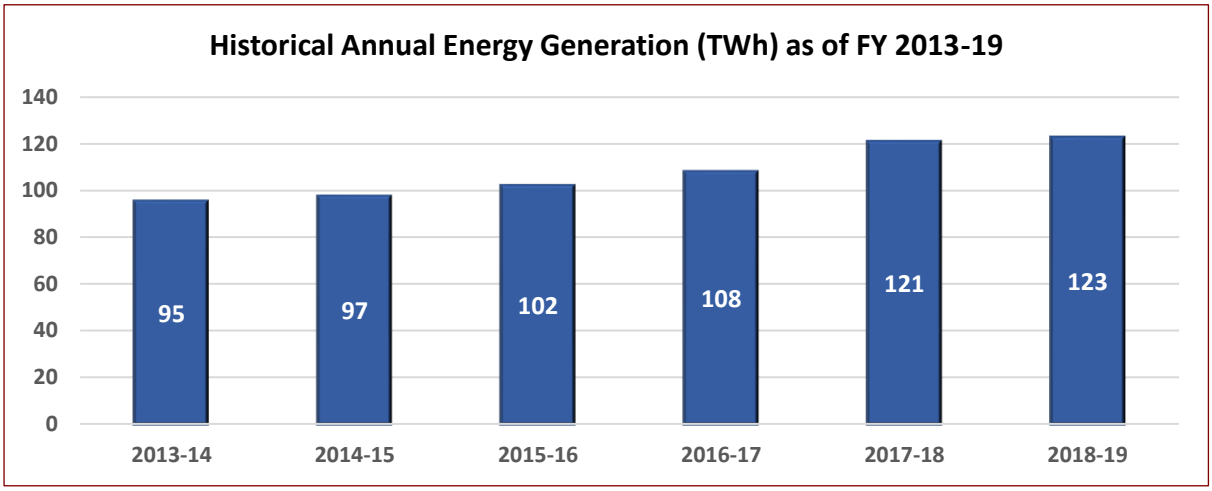


Chart 3-4: Historical Annual Energy Generation (GWh) from FY 2013-14 to FY 2018-19

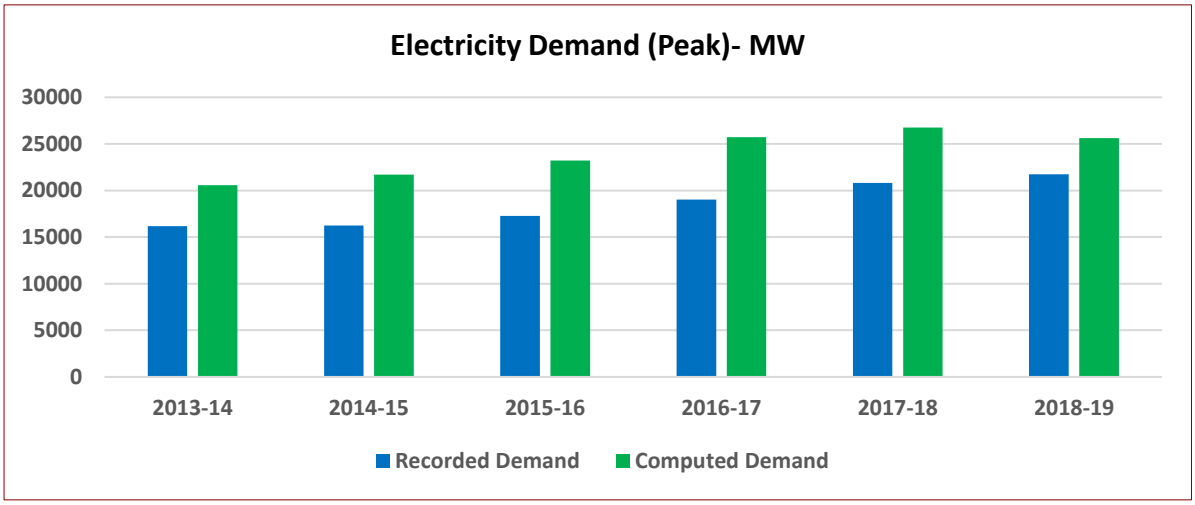


Chart 3-5: Historical Peak Electricity Demand (MW) from FY 2013-14 to FY 2018-19

Computed peak demand in the country during FY 2018-19 was 26,252 MW and was recorded during the month of August 2018, reflecting a slight shift from its historic occurrence every year in the month of June. The lowest demand of 5,635 MW was recorded during January 2019, merely 21% of the summer peak. While the energy requirements in the system increased by a meager margin of 0.17% during FY2018-19, peak demand actually turned out 4% lower than that of in FY 2017-18.

3.3. Power Transmission

In order to effectively evacuate electric power from power generation facilities, the NTDC - the national grid, and distribution network of DISCOs have grown massively in terms of transmission line length over the last five years as shown in Table 3-1.

The national grid which acts as the backbone of the country's power system consists of 500 and 220 kV lines and the associated grid stations. Total 500 kV transmission network during FY 2018-19 in the country extended well over 6,290 circuit-km supported by 16 grid stations with 22,950 MVA transformer capacities. The 220 kV transmission network extended over 10,928 circuit-km supported by 45 grid stations with aggregate total transformer capacity of 30,970 MVA. Distribution networks inclusive of 132 kV, 66 kV, and 33 kV voltage levels, collectively extends over 36,131 km, and were supported by 841 grid stations with total

capacity of 52,055 MVA in delivering the electricity to end users dispersed around the country as shown in Table 3-2.

FY	Length of Transmission & Distribution lines (ckm)					Total
	500 kV	220 kV	132 kV	66 kV	33 kV	
2015	5,077	9,624	27,272	7,566	1,450	50,989
2016	5,113	9,632	28,726	7,365	1,456	52,291
2017	5,127	10,063	25,691	7,025	2,362	50,268
2018	5,618	10,478	26,844	6,182	2,362	51,484
2019	6,290	10,928	27,775	5,994	2,362	53,349

Table 3-1: Length of Transmission & Distribution lines (ckm)

FY	500 kV		220 kV		132 kV		66 kV		33 kV		Total	
	No. G/S	Capacity (MVA)	No. G/S	Capacity (MVA)	No. G/S	Capacity (MVA)	No. G/S	Capacity (MVA)	No. G/S	Capacity (MVA)	No. G/S	Capacity (MVA)
2015	13	16,950	37	22,854	591	35,551	134	2,361	5	44	780	77,759
2016	14	18,150	36	24,040	624	38,940	136	2,474	6	52	816	83,656
2017	14	18,150	38	25,610	650	42,116	111	2,071	40	215	853	88,162
2018	16	20,850	42	22,500	689	46,828	86	1,674	40	212	873	92,065
2019	16	22,950	45	30,970	722	50,278	79	1,561	40	216	902	105,975

Table 3-2: Voltage wise Grid Stations and MVA Capacities

3.4. Power Distribution

By 2018-19, total number of electricity consumers has reached to 28,473,069 out of which 24,465,300 belong to domestic category, 3,144,247 belong to commercial category, 342,949 consumers fall under industries, there are 326,656 agriculture consumers, bulk supply consumers are 4,383, public lighting connections have been recorded as 10,567 and 178,967 consumers are categorized as general services consumers as shown in Chart 3-6.

During the FY 2018-19, domestic consumers had a share of 45,590 GWh, commercial consumers used 6,629 GWh, industrial consumption was 24,285 GWh, agriculture consumers had a share of 9,676 GWh, 291 GWh have been consumed by public lighting, bulk supply was catered with 5,082 GWh and 2,335 GWh has been consumed in general services category as shown in Chart 3-7.

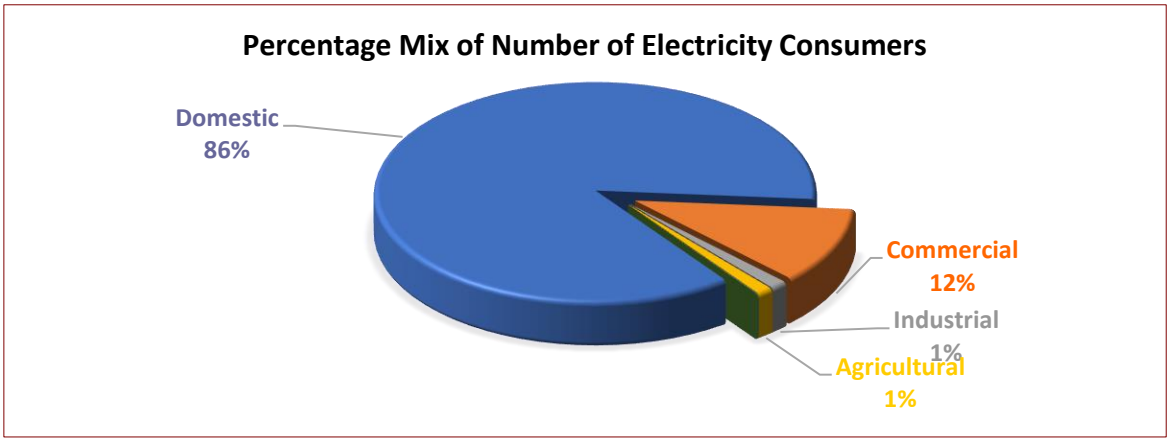


Chart 3-6: Percentage Mix of Number of Electricity Consumers

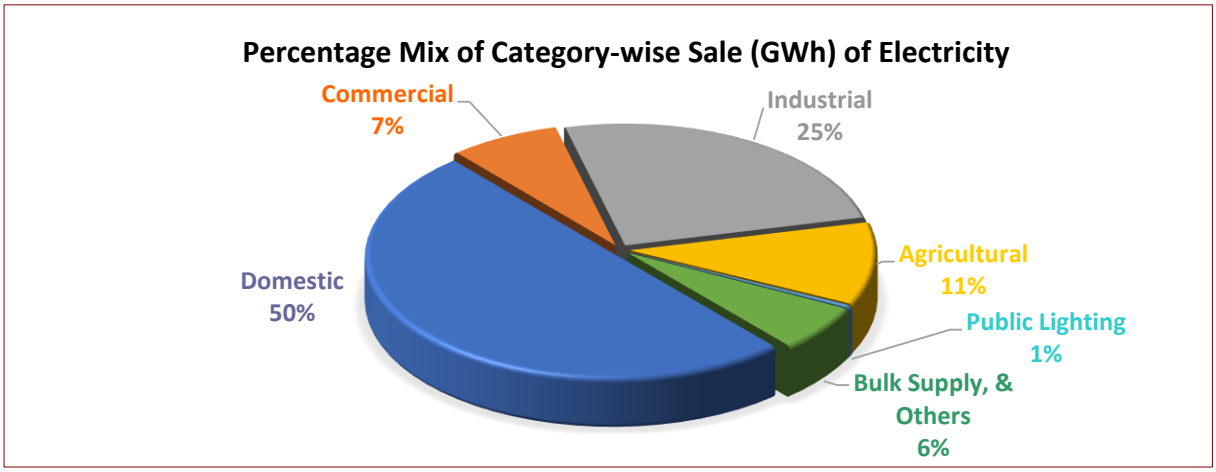


Chart 3-7: Percentage Mix of Category-wise Sale (GWh) of Electricity

Electricity consumption in Pakistan is dominated by the domestic sector followed by industrial and agricultural sector. The historical trend of electricity consumption in different categories is highlighted in the Chart 3-8.

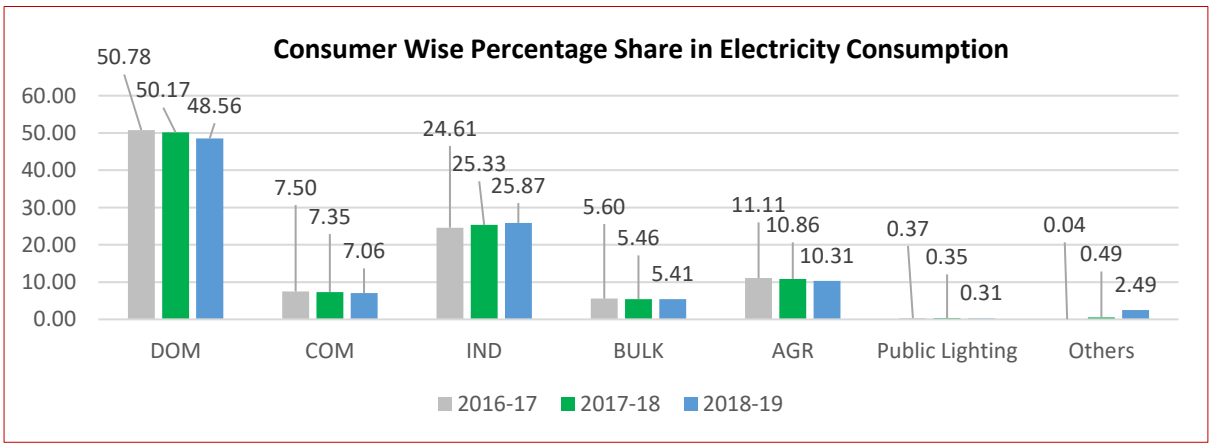
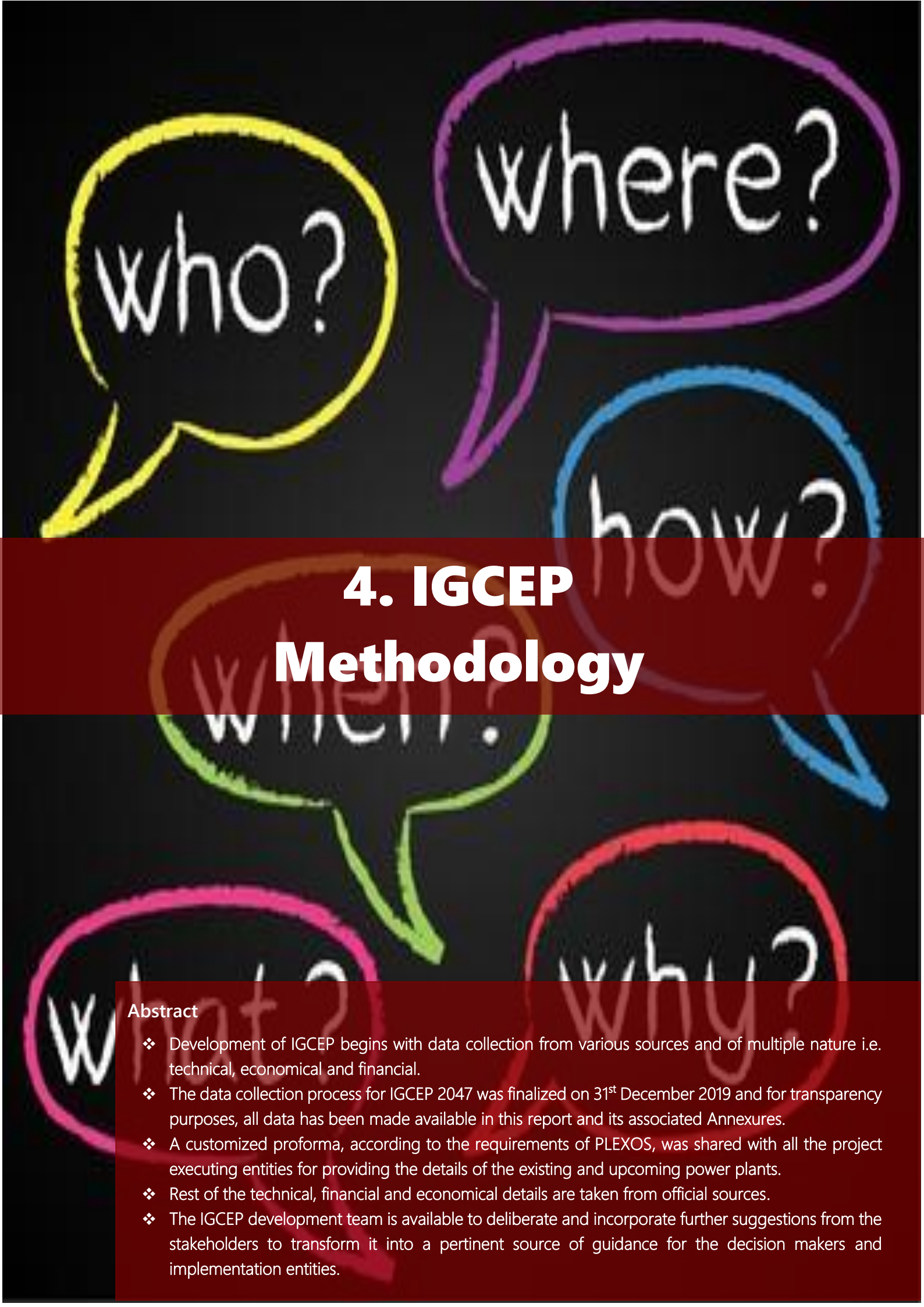


Chart 3-8: Historical Trend of Consumer Wise Percentage Share in Electricity Consumption

A total of 8,394 villages were electrified during FY 2018-19 increasing the cumulative total to 233,727 in the country. There are 381,910 applications still pending for connecting to the grid (337,444 for domestic, 29,023 for commercial, 3,819 for industrial, 11,489 for agricultural and 135 for other connections).

Moreover, in FY 2018-19, 23,663 GWh (19%) of total 122,542 GWh energy generated in the country was lost during its transmission, distribution, and delivery to end consumers (including

non-technical losses) as sales were recorded at 99,047 GWh only. The share of domestic consumers in the total sales was recorded at 46%, commercial at 6.69%, industrial at 24.52%, agriculture at 9.77%, and bulk consumers at 7.69%. Except for small increases in case of industrial and bulk power consumers, the consumption of all the other consumption categories remained lower than their corresponding records for FY 2017-18.



4. IGCEP Methodology

Abstract

- Development of IGCEP begins with data collection from various sources and of multiple nature i.e. technical, economical and financial.
- The data collection process for IGCEP 2047 was finalized on 31st December 2019 and for transparency purposes, all data has been made available in this report and its associated Annexures.
- A customized proforma, according to the requirements of PLEXOS, was shared with all the project executing entities for providing the details of the existing and upcoming power plants.
- Rest of the technical, financial and economical details are taken from official sources.
- The IGCEP development team is available to deliberate and incorporate further suggestions from the stakeholders to transform it into a pertinent source of guidance for the decision makers and implementation entities.

4. IGCEP Methodology

4.1. Regulatory Compliance

Pursuant to the Grid Code, the IGCEP covers the future development of hydroelectric, thermal, nuclear and renewable energy resources to meet the anticipated load demand up to the year 2047. It identifies new capacity requirements by capacity, technology, fuel and commissioning dates on year by year basis by complying with the various regulatory requirements as set out through the provisions of the Grid Code including Loss of Load Probability (LOLP), the long-term load growth forecast and reserve requirements.

4.2. Data Currency Log

For reference of the IGCEP users, Table 4-1 provides the currency of various input data used for preparing the IGCEP.

#	Data Aspect	Currency Date
1	Hourly Load Curve	30th June 2019
2	Electricity Consumers (Numbers)	30th June 2019
3	Energy Sale (GWh)	30th June 2019
4	Gross Domestic Product (GDP) Pak Rupees	30th June 2019
5	Existing Installed Capacity (MW)	31st December 2019
6	Load Forecast - Regression Based (MW and GWh)	Base year 2018-19
7	NTDC Peak Demand (MW)	2018-19
8	Fuel Pricing (US $)	Real Prices as of 31st December 2019
9	Power Plant Cost Data (US $)	Indexed to December 2019 (NEPRA)
10	Committed Plants CODs (Date)	As of 31st December, 2019
11	US $ Rate (Pak Rupees)	As of 31st December 2019, 156.7 Rs.

Table 4-1: IGCEP Input Data Currency Log

4.3. Data Collection Process

The data gathering process for the purpose of this study was proved quite rigorous; all the concerned project executing entities were approached to provide the requisite data on the prescribed format. Customized proforma provided under section 4.7. (available at the web link

https://www.ntdc.com.pk/ntdc/public/uploads/services/planning/IGCEP-2047%20Input%20data%20proforma.pdf) for providing the input data was shared with all the relevant entities. The process was finalized on 31st December 2019 and no data has been accepted after the said date. The following process was followed for the collection of different types of data from multiple sources:

a. Specific data input formats were customized, involving suitable conversions, as per requirements of the generation planning modelling tool - PLEXOS.

b. Concerned entities were approached to share required data on customized data input formats. Multiple reminders were despatched to ensure timely provision of requisite data.

c. An awareness workshop on "Data Preparation and Submission by the Project Execution Entities for Inclusion in the Indicative Generation Capacity Expansion Plan - IGCEP 2047" was arranged in Lahore on 24th October 2019.

d. One day data collection workshop was conducted at PEDO office, Peshawar in October 2019.

e. A comprehensive presentation was facilitated for WAPDA Authority at WAPDA House, Lahore on 16th December 2019.

f. All the received data was critically analyzed for accuracy and completeness, and gaps were identified.

g. Suitable assumptions were proposed, discussed and finalized to address the data gaps.

h. Some of the data, particularly the cost related data, was obtained from tariff determinations of the plants, available on NEPRA website. The fuel prices and REs CAPEX projections considered, are in line with the global trends.

i. The data was formulated as per requirement of the generation planning tool - PLEXOS.

4.3.1. IGCEP Data Sources and Associated Data Types

Following entities shown in Figure 4-1 have contributed (directly / indirectly) for the preparation of input data to be used in IGCEP:

a. Alternative Energy Development Board (AEDB)
   - Existing and Future renewable energy projects

b. Azad Jammu Kashmir Private Power Cell (AJKPPC)
   - Future hydro power plants under the jurisdiction of AJ&K

c. Central Power Purchasing Agency Guarantee Limited (CPPA)
   - Fuel prices and existing system merit order
   - Updating the cost of hydro plants, the indexation values

d. Energy Department Sindh / Sindh Transmission and Dispatch Company (STDC)
   - Future hydro, thermal and renewables power plants under the jurisdiction of the Sindh province

e. GENCOs
   - Existing and future thermal power plants in the public sector

f. National Electric Power Regulatory Authority (NEPRA)

- Different types of data were collected from NEPRA publications / website:
- For updating the cost to December 2019, latest values from NEPRA quarterly indexation were used for those plants for which NEPRA has published the indexation values.
- For the plants for which NEPRA has not yet determined the quarterly indexation, the final values for the indexation of Local and Foreign Consumer Price Index (CPI) and exchange rate were obtained from NEPRA website and these values were updated accordingly.
- For updating the cost of hydro plants, the indexation values were also obtained from NEPRA website.

g. National Power Control Centre (NPCC)

- Monthly energy and MWs for existing hydro, thermal, wind and solar

h. Pakhtunkhwa Energy Development Organization (PEDO)

- Existing and future hydro power plants under the jurisdiction of KPK

i. Pakistan Atomic Energy Commission (PAEC)

- Existing and future nuclear power plants

j. Pakistan Bureau of Statistics

- Input data for long-term forecast such as GDP and its components, population, etc.

k. Pakistan Electric Power Company (PEPCO)

- Category-wise sale, generation, number of consumers and losses etc.

l. Private Power Infrastructure Board (PPIB)

- Existing and future hydro and thermal power plants under IPP mode

m. Punjab Power Development Board (PPDB)

- Existing and future hydro, thermal and renewables power plants under the jurisdiction of the Punjab province

n. Water and Power Development Authority (WAPDA)

- Existing and future hydro power plants to be developed by WAPDA

4.4. Financial Parameters

For existing system, cost data was obtained from the latest merit order provided by CPPA whereas for the future power plants, cost data shared by the concerned project executing entities, after indexation, have been considered. For future candidate thermal and RE power plants, the cost data from the latest tariff determination available on the NEPRA's website, of the same technology have been considered.

Figure 4-1: IGCEP Input Data Sources

4.5. IGCEP Process Map

The IGCEP is prepared after following the process illustrated through Figure 4-2 and is being submitted to NEPRA for review and approval, following an extensive internal consultative process.

4.6. Different Criteria and Other Important Considerations for the IGCEP

4.6.1. Planning Timeframe

The planning period taken for this study is from July 1, 2019 to June 30, 2047.

4.6.2. Economic Parameters

The governing economic parameters considered for IGCEP 2047 are presented in Annexure B-2 and B-3. The reference date for costs is December 2019 and the discount rate is 10% per year.

4.6.3. Generation System Reliability

The capability of the generating system to meet the forecast peak demand remains a major challenge in the generation planning. In this perspective, the IGCEP takes into account the scheduled maintenance and forced outages allowance of all the generating units as well as the seasonal and year-to-year variability of the energy and capacity of the hydroelectric as well as RE plants.

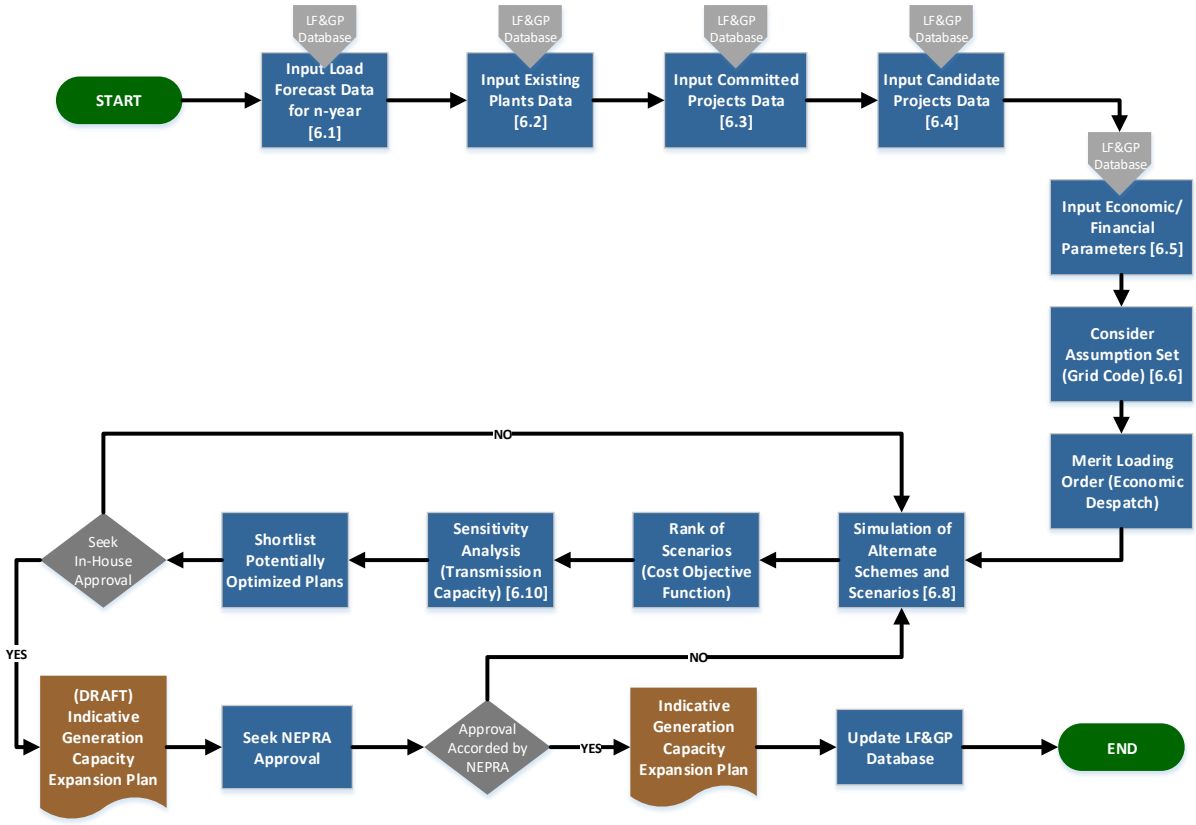


Figure 4-2: IGCEP Preparation Process

Loss of Load Expectation (LOLE) or equivalently Loss of Load Probability (LOLP) is commonly considered as generating system reliability. For the purpose of the IGCEP, an LOLP criteria i.e. not more than 1% year to year, as stipulated in Grid Code, has been adopted.

4.6.4. Hydrological Risk

Pakistan power system includes a substantial hydroelectric component. Hydroelectric projects usually exhibit significant seasonality of energy as well as capacity corresponding to the annual hydrological cycle. The relevant effect on system reliability and operating costs may be significant. For the IGCEP, average monthly values of energy and capacity as conveyed by the concerned project executing agencies have been used to capture the seasonality for the hydroelectric plants.

4.6.5. Renewable Energy (RE) Generation

Renewables are the new conventional fuel for Pakistan.

Pakistan power system has commissioned a relatively fair quantum of RE generation in the generation mix in the past few years. As of 31st December, 2019, 400 MW utility scale solar and 1,086 MW wind power on grid projects (excluding 150 MW from WPPs namely Hydro

China Dawood, Zephyr and Tenaga, which are currently supplying generation directly to K-Electric system), have been commissioned. Subsequent to Cabinet Committee on Energy (CCOE) decision of April, 2019, several wind, solar and bagasse projects are at different stages of development and will be added into the national grid during the next couple of years.

Furthermore, the GoP envisages to aggressively include 20% and 30% renewable energy generation by capacity by the year 2025 and 2030, respectively. However, these two energy resources due to their intermittency cannot be considered as a firm capacity, at all points in time or all around the clock; therefore, appropriate amount of backup generation is also required to provide for reserve requirements of the system.

It is pertinent to mention here that candidate wind power projects have been considered in three zones / corridors i.e. North, South and Mid Land for the study horizon. Based on the available wind mast data in these corridors, plant factor of 31% for North as well as Mid-country and 39% for South have been assumed. Similarly, for the candidate solar power projects a plant factor of 19% has been assumed, all across the country.

Although solar and wind power plants can provide a significant quantum of generation at certain times, yet the corresponding generation also drops to zero or minimal at different times; this is evident from the despatch record for the last few years.

Further, forecast of wind availability and hence its corresponding generation has not matured enough to estimate the generation for long duration. Therefore, projection of historical trend of wind and solar on hourly basis has been carried out to estimate their future generation.

4.6.6. Renewable Intermittency

The complexity associated with integrating intermittent sources of electricity stems from the fact that the power grid was basically designed around the concept of large, controllable electric generators. Today, the grid operator uses a planning process to ensure power plants generate the required amount of electricity at the right time to ensure continuous and reliable supply for meeting the electricity demand. The balance between electricity supply and demand must be maintained at all times.

Renewables intermittency is challenging since they disrupt the conventional methods for planning the economic despatch of the electric grid. Their power fluctuates over multiple time horizons, forcing the system operator to adjust its day-ahead, hour-ahead, and real-time operating procedures. In a bid to aggressively add renewables in the overall energy mix, certain pre-conditions by the M/s Lahmeyer/Tractebel, as reproduced below, recommended under the initiative ‘Variable Renewable Energy Integration and Planning’ are important:

a. New SCADA-3 fully functional, all generation plants to provide reserves as early as possible (Under implementation)
b. Immediate review of the Grid Code to define, update and reinforce VRE requirements (international standards) and increase of spinning reserve requirement to reflect sizing incident and VRE variability (Under implementation)
c. Grid shall be reinforced to guarantee steady-state and transient stability
d. Planning skills enhanced with proactive planning (Under implementation)

e. Regular integrated transmission and generation expansion plan capturing VRE integration (Under implementation) (NTDC is committed to undertake pursuant to its regulatory obligations)

f. Existing power plant flexibility (ramping) to be commercially secured (PPAs)

g. VRE High Accuracy Central Forecasting System functional (and integrate into Automatic Generation Control as soon as SCADA-3 is available)

h. Rapid but reliable processing of procurement to build up market (continuous VRE implementation)

i. Geographical distribution of PVs and wind power plants to reduce variability (Under implementation through ongoing VRE Locational Study across the country)

4.6.7. Reserve

Reserve of a generating system is a measure of the system's ability to respond to rapid increases of load or loss of the generating unit(s). In this study, two types of reserves have been modelled as per directions mentioned in the Grid Code i.e. contingency and secondary.

4.6.7.1. Contingency Reserve

The contingency reserve is the level of generation over the forecasted demand which is required from real time to real time plus 24 hours so as to cover for uncertainties. This reserve is provided by the generators which are not required to be synchronized but they can be synchronized within 30 minutes of the initiation of the Contingency and the corresponding fall in frequency. As per best industry practices, this is equal to the capacity of the largest thermal generator in the system. In this model, the Contingency Reserve is considered equivalent to 660 MW up till the year 2021 and 1,100 MW after 2021 in view of the induction of Karachi Nuclear (K-2) in the system.

4.6.7.2. Secondary Reserve

The secondary reserve is a type of spinning reserve and it is the increase in power output of the online generators following the falling frequency and is fully sustainable for 30 minutes after achieving its maximum value in 30 seconds. It is equal to the 1/3 of the largest unit in the system. For this model, the Secondary Reserve is 220 MW (660/3) up till the year 2021 and 367 MW (1,100/3) after 2021. For the purpose of this model, keeping in view the commissioning of SCADA-3 in NTDC system and following the best international practices, the secondary reserve after 2026 is taken as 1,100 MW (equivalent to the largest thermal unit). It is pertinent to mention here that due to implementation of SCADA-3 in the system, the ramping of power plants can be managed effectively by the system operator which will result in the better and efficient management of the secondary reserves. Hence the quantum of secondary reserve was raised and made equivalent to the largest thermal unit i.e. 1,100 MW beyond 2026.

4.6.8. Scheduled Maintenance of the Generation Projects

Scheduled maintenance plays an important role in retaining the desired efficiency and reliability while at the same time preserving the useful life of a generating unit. It is assumed,

for the preparation of the IGCEP, that all generating units will undergo an annual maintenance program to be provided by the concerned project executing agency.

4.6.9. System Load Characteristics

From the planning perspective, the system load to be met by the generating system is represented by the system's hourly load for a typical day of every month each year up till 2047 which totals to 245,280 hours of load for the entire planning horizon. The load forecast provides the hourly load demands and associated energy demands. Normal scenario of the load forecast has been adopted in the base case of this study. The load forecast developed by the LF&GP-PSP Team is presented in Table 5-2; it may be observed that the forecast peak demand increases about four-fold over the planning period i.e. 2020-2047.

In order to establish characteristics of the load in NTDC system, the hourly load data for the year 2018-19 was obtained and projected for the horizon of this plan.

4.6.10. Fuel Prices Indexation

Pakistan's electricity generation mix relies on fossil fuels including RLNG, imported / domestic coal, natural gas (NG) and furnace oil, hence, fuel price uncertainty is one of the major determinants for a long-term generation expansion plan. The prices are expected to escalate or de-escalate over the planning horizon, especially during the periods of high demand where an increasing demand results in higher fuel prices. Increase in demand and fear of supply disruption exert an upward pressure on fuel prices. In this regard, the given fuel prices have been taken as per merit order of December 2019. These fuel prices are then escalated for future years as per index of the Energy Information Authority (EIA) Annual Energy Outlook 2019 (except for domestic coal where regulated mining price index was applied). The variable price index for each of the fuel-based technologies is given in Table 4-2.

FY	Fuel Oil	HFO	Natural Gas	Imported Coal	Uranium	Thar Coal
	Variable Price Index for Fuel Based Technologies					
2019	1.00	1.00	1.00	1.00	1.00	1.00
2020	1.00	0.98	1.00	1.00	1.00	1.05
2021	0.97	0.98	1.01	1.02	1.00	1.06
2022	0.93	1.05	1.01	1.04	1.01	1.03
2023	0.90	1.12	1.04	1.05	1.01	1.02
2024	0.88	1.12	1.10	1.04	1.01	1.01
2025	0.89	1.14	1.17	1.03	1.01	1.02
2026	0.90	1.17	1.21	1.03	1.02	0.98
2027	0.93	1.20	1.22	1.03	1.02	0.99

FY	Fuel Oil	HFO	Natural Gas	Imported Coal	Uranium	Thar Coal
	Variable Price Index for Fuel Based Technologies					
2028	0.94	1.24	1.24	1.03	1.02	1.00
2029	0.96	1.27	1.25	1.04	1.02	0.99
2030	0.97	1.29	1.25	1.05	1.02	0.71
2031	0.97	1.31	1.26	1.05	1.03	0.70
2032	0.98	1.32	1.28	1.05	1.03	0.70
2033	1.00	1.34	1.31	1.05	1.03	0.71
2034	1.00	1.35	1.32	1.05	1.03	0.68
2035	1.01	1.36	1.33	1.05	1.04	0.69
2036	1.02	1.38	1.35	1.05	1.04	0.71
2037	1.03	1.39	1.36	1.06	1.04	0.70
2038	1.03	1.40	1.36	1.06	1.04	0.71
2039	1.04	1.41	1.37	1.06	1.05	0.69
2040	1.04	1.42	1.38	1.06	1.05	0.69
2041	1.05	1.42	1.39	1.06	1.05	0.69
2042	1.06	1.42	1.39	1.06	1.05	0.69
2043	1.06	1.43	1.41	1.06	1.06	0.69
2044	1.06	1.43	1.43	1.06	1.06	0.69
2045	1.06	1.41	1.45	1.06	1.06	0.69
2046	1.07	1.40	1.47	1.06	1.07	0.69
2047	1.07	1.39	1.49	1.06	1.07	0.69

Table 4-2: Fuel Price Indexation Factors

4.6.11. Renewable Energy Technology CAPEX Indexation

Fuel prices volatility have encouraged calls for investments in renewables. Renewable energy including wind and solar, are quickly becoming cheapest forms of new electricity generation. They are set to replace the conventional fuels to great extent for power generation to meet the

future demand growth. The cheaper and widely accessible renewable energy has the potential to substantially decrease the reliability of power sector on expensive imported fuels. Cheap renewables can outcompete other power technologies on price.

Trend of cost reduction for the renewable technology is set to continue in the future and will inevitably reduce the cost burdens, reliance on increasingly expensive fuels and hence lowering the overall generation cost. The cost of renewables especially wind and solar is expected to be driven down further through energy policies which focus on supporting the deployment of renewable power generators so as to reduce their costs. Renewables are needed to mitigate the negative externalities of fossil fuels since primary energy consumption will grow into the future, and this growing demand is currently dependent on fossil fuels. The degree to which intermittent renewables can displace fossil fuels, however, depends on the extent to which fossil fuel backup generators are needed in order to balance electricity grids.

It is apprised that in this regard, the CAPEX is degraded by almost 3.6% and 1% for solar and wind respectively every year up till 2030 in line with various international practices. As compared to today's solar power plant CAPEX i.e. 530 $/kW in 2020, it is degraded to 371 $/kW by the year 2030. Similarly, the CAPEX of wind is determined according to different regions. As we move towards North of the country, the transportation and other factors will be going to affect the CAPEX of wind power plants to be installed in North. The CAPEX of wind in the south comes out to be 1300 $/kW in 2019 and is decreased to 1,164 $/kW in 2030. Furthermore, the CAPEX of wind power plants in Mid-country is determined by increasing 5% of the CAPEX of South Region Wind Power Plant. In the similar fashion, the CAPEX of wind power plants in North of Country is determined by increasing 5% of the CAPEX of Mid-country Wind Power Plants. Future price indexation up till the year 2030, pertaining to REs i.e. Wind and Solar is given below:

FY	Solar	Wind		
	Base ($/kW)	South	Mid Country	North
		Base ($/kW)	5% More Than Base ($/kW)	5% More Than Mid Country($/kW)
2019	549	1,300	1,365	1,433
2020	530	1,287	1,351	1,419
2021	511	1,274	1,338	1,405
2022	494	1,261	1,324	1,391
2023	476	1,249	1,311	1,377
2024	460	1,236	1,298	1,363
2025	444	1,224	1,285	1,349

FY	Solar	Wind		
	Base ($/kW)	South	Mid Country	North
		Base ($/kW)	5% More Than Base ($/kW)	5% More Than Mid Country($/kW)
2026	428	1,212	1,272	1,336
2027	413	1,200	1,260	1,323
2028	399	1,188	1,247	1309
2029	385	1,176	1,234	1,296
2030	371	1,164	1,222	1,283

Table 4-3: CAPEX Indexation of Solar and Wind Based Technologies

4.7. IGCEP Data Input Format

Data Performa for Thermal Power Plants

#	Subject	Unit	Description	Data Required
1	**Project Overview**			
1.1	Name of Project			
1.2	Type of Project			☐ CCGT ☐ OCGT ☐ Gas ST ☐ Nuclear ST ☐ Coal ST ☐ DG ☐ Nuclear ST ☐ Others; please specify_____
1.3	Installed Capacity of Project	MW	Nameplate capacity	
1.4	Nature of Project			☐ Public ☐ Private ☐ CPEC ☐ Strategic
1.5	Status of Project			☐ Existing ☐ LOI ☐ LOS ☐ Financial Close ☐ Under Construction
2	**Location**			
2.1	Location of Project		Nearest town	
2.2	GPS Coordinates	Decimal degrees (e.g. 34.22541)	Latitude :	Longitude :
2.3	Network area		e.g. North, Center, South	☐ North ☐ Center ☐ South
2.4	Integration within DISCO		LESCO, GEPCO etc.	
3	**Time Schedule**			
3.1	Earliest Date of Availability/Expected COD	dd/mm/yyyy		
3.2	Construction Start Date	dd/mm/yyyy	if under construction	
3.3	Construction Period	Months		

#	Subject	Unit	Description	Data Required
3.4	Percentage of work completed	%	if under construction	
3.5	Commissioning Date of Each Unit	dd/mm/yyyy		Unit 1:
		dd/mm/yyyy		Unit 2:
		dd/mm/yyyy		Unit 3:
		dd/mm/yyyy		.
		dd/mm/yyyy		Unit n:
3.6	Economic Lifetime	years		
3.7	Decommissioning Date	dd/mm/yyyy		
3.8	PPA expiry date	dd/mm/yyyy		
4	**Contract Type**			
4.1	Fuel Type (Main Fuel)		RFO, Diesel, etc.	
4.1.a	Fuel Cost (Main Fuel)	$/GJ		
4.1.b	Fuel Rate	US$/Metric ton or US$/mmBTu	For coal, nuclear and gas	
4.1.c	Fuel Rate Calculation	Year		
4.1.d	Fuel Price Increase/Escalation	% per year		
4.2	Alternative Fuels		RFO, Diesel, etc.	
4.2.a	Alternative Fuel Cost	$/GJ		
4.2.b	Fuel Rate	US$/Metric ton or US$/mmBTu	For coal, nuclear and gas	
4.2.c	Fuel Rate Calculation	Year		
4.2.d	Fuel Price Increase/Escalation	% per year		
4.3	Take or Pay Contract (if applicable)	%	Plant Factor for Minimum Despatch Contracted	
4.3.a	Take or Pay Contract Period	Years		

#	Subject	Unit	Description	Data Required
4.3.b	Reduced Fuel Price if Take or Pay Contract cannot be met	$/GJ		
5	**Technical Data**			
5.1	Installed Capacity of Project (Gross)	MW		
5.2	Firm or Net Capacity of Project	MW		
5.3	Auxiliary Consumption	MW		
5.4	De-rated Capacity (After plant's aging or other factors)*	MW		Please see Annexure-A1
5.5	Capacity of each unit	MW		Unit 1:
		MW		Unit 2:
		MW		.
		MW		Unit n:
5.6	Total no. of Units	#		
5.7	Min Units built per year	#		
5.8	Min Units built	#		
5.9	Minimum Stable Level**	MW		Please see Annexure-A2
5.10	CCGT Configuration		2 GT+1 ST, etc.	
5.11	Ramp Up Rate	MW/min		
5.12	Ramp Down Rate	MW/min		
5.13	Minimum Up Time	Hours		
5.14	Minimum Down Time	Hours		
5.15	Time to Synchronize with Grid in different States (Hot, Warm and Cold States)	min		
5.16	Heat Rate at Min Stable Level (at main fuel)	GJ/MWh	Heat rate of machine at fuel indicated as main fuel at 4.1	
5.17	Heat Rate at Min Stable Level, (at alternative fuel)	GJ/MWh	Heat rate of machine at	

#	Subject	Unit	Description	Data Required
			fuel indicated as alternative fuel at 4.2	
5.18	Heat Rate at Full Load (at main fuel)	GJ/MWh	Heat rate of machine at fuel indicated as main fuel at 4.1	
5.19	Heat Rate at Full Load (at alternative fuel)	GJ/MWh	Heat rate of machine at fuel indicated as alternative fuel at 4.2	
5.20	Average Incremental Heat Rate***	GJ/MWh		Please see Annexure-A3
5.21	Heating Value, Main Fuel	kcal/kg	Heating value of fuel indicated as main fuel at 4.1	
5.22	Heating Value, Alternative Fuel	kcal/kg	Heating value of fuel indicated as alternative fuel at 4.2	
5.23	Schedule Maintenance Time	days		
5.24.a	Schedule Maintenance Rate	%		
5.24.b	Maintenance Class Size	MW	Capacity typically out on Maintenance	
5.25	Forced Outage Rate	%		
5.26.a	Primary Reserve	MW	(max. response level to operational spinning reserve: 10sec-30sec) of project	
5.26.b	Secondary Reserve	MW	(Max. response level to operational spinning reserve: 30sec-30min) of project	
5.26.c	Contingency Reserve	MW	(Max. response level to operational spinning reserve: greater than 30min) of project	

#	Subject	Unit	Description	Data Required		
5.27	Emission Production Rate (depending on fuel type)	gCO_2/MWh				
5.28	Start-up Cost	$/MW	In case of steam turbines at different steam levels- hot, warm or cold			
5.29	Variable O&M Cost	$/MWh				
5.30	Fixed O&M Cost	$/MW-year				
5.31	Mean Time to Repair	hours				
5.32	Min Time To Repair	hours				
5.33	Max Time To Repair	hours				
5.34	Payment Schedule			Number of Payments	Disbursement (%)	
					Year 1	
					Year 2…	
					Year N	
6	**Cost information for future plants**					
				Local Component	**Foreign Component**	**Total**
6.1.a	Capital Cost with IDC	million US$				
6.1.b	Capital Cost without IDC	million US$				
6.2	Year of Cost Calculations	yyyy				
6.3	Dollar Conversion rate	1 $ = PKR				
7	**PPA Contracts**					
7.1	PPA expiry date	dd/mm/yyyy				
7.2	Guaranteed Run-Up Rate	MW/min				
7.3	Guaranteed Run Down Rate	MW/min				

#	Subject	Unit	Description	Data Required
8	**Fuel Contract**			
8.1	Expiry Date	dd/mm/yyyy		
8.2	Fuel Price	$/GJ	As per contract	
8.3	Increment in Fuel Price	%	annual percentage	
8.4	Take-or-Pay Quantity	TJ	Per Year	
8.5	Take-or-Pay fuel price	$/GJ		
8.6	Market Price	$/GJ	applicable after contract expiry	

* Please fill the details in the Annexure – A1
* Please fill the details in Annexure – A2
* Please fill the details in Annexure – A3

Table: De-rated Capacity of Power Plant

Year*	De-rated Capacity (MW)
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	
18	
19	
20	
21	
22	
23	
24	
25	

* Year 1 being the first commissioning year

Table: Minimum Stable Load

Table: Minimum Stable Load	
Steam Turbine	
Min Stable Load for each Unit (MW/%)	
Gas Turbine	
Min Stable Load for each Unit (MW/%)	
Combined Cycle Power Plant	
Min Stable Load with 1 GT(MW/%)	
Min Stable Load with 2 GTs (MW/%)	
Min Stable Load with 3 GTs (MW/%)	
Min Stable Load - Complex (MW/%)	

Table: Heat Rate of Thermal Power Plants*

Loading Position (%)	Heat Rate (GJ/MWh)
25%	
40%	
50%	
60%	
70%	
80%	
90%	
100%	
Equation	

* Please copy the same table for more than one fuel

* Please provide equation if available

Data Performa for Hydro Power Plants

#	Subject	Unit	Description	Data Required
1	Name of Project			
2	Installed Capacity of Project	MW		
3	Nature of Project			☐ Public ☐ Private ☐ CPEC ☐ Strategic
4	Status of Project			☐ Existing ☐ LOI ☐ LOS ☐ Financial Close ☐ Under Construction
5.a	Location of Project		River/Province	
5.b	Integration within DISCO		LESCO, GEPCO etc.	
5.c	Type of Project			☐ Run of River ☐ Reservoir Based
6	GPS Coordinates	Decimal degrees (e.g. 34.22541)		Latitude: Longitude:
7	Earliest Date of Availability/Expected COD	dd/mm/yyyy		
8	Construction Start Date	dd/mm/yyyy	if under construction	
9	Construction Period	Years		
10	Percentage of work completed	%	if under construction	
11.a	Plant/Economic Life	Years		
11.b	Major Overhaul/Rehabilitation	Years	After 10 or 20 years etc.	
12	Decommissioning/Retirement Date	Yyyy	for existing plants only	
13	Installed Capacity of Project (Gross)	MW		
14	Auxiliary Consumption	MW		
15	NET Capacity available for Export to Grid	MW		
16	No. of Units with Capacity	MW		Unit 1:

#	Subject	Unit	Description	Data Required
		MW		Unit 2:
		MW		.
		MW		.
		MW		Total:
17	Minimum Stable Level for each unit	MW		
18.a	Ramp Up Rate	MW/min		
18.b	Ramp Down Rate	MW/min		
19.a	Schedule Maintenance Rate (the annual preventive maintenance rate of the complex i.e. power plant/power house, in which it remains out of service)	%	Annually	
19.b	Schedule Maintenance Time (the time required for preventive maintenance of the complex i.e. power plant/power house, in which it remains out of service)	Days	Annually	
19.c	Maintenance Class Size	MW	Capacity typically out on Maintenance	
20	Forced Outage Rate (is the probability of failure of a generator and it is usually measured as a ratio of failure hours to total service hours.)	%	Annually	
20.a	Mean time to Repair	Hours		
20.b	Minimum time to Repair	Hours		
20.c	Maximum time to Repair	Hours		
21.a	Primary Reserve	MW	(max. response level to operational spinning reserve: 10sec-30sec)	

#	Subject	Unit	Description	Data Required		
			of project			
22.b	Secondary Reserve	MW	(Max. response level to operational spinning reserve: 30sec-30min) of project			
23	Dead Level Storage	hm^3				
24	Minimum Continuous Outflow (If any)	cusec				
25	Pump efficiency (If applicable)	%				
26	Energy Storage Capacity	GWh				
27	Storage Level Targets*			See Annexure-B1		
28	Historical /Expected Generation Data					
28.a				**For Dry Season**		
			Month	Total Energy (GWh)	Minimum/Base Energy (GWh)	Peak Capability (MW)
			Jul.			
			Aug.			
			Sep.			
			Oct.			
			Nov.			
			Dec.			
			Jan.			
			Feb.			
			Mar.			
			Apr.			
			May			
			Jun.			
28.b				**For Wet Season**		
			Month	**Total Energy (GWh)**	**Minimum/Base Energy (GWh)**	**Peak Capability (MW)**
			Jul.			
			Aug.			

#	Subject	Unit	Description	Data Required		
			Sep.			
			Oct.			
			Nov.			
			Dec.			
			Jan.			
			Feb.			
			Mar.			
			Apr.			
			May			
			Jun.			
28.c-				For Average Season		
			Month	Total Energy (GWh)	Minimum/Base Energy (GWh)	Peak Capability (MW)
			Jul.			
			Aug.			
			Sep.			
			Oct.			
			Nov.			
			Dec.			
			Jan.			
			Feb.			
			Mar.			
			Apr.			
			May			
			Jun.			
29	Variable O&M Cost	$/MWh				
30	Fixed O&M Cost	$/kW-year				
				Local Component	Foreign Component	Total
31.a	Capital Cost with IDC	Million US$				
31.b	Capital Cost without IDC	million US$				
33	Year of Cost Calculations	yyyy				
34	Dollar Conversion rate	1 $ = PKR				

* Please fill the details in Annexure – B1

Table: Storage Head and Mean Production Factor

#	Storage (hm^3)	Elevation (m.a.s.l.)	Production Coefficient (MW/m3/s)
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			

Data Performa for Renewable (Wind/Solar) Power Plants

#	Subject	Unit	Description	Data Required
1.a	Name of Project			
1.b	Type of Project			☐ Wind ☐ PV ☐ Battery or any other storage added to the plant
2.a	Installed Capacity of Project	MW	In case of Wind	
2.b	Installed Capacity of Project	MW	in case of solar	Max. AC: Max. DC:
3	Nature of Project			☐ Public ☐ Private ☐ CPEC ☐ Strategic
4	Status of Project			☐ Existing ☐ LOI ☐ LOS ☐ Financial Close ☐ Under Construction
5.a	Location of Project		Province	
5.b	Network Area			☐ North ☐ Center ☐ South
5.c	Integration within DISCO		LESCO, GEPCO etc.	
6	GPS Coordinates	Decimal degrees (e.g. 34.22541)		Latitude: / Longitude:
7	Earliest Date of Availability/Expected COD	dd/mm/yyyy		
8	Construction Start Date	dd/mm/yyyy	if under construction	
9	Construction Period	months		
10	Percentage of work completed	%	if under construction	
11	Economic/Plant Life	Years		
12	Decommissioning/Retirement Date	yyyy	For existing plants only	
13	Installed Capacity of Project (Gross)	MW		
14	Auxiliary Consumption	MW		
15	NET Capacity available for Export to Grid	MW		

#	Subject	Unit	Description	Data Required	
16	Annual Degradation Factor	%	Solar		
17	Average Capacity Factor	%			
18	Historic/Expected Generation Data*		Maximum three years for existing plants	Annexure-C1	
19	Energy assessment exceedance probability	P75, P90	From energy yields study		
20	No. of Turbines		in case of wind		
21	Turbine Type		in case of wind		
22.a	Battery (or other storage)			☐ Existing ☐ Planned	
22.b	Battery (or other storage) type		Technology, brand		
22.c	Battery (or other storage) maximum storage capacity	MW MWh			
22.d	Inverter or other plant equipment able to provide grid ancillary services		e.g. reactive power	☐ No ☐ Yes	
23	Variable O&M Cost	$/MWh			
24	Fixed O&M Cost	$/kW-year			
			Local Component	**Foreign Component**	**Total**
25.a	Capital Cost with IDC	million US$			
25.b	Capital Cost without IDC	million US$			
26	Year of Cost Calculations	yyyy			
27	Dollar Conversion Rate	1 $ = PKR			

* Please fill the details in Annexure C1

Table: Monthly Expected Generation for Wind/Solar Plants

Month	Total Energy (GWh)	Minimum/Base Energy (GWh)	Peak Capability (MW)
July			
August			
September			
October			
November			
December			
January			
February			
March			
April			
May			
June			

Data Performa for Bagasse Power Plants

#	Subject	Unit	Description	Data Required
1	**Project Overview**			
1.1	Name of Project			
1.2	Type of Project			Single Fuel or Dual Fuel
1.3	Installed Capacity of Project	MW	Nameplate capacity	
1.4	Nature of Project			☐ Public ☐ Private ☐ CPEC ☐ Strategic
1.5	Status of Project			☐ Existing ☐ LOI ☐ LOS ☐ Financial Close ☐ Under Construction
2	**Location**			
2.1	Location of Project		Nearest town	
2.2	GPS Coordinates	Decimal degrees (e.g. 34.22541)	Latitude :	Longitude :
2.3	Network area		e.g. North, Center, South	☐ North ☐ Center ☐ South
2.4	Integration within DISCO		LESCO, GEPCO etc.	
3	**Time Schedule**			
3.1	Earliest Date of Availability/Expected COD	dd/mm/yyyy		
3.2	Construction Start Date	dd/mm/yyyy	if under construction	
3.3	Construction Period	Months		
3.4	Percentage of work completed	%	if under construction	
3.5	Economic Lifetime	years		
3.6	Decommissioning Date	dd/mm/yyyy		
3.7	PPA expiry date	dd/mm/yyyy		
4	**Fuel Type**			
4.1	Fuel Type		If Dual fuel please specify	

#	Subject	Unit	Description	Data Required
4.2	Harvest season sugar cane	Months		
4.3	Storage capacity of bagasse		# of months	
4.4	Use of bagasse fuel from external suppliers (other factories)			☐ Yes ☐ No
4.5	PPA type	MW, GWh	Specify take or pay volumes etc.	
4.6	PPA expiry date	dd/mm/yyyy		
4.7	Fuel Rate	US$/Metric ton	For bagasse	
4.8.a	Take or Pay Contract (if applicable)	%	Plant Factor for Minimum Despatch Contracted	
4.8.b	Take or Pay Contract Period	Years		
4.8.c	Reduced Fuel Price if Take or Pay Contract cannot be met	$/GJ		
4.8.d	Take-or-Pay Quantity	TJ	Per Year	
4.8.e	Take-or-Pay fuel price	$/GJ		
5	**Technical Data**			
5.1	Installed Capacity of Project (Gross)	MW	MWth MWel	
5.2	Firm or Net Capacity of Project	MW		
5.3	Auxiliary Consumption	MW		
5.4	De-rated Capacity (After plant's aging or other factors)	MW		
5.5	Capacity of each unit	MW	Both, own supply and export to Grid	Unit 1:
		MW		Unit 2:
		MW		.
		MW		Unit n:
5.6	Total no. of Units	#		
5.7	Minimum Stable Level	MW		

#	Subject	Unit	Description	Data Required
5.8	Capacity factor for export to Grid	%		
5.9	Schedule Maintenance Time	days		
5.9.a	Schedule Maintenance Rate	%		
5.9.b	Maintenance Class Size	MW	Capacity typically out on Maintenance	
5.9.c	Forced Outage Rate	%	Annual	
5.10	Variable O&M Cost	$/MWh		
5.11	Fixed O&M Cost	$/MW-year		
6	**Cost information for future plants**			

			Local Component	Foreign Component	Total
6.1.a	Capital Cost with IDC	million US$			
6.1.b	Capital Cost without IDC	million US$			
6.2	Year of Cost Calculations	yyyy			
6.3	Dollar Conversion rate	1 $ = PKR			

4.8. Strategy for Feedback

There is no room bigger than the room for improvement. The IGCEP has been prepared after taking inputs from all the relevant agencies; the LF&GP-PSP Team is more than willing to discuss and incorporate further suggestions from the stakeholders to shape it into a meaningful output. As per PC4 of the Grid Code, NEPRA will review and approve the IGCEP. However, any suggestions or concerns received, even after the anticipated approval by NEPRA, will be duly considered and incorporated in the immediate next version of the IGCEP i.e. for the year 2021. All kind of suggestions, comments and concerns are most welcome at **ce.glfp@ntdc.com.pk**; **+92-42-99200695**. For wider dissemination of the IGCEP and seeking generous feedback, the IGCEP would be published on the NTDC website subsequent to its approval from NEPRA.

5. Long-term Energy and Demand Forecast

Abstract

- The study is based on the long term demand forecast, with three levels of load forecast i.e. low, normal and high growth rate of GDP pursuant to the provisions of the per Grid Code.
- Long term load forecast is carried out by multiple regression analysis technique.
- In addition to low, normal and high demand forecast, five scenarios have been formulated.
- Hourly peak demand forecast has been developed, for the first time to cater for the intermittency of variable renewable energy sources. Energy and peak demand forecast of 245,280 hours have been estimated by 2047.
- The forecast results show the peak demand of 75,744 MW, 103,065 MW and 139,756 MW by 2047 under low, normal and high GDP growth scenarios respectively.
- The results of other forecast scenarios are shared in the Annexures.

5. Long-term Energy and Demand Forecast

5.1. Energy and Demand Forecast

Energy and demand forecast provides the basis for all planning activities in the power sector. It is one of the decisive inputs for the generation planning. Planning Code (PC4) of the Grid Code states:

Three levels of load forecasts i.e. high growth, medium growth and low growth projections should be employed for a time horizon of at least next twenty years for the long-term.

Factors that are to be taken into account while preparing the load forecasts include economic activity, population trends, industrialization, weather, distribution companies' forecasts, demand side management and load shedding, etc.

The long-term forecast prepared by LF&GP-PSP Team has been used for this study pursuant to the provision of PC4.

The methodology employed to develop the energy and demand forecast fulfills the criteria specified in the Gird Code. The methodology and its results are explained in the following sections.

5.2. Forecasting Methodology

The long-term forecast is carried out by multiple regression analysis technique. Electricity consumption (GWh) is regressed on electricity price, GDP, population and number of consumers using historical data for the period 1970-2019. The process of long-term load forecast is illustrated in the process flow map in Figure 5-1.

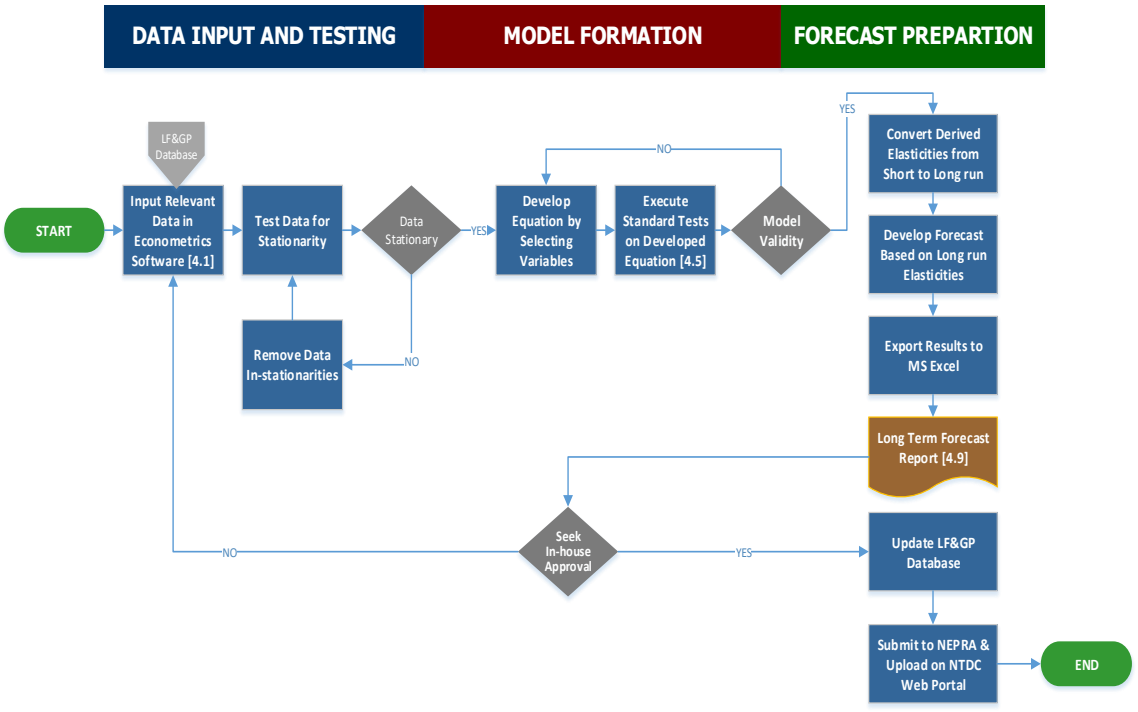


Figure 5-1: Process Flow of Methodology of Long-Term Forecast

A detailed regression analysis involves the review of fundamental quantitative relationships between the electricity demand and the independent variables of the equation like electricity price, sector's GDP, and population of Pakistan, etc.

For this model, the impact of historical load management i.e. load shedding is included in the data base, so the resulting equations estimate the actual energy demand.

5.3. Defining the Demand Forecast

5.3.1. Demand Forecast Scenarios: Regulatory Requirement

a. Scenario-I: Low Demand

In this scenario, it is supposed that GDP growth rate gradually increases from 3% to 4.5% from 2020 to 2025. However, growth rate of GDP remains constant at 4.5% from 2025 onwards to 2047.

b. Scenario-II: Normal Demand

For this scenario, it is supposed that GDP growth rate gradually increases from 4% to 5.5% from 2020 to 2025 and it remains constant at 5.5% from 2025 onwards to 2047.

c. Scenario-III: High Demand

In this scenario, it is supposed that GDP growth rate gradually increases from 5% to 6.5% from 2020 to 2025 while it remains constant at 6.5% constant from 2025 onwards to 2047.

5.3.2 Other Demand Forecast Scenarios

Following five (05) additional scenarios for the long-term demand forecast have been prepared. Detailed numbers with respect to all these additional scenarios is provided in Annexure-A.

a. Scenario-IV: IMF Projected GDP

IMF based GDP projections i.e. 3.30%, 2.40%, 3.0%, 4.5% and 5.0% have been considered respectively for the first five years only i.e. from FY 2019-20 to FY 2023-24; for the subsequent years, it has been kept constant i.e. 5.0% till FY 2046-47, to calculate the projected energy and computed peak demand.

b. Scenario-V: Inclusion of 25% of Total Load Management

25% of the total Load Management of the base year is included, to calculate the projected energy and computed peak demand.

c. Scenario-VI: Inclusion of 50% of Total Load Management

50% of the total Load Management of the base year is included, to calculate the projected energy and computed peak demand.

d. Scenario-VII: Excluding Load Management

Load management is excluded to calculate the projected energy and computed peak Demand.

e. Scenario-VIII: Excluding Load Management, EVs & NPHS

The impact of potential load of Electric Vehicles, Naya Pakistan Housing Scheme and load management has not been considered to calculate the projected energy and computed peak demand.

5.4. LF&GP-PSP Database

LF&GP-PSP Team is maintaining a huge database encompassing data regarding electricity sector and economic variables. The database includes, but not limited to, the following important reports:

a. Country's low projection of GDP growth rates by sectors, i.e. agriculture, industrial and commercial available as Annexure A-1

b. Country's normal projection of GDP growth rates by sectors, i.e. agriculture, industrial and commercial available as Annexure A-2

c. Country's high projection of GDP growth rates by sectors, i.e. agriculture, industrial and commercial available as Annexure A-3

d. Inclusion of 25% and 50% of total load management available as Annexure A-4

e. IMF GDP projections and excluding load management with and without EVs and NPHS available as Annexure A-5

f. Total GDP factor cost and sectorial GDP factor cost with base year 2005-06 and Consumer Price Index (CPI) and its growth rate, available as Annexure A-6

g. Category-wise Nominal Tariff of NTDC and KE, available as Annexure A-7

h. Category-wise Real Tariff of NTDC and KE with base year 2005-06, available as Annexure A-8

i. Weighted Average of Real of NTDC and KE with base year 2005-06, available as Annexure A-9

j. Electricity Consumption by Category (GWh) – NTDC, available as Annexure A-10

k. Electricity Consumption by Category (GWh) - KE, available as Annexure A-11

l. Category-wise Load Shedding (GWh) - NTDC, available as Annexure A-12

m. Load shedding by Category (GWh) - KE, available as Annexure A-13

n. Category Wise Number of Customers – NTDC, available as Annexure A-14

o. Category Wise Number of Customers – KE, available as Annexure A-15

p. Category-Wise Total Number of Customers, available as Annexure A-16

q. Category-Wise Consumption per Customer – NTDC, available as Annexure A-17

r. Category-Wise Consumption per Customer – KE, available as Annexure A-18

s. Average Consumption per Customer (kWh) – Country, available as Annexure A-19

In a bid to consider the effect of load shedding prevailing in the country, the electricity consumption data includes an estimate of the unserved energy to reflect the total demand.

The above stated data has been collected from Economic Survey of Pakistan, NTDC Power System Statistics and various other sources from the year 1970 up to 2019.

5.5. Preparation of Demand Forecast

The electricity consumption of Pakistan is segregated into the following four different sectors:

a. Domestic;

b. Commercial;

c. Industrial; and

d. Agriculture

These four sectors have different patterns of consumption during the year. Hence, they are forecasted separately. The forecast of the four sectors are then combined to form the forecast of total electrical energy demand. In order to forecast the annual consumption of electricity up to 2047, a multiple regression model is used. Electricity energy sale of the respective category is the dependent variable in the regression model, whereas, the independent variables for each category are as follows:

a. Annual GDP and its components i.e. agriculture sector, industrial sector and services sector;

b. Tariff-wise electricity prices i.e. domestic, commercial, agriculture and industrial;

c. Number of consumers;

d. Lag of dependent variables;

e. Consumer Price Index; and

f. Dummy variables

Four equations are proposed, one for each category of electricity consumption. For statistical analysis, popular statistical software namely EViews is used. EViews (http://www.eviews.com/general/about_us.html) is a well-known econometrics tool widely used for forecasting. It is a “canned” regression package for econometric analysis. EViews has an object-oriented design. Each type of object has specific ‘views’ and procedures that are used in EViews. It provides sophisticated data analysis, regression, and forecasting tools on Windows based computers. With EViews one can quickly develop a statistical relationship from the available data and then use the relation to forecast future values of the data. Areas where EViews has proven to be useful include scientific data analysis and evaluation, financial analysis, macroeconomic forecasting, simulation, sales forecasting, and cost analysis. In addition to the menu driven object-oriented user interface, it is also possible to write simple programs in EViews programming language, without having to invest too much effort in the programming. NTDC Power System Planning office has been using this software since 1992.

Ordinary Least Square technique is selected for the estimation of regression equation. The equations are written in logarithm form to evaluate elasticity in percentage, in order to get easy to interpret and standardized results. Various statistical tests were performed to establish the significance of the relationship between the dependent variable and the independent variables.

After thorough statistical analysis using EViews, the appropriate elasticity coefficients were selected for all the four equations. These elasticities were then converted into long-term elasticities. On the other hand, growth rates for independent variables such as total GDP, electricity price, etc. were projected based on the past data. The long-term elasticities and the projected independent variables were subsequently used in the equation to develop the long-term energy forecast of each category using the equation below.

$$Y_T = Y_{T-1} * (1+GR\ of\ G)^b * (1+GR\ of\ R)^c * (1+GR\ of\ L)^d$$

Table 5-1 provides the description of all the variables used in this equation:

Variable	Description
Y_T	Electricity Demand of current year (Sales GWh)
Y_{T-1}	Electricity Demand of previous year (Sales GWh)
GR	Growth Rate
G, R, L	Independent variable (GDP, Real Price, Lag)
b, c, d	Elasticities of independent variables (GDP, Real Price and Lag respectively)

Table 5-1: Description of Dependent and Independent Variables

The forecast results of the four categories were combined to calculate the sale forecast at the country level. Required generation (GWh) was calculated after adding projected distribution losses at 11 kV and Transmission Losses at 132 kV and 500/220 kV according to the loss reduction plan of respective DISCOs and NTDC. In order to convert the energy in peak demand, load factor was calculated from energy generated and peak demand of the base year. That load factor was then projected for future years. The projected load factor was then used along with projected energy generation to forecast the peak demand.

5.6. Demand Forecast Numbers

Based on the variables and methodology explained above, the Table 5-2 highlights forecast prepared for the Low, Normal and High growth scenarios. Moreover, the comparison of different demand growth scenarios is graphically illustrated in Chart 5-1.

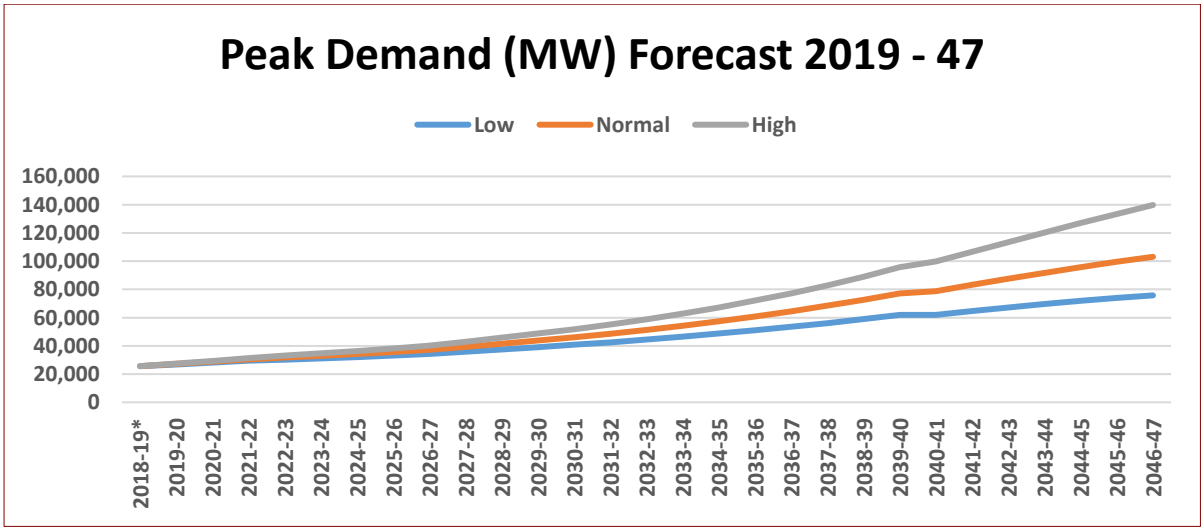
FY	Low GDP 4.5%		Normal GDP 5.5%		High GDP 6.5%	
	Generation	Peak Demand	Generation	Peak Demand	Generation	Peak Demand
	GWh	MW	GWh	MW	GWh	MW
2018-19*	149,556	25,627	149,556	25,627	149,556	25,627
2019-20	155,203	26,844	156,840	27,128	158,365	27,391
2020-21	159,016	28,143	162,472	28,755	165,662	29,320
2021-22	165,003	29,431	170,738	30,454	176,072	31,406

FY	Low GDP 4.5%		Normal GDP 5.5%		High GDP 6.5%	
	Generation	Peak Demand	Generation	Peak Demand	Generation	Peak Demand
	GWh	MW	GWh	MW	GWh	MW
2022-23	172,674	30,286	176,918	31,755	184,615	33,137
2023-24	177,021	31,189	182,560	32,975	191,942	34,670
2024-25	155,203	32,076	188,792	34,209	200,096	36,257
2019-25	**2.8%**	**3.8%**	**4.0%**	**4.9%**	**5.0%**	**6.0%**
2025-26	182,086	33,099	196,044	35,636	209,651	38,109
2026-27	187,499	34,192	203,899	37,182	220,138	40,144
2027-28	195,404	35,747	214,603	39,260	233,926	42,795
2028-29	203,939	37,429	226,322	41,537	249,217	45,739
2029-30	212,418	39,111	237,996	43,820	264,595	48,718
2026-30	**3.9%**	**4.3%**	**5.0%**	**5.3%**	**6.0%**	**6.3%**
2030-31	221,372	40,759	250,462	46,115	281,209	51,777
2031-32	230,882	42,510	263,841	48,579	299,247	55,098
2032-33	241,389	44,445	278,676	51,310	319,387	58,806
2033-34	252,518	46,494	294,572	54,237	341,228	62,827
2034-35	264,492	48,699	311,828	57,414	365,189	67,239
2031-35	**4.5%**	**4.5%**	**5.6%**	**5.6%**	**6.8%**	**6.8%**
2035-36	277,159	51,031	330,304	60,816	391,166	72,022
2036-37	290,648	53,514	350,196	64,479	419,467	77,233
2037-38	304,911	56,141	371,490	68,399	450,150	82,882
2038-39	320,035	58,925	394,338	72,606	483,486	89,020
2039-40	336,026	61,870	418,798	77,110	519,636	95,676
2036-40	**4.9%**	**4.9%**	**6.1%**	**6.1%**	**7.4%**	**7.4%**
2040-41	336,035	61,871	428,094	78,821	541,957	99,786

FY	Low GDP 4.5%		Normal GDP 5.5%		High GDP 6.5%	
	Generation	Peak Demand	Generation	Peak Demand	Generation	Peak Demand
	GWh	MW	GWh	MW	GWh	MW
2041-42	350,518	64,538	451,631	83,155	578,516	106,517
2042-43	365,000	67,204	475,646	87,577	616,490	113,509
2043-44	377,846	69,570	497,903	91,675	652,854	120,204
2044-45	390,240	71,851	519,925	95,729	689,593	126,969
2045-46	401,215	73,872	540,294	99,480	724,672	133,428
2046-47	411,379	75,744	559,765	103,065	759,041	139,756
2041-47	**3.4%**	**3.4%**	**4.6%**	**4.6%**	**5.8%**	**5.8%**
2020-47	**3.7%**	**3.9%**	**4.8%**	**5.1%**	**6.0%**	**6.2%**

***For 2018-19, actual Demand (MW) & Energy generation (GWh) is considered.

Table 5-2: Annual Long-Term Energy and Peak Demand Forecast



***For 2018-19, actual Demand (MW) & Energy generation (GWh) is considered.**

Chart 5-1: Peak Demand (MW) Forecast 2019 – 47

5.7. Hourly Peak Demand Forecast

Hourly peak demand forecast has been, first time developed, especially to cater for the intermittency of variable renewable energy sources. This is particularly important in view of the aggressive targets envisioned by the GoP pertaining to renewable energy. Hence, the energy and peak demand forecast of 245,280 hours have been estimated form FY 2019-20 to FY 2046-47. In this process, the forecasted annual peak demand was converted into hourly demand by applying appropriate hourly factors, based on the hourly historical data.

5.8. Modelling of Electric Vehicles and Naya Pakistan Housing Scheme

In the recent years, there is a storm of technological advancements and industrial growth at the consumer end of Pakistan. This is highly exciting as new technologies allow people and business community to rethink the approach of living and providing goods and services respectively besides initiating thinking process on the part of planners with respect to electricity demand variation. There determinants are believed to add to the electric demand in the power system i.e. electric vehicles (EV) and Prime Minister's initiative of Naya Pakistan Housing Scheme (NPHS) – five million affordable houses for the people of Pakistan during the next three years or so. For understanding these transformations, broadly applicable principles need to be defined and a comprehensive approach is required to be taken so that the appropriate measures can be strategized since under estimation of electric demand can lead to load management and alternatively over estimation of the same can cause serious financial implications on the national exchequer.

NTDC has investigated the impact of EV and the 5 million houses initiative – NPHS – on the electric power demand of Pakistan by the year 2030. Subsequently, the forecast output has been included in the long-term forecast to address the future impact of disruptive technologies.

6. Inside the IGCEP 2047

Abstract

- Base case for IGCEP 2047 features draft ARE policy (20% and 30% of installed capacity by year 2025 and 2030), a GDP of 5.5% (Ministry of Planning, Development and Reforms), hydro optimization, contractual obligations and retirement of power plants as per PPA terms.
- Twelve (12) scenarios are, furthermore formulated and simulated to encompass all the future possibilities.
- IGCEP 2047 optimizes existing, committed and addition of power generation from available supply technologies on least cost basis to meet the projected demand while considering the reliability criteria and reserve requirements as per the provisions of the Grid code.
- 11,511 MW of existing thermal power plants are scheduled to retire up till 2047.
- 10,153 MW of committed public sector projects have been considered.
- 10,157 MW of committed private sector projects have been taken.
- For optimization and simulations, PLEXOS energy model has been utilized.

6. Inside the IGCEP

6.1. Introduction

The key objective of the generation expansion planning activity is to develop a least cost, long-term generation expansion plan for NTDC system for the period 2019-20 to 2046-47 to meet the maximum load and energy demand whilst taking into account the regulatory requirements as stipulated under Planning Code 4 of the Grid Code and identified constraints. The following section describes the key parameters and results of the generation planning study.

6.2. Defining Base Case

Major features of the Base Case are as follows:

a. Targets set out in the draft ARE Policy 2019 (20% and 30% of the installed capacity by the year 2025 and 2030, respectively)

b. Normal scenario of long-term forecast used (GDP 5.5%)

c. GDP projections by Ministry of Planning, Development and Reforms

d. Hydro optimization during the study horizon

e. Existing contractual obligations are maintained till the end of contract

f. Retirement of power plants as per respective PPA term

6.3. Other Scenarios

In addition to the base case, following scenarios have also been simulated through this study:

a. Scenario - I: Hydro Optimization Not Horizon Bound – HPP Free

It is not mandatory for the optimization tool to select all candidate hydro power projects within the study horizon i.e. by 2020-47, meaning the tool may select or out rightly omit any candidate hydro power plant based on least cost criteria. The results are attached as Annexure-C.

b. Scenario - II: Demand Forecast on IMF Projected GDP

All other parameters are same as those of the base case except for the demand numbers i.e. the IMF based GDP projections have been used to devise load demand forecast till 2047. The results are attached as Annexure-D.

c. Scenario-III: No VRE Policy

All other parameters are same as of base case except that no GoP's VRE targets are forced to the tool; rather the tool is free to optimize all technologies based on least cost criteria. The results are attached as Annexure-E.

d. Scenario - IV: Low Demand Scenario

All other parameters are same as those of the base case except for the demand numbers i.e. the GDP projection of 4.5% has been used to devise load demand forecast till 2047. The results are attached as Annexure-F.

e. Scenario - V: High Demand Scenario

All other parameters are same as those of base case except for the demand numbers i.e. the GDP projection of 6.5% has been used to devise load demand forecast till 2047. The results are attached as Annexure-G.

f. Scenario - VI: Generic Candidate CCGTs and OCGTs on Local Gas

All other parameters are same as of base case except that, the generic candidate CCGTs and OCGTs have been considered on local gas instead of RLNG. The results are attached as Annexure-H.

g. Scenario - VII: No New Generic Candidate CCGTs and OCGTs

All other parameters are same as of base case except that, no new generic candidate CCGTs and OCGTs have been considered either on local gas or on RLNG. The results are attached as Annexure-I.

h. Scenario - VIII: Inclusion of 25% of Total Load Management

All other parameters are same as of base case except that, 25% of total load management has been considered. The results are attached as Annexure-J.

i. Scenario - IX: Inclusion of 50% of Total Load Management

All other parameters are same as of base case except that, 50% of total load management has been considered. The results are attached as Annexure-K.

j. Scenario - X: Excluding Load Management

All other parameters are same as of base case except that, no total load management has been considered. The results are attached as Annexure-L.

k. Scenario - XI: Excluding Load Management, EVs & NPHS Demand

All other parameters are same as of base case except that, neither load management nor the demand of EVs and NPHS has been considered. The results are attached as Annexure-M.

l. Scenario - XII: Jamshoro CFPP (Unit-II) as candidate power plant

All other parameters are same as of base case except that, Unit-II of Jamshoro CFPP has been considered as a candidate power plant. The results are attached as Annexure-N.

6.4. Strategic Considerations

In order to develop an effective least cost generation capacity expansion plan that will meet the future power needs of the country, both the strategic considerations and constraints being faced by Pakistan's power sector are considered. Such constraints include the take or pay contractual constraints on RLNG and imported coal-based power plants. For the RLNG based and imported coal-based projects, 66% and 50% minimum annual despatch on take or pay basis has been considered, respectively. In addition to contractual bindings, all strategic projects have been considered in the study which includes CPEC projects and G2G projects. In the long-term, it is assumed that the GoP's policy will continue to focus on harnessing of indigenous resources, particularly REs all across the country, Thar coal in South and hydro

potential in North. It is pertinent to mention here that the IGCEP has been prepared in line with GoP's draft ARE Policy 2019 targets.

6.5. Approach and Methodology

The development of the least cost generation capacity expansion plan is the process of optimizing i) existing and committed generation facilities and ii) additions of generation from available supply technologies/options in order to determine the least cost generation and development sequence, which would meet the projected demand and would also satisfy the specified reliability criteria. For the purpose of the IGCEP, following methodology has been adopted and illustrated in Figure 6-1:

a. **First Step:** Review the existing generation facilities, committed power projects and to explore the range of generation addition options available to meet the future demand.

b. **Second Step:** Determine the economically attractive/viable generation options and generation mix.

c. **Third Step:** Define the Base Case subsequent to identification of the economically attractive options.

d. **Fourth Step:** Develop the least cost plan whilst considering the reliability criteria and reserve requirements under the already defined base case using the PLEXOS tool.

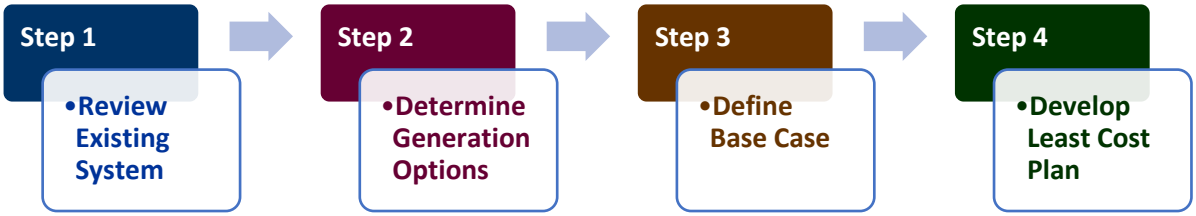


Figure 6-1: IGCEP Data Modelling Approach

6.6. Planning Basis

In order to ensure that the base case scenario meets the requirements in terms of performance, the generation planning criteria tabulated in the Table 6-1 was defined, discussed and thus adopted.

Parameter	Value
Discount Rate	10% real
Reference date for costs	December 2019
Fuel Pricing	Real Prices of December 2019
Dollar Rate	Rs 156.7
Cost of unserved energy	US $ 0.80/kWh
Value of Reserve Shortage (VoRS)*	US $ 100/MW

Parameter	Value
Economic Life of Plant:	
Hydroelectric	50 years
Steam Turbines	30 years
Combined Cycle Plants	30 years
Combustion Turbines	30 years
Wind Power Plants	25 years
Solar Power Plants	25 years
Nuclear Power Plants	70 Years

*Source: VRE Integration and Planning Report (Task-3) by Lahmeyer/Tractebel

Table 6-1: Generation Planning Criteria

6.7. Assumption Set

Based on the existing data and information available, the IGCEP study has been conducted using the following important assumptions:

a. A project is considered as committed one provided the project fulfills at least one of the following pre-requisites:
   - Already under construction;
   - Has achieved financial close;
   - Has strategic importance i.e. China-Pakistan Economic Corridor (CPEC) project;
   - A G2G project

b. CODs for committed and targeted commissioning schedule of the candidate power projects conveyed by the project executing entities have been considered.

c. All the costs have been updated as of December 2019.

d. Plants without requisite data as per the prescribed format have not been considered.

e. Existing RLNG and imported coal-based projects have been given a minimum despatch but not less than their contractual obligations/bindings (Take or Pay contracts), up till expiry of their respective contract.

f. All strategic projects have been considered in the study i.e. CPEC projects, CASA-1,000 and Gwadar Coal Fired power Project (CFPP).

g. All RE plants (Wind, Solar and Bagasse) enlisted in Category I & II of CCOE's decisions have been considered as committed power plants.

h. Candidate Wind and Solar Power projects of 1,500 MW each per year, from the year 2022-23 and onwards.

i. Reserve requirements considered as per Grid Code requirements.

j. 1,320 MW Oracle Thar Based CFPP, though being a CPEC project, has not been considered as a committed one; the project has been emerging with different plant characteristics and frequently changing COD over a prolonged time period. However, this project has been considered as a candidate power plant and its selection / omission is based on the optimization by the tool.

k. Candidate Bagasse based Power projects of 250 MW each per year, from the year 2023-24 and onwards.

l. In this study, all mentioned years correspond to fiscal (financial) years, e.g. 2025 is actually the fiscal year July 1, 2024 to June 30, 2025.

m. Fixed System

- Existing system fuel cost and variable O&M cost were obtained from Merit Order i.e. frequently updated economic despatch order of thermal power plants as of December 2019.
- Fixed O&M cost figures were obtained from NEPRA's quarterly indexation of December 2019, available on NEPRA's website.
- Moreover, the Fixed O&M costs of power plants built under 1994 policy were not available on NEPRA's website, so these costs were obtained from previous data available with PSP.

n. Variable System

- For candidate local coal power plant, the reference cost was taken form latest upfront tariff and operational data of SSRL (1,320 MW) has been considered.
- For candidate imported coal power plant, the reference cost and operational data of China Power Hub Generation Company (Private) Limited (1,320 MW) has been considered.
- For candidate nuclear power plant, the reference cost and operational data as conveyed by PAEC is considered.
- For candidate RLNG based CCGT power plant, the reference cost and operational data of Trimmu (1,243 MW) is considered.
- For candidate RLNG base OCGT power plant, the fuel cost of Trimmu is considered while remaining plant characteristics are as per international practices.
- For candidate Wind PPs costs, latest available NEPRA's tariff determination of Master Green Wind (50 MW) has been considered.
- For candidate Solar PPs costs, latest available NEPRA's tariff determination of Zorlu Solar (100 MW) has been considered.

- For candidate Bagasse based PPs, reference cost taken from Lahmeyer's international study on 'VRE Integration and Planning: Pakistan'.
- For HPPs, the cost data shared by concerned project executing entities has been indexed to December 2019 (Annexure B-4). The values for indexation were obtained from NEPRA's website.

6.8. Existing Power Generation of Pakistan

Total installed capacity of existing NTDC system is about 35,344 MW as of 31st December 2019 and the de-rated capacity is equivalent to 32,239 MW. Percentage wise share of hydro, thermal, nuclear and REs in existing NTDC capacity mix is about 31%, 60%, 4% and 5% respectively. This technology wise break-up down is shown in Chart 6-1.

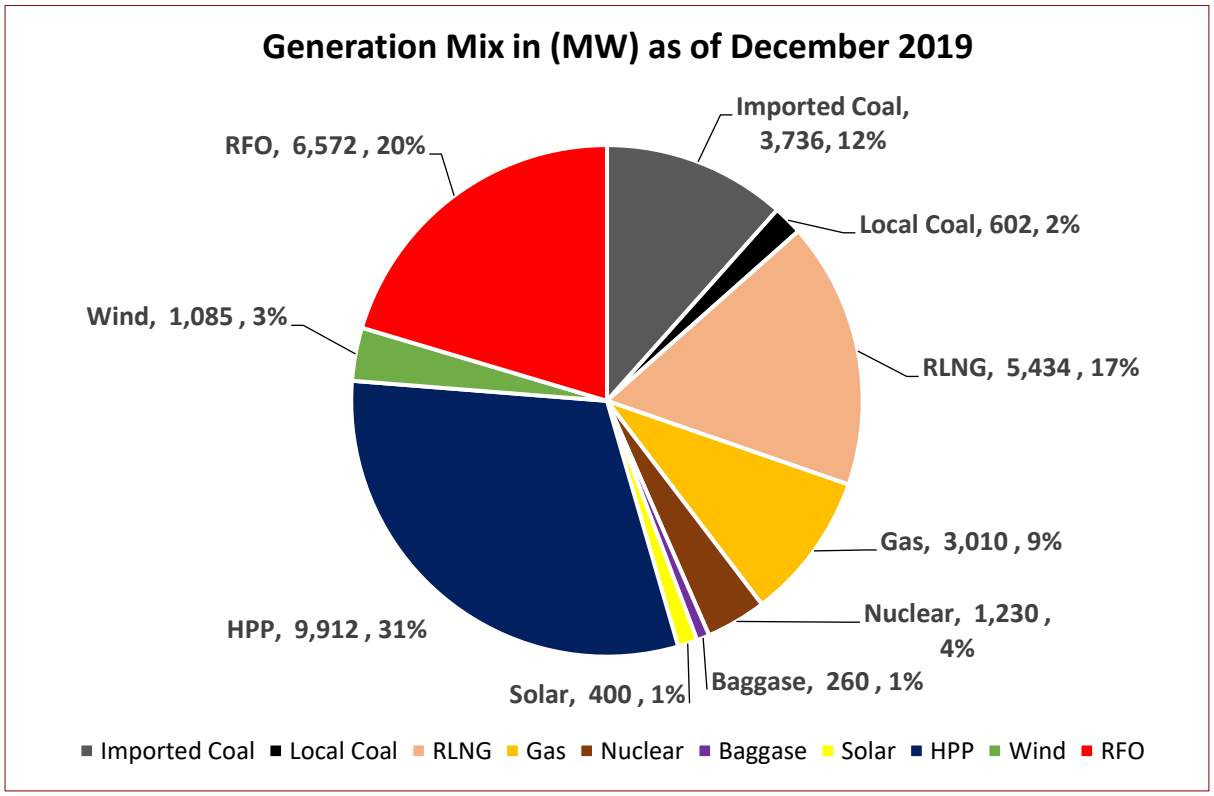


Chart 6-1: Generation Mix (MW) as of December 2019

6.9. Retirement of Existing Power Plants

A significant quantum i.e. 11,511 MW of existing thermal power plants are scheduled to be retired during the planning horizon of the IGCEP. A plant is supposed to be declared as retired upon completing its PPA term. The retirement schedule for the IGCEP is provided in the Table 6-2 and Figure 6-2.

Name of the Power Station	Capacity (MW)	Fuel Type	FY																		
			2020	21	22	23	27	28	30	31	32	33	34	35	36	39	40	41	44	45	46
Reshma	85	RFO	✓																		
KAPCO 1	341	RFO		✓																	
KAPCO 2	746	RFO		✓																	
KAPCO 3	249	RFO		✓																	
Guddu-I	260	Gas			✓																
Guddu-II	270	Gas				✓															
Liberty	212	Gas					✓														
HUBCO	1,200	RFO					✓														
Kohinoor	124	RFO					✓														
Lalpir	350	RFO						✓													
AES Pakgen	350	RFO						✓													
GTPS Block 4	117	RLNG						✓													
Kotri	106	Gas						✓													
Muzaffargarh Unit 1 B-I	190	RFO							✓												

Name of the Power Station	Capacity (MW)	Fuel Type	FY																		
			2020	21	22	23	27	28	30	31	32	33	34	35	36	39	40	41	44	45	46
HCPC	129	Gas							✓												
Uch	549	Gas							✓												
FKPCL	151	RLNG							✓												
Jamshoro-II Unit 2	155	RFO							✓												
Saba	126	RFO							✓												
Rousch	395	RLNG							✓												
Jamshoro-I Unit 1	182	RFO							✓												
Jamshoro-II Unit 3	155	RFO							✓												
Jamshoro-II Unit 4	155	RFO								✓											
Altern	29	Gas									✓										
Muzaffargarh Unit 3 B-I	184	RFO									✓										
Muzaffargarh Unit 2 B-1	183	RFO									✓										
Muzaffargarh Unit 6 B-III	174	RFO										✓									
Muzaffargarh Unit 5 B-III	181	RFO										✓									

Name of the Power Station	Capacity (MW)	Fuel Type	FY																	
			2020	21	22	23	27	28	30	31	32	33	34	35	36	39	40	41	44	45	46
Muzaffargarh Unit 4 B-II	272	RFO										✓									
AGL	156	RFO											✓								
ATLAS	214	RFO												✓							
Engro	212	Gas												✓							
Nishat P	195	RFO												✓							
Nishat C	196	RFO													✓						
Liberty Tech	196	RFO													✓						
HuB N	214	RFO													✓						
Foundation	167	Gas													✓						
Uch-II	355	Gas														✓					
Saif	203	RLNG															✓				
Orient	203	RLNG															✓				
Saphire	202	RLNG																✓			
Halmore	197	RLNG																✓			

Name of the Power Station	Capacity (MW)	Fuel Type	FY																	
			2020	21	22	23	27	28	30	31	32	33	34	35	36	39	40	41	44	45	46
Davis	10.28	RLNG																	✓		
Guddu-V (747)	721	Gas																		✓	
Nandipur	450	RLNG																			✓
Total (MW)	**11,511 MW**																				

Table 6-2: Retirement Schedule of Existing Power System

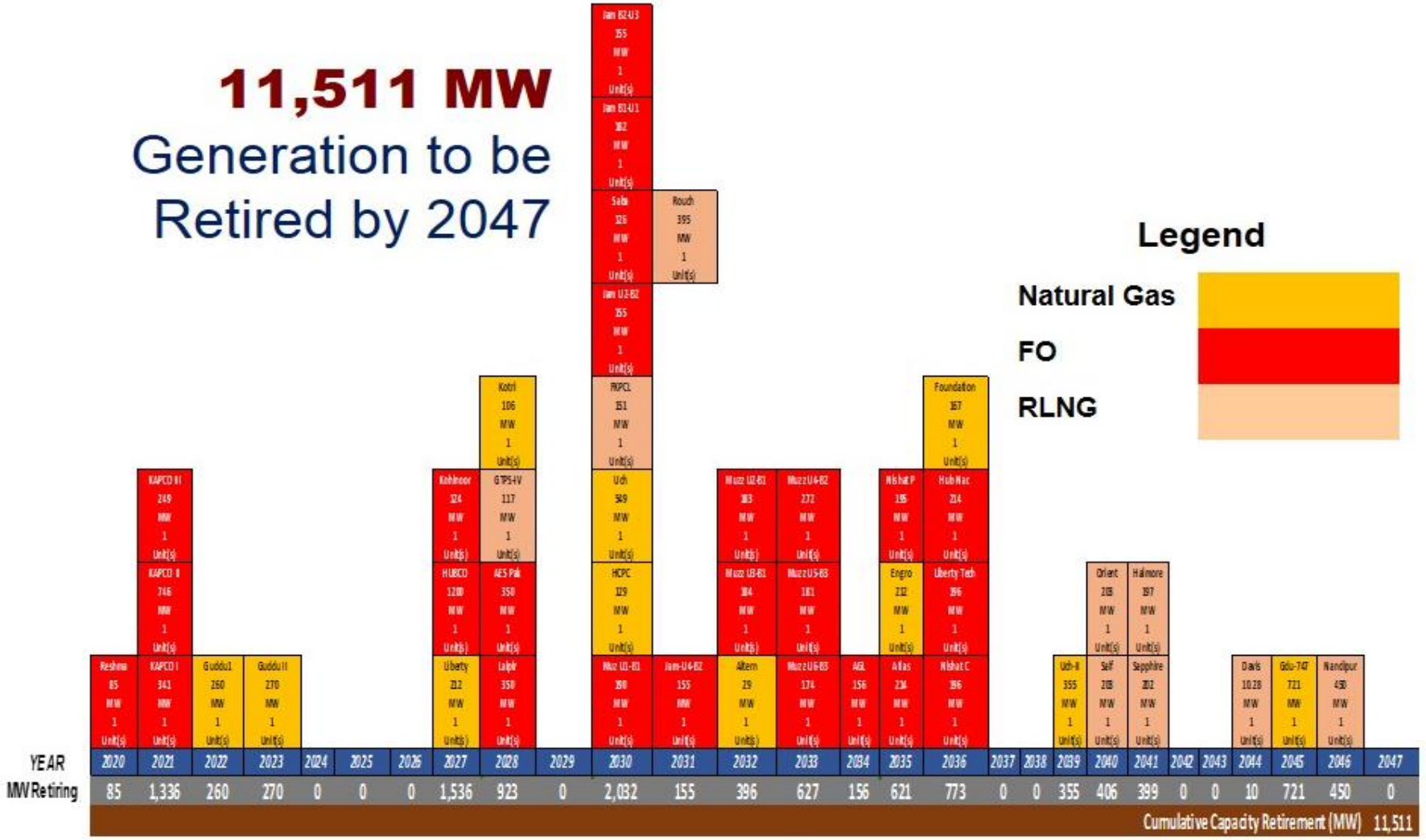


Figure 6-2: IGCEP 2047 Retirement Schedule

6.10. Committed Generating Units

Power Plants considered as committed projects are based on the criterion shown in the Figure 6-3.

Figure 6-3: Committed Projects Criterion

6.10.1. Public Sector Committed Projects

Committed projects in the public sector are listed in the Table 6-3.

#	Name of Project	Fuel Type	Agency	Installed Capacity (MW)	Schedule of Commissioning
1	Karachi Nuclear K-2	Nuclear	PAEC	1,100	2021
2	Karachi Nuclear K-3	Nuclear	PAEC	1,100	2022
3	Jamshoro CFPP Unit 1	Imp. Coal	GENCO	660	2022
4	CASA	Import	GOP	1,000	2023
5	Jamshoro CFPP Unit 2	Imp. Coal	GENCO	660	2024
6	Tarbela 5th-Extension	Hydro	WAPDA	1,410	2024
7	Mohmand HPP	Hydro	WAPDA	800	2025

#	Name of Project	Fuel Type	Agency	Installed Capacity (MW)	Schedule of Commissioning
8	Dasu 1 HPP	Hydro	WAPDA	2,160	2025
9	Keyal Khwar HPP	Hydro	WAPDA	128	2025
10	Chasma Nuclear C-5	Nuclear	PAEC	1,100	2026
11	Harpo HPP	Hydro	WAPDA	35	2026
Total Public Sector Committed Projects (MW)				**10,153**	

Table 6-3: Public Sector Committed Projects

6.10.2. Private Sector Committed Projects

Private sector, upcoming projects considered as committed projects for the purpose of the IGCEP study are listed in the Table 6-4.

#	Name of Committed Project	Fuel Type	Agency	Installed Capacity (MW)	Expected Schedule of Commissioning
1	Jabori HPP	Hydro	PEDO	10	2020
2	Jhing HPP	Hydro	AJK	15	2020
3	Karora HPP	Hydro	PEDO	12	2020
4	Koto HPP	Hydro	PEDO	41	2020
5	Trimmu	RLNG	PPIB	1,263	2020
6	Zorlu Solar Pakistan Pvt. Ltd.	Solar	PPDB/ AEDB	100	2020
7	Access Electric Pvt. Ltd.	Solar	AEDB	10	2021
8	Access Solar Pvt. Ltd.	Solar	AEDB	12	2021
9	Etihad Power Generation Ltd.	Bagasse	AEDB	74	2021
10	Hydro China Dawood Power Pvt. Limited	Wind	AEDB	50	2021
11	Lawi HPP	Hydro	PEDO	69	2021
12	Lucky	Local Coal	PPIB	660	2021

#	Name of Committed Project	Fuel Type	Agency	Installed Capacity (MW)	Expected Schedule of Commissioning
13	Master Green Energy Ltd.	Wind	AEDB	50	2021
14	Riali-II HPP	Hydro	AJK	7	2021
15	Shaheen Renewable Energy-1 Pvt. Ltd.	Wind	AEDB	51	2021
16	Tenga Generasi Limited	Wind	AEDB	50	2021
17	Tricorm Wind Power Pvt. Ltd	Wind	AEDB	50	2021
18	Western Energy Pvt. Limited	Wind	AEDB	50	2021
19	Zephyr Power Pvt. Limited	Wind	AEDB	50	2021
20	ACT 2 wind (Pvt.) Ltd.	Wind	AEDB	50	2022
21	Alliance Power (Pvt.) Ltd.	Bagasse	AEDB	30	2022
22	Artistic Wind Power Pvt. Limited.	Wind	AEDB	50	2022
23	Bahawalpur Energy Ltd.	Bagasse	AEDB	31	2022
24	Buksh Energy Pvt. Ltd.	Solar	AEDB	12	2022
25	Din Energy Ltd.	Wind	AEDB	50	2022
26	Faran Power Limited	Bagasse	AEDB	27	2022
27	Ghotki Power (Pvt.) Ltd.	Bagasse	AEDB	45	2022
28	Gul Ahmed Electric Ltd.	Wind	AEDB	50	2022
29	Gwadar	Imp.Coal	PPIB	300	2022
30	Hamza Sugar Mills Ltd. (Unit-II)	Bagasse	AEDB	30	2022
31	Helios Power Pvt. Ltd.	Solar	AEDB	50	2022
32	HNDS Energy Pvt. Ltd.	Solar	AEDB	50	2022
33	HSM Energy Ltd.	Bagasse	AEDB	27	2022
34	Hunza Power (Pvt.) Ltd.	Bagasse	AEDB	50	2022

#	Name of Committed Project	Fuel Type	Agency	Installed Capacity (MW)	Expected Schedule of Commissioning
35	Indus Energy Ltd.	Bagasse	AEDB	31	2022
36	Indus Wind Energy Ltd.	Wind	AEDB	50	2022
37	Ittefaq Power Ltd.	Bagasse	AEDB	31	2022
38	Karot HPP	Hydro	PPIB	720	2022
39	Kashmir Power (Pvt.) Ltd.	Bagasse	AEDB	40	2022
40	Lakeside Energy Pvt. Ltd	Wind	AEDB	50	2022
41	Liberty Wind Power 1 Pvt. Ltd.	Wind	AEDB	50	2022
42	Liberty Wind Power 2 Pvt. Ltd.	Wind	AEDB	50	2022
43	Mehran Energy Ltd.	Bagasse	AEDB	27	2022
44	Meridian Energy Pvt. Ltd.	Solar	AEDB	50	2022
45	Metro Wind Power Ltd.	Wind	AEDB	60	2022
46	NASDA Green Energy Pvt. Ltd	Wind	AEDB	50	2022
47	RYK Energy Ltd.	Bagasse	AEDB	25	2022
48	Sadiqabad Power (Pvt.) Ltd.	Bagasse	AEDB	45	2022
49	Safe Solar Power Pvt. Ltd.	Solar	AEDB	10	2022
50	Shahtaj Sugar Mills Ltd.	Bagasse	AEDB	32	2022
51	Sheikhoo Power (Pvt.) Ltd.	Bagasse	AEDB	30	2022
52	Siddiqsons	Local Coal	PPIB	330	2021
53	TAY Powergen Company (Pvt.) Ltd.	Bagasse	AEDB	30	2022
54	Thal Nova	Local Coal	PPIB	330	2021
55	Thar TEL	Local Coal	PPIB	330	2021
56	Thar-I (Shanghai Electric)	Local Coal	PPIB	1,320	2021, 2022

#	Name of Committed Project	Fuel Type	Agency	Installed Capacity (MW)	Expected Schedule of Commissioning
57	Trans Atlantic Energy (Pvt.) Limited	Wind	AEDB	48	2022
58	Two Star Energy (Pvt.) Ltd.	Bagasse	AEDB	50	2022
59	Zhenfa Pakistan New Energy Company (Pvt.) Ltd.	Solar	PPDB/ AEDB	100	2022
60	Gorkin Matiltan	Hydro	PEDO	84	2023
61	Suki Kinari	Hydro	PPIB	884	2023
62	Azad Pattan HPP	Hydro	PPIB	700	2027
63	Kohala HPP	Hydro	PPIB	1,124	2027
Total (MW):		**10,157**			

Table 6-4: List of Committed Projects in the Private Sector

6.11. New Generation Options

The candidate generation technologies, selected to be fed into the model, are as follows:

a. Steam PP on Imported Coal (660 MW)
b. Steam PP on Thar Coal (660 MW)
c. Combined Cycle PP on Imported Gas / LNG (1,263 MW)
d. Gas Turbine on Imported Gas / LNG (400 MW)
e. Nuclear Steam PP on Uranium (2,290 MW)
f. Wind Turbine (Block of 1,500 MW)
g. Solar PV (Block of 1,500 MW)
h. Bagasse (Block of 250 MW)

6.12. Hydro Projects and Screening

The data for hydro projects was obtained from the relevant project executing entities. Table 6-5 shows the indexed costs as of December, 2019 candidate hydro plants.

#	Power Plant	Installed Capacity (MW)	Earliest Availability	FO&M $/kW/Yr	Installed Cost ($/kW)	Annual Energy (GWh)	Plant Factor	Annualized Cost of Energy		
								c/kWh	Rs/kWh	$/kW/Yr
1	Riali-III	3.072	2024	10	395	24	89%	0.64	1.00	49.76
2	Dasu_2	2160	2025	10	1059	12219	65%	2.06	3.23	116.77
3	Thakot-I	2154	2026	10	1395	10533	56%	3.08	4.83	150.67
4	Mahl	640	2026	25	1653	3720	66%	3.31	5.18	192.16
5	Skardu	1200	2027	21	1301	5280	50%	3.46	5.42	152.27
6	Dander	56	2026	10	1522	264	54%	3.47	5.43	163.45
7	Thakot-II	964	2028	10	1622	4796	57%	3.49	5.47	173.54
8	Thakot-III	1683	2026	29	1242	7407	50%	3.50	5.49	154.14
9	Rajdhani	132	2027	10	1851	677	59%	3.83	6.01	196.61
10	Dowarian	40	2025	22	1378	167	48%	3.85	6.03	160.59
11	Nerai-Dubair	45.72	2026	10	2189	274	68%	3.85	6.03	230.70
12	Bhimbal Katha	7.86	2026	76	1694	50	73%	3.88	6.09	247.12
13	Blue Star	3.021	2026	10	2269	18	68%	4.01	6.28	238.86
14	Sakhra-I	8	2026	20	2126	44	63%	4.27	6.69	234.88
15	Chapri Charkhel	10.56	2025	10	2866	73	79%	4.33	6.78	299.02
16	Harigehl-Majeedgala	40.32	2022	3	2372	225	64%	4.34	6.79	241.93
17	Torkhow	70	2024	10	1853	313	51%	4.40	6.90	196.83
18	Dubair Kalay	65.7	2030	10	2526	388	67%	4.48	7.02	264.71
19	Patan	2400	2028	62	1823	12520	60%	4.70	7.37	245.43
20	Lower Spat Gah	496	2023	35	1630	2084	48%	4.75	7.44	199.46
21	Phandar	80	2025	2	1950	331	47%	4.80	7.53	198.80
22	Kathai-II	8	2024	10	2350	41	59%	4.82	7.55	246.93

#	Power Plant	Installed Capacity (MW)	Earliest Availability	FO&M $/kW/Yr	Installed Cost ($/kW)	Annual Energy (GWh)	Plant Factor	Annualized Cost of Energy		
								c/kWh	Rs/kWh	$/kW/Yr
23	Pashot	60.3	2023	10	2196	289	55%	4.83	7.57	231.45
24	Madian	157	2028	9	1996	679	49%	4.86	7.62	210.20
25	Kalam Asrit	212	2026	19	1799	870	47%	4.88	7.65	200.34
26	Lower Palas	665	2028	10	1771	2568	44%	4.88	7.65	188.53
27	Asrit Kadam	215	2024	12	1996	931	49%	4.93	7.73	213.58
28	Tangus	2200	2032	10	1961	9026	47%	5.06	7.94	207.77
29	Jagran-IV	22	2023	21	1990	95	49%	5.14	8.06	222.01
30	Bata Kundi	96	2043	8	1851	363	43%	5.15	8.07	194.76
31	Jagran-III	35	2028	10	1987	140	46%	5.26	8.24	210.33
32	Nagdar	35	2024	22	1888	141	46%	5.27	8.26	212.43
33	Middle Palas	398	2028	10	2214	1748	50%	5.31	8.32	233.23
34	Bunji	7100	2025	10	1839	26123	42%	5.31	8.33	195.48
35	SHYOK	640	2025	23	2900	3798	68%	5.32	8.34	315.69
36	Sakhra-II	8.6	2025	21	2126	38	50%	5.34	8.36	235.76
37	Gwaldai	20.4	2028	25	1912	83	46%	5.35	8.39	217.73
38	Wari	43.7	2027	30	2794	253	66%	5.38	8.43	311.62
39	Shounter	48	2025	21	2237	218	52%	5.43	8.51	246.56
40	Mastuj	48.6	2023	3	2651	235	55%	5.58	8.75	269.92
41	Gabral Utror	82.9	2026	21	1917	317	44%	5.61	8.79	214.42
42	Trappi	32	2026	3	2756	160	57%	5.62	8.81	281.20
43	Nandihaar-II	10.97	2024	1	3134	61	63%	5.69	8.92	316.61
44	Gabral Kalam	88	2025	20	1963	332	43%	5.78	9.05	217.96
45	Mujigram	64.26	2024	0	2665	298	53%	5.80	9.08	268.85
46	Alka	1.8	2030	49	3090	11	70%	5.90	9.24	360.50
47	Shalfalam	60	2024	2	2792	288	55%	5.90	9.25	283.20
48	Jamshil	610	2023	10	2517	2721	51%	5.91	9.27	263.79

#	Power Plant	Installed Capacity (MW)	Earliest Availability	FO&M $/kW/Yr	Installed Cost ($/kW)	Annual Energy (GWh)	Plant Factor	Annualized Cost of Energy		
								c/kWh	Rs/kWh	$/kW/Yr
49	Dhudnial	960	2025	37	2611	4845	58%	5.94	9.31	299.88
50	Chakoti Hatian	500	2029	10	2785	2440	56%	5.96	9.34	290.83
51	Ghorband	20.6	2024	10	3632	130	72%	5.96	9.34	376.30
52	Balakot-II	100	2027	90	2400	538	61%	6.17	9.67	332.06
53	Garhi Habibullah	100	2024	90	2400	538	61%	6.17	9.67	332.06
54	Mahodand	45	2028	48	2222	195	49%	6.28	9.84	272.13
55	Diamer Bhasha Dam	4500	2023	0	2493	17787	45%	6.36	9.97	251.49
56	Turtonas Uzghor	82.25	2023	51	2361	374	52%	6.37	9.98	289.57
57	Bhan Khwar	35.6	2023	22	1934	121	39%	6.38	10.00	216.90
58	Naran	188	2027	8	2274	700	43%	6.38	10.00	237.62
59	Jabri Bedar	3.6	2024	10	3794	22	70%	6.42	10.07	392.59
60	Shigo Kas	102	2030	32	2548	457	51%	6.46	10.12	289.30
61	Tangar	25.91	2024	48	2519	120	53%	6.53	10.23	302.30
62	Basho	40	2024	1	2547	158	45%	6.54	10.25	258.33
63	Nila Da Katha	34	2029	17	2593	144	48%	6.57	10.30	278.38
64	Kari Mushkur	495	2025	23	2496	2056	47%	6.62	10.37	274.79
65	Wazirabad	90	2025	3	2704	375	48%	6.62	10.37	275.82
66	Shogosin	137	2028	29	2370	544	45%	6.75	10.58	268.17
67	Yulbo	2800	2022	80	1959	11469	47%	6.78	10.62	277.66
68	Middle Spat Gah	501	2027	10	2444	1876	43%	6.85	10.73	256.47
69	Barum Gol	39	2024	23	2258	142	42%	6.87	10.77	250.29
70	Chota Jabba	45	2029	10	2734	187	47%	6.87	10.77	285.68
71	Nandihaar	12.3	2026	0	4215	76	71%	6.88	10.78	425.12
72	Ghanool	2.4	2024	32	2267	9	43%	6.95	10.89	260.60

#	Power Plant	Installed Capacity (MW)	Earliest Availability	FO&M $/kW/Yr	Installed Cost ($/kW)	Annual Energy (GWh)	Plant Factor	Annualized Cost of Energy		
								c/kWh	Rs/kWh	$/kW/Yr
73	Serai	6.8	2026	11	2272	23	39%	7.10	11.12	240.08
74	Sharmai	150	2024	51	2779	690	53%	7.21	11.30	331.77
75	Jhing-II	6.05	2043	60	2831	29	55%	7.21	11.31	345.84
76	Ravi	4.6	2046	46	3141	23	57%	7.25	11.35	362.30
77	Artistic-II	55	2049	53	2266	213	44%	7.27	11.39	281.41
78	Dhaddar	18	2030	49	2649	78	49%	7.29	11.43	315.97
79	Upper Palas	157	2025	10	2245	509	37%	7.29	11.43	236.40
80	Artistic-I	63	2024	52	2964	302	55%	7.32	11.47	350.80
81	Daral Khwar-II	9.5	2025	27	3111	44	53%	7.35	11.52	340.39
82	Sarral-Dhartian	8.51	2024	0	3780	44	59%	7.37	11.55	381.25
83	Machai-III	1.72	2026	58	3686	10	66%	7.38	11.57	429.31
84	Balkani	7.75	2028	26	3724	42	62%	7.42	11.62	401.97
85	Khal	65	2025	10	2923	267	47%	7.42	11.63	304.78
86	Mahandri	10.04	2027	48	2695	42	48%	7.65	11.99	320.20
87	Athmuqam	450	2028	42	2944	1981	50%	7.69	12.05	338.60
88	Shushghai	144	2026	29	2362	499	40%	7.71	12.09	267.27
89	Ashkot	300	2024	37	2842	1243	47%	7.81	12.24	323.65
90	Kalkot Barikot	47	2026	12	2851	179	43%	7.86	12.31	299.25
91	CJ	25	2032	44	1975	76	35%	8.01	12.56	243.64
92	Mehar	10.49	2033	45	2970	45	49%	8.02	12.57	344.10
93	Arkari Gol	99	2027	34	1985	287	33%	8.07	12.64	233.86
94	Luat	49	2029	10	3282	207	48%	8.07	12.65	340.95
95	Chiniot_HPP	80	2023	7	2683	272	39%	8.15	12.77	277.05
96	Shah Jiwana	80	2024	3	3263	325	46%	8.18	12.82	332.31
97	Upper Spat Gah	277	2025	10	2084	730	30%	8.36	13.09	220.20

#	Power Plant	Installed Capacity (MW)	Earliest Availability	FO&M $/kW/Yr	Installed Cost ($/kW)	Annual Energy (GWh)	Plant Factor	Annualized Cost of Energy		
								c/kWh	Rs/kWh	$/kW/Yr
98	Gomat Nar	49.5	2027	10	3587	219	51%	8.40	13.17	371.79
99	Lucky_HPP	20	2025	30	3184	81	46%	8.67	13.59	351.13
100	Luspur Murigram	232	2025	27	2898	842	41%	8.80	13.79	319.34
101	Murree	12	2026	44	2607	41	39%	8.98	14.08	306.91
102	Chicha Watni	1.6	2025	45	2921	6	43%	9.04	14.17	339.11
103	Chenavan	3	2045	10	2910	10	38%	9.10	14.27	303.46
104	Ghail	1.2	2026	10	1979	2.74	26%	9.18	14.38	209.57
105	Taunsa	135	2024	40	2770	468	40%	9.22	14.44	319.50
106	Rasul	18	2025	45	2857	64	41%	9.36	14.66	332.65
107	Patrak Sheringhal	22	2027	10	3434	82	43%	9.57	14.99	356.60
108	Istaro-Booni	72	2024	10	3609	278	44%	9.69	15.18	373.96
109	Gahrit	377	2027	10	4378	1738	53%	9.79	15.35	451.55
110	Trident	7.55	2028	45	2919	26	39%	9.84	15.42	338.93
111	Sahiwal	4.8	2050	50	3177	18	43%	9.88	15.49	370.65
112	Balakot	300	2031	117	2326	1056	40%	9.99	15.65	351.60
113	Okara	4.8	2024	44	2887	16	38%	10.06	15.76	335.17
114	UCC Bhambhwal	5	2030	44	2814	16	37%	10.24	16.05	327.77
115	Soan	25	2025	44	2689	76	35%	10.37	16.25	315.17
116	BS Link Tail	9	2030	45	2875	29	37%	10.38	16.27	334.52
117	Kathai-III	1.21	2035	23	2455	3	28%	10.92	17.11	270.65
118	Trimmu_HPP	13	2029	45	2943	38	33%	11.68	18.30	341.39
119	Gugera	3.6	2027	44	2965	10	32%	12.37	19.38	343.49
120	Mandi	3.3	2024	45	3081	9	31%	13.03	20.41	355.26
121	Khokhra	2.8	2025	45	3069	7	29%	14.16	22.19	354.08
122	TP	9	2024	10	3525	23	29%	14.30	22.41	365.51

#	Power Plant	Installed Capacity (MW)	Earliest Availability	FO&M $/kW/Yr	Installed Cost ($/kW)	Annual Energy (GWh)	Plant Factor	Annualized Cost of Energy		
								c/kWh	Rs/kWh	$/kW/Yr
123	Punjnad	15	2032	10	3476	37	28%	14.62	22.91	360.57
124	Kasur	2.54	2025	44	3175	6	27%	15.44	24.19	364.64
125	Engro_HPP	4.63	2027	44	2869	9	22%	17.17	26.90	333.75
126	QB Link	9.18	2046	44	2694	16	20%	18.11	28.38	315.70
127	Khanki Barrage	14	2050	10	3741	23	19%	23.58	36.94	387.32
128	Qaditrabad	23	2025	57	3130	33	16%	25.96	40.67	372.40
129	Mid Ranjha	80	2030	3	3378	100	14%	27.53	43.15	344.18
130	Khanewal	1	2027	44	2963	0.47	5%	73.04	114.45	343.27

Table 6-5: Annualized Cost of Candidate Hydro Power Project

6.13. New Thermal Options

New thermal options include Gas Turbines (GTs), Combined Cycle Gas Turbines (CCGTs) using RLNG and Steam Turbines (STs) using Imported Coal, Local Coal and Nuclear Fuel. In order to develop a least cost generation expansion plan, it is necessary to examine the economic viability of each thermal option and select the least cost supply options taking into account technical characteristics, economic and financial parameters and operational requirements. Table 6-6 shows the technical characteristics of the thermal candidate plants.

Performance Characteristics		Coal Fired Steam Imported	Coal Fired Steam Thar	Combined Cycle on RLNG	Combustion Turbine on RLNG	Nuclear
		660 MW	660 MW	1,263 MW	400 MW	2,290 MW
A	Net Capacity (MW)	625	607	1,243	396	2,118
B	Minimum Load (%)	50	50	50	25	100
C	**Lifetime Average Net Heat Rate (GJ/MWh)**					
	- At Minimum Load	9.9925	10.582	6.825	13.330	9.62
	- At Maximum Load	9.2244	9.725	6.457	9.464	9.62
D	Scheduled Outage (d/year)	30	30	13	30	60
E	Forced Outage (%)	6.78	6.85	4.44	5	5
F	Economic Life (years)	30	30	30	30	70

Performance Characteristics		Coal Fired Steam Imported	Coal Fired Steam Thar	Combined Cycle on RLNG	Combustion Turbine on RLNG	Nuclear
		660 MW	660 MW	1,263 MW	400 MW	2,290 MW
G	O & M Cost					
	Fixed ($/kW/year)	24.34	24.68	12.872	12.87	34.748
	Variable ($/MWh)	3.165	5.89	2.937	2.94	0

Table 6-6: Performance Characteristics of Generic Thermal Power Plants

The economic parameters of the thermal candidate plants are highlighted through the Table 6-7.

#	Technology	Capital Cost with IDC ($/kW)	Plant Life Years	Discount Rate (%)	Fuel Price ($/Giga Joule)
1	Nuclear (1,100 MW)	4,215	70	10%	0.49
2	OCGT. (400 MW)	439	30		9.25
3	CCGT. (1,223 MW)	587	30		9.25
4	Imported Coal (660 MW)	1,583	30		3.65
5	Thar Coal (660 MW)	1,310	30		1.37

Table 6-7: Economic Parameters of Generic Thermal Power Units

All candidate thermal technologies are assessed and ranked in terms of annualized unit cost by using screening curve analysis. Screening curves are used to determine the best possible technology to be inducted at a particular time frame from the available supply options. Two types of screening curves are provided here:

a. Annualized Cost ($/kW/yr) - Screening Curve (Annexure B-4.1)

b. Unit Generation Cost (c/kWh) - Screening Curve (Annexure B-4.2)

Although the mechanism of plant selection by the tool is done through complex computations and optimization techniques, however, these curves give the generic idea / trend about the selection of the candidate thermal power plant at various plant factors.

These curves are the plots of unit generation cost on the *y-axis* and the plant capacity factors on the *x-axis*. The total cost includes the annual capital recovery factor, fuel cost and annual O&M cost. The plants are ranked for each range of operating factors (i.e. base load, intermediate and peak load operation). The plant ranked lowest is introduced first and remaining follows based on increasing order of merit / rank as per the system requirement.

The screening curve analysis results show that the OCGT 400 MW is the lowest cost option operating at less than 10% capacity factor. Between 7% to 22% CCGT is the cheapest option.

From 22% to 100%, Local Coal–660 MW is the least cost option. Therefore, the screening curve analysis suggests that Local Coal is the least cost option whenever the units operate at a capacity factor of 23% and above.

6.14. Other Generation Options

Other generation options include wind, solar, bagasse, municipals solid waste, geo-thermal and tidal energy. Technologies such as municipal solid waste, geo-thermal and tidal energy are not currently mature enough in Pakistan to be considered as candidates and there is no validated data available by the relevant authorities. Therefore, only solar, wind and bagasse-based projects are currently the viable options and are considered for this study as candidate plants, other than thermal generation options. These plants are considered on block basis. Table 6-8 shows the economic parameters of the candidate wind and solar projects.

#	Power Plant	Installed Capacity	Earliest Availability	FO&M	Installed Cost	Annual Energy	Plant Factor	Annualized Cost of Energy		
		(MW)		$/kW/yr	($/kW)	(GWh)	%	c/kWh	Rs/kWh	$/kW/Yr
1	Solar	1	2023	9	530	1.65	19%	3.78	5.92	62.46
2	Wind (South)	1	2023	21.53	1,300	3.38	39%	4.88	7.64	152.65
3	Wind (Mid)	1	2023	21.53	1,365	2.75	31%	6.25	9.79	159.20
4	Wind (North)	1	2023	21.53	1,433	2.75	31%	6.52	10.22	166.06
5	Bagasse	1	2024	23.06	3,000	4.82	55%	7.34	11.50	353.57

Table 6-8: Economic Parameters of Candidate Wind and Solar Blocks

6.15. Development of the Base Case

After finalization of the input data and technical due diligence, the base case was finalized adopting the following criteria:

a. The study period will be from 2020 up to 2047.

b. Regression based forecast for the base year 2018-19 is used.

c. Demand forecast on hourly basis have been developed for the optimization.

d. All hydro plants, with data provided on the prescribed format by the concerned project execution entities have been considered in the study.

e. The updated cost data as of December 2019 has been used.

f. Wind, solar, bagasse, RLNG (CCGTs and OCGTs), coal (local and imported) and nuclear candidate plants have been included in the study.

g. Fixed despatch of 66% for a term of 15 years, has been ensured for three (03) existing RLNG based power plants i.e. Bhiki, Balloki and Haveli Bahadur Shah.

h. Fixed despatch of 50% for a period of five (05) years from the date of COD, has been ensured for existing imported coal-based power plants.

i. Hydro timelines have been optimized by PLEXOS.

6.16. Reliability Levels and System Expansion Costs

The system reliability is directly proportional to the cost of the system; higher the reliability, higher the costs. For the current study, the results satisfy the LOLP criteria of 1% as specified in the Grid Code.

6.17. Generation Capacity Expansion Software

For preparation of the IGCEP, PLEXOS package has been utilized. The tool has been developed by Energy Exemplar, Australia and Version 8.1 of the package remains the latest which is available with the PSP-NTDC.

PLEXOS® Integrated Energy Model is a proven power market simulation software that uses cutting-edge mathematical programming and stochastic optimization techniques, combined with the latest user-interface and data handling approaches to provide the most comprehensive, easy-to-use and robust analytical framework for power market modelers.

State-of-the-art mathematical optimization meets a powerful and flexible graphical user experience to provide potent simulation capabilities across power, water and gas systems. Relied on by the world's leading system operators, regulators and planners as well as utilities, traders, consultants and manufacturers, PLEXOS offers a range of features that seamlessly integrate electric, water and gas production, transportation and demand. Figure 6-4 shows high level features and capabilities of the PLEXOS energy model.

PLEXOS® is tried-and-true simulation software that uses state-of-the-art mathematical multi-commodity optimization combined with the latest data handling and visualization and distributed computing methods, to provide a high-performance, robust simulation system for electric power, water and gas that is leading edge yet open and transparent. PLEXOS meets the demands of energy market participants, system planners, investors, regulators, consultants and analysts alike with a comprehensive range of features seamlessly integrating electric, water, gas and heat production, transportation and demand over simulated timeframes from minutes to 10's of years, all delivered through a common simulation engine with easy-to-use interface and integrated data platform. PLEXOS is the fastest and most sophisticated software available today.

An investment in PLEXOS is a small outlay compared to the enormous benefits that are realized from savings in costs, better ways to maximize profits and from achieving more accurate planning results. PLEXOS is not a 'black box' but is highly transparent and auditable. It offers cutting edge access to some of the most advanced algorithms and modeling techniques thus giving the user peace of mind and a real life simulation experience.

PLEXOS software offers something for everyone, making its applications highly useful to a variety of users and needs.

Current PLEXOS users all around the World include:

a. Departments of Energy and Ministries
b. Market Operators, Regulators and Commissions
c. Electricity Generators, Traders and Retailers
d. Transmission System Operators

e. Power Plant Manufacturers and Construction companies

f. Gas Producers, Traders and Retailers

g. LNG Operators and Traders

h. Consultants, Analysts and Research Institutions

i. Academics

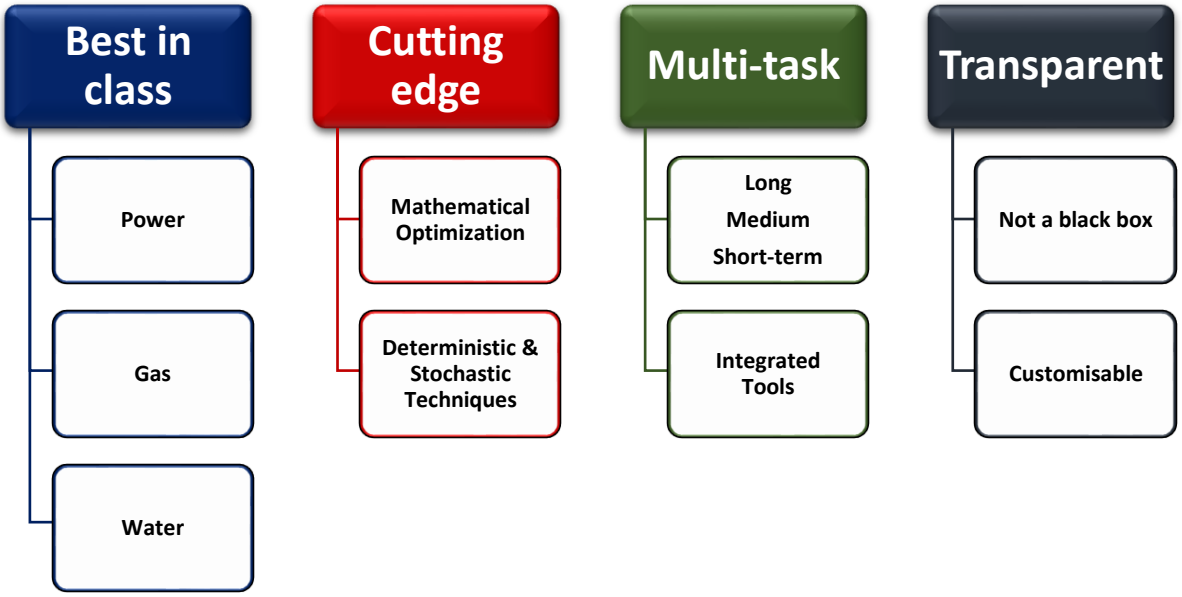


Figure 6-4: Features of PLEXOS Energy Model

PLEXOS combines state-of-the-art mathematical optimization with a powerful and flexible graphical user experience to provide potent simulation capabilities across electric power systems. Figure 6-5 shows various simulation phases of PLEXOS of electric power systems.

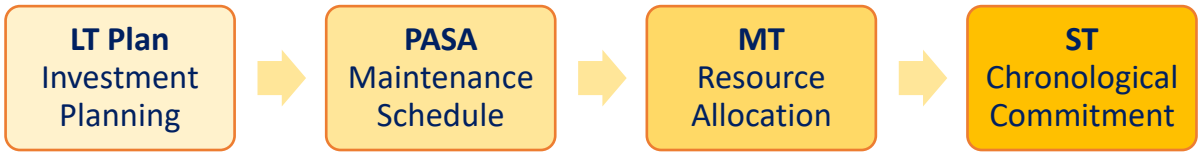


Figure 6-5: PLEXOS simulation phases

The unique object-oriented architecture of PLEXOS allows the users to develop interactive operations and processes among the technical and commercial aspects power sector frameworks, to add constraints mimicking the actual scenarios of the power sector, choose relationships between the tangible assets, create various scenarios to analyze variability and uncertainty in the power system. Figure 6-6 shows the preliminary data structure that can be developed using PLEXOS.

Functions and Applications of PLEXOS

Below is a categorization of some of the functions that PLEXOS is used for:

a. Price Forecasting

b. Power Market Simulation and Analysis

c. Detailed Operational Planning and Optimization of Power Plants and Grid

d. Trading and Strategic Decision Support

e. Generation and Transmission Capacity Expansion Planning (Investment Analysis)

f. Renewable Integration Analysis

g. Co-optimization of Ancillary Services and Energy Despatch

h. Transmission Analysis and Congestion Management

i. Portfolio Optimization and Valuation

j. Risk Management and Stochastic Optimization

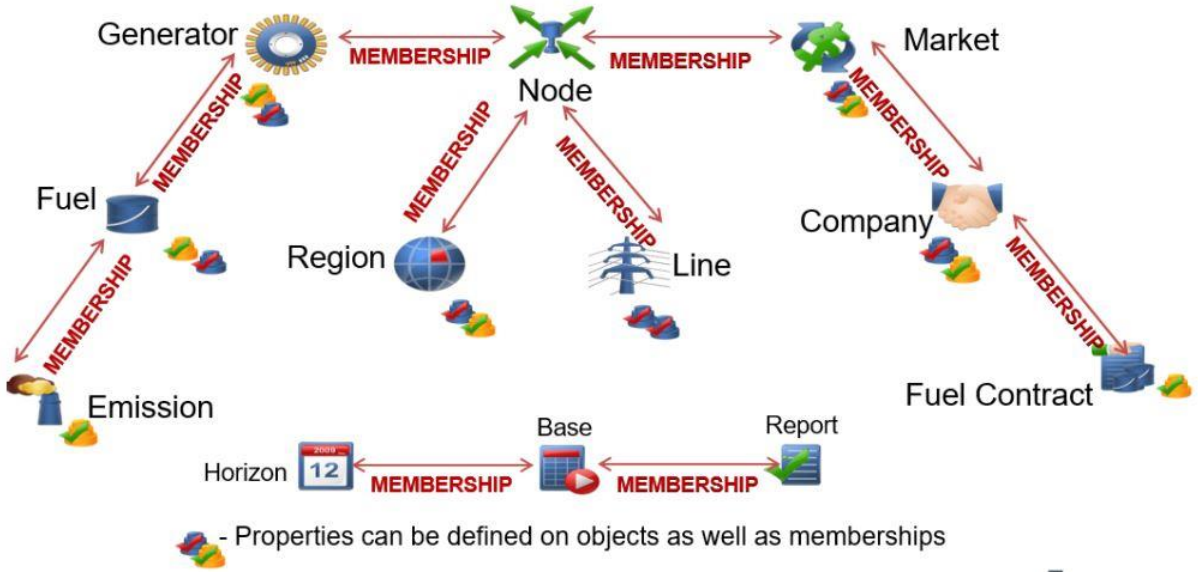


Figure 6-6: Data Structure in PLEXOS

The wide range of features of PLEXOS has led to its use in many areas of the energy sector. Globally, the types of users of PLEXOS include:

a. Power Generation Companies

b. Transmission System Operators

c. Electricity Market Operators

d. Energy Commission and Regulators

e. Energy Traders

f. Price Forecasting Agencies

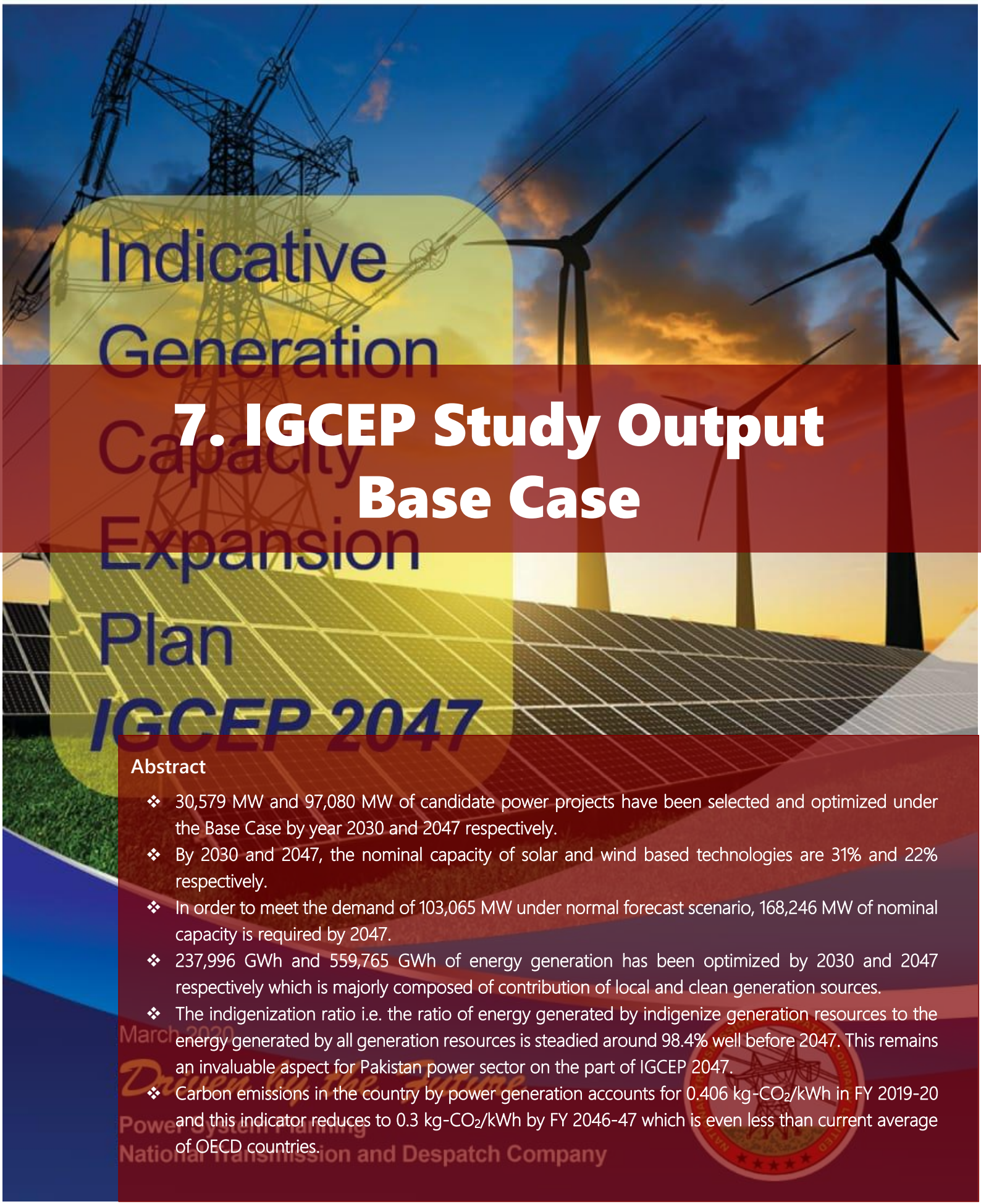
g. Power Plant Manufacturers

h. Power Plant Construction Companies

i. Consultants

j. Academics and Research Institutions

Pakistan 100



7. IGCEP Study Output
Base Case

Abstract

- 30,579 MW and 97,080 MW of candidate power projects have been selected and optimized under the Base Case by year 2030 and 2047 respectively.
- By 2030 and 2047, the nominal capacity of solar and wind based technologies are 31% and 22% respectively.
- In order to meet the demand of 103,065 MW under normal forecast scenario, 168,246 MW of nominal capacity is required by 2047.
- 237,996 GWh and 559,765 GWh of energy generation has been optimized by 2030 and 2047 respectively which is majorly composed of contribution of local and clean generation sources.
- The indigenization ratio i.e. the ratio of energy generated by indigenize generation resources to the energy generated by all generation resources is steadied around 98.4% well before 2047. This remains an invaluable aspect for Pakistan power sector on the part of IGCEP 2047.
- Carbon emissions in the country by power generation accounts for 0.406 kg-CO_2/kWh in FY 2019-20 and this indicator reduces to 0.3 kg-CO_2/kWh by FY 2046-47 which is even less than current average of OECD countries.

March 2020

Power System Planning
National Transmission and Despatch Company

7. IGCEP Study Output – Base Case

7.1. Introduction

Based on the input data and assumptions, the base case scenario was developed and simulated using PLEXOS tool. The results obtained through optimization, based on least cost criteria are discussed in this section. The results are categorized into two groups:

a. Output for the period 2020 – 2030 which is the regulatory obligation on the part of NTDC for onward submission to NEPRA

b. Future outlook for the time horizon 2031-2047

7.2. Future Demand and Capacity Additions (Base Case)

Chart 7-1 depicts the relationship between the projected peak demand of the system and the future capacity additions, in terms of different types of energy sources for the period 2020 – 2030. It is evident that the trend of the demand is similar to the capacity additions as both are increasing in the positive direction and there is gradual increment during the horizon of this plan. In the year 2019, the nominal capacity and demand match quite closely as the nominal capacity from all generation sources hovers around 32,239 MW whereas the demand is equivalent to 25, 627 MW. From the year 2020, the gap between the demand and the nominal capacity is steadily widening. Let us take the snapshot of two random years of medium term i.e. 2025 and 2030 to closely assess the demand and capacity situation. In the year 2025, the cumulative nominal capacity is approximately 57,060 MW whereas the peak load is projected as 34,209 MW including a contribution of RE equivalent to 12,012 MW; similarly in the year 2030, to meet a demand of 43, 820 MW a nominal capacity of 76,391 MW will be required including a capacity of 24,034 MW from RE sources.

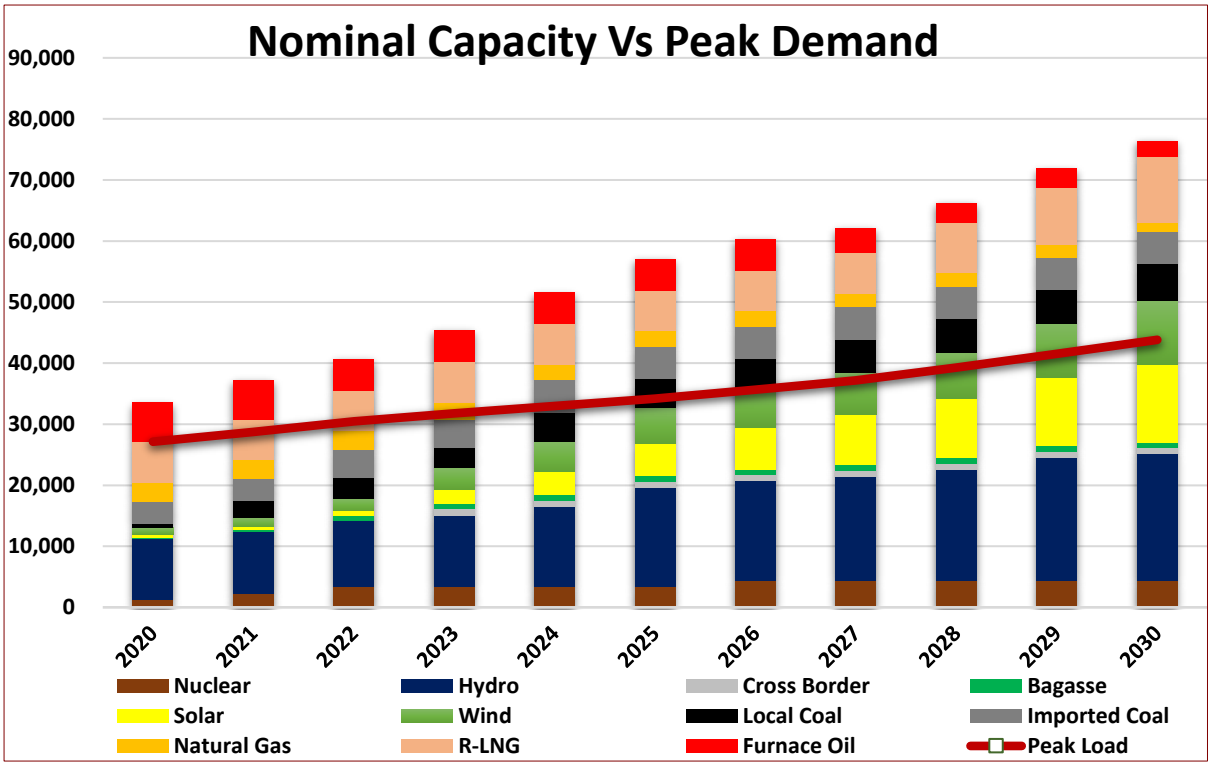


Chart 7-1: Nominal Capacity vs Peak Demand (MW) 2020-30

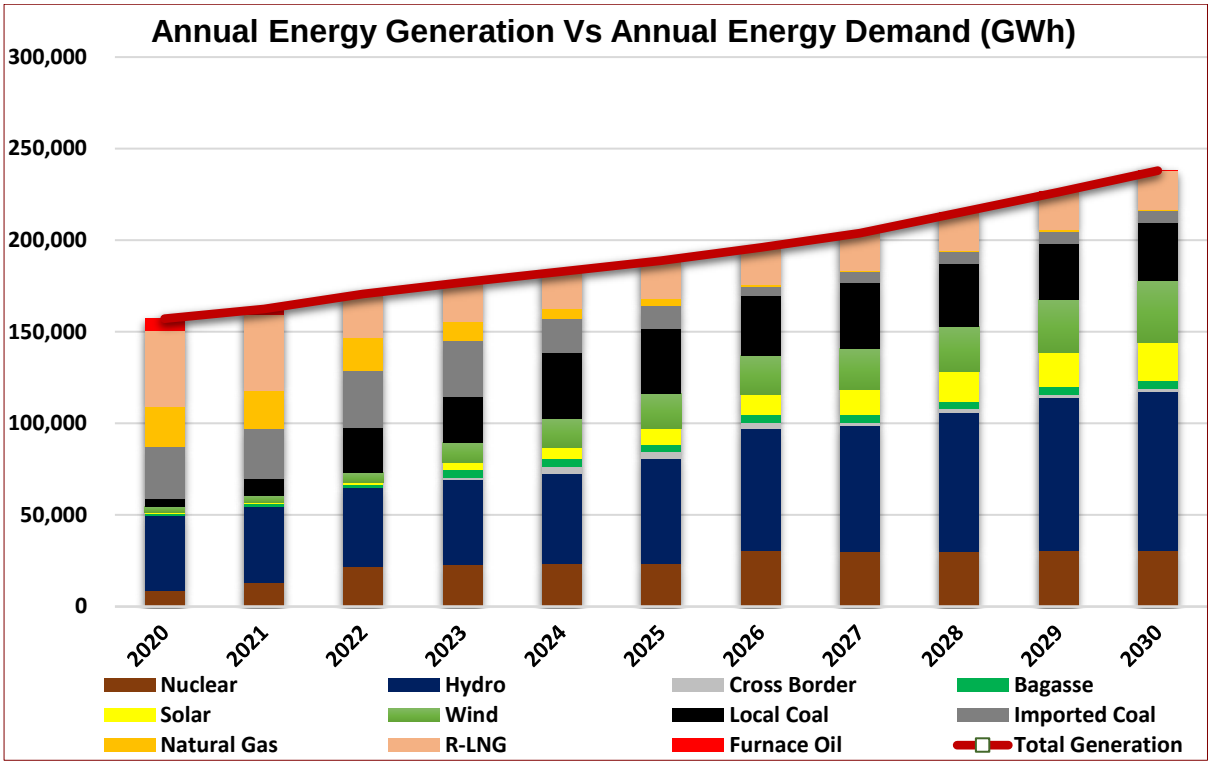


Chart 7-2: Annual Energy Generation vs Annual Energy Demand (GWh) 2020-30

Let us take a glimpse of another two years in the long-term i.e. 2040 and 2047. As per the study outcome, in the years 2040 and 2047 as shown in Chart 7-3, the total nominal capacity in the system stand at 126,136 MW and 168,246 MW against a peak load projected as 77,110 MW and 103,065 MW, respectively.

It is evident through the results that there is a wide disparity of thousands of MW between the projected demand and the nominal capacity. It is pertinent to mention here that this gap is due to the heavy induction of thermal generation source i.e. RLNG and other thermal options having high capacity factors and reserve provisioning characteristics to cope up with the intermittent nature of variable renewable energy. Due to this, the already expensive installed plants become unutilized with none or minimal despatch till their retirement year, even though they may be available for generation. Consequently, from the Chart 7-1 and Chart 7-3, it is evident that sufficient generation has been added to satisfy the specified reliability criteria and reserve requirements of the system.

On the other hand, energy generation by the power plants has been optimized equally with the energy forecast required by 2030 and by 2047 as shown in Chart 7-2 and Chart 7-4 respectively. By 2030, 237,996 GWh of energy demand is met in which 62% of generation was contributed by renewable generation including 14% by wind, 9% by solar, 2% by bagasse and 37% by hydro. In a similar manner, 559,765 GWh of energy demand is met by 2047 out of which 58% of generation contribution is by renewable technologies including 6% by wind, 8% by solar, 1% by bagasse and 43% by hydro.

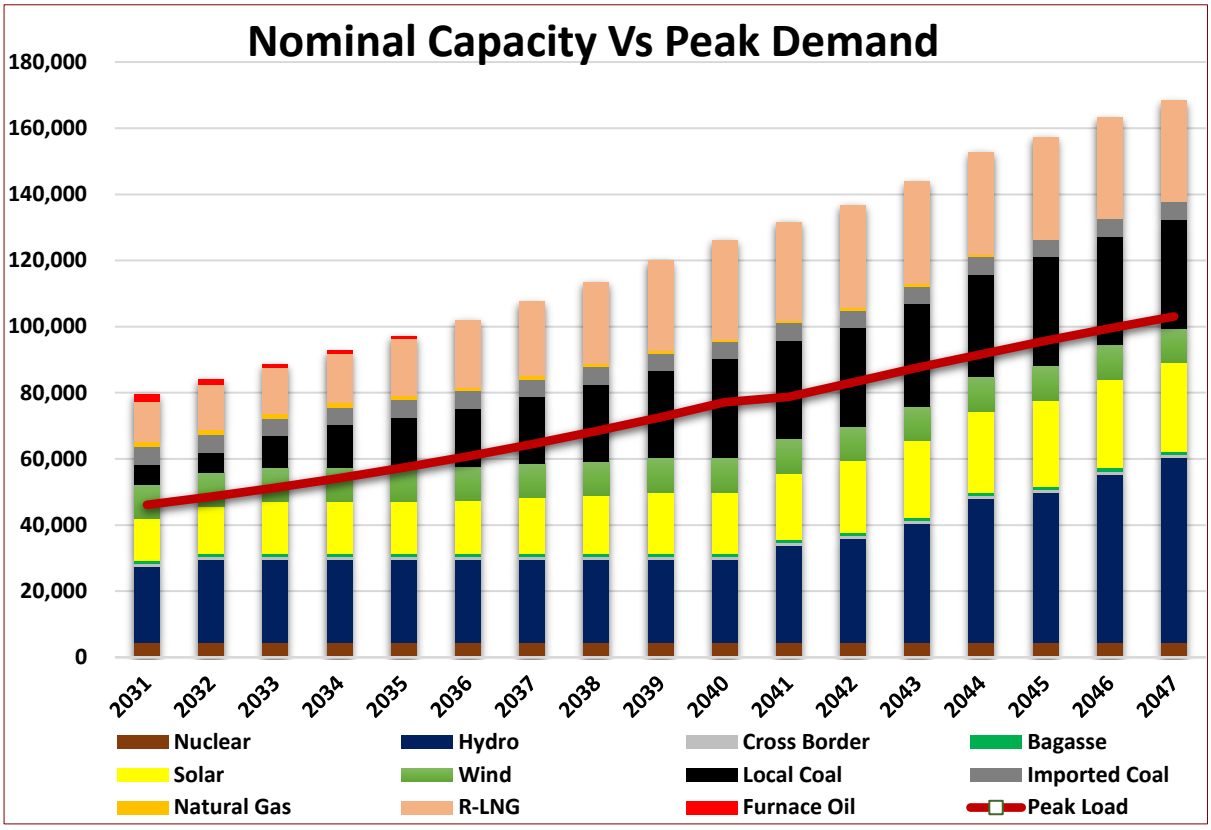


Chart 7-3: Nominal Capacity Vs Peak Demand (MW) 2031-47

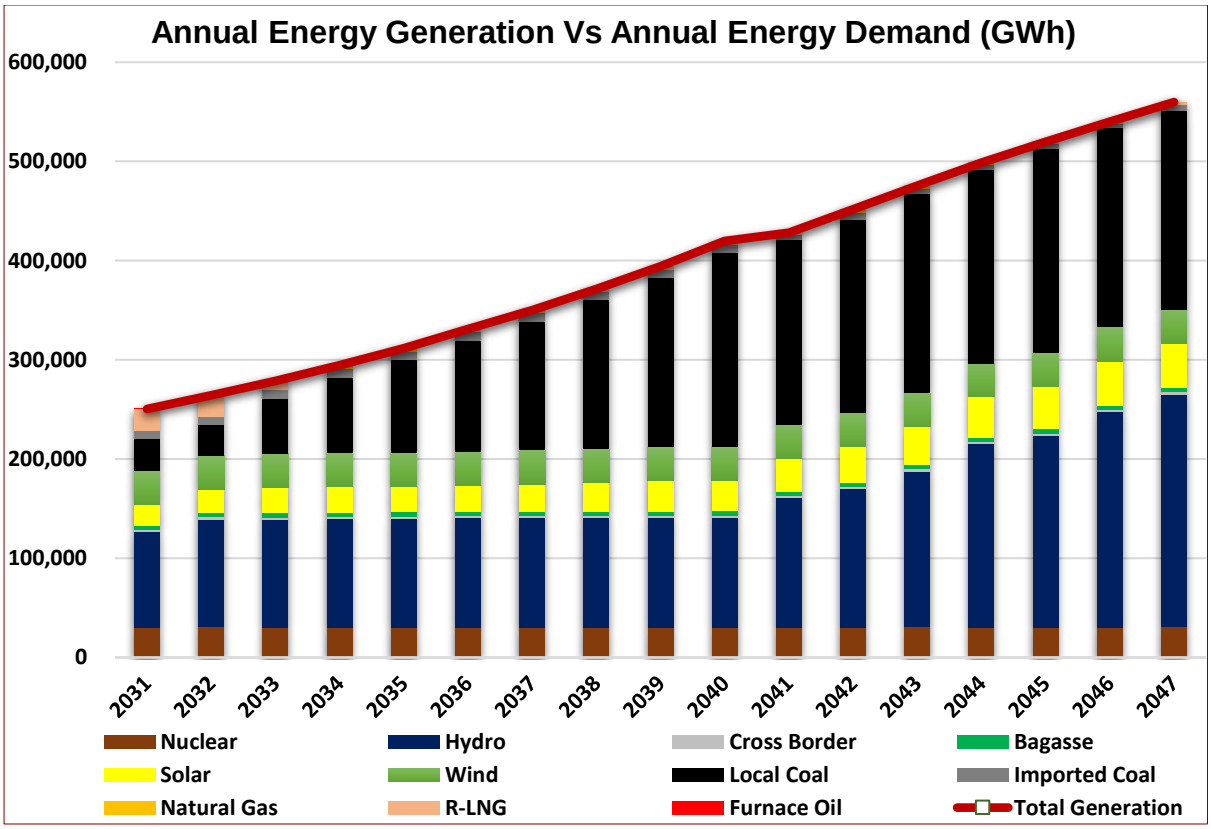


Chart 7-4: Annual Energy Generation vs Annual Energy Demand (GWh) 2031-47

The PLEXOS model aggressively opts for VRE i.e. wind and solar from the first year of availability i.e. 2023 in view of the economic viability of the technology. It is worth mentioning here that the tool optimizes more candidate solar power projects in comparison with wind power projects. Due to more quantum of VRE being optimized, the reserve requirements also

increase, resulting in substantial selection of candidate CCGTs. A total of 26,127MW candidate solar and 8,332 MW candidate wind are optimized by the year 2047. In a bid to cater for the intermittent nature of REs and system's reserve requirements, 25, 828 MW of candidate OCGTs are selected by the tool; these OCGTs are selected to provide reserve requirements of the system but they are not readily despatched on normal operation, thus, remain almost at zero annual plant factor.

The first candidate hydro of significant size namely Thakot-III (1,684 MW) is optimized in the year by 2029 followed by many small hydro power projects. Several major hydro power projects starting from, Dasu-II (2,160 MW), Thakot (2,154 MW), Lower Palas Valley (665 MW), Patan (2,400 MW), Bunji (7,100 MW), Diamer Bhasha (4,500 MW) and Yulbo (2,800 MW) are selected in subsequent years till the end of 2047. It is evident that significant numbers of candidate hydro power plants are being optimized in the last three years of the planning horizon, it is due to the fact that the hydro selection / optimization is horizon bound i.e. all candidate HPPs have to be selected by the year 2047.

Thermal generation is also added by the optimizing model; being cheaper and indigenous local coal is preferred over other thermal technologies i.e. OCGTs, imported coal, nuclear etc. The first candidate power plant of 1,514 MW local coal is selected in 2024 followed by Oracle unit I & II in the year 2027 and 2030, respectively. The local coal addition continues up to 2045 after which hydro replaces local coal. Table 7-1 and Table 7-2 shows the yearly technology wise future candidate generation capacity additions by 2030 and by 2047 respectively.

Hence, by the year 2047, there will be an overall nominal capacity of 127,659 MW from the candidate power projects, optimized by the software. Energy generation by different sources/fuel types is shown in Chart 7-2 and Chart 7-4. Both Chart 7-1 and 7-3 clearly show that the capacity selected by PLEXOS after satisfying reliability criterion i.e. LOLP and reserves is sufficient enough to meet both the power (MW) of NTDC system by 2030 and 2047 respectively. It is to be noted that although the system does have FO based capacity available but its share in despatch from 2020 and onwards declines drastically, being low in merit order it is being replaced by the cheaper fuels. Similar is the case with OCGTs (RLNG), which are available in capacity to meet the reserve requirements of the system but are despatched at almost zero annual plant factor.

Fiscal Year	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cumulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South	Midland	North	MW	MW
								MW	MW	MW		
2020	-	-	-	-	-	-	-	-	-	-	-	-
2021	-	-	-	-	-	-	-	-	-	-	-	-
2022	-	-	-	-	-	-	-	-	-	-	-	-
2023	-	-	-	-	-	-	1,500	1,000	300	200	3,000	3,000
2024	-	1,514	-	-	-	3	1,500	1,000	300	89	4,405	7,405
2025	-	-	-	-	-	-	1,500	922	-	-	2,422	9,828
2026	-	-	-	-	-	3	1,500	673	-	-	2,176	12,004
2027	-	607	20	-	-	-	1,500	301	-	-	2,428	14,432
2028	-	-	-	1,577	-	-	1,500	784	-	-	3,861	18,292
2029	-	-	-	1,129	-	1,986	1,500	1,000	263	-	5,879	24,171
2030	-	607	-	2,162	-	639	1,500	1,000	300	200	6,408	30,579

Fiscal Year	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cumulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South	Midland	North	MW	MW
								MW	MW	MW		
Total	**-**	**2,728**	**20**	**4,868**	**0**	**2,631**	**12,000**	**6,680**	**1,163**	**489**	**30,579**	

Table 7-1: Future Generation Capacity Additions (2020-30)

Fiscal Year	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cumulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South	Midland	North	MW	MW
								MW	MW	MW		
2031	-	-	-	1,347	-	2,154	-	-	-	-	3,501	3,501
2032	-	-	-	1,228	-	2,160	1,442	-	-	-	4,830	8,331
2033	-	3,384	-	534	-	-	1,500	-	-	-	5,418	13,750
2034	-	3,313	-	848	-	-	-	-	-	-	4,161	17,911

Fiscal Year	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cumulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South	Midland	North	MW	MW
								MW	MW	MW		
2035	-	2,372	-	2,596	-	-	-	-	-	-	4,968	22,879
2036	-	2,431	-	2,904	-	-	307	-	-	-	5,642	28,521
2037	-	2,635	-	2,144	-	-	781	-	-	-	5,560	34,081
2038	-	3,115	-	2,045	-	-	685	-	-	-	5,845	39,926
2039	-	2,968	-	2,812	-	-	1,116	-	-	-	6,895	46,821
2040	-	3,567	-	3,001	-	-	-	-	-	-	6,568	53,389
2041	-	-	-	-	-	4,168	1,500	-	-	-	5,668	59,057
2042	-	-	-	1,500	-	2,270	1,500	-	-	-	5,270	64,327
2043	-	1,214	-	-	-	4,500	1,500	-	-	-	7,214	71,542
2044	-	-	-	-	-	7,484	1,500	-	-	-	8,984	80,526
2045	-	1,894	-	-	-	1,844	1,500	-	-	-	5,238	85,764

Fiscal Year	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cumulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South	Midland	North	MW	MW
								MW	MW	MW		
2046	-	-	-	-	-	5,509	720	-	-	-	6,229	91,993
2047	-	-	-	-	-	5,010	77	-	-	-	5,087	97,080
Total	**-**	**26,894**	**0**	**20,960**	**0**	**35,099**	**14,127**	**0**	**0**	**0**	**97,080**	

Table 7-2: Future Generation Capacity Additions (2031-47)

Indicative Generation Capacity Additions (Committed + Candidate Projects) as of April 2020

Year	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030
Commited MW	0	1,441	3,933	4,841	1,968	2,070	3,088	1,135	1,824	0	0	0
Candidate MW	0	0	0	0	3,000	4,406	2,422	2,176	2,481	3,861	5,878	6,461
Total MW	0	1,441	3,933	4,841	4,968	6,476	5,510	3,311	4,305	3,861	5,878	6,461
Total Capacity (MW)												50,985

Figure 7-1: IGCEP 2047: Generation Sequence (2020-30)

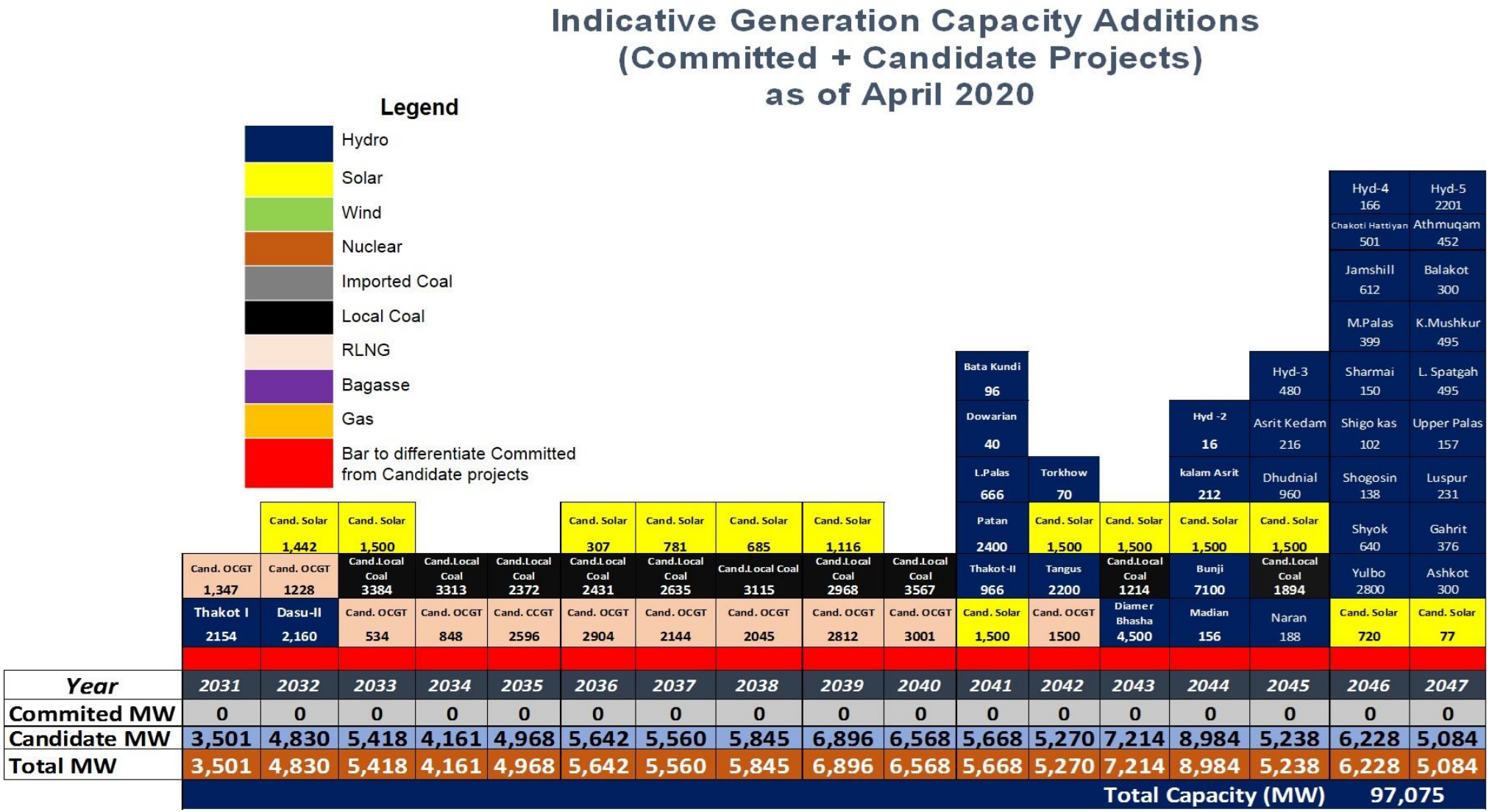


Figure 7-2: IGCEP 2047: Generation Sequence (2031-47)

The break-up of the projects lumped as blocks in above IGCEP Generation Sequence Figure 7-1 and Figure 7-2 for the planning horizon 2020-30 and 2031-47 respectively is provided in Table 7-3.

#	Year	Block	Name of Project	Installed Capacity
				MW
1	2020	Hyd-1	Jabori HPP	10
2			Jhing HPP	15
3			Karora HPP	12
Total (2020)				**37**
4	2021	Wind-1	Hydro China Dawood Power Pvt. Limited	50
5			Master Green Energy Ltd.	50
6			Shaheen Renewable Energy-1 Pvt. Ltd.	51
7			Tenga Generasi Limited	50
8			Tricorm Wind Power Pvt. Ltd	50
9			Western Energy Pvt. Limited	50
10			Zephyr Power Pvt. Limited	50
11		Solar 1	Access Electric Pvt. Ltd.	10
12			Access Solar Pvt. Ltd.	12
Total (2021)				**373**
13	2022	Solar 2	Buksh Energy Pvt. Ltd.	12
14			Helios Power Pvt. Ltd.	50
15			HNDS Energy Pvt. Ltd.	50
16			Meridian Energy Pvt. Ltd.	50
17			Safe Solar Power Pvt. Ltd.	10
18			Zhenfa Pakistan New Energy Company (Pvt.) Ltd.	100
19		Bagasse 1	Alliance Power (Pvt.) Ltd.	30

#	Year	Block	Name of Project	Installed Capacity
				MW
20			Bahawalpur Energy Ltd.	31
21			Faran Power Limited	27
22			Ghotki Power (Pvt.) Ltd.	45
23			Hamza Sugar Mills Ltd. (Unit-II)	30
24			HSM Energy Ltd.	27
25			Hunza Power (Pvt.) Ltd.	50
26			Indus Energy Ltd.	31
27			Ittefaq Power Ltd.	31
28			Kashmir Power (Pvt.) Ltd.	40
29			Mehran Energy Ltd.	27
30			RYK Energy Ltd.	25
31			Sadiqabad Power (Pvt.) Ltd.	45
32			Shahtaj Sugar Mills Ltd.	32
33			Sheikhoo Power (Pvt.) Ltd.	30
34			TAY Powergen Company (Pvt.) Ltd.	30
35			Two Star Energy (Pvt.) Ltd.	50
36		Wind 2	ACT 2 wind (Pvt.) Ltd.	50
37			Artistic Wind Power Pvt. Limited.	50
38			Din Energy Ltd.	50
39			Gul Ahmed Electric Ltd.	50
40			Indus Wind Energy Ltd.	50
41			Lakeside Energy Pvt. Ltd	50
42			Liberty Wind Power 1 Pvt. Ltd.	50

#	Year	Block	Name of Project	Installed Capacity
				MW
43			Liberty Wind Power 2 Pvt. Ltd.	50
44			Metro Wind Power Ltd.	50
45			NASDA Green Energy Pvt. Ltd	50
46			Trans Atlantic Energy (Pvt.) Limited	48
Total (2022)				**1,401**
47	2025	Hyd-2	Balkani HPP	8
48			Kalkot Barikot HPP	47
49			Patrak Sheringhal HPP	22
Total (2025)				**77**
50	2043	Hyd-3	Bhan Khwar	36
51			Chenavan	3
52			CJ	24
53			Mujigram	63
54			Pashot	60
55			Tangar	24
Total (2043)				**210**
56	2045	Hyd-4	Alka	2
57			Arkari Gol	99
58			Artistic-II	54
59			Basho	39
60			Bhimbal Katha	9
61			Chiniot_HPP	78
62			Chota Jabba	46

#	Year	Block	Name of Project	Installed Capacity
				MW
63			Dhaddar	18
64			Gabral Kalam	87
65			Gabral Utror	82
66			Garhi Habibullah	100
67			Ghanool	3
68			Ghorband	20
69			Gugera	3
70			Jagran-III	36
71			Jagran-IV	24
72			Jhing-II	6
73			Khal	66
74			Mahodand	44
75			Mastuj	48
76			Murree	12
77			Nagdar	36
78			Nandihaar-II	10
79			Serai	6
80			Trappi	33
81			Turtonas Uzghor	82
82			Wazirabad	88
Total (2045)				**1,131**
83	2046	Hyd-5	Barum Gol	40
84			Nila Da Katha	36

#	Year	Block	Name of Project	Installed Capacity
				MW
85			Shalfalam	60
86			UCC Bhambhwal	4
87			Wari	45
Total (2046)				**185**
88	2047	Hyd-6	Artistic-I	63
89			BS Link Tail	9
90			Chicha Watni	2
91			Daral Khwar-II	10
92			Engro_HPP	5
93			Ghail	2
94			Gomat Nar	50
95			Istaro-Booni	72
96			Jabri Bedar	4
97			Kasur	2
98			Kathai-III	1
99			Khanewal	2
100			Khanki Barrage	16
101			Khokhra	2
102			Luat	48
103			Lucky_HPP	20
104			Machai-III	2
105			Mahandri	12
106			Mandi	4

#	Year	Block	Name of Project	Installed Capacity
				MW
107			Mehar	12
108			Mid Ranjha	80
109			Nandihaar	12
110			Punjnad	18
111			Qaditrabad	24
112			QB Link	8
113			Rasul	18
114			Ravi	6
115			Sahiwal	6
116			Sarral-Dhartian	9
117			Shah Jiwana	78
118			Soan	24
119			TP	9
120			Trident	8
121			Trimmu_HPP	16
Total (2047)				**654**

Table-7-3: Name of Blocks for Hydro, Solar, Wind and Bagasse Power Plants

Table 7-4a and Table 7-4b depicts the CODs of Candidate power projects optimized by the PLEXOS for all 13 scenarios.

#	Candidate Plant Name	Category	Capacity	COD input for PLEXOS (Year)	Base Case	Scenarios				
						1. HPP Free	2. IMF Projected GDP	3. No VRE Policy	4. Low Demand	5. High Demand
					Year	Year	Year	Year	Year	Year
1	Oracle	Local Coal	1,214	2025	607 MW (2027) 607 MW (2030)	607 MW (2027) 607 MW (2030)	607 MW (2028) 607 MW (2030)	607 MW (2025) 607 MW (2027)	607 MW (2030) 607 MW (2033)	607 MW (2025) 607 MW (2026)
2	Hatim	CCGT_Gas	20	2023	2027	2027	2027	2023	Not Picked	2024
3	Mari Combined Cycle	CCGT_Gas	255	2025	Not Picked	Not Picked	Not Picked	Not Picked	Not Picked	Not Picked
4	Alka	Hydro	2	2024	2046	Not Picked	2045	2046	2047	2046
5	Arkari Gol	Hydro	99	2025	2047	Not Picked	2046	2045	2046	2047
6	Artistic-I	Hydro	63	2026	2047	Not Picked	2047	2047	2047	2047
7	Artistic-II	Hydro	55	2026	2047	Not Picked	2047	2047	2047	2047
8	Ashkot	Hydro	300	2027	2047	Not Picked	2047	2047	2047	2047
9	Asrit Kadam	Hydro	215	2026	2045	Not Picked	2044	2044	2045	2045
10	Athmuqam	Hydro	450	2028	2047	Not Picked	2047	2047	2047	2047
11	Balakot	Hydro	300	2026	2047	Not Picked	2047	2047	2047	2047

#	Candidate Plant Name	Category	Capacity	COD input for PLEXOS (Year)	Base Case	Scenarios				
						1. HPP Free	2. IMF Projected GDP	3. No VRE Policy	4. Low Demand	5. High Demand
					Year	Year	Year	Year	Year	Year
12	Balakot-II	Hydro	100	2027	2047	Not Picked	2047	2047	2047	2047
13	Balkani	Hydro	8	2025	2047	Not Picked	2047	2047	2047	2047
14	Barum Gol	Hydro	39	2026	2046	Not Picked	2046	2046	2047	2046
15	Basho	Hydro	40	2026	2047	Not Picked	2045	2047	2047	2046
16	Bata Kundi	Hydro	96	2026	2041	Not Picked	2044	2041	2046	2028
17	Bhan Khwar	Hydro	36	2026	2045	Not Picked	2045	2045	2045	2046
18	Bhimbal Katha	Hydro	8	2025	2045	Not Picked	2044	2045	2045	2045
19	Blue Star	Hydro	3	2022	2024	2024	2024	2023	2041	2027
20	BS Link Tail	Hydro	9	2024	2047	Not Picked	2047	2047	2047	2047
21	Bunji	Hydro	7,100	2030	2044	Not Picked	3550 MW (2042) 3550 MW (2043)	2043	3550 MW (2043) 3550 MW (2044)	3550 MW (2043) 3550 MW (2045)
22	Chakoti Hatian	Hydro	500	2028	2046	Not Picked	2046	2045	2045	2046

#	Candidate Plant Name	Category	Capacity	COD input for PLEXOS (Year)	Base Case	Scenarios				
						1. HPP Free	2. IMF Projected GDP	3. No VRE Policy	4. Low Demand	5. High Demand
					Year	Year	Year	Year	Year	Year
23	Chapri Charkhel	Hydro	11	2023	2046	Not Picked	2045	2046	2045	2047
24	Chenavan	Hydro	3	2025	2047	Not Picked	2047	2044	2047	2047
25	Chicha Watni	Hydro	2	2024	2047	Not Picked	2047	2047	2047	2047
26	Chiniot_HPP	Hydro	80	2023	2047	Not Picked	2047	2047	2047	2047
27	Chota Jabba	Hydro	45	2028	2047	Not Picked	2047	2047	2047	2047
28	CJ	Hydro	25	2026	2047	Not Picked	2045	2047	2047	2046
29	Dander	Hydro	56	2028	2029	2029	2029	2029	2029	2029
30	Daral Khwar-II	Hydro	10	2024	2047	Not Picked	2047	2047	2047	2047
31	Dasu_2	Hydro	2,160	2032	2032	2032	2032	2032	2032	2032
32	Dhaddar	Hydro	18	2023	2047	Not Picked	2047	2047	2047	2047
33	Dhudnial	Hydro	960	2043	2045	Not Picked	2044	2045	2045	2046

#	Candidate Plant Name	Category	Capacity	COD input for PLEXOS (Year)	Base Case	Scenarios				
						1. HPP Free	2. IMF Projected GDP	3. No VRE Policy	4. Low Demand	5. High Demand
					Year	Year	Year	Year	Year	Year
34	Diamer Bhasha Dam	Hydro	4,500	2028	2043	Not Picked	2045	2046	2047	2046
35	Dowarian	Hydro	40	2024	2041	Not Picked	2043	2027	2041	2027
36	Dubair Kalay	Hydro	66	2028	2029	2029	2029	2044	2042	2029
37	Engro_HPP	Hydro	5	2025	2047	Not Picked	2047	2047	2047	2047
38	Gabral Kalam	Hydro	88	2025	2047	Not Picked	2045	2045	2045	2045
39	Gabral Utror	Hydro	83	2025	2045	Not Picked	2045	2045	2046	2045
40	Gahrit	Hydro	377	2028	2047	Not Picked	2047	2047	2047	2047
41	Garhi Habibullah	Hydro	100	2027	2047	Not Picked	2047	2047	2047	2047
42	Ghail	Hydro	1	2025	2047	Not Picked	2047	2047	2047	2047
43	Ghanool	Hydro	2	2023	2047	Not Picked	2047	2046	2047	2047
44	Ghorband	Hydro	21	2026	2047	Not Picked	2047	2047	2047	2047

#	Candidate Plant Name	Category	Capacity	COD input for PLEXOS (Year)	Base Case	Scenarios				
						1. HPP Free	2. IMF Projected GDP	3. No VRE Policy	4. Low Demand	5. High Demand
					Year	Year	Year	Year	Year	Year
45	Gomat Nar	Hydro	50	2026	2047	Not Picked	2047	2047	2047	2047
46	Gugera	Hydro	4	2024	2047	Not Picked	2047	2047	2047	2047
47	Gwaldai	Hydro	20	2025	2045	Not Picked	2044	2045	2045	2045
48	Harigehl-Majeedgala	Hydro	40	2024	2045	Not Picked	2044	2045	2045	2045
49	Istaro-Booni	Hydro	72	2030	2047	Not Picked	2047	2047	2047	2047
50	Jabri Bedar	Hydro	4	2024	2047	Not Picked	2047	2047	2047	2047
51	Jagran-III	Hydro	35	2023	2045	Not Picked	2044	2045	2046	2046
52	Jagran-IV	Hydro	22	2025	2045	Not Picked	2044	2045	2047	2046
53	Jamshil	Hydro	610	2029	2046	Not Picked	2046	2045	2047	2047
54	Jhing-II	Hydro	6	2024	2047	Not Picked	2047	2045	2047	2024
55	Kalam Asrit	Hydro	212	2027	2044	Not Picked	2045	2044	2046	2045

#	Candidate Plant Name	Category	Capacity	COD input for PLEXOS (Year)	Base Case	Scenarios				
						1. HPP Free	2. IMF Projected GDP	3. No VRE Policy	4. Low Demand	5. High Demand
					Year	Year	Year	Year	Year	Year
56	Kalkot Barikot	Hydro	47	2024	2047	Not Picked	2047	2047	2047	2047
57	Kari Mushkur	Hydro	495	2028	2047	Not Picked	2047	2047	2047	2047
58	Kasur	Hydro	3	2023	2047	Not Picked	2047	2047	2047	2024
59	Kathai-II	Hydro	8	2023	2044	Not Picked	2043	2044	2045	2046
60	Kathai-III	Hydro	1	2023	2047	Not Picked	2047	2047	2047	2047
61	Khal	Hydro	65	2027	2047	Not Picked	2047	2047	2047	2047
62	Khanewal	Hydro	1	2024	2047	Not Picked	2047	2047	2047	2047
63	Khanki Barrage	Hydro	14	2030	2047	Not Picked	2047	2047	2047	2047
64	Khokhra	Hydro	3	2024	2047	Not Picked	2047	2047	2047	2047
65	Lower Palas	Hydro	665	2024	2041	Not Picked	2041	2041	2042	2027
66	Lower Spat Gah	Hydro	496	2029	2047	Not Picked	2047	2047	2047	2047
67	Luat	Hydro	49	2025	2047	Not Picked	2047	2047	2047	2047

#	Candidate Plant Name	Category	Capacity	COD input for PLEXOS (Year)	Base Case	Scenarios				
						1. HPP Free	2. IMF Projected GDP	3. No VRE Policy	4. Low Demand	5. High Demand
					Year	Year	Year	Year	Year	Year
68	Lucky_HPP	Hydro	20	2025	2047	Not Picked	2047	2047	2047	2047
69	Luspur Murigram	Hydro	232	2028	2047	Not Picked	2047	2047	2047	2047
70	Machai-III	Hydro	2	2022	2047	Not Picked	2047	2023	2047	2047
71	Madian	Hydro	157	2027	2044	Not Picked	2044	2045	2046	2045
72	Mahandri	Hydro	10	2024	2047	Not Picked	2047	2047	2047	2047
73	Mahl	Hydro	640	2029	2030	2030	2030	2030	2030	2030
74	Mahodand	Hydro	45	2026	2047	Not Picked	2046	2047	2046	2045
75	Mandi	Hydro	3	2024	2047	Not Picked	2047	2047	2047	2047
76	Mastuj	Hydro	49	2026	2047	Not Picked	2046	2046	2047	2045
77	Mehar	Hydro	10	2024	2047	Not Picked	2047	2047	2047	2047
78	Mid Ranjha	Hydro	80	2043	2047	Not Picked	2047	2047	2047	2047
79	Middle Palas	Hydro	398	2046	2046	Not Picked	2046	2046	2046	2046

#	Candidate Plant Name	Category	Capacity	COD input for PLEXOS (Year)	Base Case	Scenarios				
						1. HPP Free	2. IMF Projected GDP	3. No VRE Policy	4. Low Demand	5. High Demand
					Year	Year	Year	Year	Year	Year
80	Middle Spat Gah	Hydro	501	2049	Not Picked	Not Picked	Not Picked	Not Picked	Not Picked	Not Picked
81	Mujigram	Hydro	64	2030	2047	Not Picked	2047	2047	2046	2046
82	Murree	Hydro	12	2025	2047	Not Picked	2047	2047	2047	2047
83	Nagdar	Hydro	35	2024	2045	Not Picked	2044	2045	2046	2045
84	Nandihaar	Hydro	12	2025	2047	Not Picked	2047	2047	2047	2047
85	Nandihaar-II	Hydro	11	2024	2045	Not Picked	2045	2047	2047	2045
86	Naran	Hydro	188	2026	2045	Not Picked	2044	2045	2045	2045
87	Nerai-Dubair	Hydro	46	2028	2029	2029	2029	2041	2041	2029
88	Nila Da Katha	Hydro	34	2025	2047	Not Picked	2046	2047	2047	2047
89	Okara	Hydro	5	2027	2046	Not Picked	2046	2045	2047	2045
90	Pashot	Hydro	60	2028	2045	Not Picked	2044	2045	2045	2045
91	Patan	Hydro	2,400	2026	2041	Not Picked	2042	2042	2041	2041

#	Candidate Plant Name	Category	Capacity	COD input for PLEXOS (Year)	Base Case	Scenarios				
						1. HPP Free	2. IMF Projected GDP	3. No VRE Policy	4. Low Demand	5. High Demand
					Year	Year	Year	Year	Year	Year
92	Patrak Sheringhal	Hydro	22	2024	2047	Not Picked	2047	2047	2047	2047
93	Phandar	Hydro	80	2026	2045	Not Picked	2044	2044	2045	2045
94	Punjnad	Hydro	15	2032	2047	Not Picked	2047	2047	2047	2047
95	Qaditrabad	Hydro	23	2033	2047	Not Picked	2047	2047	2047	2047
96	QB Link	Hydro	9	2027	2047	Not Picked	2047	2047	2047	2047
97	Rajdhani	Hydro	132	2029	2029	2029	2029	2029	2029	2029
98	Rasul	Hydro	18	2023	2047	Not Picked	2047	2047	2047	2047
99	Ravi	Hydro	5	2024	2047	Not Picked	2047	2047	2047	2047
100	Riali-III	Hydro	3	2025	2026	2026	2026	2026	2026	2026
101	Sahiwal	Hydro	5	2027	2047	Not Picked	2047	2047	2047	2047
102	Sakhra-I	Hydro	8	2025	2044	Not Picked	2044	2044	2044	2045
103	Sakhra-II	Hydro	9	2025	2045	Not Picked	2044	2045	2045	2045

#	Candidate Plant Name	Category	Capacity	COD input for PLEXOS (Year)	Base Case	Scenarios				
						1. HPP Free	2. IMF Projected GDP	3. No VRE Policy	4. Low Demand	5. High Demand
					Year	Year	Year	Year	Year	Year
104	Sarral-Dhartian	Hydro	9	2026	2047	Not Picked	2047	2047	2047	2047
105	Serai	Hydro	7	2025	2045	Not Picked	2045	2045	2045	2045
106	Shah Jiwana	Hydro	80	2045	2047	Not Picked	2047	2047	2047	2047
107	Shalfalam	Hydro	60	2026	2046	Not Picked	2046	2046	2046	2047
108	Sharmai	Hydro	150	2024	2046	Not Picked	2046	2047	2047	2046
109	Shigo Kas	Hydro	102	2025	2046	Not Picked	2046	2046	2045	2046
110	Shogosin	Hydro	137	2027	2046	Not Picked	2046	2045	2047	2047
111	Shounter	Hydro	48	2024	2047	Not Picked	2045	2045	2047	2045
112	Shushghai	Hydro	144	2027	2047	Not Picked	2047	2047	2047	2047
113	SHYOK	Hydro	640	2028	2046	Not Picked	2045	2046	2044	2047
114	Skardu	Hydro	1,200	2050	Not Picked	Not Picked	Not Picked	Not Picked	Not Picked	Not Picked
115	Soan	Hydro	25	2031	2047	Not Picked	2047	2047	2047	2047

#	Candidate Plant Name	Category	Capacity	COD input for PLEXOS (Year)	Base Case	Scenarios				
						1. HPP Free	2. IMF Projected GDP	3. No VRE Policy	4. Low Demand	5. High Demand
					Year	Year	Year	Year	Year	Year
116	Tangar	Hydro	26	2024	2047	Not Picked	2046	2047	2047	2045
117	Tangus	Hydro	2,200	2030	2042	Not Picked	2044	2044	2046	2046
118	Taunsa	Hydro	135	2025	2047	Not Picked	2047	2047	2047	2047
119	Thakot-I	Hydro	2,154	2030	2031	2031	2031	2031	2031	2031
120	Thakot-II	Hydro	964	2035	2041	Not Picked	2041	2041	2042	2041
121	Thakot-III	Hydro	1,683	2029	2029	2029	2029	2029	2029	2029
122	Torkhow	Hydro	70	2027	2042	Not Picked	2042	2041	2043	2041
123	TP	Hydro	9	2024	2047	Not Picked	2047	2047	2047	2047
124	Trappi	Hydro	32	2025	2045	Not Picked	2046	2046	2047	2046
125	Trident	Hydro	8	2024	2047	Not Picked	2047	2047	2047	2047
126	Trimmu_HPP	Hydro	13	2032	2047	Not Picked	2047	2047	2047	2047
127	Turtonas Uzghor	Hydro	82	2025	2047	Not Picked	2047	2047	2047	2047

#	Candidate Plant Name	Category	Capacity	COD input for PLEXOS (Year)	Base Case	Scenarios				
						1. HPP Free	2. IMF Projected GDP	3. No VRE Policy	4. Low Demand	5. High Demand
					Year	Year	Year	Year	Year	Year
128	UCC Bhambhwal	Hydro	5	2027	2046	Not Picked	2046	2045	2047	2046
129	Upper Palas	Hydro	157	2046	2047	Not Picked	2047	2047	2047	2047
130	Upper Spat Gah	Hydro	277	2050	Not Picked	Not Picked	Not Picked	Not Picked	Not Picked	Not Picked
131	Wari	Hydro	44	2025	2046	Not Picked	2046	2046	2047	2046
132	Wazirabad	Hydro	90	2030	2047	Not Picked	2046	2047	2045	2047
133	Yulbo	Hydro	2,800	2027	2046	Not Picked	2046	2045	2047	2047

Table-7-4a: Projects Optimized by PLEXOS (6 Scenarios)

#	Candidate Plants Name	Category	Capacity	COD given to PLEXOS	Scenarios						
					6. CCGT/ OCGT on Gas	7. No New CCGT or OCGT	8. Inclusion of 25% Load Management	9. Inclusion of 50% Load Management	10. Excluding Load Management	11. Excluding LM, EV and NPHS	12. Jamshoro Coal Unit 2 Candidate
					Year						
1	Oracle	Local Coal	1,214	2025	607 MW (2027) 607 MW (2030)	607 MW (2027) 607 MW (2028)	2027	2027	2027	607 MW (2028) 607 MW (2030)	607 MW (2027) 607 MW (2030)

#	Candidate Plants Name	Category	Capacity	COD given to PLEXOS	Scenarios						
					6. CCGT/ OCGT on Gas	7. No New CCGT or OCGT	8. Inclusion of 25% Load Management	9. Inclusion of 50% Load Management	10. Excluding Load Management	11. Excluding LM, EV and NPHS	12. Jamshoro Coal Unit 2 Candidate
					Year						
2	Hatim	CCGT_Gas	20	2023	2027	2027	2027	2027	2027	2027	2027
3	Mari Combined Cycle	CCGT_Gas	255	2025	Not Picked	2029	Not Picked	Not Picked	Not Picked	Not Picked	Not Picked
4	Jamshoro Unit 2	Imp.Coal	644	2024	Committed	Committed	Committed	Committed	Committed	Committed	2041
5	Alka	Hydro	2	2024	2046	2047	2046	2046	2046	2046	2046
6	Arkari Gol	Hydro	99	2025	2046	2044	2047	2047	2047	2046	2045
7	Artistic-I	Hydro	63	2026	2047	2046	2047	2047	2047	2047	2047
8	Artistic-II	Hydro	55	2026	2046	2044	2047	2047	2047	2047	2047
9	Ashkot	Hydro	300	2027	2046	2046	2047	2047	2047	2047	2047
10	Asrit Kadam	Hydro	215	2026	2044	2039	2045	2045	2045	2042	2042
11	Athmuqam	Hydro	450	2028	2046	2047	2047	2047	2047	2047	2047
12	Balakot	Hydro	300	2026	2047	2046	2047	2047	2047	2047	2047
13	Balakot-II	Hydro	100	2027	2046	2046	2047	2047	2047	2047	2047
14	Balkani	Hydro	8	2025	2047	2046	2047	2047	2047	2047	2047

#	Candidate Plants Name	Category	Capacity	COD given to PLEXOS	Scenarios						
					6. CCGT/ OCGT on Gas	7. No New CCGT or OCGT	8. Inclusion of 25% Load Management	9. Inclusion of 50% Load Management	10. Excluding Load Management	11. Excluding LM, EV and NPHS	12. Jamshoro Coal Unit 2 Candidate
					Year						
15	Barum Gol	Hydro	39	2026	2046	2045	2046	2046	2046	2046	2046
16	Basho	Hydro	40	2026	2046	2044	2047	2047	2047	2046	2046
17	Bata Kundi	Hydro	96	2026	2041	2028	2041	2041	2041	2041	2041
18	Bhan Khwar	Hydro	36	2026	2045	2044	2045	2046	2045	2045	2045
19	Bhimbal Katha	Hydro	8	2025	2045	2045	2046	2045	2045	2045	2045
20	Blue Star	Hydro	3	2022	2024	2024	2024	2024	2027	2041	2024
21	BS Link Tail	Hydro	9	2024	2047	2047	2047	2047	2047	2047	2047
22	Bunji	Hydro	7,100	2030	2043	3550 MW (2031) 3550 MW (2047)	2043	3550 MW (2043) 3550 MW (2044)	3550 MW (2043) 3550 MW (2044)	2043	2043
23	Chakoti Hatian	Hydro	500	2028	2046	2046	2046	2046	2046	2045	2046
24	Chapri Charkhel	Hydro	11	2023	2046	2046	2046	2046	2046	2046	2046
25	Chenavan	Hydro	3	2025	2044	2047	2047	2047	2047	2047	2045
26	Chicha Watni	Hydro	2	2024	2047	2046	2047	2047	2047	2047	2047

#	Candidate Plants Name	Category	Capacity	COD given to PLEXOS	Scenarios						
					6. CCGT/ OCGT on Gas	7. No New CCGT or OCGT	8. Inclusion of 25% Load Management	9. Inclusion of 50% Load Management	10. Excluding Load Management	11. Excluding LM, EV and NPHS	12. Jamshoro Coal Unit 2 Candidate
					Year						
27	Chiniot_HPP	Hydro	80	2023	2047	2046	2047	2047	2047	2047	2047
28	Chota Jabba	Hydro	45	2028	2046	2044	2047	2047	2047	2047	2047
29	CJ	Hydro	25	2026	2046	2044	2047	2047	2045	2046	2045
30	Dander	Hydro	56	2028	2029	2029	2029	2029	2029	2029	2029
31	Daral Khwar-II	Hydro	10	2024	2047	2046	2047	2047	2047	2047	2047
32	Dasu_2	Hydro	2,160	2032	2032	2032	2032	2032	2032	2032	2032
33	Dhaddar	Hydro	18	2023	2047	2046	2047	2047	2047	2047	2047
34	Dhudnial	Hydro	960	2043	2045	2044	2045	2043	2045	2045	2045
35	Diamer Bhasha Dam	Hydro	4,500	2028	2045	2045	2044	2045	2044	2044	2044
36	Dowarian	Hydro	40	2024	2041	2029	2041	2041	2041	2041	2041
37	Dubair Kalay	Hydro	66	2028	2029	2029	2029	2029	2029	2029	2029
38	Engro_HPP	Hydro	5	2025	2047	2047	2047	2047	2047	2047	2047
39	Gabral Kalam	Hydro	88	2025	2045	2037	2046	2047	2045	2046	2045

#	Candidate Plants Name	Category	Capacity	COD given to PLEXOS	Scenarios						
					6. CCGT/ OCGT on Gas	7. No New CCGT or OCGT	8. Inclusion of 25% Load Management	9. Inclusion of 50% Load Management	10. Excluding Load Management	11. Excluding LM, EV and NPHS	12. Jamshoro Coal Unit 2 Candidate
					Year						
40	Gabral Utror	Hydro	83	2025	2046	2039	2046	2046	2045	2046	2045
41	Gahrit	Hydro	377	2028	2047	2047	2047	2047	2047	2047	2047
42	Garhi Habibullah	Hydro	100	2027	2046	2046	2047	2047	2047	2047	2047
43	Ghail	Hydro	1	2025	2047	2047	2047	2047	2047	2047	2047
44	Ghanool	Hydro	2	2023	2046	2047	2047	2047	2047	2046	2046
45	Ghorband	Hydro	21	2026	2047	2046	2047	2047	2047	2047	2047
46	Gomat Nar	Hydro	50	2026	2047	2046	2047	2047	2047	2047	2047
47	Gugera	Hydro	4	2024	2047	2046	2047	2047	2047	2047	2047
48	Gwaldai	Hydro	20	2025	2044	2038	2046	2046	2045	2046	2045
49	Harigehl-Majeedgala	Hydro	40	2024	2044	2044	2045	2046	2045	2042	2042
50	Istaro-Booni	Hydro	72	2030	2047	2046	2047	2047	2047	2047	2047
51	Jabri Bedar	Hydro	4	2024	2047	2047	2047	2047	2047	2047	2047
52	Jagran-III	Hydro	35	2023	2042	2040	2045	2045	2045	2045	2045

#	Candidate Plants Name	Category	Capacity	COD given to PLEXOS	Scenarios						
					6. CCGT/ OCGT on Gas	7. No New CCGT or OCGT	8. Inclusion of 25% Load Management	9. Inclusion of 50% Load Management	10. Excluding Load Management	11. Excluding LM, EV and NPHS	12. Jamshoro Coal Unit 2 Candidate
					Year						
53	Jagran-IV	Hydro	22	2025	2045	2044	2045	2045	2045	2045	2045
54	Jamshil	Hydro	610	2029	2046	2044	2046	2046	2046	2047	2047
55	Jhing-II	Hydro	6	2024	2046	2047	2047	2047	2047	2047	2047
56	Kalam Asrit	Hydro	212	2027	2044	2028	2044	2044	2044	2044	2044
57	Kalkot Barikot	Hydro	47	2024	2047	2046	2047	2047	2047	2047	2047
58	Kari Mushkur	Hydro	495	2028	2046	2046	2047	2047	2047	2047	2047
59	Kasur	Hydro	3	2023	2047	2046	2047	2047	2047	2047	2047
60	Kathai-II	Hydro	8	2023	2042	2044	2043	2044	2044	2042	2042
61	Kathai-III	Hydro	1	2023	2047	2046	2047	2047	2047	2047	2047
62	Khal	Hydro	65	2027	2046	2046	2047	2047	2047	2047	2047
63	Khanewal	Hydro	1	2024	2047	2047	2047	2047	2047	2047	2047
64	Khanki Barrage	Hydro	14	2030	2047	2046	2047	2047	2047	2047	2047
65	Khokhra	Hydro	3	2024	2047	2046	2047	2047	2047	2047	2047

#	Candidate Plants Name	Category	Capacity	COD given to PLEXOS	Scenarios						
					6. CCGT/ OCGT on Gas	7. No New CCGT or OCGT	8. Inclusion of 25% Load Management	9. Inclusion of 50% Load Management	10. Excluding Load Management	11. Excluding LM, EV and NPHS	12. Jamshoro Coal Unit 2 Candidate
					Year						
66	Lower Palas	Hydro	665	2024	2041	2028	2027	2027	2027	2041	2033
67	Lower Spat Gah	Hydro	496	2029	2046	2044	2047	2047	2047	2047	2047
68	Luat	Hydro	49	2025	2047	2046	2047	2047	2047	2047	2047
69	Lucky_HPP	Hydro	20	2025	2047	2046	2047	2047	2047	2047	2047
70	Luspur Murigram	Hydro	232	2028	2047	2047	2047	2047	2047	2047	2047
71	Machai-III	Hydro	2	2022	2047	2047	2047	2047	2047	2047	2047
72	Madian	Hydro	157	2027	2044	2036	2044	2046	2044	2045	2045
73	Mahandri	Hydro	10	2024	2047	2047	2047	2047	2047	2047	2047
74	Mahl	Hydro	640	2029	2030	2030	2030	2030	2030	2030	2030
75	Mahodand	Hydro	45	2026	2046	2044	2047	2047	2047	2046	2046
76	Mandi	Hydro	3	2024	2047	2047	2047	2047	2047	2047	2047
77	Mastuj	Hydro	49	2026	2046	2044	2047	2047	2047	2046	2046
78	Mehar	Hydro	10	2024	2047	2046	2047	2047	2047	2047	2047

#	Candidate Plants Name	Category	Capacity	COD given to PLEXOS	Scenarios						
					6. CCGT/ OCGT on Gas	7. No New CCGT or OCGT	8. Inclusion of 25% Load Management	9. Inclusion of 50% Load Management	10. Excluding Load Management	11. Excluding LM, EV and NPHS	12. Jamshoro Coal Unit 2 Candidate
					Year						
79	Mid Ranjha	Hydro	80	2043	2047	2046	2047	2047	2047	2047	2047
80	Middle Palas	Hydro	398	2046	2046	2046	2046	2046	2046	2046	2046
81	Middle Spat Gah	Hydro	501	2049	Not Picked	Not Picked	Not Picked	Not Picked	Not Picked	Not Picked	Not Picked
82	Mujigram	Hydro	64	2030	2046	2044	2047	2047	2047	2046	2046
83	Murree	Hydro	12	2025	2047	2046	2047	2047	2047	2047	2047
84	Nagdar	Hydro	35	2024	2044	2039	2046	2046	2045	2046	2045
85	Nandihaar	Hydro	12	2025	2047	2046	2047	2047	2047	2047	2047
86	Nandihaar-II	Hydro	11	2024	2045	2045	2046	2045	2045	2046	2045
87	Naran	Hydro	188	2026	2045	2044	2045	2045	2045	2045	2045
88	Nerai-Dubair	Hydro	46	2028	2029	2029	2029	2029	2029	2029	2029
89	Nila Da Katha	Hydro	34	2025	2046	2044	2047	2047	2047	2046	2046
90	Okara	Hydro	5	2027	2044	2046	2047	2046	2046	2045	2045
91	Pashot	Hydro	60	2028	2044	2035	2045	2046	2045	2042	2045

#	Candidate Plants Name	Category	Capacity	COD given to PLEXOS	Scenarios						
					6. CCGT/ OCGT on Gas	7. No New CCGT or OCGT	8. Inclusion of 25% Load Management	9. Inclusion of 50% Load Management	10. Excluding Load Management	11. Excluding LM, EV and NPHS	12. Jamshoro Coal Unit 2 Candidate
					Year						
92	Patan	Hydro	2,400	2026	2041	2043	2043	2042	2041	2043	2043
93	Patrak Sheringhal	Hydro	22	2024	2047	2046	2047	2047	2047	2047	2047
94	Phandar	Hydro	80	2026	2044	2033	2044	2046	2046	2042	2045
95	Punjnad	Hydro	15	2032	2047	2046	2047	2047	2047	2047	2047
96	Qaditrabad	Hydro	23	2033	2047	2046	2047	2047	2047	2047	2047
97	QB Link	Hydro	9	2027	2047	2046	2047	2047	2047	2047	2047
98	Rajdhani	Hydro	132	2029	2029	2029	2029	2029	2029	2029	2029
99	Rasul	Hydro	18	2023	2047	2047	2047	2047	2047	2047	2047
100	Ravi	Hydro	5	2024	2047	2046	2047	2047	2047	2047	2047
101	Riali-III	Hydro	3	2025	2026	2026	2026	2026	2026	2026	2026
102	Sahiwal	Hydro	5	2027	2047	2046	2047	2047	2047	2047	2047
103	Sakhra-I	Hydro	8	2025	2043	2037	2044	2044	2044	2044	2044
104	Sakhra-II	Hydro	9	2025	2044	2038	2046	2046	2045	2042	2042

#	Candidate Plants Name	Category	Capacity	COD given to PLEXOS	Scenarios						
					6. CCGT/ OCGT on Gas	7. No New CCGT or OCGT	8. Inclusion of 25% Load Management	9. Inclusion of 50% Load Management	10. Excluding Load Management	11. Excluding LM, EV and NPHS	12. Jamshoro Coal Unit 2 Candidate
					Year						
105	Sarral-Dhartian	Hydro	9	2026	2047	2047	2047	2047	2047	2047	2047
106	Serai	Hydro	7	2025	2045	2044	2046	2046	2045	2045	2045
107	Shah Jiwana	Hydro	80	2045	2047	2046	2047	2047	2047	2047	2047
108	Shalfalam	Hydro	60	2026	2046	2044	2046	2046	2046	2046	2046
109	Sharmai	Hydro	150	2024	2046	2046	2046	2046	2046	2046	2046
110	Shigo Kas	Hydro	102	2025	2046	2045	2046	2046	2046	2046	2046
111	Shogosin	Hydro	137	2027	2046	2044	2047	2046	2047	2046	2046
112	Shounter	Hydro	48	2024	2046	2044	2046	2047	2045	2046	2046
113	Shushghai	Hydro	144	2027	2047	2046	2047	2047	2047	2047	2047
114	SHYOK	Hydro	640	2028	2045	2044	2046	2046	2045	2046	2046
115	Skardu	Hydro	1,200	2050	Not Picked	Not Picked	Not Picked	Not Picked	Not Picked	Not Picked	Not Picked
116	Soan	Hydro	25	2031	2047	2046	2047	2047	2047	2047	2047
117	Tangar	Hydro	26	2024	2046	2039	2047	2047	2047	2046	2047

#	Candidate Plants Name	Category	Capacity	COD given to PLEXOS	Scenarios						
					6. CCGT/ OCGT on Gas	7. No New CCGT or OCGT	8. Inclusion of 25% Load Management	9. Inclusion of 50% Load Management	10. Excluding Load Management	11. Excluding LM, EV and NPHS	12. Jamshoro Coal Unit 2 Candidate
					Year						
118	Tangus	Hydro	2,200	2030	2044	2035	2044	2044	2043	2045	2042
119	Taunsa	Hydro	135	2025	2047	2046	2047	2047	2047	2047	2047
120	Thakot-I	Hydro	2,154	2030	2031	2031	2031	2031	2031	2031	2031
121	Thakot-II	Hydro	964	2035	2041	2036	2041	2041	2041	2041	2041
122	Thakot-III	Hydro	1,683	2029	2029	2029	2029	2029	2029	2029	2029
123	Torkhow	Hydro	70	2027	2041	2028	2042	2042	2042	2042	2042
124	TP	Hydro	9	2024	2047	2046	2047	2047	2047	2047	2047
125	Trappi	Hydro	32	2025	2046	2044	2046	2046	2047	2046	2045
126	Trident	Hydro	8	2024	2047	2046	2047	2047	2047	2047	2047
127	Trimmu_HPP	Hydro	13	2032	2047	2046	2047	2047	2047	2047	2047
128	Turtonas Uzghor	Hydro	82	2025	2046	2046	2047	2047	2047	2047	2047
129	UCC Bhambhwal	Hydro	5	2027	2046	2045	2047	2046	2047	2046	2046
130	Upper Palas	Hydro	157	2046	2047	2047	2047	2047	2047	2047	2047

#	Candidate Plants Name	Category	Capacity	COD given to PLEXOS	Scenarios						
					6. CCGT/ OCGT on Gas	7. No New CCGT or OCGT	8. Inclusion of 25% Load Management	9. Inclusion of 50% Load Management	10. Excluding Load Management	11. Excluding LM, EV and NPHS	12. Jamshoro Coal Unit 2 Candidate
					Year						
131	Upper Spat Gah	Hydro	277	2050	Not Picked	Not Picked	Not Picked	Not Picked	Not Picked	Not Picked	Not Picked
132	Wari	Hydro	44	2025	2046	2047	2046	2046	2045	2046	2046
133	Wazirabad	Hydro	90	2030	2046	2044	2047	2047	2047	2046	2046
134	Yulbo	Hydro	2,800	2027	2047	2045	2046	2045	2046	2046	2046

Table-7-4b: Projects Optimized by PLEXOS (7 Scenarios)

PLEXOS final output compromising of year-wise addition of all committed and candidate power plants is given below in Table 7-5.

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2020							
1	Zorlu Solar Pakistan Pvt. Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Jan-20
2	Jabori	Hydro	10	10	PEDO	Committed	Mar-20
3	Trimmu	RLNG	1,263	1,243	PPIB	Committed	Apr-20
4	Jhing	Hydro	15	15	AJK	Committed	Jun-20
5	Karora	Hydro	12	12	PEDO	Committed	Jun-20
6	Koto	Hydro	41	41	PEDO	Committed	Jun-20
Generation Additions in 2020 (MW)			1,441	1,421			
Cumulative Addition up till 2020 (MW)			1,441	1,421			
2021							
1	Etihad Power Generation Ltd.	Bagasse	74	74	AEDB	Committed	Jul-20
2	Karachi Nuclear K-2	Nuclear	1,100	1,059	PAEC	Committed	Nov-20
3	Master Green Energy Ltd.	Wind	50	50	AEDB	Committed	Nov-20
4	Shaheen Renewable Energy-1 Pvt. Ltd.	Wind	51	51	AEDB	Committed	Nov-20
5	Lawi	Hydro	69	69	PEDO	Committed	Jan-21
6	Tricorm Wind Power Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-21
7	Western Energy Pvt. Limited	Wind	50	50	AEDB	Committed	Feb-21
8	Lucky	Local Coal	660	607	PPIB	Committed	Mar-21
9	Access Electric Pvt. Ltd.	Solar	10	10	AEDB	Committed	Mar-21

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
10	Access Solar Pvt. Ltd.	Solar	12	12	AEDB	Committed	Mar-21
11	Thal Nova	Local Coal	330	300	PPIB	Committed	Mar-21
12	Thar TEL	Local Coal	330	300	PPIB	Committed	Mar-21
13	Thar-I (Shanghai Electric) Unit 1	Local Coal	660	607	PPIB	Committed	Mar-21
14	Riali-II	Hydro	7	7	AJK	Committed	Jun-21
15	Hydro China Dawood Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
16	Tenga Generasi Limited	Wind	50	50	AEDB	Committed	Jun-21
17	Zephyr Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
18	Siddiqsons	Local Coal	330	304	PPIB	Committed	Jun-21
Generation Additions in 2021 (MW)			3,933	3,698			
Cumulative Addition uptill 2021 (MW)			5,374	5,119			
2022							
1	HNDS Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
2	Helios Power Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
3	Thar-I (Shanghai Electric) Unit 2	Local Coal	660	607	PPIB	Committed	Aug-21
4	Karachi Nuclear K-3	Nuclear	1100	1,059	PAEC	Committed	Sep-21
5	Buksh Energy Pvt. Ltd.	Solar	12	11.664	AEDB	Committed	Sep-21
6	Safe Solar Power Pvt. Ltd.	Solar	10	10.28	AEDB	Committed	Sep-21
7	Artistic Wind Power Pvt. Limited.	Wind	50	50	AEDB	Committed	Oct-21
8	Meridian Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Nov-21

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
9	Zhenfa Pakistan New Energy Company (Pvt.) Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Nov-21
10	Karot	Hydro	720	720	PPIB/AJK	Committed	Dec-21
11	Jamshoro CFPP Unit 1	Imp.Coal	660	644	GENCO	Committed	Dec-21
12	Gwadar	Imp.Coal	300	273.1	PPIB	Committed	Jan-22
13	Gul Ahmed Electric Ltd.	Wind	50	50	AEDB	Committed	Jan-22
14	ACT 2 wind (Pvt.) Ltd.	Wind	50	50	AEDB	Committed	Feb-22
15	Din Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
16	Indus Wind Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
17	Lakeside Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
18	Liberty Wind Power 1 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
19	Liberty Wind Power 2 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
20	Metro Wind Power Ltd.	Wind	60	60	AEDB	Committed	Feb-22
21	NASDA Green Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
22	Trans Atlantic Energy (Pvt.) Limited	Wind	48	48.3	AEDB	Committed	Feb-22
23	Alliance Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
24	Bahawalpur Energy Ltd.	Bagasse	31	31.2	AEDB	Committed	Mar-22
25	Faran Power Limited	Bagasse	27	26.5	AEDB	Committed	Mar-22
26	Ghotki Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
27	Hamza Sugar Mills Ltd. (Unit-II)	Bagasse	30	30	AEDB	Committed	Mar-22
28	HSM Energy Ltd.	Bagasse	27	26.5	AEDB	Committed	Mar-22

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
29	Hunza Power (Pvt.) Ltd.	Bagasse	50	49.8	AEDB	Committed	Mar-22
30	Indus Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
31	Ittefaq Power Ltd.	Bagasse	31	31.2	AEDB	Committed	Mar-22
32	Kashmir Power (Pvt.) Ltd.	Bagasse	40	40	AEDB	Committed	Mar-22
33	Mehran Energy Ltd.	Bagasse	27	26.5	AEDB	Committed	Mar-22
34	RYK Energy Ltd.	Bagasse	25	25	AEDB	Committed	Mar-22
35	Sadiqabad Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
36	Shahtaj Sugar Mills Ltd.	Bagasse	32	32	AEDB	Committed	Mar-22
37	Sheikhoo Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
38	TAY Powergen Company (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
39	Two Star Energy (Pvt.) Ltd.	Bagasse	50	49.8	AEDB	Committed	Mar-22
Generation Additions in 2022 (MW)			4,851	4,713			
Cumulative Addition up till 2022 (MW)			10,225	9,832			
2023							
1	Gorkin Matiltan	Hydro	84	84	PEDO	Committed	Nov-22
2	Suki Kinari	Hydro	884	884	PPIB	Committed	Dec-22
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2023
4	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2023
5	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2023

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
6	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2023
7	CASA	Import	1,000	1,000	GOP	Committed	May-23
	Generation Additions in 2023 (MW)		4,968	4,968			
	Cumulative Addition up till 2023 (MW)		15,193	14,800			
2024							
1	Tarbela 5th-Extension	Hydro	1,410	1,410	WAPDA	Committed	Sep-23
2	Jamshoro CFPP Unit 2	Imp.Coal	660	644	GENCO	Committed	Dec-23
3	Blue Star	Hydro	3	3	PEDO	Candidate	2024
4	Generic_Candidate Local Coal	Local Coal	1,514	1,514	Yet to be Decided	Candidate	2024
5	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2024
6	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2024
7	Generic_Candidate Wind_North	Wind	89	89	Yet to be Decided	Candidate	2024
8	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2024
	Generation Additions in 2024 (MW)		6,475	6,459			
	Cumulative Addition up till 2024 (MW)		21,668	21,260			
2025							
1	Keyal Khwar	Hydro	128	128	WAPDA	Committed	Sep-24
2	Mohmand	Hydro	800	800	WAPDA	Committed	Nov-24
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2025
4	Generic_Candidate Wind_South	Wind	922	922	Yet to be Decided	Candidate	2025

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
5	Dasu 1	Hydro	2,160	2,160	WAPDA	Committed	Feb-25
	Generation Additions in 2025 (MW)		5,510	5,510			
	Cumulative Addition up till 2025 (MW)		27,179	26,770			
2026							
1	Harpo	Hydro	35	35	WAPDA	Committed	Jul-25
2	Chasma Nuclear C-5	Nuclear	1,100	1,059	PAEC	Committed	Jul-25
3	Riali-III	Hydro	3	3	AJK	Candidate	2026
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2026
5	Generic_Candidate Wind_South	Wind	673	673	Yet to be Decided	Candidate	2026
	Generation Additions in 2026 (MW)		3,311	3,270			
	Cumulative Addition up till 2026 (MW)		30,490	30,040			
2027							
1	Azad Pattan	Hydro	700	701	PPIB	Committed	Sep-26
2	Oracle_1	Local Coal	660	607	STDC/ PPIB	Candidate	2027
3	Hatim	CCGT_Gas	20	20	PPIB	Candidate	2027
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2027
5	Generic_Candidate Wind_South	Wind	301	301	Yet to be Decided	Candidate	2027
6	Kohala	Hydro	1,124	1,124	PPIB	Committed	Jun-27
	Generation Additions in 2027 (MW)		4,305	4,253			
	Cumulative Addition up till 2027 (MW)		34,795	34,292			
2028							

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
1	Generic_Candidate OCGT_RLNG	RLNG	1,577	1,577	Yet to be Decided	Candidate	2028
2	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2028
3	Generic_Candidate Wind_South	Wind	784	784	Yet to be Decided	Candidate	2028
Generation Additions in 2028 (MW)			3,861	3,861			
Cumulative Addition up till 2028 (MW)			38,655	38,153			
2029							
1	Dander	Hydro	56	56	PEDO	Candidate	2029
2	Dubair Kalay	Hydro	66	66	PEDO	Candidate	2029
3	Nerai-Dubair	Hydro	46	46	PEDO	Candidate	2029
4	Rajdhani	Hydro	132	132	PPIB	Candidate	2029
5	Thakot-III	Hydro	1,686	1,686	WAPDA	Candidate	2029
6	Generic_Candidate OCGT_RLNG	RLNG	1,129	1,129	Yet to be Decided	Candidate	2029
7	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2029
8	Generic_Candidate Wind_Mid	Wind	263	263	Yet to be Decided	Candidate	2029
9	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2029
Generation Additions in 2029 (MW)			5,879	5,879			
Cumulative Addition up till 2029 (MW)			44,534	44,032			
2030							
1	Mahl	Hydro	639	639	PPIB	Candidate	2030
2	Oracle_2	Local Coal	660	607	STDC/PPIB	Candidate	2030

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
3	Generic_Candidate OCGT_RLNG	RLNG	2,162	2,162	Yet to be Decided	Candidate	2030
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2030
5	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2030
6	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2030
7	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2030
Generation Additions in 2030 (MW)			6,461	6,408			
Cumulative Addition up till 2030 (MW)			50,995	50,440			
2031							
1	Thakot-I	Hydro	2154	2154	WAPDA	Candidate	2031
2	Generic_Candidate OCGT_RLNG	RLNG	1,347	1,347	Yet to be Decided	Candidate	2031
Generation Additions in 2031 (MW)			3,501	3,501			
Cumulative Addition up till 2031 (MW)			54,496	53,941			
2032							
1	Dasu_2	Hydro	2,160	2,160	WAPDA	Candidate	2032
2	Generic_Candidate OCGT_RLNG	RLNG	1,228	1,228	Yet to be Decided	Candidate	2032
3	Generic_Candidate Solar	Solar	1,442	1,442	Yet to be Decided	Candidate	2032
Generation Additions in 2032 (MW)			4,830	4,830			
Cumulative Addition up till 2032 (MW)			59,327	58,771			
2033							

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
1	Generic_Candidate Local Coal	Local Coal	3,384	3,384	Yet to be Decided	Candidate	2033
2	Generic_Candidate OCGT_RLNG	RLNG	534	534	Yet to be Decided	Candidate	2033
3	Generic_Candidate Solar	Solar	1500	1500	Yet to be Decided	Candidate	2033
Generation Additions in 2033 (MW)			5,418	5,418			
Cumulative Addition up till 2033 (MW)			64,745	64,190			
2034							
1	Generic_Candidate Local Coal	Local Coal	3,313	3,313	Yet to be Decided	Candidate	2034
2	Generic_Candidate OCGT_RLNG	RLNG	848	848	Yet to be Decided	Candidate	2034
Generation Additions in 2034 (MW)			4,161	4,161			
Cumulative Addition up till 2034 (MW)			68,906	68,351			
2035							
1	Generic_Candidate Local Coal	Local Coal	2,372	2,372	Yet to be Decided	Candidate	2035
2	Generic_Candidate OCGT_RLNG	RLNG	2,596	2,596	Yet to be Decided	Candidate	2035
Generation Additions in 2035 (MW)			4,968	4,968			
Cumulative Addition up till 2035 (MW)			73,874	73,319			
2036							
1	Generic_Candidate Local Coal	Local Coal	2,431	2,431	Yet to be Decided	Candidate	2036
2	Generic_Candidate OCGT_RLNG	RLNG	2,904	2,904	Yet to be Decided	Candidate	2036
3	Generic_Candidate Solar	Solar	307	307	Yet to be Decided	Candidate	2036

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Generation Additions in 2036 (MW)			5,642	5,642			
Cumulative Addition up till 2036 (MW)			79,516	78,960			
2037							
1	Generic_Candidate Local Coal	Local Coal	2,635	2,635	Yet to be Decided	Candidate	2037
2	Generic_Candidate OCGT_RLNG	RLNG	2,144	2,144	Yet to be Decided	Candidate	2037
3	Generic_Candidate Solar	Solar	781	781	Yet to be Decided	Candidate	2037
Generation Additions in 2037 (MW)			5,560	5,560			
Cumulative Addition up till 2037 (MW)			85,076	84,521			
2038							
1	Generic_Candidate Local Coal	Local Coal	3,115	3,115	Yet to be Decided	Candidate	2038
2	Generic_Candidate OCGT_RLNG	RLNG	2,045	2,045	Yet to be Decided	Candidate	2038
3	Generic_Candidate Solar	Solar	685	685	Yet to be Decided	Candidate	2038
Generation Additions in 2038 (MW)			5,845	5,845			
Cumulative Addition uptill 2038 (MW)			90,921	90,366			
2039							
1	Generic_Candidate Local Coal	Local Coal	2,968	2,968	Yet to be Decided	Candidate	2039
2	Generic_Candidate OCGT_RLNG	RLNG	2,812	2,812	Yet to be Decided	Candidate	2039
3	Generic_Candidate Solar	Solar	1,116	1,116	Yet to be Decided	Candidate	2039
Generation Additions in 2039 (MW)			6,895	6,895			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition uptill 2039 (MW)			97,817	97,261			
2040							
1	Generic_Candidate Local Coal	Local Coal	3,567	3,567	Yet to be Decided	Candidate	2040
2	Generic_Candidate OCGT_RLNG	RLNG	3,001	3,001	Yet to be Decided	Candidate	2040
Generation Additions in 2040 (MW)			6,568	6,568			
Cumulative Addition uptill 2040 (MW)			104,385	103,829			
2041							
1	Bata Kundi	Hydro	96	96	PEDO	Candidate	2041
2	Dowarian	Hydro	40	40	AJK	Candidate	2041
3	Lower Palas	Hydro	666	666	WAPDA	Candidate	2041
4	Patan	Hydro	2,400	2,400	WAPDA	Candidate	2041
5	Thakot-II	Hydro	966	966	WAPDA	Candidate	2041
6	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2041
Generation Additions in 2041 (MW)			5,668	5,668			
Cumulative Addition uptill 2041 (MW)			110,053	109,497			
2042							
1	Tangus	Hydro	2,200	2,200	WAPDA	Candidate	2042
2	Torkhow	Hydro	70	70	PEDO	Candidate	2042
3	Generic_Candidate OCGT_RLNG	RLNG	1,500	1,500	Yet to be Decided	Candidate	2042
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2042
Generation Additions in 2042 (MW)			5,270	5,270			
Cumulative Addition uptill 2042 (MW)			115,322	114,767			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2043							
1	Diamer Bhasha Dam	Hydro	4,500	4,500	WAPDA	Candidate	2043
2	Generic_Candidate Local Coal	Local Coal	1,214	1,214	Yet to be Decided	Candidate	2043
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2043
Generation Additions in 2043 (MW)			7,214	7,214			
Cumulative Addition uptill 2043 (MW)			122,537	121,981			
2044							
1	Bunji	Hydro	7,100	7,100	WAPDA	Candidate	2044
2	Kalam Asrit	Hydro	212	212	PPIB	Candidate	2044
3	Kathai-II	Hydro	8	8	AJK	Candidate	2044
4	Madian	Hydro	156	156	PEDO	Candidate	2044
5	Sakhra-I	Hydro	8	8	PEDO	Candidate	2044
6	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2044
Generation Additions in 2044 (MW)			8,984	8,984			
Cumulative Addition uptill 2044 (MW)			131,521	130,965			
2045							
1	Asrit Kadam	Hydro	216	216	PEDO	Candidate	2045
2	Bhan Khwar	Hydro	36	36	PEDO	Candidate	2045
3	Bhimbal Katha	Hydro	9	9	PEDO	Candidate	2045
4	Dhudnial	Hydro	960	960	WAPDA	Candidate	2045
5	Gabral Utror	Hydro	82	82	PEDO	Candidate	2045
6	Gwaldai	Hydro	20	20	PEDO	Candidate	2045
7	Harigehl-Majeedgala	Hydro	40	40	AJK	Candidate	2045

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
8	Jagran-III	Hydro	36	36	AJK	Candidate	2045
9	Jagran-IV	Hydro	24	24	AJK	Candidate	2045
10	Nagdar	Hydro	36	36	AJK	Candidate	2045
11	Nandihaar-II	Hydro	10	10	PEDO	Candidate	2045
12	Naran	Hydro	188	188	PEDO	Candidate	2045
13	Pashot	Hydro	60	60	PEDO	Candidate	2045
14	Phandar	Hydro	80	80	WAPDA	Candidate	2045
15	Sakhra-II	Hydro	8	8	PEDO	Candidate	2045
16	Serai	Hydro	6	6	PEDO	Candidate	2045
17	Trappi	Hydro	33	33	PEDO	Candidate	2045
18	Generic_Candidate Local Coal	Local Coal	1,894	1,894	Yet to be Decided	Candidate	2045
19	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2045
Generation Additions in 2045 (MW)			5,238	5,238			
Cumulative Addition uptill 2045 (MW)			136,759	136,203			
2046							
1	Alka	Hydro	2	2	PPDB	Candidate	2046
2	Barum Gol	Hydro	40	40	PEDO	Candidate	2046
3	Chakoti Hatian	Hydro	501	501	PPIB	Candidate	2046
4	Chapri Charkhel	Hydro	12	12	PEDO	Candidate	2046
5	Jamshil	Hydro	612	612	PEDO	Candidate	2046
6	Middle Palas	Hydro	399	399	WAPDA	Candidate	2046
7	Okara	Hydro	4	4	PPDB	Candidate	2046
8	Shalfalam	Hydro	60	60	PEDO	Candidate	2046

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
9	Sharmai	Hydro	150	150	PEDO	Candidate	2046
10	Shigo Kas	Hydro	102	102	PEDO	Candidate	2046
11	Shogosin	Hydro	138	138	PEDO	Candidate	2046
12	SHYOK	Hydro	640	640	WAPDA	Candidate	2046
13	UCC Bhambhwal	Hydro	4	4	PPDB	Candidate	2046
14	Wari	Hydro	45	45	PEDO	Candidate	2046
15	Yulbo	Hydro	2,800	2,800	WAPDA	Candidate	2046
16	Generic_Candidate Solar	Solar	720	720	Yet to be Decided	Candidate	2046
Generation Additions in 2046 (MW)			6,229	6,229			
Cumulative Addition uptill 2046 (MW)			142,988	142,433			
2047							
1	Arkari Gol	Hydro	99	99	PEDO	Candidate	2047
2	Artistic-I	Hydro	63	63	PEDO	Candidate	2047
3	Artistic-II	Hydro	54	54	PEDO	Candidate	2047
4	Ashkot	Hydro	300	300	PPIB	Candidate	2047
5	Athmuqam	Hydro	452	452	PPIB	Candidate	2047
6	Balakot	Hydro	300	300	PEDO	Candidate	2047
7	Balakot-II	Hydro	100	100	PEDO	Candidate	2047
8	Balkani	Hydro	8	8	PEDO	Candidate	2047
9	Basho	Hydro	39	39	WAPDA	Candidate	2047
10	BS Link Tail	Hydro	9	9	PPDB	Candidate	2047
11	Chenavan	Hydro	3	3	PPDB	Candidate	2047
12	Chicha Watni	Hydro	2	2	PPDB	Candidate	2047
13	Chiniot_HPP	Hydro	78	78	WAPDA	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
14	Chota Jabba	Hydro	46	46	PEDO	Candidate	2047
15	CJ	Hydro	24	24	PPDB	Candidate	2047
16	Daral Khwar-II	Hydro	10	10	PEDO	Candidate	2047
17	Dhaddar	Hydro	18	18	PEDO	Candidate	2047
18	Engro_HPP	Hydro	5	5	PPDB	Candidate	2047
19	Gabral Kalam	Hydro	87	87	PEDO	Candidate	2047
20	Gahrit	Hydro	376	376	PEDO	Candidate	2047
21	Garhi Habibullah	Hydro	100	100	PEDO	Candidate	2047
22	Ghail	Hydro	2	2	AJK	Candidate	2047
23	Ghanool	Hydro	3	3	PEDO	Candidate	2047
24	Ghorband	Hydro	20	20	PEDO	Candidate	2047
25	Gomat Nar	Hydro	50	50	AJK	Candidate	2047
26	Gugera	Hydro	3	3	PPDB	Candidate	2047
27	Istaro-Booni	Hydro	72	72	PEDO	Candidate	2047
28	Jabri Bedar	Hydro	4	4	PEDO	Candidate	2047
29	Jhing-II	Hydro	6	6	AJK	Candidate	2047
30	Kalkot Barikot	Hydro	48	48	PEDO	Candidate	2047
31	Kari Mushkur	Hydro	496	496	PEDO	Candidate	2047
32	Kasur	Hydro	2	2	PPDB	Candidate	2047
33	Kathai-III	Hydro	1	1	AJK	Candidate	2047
34	Khal	Hydro	66	66	PEDO	Candidate	2047
35	Khanewal	Hydro	2	2	PPDB	Candidate	2047
36	Khanki Barrage	Hydro	16	16	PPDB	Candidate	2047
37	Khokhra	Hydro	2	2	PPDB	Candidate	2047
38	Lower Spat Gah	Hydro	495	495	PEDO	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
39	Luat	Hydro	48	48	AJK	Candidate	2047
40	Lucky_HPP	Hydro	20	20	PPDB	Candidate	2047
41	Luspur Murigram	Hydro	231	231	PEDO	Candidate	2047
42	Machai-III	Hydro	2	2	PEDO	Candidate	2047
43	Mahandri	Hydro	12	12	PEDO	Candidate	2047
44	Mahodand	Hydro	44	44	PEDO	Candidate	2047
45	Mandi	Hydro	4	4	PPDB	Candidate	2047
46	Mastuj	Hydro	48	48	PEDO	Candidate	2047
47	Mehar	Hydro	12	12	PPDB	Candidate	2047
48	Mid Ranjha	Hydro	80	80	WAPDA	Candidate	2047
49	Mujigram	Hydro	63	63	PEDO	Candidate	2047
50	Murree	Hydro	12	12	PPDB	Candidate	2047
51	Nandihaar	Hydro	12	12	PEDO	Candidate	2047
52	Nila Da Katha	Hydro	36	36	PEDO	Candidate	2047
53	Patrak Sheringhal	Hydro	22	22	PEDO	Candidate	2047
54	Punjnad	Hydro	18	18	PPDB	Candidate	2047
55	Qaditrabad	Hydro	24	24	PPDB	Candidate	2047
56	QB Link	Hydro	8	8	PPDB	Candidate	2047
57	Rasul	Hydro	18	18	PPDB	Candidate	2047
58	Ravi	Hydro	6	6	PPDB	Candidate	2047
59	Sahiwal	Hydro	6	6	PPDB	Candidate	2047
60	Sarral-Dhartian	Hydro	9	9	PEDO	Candidate	2047
61	Shah Jiwana	Hydro	78	78	WAPDA	Candidate	2047
62	Shounter	Hydro	48	48	AJK	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
63	Shushghai	Hydro	144	144	PEDO	Candidate	2047
64	Soan	Hydro	24	24	PPDB	Candidate	2047
65	Tangar	Hydro	24	24	PEDO	Candidate	2047
66	Taunsa	Hydro	135	135	PPDB	Candidate	2047
67	TP	Hydro	9	9	PPDB	Candidate	2047
68	Trident	Hydro	8	8	PPDB	Candidate	2047
69	Trimmu_HPP	Hydro	16	16	PPDB	Candidate	2047
70	Turtonas Uzghor	Hydro	82	82	PPIB	Candidate	2047
71	Upper Palas	Hydro	158	158	WAPDA	Candidate	2047
72	Wazirabad	Hydro	88	88	WAPDA	Candidate	2047
73	Generic_Candidate Solar	Solar	77	77	Yet to be Decided	Candidate	2047
Generation Additions in 2047 (MW)			5,087	5,087			
Generation Additions in 2047 (MW)			148,075	147,519			

Table 7-5: PLEXOS Annual Addition of Power Plants 2020-47

7.3. Annual Capacity Factors

The annual capacity factors information, as shown in the Table 7-6 is one of the most important output of the PLEXOS tool. The drastic change in capacity factor of some plants between the years 2028 to 2032 is due to certain rationale; up to the year 2032, the power purchaser is obliged to utilize 66% of the RLNG fueled plants under contractual obligations. Beyond 2032, these take or pay fuel contracts of three RLNG plants will expire and the results of capacity factors are thus different. Similarly, for the existing imported coal-based power plants, minimum 50% annual despatch from the date of COD for a term of five years is required. Due to this reason coupled with selection of technologies having no fuel cost, the capacity factors of Thar coal-based plants, is lower in the period from 2028 to 2032 and then onwards, there is a rising trend.

In order to abide by the contracts of RLNG plants and imported coal based power plants, the model has been developed in a way, that up to 2032 and till 5 years from the date of COD, the capacity factors of RLNG follow the contracted despatch, however, the capacity factors for existing imported coal based plants are higher than the contracted value of 50% in the initial

years but drop drastically due to the induction of more cheaper generation sources i.e. REs and Local Coal Plants.

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	85	85	85	84	55	23	10	13	14	14	14	17	16	21	22	20	20	19	18	18	17	10	16	12	11	10	10	14
2	Gwadar	Imp. Coal	0	0	84	85	84	83	35	30	30	28	26	28	30	33	31	30	30	28	26	27	26	17	22	18	19	17	18	33
3	Jamshoro Coal	Imp. Coal	0	0	83	83	14	10	5	7	8	10	11	12	11	13	16	15	15	15	14	14	13	8	11	11	10	9	9	9
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	85	85	85	84	83	57	24	22	22	23	22	25	25	28	28	27	26	24	22	23	23	14	20	15	15	14	14	25
6	Sahiwal Coal	Imp. Coal	85	85	84	51	6	5	3	4	5	5	7	9	8	10	12	12	12	12	11	11	10	8	8	9	8	8	8	8
7	Engro Thar	Local Coal	85	85	85	85	84	84	76	78	51	39	36	39	37	41	41	38	38	37	33	33	32	22	27	32	41	28	34	35
8	Lucky	Local Coal	0	87	85	85	84	84	38	37	37	33	29	34	32	36	33	32	33	33	30	29	28	19	24	27	23	20	25	34
9	NEW_Local_Coal	Local Coal	0	0	0	0	84	84	84	82	81	79	75	76	75	74	74	76	77	78	78	79	79	76	79	78	74	74	72	72
10	Oracle	Local Coal	0	0	0	0	0	0	0	83	82	81	79	80	81	81	82	83	84	84	84	85	85	85	85	85	85	85	85	84
11	Siddiqsons	Local Coal	0	88	85	85	85	84	84	83	82	80	78	79	78	80	81	82	82	83	83	83	83	83	83	84	84	84	84	84
12	Thal Nova	Local Coal	0	89	85	85	84	84	83	81	79	74	62	65	52	56	57	56	56	55	50	49	46	30	49	43	44	43	44	47
13	Thar TEL	Local Coal	0	89	85	85	84	84	83	81	79	74	61	64	52	57	56	56	57	55	51	48	47	31	48	43	45	43	44	47
14	Thar-I (Shanghai Electric)	Local Coal	0	87	85	85	84	84	82	79	77	57	44	45	46	49	47	48	48	45	41	39	38	25	40	38	42	42	38	37
15	Balloki	RLNG	92	84	67	67	67	67	67	67	67	67	67	67	67	67	3	4	4	4	4	4	5	4	4	4	3	3	3	4
16	Bhikki	RLNG	89	77	67	67	67	67	67	67	67	67	67	67	67	3	2	2	3	4	4	4	4	2	4	3	3	3	3	3
17	FKPCL	RLNG	25	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
18	GTPS Block 4	RLNG	27	9	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Halmore	RLNG	75	36	6	1	0	0	0	0	0	0	2	3	2	1	0	0	1	1	2	3	4	1	0	0	0	0	0	0
20	Haveli	RLNG	92	91	67	67	67	67	67	67	67	67	67	67	67	4	4	5	5	6	6	6	8	4	5	5	4	5	4	5
21	Nandipur	RLNG	71	54	10	3	0	0	0	0	0	1	2	3	3	1	1	1	1	3	3	4	4	1	4	3	2	2	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	76	45	8	2	0	0	0	0	0	0	2	3	3	1	0	1	1	2	3	4	4	0	0	0	0	0	0	0
24	Rousch	RLNG	60	18	4	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	74	31	6	1	0	0	0	0	0	0	1	2	2	0	0	0	1	1	2	3	4	0	0	0	0	0	0	0
26	Saphire	RLNG	76	42	7	1	0	0	0	0	0	0	2	3	3	1	0	1	1	1	2	3	4	0	0	0	0	0	0	0
27	Trimmu	RLNG	94	92	20	7	1	0	0	0	1	2	4	5	4	5	6	6	7	7	7	8	8	5	8	5	5	5	5	6
28	Davis	RLNG	1	1	1	0	0	0	0	1	0	0	2	2	1	0	0	0	0	1	1	2	2	0	2	2	0	0	0	0
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	89	89	87	10	4	1	0	1	2	3	4	5	5	6	7	6	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	90	90	88	11	4	1	0	1	2	3	5	6	5	7	8	7	7	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	85	85	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	66	23	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
35	Guddu-V (747)	Gas	83	83	83	80	9	2	1	2	3	4	5	6	5	7	9	9	9	10	8	8	8	6	7	6	7	1	0	0
36	Hatim	Gas	0	0	0	0	0	0	0	23	21	20	19	21	15	17	18	17	17	16	16	16	15	10	12	9	10	9	7	6
37	HCPC	Gas	86	86	28	9	3	1	0	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Kotri	Gas	87	87	26	9	3	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	77	64	11	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	86	86	86	86	84	84	12	8	8	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	88	88	86	14	4	2	1	2	3	4	5	6	5	7	8	8	8	8	8	7	0	0	0	0	0	0	0	0
43	C-1	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
44	C-2	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
45	C-3	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
46	C-4	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
47	C-5	Nuclear	0	0	0	0	0	0	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	74	79	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
50	K-3	Nuclear	0	0	76	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
51	Alliance	Baggase	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
52	Almoiz	Baggase	54	54	54	54	54	54	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
53	Bahawalpur	Baggase	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
54	Candidate_Baggase	Baggase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Baggase	54	54	54	54	54	54	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
56	Chiniot	Baggase	36	36	36	36	36	35	35	35	35	34	34	34	34	34	35	35	35	36	36	36	36	36	36	36	36	36	36	36
57	Etihad	Baggase	0	54	54	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
58	Faran	Baggase	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
59	Ghotki	Baggase	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
60	Hamza	Baggase	47	47	47	47	47	46	46	46	46	45	44	45	44	45	46	46	47	47	47	47	47	47	47	47	47	47	47	47
61	Hamza-II	Baggase	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
62	HSM	Baggase	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
63	Hunza	Baggase	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
64	Indus	Baggase	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
65	Ittefaq	Baggase	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
66	JDW-II	Baggase	84	84	84	84	84	83	83	83	82	81	80	81	80	81	82	83	83	83	83	84	84	84	84	84	83	83	83	83
67	JDW-III	Baggase	78	78	78	78	78	77	77	77	77	75	75	75	75	76	77	77	77	78	78	78	78	78	78	78	78	78	78	78
68	Kashmir	Baggase	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
69	Mehran	Baggase	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
70	RYK_Energy	Baggase	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
71	Ryk_Mills	Baggase	54	54	54	54	54	54	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
72	Sadiqabad	Baggase	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
73	Shahtaj	Baggase	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
74	Sheikhoo	Baggase	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
75	TAY	Baggase	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
76	Thal_Layyah	Baggase	30	30	30	30	30	30	29	29	29	28	28	28	28	29	29	29	30	30	30	30	30	30	30	30	30	30	30	30
77	Two_Star	Baggase	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
78	Access_Electric	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
79	Access_Solar	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
81	Best	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
82	Buksh	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
84	Crest	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
85	Helios	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
86	HNDS	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
87	Meridian	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
88	QA_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
89	Safe	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
90	Zhenfa	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
91	Zorlu	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68	68
93	Allai Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	48
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	48	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	40

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	41	42	41	41	42	42
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	38	38
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	60
109	Blue Star	Hydro	0	0	0	0	65	66	66	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	41	41
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62
114	Chashma	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	40	39	40	45	44	45	45	45	46	46	46	45	46	47	48	47	48	48	49
121	Daral Khwar	Hydro	47	47	47	47	47	47	47	42	42	42	42	42	44	44	43	44	44	44	44	44	44	45	45	45	45	46	46	46
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
123	Dasu_1	Hydro	0	0	0	0	0	56	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	60	61	64	64	64	64	64	64	64	64	64	64	64	64	64	64
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	44	44	44	45
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45	45	45	45	45	45
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	56	57	58	63	62	63	63	64	63	64	64	63	65	64	64	64	64	64	65
130	Dubair Khwar	Hydro	51	51	51	51	51	51	51	49	50	50	49	50	50	49	50	50	50	50	50	51	50	51	51	50	50	50	50	51
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
138	Ghazi Brotha	Hydro	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
140	Golen Gol	Hydro	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
142	Gorkin Matiltan	Hydro	0	0	0	32	45	45	45	41	41	41	40	41	41	42	42	42	42	42	42	42	42	43	43	43	43	43	44	44
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
144	Gulpur	Hydro	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	45	45
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	61	61	61
147	Harpo	Hydro	0	0	0	0	0	0	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
149	Jabori	Hydro	91	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
151	Jagran-I	Hydro	31	31	31	31	31	31	31	30	30	30	29	30	30	30	30	30	30	30	31	31	30	31	31	31	31	31	31	31
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44	44
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
155	Jhing	Hydro	95	52	52	52	52	52	52	49	49	49	49	49	49	50	49	50	50	50	50	50	50	50	50	50	51	51	51	51
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
157	Jinnah	Hydro	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	46	46	46
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
161	Karora	Hydro	61	62	62	62	62	62	62	59	59	59	59	59	60	60	59	60	60	60	60	60	60	60	60	61	61	61	61	61
162	Karot	Hydro	0	0	41	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56	56
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	25	32	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	32
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
168	Khan Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
172	Kohala	Hydro	0	0	0	0	0	0	0	0	61	61	61	61	62	62	62	62	62	62	62	62	62	62	62	62	62	63	63	63
173	Koto	Hydro	0	54	58	58	57	58	58	54	54	54	53	54	56	56	55	55	56	56	56	56	56	57	57	57	57	57	57	57
174	Lawi	Hydro	0	43	49	49	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43	43	43	43	43
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
180	Machai	Hydro	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	49	49	49
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	59	59	60	61	62	62	62	62	62	62	62	62	62	63	63	63	63	63
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
186	Malakand-III	Hydro	52	52	52	52	52	52	52	52	52	51	51	51	51	52	51	52	51	52	52	52	52	52	52	52	52	52	52	52
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
188	Mangla	Hydro	57	57	57	57	57	57	57	56	56	56	56	56	56	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	35	41	40	40	40	40	39	39	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	42
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62	63
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
201	Neelum Jehlum	Hydro	58	58	58	58	58	58	58	56	56	56	56	55	56	56	57	56	57	57	57	57	57	57	57	58	57	58	58	58
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	50	49	49	56	55	57	58	58	59	59	59	59	59	60	60	61	62	62	63
203	New Bong	Hydro	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	36
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	49	49
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	58	59	59	59
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
209	Patrind	Hydro	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
210	Pehur	Hydro	23	24	24	24	23	24	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
216	Ranolia	Hydro	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
219	Riali-II	Hydro	0	87	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
220	Riali-III	Hydro	0	0	0	0	0	0	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	59	59	59
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49	49
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	51
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	66
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
237	Suki Kinari	Hydro	0	0	0	35	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46	46	46	46
240	Tarbela_1-10	Hydro	48	48	48	48	48	48	48	48	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48	48
241	Tarbela_11-14	Hydro	48	48	48	48	48	48	47	48	47	47	47	48	47	48	47	47	47	48	48	48	48	48	48	48	48	48	48	48
242	Tarbela_Ext_4	Hydro	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
243	Tarbela_Ext_5	Hydro	0	0	0	0	19	32	32	32	31	31	31	32	32	32	31	32	32	32	32	32	32	32	32	32	32	32	32	32
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	52	53	53	53	53	53	53	53	53	53	54	54	54	54	54	54	54
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55	55	55	55	55
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	47	48	48	47	48	49	49	49	49	49	49	49	49	49	49	49	49	49	49
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	50	50	50	50
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	53	53
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	37
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	64
258	Warsak	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46
261	CASA	Cross Border	0	0	0	95	39	39	39	23	23	24	23	23	27	26	24	25	25	25	25	26	26	27	26	27	27	28	30	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
262	Act	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
263	Act_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
264	Artistic_wind	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
265	Artistic_Wind_2	Wind	0	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
266	Candidate_Wind_Mid	Wind	0	0	0	33	33	33	30	33	33	33	32	33	33	33	32	33	33	33	33	33	33	33	33	33	33	33	33	33
267	Candidate_Wind_North	Wind	0	0	0	33	33	33	30	33	32	32	32	30	33	32	33	32	33	33	33	33	33	33	33	33	33	33	33	33
268	Candidate_Wind_South	Wind	0	0	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
269	Dawood	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
270	Din	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
271	FFC	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
272	FWEL-I	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
273	FWEL-II	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
274	Gul Ahmed	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
275	Gul_Electric	Wind	0	0	38	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
276	Hawa	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
277	Indus_Energy	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
278	Jhimpir	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
279	Lakeside	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
280	Liberty_Wind_1	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
281	Liberty_Wind_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
282	Master	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
283	Master_Green	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
284	Metro_Power	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
285	Metro_Wind	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
286	NASDA	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
287	Sachal	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
288	Sapphire_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
289	Shaheen	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
290	Tenga	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
291	Three_Gorges_I	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
292	Three_Gorges_II	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
293	Three_Gorges_III	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
294	Trans_Atlantic	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
295	Tricon_A	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
296	Tricon_B	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
297	Tricon_C	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
298	Tricorm	Wind	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
299	UEP	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
300	Western	Wind	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
301	Yunus	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
302	Zephyr	Wind	0	56	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
303	Zorlu_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
304	KAPCO 1	RFO	30	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	35	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	15	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
314	Muzaffargarh Unit 1 B-I	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	88	88	14	4	0	0	0	1	2	3	4	5	5	5	6	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	13	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
323	HuB N	RFO	11	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	56	21	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	16	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	9	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

*Red Color represents the retirement of plant.

Table 7-6: Annual Capacity Factors (%age)

7.4. Annual Energy Generation

The annual energy generation figures as calculated by the PLEXOS tool are shown in Table 7-7 and Table 7-8 for the IGCEP horizons 2020-30 and 2031-47 respectively.

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
1	China HUBCO	Imp. Coal	9,330	9,308	9,308	9,162	5,992	2,470	1,051	1,394	1,495	1,521	1,529
2	Gwadar	Imp. Coal	0	0	1,000	2,033	2,006	1,974	837	707	722	661	612
3	Jamshoro Coal	Imp. Coal	0	0	2,733	4,703	1,234	1,102	534	748	950	1,088	1,208
4	New_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	9,270	9,248	9,248	9,158	9,079	6,154	2,618	2,344	2,434	2,485	2,393
6	Sahiwal Coal	Imp. Coal	9,285	9,263	9,202	5,520	627	524	306	430	502	574	815
7	Engro Thar	Local Coal	4,493	4,482	4,482	4,482	4,425	4,412	3,998	4,102	2,675	2,065	1,918
8	Lucky	Local Coal	0	1,546	4,531	4,531	4,472	4,453	2,028	1,966	1,996	1,761	1,567
9	New_Local_Coal	Local Coal	0	0	0	0	11,230	11,114	11,084	10,902	10,746	10,453	10,001
10	Oracle	Local Coal	0	0	0	0	0	0	0	4,433	4,382	4,311	8,442
11	Siddiqsons	Local Coal	0	193	2,266	2,266	2,272	2,231	2,231	2,204	2,185	2,142	2,082
12	Thal Nova	Local Coal	0	583	2,234	2,234	2,205	2,199	2,183	2,132	2,079	1,940	1,641
13	Thar TEL	Local Coal	0	583	2,234	2,234	2,205	2,199	2,175	2,127	2,085	1,944	1,609
14	Thar-I (Shanghai Electric)	Local Coal	0	1,545	8,643	9,055	8,940	8,914	8,741	8,426	8,258	6,023	4,667
15	Balloki	RLNG	9,492	8,656	6,910	6,906	6,905	6,904	6,905	6,882	6,884	6,886	6,883

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
16	Bhikki	RLNG	8,919	7,722	6,696	6,693	6,690	6,689	6,689	6,675	6,673	6,674	6,672
17	FKPCL	RLNG	329	98	41	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	274	88	34	4	0	0	0	0	0	0	0
19	Halmore	RLNG	1,301	622	112	18	0	0	0	0	0	0	28
20	Haveli	RLNG	9,599	9,440	6,967	6,964	6,964	6,964	6,964	6,932	6,940	6,943	6,942
21	Nandipur	RLNG	2,821	2,113	390	117	0	2	0	0	0	39	69
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	1,363	803	149	44	0	0	0	0	0	5	31
24	Rousch	RLNG	2,090	637	139	19	0	0	0	0	0	0	11
25	Saif	RLNG	1,321	546	99	14	0	0	0	0	0	0	26
26	Saphire	RLNG	1,347	735	131	24	0	0	0	0	0	0	31
27	Trimmu	RLNG	2,543	9,998	2,152	738	155	35	0	13	94	193	391
28	Davis	RLNG	1	1	1	0	0	0	0	1	0	0	2
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	42
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	1,655	1,651	1,617	181	66	17	0	24	32	59	81
32	Foundation	Gas	1,320	1,317	1,294	168	57	14	6	22	27	50	67
33	Guddu-I	Gas	1,950	1,945	1,776	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
34	Guddu-II	Gas	1,568	535	121	14	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	5,234	5,221	5,216	5,084	552	108	66	151	207	256	328
36	Hatim	Gas	0	0	0	0	0	0	0	41	37	35	34
37	HCPC	Gas	975	973	317	100	39	8	0	13	18	33	0
38	Kotri	Gas	808	806	238	80	29	5	0	8	15	0	0
39	Liberty	Gas	1,433	1,196	213	73	0	5	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	4,149	4,139	4,139	4,139	4,074	4,021	592	393	404	393	26
42	Uch-II	Gas	2,737	2,731	2,685	426	133	54	27	51	90	118	145
43	C-1	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
44	C-2	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
45	C-3	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,183	2,180	2,184	2,175	2,180
46	C-4	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,183	2,181	2,185	2,181	2,179
47	C-5	Nuclear	0	0	0	0	0	0	7,286	7,244	7,254	7,240	7,236
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	4,548	7,292	7,292	7,307	7,290	7,287	7,240	7,255	7,241	7,238
50	K-3	Nuclear	0	0	5,823	7,292	7,307	7,290	7,286	7,243	7,255	7,240	7,235

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
51	Alliance	Baggase	0	0	19	143	144	140	140	140	140	137	136
52	Almoiz	Baggase	172	172	172	172	172	169	168	168	168	164	163
53	Bahawalpur	Baggase	0	0	20	149	149	146	146	146	145	142	142
54	Candidate_Baggase	Baggase	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Baggase	105	105	105	105	105	103	103	103	103	100	100
56	Chiniot	Baggase	197	196	196	196	197	191	190	190	190	185	184
57	Etihad	Baggase	0	355	355	355	356	348	348	348	346	339	338
58	Faran	Baggase	0	0	17	126	127	124	124	124	123	121	120
59	Ghotki	Baggase	0	0	29	215	215	210	210	210	209	205	204
60	Hamza	Baggase	62	62	62	62	62	61	60	60	61	59	58
61	Hamza-II	Baggase	0	0	19	143	144	140	140	140	140	137	136
62	HSM	Baggase	0	0	17	126	127	124	124	124	123	121	120
63	Hunza	Baggase	0	0	32	238	238	233	233	233	232	227	226
64	Indus	Baggase	0	0	20	148	148	145	145	145	144	141	141
65	Ittefaq	Baggase	0	0	20	149	149	146	146	146	145	142	142
66	JDW-II	Baggase	194	193	193	193	194	192	191	191	191	186	186
67	JDW-III	Baggase	180	180	180	180	180	178	178	178	178	174	173
68	Kashmir	Baggase	0	0	26	191	191	187	187	187	186	182	181

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
69	Mehran	Baggase	0	0	17	126	127	124	124	124	123	121	120
70	RYK_Energy	Baggase	0	0	16	119	120	117	117	117	116	114	113
71	Ryk_Mills	Baggase	144	143	143	143	144	141	140	140	141	137	136
72	Sadiqabad	Baggase	0	0	29	215	215	210	210	210	209	205	204
73	Shahtaj	Baggase	0	0	21	153	153	149	149	149	149	146	145
74	Sheikhoo	Baggase	0	0	19	143	144	140	140	140	140	137	136
75	TAY	Baggase	0	0	19	143	144	140	140	140	140	137	136
76	Thal_Layyah	Baggase	109	109	109	109	109	106	106	106	106	102	101
77	Two_Star	Baggase	0	0	32	238	238	233	233	233	232	227	226
78	Access_Electric	Solar	0	5	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	0	5	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	0	0	14	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	2,482	4,965	7,447	9,929	12,412	14,894	17,377	19,760
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	0	0	83	83	83	83	83	83	83	83	83

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
86	HNDS	Solar	0	0	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	0	0	48	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	0	0	13	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	0	0	97	165	165	165	165	165	165	165	165
91	Zorlu	Solar	84	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0
93	Allai Khwar	Hydro	396	395	395	395	396	395	395	395	396	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	2,181	3,256	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
109	Blue Star	Hydro	0	0	0	0	17	17	17	18	18	18	18
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0
114	Chashma	Hydro	767	765	765	765	767	765	765	765	767	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	196	190

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
121	Daral Khwar	Hydro	147	147	147	147	147	147	147	131	134	133	131
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
123	Dasu_1	Hydro	0	0	0	0	0	4,321	11,975	11,975	11,990	11,975	11,975
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	324	328
130	Dubair Khwar	Hydro	581	581	581	581	581	581	580	563	571	571	564
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0
138	Ghazi Brotha	Hydro	6,563	6,551	6,551	6,551	6,563	6,551	6,551	6,490	6,526	6,488	6,520

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0
140	Golen Gol	Hydro	97	97	97	97	97	97	97	95	96	95	95
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0
142	Gorkin Matiltan	Hydro	0	0	0	155	331	331	330	300	301	299	295
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0
144	Gulpur	Hydro	481	480	480	480	481	480	480	480	481	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0
147	Harpo	Hydro	0	0	0	0	0	0	170	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0
149	Jabori	Hydro	27	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0
151	Jagran-I	Hydro	82	82	82	82	82	82	82	78	79	78	77
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0
155	Jhing	Hydro	10	68	68	68	68	68	68	64	64	64	64

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
157	Jinnah	Hydro	195	194	194	194	195	194	194	193	194	193	191
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0
161	Karora	Hydro	5	65	65	65	65	65	65	62	62	62	62
162	Karot	Hydro	0	0	1,496	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	232	353	343	344	345	345
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0
168	Khan Khwar	Hydro	235	234	234	234	235	234	234	234	235	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0
172	Kohala	Hydro	0	0	0	0	0	0	0	0	6,011	5,973	5,969
173	Koto	Hydro	0	182	212	212	212	212	212	198	199	199	196

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
174	Lawi	Hydro	0	130	295	295	295	295	295	291	291	290	290
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	3,306
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0
186	Malakand-III	Hydro	367	367	367	367	367	367	367	366	367	362	360
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0
188	Mangla	Hydro	5,016	5,004	5,004	5,004	5,016	5,004	5,004	4,910	4,937	4,863	4,893
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	1,633	2,841	2,775	2,793	2,773	2,779
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0
201	Neelum Jehlum	Hydro	4,944	4,939	4,939	4,939	4,944	4,939	4,936	4,757	4,797	4,714	4,710
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	200	196
203	New Bong	Hydro	471	470	470	470	471	470	470	470	471	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
209	Patrind	Hydro	635	634	634	634	635	634	634	632	633	632	632
210	Pehur	Hydro	37	37	37	37	37	37	37	36	36	36	36
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	669	668
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0
219	Riali-II	Hydro	0	5	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	0	0	0	0	0	0	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	387	386	386	386	387	386	386	379	380	378	377
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0
237	Suki Kinari	Hydro	0	0	0	1,332	2,800	2,797	2,794	2,763	2,765	2,763	2,762
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0
240	Tarbela_1-10	Hydro	7,386	7,377	7,377	7,377	7,386	7,377	7,377	7,293	7,228	7,214	7,227
241	Tarbela_11-14	Hydro	7,294	7,285	7,285	7,285	7,294	7,285	7,161	7,200	7,139	7,169	7,105
242	Tarbela_Ext_4	Hydro	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,807	3,806
243	Tarbela_Ext_5	Hydro	0	0	0	0	1,975	4,004	4,000	3,896	3,854	3,891	3,853

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	6,997	7,025
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0
258	Warsak	Hydro	999	997	997	997	999	997	997	997	999	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
261	CASA	Cross Border	0	0	0	1,387	3,457	3,454	3,391	2,054	2,058	2,075	1,987
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	0	0	58	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	0	0	102	172	172	172	172	172	172	172	172
266	Candidate_Wind_Mid	Wind	0	0	0	872	1,747	1,744	1,577	1,744	1,747	2,510	3,248
267	Candidate_Wind_North	Wind	0	0	0	581	841	840	768	840	804	802	1,358
268	Candidate_Wind_South	Wind	0	0	0	3,440	6,889	10,051	12,358	13,373	16,120	19,429	22,600
269	Dawood	Wind	0	14	144	144	144	144	144	144	144	144	144
270	Din	Wind	0	0	58	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	151	150	150	150	151	150	150	150	151	150	150
273	FWEL-II	Wind	151	150	150	150	151	150	150	150	151	150	150
274	Gul Ahmed	Wind	146	145	145	145	146	145	145	145	146	145	145
275	Gul_Electric	Wind	0	0	83	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	0	0	58	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	0	0	58	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	0	0	58	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	0	0	58	172	172	172	172	172	172	172	172
282	Master	Wind	154	153	153	153	154	153	153	153	154	153	153
283	Master_Green	Wind	0	102	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	146	145	145	145	146	145	145	145	146	145	145
285	Metro_Wind	Wind	0	0	70	206	207	206	206	206	207	206	206
286	NASDA	Wind	0	0	58	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	154	153	153	153	154	153	153	153	154	153	153
289	Shaheen	Wind	0	104	175	175	176	175	175	175	176	175	175
290	Tenga	Wind	0	14	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	157	156	156	156	157	156	156	156	157	156	156
293	Three_Gorges_III	Wind	157	156	156	156	157	156	156	156	157	156	156
294	Trans_Atlantic	Wind	0	0	56	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	0	71	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	0	58	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	146	145	145	145	146	145	145	145	146	145	145
302	Zephyr	Wind	0	20	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164
304	KAPCO 1	RFO	909	393	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	2,301	768	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	339	144	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	35	17	13	0	0	0	0	0	0	0	0
308	HUBCO	RFO	124	51	23	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	8	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	49	17	4	0	0	0	0	0	0	0	0
313	Lalpir	RFO	139	30	22	2	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	9	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	3	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
316	Muzaffargarh Unit 3 B-I	RFO	9	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	28	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	26	8	6	0	0	0	0	0	0	0	0
321	AGL	RFO	1,203	1,200	187	49	3	4	0	16	23	38	58
322	ATLAS	RFO	251	96	35	0	0	0	0	0	0	0	0
323	HuB N	RFO	208	81	24	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	611	228	37	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	272	123	44	0	0	0	0	0	0	0	0
326	Nishat C	RFO	154	45	10	0	0	0	0	0	0	0	0
327	Nishat P	RFO	123	25	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0
	Energy Generated		**157,170**	**162,471**	**170,738**	**176,918**	**182,943**	**188,792**	**196,045**	**203,899**	**215,053**	**226,322**	**237,996**
	Energy Demand		**157,170**	**162,472**	**170,738**	**176,918**	**182,943**	**188,792**	**196,044**	**203,899**	**215,053**	**226,322**	**237,996**
	Energy Not Served		**0.00**	**0.04**	**(0.01)**	**0.04**	**0.00**	**0.03**	**(0.02)**	**(0.06)**	**0.00**	**0.02**	**(0.02)**

Table 7-7: Annual Energy Generation 2020-30 (GWh)

(All numbers in red color, in this table, represent retirment of the corresponding plant.)

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	1,862	1,730	2,333	2,378	2,165	2,152	2,078	1,947	1,928	1,886	1,061	1,748	1,330	1,158	1,108	1,119	1,497
2	Gwadar	Imp. Coal	677	717	785	733	729	726	675	618	641	612	406	537	439	463	397	433	795
3	Jamshoro Coal	Imp. Coal	1,358	1,207	1,440	1,753	1,742	1,718	1,663	1,555	1,567	1,524	897	1,284	1,214	1,103	1,071	988	1,065
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	2,738	2,725	3,093	3,040	2,982	2,800	2,637	2,427	2,453	2,456	1,566	2,186	1,655	1,640	1,489	1,519	2,722
6	Sahiwal Coal	Imp. Coal	1,026	822	1,104	1,296	1,263	1,304	1,260	1,178	1,181	1,134	823	882	939	928	907	837	886
7	Engro Thar	Local Coal	2,058	1,964	2,186	2,138	2,023	1,987	1,971	1,762	1,748	1,682	1,146	1,403	1,667	2,146	1,499	1,789	1,852
8	Lucky	Local Coal	1,804	1,725	1,936	1,758	1,724	1,759	1,731	1,612	1,528	1,472	992	1,287	1,429	1,223	1,080	1,325	1,809
9	NEW_Local_Coal	Local Coal	10,037	9,967	31,933	53,456	70,580	88,505	107,034	128,650	149,525	174,791	168,779	174,576	180,252	173,134	185,002	179,866	178,536
10	Oracle	Local Coal	8,482	8,591	8,633	8,758	8,877	8,905	8,985	8,985	9,020	9,043	9,023	9,023	9,024	9,013	8,991	8,995	8,916
11	Siddiqsons	Local Coal	2,100	2,088	2,136	2,156	2,184	2,201	2,210	2,201	2,200	2,211	2,216	2,220	2,229	2,245	2,249	2,250	2,224
12	Thal Nova	Local Coal	1,704	1,376	1,478	1,486	1,466	1,478	1,454	1,324	1,287	1,215	800	1,277	1,141	1,166	1,139	1,154	1,242
13	Thar TEL	Local Coal	1,694	1,366	1,486	1,473	1,470	1,491	1,449	1,327	1,271	1,233	821	1,274	1,136	1,173	1,141	1,160	1,245
14	Thar-I (Shanghai Electric)	Local Coal	4,743	4,914	5,204	5,007	5,061	5,084	4,775	4,346	4,152	4,031	2,667	4,209	4,004	4,503	4,427	3,995	3,890
15	Balloki	RLNG	6,887	6,898	6,895	360	378	423	450	452	461	501	405	445	435	321	338	357	393
16	Bhikki	RLNG	6,674	6,682	283	169	239	327	379	391	431	433	222	431	333	285	298	297	306
17	FKPCL	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	Halmore	RLNG	46	31	17	5	5	21	22	27	57	63	11	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
20	Haveli	RLNG	6,943	6,957	415	462	507	555	592	576	671	821	448	565	523	417	469	468	480
21	Nandipur	RLNG	126	117	52	41	43	52	116	120	140	143	25	143	106	83	85	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	58	51	26	6	22	22	38	46	67	59	0	0	0	0	0	0	0
24	Rousch	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	35	28	6	6	6	13	22	27	56	54	0	0	0	0	0	0	0
26	Saphire	RLNG	50	45	22	6	10	22	26	41	61	66	0	0	0	0	0	0	0
27	Trimmu	RLNG	503	451	552	656	689	727	758	801	905	889	517	819	591	562	583	590	622
28	Davis	RLNG	2	1	0	0	0	0	1	1	2	2	0	2	1	0	0	0	0
29	NEW OCGT (Generic)	RLNG	163	114	20	3	18	37	77	92	188	352	94	434	317	164	287	270	411
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	92	87	119	133	84	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	84	71	99	117	108	91	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	395	341	454	569	538	564	603	525	512	502	402	466	347	450	29	0	0
36	Hatim	Gas	37	27	31	31	30	29	28	27	27	26	18	21	16	17	15	13	11
37	HCPC	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	Kotri	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
39	Liberty	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	189	153	204	250	252	251	240	252	159	0	0	0	0	0	0	0	0
43	C-1	Nuclear	2,077	2,082	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,077	2,077	2,082	2,077	2,077	2,078
44	C-2	Nuclear	2,077	2,082	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,077	2,077	2,082	2,077	2,077	2,078
45	C-3	Nuclear	2,175	2,186	2,176	2,181	2,183	2,187	2,182	2,182	2,182	2,187	2,182	2,182	2,182	2,187	2,182	2,182	2,182
46	C-4	Nuclear	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,182
47	C-5	Nuclear	7,239	7,262	7,251	7,251	7,249	7,264	7,248	7,248	7,250	7,265	7,249	7,251	7,252	7,268	7,253	7,255	7,260
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	7,239	7,269	7,251	7,247	7,243	7,263	7,248	7,249	7,250	7,266	7,251	7,249	7,252	7,267	7,253	7,256	7,259
50	K-3	Nuclear	7,240	7,268	7,251	7,251	7,250	7,262	7,247	7,252	7,251	7,267	7,249	7,250	7,251	7,267	7,254	7,256	7,260
51	Alliance	Baggase	137	136	137	139	140	141	142	142	143	144	143	143	143	143	142	142	142
52	Almoiz	Baggase	164	164	164	167	168	170	171	171	172	172	172	172	172	171	171	171	171
53	Bahawalpur	Baggase	142	141	143	145	146	147	148	148	149	149	149	149	149	149	148	148	147
54	Candidate_Baggase	Baggase	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Baggase	100	100	101	102	103	104	104	104	105	105	105	105	105	105	104	104	104
56	Chiniot	Baggase	185	184	187	189	190	194	195	195	196	197	196	196	196	195	195	195	195
57	Etihad	Baggase	339	338	340	345	348	350	353	353	355	356	355	355	355	354	353	353	353

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
58	Faran	Baggase	121	120	121	123	124	125	126	126	126	127	126	126	126	126	126	126	125
59	Ghotki	Baggase	205	204	206	209	210	212	214	214	215	215	215	215	215	214	214	214	214
60	Hamza	Baggase	59	58	59	60	60	61	61	61	62	62	62	62	62	62	61	61	61
61	Hamza-II	Baggase	137	136	137	139	140	141	142	142	143	144	143	143	143	143	142	142	142
62	HSM	Baggase	120	120	121	123	124	124	126	126	126	127	126	126	126	126	126	126	125
63	Hunza	Baggase	227	226	228	231	233	236	236	236	238	238	238	238	238	237	236	236	236
64	Indus	Baggase	141	141	142	144	145	145	147	147	148	148	148	148	148	148	147	147	146
65	Ittefaq	Baggase	142	142	143	145	146	147	148	148	149	149	149	149	149	149	148	148	148
66	JDW-II	Baggase	186	186	187	190	191	192	192	192	193	194	193	193	193	193	192	192	192
67	JDW-III	Baggase	174	174	175	177	178	179	179	179	180	180	180	180	180	180	179	179	179
68	Kashmir	Baggase	182	182	183	186	187	188	190	190	191	191	191	191	191	190	190	190	190
69	Mehran	Baggase	120	120	121	123	124	124	126	126	126	127	126	126	126	126	126	126	125
70	RYK_Energy	Baggase	113	113	114	116	117	117	119	119	119	120	119	119	119	119	119	119	118
71	Ryk_Mills	Baggase	137	136	138	139	140	142	142	142	143	144	143	143	143	143	142	142	142
72	Sadiqabad	Baggase	205	204	206	209	210	212	214	214	215	215	215	215	215	214	214	214	211
73	Shahtaj	Baggase	146	145	146	149	149	150	152	152	153	153	153	153	153	152	152	152	152
74	Sheikhoo	Baggase	137	136	137	139	140	141	142	142	143	144	143	143	143	143	142	142	141
75	TAY	Baggase	137	136	137	139	140	141	142	142	143	144	143	143	143	143	142	142	142
76	Thal_Layyah	Baggase	102	101	102	106	106	108	108	108	109	109	109	109	109	108	108	108	108

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
77	Two_Star	Baggase	227	225	228	231	233	235	236	236	238	238	238	238	238	237	236	236	235
78	Access_Electric	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	19,820	22,146	24,727	24,727	24,727	25,235	26,527	27,661	29,508	29,508	31,990	34,472	36,955	39,437	41,919	43,111	43,238
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
91	Zorlu	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
93	Allai Khwar	Hydro	395	396	395	395	395	396	395	395	395	396	395	395	395	396	395	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	264
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	289

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	199
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,221
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	917	918	918
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,962
100	Azad Pattan	Hydro	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	997
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	507
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	142	142
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	350	349	349	349	349	350	351
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119	119	119
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	48
109	Blue Star	Hydro	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	25,885	25,831	25,764	25,735
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,420	2,420
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	65
114	Chashma	Hydro	765	767	765	765	765	767	765	765	765	767	765	765	765	767	765	765	765

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	174
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
120	Dander	Hydro	195	220	215	220	223	220	223	224	225	223	225	231	234	229	233	235	241
121	Daral Khwar	Hydro	132	140	140	136	138	140	139	140	140	140	141	142	143	143	145	144	146
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
123	Dasu_1	Hydro	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975
124	Dasu_2	Hydro	0	11,474	11,501	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	74
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,733	4,734	4,740
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	17,544	17,568	17,534	17,537	17,546
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	158	158	158	158	159	159	159
129	Dubair Kalay	Hydro	337	364	360	363	365	370	363	369	368	367	373	368	372	370	373	371	373
130	Dubair Khwar	Hydro	568	567	560	567	571	571	571	574	575	576	576	576	575	575	574	575	576
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	313
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	310	310	311

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,639
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	509
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
138	Ghazi Brotha	Hydro	6,491	6,510	6,513	6,506	6,494	6,522	6,522	6,516	6,526	6,530	6,534	6,511	6,532	6,534	6,521	6,536	6,534
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119
140	Golen Gol	Hydro	95	96	96	97	96	96	96	97	97	97	97	97	97	97	97	97	97
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	210
142	Gorkin Matiltan	Hydro	301	301	309	306	307	312	310	311	311	312	313	315	314	314	314	321	321
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
144	Gulpur	Hydro	480	481	480	480	480	481	480	480	480	481	480	480	480	481	480	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78	78	79
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	212	213	213
147	Harpo	Hydro	169	169	169	169	169	169	169	169	169	170	169	169	169	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260
149	Jabori	Hydro	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
151	Jagran-I	Hydro	78	80	80	79	80	80	80	80	80	80	80	81	81	81	81	81	81
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	138	138	138

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	91	91
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,619	2,624
155	Jhing	Hydro	64	65	66	65	65	66	66	66	66	66	66	66	66	67	67	67	67
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
157	Jinnah	Hydro	192	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	846	848	849	848
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	160
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,963
161	Karora	Hydro	62	63	63	62	63	63	63	63	63	63	63	63	64	64	64	64	64
162	Karot	Hydro	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	40	39	40	40
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	345	350	348	348	349	348	348	349	350	349	350	350	350	351	352	352	353
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260
168	Khan Khwar	Hydro	234	235	234	234	234	235	234	234	234	235	234	234	234	235	234	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
172	Kohala	Hydro	5,986	6,114	6,093	6,060	6,085	6,095	6,089	6,100	6,098	6,125	6,103	6,126	6,135	6,150	6,143	6,176	6,194
173	Koto	Hydro	200	205	205	202	204	206	205	207	208	208	208	208	208	209	209	210	211
174	Lawi	Hydro	291	291	291	290	291	291	291	291	291	292	292	292	291	291	292	292	292
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	2,516	2,513	2,513	2,514	2,512	2,515	2,516
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	311
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	788
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	663	663	664	664
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
184	Mahl	Hydro	3,312	3,377	3,403	3,482	3,476	3,476	3,477	3,472	3,473	3,483	3,495	3,496	3,503	3,509	3,511	3,529	3,545
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	182
186	Malakand-III	Hydro	362	362	366	360	366	366	366	367	367	367	367	367	367	367	367	367	367
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
188	Mangla	Hydro	4,881	4,955	4,977	4,961	4,966	4,999	4,989	4,994	4,993	5,008	4,994	4,995	5,002	5,016	5,004	5,004	5,004
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	225
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,709	1,710
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	2,766	2,723	2,783	2,774	2,792	2,798	2,792	2,832	2,819	2,831	2,819	2,834	2,818	2,827	2,823	2,823	2,827
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	133	133	133
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	674	675	675
201	Neelum Jehlum	Hydro	4,684	4,784	4,784	4,800	4,789	4,867	4,852	4,871	4,862	4,867	4,865	4,868	4,885	4,882	4,885	4,901	4,912
202	Nerai-Dubair	Hydro	196	227	223	231	235	235	236	238	238	237	239	242	241	245	250	251	254
203	New Bong	Hydro	470	471	470	470	470	471	470	470	470	471	470	470	470	471	470	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	136
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	247	257	260
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	12,336	12,335	12,335	12,296	12,334	12,338	12,341
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73
209	Patrind	Hydro	632	634	634	633	633	634	634	633	633	634	634	634	634	634	634	634	634

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
210	Pehur	Hydro	36	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	319	319	321
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
215	Rajdhani	Hydro	670	671	670	670	670	671	670	670	670	671	670	670	670	671	670	670	670
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
219	Riali-II	Hydro	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41	41
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34	34
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	22	22
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	307
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	282	282
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	662	665

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	451	451
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	533	533
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	206
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	466
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,722	3,724
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	378	382	381	379	381	382	380	380	381	381	381	382	382	384	382	384	384
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
237	Suki Kinari	Hydro	2,758	2,768	2,777	2,766	2,772	2,777	2,777	2,776	2,778	2,777	2,776	2,780	2,777	2,775	2,776	2,783	2,781
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	95
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	8,812	8,810	8,821	8,815	8,809	8,821
240	Tarbela_1-10	Hydro	7,169	7,299	7,234	7,175	7,268	7,261	7,349	7,326	7,339	7,362	7,335	7,363	7,323	7,366	7,359	7,349	7,375
241	Tarbela_11-14	Hydro	7,205	7,096	7,256	7,145	7,095	7,192	7,234	7,219	7,239	7,248	7,219	7,247	7,243	7,260	7,253	7,246	7,274
242	Tarbela_Ext_4	Hydro	3,801	3,813	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811
243	Tarbela_Ext_5	Hydro	3,892	3,947	3,895	3,814	3,981	3,942	3,940	3,980	3,981	3,975	3,984	3,982	3,979	3,983	3,984	3,991	3,992
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	438
245	Thakot-I	Hydro	9,827	9,954	9,908	10,063	10,071	10,100	10,088	10,092	10,089	10,112	10,112	10,110	10,102	10,129	10,115	10,128	10,137
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	4,661	4,660	4,661	4,672	4,667	4,672	4,674
247	Thakot-III	Hydro	7,042	7,026	7,071	7,207	7,216	7,234	7,220	7,221	7,221	7,234	7,223	7,223	7,224	7,239	7,227	7,227	7,228

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	306	306	306	306	306	306
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	153	154	154
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	356
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	507
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252	252
258	Warsak	Hydro	997	999	997	997	997	999	997	997	997	999	997	997	997	999	997	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	350
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11,240	11,238
261	CASA	Cross Border	1,989	2,407	2,247	2,109	2,159	2,228	2,195	2,209	2,239	2,303	2,339	2,306	2,398	2,365	2,455	2,609	2,853
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
266	Candidate_Wind_Mid	Wind	3,320	3,388	3,382	3,292	3,382	3,388	3,382	3,382	3,382	3,388	3,382	3,382	3,382	3,388	3,382	3,382	3,382

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
267	Candidate_Wind_North	Wind	1,299	1,424	1,368	1,421	1,358	1,424	1,411	1,421	1,421	1,424	1,421	1,421	1,421	1,424	1,421	1,421	1,421
268	Candidate_Wind_South	Wind	22,794	22,842	22,977	22,977	22,973	23,009	22,977	22,977	22,977	23,009	22,977	22,977	22,977	23,009	22,977	22,977	22,977
269	Dawood	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
270	Din	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
273	FWEL-II	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
274	Gul Ahmed	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
275	Gul_Electric	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
282	Master	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
283	Master_Green	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
285	Metro_Wind	Wind	206	207	206	206	206	207	206	206	206	207	206	206	206	207	206	206	206

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
286	NASDA	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
289	Shaheen	Wind	175	176	175	175	175	176	175	175	175	176	175	175	175	176	175	175	175
290	Tenga	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
293	Three_Gorges_III	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
294	Trans_Atlantic	Wind	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
302	Zephyr	Wind	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164
304	KAPCO 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
305	KAPCO 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	63	63	74	63	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
323	HuB N	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
324	Kohinoor	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Energy Generated		250,462	264,394	278,676	294,572	311,828	330,997	350,196	371,490	394,338	419,677	428,094	451,631	475,646	498,948	519,925	540,294	559,765
	Energy Demand		250,462	264,394	278,676	294,572	311,828	330,997	350,196	371,490	394,338	419,677	428,094	451,631	475,646	498,948	519,925	540,294	559,765
	Energy Not Served		0.04	0.00	-0.02	0.01	-0.01	0.00	0.03	0.01	-0.03	0.00	0.00	0.01	-0.01	0.00	-0.03	0.03	-0.02

Table 7-8: Annual Energy Generation 2031-47 (GWh)

(All numbers in red color, in this table, represent retirment of the corresponding plant.)

7.5. Year-wise Discounted Prices and Un-Discounted Prices

The year wise cost breakup i.e. Discounted prices and un-Discounted Prices are shown in Table 7-9 and Table 7-10 respectively and their comparison is given in Annexure B-5.

Year	Present Worth Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	-	956,722	5,751,312	6,708,034	6,708,034
2021	-	913,213	4,828,740	5,741,953	12,449,987
2022	-	909,992	3,537,939	4,447,931	16,897,919
2023	215,029	890,290	2,739,694	3,845,013	20,742,931
2024	511,136	876,831	2,111,682	3,499,649	24,242,580
2025	579,057	823,709	1,761,742	3,164,509	27,407,089
2026	608,447	791,391	1,404,241	2,804,080	30,211,169
2027	642,058	730,104	1,317,267	2,689,429	32,900,597
2028	683,448	686,495	1,191,705	2,561,648	35,462,246
2029	830,902	643,657	1,065,786	2,540,345	38,002,591
2030	940,954	593,972	980,002	2,514,928	40,517,519
2031	961,650	518,716	877,290	2,357,657	42,875,176
2032	963,445	475,957	777,625	2,217,027	45,092,203
2033	1,008,553	447,300	546,992	2,002,845	47,095,048
2034	1,022,063	421,836	454,644	1,898,543	48,993,591
2035	1,012,602	397,093	455,551	1,865,247	50,858,838
2036	1,001,325	373,676	466,000	1,841,000	52,699,838
2037	984,242	350,447	472,925	1,807,614	54,507,453
2038	969,280	331,816	468,331	1,769,427	56,276,880
2039	951,916	314,486	472,844	1,739,246	58,016,126
2040	933,975	298,333	468,704	1,701,012	59,717,139
2041	928,448	286,166	375,328	1,589,942	61,307,080

Year	Present Worth Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2042	892,657	262,544	370,343	1,525,544	62,832,624
2043	924,064	240,142	332,237	1,496,443	64,329,067
2044	947,658	223,912	287,419	1,458,989	65,788,057
2045	908,189	208,059	269,713	1,385,961	67,174,017
2046	902,141	204,398	237,322	1,343,861	68,517,878
2047	892,700	193,984	219,485	1,306,169	69,824,047

Table 7-9: Year wise Cost Breakup-Discounted Prices

Year	Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	-	956,722	5,751,312	6,708,034	6,708,034
2021	-	1,014,681	5,365,267	6,379,948	13,087,982
2022	-	1,123,447	4,367,826	5,491,273	18,579,255
2023	294,964	1,221,248	3,758,154	5,274,366	23,853,621
2024	779,052	1,336,428	3,218,537	5,334,017	29,187,639
2025	980,638	1,394,959	2,983,526	5,359,123	34,546,761
2026	1,144,901	1,489,142	2,642,328	5,276,371	39,823,133
2027	1,342,384	1,526,466	2,754,077	5,622,927	45,446,060
2028	1,587,690	1,594,768	2,768,399	5,950,856	51,396,916
2029	2,144,703	1,661,391	2,750,981	6,557,075	57,953,992
2030	2,698,629	1,703,496	2,810,620	7,212,744	65,166,735
2031	3,064,429	1,652,960	2,795,604	7,512,993	72,679,728
2032	3,411,275	1,685,223	2,753,343	7,849,841	80,529,569
2033	3,967,768	1,759,731	2,151,931	7,879,430	88,408,999

Year	Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2034	4,467,687	1,843,946	1,987,358	8,298,990	96,707,989
2035	4,918,143	1,928,657	2,212,584	9,059,384	105,767,373
2036	5,403,744	2,016,577	2,514,813	9,935,134	115,702,507
2037	5,901,729	2,101,357	2,835,762	10,838,848	126,541,355
2038	6,457,792	2,210,713	3,120,240	11,788,745	138,330,100
2039	7,046,785	2,328,055	3,500,343	12,875,183	151,205,284
2040	7,682,189	2,453,868	3,855,217	13,991,274	165,196,558
2041	8,485,252	2,615,323	3,430,189	14,530,764	179,727,322
2042	9,064,611	2,666,041	3,760,705	15,491,357	195,218,680
2043	10,426,160	2,709,511	3,748,607	16,884,279	212,102,958
2044	11,880,408	2,807,098	3,603,259	18,290,766	230,393,724
2045	12,650,666	2,898,166	3,756,984	19,305,815	249,699,539
2046	13,962,693	3,163,527	3,673,094	20,799,314	270,498,853
2047	15,351,744	3,335,941	3,774,484	22,462,169	292,961,021

Table 7-10: Year wise Cost Breakup-Un-Discounted Prices (k$)

7.6. Indigenization of Energy Mix

World Energy Council defines energy security as the management of primary energy supply from domestic/indigenous and external sources, reliability of energy infrastructure, ability to meet current and future demand. Pakistan ranks #71 among 128 countries in terms of energy security by the World Energy Council for the year 2019.

Pakistan imports nearly a third of its energy resources in the form of oil, coal, and RLNG, and currently 41% of existing installed capacity utilizes imported fuel. Pakistan remains an energy insecure country in context of the on-going economic situation of Pakistan. Although, much of load management has been curbed, a major challenge still remains in the power sector is the provision of uninterrupted availability of energy sources at an affordable price.

IGCEP 2047 deals with long-term energy security with timely investments to supply energy in line with economic developments and environmental needs. According to IGCEP 2047 simulation results, indigenization ratio, which is ratio of energy generated by indigenize generation resources to the energy generated by all generation resources, has been

computed for base case scenario as shown in Chart 7-5 and all other sensitivity scenarios to indicate how much energy security, the IGCEP has achieved by FY 2046-47. In 2019-20, the indigenization ratio of energy is 51.6% that increases with a steep slope to 86.1% by 2026 due to inclusion of hydro, wind and solar based power plants. There is an overall increase by the year 2033 when the RLNG contracts expire in 2033. Afterwards, the indigenization ratio is steadied around 98.4% until 2047. This remains an invaluable aspect for Pakistan power sector on the part of IGCEP 2047.

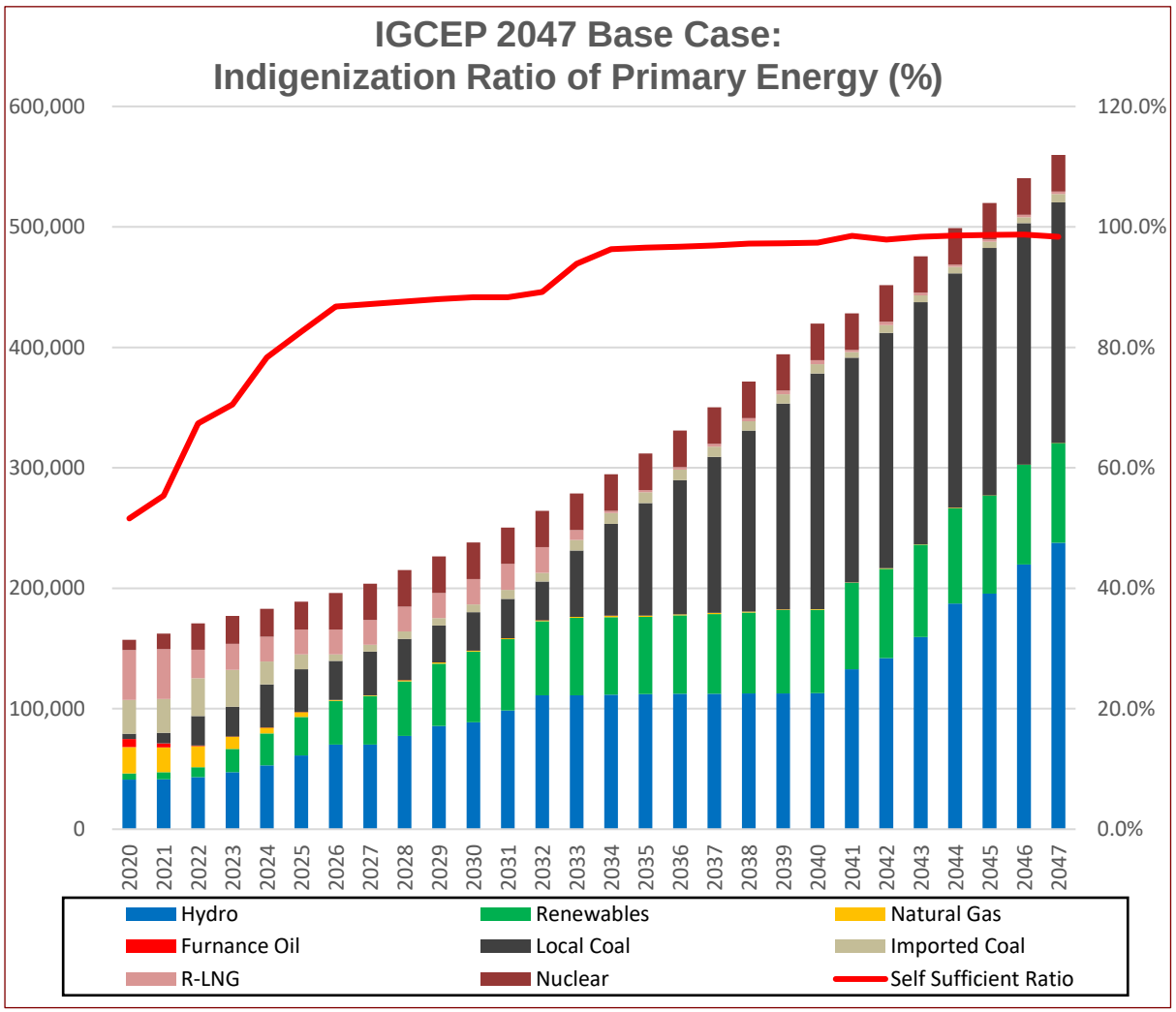


Chart 7-5: IGCEP 2047 Base Case Indigenization Ratio of Primary Energy

7.7. Clean and Green Power for Pakistan

Pakistan, like other South Asian countries, grapples with the challenges of a large and growing population, combined with rapidly growing energy needs. Heavily dependent on fossil-fuel imports, the country finds itself vulnerable to global oil price volatility and effects of increased carbon footprint due to power generation by fossil-fuel based technologies.

Pakistan has abundant renewable energy resources that can be utilized for power generation. Hydropower, with its potential in the Northern part of the country, has traditionally been the most prominent source of renewable energy in Pakistan. In addition to hydropower potential, Pakistan is blessed with huge variable renewable resources, however, its harnessing, in true sense, is yet to be materialized.

Pakistan ranks #28 globally, #10 in Asia, #2 among SAARC member states in carbon emissions index, with 212 $MtCO_2$ territorial emissions, all GHG emissions from a country's territory, apart from those associated with international aviation and shipping, in 2018 according to the Global Carbon Atlas.

IGCEP 2047 addresses the pursuit of low-carbon energy options, to sustain the relatively low carbon emissions, to bolster energy security and to spur sustainable economic growth. Based on the IGCEP output, carbon emissions have been calculated for existing and upcoming power generation for base case scenario as shown in Chart 7-6 and for all other scenarios. Carbon emissions in the country by power generation accounts for 0.406 kg-CO_2/kWh in FY 2019-20 and this indicator reduces to 0.3 kg-CO_2/kWh by FY 2046-47 which is even less than current average of OECD countries. The value of the carbon emission indicator for Pakistan as per IGCEP 2047 is smaller than prevailing world average (.52) as well as non-OECD countries (.60).

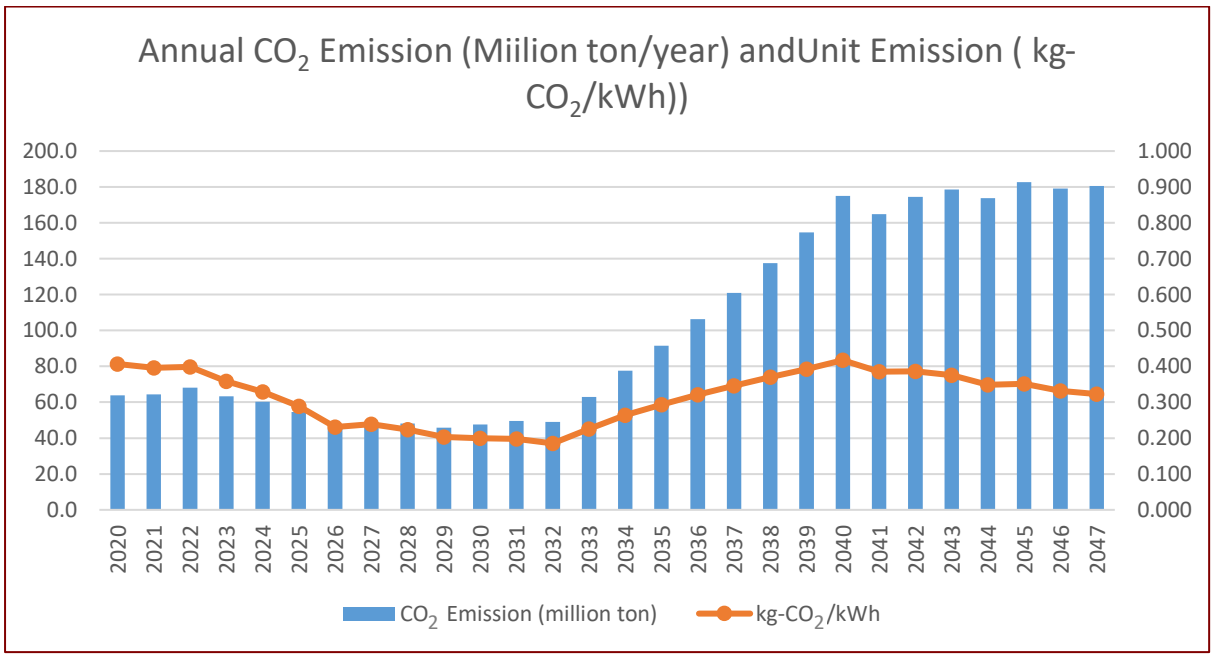


Chart 7-6: IGCEP 2047 Annual CO_2 Emission and Emission per Unit of Power Generation

7.8. Salient Features of the IGCEP

In order to balance a projected peak load of 103,065 MW by the year 2047, the PLEXOS model gives a target of managing 168,246 MW as the nominal generation capacity as per base case; salient features of the study are as follows:

a. Aggressive induction of REs
b. Massive utilization of indigenous coal-based power
c. Balancing the overall basket price with increased share of hydro power
d. Optimal indigenization: less reliance on imported fuel i.e. coal, RFO, etc.
e. Substantial reduction in carbon emission owing to huge induction of REs and hydro

Meanwhile, by the year 2047, a capacity of 11,511 MW is meant to be retired. In order to provide a quick understanding of the generation mix of the IGCEP 2047, the report includes the Table 7-11 which highlights addition of different types of generation capacities. Moreover,

fuel-wise capacity in megawatts, energy in GWh and their monthly share in the total generated energy respectively, over the period of this plan, are further illustrated by the Chart 7-7 through 7-12, Chart 7-13 through 7-18 and Chart 7-19 through 7-24 respectively.

Year	Capacity Addition Over the Plan Period (2020-47) - MW										
	Local Coal	Hydro	RLNG	Nuclear	Imported Coal	RE	Natural Gas	Furnace Oil	Cross Border	Yearly Addition	Total (MW)
2020	602	9,945	6,677	1,230	3,736	1,846	3,010	6,488	0	33,534	-
2021	2,118	119	0	1,059	0	446	0	0	0	3,742	37,276
2022	607	720	0	1,059	917	1,410	0	-1,336	0	3,377	40,653
2023	0	968	0	0	0	3,000	-260	0	1,000	4,708	45,361
2024	1,514	1,413	0	0	644	2,889	-270	0	0	6,189	51,550
2025	0	3,088	0	0	0	2,422	0	0	0	5,510	57,060
2026	0	37	0	1,059	0	2,173	0	0	0	3,269	60,329
2027	607	700	0	0	0	1,801	-192	-1,200	0	1,716	62,045
2028	0	1,122	1,577	0	0	2,284	0	-824	0	4,159	66,204
2029	0	1,986	1,012	0	0	2,763	-106	0	0	5,656	71,860
2030	607	639	1,616	0	0	3,000	-678	-653	0	4,531	76,391
2031	0	2,154	1,347	0	0	0	0	-310	0	3,191	79,582
2032	0	2,160	1,228	0	0	1,442	-29	-367	0	4,434	84,016
2033	3,384	0	534	0	0	1,500	0	-627	0	4,791	88,808
2034	3,313	0	848	0	0	0	0	-156	0	4,005	92,813
2035	2,372	0	2,596	0	0	0	-212	-409	0	4,347	97,160
2036	2,431	0	2,904	0	0	307	-167	-606	0	4,869	102,028
2037	2,635	0	2,144	0	0	781	0	0	0	5,560	107,589
2038	3,115	0	2,045	0	0	685	0	0	0	5,845	113,434
2039	2,968	0	2,812	0	0	1,116	-355	0	0	6,540	119,974
2040	3,567	0	2,595	0	0	0	0	0	0	6,162	126,136
2041	0	4,168	-202	0	0	1,500	0	0	0	5,466	131,602
2042	0	2,270	1,303	0	0	1,500	0	0	0	5,073	136,675
2043	1,214	4,500	0	0	0	1,500	0	0	0	7,214	143,889
2044	0	7,484	-10	0	0	1,500	0	0	0	8,974	152,863
2045	1,894	1,844	0	0	0	1,500	-721	0	0	4,517	157,380
2046	0	5,509	-450	0	0	720	0	0	0	5,779	163,159
2047	0	5,010	0	0	0	77	0	0	0	5,087	168,246
Total	**32,948**	**55,836**	**30,577**	**4,407**	**5,297**	**38,161**	**20**	**0**	**1,000**	**168,246**	

Table 7-11: Year wise Nominal Capacity Addition (MW)

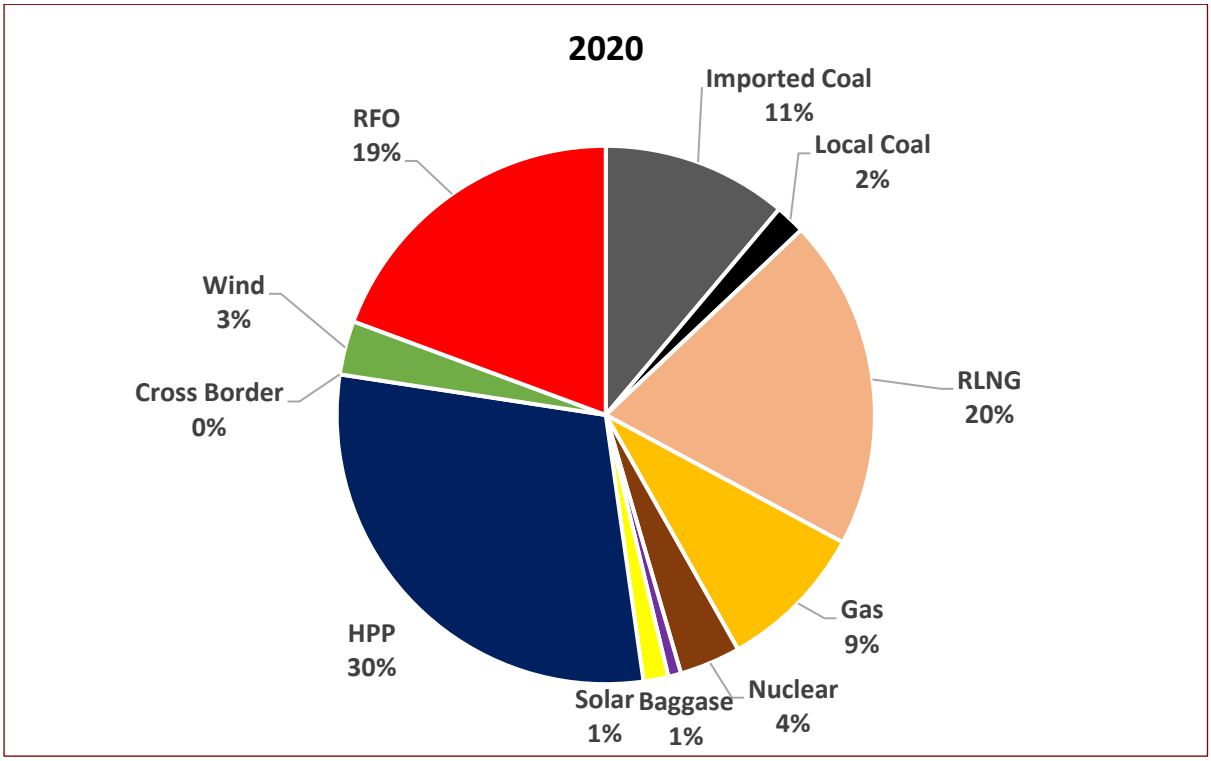


Chart 7-7: IGCEP Generation Mix 2020 (MW)

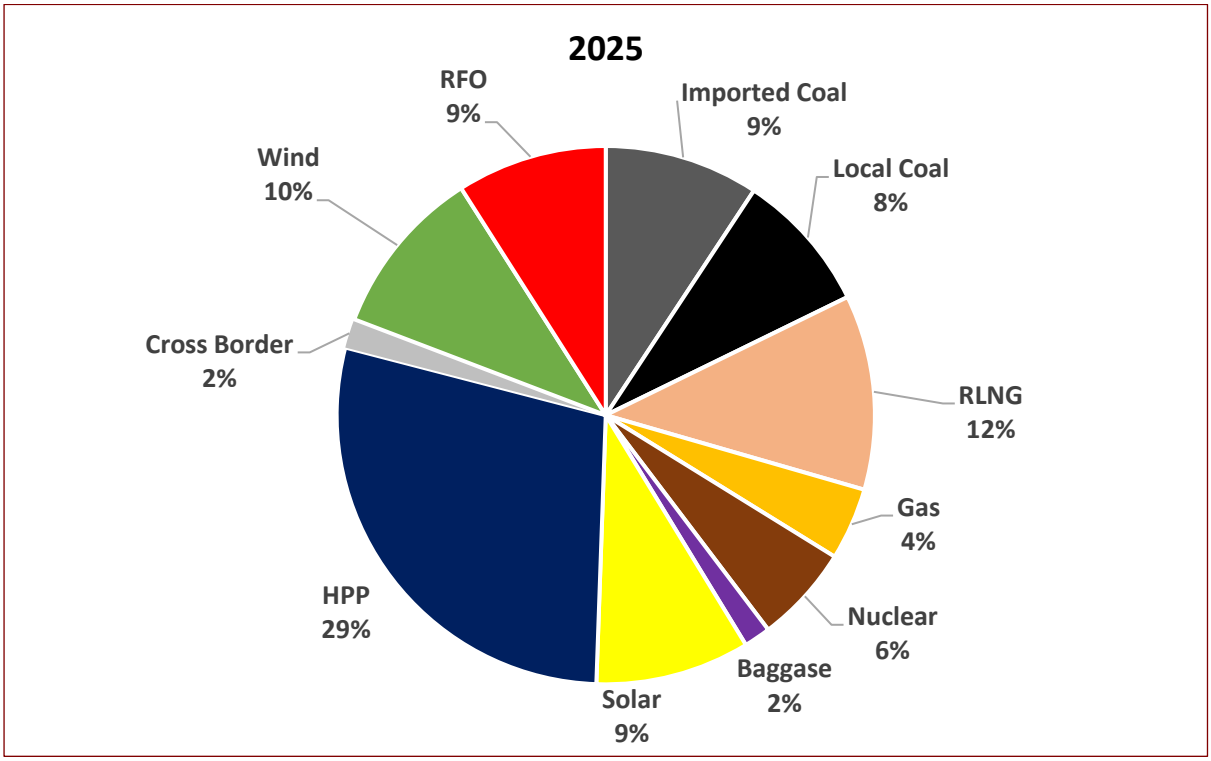


Chart 7-8: IGCEP Generation Mix 2025 (MW)

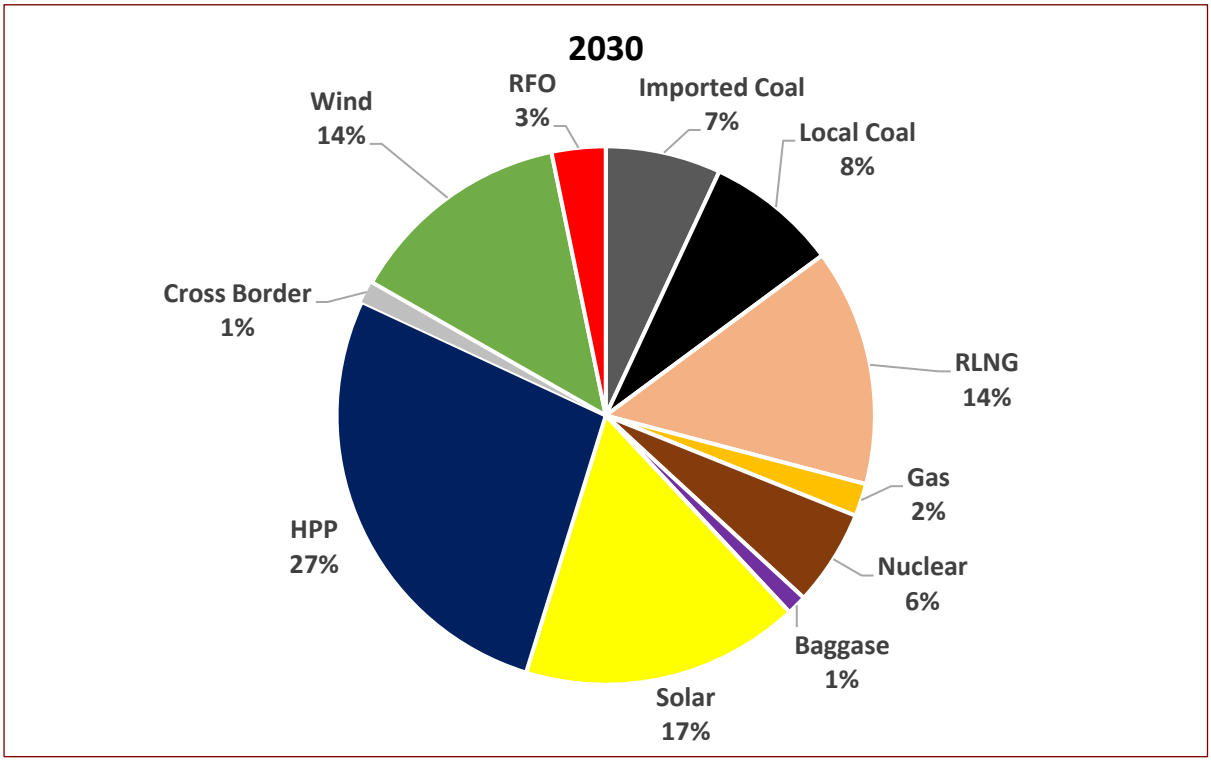


Chart 7-9: IGCEP Generation Mix 2030 (MW)

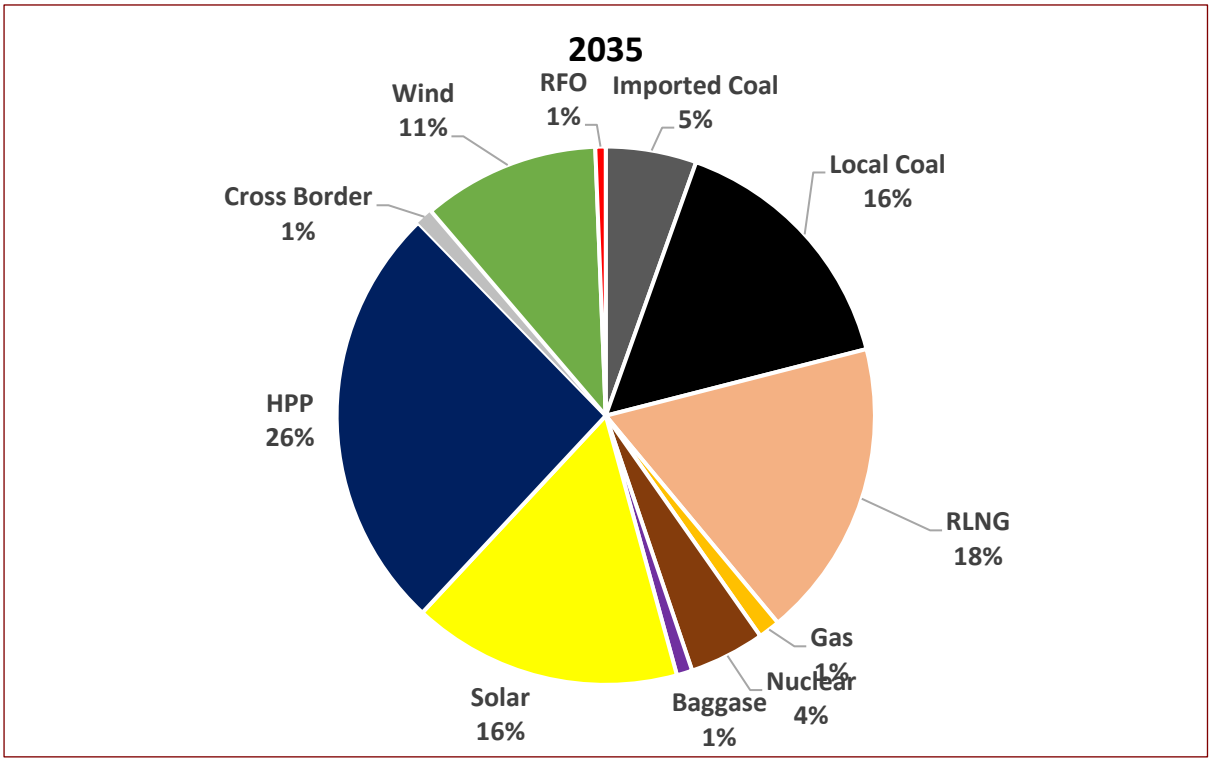


Chart 7-10: IGCEP Generation Mix 2035 (MW)

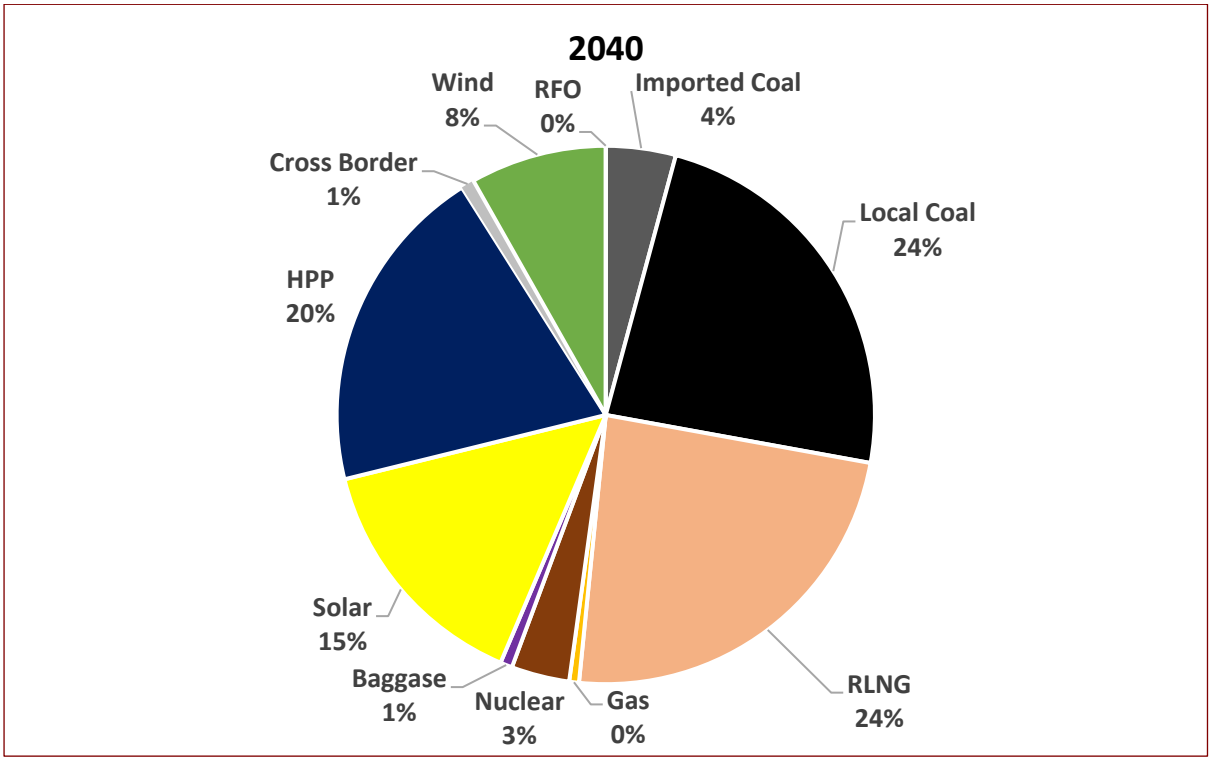


Chart 7-11: IGCEP Generation Mix 2040 (MW)

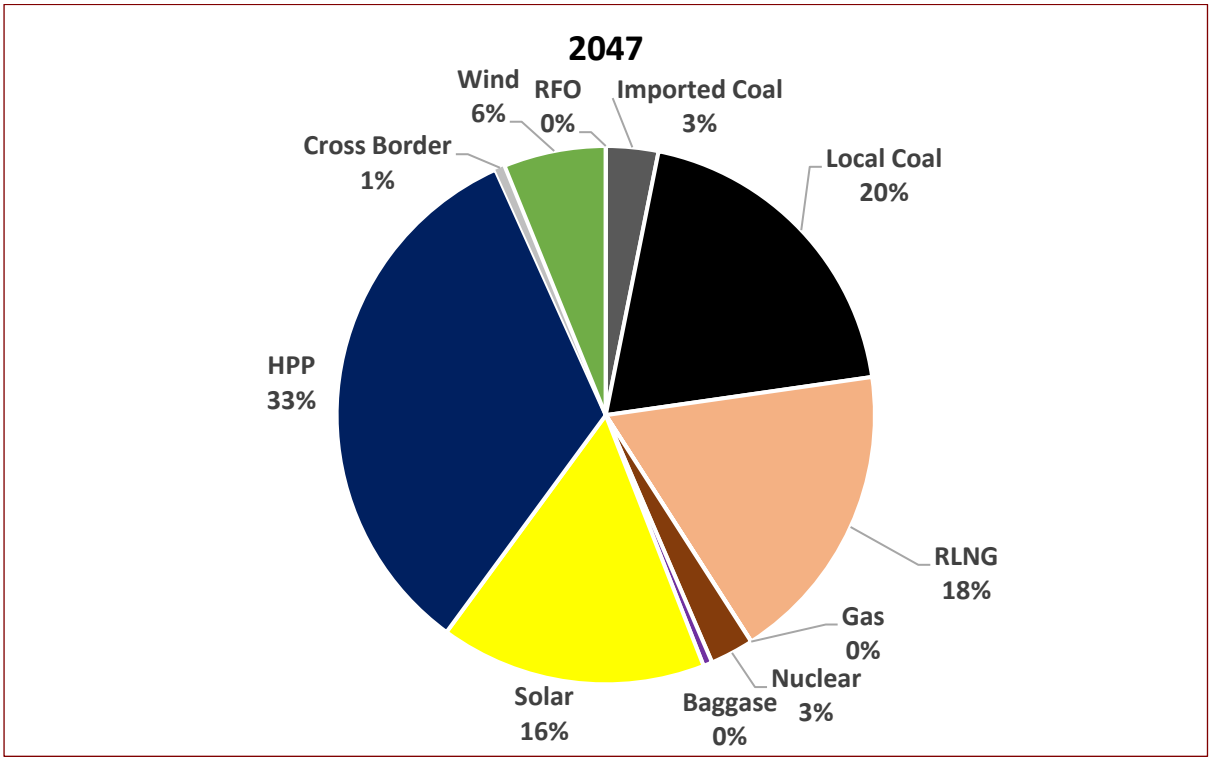


Chart 7-12: IGCEP Generation Mix 2047 (MW)

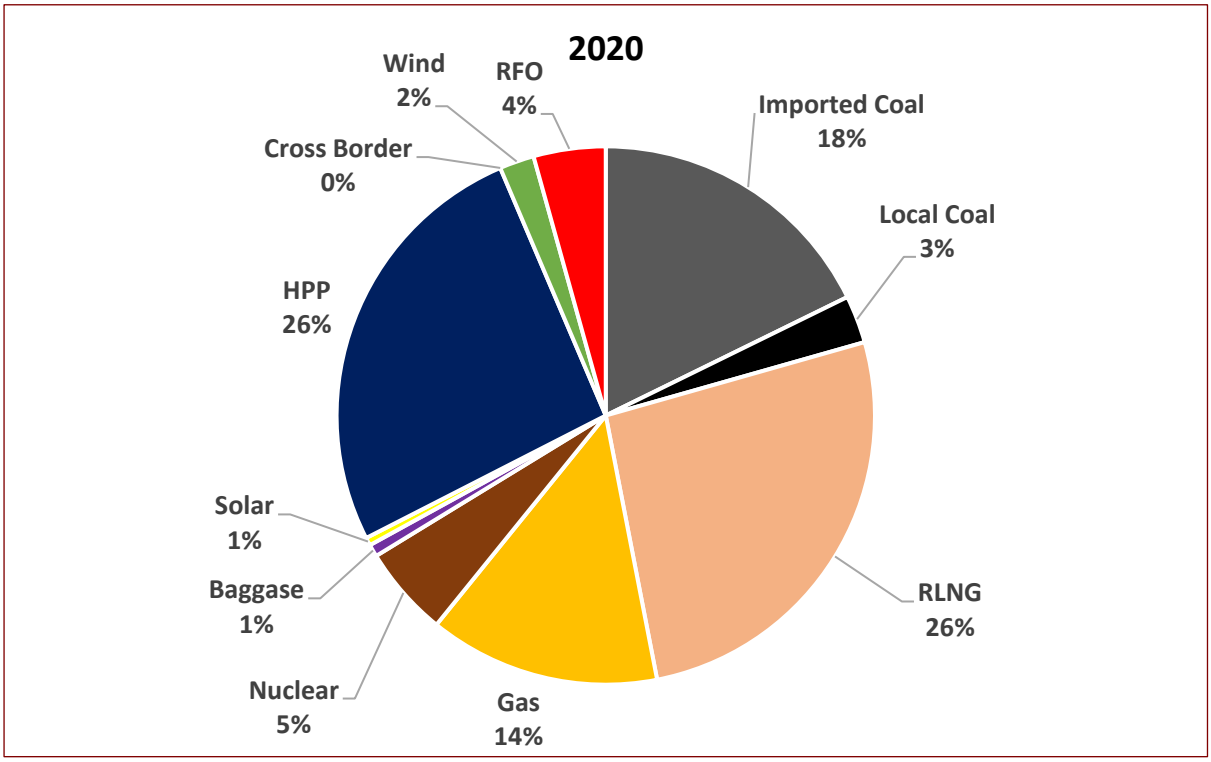


Chart 7-13: IGCEP Generation Mix 2020 (GWh)

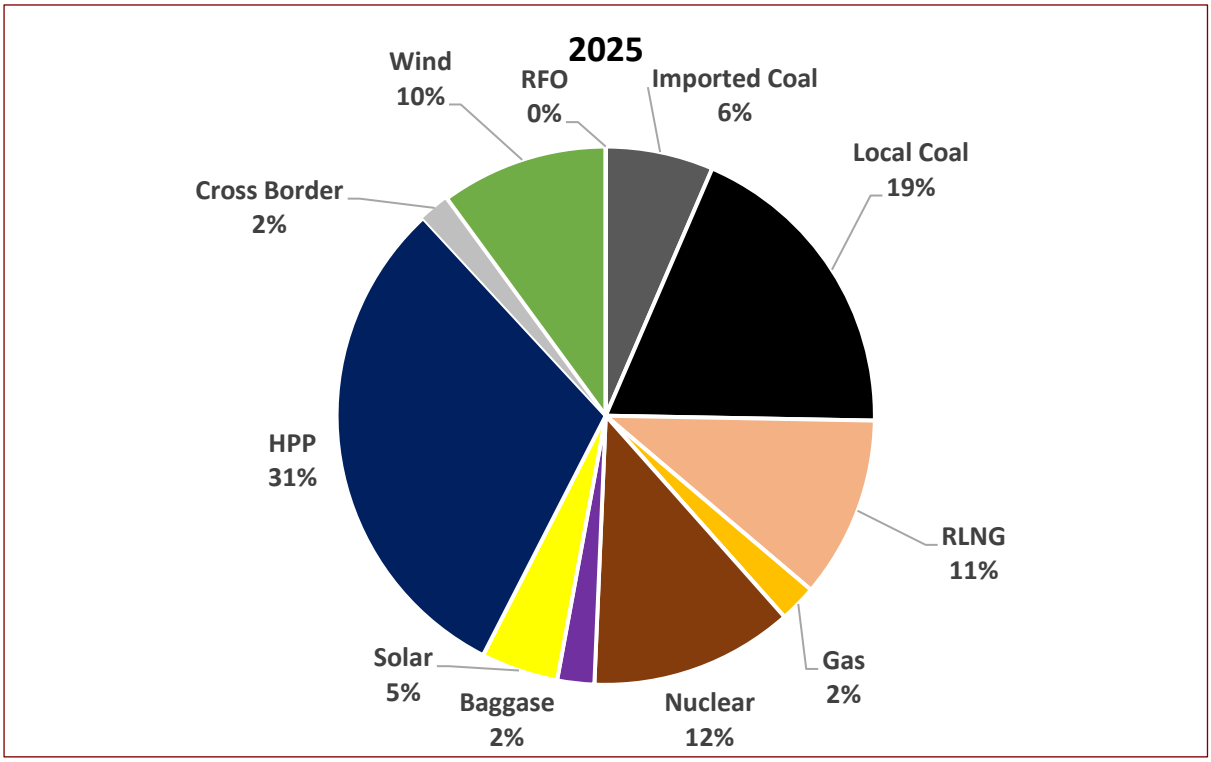


Chart 7-14: IGCEP Generation Mix 2025 (GWh)

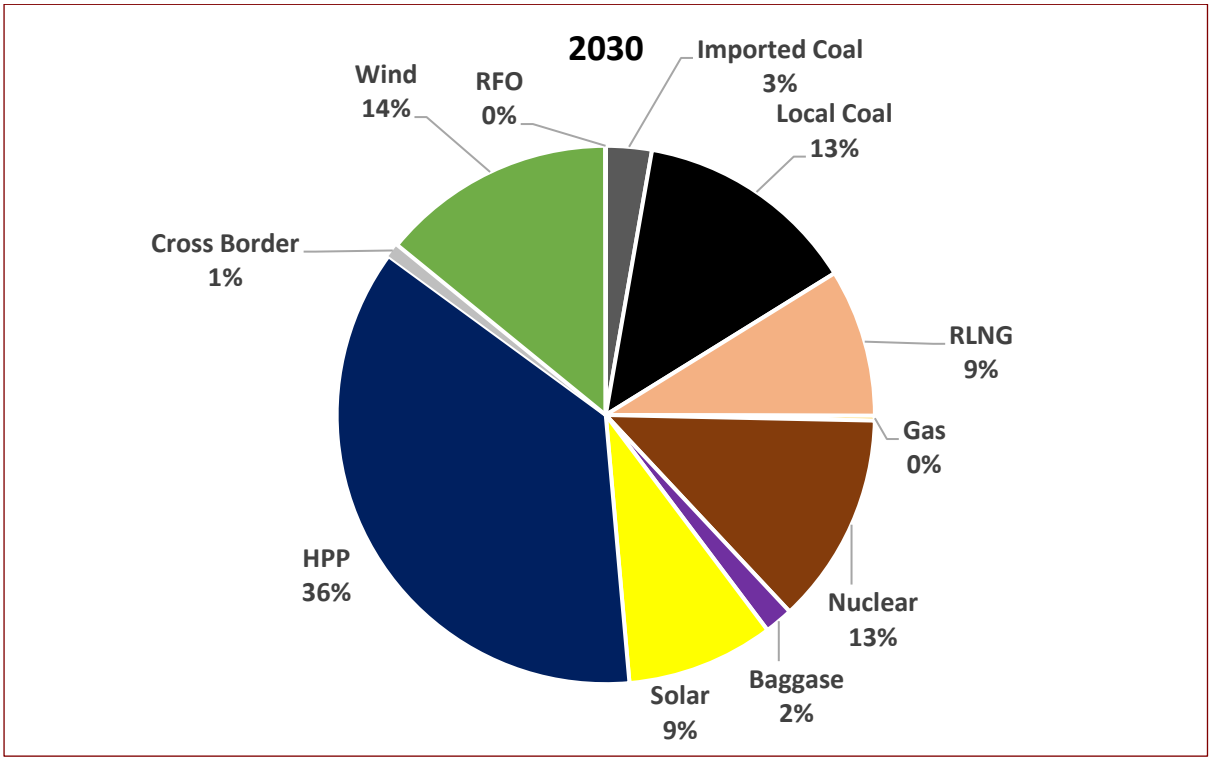


Chart 7-15: IGCEP Generation Mix 2030 (GWh)

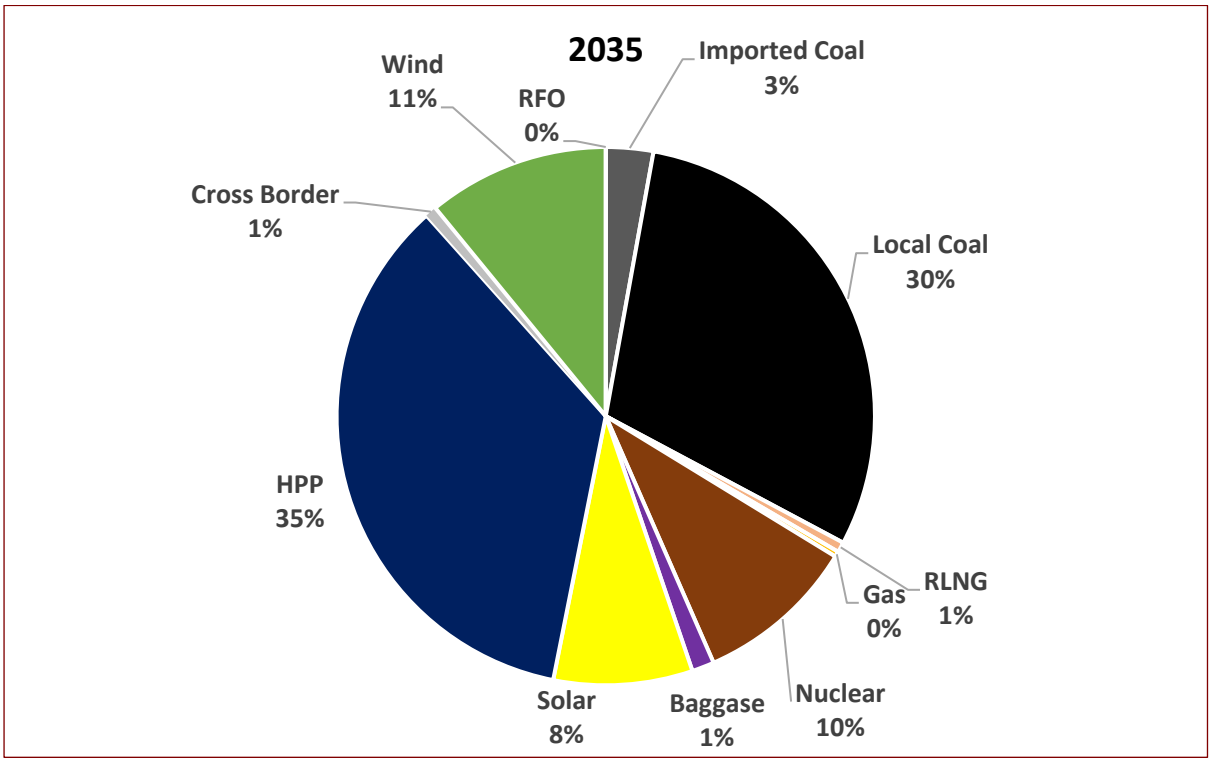


Chart 7-16: IGCEP Generation Mix 2035 (GWh)

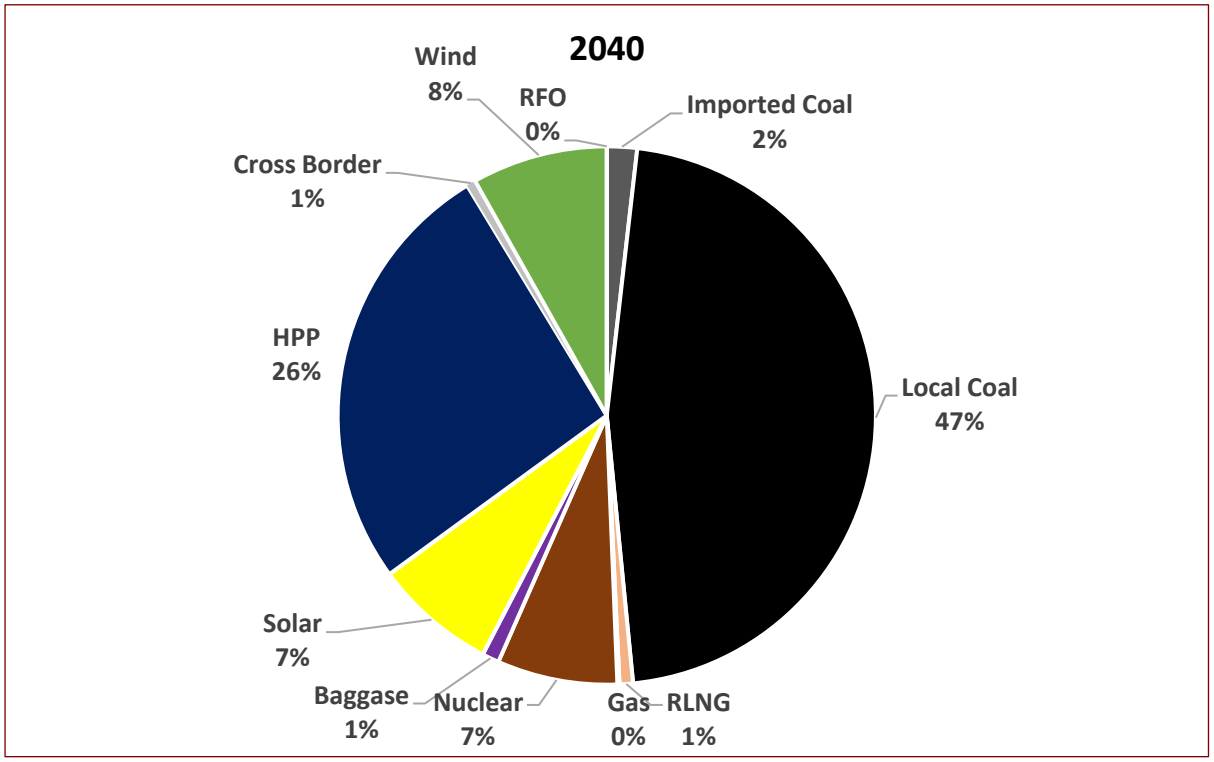


Chart 7-17: IGCEP Generation Mix 2040 (GWh)

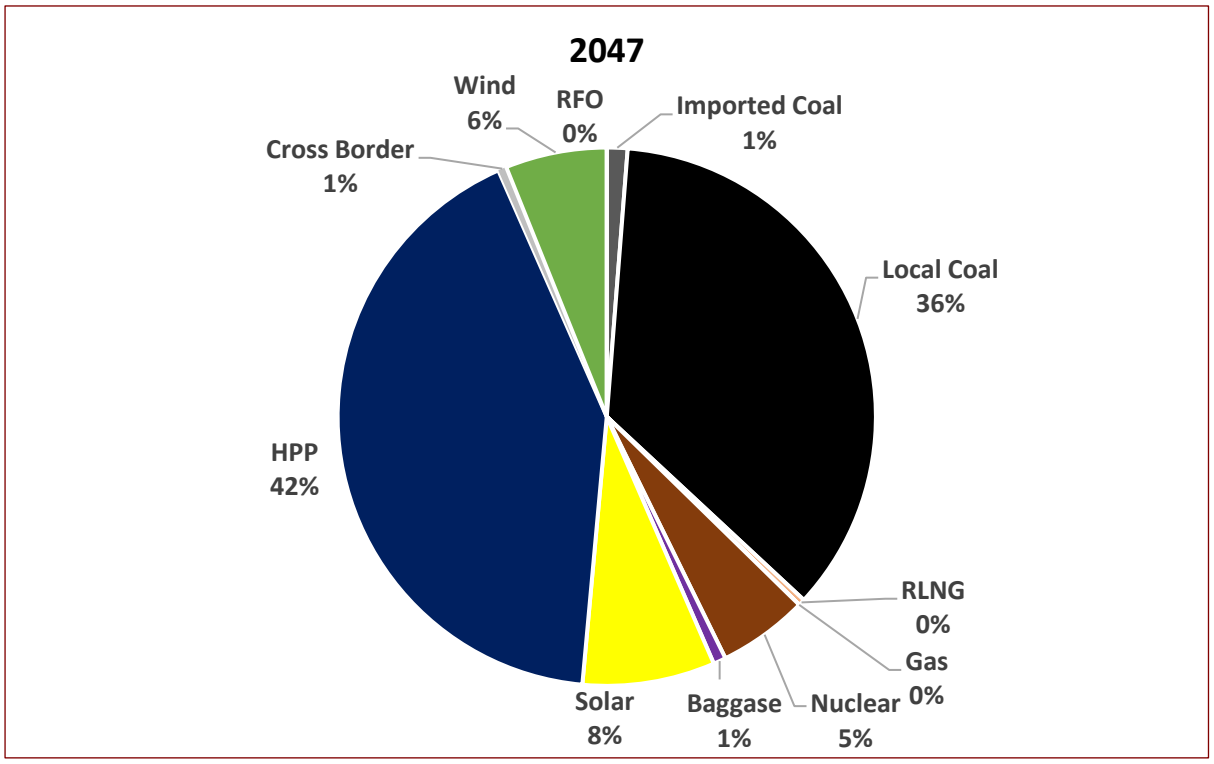


Chart 7-18: IGCEP Generation Mix 2047 (GWh)

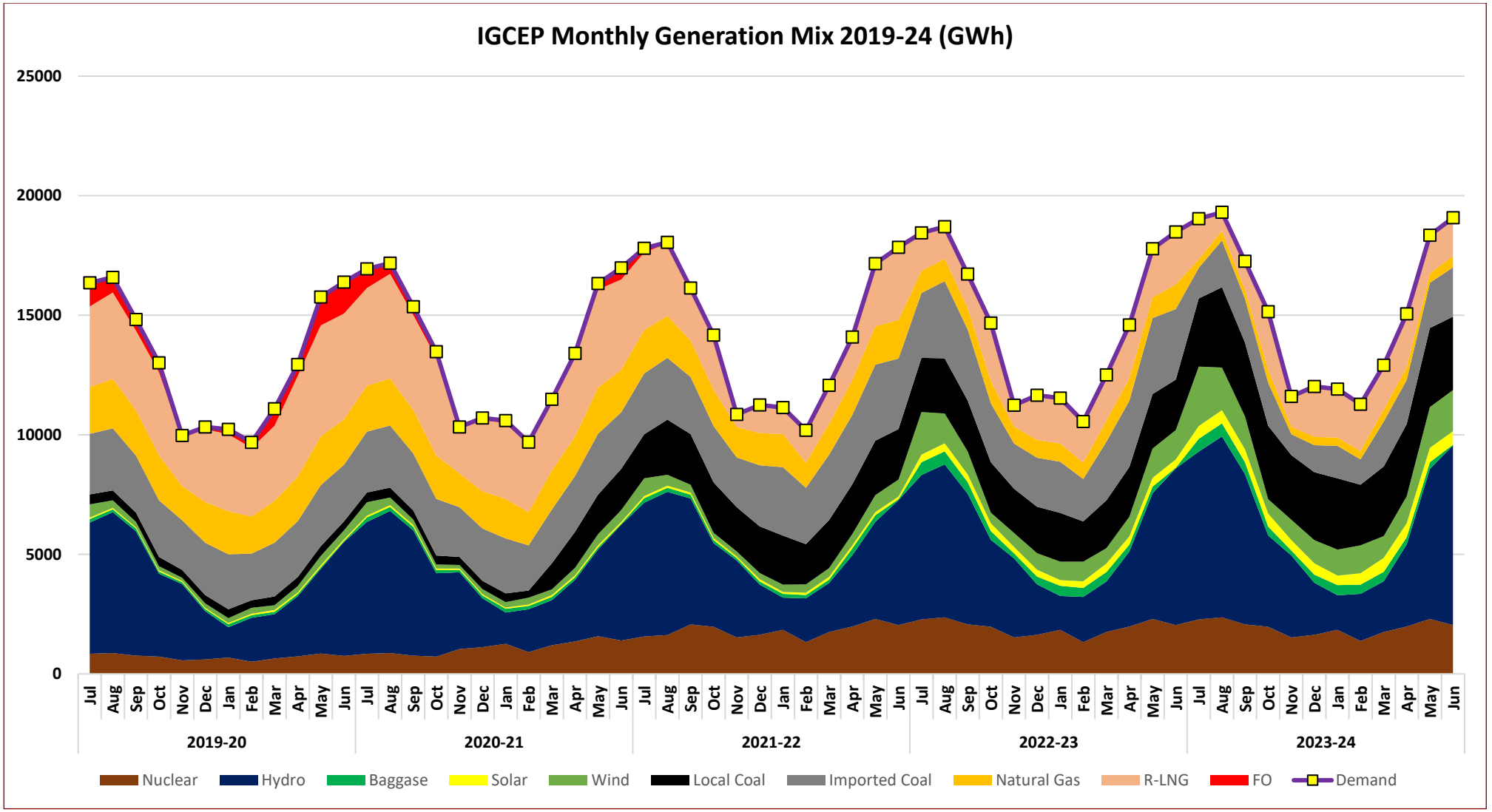


Chart 7-19: IGCEP Monthly Generation Mix 2019-24 (GWh)

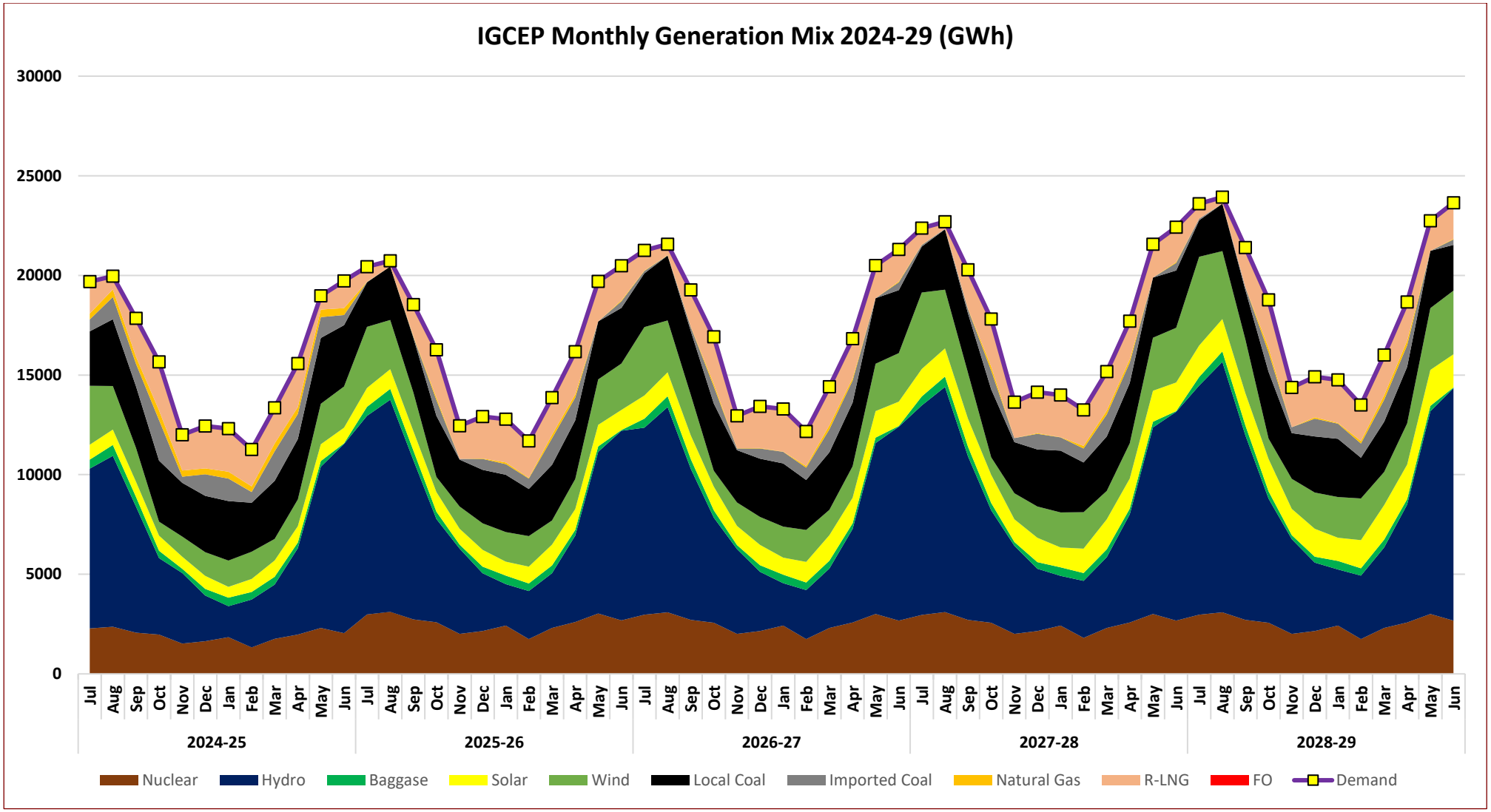


Chart 7-20: IGCEP Monthly Generation Mix 2024-29 (GWh)

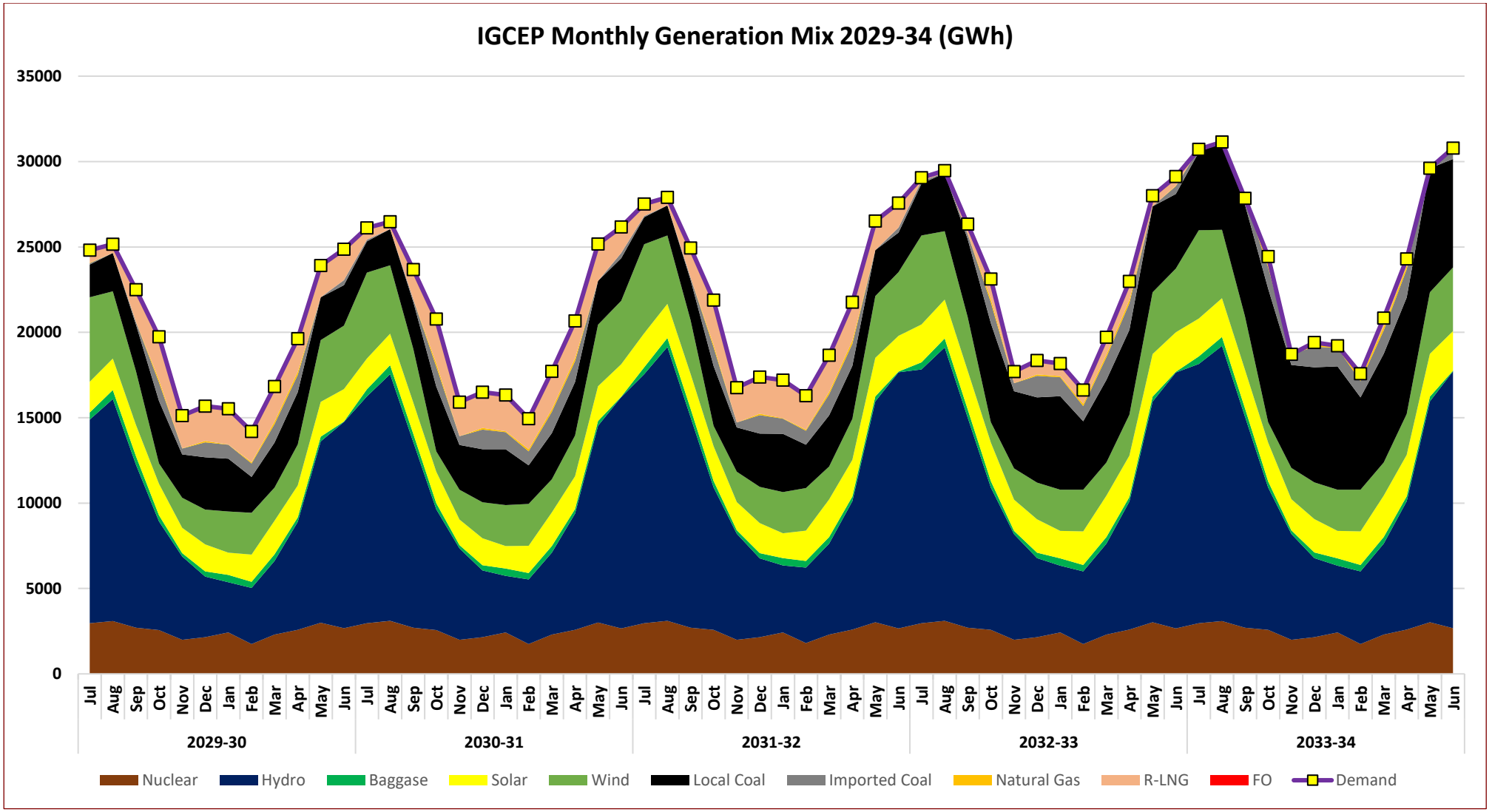


Chart 7-21: IGCEP Monthly Generation Mix 2029-34 (GWh)

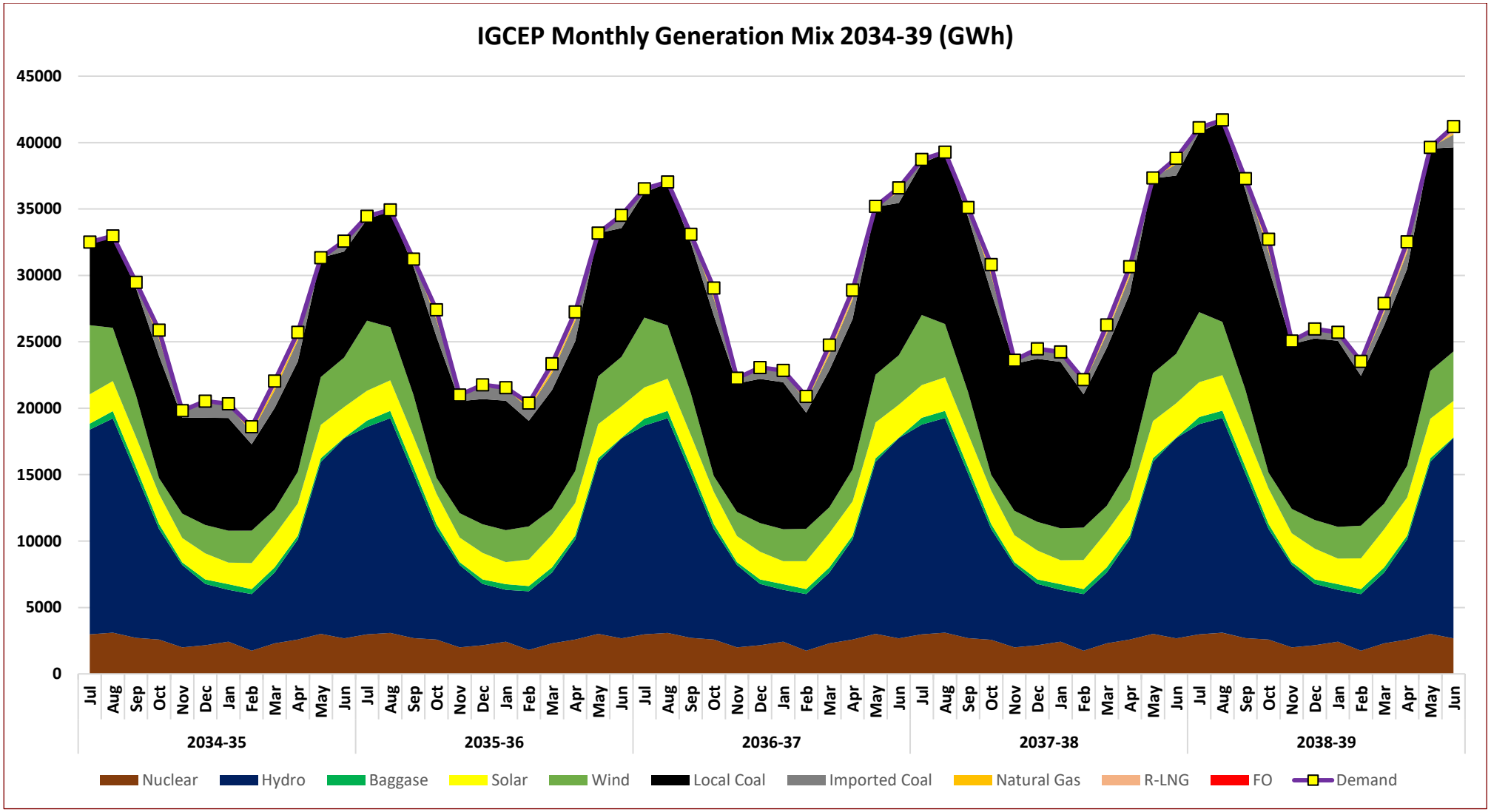


Chart 7-22: IGCEP Monthly Generation Mix 2034-39 (GWh)

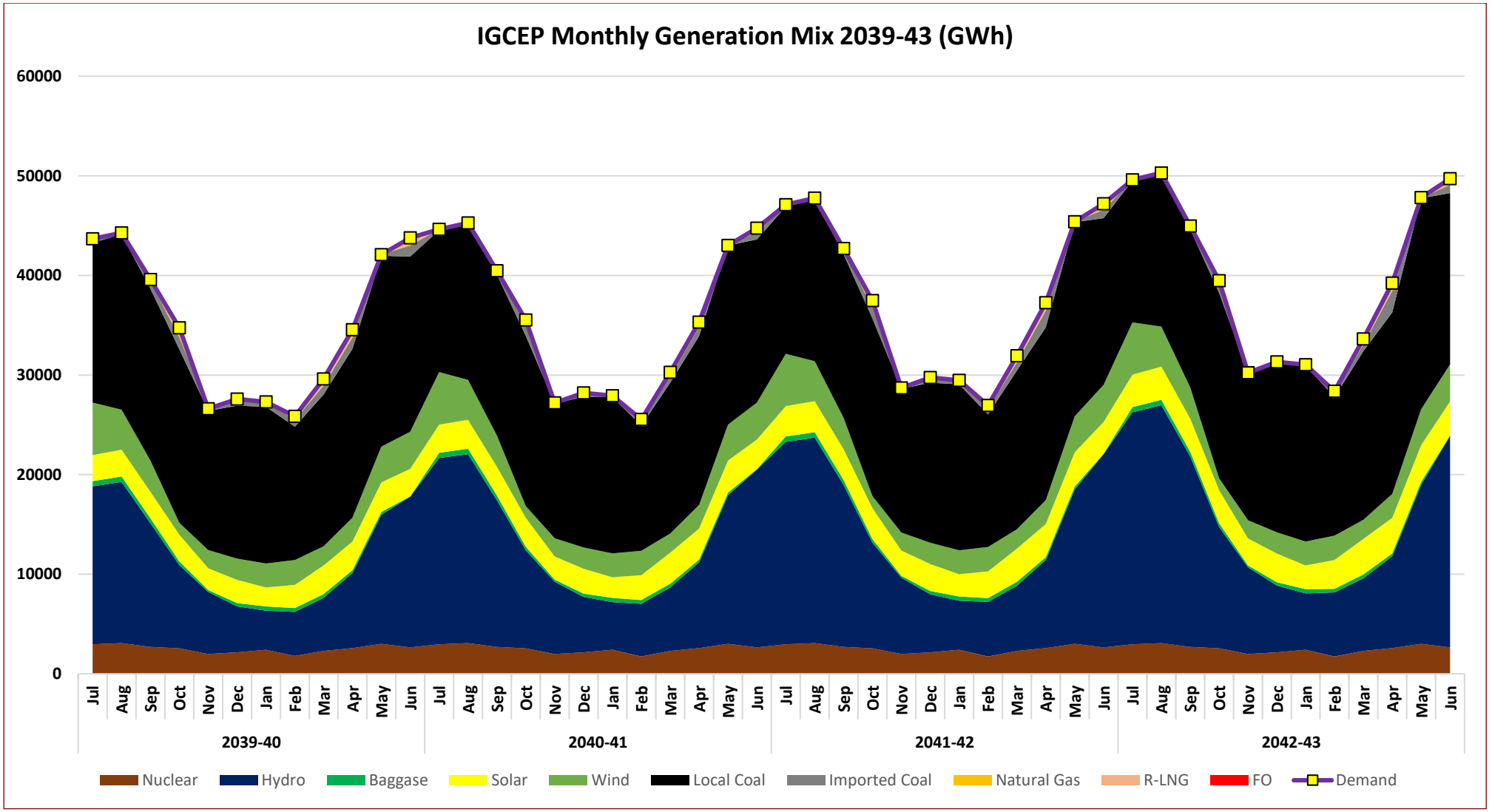


Chart 7-23: IGCEP Monthly Generation Mix 2039-43 (GWh)

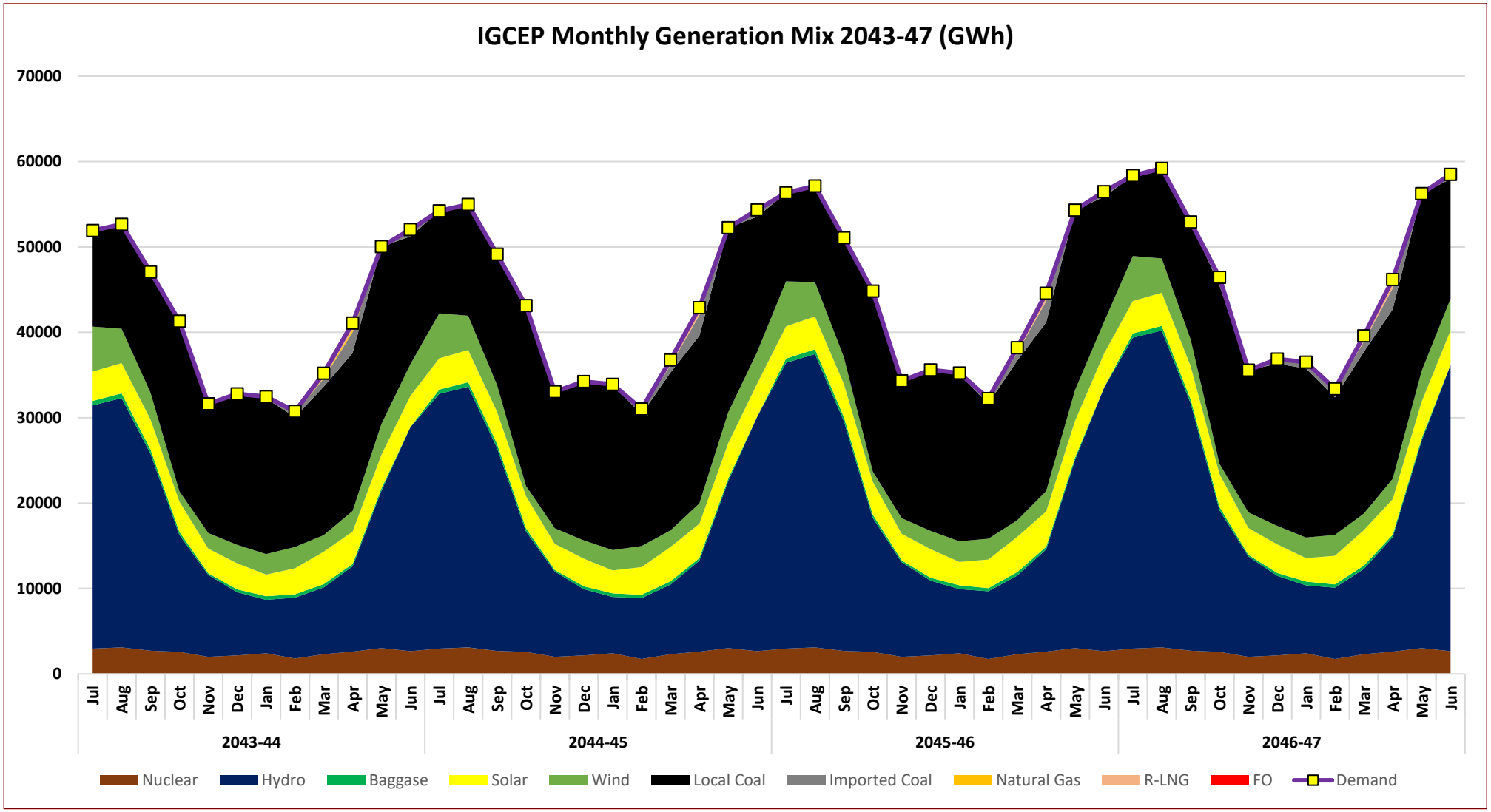


Chart 7-24: IGCEP Monthly Generation Mix 2043-47 (GWh)

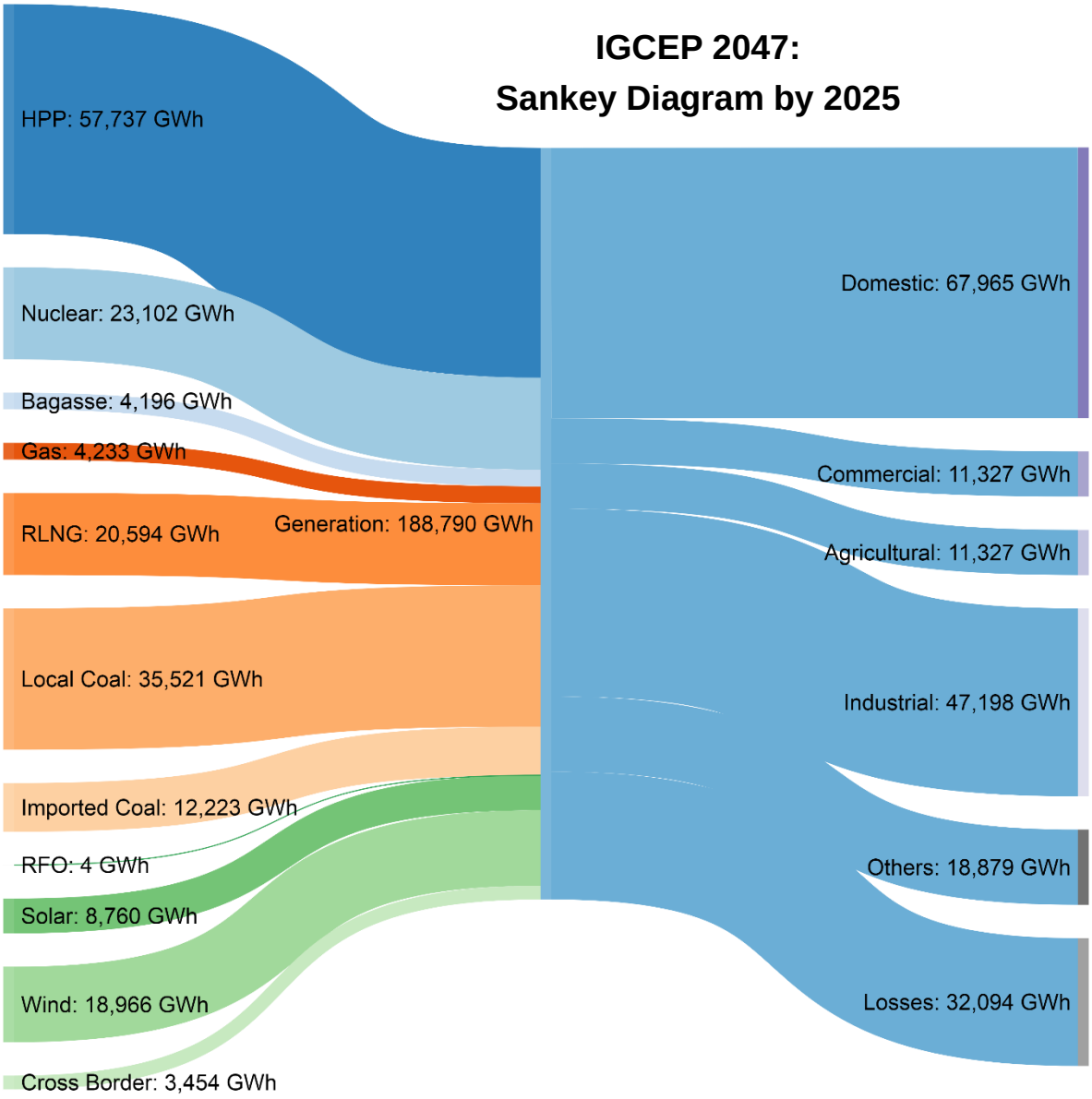


Chart 7-25: Sankey Diagram of Base Case Scenario by 2025

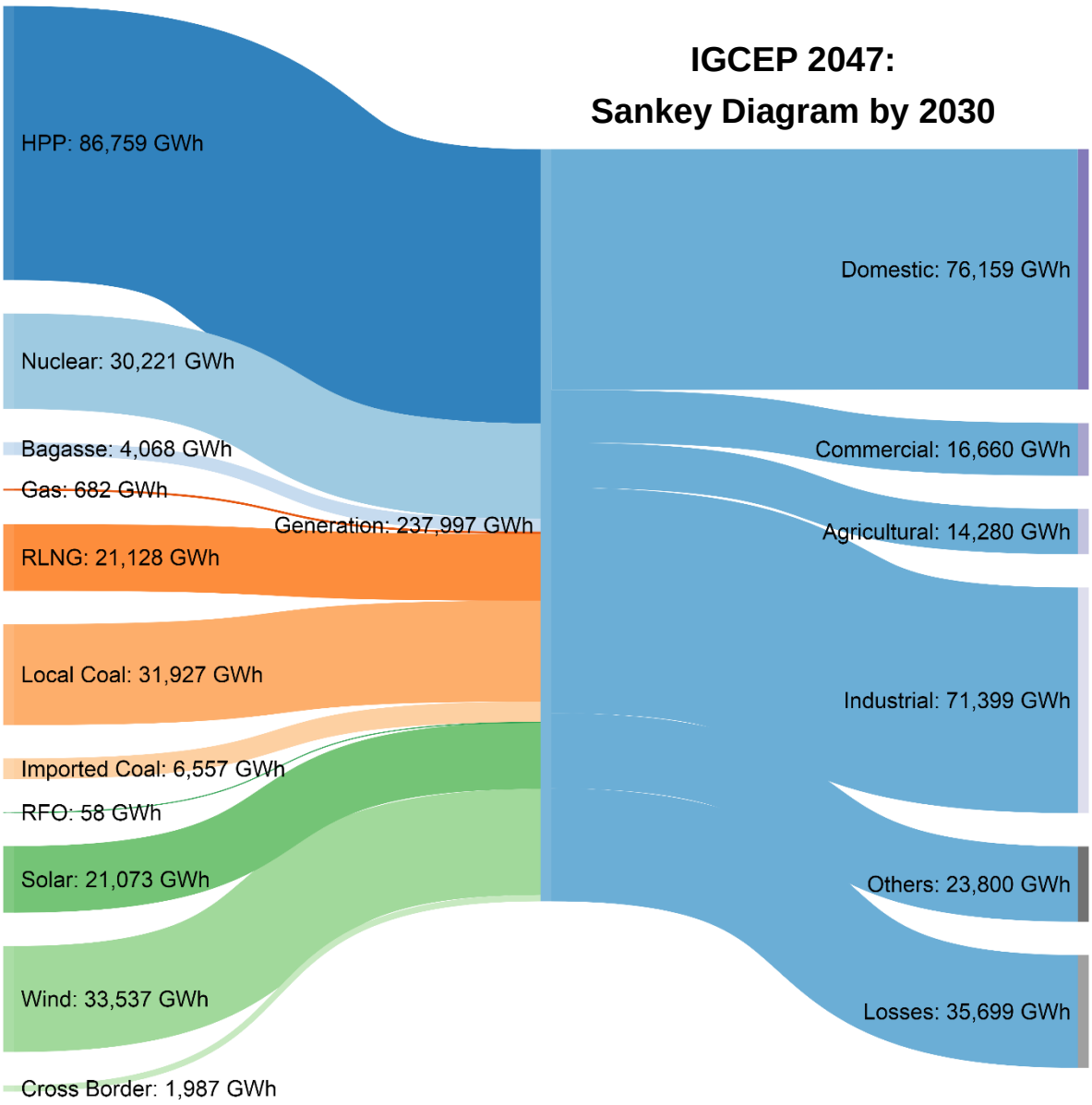


Chart 7-26: Sankey Diagram of Base Case Scenario by 2030

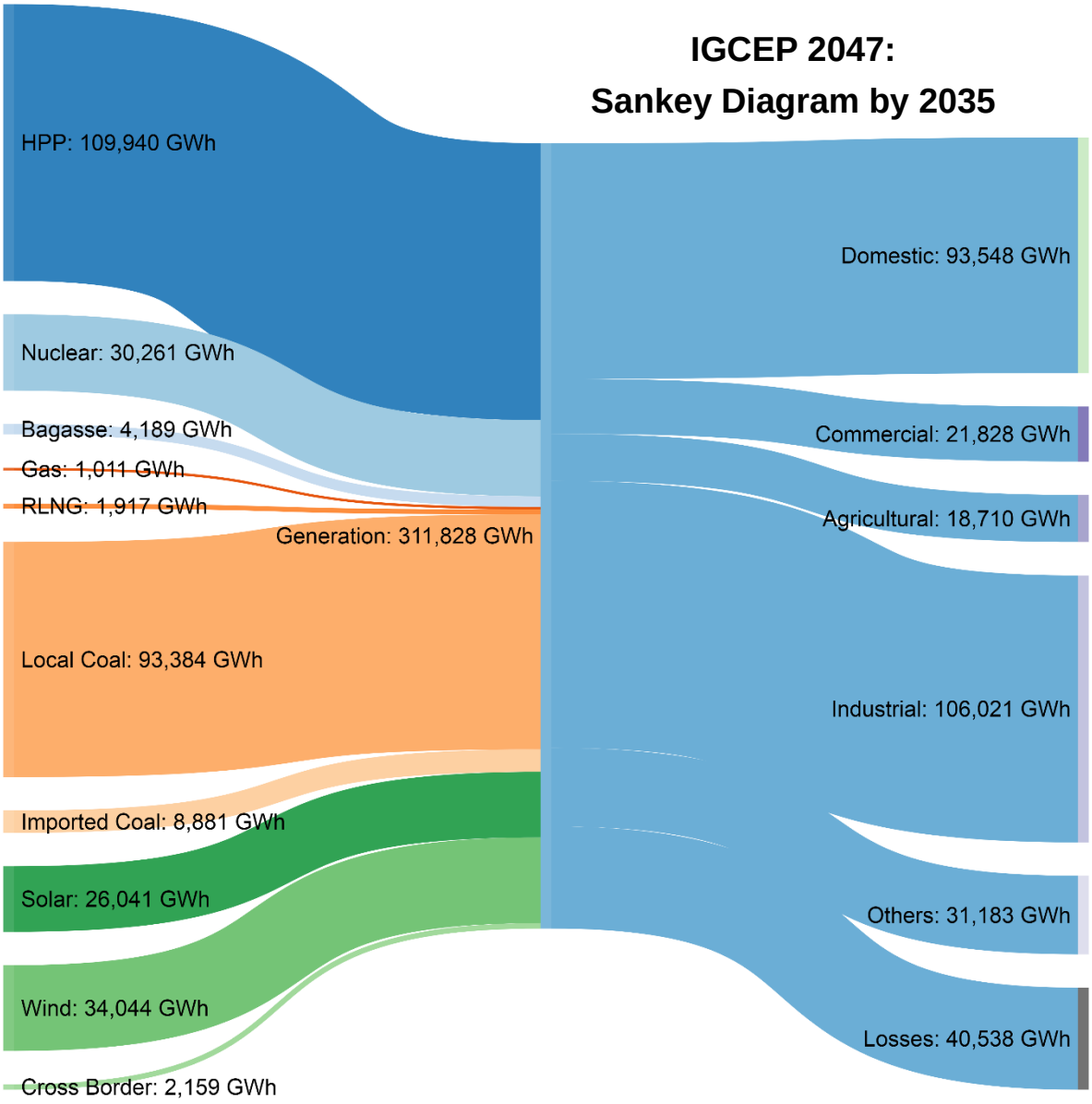


Chart 7-27: Sankey Diagram of Base Case Scenario by 2035

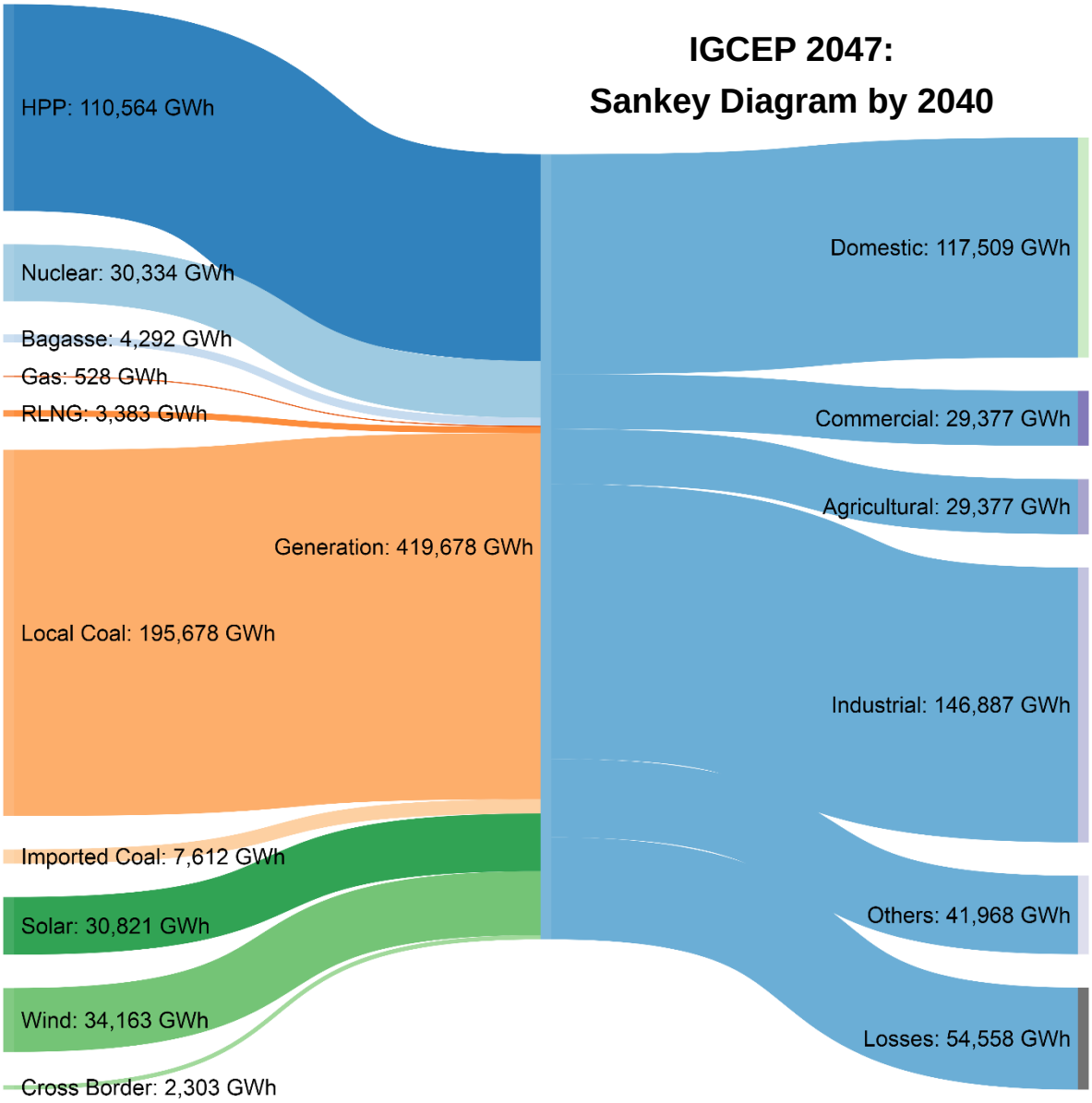


Chart 7-28: Sankey Diagram of Base Case Scenario by 2040

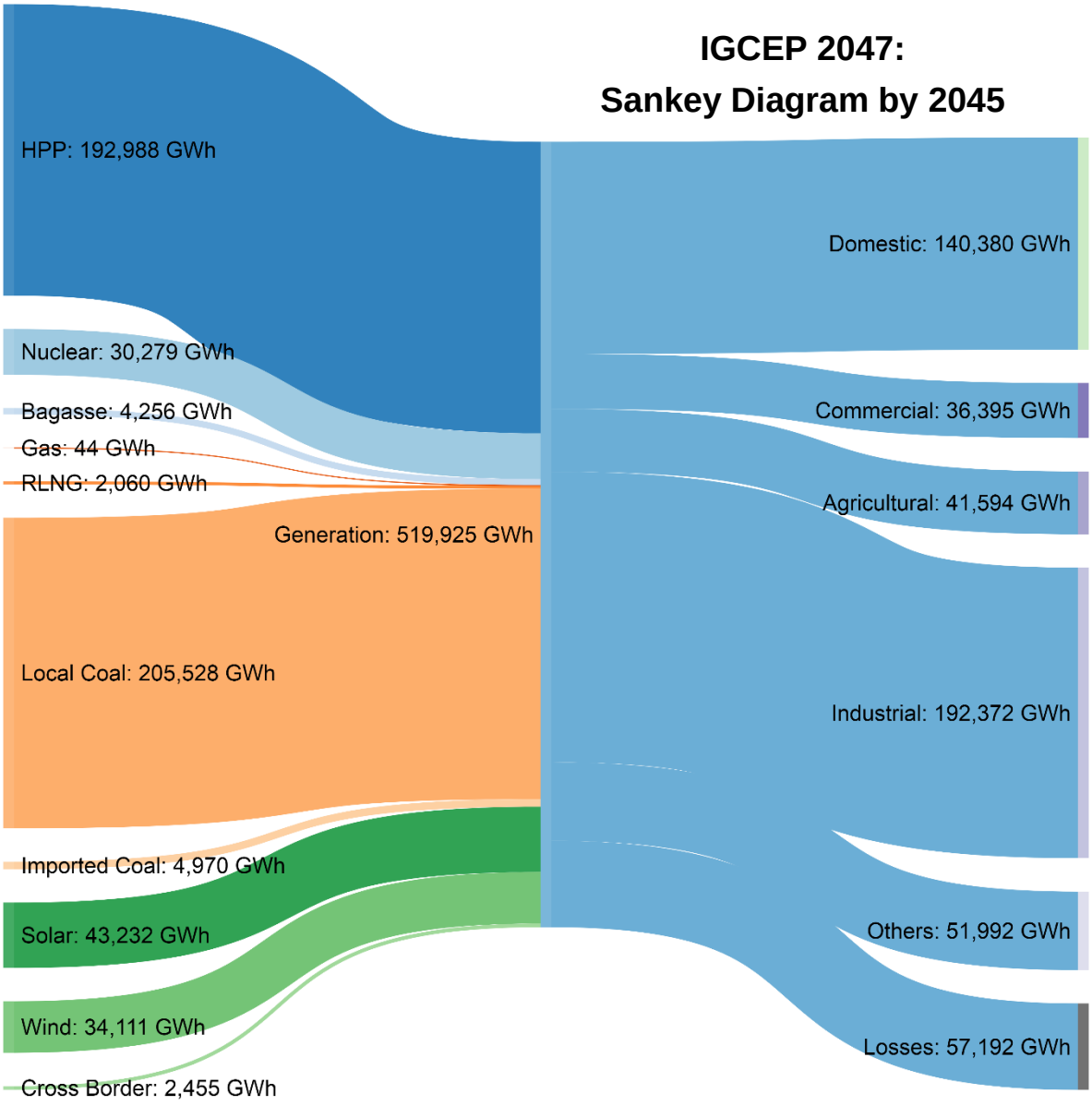


Chart 7-29: Sankey Diagram of Base Case Scenario by 2045

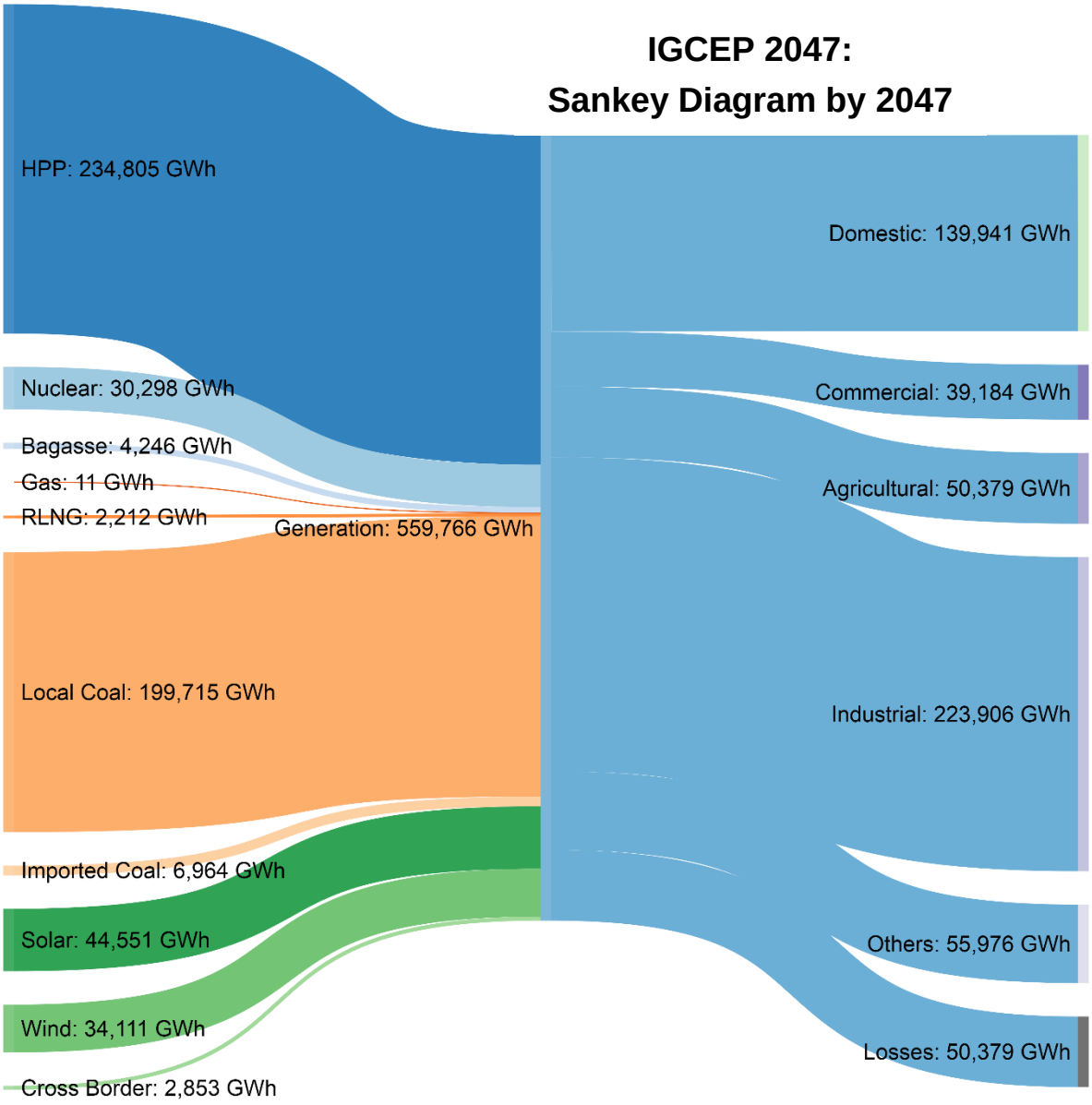


Chart 7-30: Sankey Diagram of Base Case Scenario by 2047

8. The Way Forward

Abstract

- Timely updation of policies as per global trends and availability of information is pertinent for the success of the future generation plans.
- Changes are required in the planning process in order to mitigate risks and reduce uncertainties for the power sector investors and other stakeholders.
- Data management is inevitable for transparency of all plans.
- Power sector planners need to know the success as well as failure stories of rest of the world in order to customize the best strategies.

8. The Way Forward

A few suggestions are offered in this section to further enhance the contents and quality of the future editions of the IGCEP as well as the planning process on the whole.

8.1 Must Do Actions for the Future Generation Plans

a. Demand Side Management (DSM) options should be studied and built into the IGCEP by coordinating and working closely with NEECA and other relevant agencies in the country.

b. Alternative and renewable energy generation targets assessed and established by AEDB in consultation with DISCOs in various parts of the country including both on-grid and off-grid should be included in the future editions of the IGCEP to give these promising new technologies their due share.

c. Power generation policies should be regularly reviewed and updated to align the policy instruments with the latest trends in generation technologies and other factors that can influence both the demand and supply side of the electricity business.

d. Planning process should be more comprehensive, both in scope and depth. Instead of yearly updating, IGCEP should be revised every five (05) years. It will reduce unpredictability and will also minimize risks for the potential investors. Appropriate modification to this effect should be made in the Grid Code.

e. Access to data and quality data must be facilitated and further improved. A central data repository may be formed to facilitate planners and policy makers, having specific data privileges and to ensure access to quality data, for data modeling and decision making. In a similar vein, project execution entities should enhance and accelerate their response, with respect to provision of project data to NTDC, for updating of the IGCEP, in a precise and timely manner.

f. Keeping in view the latest technological changes and latest advancements in the power supply and delivery business, customized trainings should be provided, especially for the power system planners, system operators, and DISCO staff.

8.2 Making Way for the High Share of Renewables in the Grid

Aggressive targets with respect to induction of renewable energy resources, set by the government and optimized through the generation planning software will need to be incorporated in the future plans to give these promising new options their due share in future supply portfolios:

Hybridization of Variable Renewable Energy Projects

a. Though not envisaged in the prevailing schemes, wind power projects can provide grid support such as frequency regulation, voltage regulation, and reserve power provided hybridization is opted with solar PV as well as battery energy storage. Grid impact and economic implication studies for individual wind power plant will need to be carried out by the stakeholders.

b. The combination of wind and solar has the advantage that the two sources will complement each other since the peak operating times for each system occur at different

times of the day and year. The power generation of such a hybrid system including battery storage, is more continuous i.e. fluctuates less in terms of time and frequency if these are developed and operated jointly. Enabling environment including regulatory and commercial arrangements as well as technical studies should be undertaken for this purpose to maximize the value of indigenous energy resources.

c. All the stakeholders including the sponsors should join hands on setting up and sustaining an energy forecasting system with consensus on some suitable business model for the above purpose. This will significantly help in combatting the existing challenges with respect to despatch of renewable energy.

Upcoming Wind Power Projects

In order to utilize huge renewable resources potential of Pakistan in a sustainable manner, the wind power projects supported by appropriate energy storage should be able to provide the following grid support:

a. Base load operation for certain number of hours

b. Support in frequency control and regulation

c. Reserve power even when the renewable resource is not available

d. Support in maintaining the reactive power balance

Further, those technologies should be promoted which can be manufactured locally with the ultimate goal of achieving manufacturing of complete WTG including sophisticated control equipment. All stakeholders should try to maximize local value addition.

8.3 Future is Here - Time to Understand, Accept and Adopt the New Norms

A fundamental transformation is currently underway around the world in the way electricity is produced, transmitted, and delivered to end-users. The ‘utility of the past’ that relied primarily on large and central-station power generating facilities intertied through extensive and complex T&D grids to serve demand located far away from generation sites is now giving way to a new ‘utility of the future’ concept that strives to serve demand right at the spot through a blend of options including energy conservation, demand-side management, and distributed sources of power generation.

Power sector in Pakistan is also at a crossroads at the moment and in fact faces a defining moment in its history. Ample evidence already exists to suggest that the former approach to managing the power sector entities and their affairs is not proving successful. A continuation of business-as-usual approach in the power sector will be akin to inviting trouble not only for this particular sector but for the nation on the whole. It is high time, therefore, to abandon the old approach and replace it with a new flexible and adaptable approach to running this critical sector of the economy.

Pakistan’s transition to ‘utility of the future’ will require a thorough revamping of the power sector’s legal and regulatory frameworks, institutional structure, physical systems, business operating model, and leadership and managerial styles. As planning holds a critical enabling link in smoothly managing the above transition, the LF&GP-PSP Team would like to propose a brief description of how planning’s role and scope should change in the future.

Unlike the past, the strategic horizon for the power sector has shrunk considerably, in particular, for power generation schemes. Five years is now a long-term for generation capacity expansion planning as small-scale and modular generation technologies, both conventional and non-conventional, are available for quick deployment with cost and performance features comparable, and in some cases even superior, to their large-sized competitors.

Though the typical lead-times for T&D schemes still remain more-or-less the same, the availability of inexpensive information and communication technologies (ICTs) is changing their role in a number of important ways. From just a conduit to transmit electricity from generating stations to end-users in the recent past, the T&D grid is now being designed to function as a smart and intelligent platform to enable a host of actors and business interests to come together in serving the society's electricity demands more cost-effectively, with superior reliability and quality, and in socially and environmentally sustainable ways.

Both planning and plans are assuming a new and critical role in the 'utility of the future'. Instead of providing their leaderships with iron-clad strategic plans for the next 25 years or so, planners are now called upon to help them in refining and crystallizing their crude and sketchy business ideas by studying the viability and implications of these ideas, in strategizing based on these insights, and in taking informed decisions on key business issues. The three critical building blocks of the future power sector planning will necessarily include: (i) a strong strategic foresight and technical expertise; (ii) an appropriate set of tools and skills; and (iii) a frequently updated data and information base on local conditions and emerging business and technology trends in the market.

Focus of planning should also shift now. From its previous concentration mainly on generation expansion schemes and planning the T&D systems just as add-ons and addendums to these plans, T&D systems will have to take a center-stage in the future planning of the power sector. While some large central-station power generation options such as hydroelectric, coal, and nuclear plants will continue to maintain their relevance in the 'utility of the future', a major share of future power generation will come from small, distributed, and dispersed technologies to be connected with the grid at its tail end at distribution voltage levels.

A new source of demand as well as supply will come from the electrified transportation sector of the country. The battery packs on the future electrical vehicles (EVs), if carefully planned and managed, will not only be a source of new demand on the system but could also contribute to improving the overall utilization of generation assets in the system by flattening the load curve. These EV-based battery-packs can also contribute to system support (ancillary) services to the grid which to this day are largely supplied by central-station power plants.

The future planning efforts will necessarily have to be evenly distributed among three levels: 'central planning', 'operational planning', and 'distributed resource planning', each requiring its own skills, tools, and data and information bases, and complementing the other two. Essentially, it builds on the idea that in the future the power system will be composed of micro- and mini-grids (studies as well as pilot projects are required to be launched sooner than later for this purpose), mostly operating in an autonomous manner, but tied with each other through the national grid of the country.

Central Planning will mainly be of an indicative nature identifying the future electricity needs of the consumers in different parts of the country, assessing the resource and technology options available for serving the demands as much as possible at the spot and complementing the remaining demands from other regions and central-station facilities, and planning a robust transmission grid to facilitate that objective. Sufficient freedom should be provided to potential investors and developers to offer innovative, cost-competitive, and socio-economically acceptable power supply solutions. Coordination with other stakeholders of policy planning especially Planning Commission (or Ministry of Planning), Ministries of Oil & Gas, Finance, Industry & Commerce, and respective Ministries/Departments of Provinces, would be very essential for realistic central planning.

Operational Planning will essentially focus on optimal scheduling and despatch of transmission-connected generation to serve the residual demand that is left on the system after despatch of all local plants in the distribution systems. Operational planning will also be responsible with weather and renewable resource availability forecasting to maximize use of the intermittent and variable output from these plants and backing these up from the central grid resources for mitigating the intermittency and variability effects of RE generation.

Distributed Resource Planning will be carried out at the DISCO levels and will involve much more sophistication than the other two planning efforts stated above. It will be based on rigorous load research as well as local energy resource endowments and operating conditions to identify the most feasible option of serving consumer demand, through demand management options, behind-the-meter supplies, from a nearby located distributed plant, or from neighboring DISCO or central-station facilities.

8.4 Getting Equipped and Ready for the Competitive Power Regime

In December 2019, NEPRA approved the Competitive Trading Bilateral Contract Market Model (CTBCM) in a bid to launch de-regulated electricity market framework in Pakistan. According to the determination by the Authority, CPPA-G is directed to implement the competitive electricity market framework within the next two years.

The timely preparation and regular updating of the IGCEP is extremely important in the context of the upcoming wholesale market. The design of the wholesale market is such that all procurements for the regulated consumers are to be based on the results of the IGCEP. No competitive auctions can be launched by Independent Auction Administrator (IAA) for procurement of energy and capacity, until the quantum and technologies required for the system are ascertained by the approved IGCEP. Hence the IGCEP is to play a pivotal role at the start of the wholesale market and will become more and more indicative with the evolution of the market.

Besides driving procurement for the regulated consumers, the IGCEP provides guiding material to other potential investors in the market by informing of the least cost technologies that may prove competitive in the market.

8.5 Retirement of Existing Thermal Power Plants

The IGCEP 2047 estimates that a capacity of 11,511 MW will need to be retired by the year 2047. For the purpose of IGCEP, retirement is defined as each power plant will not be operational after PPA/EPA term. Major retirement of generation capacity corresponds to RFO

based power plants, followed by natural gas and then RLNG based power plants. However, it is believed that certain generation facilities may continue to operate under the extended period of time under the terms and conditions to be agreed between the relevant IPPs and CPPA-G. It is suggested to consider such instances, on case to case basis, and included accordingly in the next iterations of the IGCEP, of course to be initiated by the concerned project execution entities.

8.6 Focusing on Indigenization through Harnessing the Potential of Local Coal

By the year 2047, the least cost generation capacity expansion plan, as per its base case, has optimized a share of local coal ("Thar coal") to be 17% which is precisely equivalent to 29,954 MW.

Thar coal reserves are estimated by the Geological Survey of Pakistan to be approximately 175 billion tons – making it one of the largest lignite coal reserves in the world. Thar coalfield, Block II area has exploitable lignite coal reserves of 1.57 billion tons. The total mining capacity of the project is due to be 20.6 MT/annum. (Source: Engro).

By the year 2021, 4,000 MW of power generation from local coal of Thar is planned to be evacuated from Thar via the first ever HVDC transmission line from Matiari to Lahore. The cost of mining is expected to be reducing with every new initiative. However, there are certain issues such as availability of sufficient water, estimation of optimal amount of mining, etc. are required to be studied. It is suggested that the relevant project execution entity i.e. PPIB should undertake such studies in addition to studies by NTDC with respect to power evacuation and transmission of power to the load centers.

The power system planners should be communicated, by the project execution entities, of the study-based analysis of block-wise potential of Thar coal that can be exploited for generation of electric power so it can be adequately modelled in the generation capacity expansion software for the next iterations. Similarly, the precision and authnticty of data and information pertaining to hydrology of upcoming hydro power projects needs to be validated by the concerned projjec execution entities in the most meticulous manner.

8.7 Thinking, Synergizing and Enhancing the Vision Beyond the Borders

It is a well-known fact that there is a severe lack of research culture in the country. It is high time that concrete initiatives are taken to inculcate a thinking culture in the power sector of Pakistan. It is believed that initiatives like NEPRA Energy Week 2020 may pave the way for this very purpose provided NEPRA sustains its focus in this direction. Role of academia, which is currently restricted to at best a couple of initiatives, may be further encouraged and enhanced by launching certain projects especially envisioned for this purpose. Academia along with the established think-tanks may add much needed value to the power sector interventions in all three segments. For this purpose, securing maximum benefits from the regional and international experience is critical. Power sector professionals need to know the success as well as failure stories of rest of the world in order to customize the best strategies for power sector of Pakistan. Perhaps our professionals and decision makers need to understand that borders are not the hurdles but opportunities for exponential growth.

Comments by LF&GP-PSP Team

Each day of this whole process proved highly exciting; great team showing imense synergy with motivated individuals having diverse abilities, ideal support by management and space to share and implement out of the box ideas – one cannot ask for better environment. I am convinced that this team will continue growing and delivering, in sha Allah….Engr. Salis Usman

Development of IGCEP 2047, for the first time using PLEXOS, by the team of young engineers of LF&GP- PSP is a huge success. It is my pleasure to work with such motivated professionals who are enthusiastic to work hard and to get more achievements in the time to come….Engr. Muhammad Asad Uz Zaman

Delighted with the addition to my knowledge and experience, working with highly capable IGCEP 2047 team along with utilization of the best generation planning tool PLEXOS available on this planet….Engr. Shahbaz Ahmed

This IGCEP 2047 is a classic example of Team Work at its best……This team is a very fine blend of experience, energy and willingness to deliver. Love the environment and love working with this team. High five for everyone….Engr. Tauseef-Ur-Rehman Khan

Blessed to be a part of such an enthusiastic and selfless team. Hats off to our juniors for their tireless contribution, dedication and motivation for accomplishing this task. Truly learnt a lot and thoroughly enjoyed every bit of this exciting mission. May our team sustain this bonding, harmony and dedication forever….Engr. Ahmad Miraj Butt

I really enjoyed during the whole course of developing this plan. Get it fastly but read it slowly, it will change your way of thinking, a masterpiece, this is one of the best, instructive and most engaging collection of insight that will not only determine but also reshape the future of the power sector of Pakistan….Mr. Shahid Abbas

I am proud to be a small part of this hard working and enthusiastic young team. The feeling that we are contributing for the betterment of Pakistan is invaluable…. Engr. Irfan Saqib

This document is the result of team work, dedicated task assignment and effective team and self-management. No single person amongst the team can really own this document….Engr. Yasoon Aslam

A hectic yet great experience. It provided a new dimension of learning. Very thankful to the team who supported and guided in every matter…Engr. Saad Mansoor Rana

Nerve racking yet delightful, informative and distinctive journey. IGCEP 2047 was no less than a thrilling roller coaster ride…Engr. Maham Shahzadi

IGCEP 2047 could not have been possible without invaluable mentorship of our extremely hardworking seniors, sheer team work and a very supportive staff. A lot of sweat coupled with smart analysis has been put into formulating this plan….Engr. Adeela Aslam

Sincere efforts for the sake of Pakistan - patriots at their best. A perfect masterpiece with room for improvement. Looking forward for the bestest…Engr. Bilal Ahmad Khan

Pakistan 100

'Nature has given you everything; you have got unlimited resources. The foundations of your state have been laid and it is now for you to build and build as quickly and as well as you can.'

Quaid-e-Azam, Muhammad Ali Jinnah, 14 August 1948

Driven by the Future

For comments, suggestions and concerns, please contact at
+92 42 99202612 I ce.glfp@ntdc.com.pk
Power System Planning National Transmission and Despatch Company

Pakistan 100

Indicative Generation Capacity Expansion Plan

IGCEP 2047

Annexures

April 2020

Driven by the Future

Power System Planning
National Transmission and Despatch Company

IGCEP 2047
ANNEXURES

List of Annexures

Contents

List of Annexures i

Annexure A. Load Forecast Data 1

A-1. Projected GDP Growth by Sector (Country) – Low 1

A-2. Projected GDP Growth by Sector (Country) – Normal 2

A-3. Projected GDP Growth by Sector (Country) - High 3

A-4. Inclusion of 25% & 50% of Total Load Management 4

A-5. IMF GDP Projections and Excluding Load Management with and without EVs & NPHS 5

A-6. GDP at Factor Cost Constant 2005-06, Consumer Price Index 6

A-7. Category-Wise Nominal Tariff of NTDC and KE System 8

A-8. Category wise Real Tariff of NTDC and KE 10

A-9. Weighted Average of Tariff - Country 12

A-10. Electricity Consumption by Category (GWh) - NTDC System 14

A-11. Electricity Consumption by Category (GWh) - KE System 16

A-12. Load Shedding (GWh) - NTDC System 18

A-13. Load Shedding by Category (GWh) - KE System 19

A-14. Category Wise Number of Consumers - NTDC System 20

A-15. Category Wise Number of Consumers - KE System 22

A-16. Category Wise Number of Consumers - Country 24

A-17. Consumption Per Customer (kWh)-NTDC System 26

A-18. Consumption Per Customer (kWh) - KE System 28

A-19. Consumption Per Customer (KWh) - Country 30

Annexure B 32

B-1. Existing Installed Capacity (As of December 2019) 32

B-2. Cost Related Data in Respect of Existing and Committed Thermal Plants 36

B-3. Revised Capital Cost Calculations of Candidate Hydro Power Plants 37

B-4.1. Screening Curve for Candidate Thermal Plants $/MW/Yr 43

B-4.2. Screening Curve for Candidate Thermal Plants $/MW 43
B-5. Year-wise Present Worth and Un-Discounted Cost..... 44
Annexure C: HPP Free Scenario..... 46
C-1. Annual Energy Generation Vs Annual Energy Demand (GWh)..... 46
C-2. Nominal Capacity Vs Peak Demand (MW) 2020-47 46
C-3. Future Generation Capacity Additions 47
C-4. List of Projects uptill 2047 (Committed + Candidate)..... 49
C-5. Annual Capacity Factors (%age) 58
C-6. Annual Energy Generation 2020-30 (GWh)..... 76
C-7. Annual Energy Generation 2030-47 (GWh)..... 93
C-8. Year wise Cost Breakup-Discounted Prices..... 111
C-9. Year wise Cost Breakup-Un-Discounted Prices (k$) 112
C-10. Year wise Nominal Capacity Addition (MW) 113
C-11. IGCEP Generation Mix 2020-2047 (GWh) 114
C-12. IGCEP Generation Mix 2020-47 (MW) 117
C-13. IGCEP Monthly Generation Mix 2019-47 (GWh)..... 120
C-14. Year-wise Present Worth and Un-Discounted Cost 126
Annexure D: IMF Demand Scenario 128
D-1. Annual Energy Generation Vs Annual Energy Demand (GWh).... 128
D-2. Nominal Capacity Vs Peak Demand (MW) 2020-47 128
D-3. Future Generation Capacity Additions 129
D-4. List of Projects uptill 2047 (Committed + Candidate)..... 131
D-5. Annual Capacity Factors (%age) 143
D-6. Annual Energy Generation 2020-30 (GWh) 161
D-7. Annual Energy Generation 2030-47 (GWh) 179
D-8. Year wise Cost Breakup-Discounted Prices..... 197
D-9. Year wise Cost Breakup-Un-Discounted Prices (k$) 198
D-10. Year wise Nominal Capacity Addition (MW) 199
D-11. IGCEP Generation Mix 2020-2047 (GWh) 200
D-12. IGCEP Generation Mix 2020-47 (MW) 203

D-13. IGCEP Monthly Generation Mix 2019-47 (GWh) 206
D-14. Year-wise Present Worth and Un-Discounted Cost 212
Annexure E: No VRE Policy 214
E-1. Annual Energy Generation Vs Annual Energy Demand (GWh) 214
E-2. Nominal Capacity Vs Peak Demand (MW) 2020-47 214
E-3. Future Generation Capacity Additions 215
E-4. List of Projects uptill 2047 (Committed + Candidate) 217
E-5. Annual Capacity Factors (%age) 229
E-6. Annual Energy Generation 2020-30 (GWh) 247
E-7. Annual Energy Generation 2030-47 (GWh) 264
E-8. Year wise Cost Breakup-Discounted Prices 282
E-9. Year wise Cost Breakup-Un-Discounted Prices (k$) 283
E-10. Year wise Nominal Capacity Addition (MW) 284
E-11. IGCEP Generation Mix 2020-2047 (GWh) 285
E-12. IGCEP Generation Mix 2020-47 (MW) 288
E-13. IGCEP Monthly Generation Mix 2019-47 (GWh) 291
E-14. Year-wise Present Worth and Un-Discounted Cost 297
Annexure F: Low Demand Scenario 299
F-1. Annual Energy Generation Vs Annual Energy Demand (GWh) 299
F-2. Nominal Capacity Vs Peak Demand (MW) 2020-47 299
F-3. Future Generation Capacity Additions 300
F-4. List of Projects uptill 2047 (Committed + Candidate) 302
F-5. Annual Capacity Factors (%age) 314
F-6. Annual Energy Generation 2020-30 (GWh) 332
F-7. Annual Energy Generation 2030-47 (GWh) 350
F-8. Year wise Cost Breakup-Discounted Prices 368
F-9. Year wise Cost Breakup-Un-Discounted Prices (k$) 369
F-10. Year wise Nominal Capacity Addition (MW) 370
F-11. IGCEP Generation Mix 2020-2047 (GWh) 371
F-12. IGCEP Generation Mix 2020-47 (MW) 374

F-13. IGCEP Monthly Generation Mix 2019-47 (GWh)..... 377
F-14. Year-wise Present Worth and Un-Discounted Cost 383
Annexure G: High Demand Scenario 385
G-1. Annual Energy Generation Vs Annual Energy Demand (GWh).... 385
G-2. Nominal Capacity Vs Peak Demand (MW) 2020-47 385
G-3. Future Generation Capacity Additions 386
G-4. List of Projects uptill 2047 (Committed + Candidate)..... 388
G-5. Annual Capacity Factors (%age) 400
G-6. Annual Energy Generation 2020-30 (GWh) 418
G-7. Annual Energy Generation 2030-47 (GWh) 435
G-8. Year wise Cost Breakup-Discounted Prices..... 453
G-9. Year wise Cost Breakup-Un-Discounted Prices (k$) 454
G-10. Year wise Nominal Capacity Addition (MW) 455
G-11. IGCEP Generation Mix 2020-2047 (GWh) 456
G-12. IGCEP Generation Mix 2020-47 (MW) 459
G-13. IGCEP Monthly Generation Mix 2019-47 (GWh)..... 462
G-14. Year-wise Present Worth and Un-Discounted Cost 468
Annexure H: Candidate CCGT and OCGT Plants on Local Gas Scenario 470
H-1. Annual Energy Generation Vs Annual Energy Demand (GWh).... 470
H-2. Nominal Capacity Vs Peak Demand (MW) 2020-47 470
H-3. Future Generation Capacity Additions 471
H-4. List of Projects uptill 2047 (Committed + Candidate)..... 473
H-5. Annual Capacity Factors (%age) 485
H-6. Annual Energy Generation 2020-30 (GWh) 503
H-7. Annual Energy Generation 2030-47 (GWh) 521
H-8. Year wise Cost Breakup-Discounted Prices..... 539
H-9. Year wise Cost Breakup-Un-Discounted Prices (k$) 540
H-10. Year wise Nominal Capacity Addition (MW) 541
H-11. IGCEP Generation Mix 2020-2047 (GWh) 542
H-12. IGCEP Generation Mix 2020-47 (MW) 545

H-13. IGCEP Monthly Generation Mix 2019-47 (GWh) 548
H-14. Year-wise Present Worth and Un-Discounted Cost 554
Annexure I: No new Candidate CCGT or OCGT Plant Scenario 556
I-1. Annual Energy Generation Vs Annual Energy Demand (GWh) 556
I-2. Nominal Capacity Vs Peak Demand (MW) 2020-47 556
I-3. Future Generation Capacity Additions 557
I-4. List of Projects uptill 2047 (Committed + Candidate) 559
I-5. Annual Capacity Factors (%age) 571
I-6. Annual Energy Generation 2020-30 (GWh) 589
I-7. Annual Energy Generation 2030-47 (GWh) 607
I-8. Year wise Cost Breakup-Discounted Prices 625
I-9. Year wise Cost Breakup-Un-Discounted Prices (k$) 626
I-10. Year wise Nominal Capacity Addition (MW) 627
I-11. IGCEP Generation Mix 2020-2047 (GWh) 628
I-12. IGCEP Generation Mix 2020-47 (MW) 631
I-13. IGCEP Monthly Generation Mix 2019-47 (GWh) 634
I-14. Year-wise Present Worth and Un-Discounted Cost 640
Annexure J: Inclusion of 25% of Total Load Management Scenario 642
J-1. Annual Energy Generation Vs Annual Energy Demand (GWh) 642
J-2. Nominal Capacity Vs Peak Demand (MW) 2020-47 642
J-3. Future Generation Capacity Additions 643
J-4. List of Projects uptill 2047 (Committed + Candidate) 645
J-5. Annual Capacity Factors (%age) 657
J-6. Annual Energy Generation 2020-30 (GWh) 675
J-7. Annual Energy Generation 2030-47 (GWh) 693
J-8. Year wise Cost Breakup-Discounted Prices 711
J-9. Year wise Cost Breakup-Un-Discounted Prices (k$) 712
J-10. Year wise Nominal Capacity Addition (MW) 713
J-11. IGCEP Generation Mix 2020-2047 (GWh) 714
J-12. IGCEP Generation Mix 2020-47 (MW) 717

J-13. IGCEP Monthly Generation Mix 2019-47 (GWh) 720
J-14. Year-wise Present Worth and Un-Discounted Cost 726
Annexure K: Inclusion of 50% of Total Load Management Scenario 728
K-1. Annual Energy Generation Vs Annual Energy Demand (GWh) 728
K-2. Nominal Capacity Vs Peak Demand (MW) 2020-47 728
K-3. Future Generation Capacity Additions 729
K-4. List of Projects uptill 2047 (Committed + Candidate) 731
K-5. Annual Capacity Factors (%age) 743
K-6. Annual Energy Generation 2020-30 (GWh) 761
K-7. Annual Energy Generation 2030-47 (GWh) 779
K-8. Year wise Cost Breakup-Discounted Prices 797
K-9. Year wise Cost Breakup-Un-Discounted Prices (k$) 798
K-10. Year wise Nominal Capacity Addition (MW) 799
K-11. IGCEP Generation Mix 2020-2047 (GWh) 800
K-12. IGCEP Generation Mix 2020-47 (MW) 803
K-13. IGCEP Monthly Generation Mix 2019-47 (GWh) 806
K-14. Year-wise Present Worth and Un-Discounted Cost 812
Annexure L: Excluding Load Management Scenario 814
L-1. Annual Energy Generation Vs Annual Energy Demand (GWh) 814
L-2. Nominal Capacity Vs Peak Demand (MW) 2020-47 814
L-3. Future Generation Capacity Additions 815
L-4. List of Projects uptill 2047 (Committed + Candidate) 817
L-5. Annual Capacity Factors (%age) 829
L-6. Annual Energy Generation 2020-30 (GWh) 847
L-7. Annual Energy Generation 2030-47 (GWh) 865
L-8. Year wise Cost Breakup-Discounted Prices 883
L-9. Year wise Cost Breakup-Un-Discounted Prices (k$) 884
L-10. Year wise Nominal Capacity Addition (MW) 885
L-11. IGCEP Generation Mix 2020-2047 (GWh) 886
L-12. IGCEP Generation Mix 2020-47 (MW) 889

L-13. IGCEP Monthly Generation Mix 2019-47 (GWh)..... 892
L-14. Year-wise Present Worth and Un-Discounted Cost 898
Annexure M: Excluding Load Management, EV and NPHS Demand Scenario 900
M-1. Annual Energy Generation Vs Annual Energy Demand (GWh).... 900
M-2. Nominal Capacity Vs Peak Demand (MW) 2020-47 900
M-3. Future Generation Capacity Additions 901
M-4. List of Projects uptill 2047 (Committed + Candidate)..... 903
M-5. Annual Capacity Factors (%age) 915
M-6. Annual Energy Generation 2020-30 (GWh) 933
M-7. Annual Energy Generation 2030-47 (GWh) 951
M-8. Year wise Cost Breakup-Discounted Prices..... 969
M-9. Year wise Cost Breakup-Un-Discounted Prices (k$) 970
M-10. Year wise Nominal Capacity Addition (MW) 971
M-11. IGCEP Generation Mix 2020-2047 (GWh) 972
M-12. IGCEP Generation Mix 2020-47 (MW) 975
M-13. IGCEP Monthly Generation Mix 2019-47 (GWh)..... 978
M-14. Year-wise Present Worth and Un-Discounted Cost 984
..... 986
Annexure N: Jamshoro CFPP unit 2 as Candidate Scenario 986
N-1: Annual Energy Generation Vs Annual Energy Demand (GWh).... 986
N-2: Nominal Capacity Vs Peak Demand (MW) 2020-47 986
N-3: Future Generation Capacity Additions 987
N-4: List of Projects uptill 2047 (Committed + Candidate)..... 989
N-5: Annual Capacity Factors (%age) 1001
N -6: Annual Energy Generation 2020-30 (GWh) 1019
N-7: Annual Energy Generation 2030-47 (GWh) 1033
N-8: Year wise Cost Breakup-Discounted Prices..... 1051
N-9: Year wise Cost Breakup-Un-Discounted Prices (k$) 1052
N-10: Year wise Nominal Capacity Addition (MW) 1053
N-11: IGCEP Generation Mix 2020-2047 (GWh) 1054

N-12: IGCEP Generation Mix 2020-47 (MW) 1057

N-13: IGCEP Monthly Generation Mix 2019-47 (GWh)..... 1060

N-14: Year-wise Present Worth and Un-Discounted Cost 1066

A-1. Projected GDP Growth by Sector (Country) – Low

GDP Growth Rate (%)				
FY	Gross Domestic Product (%)			
	Total	Agriculture	Industrial	Commercial
2018-19 *	3.29	0.85	1.40	4.71
2019-20	3.00	1.25	1.30	3.80
2020-21	3.30	1.50	1.94	4.04
2021-22	3.60	1.75	2.58	4.28
2022-23	3.90	2.00	3.22	4.52
2023-24	4.20	2.25	3.86	4.76
2024-25	4.50	2.50	4.50	5.00
2025-26	4.50	2.50	4.50	5.00
2026-27	4.50	2.50	4.50	5.00
2027-28	4.50	2.50	4.50	5.00
2028-29	4.50	2.50	4.50	5.00
2029-30	4.50	2.50	4.50	5.00
2030-31	4.50	2.50	4.50	5.00
2031-32	4.50	2.50	4.50	5.00
2032-33	4.50	2.50	4.50	5.00
2033-34	4.50	2.50	4.50	5.00
2034-35	4.50	2.50	4.50	5.00
2035-36	4.50	2.50	4.50	5.00
2036-37	4.50	2.50	4.50	5.00
2037-38	4.50	2.50	4.50	5.00
2038-39	4.50	2.50	4.50	5.00
2039-40	4.50	2.50	4.50	5.00
2040-41	4.50	2.50	4.50	5.00
2041-42	4.50	2.50	4.50	5.00
2042-43	4.50	2.50	4.50	5.00
2043-44	4.50	2.50	4.50	5.00
2044-45	4.50	2.50	4.50	5.00
2045-46	4.50	2.50	4.50	5.00
2046-47	4.50	2.50	4.50	5.00

* *Actual figures taken from Economic Survey of Pakistan 2018-19*

A-2. Projected GDP Growth by Sector (Country) – Normal

GDP Growth Rate (%)				
FY	Gross Domestic Product (%)			
	Total	Agriculture	Industrial	Commercial
2018-19*	3.29	0.85	1.40	4.71
2019-20	4.00	3.50	2.30	4.80
2020-21	4.30	3.50	2.94	5.04
2021-22	4.60	3.50	3.58	5.28
2022-23	4.90	3.50	4.22	5.52
2023-24	5.20	3.50	4.86	5.76
2024-25	5.50	3.50	5.50	6.00
2025-26	5.50	3.50	5.50	6.00
2026-27	5.50	3.50	5.50	6.00
2027-28	5.50	3.50	5.50	6.00
2028-29	5.50	3.50	5.50	6.00
2029-30	5.50	3.50	5.50	6.00
2030-31	5.50	3.50	5.50	6.00
2031-32	5.50	3.50	5.50	6.00
2032-33	5.50	3.50	5.50	6.00
2033-34	5.50	3.50	5.50	6.00
2034-35	5.50	3.50	5.50	6.00
2035-36	5.50	3.50	5.50	6.00
2036-37	5.50	3.50	5.50	6.00
2037-38	5.50	3.50	5.50	6.00
2038-39	5.50	3.50	5.50	6.00
2039-40	5.50	3.50	5.50	6.00
2040-41	5.50	3.50	5.50	6.00
2041-42	5.50	3.50	5.50	6.00
2042-43	5.50	3.50	5.50	6.00
2043-44	5.50	3.50	5.50	6.00
2044-45	5.50	3.50	5.50	6.00
2045-46	5.50	3.50	5.50	6.00
2046-47	5.50	3.50	5.50	6.00

* Actual figures taken from Economic Survey of Pakistan 2018-19.

A-3. Projected GDP Growth by Sector (Country) - High

GDP Growth Rate (%)				
FY	Gross Domestic Product (%)			
	Total	Agriculture	Industrial	Commercial
2018-19*	3.29	0.85	1.40	4.71
2019-20	5.00	1.50	3.30	5.80
2020-21	5.30	2.10	3.94	6.04
2021-22	5.60	2.70	4.58	6.28
2022-23	5.90	3.30	5.22	6.52
2023-24	6.20	3.90	5.86	6.76
2024-25	6.50	4.50	6.50	7.00
2025-26	6.50	4.50	6.50	7.00
2026-27	6.50	4.50	6.50	7.00
2027-28	6.50	4.50	6.50	7.00
2028-29	6.50	4.50	6.50	7.00
2029-30	6.50	4.50	6.50	7.00
2030-31	6.50	4.50	6.50	7.00
2031-32	6.50	4.50	6.50	7.00
2032-33	6.50	4.50	6.50	7.00
2033-34	6.50	4.50	6.50	7.00
2034-35	6.50	4.50	6.50	7.00
2035-36	6.50	4.50	6.50	7.00
2036-37	6.50	4.50	6.50	7.00
2037-38	6.50	4.50	6.50	7.00
2038-39	6.50	4.50	6.50	7.00
2039-40	6.50	4.50	6.50	7.00
2040-41	6.50	4.50	6.50	7.00
2041-42	6.50	4.50	6.50	7.00
2042-43	6.50	4.50	6.50	7.00
2043-44	6.50	4.50	6.50	7.00
2044-45	6.50	4.50	6.50	7.00
2045-46	6.50	4.50	6.50	7.00
2046-47	6.50	4.50	6.50	7.00

* Actual figures taken from Economic Survey of Pakistan 2018-19.

A-4. Inclusion of 25% & 50% of Total Load Management

Years	Inclusion of 25% of Total Load Management		Inclusion of 50% of Total Load Management	
	Peak Demand (MW)	Generation GWh	Peak Demand (MW)	Generation GWh
2019-20	23,689	136,959	24,835	143,586
2020-21	25,858	146,101	26,769	151,249
2021-22	28,149	157,813	28,811	161,527
2022-23	30,043	167,381	30,463	169,719
2023-24	31,814	176,135	32,012	177,228
2024-25	33,549	185,149	33,549	185,149
2025-26	35,326	194,337	35,326	194,337
2026-27	37,182	203,899	37,182	203,899
2027-28	39,260	214,603	39,260	214,603
2028-29	41,537	226,322	41,537	226,322
2029-30	43,820	237,996	43,820	237,996
2030-31	46,115	250,462	46,115	250,462
2031-32	48,579	263,841	48,579	263,841
2032-33	51,310	278,676	51,310	278,676
2033-34	54,237	294,572	54,237	294,572
2034-35	57,414	311,828	57,414	311,828
2035-36	60,816	330,304	60,816	330,304
2036-37	64,479	350,196	64,479	350,196
2037-38	68,399	371,490	68,399	371,490
2038-39	72,606	394,338	72,606	394,338
2039-40	77,110	418,798	77,110	418,798
2040-41	78,821	428,094	78,821	428,094
2041-42	83,155	451,631	83,155	451,631
2042-43	87,577	475,646	87,577	475,646
2043-44	91,675	497,903	91,675	497,903
2044-45	95,729	519,925	95,729	519,925
2045-46	99,480	540,294	99,480	540,294
2046-47	103,065	559,765	103,065	559,765

A-5. IMF GDP Projections and Excluding Load Management with and without EVs & NPHS

Years	IMF Projected GDP		Excluding Load Management with EVs & NPHS		Excluding Load Management without EVs & NPHS	
	Peak Demand (MW)	Generation GWh	Peak Demand (MW)	Generation GWh	Peak Demand (MW)	Generation GWh
2019-20	25,930	151,051	22,543	130,335	22,056	127,520
2020-21	26,468	153,952	24,947	140,955	23,932	135,218
2021-22	27,078	157,267	27,486	154,100	25,918	145,309
2022-23	27,830	161,391	29,624	165,045	27,472	153,055
2023-24	28,749	166,466	31,617	175,042	29,441	162,996
2024-25	29,874	172,719	33,549	185,149	31,348	173,003
2025-26	31,119	179,643	35,326	194,337	33,087	182,020
2026-27	32,492	187,288	37,182	203,899	34,882	191,286
2027-28	33,998	195,669	39,260	214,603	36,858	201,475
2028-29	35,641	204,814	41,537	226,322	38,963	212,300
2029-30	37,429	214,759	43,820	237,996	41,239	223,977
2030-31	39,370	225,553	46,115	250,462	43,534	236,444
2031-32	41,455	237,134	48,579	263,841	45,998	249,824
2032-33	43,695	249,566	51,310	278,676	48,730	264,662
2033-34	46,104	262,921	54,237	294,572	51,657	280,559
2034-35	48,701	277,301	57,414	311,828	54,834	297,817
2035-36	51,580	292,794	60,816	330,304	58,237	316,295
2036-37	54,661	309,326	64,479	350,196	61,899	336,188
2037-38	57,963	326,996	68,399	371,490	65,820	357,484
2038-39	61,507	345,911	72,606	394,338	70,028	380,334
2039-40	65,316	366,188	77,110	418,798	74,532	404,796
2040-41	69,195	387,936	78,821	428,094	76,243	414,093
2041-42	73,188	410,321	83,155	451,631	80,577	437,632
2042-43	77,309	433,426	87,577	475,646	84,999	461,648
2043-44	81,574	457,336	91,675	497,903	89,098	483,908
2044-45	85,998	482,138	95,729	519,925	93,153	505,931
2045-46	90,553	507,679	99,480	540,294	96,904	526,302
2046-47	95,263	534,083	103,065	559,765	100,489	545,775

A-6. GDP at Factor Cost Constant 2005-06, Consumer Price Index

FY	GDP Total	GDP Agriculture	GDP Industrial	GDP Commercial	CPI	CPI G.R.
	(Rs. Million)					
1970	1,267,148	521,916	186,873	579,134	3	-
1971	1,282,783	505,894	198,788	593,912	4	7.4%
1972	1,312,525	523,451	195,834	614,983	4	11.4%
1973	1,401,790	532,168	216,100	674,281	5	14.6%
1974	1,506,259	554,416	234,278	740,292	6	26.3%
1975	1,564,685	542,669	238,861	814,601	7	22.6%
1976	1,615,587	566,951	250,572	826,442	8	5.9%
1977	1,661,513	581,271	257,955	851,476	8	9.0%
1978	1,789,964	597,667	282,498	940,936	9	7.2%
1979	1,888,907	616,179	304,037	998,416	10	9.3%
1980	2,027,311	656,898	336,778	1,057,387	11	11.2%
1981	2,157,094	680,931	368,373	1,126,941	13	15.0%
1982	2,320,205	713,097	407,931	1,215,949	14	7.8%
1983	2,477,711	744,506	428,075	1,328,322	14	7.0%
1984	2,576,152	708,587	458,308	1,433,216	15	6.7%
1985	2,800,486	785,995	494,209	1,546,770	17	7.8%
1986	2,978,681	832,752	534,241	1,636,012	17	3.5%
1987	3,151,767	859,847	580,428	1,731,923	18	5.6%
1988	3,354,619	883,332	637,433	1,849,120	20	7.4%
1989	3,515,920	944,020	667,081	1,919,566	21	8.1%
1990	3,677,255	972,630	709,973	2,005,528	23	9.1%
1991	3,881,980	1,020,893	758,666	2,110,021	26	12.6%
1992	4,181,463	1,117,891	817,322	2,252,633	28	9.4%
1993	4,276,440	1,058,799	862,378	2,357,019	31	9.1%
1994	4,470,624	1,114,148	901,548	2,456,064	35	11.9%
1995	4,655,373	1,187,322	907,776	2,573,905	39	12.1%

FY	GDP Total	GDP Agriculture	GDP Industrial	GDP Commercial	CPI	CPI G.R.
	(Rs. Million)					
1996	4,962,585	1,326,513	950,655	2,702,388	43	10.3%
1997	5,047,083	1,328,153	947,564	2,799,969	48	12.5%
1998	5,223,424	1,388,155	1,005,511	2,846,025	51	6.5%
1999	5,441,961	1,415,205	1,054,993	2,988,080	53	3.7%
2000	5,654,536	1,501,445	1,068,409	3,112,150	56	5.1%
2001	5,765,774	1,468,754	1,112,558	3,208,310	57	2.5%
2002	5,945,199	1,470,272	1,142,575	3,361,116	59	3.7%
2003	6,226,156	1,531,248	1,190,981	3,536,447	61	1.9%
2004	6,692,079	1,568,451	1,384,670	3,743,003	66	8.5%
2005	7,291,537	1,670,176	1,552,429	4,060,859	71	8.7%
2006	7,715,777	1,775,346	1,616,157	4,324,274	77	7.6%
2007	8,142,969	1,836,125	1,741,085	4,565,759	82	7.0%
2008	8,549,148	1,869,310	1,888,600	4,791,238	100	21.5%
2009	8,579,987	1,934,691	1,790,263	4,855,033	117	17.0%
2010	8,801,394	1,939,132	1,851,565	5,010,697	129	10.1%
2011	9,120,336	1,977,178	1,935,022	5,208,136	146	13.7%
2012	9,470,255	2,048,794	1,984,316	5,437,145	163	11.0%
2013	9,819,055	2,103,600	1,999,207	5,716,248	175	7.4%
2014	10,217,056	2,156,117	2,089,776	5,971,163	190	8.6%
2015	10,631,649	2,202,043	2,198,027	6,231,579	198	4.5%
2016	11,116,802	2,205,433	2,323,169	6,588,200	204	2.9%
2017	11,696,934	2,253,565	2,428,902	7,014,467	212	4.2%
2018	12,343,500	2,342,373	2,548,496	7,452,631	221	3.9%
2019	12,750,126	2,362,209	2,584,105	7,803,812	235	6.5%

A-7. Category-Wise Nominal Tariff of NTDC and KE System

FY	Average Tariff (Paisa/kWh) NTDC				Average Tariff (Paisa/kWh) KE			
	Dom	Com	Ind	Agr	Dom	Com	Ind	Agr
1970	20	24	12	8	17	18	12	14
1971	20	25	13	8	17	17	12	13
1972	20	26	14	9	16	18	12	13
1973	20	27	14	10	17	21	15	15
1974	20	32	18	11	17	27	26	15
1975	21	36	21	12	17	30	29	14
1976	23	46	28	16	17	30	31	15
1977	25	53	34	16	18	36	32	14
1978	24	60	37	14	24	45	34	17
1979	29	72	46	21	28	52	40	23
1980	35	95	57	28	34	75	55	27
1981	40	100	63	32	39	96	69	46
1982	42	108	68	36	44	121	96	74
1983	43	118	76	38	44	148	127	68
1984	44	121	76	43	45	147	125	67
1985	44	123	78	38	44	145	124	68
1986	49	143	92	43	48	148	122	65
1987	48	140	89	37	48	142	118	64
1988	52	171	111	40	57	158	136	59
1989	62	213	133	46	73	219	136	71
1990	66	246	150	55	82	246	150	80
1991	76	276	166	57	92	282	169	95
1992	81	316	189	63	100	312	188	105
1993	84	331	199	66	101	309	188	106
1994	96	386	229	74	133	356	230	125
1995	110	427	268	94	136	421	278	136
1996	136	537	336	131	125	366	288	113

FY	Average Tariff (Paisa/kWh) NTDC				Average Tariff (Paisa/kWh) KE			
	Dom	Com	Ind	Agr	Dom	Com	Ind	Agr
1997	156	566	375	163	178	510	342	95
1998	185	655	411	187	245	622	382	159
1999	235	718	448	233	287	644	423	205
2000	233	704	416	231	297	715	426	273
2001	259	704	416	258	313	736	435	312
2002	318	708	419	293	344	744	452	347
2003	334	703	442	333	358	747	469	376
2004	434	685	446	351	376	760	495	254
2005	340	660	425	349	362	721	476	173
2006	345	1,003	425	340	366	721	472	137
2007	376	821	517	364	381	752	477	126
2008	464	946	568	429	422	779	514	124
2009	540	1,154	748	502	494	974	631	133
2010	656	1,324	894	615	579	1,107	711	115
2011	731	1,490	960	799	697	1,310	821	137
2012	841	1,664	1,090	935	765	1,324	875	173
2013	873	1,793	1,220	1,003	893	1,682	1,178	178
2014	948	2,127	1,583	1,202	895	1,722	1,484	800
2015	1,022	2,224	1,539	1,400	881	1,759	1,503	1,074
2016	1,048	2,017	1,375	1,266	1,159	1,786	1,349	1,083
2017	1,065	2,022	1,412	1,064	1,199	1,788	1,202	619
2018	1,114	2,104	1,492	1,125	1,196	1,798	1,169	563
2019	1,300	2,600	1,800	1,100	1,180	1,807	1,218	464

A-8. Category wise Real Tariff of NTDC and KE

FY	Real Tariff Paisa/kWh - NTDC				Real Tariff Paisa/kWh – KE			
	Dom	Com	Ind	Agr	Dom	Com	Ind	Agr
1970	571	698	360	246	487	516	341	405
1971	543	685	353	210	463	471	320	354
1972	494	635	338	221	399	439	302	314
1973	421	567	305	213	357	444	330	315
1974	336	538	298	181	282	462	431	254
1975	288	499	293	165	229	413	406	197
1976	300	605	366	202	215	392	399	199
1977	299	638	401	188	220	432	386	162
1978	270	665	417	160	272	505	381	187
1979	291	731	471	214	290	532	411	238
1980	317	868	524	261	311	689	501	247
1981	316	798	503	256	310	765	549	369
1982	308	797	501	265	323	898	710	545
1983	299	816	522	266	303	1,026	878	470
1984	284	786	495	276	289	955	812	434
1985	264	737	472	231	263	873	744	407
1986	288	830	534	251	278	858	709	379
1987	262	768	490	203	265	781	651	353
1988	268	878	570	204	294	812	696	303
1989	295	1,012	631	217	348	1,036	644	335
1990	287	1,068	653	237	357	1,069	652	349
1991	294	1,066	639	218	354	1,087	651	366
1992	284	1,113	666	223	352	1,100	664	371
1993	272	1,070	643	214	328	999	609	343
1994	277	1,113	661	213	385	1,028	665	361
1995	284	1,101	691	241	351	1,084	717	349
1996	318	1,254	785	305	292	854	673	263

FY	Real Tariff Paisa/kWh - NTDC				Real Tariff Paisa/kWh – KE			
	Dom	Com	Ind	Agr	Dom	Com	Ind	Agr
1997	323	1,174	778	338	370	1,059	709	197
1998	361	1,277	801	365	477	1,213	745	311
1999	441	1,351	843	439	541	1,212	795	386
2000	417	1,259	745	413	532	1,280	762	488
2001	452	1,228	726	450	546	1,285	759	545
2002	536	1,192	704	493	579	1,252	760	583
2003	551	1,160	730	550	590	1,233	774	620
2004	661	1,043	679	534	572	1,157	754	387
2005	476	924	595	489	507	1,009	666	242
2006	449	1,304	553	442	476	938	614	178
2007	457	998	628	442	463	913	579	153
2008	464	946	568	429	422	779	514	124
2009	461	986	639	429	422	832	539	114
2010	509	1,028	694	477	449	859	552	89
2011	499	1,017	656	546	476	895	561	94
2012	517	1,024	670	575	471	814	538	106
2013	500	1,027	699	575	512	964	675	102
2014	500	1,122	835	634	472	908	783	422
2015	516	1,122	777	706	445	888	758	542
2016	514	990	675	621	569	876	662	531
2017	502	952	665	501	565	842	566	292
2018	505	954	676	510	542	815	530	255
2019	553	1,107	766	468	502	769	519	198

A-9. Weighted Average of Tariff - Country

FY	Country (NTDC and KE)							
	Real Tariff Weighted Average				Nominal Tariff Weighted Average			
	Dom	Com	Ind	Agr	Dom	Com	Ind	Agr
1970	543	583	355	247	200	450	111	11
1971	516	556	344	211	194	420	114	9
1972	460	515	329	222	189	396	95	11
1973	398	493	312	213	163	351	93	11
1974	316	493	333	181	136	334	93	12
1975	266	447	323	165	123	316	93	13
1976	268	478	375	202	128	379	117	17
1977	268	515	397	188	132	404	120	17
1978	271	575	409	160	117	399	126	15
1979	291	655	463	214	82	323	104	22
1980	316	806	519	261	97	362	161	30
1981	314	782	513	257	119	437	156	33
1982	312	842	544	266	113	415	158	37
1983	300	908	590	267	106	426	160	40
1984	285	859	559	277	101	407	161	44
1985	264	794	526	231	96	381	157	39
1986	285	842	568	252	105	436	177	45
1987	262	774	522	204	94	405	167	38
1988	273	849	594	205	97	480	199	41
1989	306	1,022	633	217	109	568	231	47
1990	300	1,069	653	237	107	605	246	55
1991	304	1,075	641	219	113	626	251	57
1992	295	1,110	666	224	112	518	269	64
1993	280	1,053	637	215	112	511	271	67
1994	294	1,090	662	214	124	580	301	74
1995	293	1,097	695	242	134	584	333	94

FY	Country (NTDC and KE)							
	Real Tariff Weighted Average				Nominal Tariff Weighted Average			
	Dom	Com	Ind	Agr	Dom	Com	Ind	Agr
1996	314	1,158	768	305	161	709	405	132
1997	329	1,149	767	337	176	697	437	165
1998	376	1,262	792	364	207	806	476	188
1999	453	1,318	834	439	260	866	521	235
2000	430	1,263	748	414	254	822	477	232
2001	463	1,242	732	450	282	827	472	259
2002	541	1,205	714	493	343	817	466	294
2003	556	1,176	737	550	359	803	490	334
2004	650	1,067	691	533	462	763	485	352
2005	480	942	607	486	357	717	453	350
2006	452	1,230	563	440	358	1,064	446	341
2007	458	982	620	440	386	854	536	365
2008	459	911	559	426	464	946	568	429
2009	456	956	622	425	530	1,122	730	501
2010	502	994	669	473	638	1,266	860	614
2011	496	995	640	539	703	1,404	910	795
2012	511	982	650	568	799	1,537	1,026	929
2013	502	1,011	695	566	819	1,599	1,139	995
2014	496	1,071	827	630	885	1,887	1,472	1,191
2015	505	1,064	774	703	945	1,952	1,421	1,386
2016	522	963	673	619	967	1,773	1,268	1,254
2017	510	929	649	498	987	1,794	1,291	1,054
2018	510	925	654	506	1,032	1,867	1,369	1,116
2019	547	1,035	728	465	1,201	2,284	1,641	1,091

A-10. Electricity Consumption by Category (GWh) - NTDC System

FY	Dom	Com	Ind	Agr	Street-Light	Bulk	Others	Exp to KE	Total
1970	367	125	1,646	956	20	487	0	0	3,600
1971	382	152	1,689	1,080	24	638	0	0	3,966
1972	392	142	2,109	997	75	422	0	0	4,137
1973	462	165	2,236	1,184	22	530	0	0	4,599
1974	523	179	2,267	1,142	20	569	42	0	4,742
1975	566	184	2,245	1,531	20	604	63	0	5,212
1976	678	222	2,262	1,386	26	697	45	0	5,315
1977	780	246	2,357	1,400	29	597	43	0	5,452
1978	1,004	305	2,596	1,718	42	784	42	0	6,490
1979	1,240	336	2,770	1,666	70	856	43	0	6,981
1980	1,564	389	3,154	2,057	50	900	46	0	8,160
1981	1,858	445	3,482	2,125	58	1,056	44	0	9,068
1982	2,408	574	3,960	2,357	74	873	42	0	10,288
1983	2,866	634	4,427	2,546	78	992	44	0	11,587
1984	3,470	739	4,708	2,663	75	1,069	38	0	12,762
1985	3,887	796	5,061	2,783	77	1,115	37	0	13,756
1986	4,513	875	5,894	2,880	90	1,215	36	0	15,504
1987	5,357	991	6,436	3,452	110	1,361	38	0	17,745
1988	6,290	1,054	7,236	4,394	117	1,571	40	0	20,702
1989	6,939	1,068	7,578	4,356	127	1,795	35	82	21,982
1990	7,647	1,106	8,360	5,004	148	1,646	38	171	24,121
1991	8,617	1,152	9,115	5,596	178	1,700	33	194	26,585
1992	9,691	1,192	10,213	5,823	229	1,799	29	292	29,267
1993	11,220	1,303	10,913	5,595	195	1,925	27	94	31,272
1994	11,963	1,318	10,532	5,743	216	1,964	27	368	32,131
1995	13,448	1,490	10,604	6,220	252	2,112	22	884	35,032
1996	14,792	1,648	10,335	6,657	301	2,377	20	795	36,925
1997	15,594	1,757	10,115	7,018	308	2,485	19	1,233	38,529

FY	Dom	Com	Ind	Agr	Street-Light	Bulk	Others	Exp to KE	Total
1998	16,367	1,768	10,238	6,888	307	2,694	16	1,145	39,422
1999	16,927	1,825	9,945	5,575	159	2,646	15	1,808	38,900
2000	18,942	2,003	10,773	4,512	150	2,676	15	1,840	40,910
2001	20,019	2,120	11,744	4,896	146	2,634	14	1,811	43,384
2002	20,549	2,285	12,637	5,582	149	2,662	12	1,329	45,204
2003	20,855	2,516	13,462	5,986	166	2,626	10	1,801	47,421
2004	22,668	2,884	14,476	6,624	192	2,796	9	1,843	51,492
2005	24,049	3,192	15,568	6,921	227	2,892	12	2,416	55,278
2006	27,009	3,768	16,596	7,873	279	3,031	13	3,836	62,405
2007	28,944	4,289	17,603	8,097	316	3,252	13	4,905	67,419
2008	28,711	4,358	17,299	8,380	340	3,319	11	4,072	66,489
2009	27,755	4,203	16,035	8,695	347	3,188	10	5,014	65,248
2010	29,479	4,465	16,372	9,585	371	3,357	10	5,208	68,847
2011	30,972	4,683	17,700	8,847	374	3,607	10	5,449	71,642
2012	30,365	4,563	18,403	8,414	360	3,509	43	5,684	71,341
2013	30,329	4,435	18,636	7,548	351	3,659	60	5,463	70,481
2014	33,325	4,795	20,550	8,130	351	3,872	32	5,441	76,496
2015	34,567	4,853	21,086	7,866	330	3,909	33	5,427	78,071
2016	37,123	5,417	21,150	8,364	295	4,239	34	5,059	81,682
2017	41,412	6,114	20,067	9,063	298	4,566	31	5,077	86,628
2018	46,114	6,753	23,274	9,978	319	5,014	450	5,128	97,030
2019	45,590	6,629	24,285	9,676	291	5,082	2,335	4,957	98,844

A-11. Electricity Consumption by Category (GWh) - KE System

FY	Dom	Com	Ind	Agr	Streetlight & Others	Bulk	Total
1970	179	213	653	9	9	74	1,137
1971	190	227	710	9	10	115	1,261
1972	217	221	701	9	12	122	1,282
1973	257	247	834	8	14	138	1,498
1974	302	264	826	7	17	196	1,612
1975	351	284	812	8	19	142	1,616
1976	413	325	809	9	23	35	1,614
1977	498	367	727	10	36	43	1,681
1978	612	390	784	10	36	25	1,857
1979	314	206	439	5	15	13	992
1980	448	206	902	11	29	43	1,639
1981	748	416	932	9	18	11	2,134
1982	881	460	1,042	10	28	63	2,485
1983	929	501	1,036	13	30	70	2,579
1984	1,096	559	1,190	13	28	129	3,015
1985	1,204	579	1,256	13	31	770	3,852
1986	1,361	651	1,402	20	41	569	4,043
1987	1,482	723	1,560	19	36	310	4,130
1988	1,649	816	1,718	21	51	303	4,558
1989	1,743	853	1,863	22	60	225	4,765
1990	1,755	858	1,973	23	71	394	5,338
1991	1,782	914	2,002	24	84	163	5,011
1992	1,768	407	2,075	25	82	1,136	5,955
1993	1,985	419	2,118	26	92	1,240	6,397
1994	2,170	482	2,096	29	82	1,228	6,438
1995	2,135	451	1,924	32	73	1,016	5,839
1996	2,324	522	1,854	38	77	1,206	6,319
1997	2,145	484	1,863	67	82	998	5,730
1998	2,357	566	2,059	48	81	1,273	6,546
1999	2,311	556	2,254	43	66	901	6,146
2000	2,457	541	2,431	28	89	885	6,443
2001	2,683	653	2,604	28	66	889	6,945

FY	Dom	Com	Ind	Agr	Streetlight & Others	Bulk	Total
2002	2,623	665	2,504	26	62	839	6,738
2003	2,726	702	2,719	30	78	720	7,155
2004	3,135	804	2,890	44	70	874	7,992
2005	3,508	888	3,023	66	78	853	8,416
2006	3,760	962	3,206	76	74	982	9,298
2007	3,864	986	3,544	79	65	829	9,367
2008	4,263	1,153	3,398	95	74	1,069	10,052
2009	3,989	1,004	3,226	100	83	994	9,396
2010	4,168	1,091	3,387	104	87	1,068	9,905
2011	4,257	1,043	3,447	125	82	1,117	10,071
2012	4,564	1,128	3,342	134	118	991	10,277
2013	5,083	1,507	3,445	149	111	647	10,942
2014	5,488	1,507	3,568	160	106	624	11,453
2015	6,161	1,589	3,843	166	110	426	12,295
2016	6,596	1,685	3,830	163	163	428	12,865
2017	6,643	1,655	3,885	159	187	452	12,981
2018	7,173	1,755	4,124	151	186	471	13,860
2019	7,299	1,781	4,402	134	224	477	14,318

A-12. Load Shedding (GWh) - NTDC System

FY	Load Shedding – NTDC System (GWh)				
	Dom	Com	Ind	Agr	Total
2004	217	31	142	60	451
2005	111	17	73	30	231
2006	512	79	323	143	1,057
2007	875	143	547	234	1,798
2008	5,311	888	3,293	1,482	10,974
2009	9,773	1,630	5,827	2,927	20,157
2010	11,875	1,979	6,825	3,693	24,372
2011	11,107	1,852	6,559	3,031	22,550
2012	15,015	2,488	9,361	3,977	30,842
2013	14,677	2,385	9,279	3,485	29,827
2014	14,575	2,328	9,236	3,398	29,537
2015	16,309	2,544	10,224	3,551	32,627
2016	18,295	2,953	10,767	3,942	35,958
2017	18,162	2,952	9,196	3,807	34,118
2018	15,075	2,430	7,919	3,126	28,549
2019	14,433	2,210	7,609	2,797	27,049

A-13. Load Shedding by Category (GWh) - KE System

FY	Load Shedding KE (GWh)				
	Dom	Com	Ind	Agr	Total
2004	24	7	22	0	53
2005	13	4	11	0	28
2006	58	16	50	1	126
2007	94	26	87	2	208
2008	652	190	532	13	1,387
2009	841	231	695	19	1,785
2010	987	280	819	22	2,109
2011	503	135	416	13	1,068
2012	629	168	474	17	1,288
2013	637	195	441	18	1,291
2014	754	214	501	21	1,490
2015	750	198	475	20	1,443
2016	787	206	465	19	1,476
2017	1,160	297	691	27	2,175
2018	1,392	350	815	29	2,585
2019	885	222	543	16	1,666

A-14. Category Wise Number of Consumers - NTDC System

FY	Dom	Com	Ind	Agr	Street Light	Bulk & Others	Total
1971	930,350	238,147	64,494	50,212	587	434	1,284,224
1972	998,922	258,328	67,056	52,343	663	477	1,377,789
1973	1,070,192	275,273	72,158	58,472	684	530	1,477,309
1974	1,137,676	300,219	78,277	63,730	718	534	1,581,154
1975	1,232,621	322,252	80,730	69,687	740	560	1,706,590
1976	1,347,122	347,167	85,250	76,508	801	524	1,857,372
1977	1,498,747	376,284	91,365	81,813	926	722	2,049,857
1978	1,670,213	422,901	95,036	90,341	1,018	832	2,280,341
1979	1,866,550	462,950	100,946	95,666	1,315	787	2,528,214
1980	2,049,728	471,757	101,228	98,268	1,477	821	2,723,279
1981	2,479,453	571,800	111,484	104,108	2,090	1,010	3,269,945
1982	2,732,903	624,900	115,890	111,278	2,161	1,118	3,588,250
1983	2,989,397	674,600	119,417	114,390	2,390	1,225	3,901,419
1984	3,261,362	724,462	123,508	118,265	2,511	1,428	4,231,536
1985	3,500,171	770,465	128,441	120,905	2,447	1,541	4,523,970
1986	3,779,838	834,127	133,573	124,918	2,647	1,684	4,876,787
1987	4,106,424	898,118	139,537	130,034	2,801	1,772	5,278,686
1988	4,525,987	964,377	147,439	136,860	3,017	1,943	5,779,623
1989	5,077,686	1,039,033	153,042	143,869	3,462	2,075	6,419,167
1990	5,467,690	1,088,932	158,800	149,554	3,453	2,250	6,870,679
1991	5,805,382	1,134,754	162,624	152,169	3,531	2,261	7,260,721
1992	6,219,656	1,185,723	169,436	155,305	3,759	2,362	7,736,241
1993	6,622,977	1,221,223	172,145	153,088	3,829	2,488	8,175,750
1994	6,995,561	1,257,887	174,577	157,710	3,730	2,577	8,592,042
1995	7,376,032	1,342,946	179,392	162,303	3,954	2,649	9,067,276
1996	7,783,832	1,344,975	181,092	165,114	3,990	2,728	9,481,731
1997	8,154,894	1,354,940	184,301	167,245	4,064	3,168	9,868,612
1998	8,455,442	1,396,973	186,539	170,562	4,645	2,911	10,217,072
1999	8,911,587	1,517,199	190,084	173,078	4,708	2,979	10,799,635
2000	9,553,828	1,653,870	194,566	174,456	4,892	3,045	11,584,657
2001	10,045,035	1,737,199	195,511	180,411	4,993	3,195	12,166,344
2002	10,482,804	1,803,132	199,839	184,032	4,854	3,361	12,678,022

FY	Dom	Com	Ind	Agr	Street Light	Bulk & Others	Total
2003	11,043,530	1,867,226	206,336	191,961	5,441	3,739	13,318,233
2004	11,737,078	1,935,462	210,296	198,829	5,800	3,873	14,091,338
2005	12,490,189	1,983,216	212,233	200,756	6,171	3,677	14,896,242
2006	13,389,762	2,068,312	222,283	220,501	6,550	3,753	15,911,161
2007	14,354,365	2,151,971	233,162	236,255	6,990	3,811	16,986,554
2008	15,226,711	2,229,403	242,401	245,640	7,337	3,874	17,955,366
2009	15,859,373	2,291,628	253,089	258,368	7,680	3,976	18,674,114
2010	16,673,015	2,362,312	263,507	271,268	8,034	4,088	19,582,224
2011	17,322,140	2,421,221	273,067	280,603	8,386	4,066	20,309,483
2012	17,978,395	2,482,702	286,401	286,287	8,698	4,128	21,046,611
2013	18,713,537	2,550,808	296,849	301,115	9,107	4,184	21,875,600
2014	19,323,307	2,635,086	305,294	310,578	9,369	4,236	22,587,870
2015	20,148,495	2,723,708	315,116	318,081	9,554	4,293	23,519,247
2016	21,040,707	2,814,234	325,816	321,055	9,857	5,030	24,516,699
2017	21,991,479	2,905,517	336,045	323,524	10,124	5,114	25,571,803
2018	23,173,856	3,028,054	339,853	315,021	10,426	149,335	27,016,545
2019	24,465,300	3,144,247	342,949	326,656	10,567	183,350	28,473,069

A-15. Category Wise Number of Consumers - KE System

FY	Dom	Com	Ind	Agr	Street Light	Bulk	Total
1971	148,770	61,548	11,192	516	353	2,843	225,222
1972	169,778	62,110	12,298	540	372	2,855	247,953
1973	188,543	62,216	6,855	535	36	40	258,225
1974	220,868	62,816	7,610	528	36	40	291,898
1975	243,764	65,656	9,044	562	36	40	319,102
1976	267,129	73,959	10,788	609	46	396	352,927
1977	293,910	79,125	11,524	611	47	397	385,614
1978	318,129	84,587	12,155	620	49	396	415,936
1979	325,859	86,553	12,243	627	49	396	425,727
1980	358,758	64,143	12,585	630	51	396	436,563
1981	403,307	102,037	13,021	637	50	396	519,448
1982	442,230	112,059	13,543	626	51	396	568,905
1983	472,698	122,322	14,335	742	53	396	610,546
1984	502,563	130,985	14,986	783	53	396	649,766
1985	541,671	142,575	15,964	792	53	396	701,451
1986	586,918	160,016	16,835	931	53	398	765,151
1987	627,154	176,865	17,927	972	56	402	823,376
1988	664,730	193,912	19,185	1,001	56	402	879,286
1989	699,564	205,199	20,180	1,051	60	402	926,456
1990	745,375	219,052	20,731	1,066	68	406	986,698
1991	794,998	236,342	21,825	1,062	70	407	1,054,704
1992	834,177	250,196	22,849	1,156	78	407	1,108,863
1993	875,827	263,807	24,404	1,212	80	908	1,166,238
1994	948,107	282,524	26,268	1,253	80	931	1,259,163
1995	948,107	282,524	26,268	1,253	80	931	1,259,163
1996	972,105	286,154	26,221	1,251	137	666	1,286,534
1997	1,010,123	297,544	27,272	1,276	153	965	1,337,333
1998	1,046,423	311,284	28,046	1,341	153	976	1,388,223
1999	1,093,765	323,135	29,041	1,398	152	1,014	1,448,505

FY	Dom	Com	Ind	Agr	Street Light	Bulk	Total
2000	1,229,532	346,648	29,777	1,548	159	1,055	1,608,719
2001	1,269,912	366,611	30,339	1,594	157	1,107	1,669,720
2002	1,294,002	355,080	30,623	1,650	157	1,137	1,682,649
2003	1,306,748	355,581	20,071	1,526	158	959	1,685,043
2004	1,349,375	377,235	20,112	1,589	163	999	1,749,473
2005	1,398,576	395,719	21,220	1,775	123	823	1,818,236
2006	1,447,728	409,452	21,871	1,893	138	887	1,881,969
2007	1,494,669	425,001	21,920	2,007	69	1,408	1,945,074
2008	1,518,644	433,416	21,453	2,038	140	1,415	1,977,106
2009	1,531,971	437,463	20,751	2,073	112	1,376	1,993,746
2010	1,582,426	445,442	20,703	2,157	71	1,484	2,052,283
2011	1,632,604	452,667	20,595	2,233	57	1,467	2,109,623
2012	1,659,766	456,537	20,537	2,536	67	426	2,139,869
2013	1,660,768	452,329	20,462	2,616	66	368	2,136,609
2014	1,650,034	438,150	20,464	2,410	74	204	2,111,336
2015	1,694,779	438,683	20,609	2,484	77	199	2,156,831
2016	1,758,467	444,687	20,625	2,623	72	203	2,226,677
2017	1,945,091	456,087	20,852	2,615	74	201	2,424,920
2018	2,096,451	463,670	20,647	2,398	74	195	2,583,435
2019	2,298,647	474,598	20,840	2,329	93	11,563	2,808,070

A-16. Category Wise Number of Consumers - Country

FY	Dom	Com	Ind	Agr	Street Light	Bulk & Others	Total
1970	1,001,355	276,044	71,731	46,949	902	3,130	1,400,111
1971	1,079,120	299,695	75,686	50,728	940	3,277	1,509,446
1972	1,168,700	320,438	79,354	52,883	1,035	3,332	1,625,742
1973	1,258,735	337,489	79,013	59,007	720	570	1,735,534
1974	1,358,544	363,035	85,887	64,258	754	574	1,873,052
1975	1,476,385	387,908	89,774	70,249	776	600	2,025,692
1976	1,614,251	421,126	96,038	77,117	847	920	2,210,299
1977	1,792,657	455,409	102,889	82,424	973	1,119	2,435,471
1978	1,988,342	507,488	107,191	90,961	1,067	1,228	2,696,277
1979	2,192,409	549,503	113,189	96,293	1,364	1,183	2,953,941
1980	2,408,486	535,900	113,813	98,898	1,528	1,217	3,159,842
1981	2,882,760	673,837	124,505	104,745	2,140	1,406	3,789,393
1982	3,175,133	736,959	129,433	111,904	2,212	1,514	4,157,155
1983	3,462,095	796,922	133,752	115,132	2,443	1,621	4,511,965
1984	3,763,925	855,447	138,494	119,048	2,564	1,824	4,881,302
1985	4,041,842	913,040	144,405	121,697	2,500	1,937	5,225,421
1986	4,366,756	994,143	150,408	125,849	2,700	2,082	5,641,938
1987	4,733,578	1,074,983	157,464	131,006	2,857	2,174	6,102,062
1988	5,190,717	1,158,289	166,624	137,861	3,073	2,345	6,658,909
1989	5,777,250	1,244,232	173,222	144,920	3,522	2,477	7,345,623
1990	6,213,065	1,307,984	179,531	150,620	3,521	2,656	7,857,377
1991	6,600,380	1,371,096	184,449	153,231	3,601	2,668	8,315,425
1992	7,053,833	1,435,919	192,285	156,461	3,837	2,769	8,845,104
1993	7,498,804	1,485,030	196,549	154,300	3,909	3,396	9,341,988
1994	7,943,668	1,540,411	200,845	158,963	3,810	3,508	9,851,205
1995	8,324,139	1,625,470	205,660	163,556	4,034	3,580	10,326,439
1996	8,755,937	1,631,129	207,313	166,365	4,127	3,394	10,768,265
1997	9,165,017	1,652,484	211,573	168,521	4,217	4,133	11,205,945

FY	Dom	Com	Ind	Agr	Street Light	Bulk & Others	Total
1998	9,501,865	1,708,257	214,585	171,903	4,798	3,887	11,605,295
1999	10,005,352	1,840,334	219,125	174,476	4,860	3,993	12,248,140
2000	10,783,360	2,000,518	224,343	176,004	5,051	4,100	13,193,376
2001	11,314,947	2,103,810	225,850	182,005	5,150	4,302	13,836,064
2002	11,776,806	2,158,212	230,462	185,682	5,011	4,498	14,360,671
2003	12,350,278	2,222,807	226,407	193,487	5,599	4,698	15,003,276
2004	13,086,453	2,312,697	230,408	200,418	5,963	4,872	15,840,811
2005	13,888,765	2,378,935	233,453	202,531	6,294	4,500	16,714,478
2006	14,837,490	2,477,764	244,154	222,394	6,688	4,640	17,793,130
2007	15,849,034	2,576,972	255,082	238,262	7,059	5,219	18,931,628
2008	16,745,355	2,662,819	263,854	247,678	7,477	5,289	19,932,472
2009	17,391,344	2,729,091	273,840	260,441	7,792	5,352	20,667,860
2010	18,255,441	2,807,754	284,210	273,425	8,105	5,572	21,634,507
2011	18,954,744	2,873,888	293,662	282,836	8,443	5,533	22,419,106
2012	19,638,161	2,939,239	306,938	288,823	8,765	4,554	23,186,480
2013	20,374,305	3,003,137	317,311	303,731	9,173	4,552	24,012,209
2014	20,973,341	3,073,236	325,758	312,988	9,443	4,440	24,699,206
2015	21,843,274	3,162,391	335,725	320,565	9,631	4,492	25,676,078
2016	22,799,174	3,258,921	346,441	323,678	9,929	5,233	26,743,376
2017	23,936,570	3,361,604	356,897	326,139	10,198	5,315	27,996,723
2018	25,270,307	3,491,724	360,500	317,419	10,500	149,530	29,599,980
2019	26,763,947	3,618,845	363,789	328,985	10,660	194,913	31,281,139

A-17. Consumption Per Customer (kWh)-NTDC System

FY	Dom	Com	Ind	Agr	Total
1971	411	638	26,194	21,518	48,761
1972	393	551	31,444	19,050	51,438
1973	431	600	30,992	20,244	52,267
1974	459	596	28,965	17,918	47,938
1975	459	572	27,803	21,972	50,806
1976	503	639	26,528	18,117	45,788
1977	520	654	25,803	17,108	44,085
1978	601	721	27,314	19,012	47,648
1979	664	725	27,442	17,419	46,250
1980	763	824	31,158	20,936	53,681
1981	749	779	31,234	20,408	53,170
1982	881	918	34,174	21,177	57,150
1983	959	940	37,069	22,257	61,226
1984	1,064	1,020	38,119	22,520	62,723
1985	1,111	1,033	39,406	23,018	64,568
1986	1,194	1,049	44,129	23,056	69,429
1987	1,304	1,103	46,122	26,551	75,080
1988	1,390	1,093	49,077	32,109	83,669
1989	1,367	1,028	49,519	30,280	82,194
1990	1,399	1,016	52,642	33,461	88,518
1991	1,484	1,015	56,047	36,773	95,319
1992	1,558	1,005	60,277	37,491	100,331
1993	1,694	1,067	63,392	36,548	102,701
1994	1,710	1,048	60,328	36,412	99,498
1995	1,823	1,110	59,108	38,323	100,364
1996	1,900	1,225	57,070	40,320	100,516
1997	1,912	1,297	54,883	41,962	100,054
1998	1,936	1,265	54,884	40,383	98,468
1999	1,899	1,203	52,317	32,213	87,632

FY	Dom	Com	Ind	Agr	Total
2000	1,983	1,211	55,368	25,861	84,422
2001	1,993	1,220	60,068	27,137	90,418
2002	1,960	1,267	63,235	30,329	96,792
2003	1,888	1,347	65,244	31,181	99,660
2004	1,931	1,490	68,837	33,317	105,575
2005	1,925	1,609	73,354	34,476	111,366
2006	2,017	1,822	74,663	35,705	114,207
2007	2,020	1,993	75,498	34,274	113,781
2008	1,888	1,955	71,364	34,116	109,320
2009	1,752	1,834	63,357	33,653	100,595
2010	1,770	1,891	62,127	35,334	101,123
2011	1,788	1,934	64,819	31,529	100,070
2012	1,690	1,838	64,253	29,390	97,173
2013	1,622	1,739	62,780	25,067	91,207
2014	1,726	1,820	67,309	26,177	97,033
2015	1,717	1,782	66,912	24,731	95,142
2016	1,764	1,925	64,914	26,052	94,656
2017	1,883	2,104	59,715	28,013	91,716
2018	1,990	2,230	68,483	31,674	104,377
2019	1,957	2,108	70,812	29,620	104,498

A-18. Consumption Per Customer (kWh) - KE System

FY	Dom	Com	Ind	Agr	Total
1971	1,277	3,688	63,438	17,442	85,845
1972	1,278	3,558	57,001	16,667	78,504
1973	1,363	3,970	121,663	14,953	141,949
1974	1,367	4,203	108,541	13,258	127,369
1975	1,440	4,326	89,783	14,235	109,784
1976	1,546	4,394	74,991	14,778	95,709
1977	1,694	4,638	63,086	16,367	85,785
1978	1,924	4,611	64,500	16,129	87,164
1979	964	2,380	35,857	7,974	47,175
1980	1,248	3,212	71,708	17,048	93,215
1981	1,854	4,075	71,591	14,239	91,758
1982	1,993	4,106	76,936	15,942	98,977
1983	1,966	4,098	72,251	17,466	95,781
1984	2,182	4,266	79,397	16,743	102,589
1985	2,222	4,059	78,684	16,578	101,543
1986	2,319	4,067	83,272	21,149	110,807
1987	2,364	4,086	87,026	19,444	112,920
1988	2,481	4,210	89,545	21,019	117,255
1989	2,492	4,159	92,305	20,628	119,584
1990	2,354	3,916	95,159	21,895	123,325
1991	2,242	3,867	91,730	22,599	120,437
1992	2,119	1,625	90,834	21,557	116,135
1993	2,267	1,588	86,773	21,766	112,393
1994	2,289	1,706	79,793	23,144	106,932
1995	2,252	1,596	73,263	25,451	102,562
1996	2,391	1,824	70,693	30,616	105,523
1997	2,124	1,626	68,322	52,774	124,846
1998	2,253	1,819	73,428	36,115	113,615
1999	2,112	1,720	77,604	31,059	112,495

FY	Dom	Com	Ind	Agr	Total
2000	1,998	1,561	81,627	18,127	103,313
2001	2,113	1,782	85,839	17,491	107,224
2002	2,027	1,874	81,769	15,479	101,148
2003	2,086	1,975	135,491	19,954	159,506
2004	2,324	2,133	143,697	27,923	176,077
2005	2,508	2,244	142,460	37,183	184,395
2006	2,597	2,350	146,606	40,085	191,638
2007	2,585	2,320	161,679	39,362	205,946
2008	2,807	2,660	158,393	46,614	210,474
2009	2,604	2,295	155,462	48,239	208,601
2010	2,634	2,449	163,599	48,215	216,898
2011	2,607	2,304	167,371	55,979	228,261
2012	2,750	2,471	162,731	52,839	220,790
2013	3,061	3,332	168,361	56,957	231,710
2014	3,326	3,439	174,355	66,390	247,510
2015	3,635	3,622	186,472	66,828	260,557
2016	3,751	3,789	185,697	62,143	255,380
2017	3,415	3,629	186,313	60,803	254,160
2018	3,421	3,785	199,738	62,969	269,914
2019	3,175	3,753	211,243	57,535	275,707

A-19. Consumption Per Customer (KWh) - Country

FY	Dom	Com	Ind	Agr	Total
1970	545	1,223	32,049	20,557	54,374
1971	530	1,264	31,702	21,477	54,972
1972	521	1,134	35,405	19,026	56,086
1973	571	1,221	38,858	20,196	60,846
1974	607	1,220	36,016	17,879	55,722
1975	621	1,208	34,047	21,910	57,785
1976	676	1,298	31,972	18,091	52,037
1977	713	1,346	29,979	17,103	49,140
1978	813	1,369	31,531	18,992	52,705
1979	709	986	28,352	17,358	47,404
1980	835	1,110	35,642	20,912	58,498
1981	904	1,278	35,455	20,370	58,006
1982	1,036	1,403	38,648	21,148	62,235
1983	1,096	1,425	40,840	22,226	65,588
1984	1,213	1,517	42,586	22,482	67,798
1985	1,260	1,506	43,749	22,976	69,490
1986	1,345	1,535	48,510	23,042	74,433
1987	1,445	1,594	50,779	26,498	80,315
1988	1,530	1,615	53,737	32,028	88,909
1989	1,503	1,544	54,503	30,210	87,761
1990	1,513	1,502	57,552	33,379	93,946
1991	1,576	1,507	60,269	36,675	100,026
1992	1,624	1,113	63,908	37,373	104,019
1993	1,761	1,160	66,295	36,431	105,647
1994	1,779	1,169	62,874	36,308	102,129
1995	1,872	1,194	60,916	38,225	102,207
1996	1,955	1,330	58,793	40,247	102,326
1997	1,936	1,356	56,615	42,044	101,951
1998	1,971	1,366	57,308	40,349	100,994
1999	1,923	1,294	55,668	32,204	91,088
2000	1,984	1,272	58,853	25,793	87,902
2001	2,006	1,318	63,530	27,053	93,907

FY	Dom	Com	Ind	Agr	Total
2002	1,968	1,367	65,698	30,197	99,230
2003	1,909	1,448	71,471	31,092	105,921
2004	1,972	1,595	75,372	33,274	112,212
2005	1,984	1,715	79,636	34,500	117,835
2006	2,074	1,909	81,108	35,742	120,832
2007	2,073	2,047	82,904	34,317	121,337
2008	1,972	2,070	78,440	34,219	116,698
2009	1,827	1,908	70,336	33,770	107,840
2010	1,845	1,979	69,519	35,436	108,780
2011	1,859	1,992	72,011	31,722	107,584
2012	1,780	1,936	70,842	29,596	104,156
2013	1,739	1,979	69,589	25,342	98,647
2014	1,852	2,051	74,033	26,487	104,424
2015	1,866	2,037	74,252	25,057	103,212
2016	1,918	2,179	72,105	26,344	102,547
2017	2,008	2,311	67,112	28,276	99,707
2018	2,109	2,437	76,000	31,911	112,456
2019	2,062	2,324	78,857	29,818	113,061

B-1. Existing Installed Capacity (As of December 2019)

#	Name of Power Plant	Fuel	Installed Capacity (MW)	De-rated Capacity (MW)
Public Sector				
WAPDA Hydro				
1	Allai Khwar	Hydro	121	121
2	Chashma Hydro	Hydro	184	184
3	Dubair Khwar	Hydro	130	130
4	Ghazi Brotha	Hydro	1,450	1,450
5	Golen Gol	Hydro	108	108
6	Jinnah Hydel	Hydro	96	96
7	Khan Khwar	Hydro	72	72
8	Mangla	Hydro	1,000	1,000
9	Nelum Jehlum	Hydro	969	969
10	Small Hydel	Hydro	128.4	128.4
11	Tarbela	Hydro	3,478	3,478
12	Tarbela Ext. 04	Hydro	1,410	1,410
13	Warsak	Hydro	243	243
Sub Total: WAPDA Hydro			**9,389**	**9,389**
GENCOs				
14	Jamshoro	RFO/RLNG	850	646
15	Kotri	Gas	174	106
Sub Total: GENCOs – I			**1,174**	**752**
16	Guddu 5-13	Gas	1,049	530
17	Guddu 747	Gas	747	721
Sub Total: GENCOs – II			**2,422**	**1,251**
18	Muzzafar Garh	FO/RLNG	1,350	1,184
19	GTPS Faisalabad	Gas	144	117
20	Nandi Pur	RLNG	525	450
Sub Total: GENCOs – III			**1,919**	**1,751**
Total GENCOs (Public Sector)			**5,515**	**3,754**
Private Sector				
Nuclear				

#	Name of Power Plant	Fuel	Installed Capacity	De-rated Capacity
			(MW)	
21	Chashnupp - I	Nuclear	325	300
22	Chashnupp - II	Nuclear	340	300
23	Chashnupp - III	Nuclear	340	315
24	Chashnupp - IV	Nuclear	340	315
Sub Total: Nuclear			**1,345**	**1,230**
Hydel IPPs				
25	Jagran	Hydro	30	30.4
26	Malakand - III	Hydro	81	81
27	New Bong Escape	Hydro	84	84
28	Darwal Khwar	Hydro	36.6	36.6
29	Gul Pur	Hydro	103	102
30	Patrind	Hydro	150	150
31	Pehur*	Hydro	18	18
32	Ranolia*	Hydro	17	17
33	Machai*	Hydro	2.6	2.6
Sub Total: IPPs Hydro			**522.2**	**521.6**
Thermal IPPs				
34	Ael	Gas	31	29
35	AES Lalpir	RFO	362	350
36	AES Pakgen	RFO	365	350
37	Agl	RFO	163	156
38	Atlas	RFO	219	214
39	Balloki	RLNG	1,223	1,178
40	Bhiki (Qatpl)	RLNG	1,230	1,140
41	China Hubco	Imp. Coal	1,320	1,250
42	Davis	RLNG	13	10
43	Engro	Gas	226	212
44	Engro Thar	Local Coal	660	602
45	FKPCL	RLNG	172	151
46	Foundation	Gas	184	167
47	Halmore	RLNG	225	197
48	H-B-Shah	RLNG	1,230	1,188

#	Name of Power Plant	Fuel	Installed Capacity	De-rated Capacity
			(MW)	
49	HCPC	Gas	140	129
50	Hubco	RFO	1,292	1,200
51	Hubco Narowal	RFO	225	214
52	Kapco	RFO	1,601	1,336
53	Kel	RFO	131	124
54	Liberty Power	Gas	225	212
55	Liberty Tech.	RFO	202	196.139
56	Nishat Chunian	RFO	209	196
57	Nishat Power	RFO	202	195
58	Oreint	RLNG	225	203
59	Port Qasim Coal	Imp. Coal	1,320	1,242
60	Reshma Power	RFO	97	85
61	Rousch	RLNG	450	395
62	Saba	RFO	136	126
63	Sahiwal (Coal) (HSR)	Imp. Coal	1,320	1,244
64	Saif	RLNG	225	203
65	Sapphire	RLNG	225	202
66	Uch	Gas	586	549
67	Uch - II	Gas	393	355
Sub Total (IPPs Fossil Fuels)			**16,827**	**15,600**
Bagasse Based Power Projects				
68	Almoiz	Bagasse	36	36
69	Chanar	Bagasse	22	22
70	Chiniot Power	Bagasse	63	63
71	Hamza Sugar	Bagasse	15	15
72	JDW - II (Sadiq Abad)	Bagasse	26	26
73	JDW - III (Ghotki)	Bagasse	27	27
74	RYKML	Bagasse	30	30
75	Thall Power (Layyah)	Bagasse	41	41
Sub Total Bagasse			**260**	**260**
Wind Power Projects				
76	Act	Wind	50	50

#	Name of Power Plant	Fuel	Installed Capacity	De-rated Capacity
			(MW)	
77	Artistic_wind	Wind	50	50
78	FFC	Wind	50	50
79	FWEL-I	Wind	50	50
80	FWEL-II	Wind	50	50
81	Gul Ahmed	Wind	50	50
82	Hawa	Wind	50	50
83	Jhimpir	Wind	50	50
84	Master	Wind	50	50
85	Metro_Power	Wind	50	50
86	Sachal	Wind	50	49.5
87	Sapphire_Wind	Wind	30	30
88	Three_Gorges_I	Wind	50	50
89	Three_Gorges_II	Wind	50	50
90	Three_Gorges_III	Wind	50	50
91	Tricon_A	Wind	50	50
92	Tricon_B	Wind	50	50
93	Tricon_C	Wind	50	50
94	UEP	Wind	99	99
95	Yunus	Wind	50	50
96	Zorlu_Wind	Wind	56	56
Sub Total Wind Power Plants			**1,085**	**1,085**
Solar Power Projects				
97	Quaid e Azam Solar	Solar	100	100
98	Appolo Solar	Solar	100	100
99	Best Green Solar	Solar	100	100
100	Crest Energy Solar	Solar	100	100
Sub Total Solar Power Plants			**400**	**400**
Total Public Sector			**14,904**	**13,143**
Total Private Sector			**20,423**	**19,096**
Total Installed Capacity / Capability			**35,344**	**32,240**

*. Plant is existing but not Connected to NTDC system.

B-2. Cost Related Data in Respect of Existing and Committed Thermal Plants

Sr.#	Plant Name	Fuel	Fixed O&M	Variable O&M	Fuel Cost
			($/Kw/year	($/MWh)	($/GJ)
Existing Power Plants					
GENCOs					
1	GTPS Faisalabad #5-9	RLNG	24.33	0.95	9.25
2	GTPS Kotri #1-7	Gas	199.57	0.59	5.59
3	Guddu 747 CC	Gas	17.68	3.27	5.59
4	Nandipur	RLNG	17.07	3.87	9.25
5	TPS Guddu Steam/CC #5-13	Gas	12.32	0.44	5.59
6	TPS Jamshoro #1	RFO	199.57	0.59	9.78
7	TPS Jamshoro #2-4	RFO	199.57	0.59	8.87
8	TPS Muzaffargarh #1-6	RFO	36.32	0.59	9.25
IPPs					
9	AES Pakgen	RFO	21.60	1.60	10.68
10	AGL	RFO	26.69	8.99	6.23
11	Altern	Gas	21.60	6.39	10.30
12	ATLAS	RFO	22.45	8.86	10.25
13	Balloki	RLNG	16.85	3.21	9.25
14	Bhikki	RLNG	17.68	3.24	9.25
15	C-1	Uranium	142.23	0	0.57
16	C-2	Uranium	133.91	0	0.57
17	C-3	Uranium	105.56	0	0.57
18	C-4	Uranium	104.66	0	0.57
19	China HUBCO	Imported Coal	24.34	3.17	3.65
20	Davis	RLNG	21.60	4.79	10.30
21	Engro	Gas	17.79	3.22	6.20
22	Engro Thar	Local Coal	26.18	6.81	1.37
23	FKPCL	RLNG	21.60	7.00	7.20
24	Foundation	Gas	24.70	3.65	6.19
25	Halmore	RLNG	19.35	3.74	10.25

Sr.#	Plant Name	Fuel	Fixed O&M	Variable O&M	Fuel Cost
			($/Kw/year	($/MWh)	($/GJ)
26	Haveli	RLNG	16.70	3.21	9.25
27	HCPC	Gas	21.60	4.73	4.99
28	HuB N	RFO	22.66	8.01	11.54
29	HUBCO	RFO	21.60	1.39	11.04
30	KAPCO	RFO	21.60	3.64	9.25
31	Kohinoor	RFO	21.60	5.57	8.87
32	Lalpir	RFO	21.60	1.60	10.50
33	Liberty	Gas	21.60	3.09	7.75
34	Liberty Tech	RFO	23.27	9.75	9.97
35	Nishat C	RFO	23.23	8.84	10.35
36	Nishat P	RFO	23.27	8.86	10.44
37	Orient	RLNG	26.33	2.19	10.25
38	Port Qasim	Imported Coal	24.48	3.14	3.58
39	Reshma	RFO	21.43	6.87	11.27
40	Rousch	RLNG	21.60	2.61	9.25
41	Saba	RFO	21.60	1.60	10.62
42	Sahiwal Coal	Imported Coal	24.48	1.14	4.77
43	Saif	RLNG	19.81	3.72	10.25
44	Saphire	RLNG	19.09	3.68	10.25
45	Uch	Gas	21.60	2.22	3.72
46	Uch-II	Gas	24.15	2.19	5.06
Committed Power Plants					
49	Trimmu	RLNG	12.87	2.94	9.25
50	Gwadar	Imported Coal	33.88	1.13	3.46
51	Jamshoro Coal	Imported Coal	6.52	1.90	4.22
52	Lucky	Local Coal	25.01	3.14	2.61
53	Siddiqsons	Local Coal	24.68	5.89	1.37
54	Thal Nova	Local Coal	26.75	6.18	1.37
55	Thar TEL	Local Coal	26.75	6.18	1.37
56	Thar-I (Shanghai Electric)	Local Coal	25.01	6.18	1.37
57	C-5	Uranium	42.69	0	0.49

Sr.#	Plant Name	Fuel	Fixed O&M	Variable O&M	Fuel Cost
			($/Kw/year	($/MWh)	($/GJ)
58	K-2	Uranium	34.75	0	0.49
59	K-3	Uranium	34.75	0	0.49

Note: All plant names with red color font indicate that basic data for these plants was not available hence; the data available in the previous planning studies has been utilized.

B-3. Revised Capital Cost Calculations of Candidate Hydro Power Plants

#	Name of Project	Capacity (MW)	Energy Generation (GWh)	Plant Life	Availability Year	Capital Cost without IDC (Million US$)			Capital Cost with IDC (Million US$)			Rev. Dec'19 Capital Cost with IDC (Million US$)			Build Cost
						Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	$/kW
1	Alka	1.8	11	50	2024	-	-	-	2.5	3	5.5	2.26	3.3	5.56	3,090
2	Arkari Gol	99	287	50	2025	-	-	-	137.25	77.3	214.55	113.94	82.55	196.49	1,985
3	Artistic-I	63	302	50	2026	-	-	-	100.39	86.32	186.71	100.39	86.32	186.71	2,964
4	Artistic-II	55	213	50	2026	-	-	-	67	57.61	124.61	67	57.61	124.61	2,266
5	Ashkot	300	1,243	50	2027	-	-	-	0	780.31	780.31	0	852.68	852.68	2,842
6	Asrit Kadam	215	931	50	2026	-	-	-	0	410.72	410.72	0	429.18	429.18	1,996
7	Athmuqam	450	1,981	50	2028	-	-	-	0	1,301.30	1,301.30	0	1,324.64	1,324.64	2,944
8	Balakot	300	1,056	50	2026	-	-	-	0.00	697.84	697.84	0.00	697.84	698.00	2,326
9	Balakot-II	100	538	50	2027	-	-	-	132	108	240	132	108	240	2,400
10	Balkani	7.75	42	50	2025	-	-	-	20.00	7.00	27.00	21.85	7.01	29	3,724
11	Barum Gol	39	142	50	2026	-	-	-	50.59	37.46	88.05	50.59	37.46	88.05	2,258
12	Basho	40	158	50	2026	-	-	-	72.3	37.85	110.15	61.04	40.83	101.86	2,547
13	Bata Kundi	96	363	50	2026	-	-	-	108.42	79.87	188.29	91.53	86.15	177.68	1,851
14	Bhan Khwar	35.6	121	50	2026	-	-	-	39.12	26.08	65.2	42.74	26.13	68.86	1,934
15	Bhimbal Katha	7.86	50	50	2025	-	-	-	8.51	5.67	14.19	7.54	5.77	13.31	1,694
16	Blue Star	3.021	18	50	2022	-	-	-	6.15	0	6.15	6.86	0	6.86	2,269

#	Name of Project	Capacity (MW)	Energy Generation (GWh)	Plant Life	Availability Year	Capital Cost without IDC (Million US$)			Capital Cost with IDC (Million US$)			Rev. Dec'19 Capital Cost with IDC (Million US$)			Build Cost
						Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	$/kW
17	BS Link Tail	9	29	50	2024	-	-	-	12.9	14.4	27.3	10.54	15.34	25.88	2,875
18	Bunji	7100	26,123	50	2030	-	-	-	9,119.60	4,378.60	13,498.20	8,237.57	4,822.45	13,060.01	1,839
19	Chakoti Hatian	500	2,440	50	2028	-	-	-	0	1,176.00	1,176.00	0	1,392.39	1,392.39	2,785
20	Chapri Charkhel	10.56	73	50	2023	-	-	-	31.27	0.00	31.27	30.26	0.00	30	2,866
21	Chenavan	3	10	50	2025	-	-	-	3.5	4.2	7.7	3.76	4.97	8.73	2,910
22	Chicha Watni	1.6	6	50	2024	-	-	-	2.2	2.7	4.9	1.8	2.88	4.67	2,921
23	Chiniot_HPP	80	272	50	2023	-	-	-	188.85	25.75	214.6	188.85	25.75	214.6	2,683
24	Chota Jabba	45	187	50	2028	-	102	102	0	121	121	0	123.01	123.01	2,734
25	CJ	25	76	50	2026	-	-	-	31.3	22.68	53.98	25.27	24.11	49.38	1,975
26	Dander	56	264	50	2028	-	71.9	71.9	0	85.22	85.22	0	85.223	85.223	1,522
27	Daral Khwar-II	9.5	44	50	2024	-	-	-	0	29.12	29.12	0	29.56	29.56	3,111
28	Dasu_2	2160	12,219	50	2032	-	-	-	2,631.00	2,185.00	4,816.00	2,221.00	2,356.80	4,577.80	1,059
29	Dhaddar	18	78	50	2023	-	-	-	29.94	20.83	50.77	25.26	22.42	47.68	2,649
30	Dhudnial	960	4,845	50	2043	-	-	-	1,680.00	1,120.00	2,800.00	1,335.82	1,170.36	2,506.17	2,611
31	Diamer Bhasha Dam	4500	17,787	50	2028	-	-	-	7,750.00	4,591.00	12,341.00	6,330.29	4,890.36	11,220.65	2,493
32	Dowarian	40	167	50	2024	-	-	-	31.95	26.11	58.06	26.97	28.16	55.13	1,378
33	Dubair Kalay	65.7	388	50	2028	-	140	140	0	165.942	165.942	0	165.942	165.942	2,526

#	Name of Project	Capacity (MW)	Energy Generation (GWh)	Plant Life	Availability Year	Capital Cost without IDC (Million US$)			Capital Cost with IDC (Million US$)			Rev. Dec'19 Capital Cost with IDC (Million US$)			Build Cost
						Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	$/kW
34	Engro_HPP	4.63	9	50	2025	-	-	-	7.3	6.95	14.25	5.89	7.39	13.28	2,869
35	Gabral Kalam	88	332	50	2025	-	-	-	87.02	77.57	164.59	95.07	77.71	172.78	1,963
36	Gabral Utror	82.9	317	50	2025	-	-	-	90.3	60.2	150.5	98.65	60.31	158.96	1,917
37	Gahrit	377	1,738	50	2028	-	-	-	1,351.03	486.59	1,837.62	1,125.84	524.75	1,650.60	4,378
38	Garhi Habibullah	100	538	50	2027	-	-	-	132	108	240	132	108	240	2,400
39	Ghail	1.2	2.74	50	2025	-	-	-	2.61	0	2.61	2.37	0	2.37	1,979
40	Ghanool	2.4	9	50	2023	-	-	-	4.56	1.14	5.7	4.15	1.29	5.44	2,267
41	Ghorband	20.6	130	50	2026	-	-	-	0	69.37	69.37	0	74.82	74.82	3,632
42	Gomat Nar	49.5	219	50	2026	-	-	-	0	163.45	163.45	0	177.58	177.58	3,587
43	Gugera	3.6	10	50	2024	-	-	-	4.4	6.7	11.1	3.55	7.12	10.67	2,965
44	Gwaldai	20.4	83	50	2025	-	-	-	19.5	19.5	39	19.5	19.5	39	1,912
45	Harigehl-Majeedgala	40.32	225	50	2024	-	-	-	75.71	32.45	108.16	61.13	34.49	95.62	2,372
46	Istaro-Booni	72	278	50	2030	-	-	-	150	110	260	139.18	120.67	259.85	3,609
47	Jabri Bedar	3.6	22	50	2024	-	-	-	0	12.41	12.41	0	13.66	13.66	3,794
48	Jagran-III	35	140	50	2023	-	-	-	26.63	40	66.63	24.23	45.3	69.53	1,987
49	Jagran-IV	22	95	50	2025	-	-	-	2.33	39.31	41.64	1.91	41.87	43.78	1,990
50	Jamshil	610	2,721	50	2029	-	-	-	844	691.2	1,535.20	844	691.2	1,535.20	2,517

#	Name of Project	Capacity (MW)	Energy Generation (GWh)	Plant Life	Availability Year	Capital Cost without IDC (Million US$)			Capital Cost with IDC (Million US$)			Rev. Dec'19 Capital Cost with IDC (Million US$)			Build Cost
						Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	$/kW
51	Jhing-II	6.05	29	50	2024	-	-	-	10	8.07	18.07	8.44	8.69	17.12	2,831
52	Kalam Asrit	212	870	50	2027	-	-	-	0	375.79	375.79	0	381.41	381.41	1,799
53	Kalkot Barikot	47	179	50	2024	-	-	-	113.07	29.42	142.49	101.61	32.38	134	2,851
54	Kari Mashkur	495	2056	50	2028	-	-	-	761.04	403.53	1,164.57	831.41	404.26	1,236	2,496
55	Kasur	2.54	6	50	2023	-	-	-	3.8	4.7	8.5	3.07	5	8.06	3,175
56	Kathai-II	8	41	50	2023	-	-	-	12.05	8.02	20.07	10.62	8.18	18.8	2,350
57	Kathai-III	1.21	3	50	2023	-	-	-	1.79	1.18	2.97	1.79	1.18	2.97	2,455
58	Khal	65	267	50	2027	-	-	-	104.5	85.5	190	104.5	85.5	190	2,923
59	Khanewal	1	0.48	50	2024	-	-	-	1.3	1.8	3.1	1.05	1.91	2.96	2,963
60	Khanki Barrage	14	23	50	2030	-	-	-	21	25.2	46.2	22.54	29.84	52.38	3,741
61	Khokhra	2.8	7	50	2024	-	-	-	4	5	9	3.27	5.33	8.59	3,069
62	Lower Palas	665	2,568	50	2024	-	-	-	680.21	583.72	1,263.93	555.61	621.78	1,177.39	1,771
63	Lower Spat Gah	496	2,084	50	2029	-	-	-	0	807	807	0	808.47	808.47	1,630
64	Luat	49	207	50	2025	-	-	-	0	151.27	151.27	0	160.8	160.8	3,282
65	Lucky_HPP	20	81	50	2025	-	-	-	30.09	32.6	62.69	27.92	35.76	63.68	3,184
66	Luspur Murigram	232	842	50	2028	-	-	-	453.03	177.1	630.13	494.92	177.42	672.34	2,898
67	Machai-III	1.72	10	50	2022	-	-	-	5.34	1.16	6.5	5.16	1.18	6.34	3,686

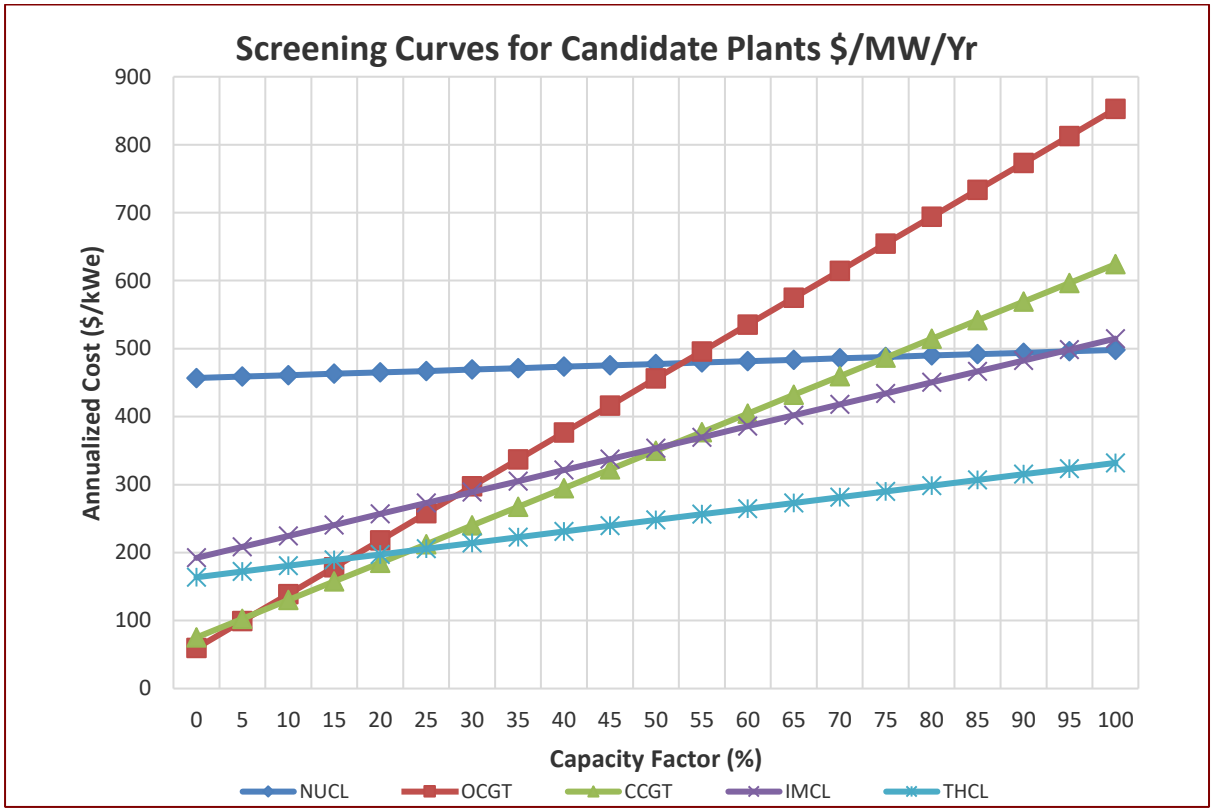
#	Name of Project	Capacity (MW)	Energy Generation (GWh)	Plant Life	Availability Year	Capital Cost without IDC (Million US$)			Capital Cost with IDC (Million US$)			Rev. Dec'19 Capital Cost with IDC (Million US$)			Build Cost
						Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	$/kW
68	Madian	157	679	50	2027	-	-	-	0	299.82	299.82	0	313.3	313.3	1,996
69	Mahandri	10.04	42	50	2024	-	-	-	19.69	10.3	29.99	16.09	10.97	27.06	2,695
70	Mahl	640	3,720	50	2029	-	-	-	0	992.98	992.98	0	1,057.73	1,057.73	1,653
71	Mahodand	45	195	50	2026	-	-	-	55	45	100	55	45	100	2,222
72	Mandi	3.3	9	50	2024	-	-	-	4.1	6.4	10.5	3.35	6.82	10.17	3,081
73	Mastuj	48.6	235	50	2026	-	-	-	122.08	27.35	149.43	99.72	29.13	128.85	2,651
74	Mehar	10.49	45	50	2024	-	-	-	14.8	17.9	32.7	12.09	19.07	31.16	2,970
75	Mid Ranjha	80	100	50	2043	-	-	-	164	110	274	158.61	111.65	270.26	3,378
76	Middle Palas	398	1,748	50	2046	-	-	-	531	354	885	492.7	388.33	881.03	2,214
77	Middle Spat Gah	501	1,876	50	2049	-	-	-	738	492	1,230.00	684.77	539.71	1,224.48	2,444
78	Mujigram	64.26	298	50	2030	-	-	-	142.48	35.62	178.1	132.2	39.07	171.27	2,665
79	Murree	12	41	50	2025	-	-	-	20.7	13.79	34.49	16.76	14.52	31.28	2,607
80	Nagdar	35	141	50	2024	-	-	-	35.42	31.11	66.53	31.83	34.25	66.08	1,888
81	Nandihaar	12.3	76	50	2025	-	-	-	0	47.1	47.1	0	51.84	51.84	4,215
82	Nandihaar-II	10.97	61	50	2024	-	-	-	25	10	35	24.2	10.18	34.37	3,134
83	Naran	188	700	50	2026	-	-	-	269.36	161.94	431.3	249.93	177.64	427.58	2,274
84	Nerai-Dubair	45.72	274	50	2028	-	84.42	84.4	0	100.06	100.06	0	100.06	100.06	2,189

#	Name of Project	Capacity (MW)	Energy Generation (GWh)	Plant Life	Availability Year	Capital Cost without IDC (Million US$)			Capital Cost with IDC (Million US$)			Rev. Dec'19 Capital Cost with IDC (Million US$)			Build Cost
						Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	$/kW
85	Nila Da Katha	34	144	50	2025	-	-	-	17.54	70.16	87.7	16.96	71.21	88.17	2,593
86	Okara	4.8	16	50	2027	-	-	-	7.1	7.7	14.8	5.75	8.11	13.86	2,887
87	Pashot	60.3	289	50	2028	-	112	112	0	132.42	132.42	0	132.421	132.421	2,196
88	Patan	2400	12,520	50	2026	-	-	-	2,235.00	2,331.00	4,566.00	1,859.42	2,514.82	4,374.24	1,823
89	Patrak Sheringhal	22	82	50	2024	-	-	-	63.65	16.68	80.33	57.20	18.36	76	3,434
90	Phandar	80	331	50	2026	-	-	-	71.6	80.7	152.3	65.05	90.94	155.99	1,950
91	Punjnad	15	37	50	2032	-	-	-	21	25	46	22.54	29.6	52.14	3,476
92	Qaditrabad	23	33	50	2033	-	-	-	31.5	38.25	69.75	28.66	43.32	71.98	3,130
93	QB Link	9.18	16	50	2027	-	-	-	12.4	13.95	26.35	10.04	14.69	24.73	2,694
94	Rajdhani	132	677	50	2029	-	-	-	0	173	173	0	244.27	244.27	1,851
95	Rasul	18	64	50	2023	-	-	-	25	29.1	54.1	20.42	31	51.42	2,857
96	Ravi	4.6	23	50	2024	-	-	-	6.75	7.46	14.21	6.26	8.18	14.45	3,141
97	Riali-III	3.072	24	50	2025	-	-	-	0	1.09	1.09	0	1.21	1.21	395
98	Sahiwal	4.8	18	50	2027	-	-	-	7.09	7.83	14.92	6.52	8.73	15.25	3,177
99	Sakhra-I	8	44	50	2025	-	-	-	10.38	7.68	18.06	9.19	7.81	17.01	2,126
100	Sakhra-II	8.6	38	50	2025	-	-	-	11.15	8.26	19.41	9.88	8.4	18.28	2,126
101	Sarral-Dhartian	8.51	44	50	2026	-	-	-	0	30.69	30.69	0	32.17	32.17	3,780

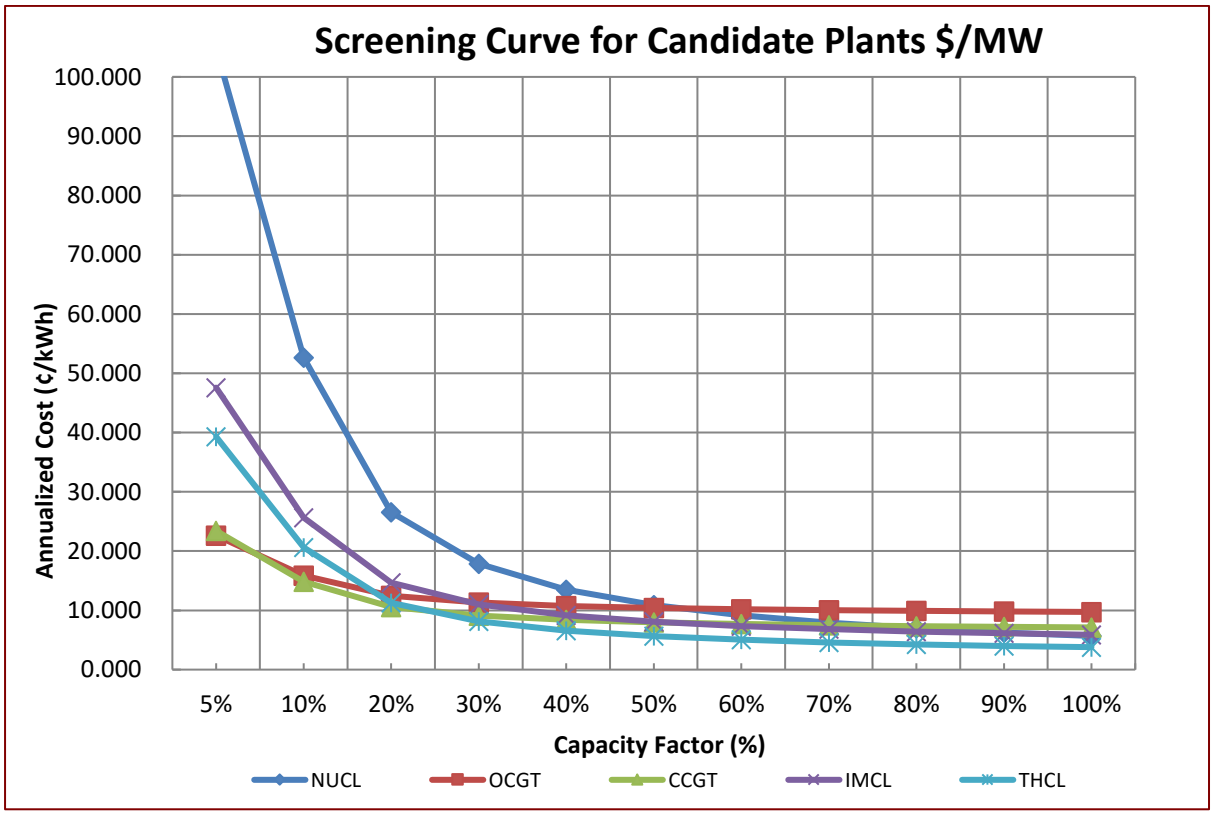
#	Name of Project	Capacity (MW)	Energy Generation (GWh)	Plant Life	Availability Year	Capital Cost without IDC (Million US$)			Capital Cost with IDC (Million US$)			Rev. Dec'19 Capital Cost with IDC (Million US$)			Build Cost
						Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	$/kW
102	Serai	6.8	23	50	2025	-	-	-	7.72	7.72	15.45	7.72	7.72	15.45	2,272
103	Shah Jiwana	80	325	50	2045	-	-	-	156.6	104.4	261	156.6	104.4	261	3,263
104	Shalfalam	60	288	50	2026	-	-	-	137.22	34.3	171.52	132.71	34.81	167.53	2,792
105	Sharmai	150	690	50	2024	-	-	-	0	400.78	400.78	0	416.84	416.84	2,779
106	Shigo Kas	102	457	50	2025	-	-	-	191.57	99.1	290.67	156.85	103.08	259.93	2,548
107	Shogosin	137	544	50	2027	-	-	-	254.07	112.18	366.25	208.03	116.68	324.71	2,370
108	Shounter	48	218	50	2024	-	-	-	15.99	90.61	106.6	12.71	94.68	107.4	2,237
109	Shushghai	144	499	50	2027	-	-	-	238.13	102.06	340.18	238.13	102.06	340.18	2,362
110	SHYOK	640	3,798	50	2028	-	-	-	1,206.00	650	1,856.00	1,206.00	650	1,856.00	2,900
111	Skardu	1200	5,280	50	2050	-	-	-	483	1,127.00	1,610.00	384.05	1,177.67	1,561.72	1,301
112	Soan	25	76	50	2031	-	-	-	41.4	32	73.4	33.52	33.7	67.22	2,689
113	Tangar	25.91	120	50	2024	-	-	-	35.29	34.21	69.49	28.82	36.44	65.26	2,519
114	Tangus	2200	9,026	50	2030	-	-	-	2,890.00	1,930.00	4,820.00	2,297.92	2,016.78	4,314.70	1,961
115	Taunsa	135	468	50	2025	-	-	-	235.5	170.52	406.02	192.36	181.64	374	2,770
116	Thakot-I	2154	10,533	50	2030	-	-	-	2,031.39	1,224.21	3,255.60	1,743.72	1,261.41	3,005.13	1,395
117	Thakot-II	964	4,796	50	2035	-	-	-	990.57	692.17	1,682.74	850.29	713.2	1,563.50	1,622
118	Thakot-III	1683	7,407	50	2029	-	-	-	1,279.62	962.99	2,242.61	1,098.41	992.25	2,090.66	1,242

#	Name of Project	Capacity (MW)	Energy Generation (GWh)	Plant Life	Availability Year	Capital Cost without IDC (Million US$)			Capital Cost with IDC (Million US$)			Rev. Dec'19 Capital Cost with IDC (Million US$)			Build Cost
						Local	Foreign	Total	Local	Foreign	Total	Local	Foreign	Total	$/kW
119	Torkhow	70	313	50	2027	-	140	140	0	0	0	0	129.71	129.71	1,853
120	TP	9	23	50	2024	-	-	-	12.9	15.1	28	13.85	17.88	31.73	3,525
121	Trappi	32	160	50	2025	-	-	-	77.37	19.33	96.7	68.53	19.67	88.2	2,756
122	Trident	7.55	26	50	2024	-	-	-	10.9	12.33	23.23	8.9	13.13	22.04	2,919
123	Trimmu_HPP	13	38	50	2032	-	-	-	17.5	22.5	40	14.29	23.97	38.26	2,943
124	Turtonas Uzghor	82.25	374	50	2025	-	-	-	106.43	98.17	204.6	94.27	99.89	194.16	2,361
125	UCC Bhambhwal	5	16	50	2027	-	-	-	7.1	7.9	15	5.75	8.32	14.07	2,814
126	Upper Palas	157	509	50	2046	-	-	-	212	142	354	196.71	155.77	352.48	2,245
127	Upper Spat Gah	277	730	50	2050	-	-	-	348	232	580	322.9	254.5	577.4	2,084
128	Wari	43.7	253	50	2025	-	-	-	77.84	57.63	135.47	61.89	60.22	122.11	2,794
129	Wazirabad	90	375	50	2030	-	-	-	148	98.7	246.7	143.14	100.18	243.32	2,704
130	Yulbo	2800	11,469	50	2027	-	-	-	3,680.00	2,450.00	6,130.00	2,926.07	2,560.16	5,486.23	1,959

B-4.1. Screening Curve for Candidate Thermal Plants $/MW/Yr



B-4.2. Screening Curve for Candidate Thermal Plants $/MW

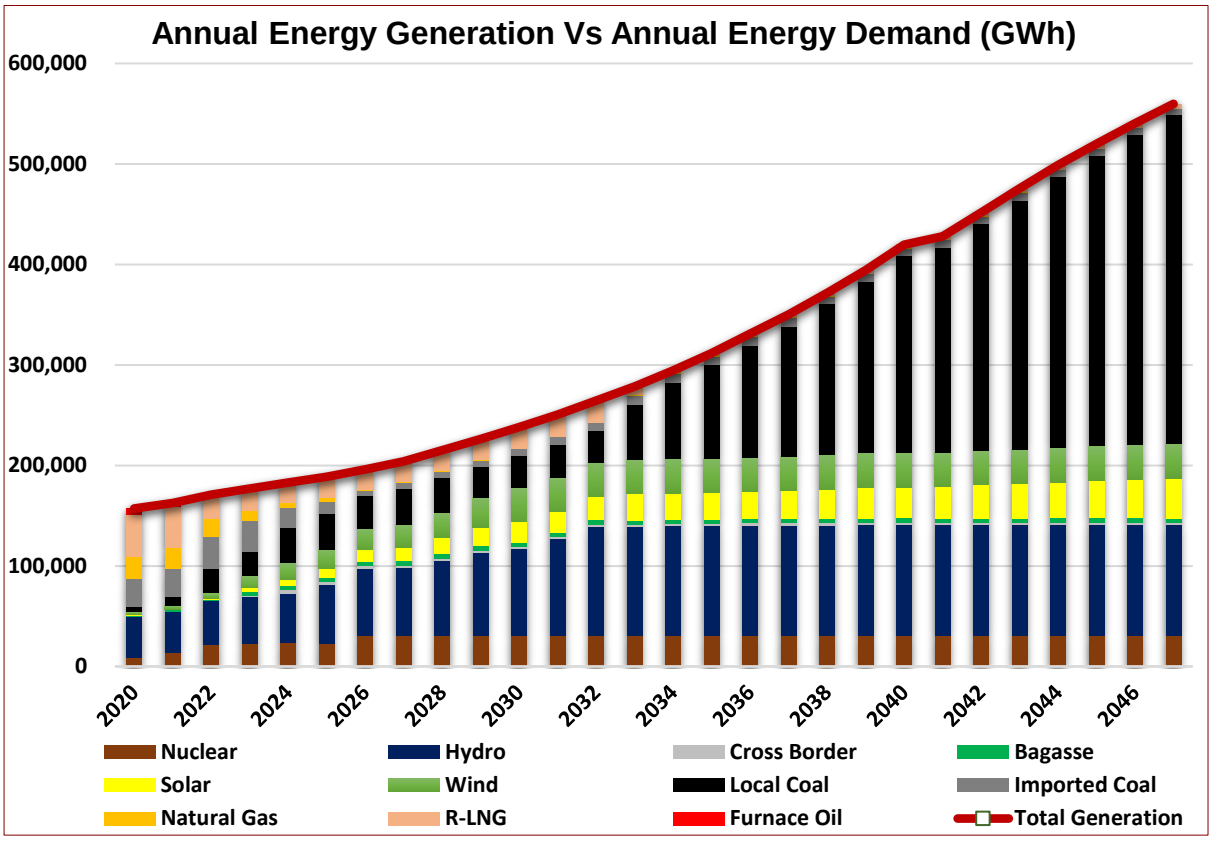


B-5. Year-wise Present Worth and Un-Discounted Cost

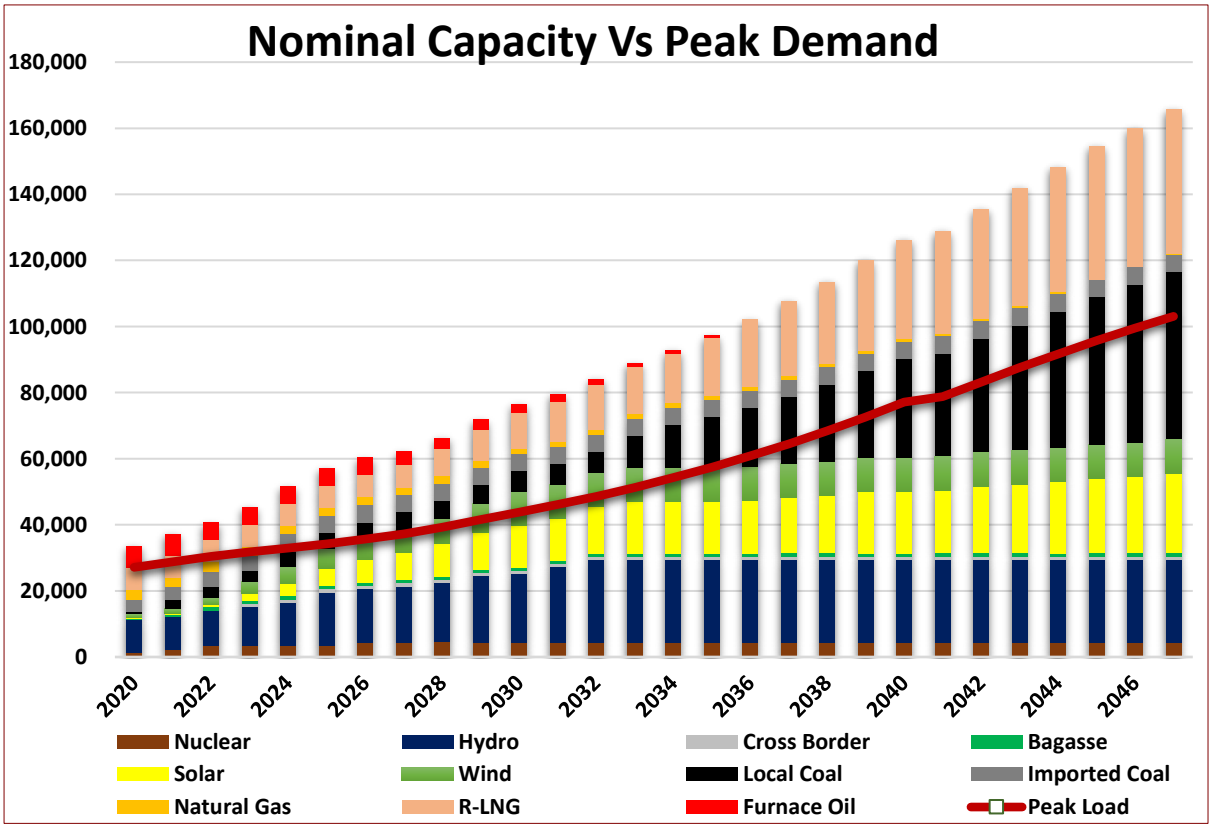
Year	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	-	956,722	5,751,312	6,708,034	6,708,034	-	956,722	5,751,312	6,708,034	6,708,034
2021	-	913,213	4,828,740	5,741,953	12,449,987	-	1,014,681	5,365,267	6,379,948	13,087,982
2022	-	909,992	3,537,939	4,447,931	16,897,919	-	1,123,447	4,367,826	5,491,273	18,579,255
2023	215,029	890,290	2,739,694	3,845,013	20,742,931	294,964	1,221,248	3,758,154	5,274,366	23,853,621
2024	511,136	876,831	2,111,682	3,499,649	24,242,580	779,052	1,336,428	3,218,537	5,334,017	29,187,639
2025	579,057	823,709	1,761,742	3,164,509	27,407,089	980,638	1,394,959	2,983,526	5,359,123	34,546,761
2026	608,447	791,391	1,404,241	2,804,080	30,211,169	1,144,901	1,489,142	2,642,328	5,276,371	39,823,133
2027	642,058	730,104	1,317,267	2,689,429	32,900,597	1,342,384	1,526,466	2,754,077	5,622,927	45,446,060
2028	683,448	686,495	1,191,705	2,561,648	35,462,246	1,587,690	1,594,768	2,768,399	5,950,856	51,396,916
2029	830,902	643,657	1,065,786	2,540,345	38,002,591	2,144,703	1,661,391	2,750,981	6,557,075	57,953,992
2030	940,954	593,972	980,002	2,514,928	40,517,519	2,698,629	1,703,496	2,810,620	7,212,744	65,166,735
2031	961,650	518,716	877,290	2,357,657	42,875,176	3,064,429	1,652,960	2,795,604	7,512,993	72,679,728
2032	963,445	475,957	777,625	2,217,027	45,092,203	3,411,275	1,685,223	2,753,343	7,849,841	80,529,569
2033	1,008,553	447,300	546,992	2,002,845	47,095,048	3,967,768	1,759,731	2,151,931	7,879,430	88,408,999
2034	1,022,063	421,836	454,644	1,898,543	48,993,591	4,467,687	1,843,946	1,987,358	8,298,990	96,707,989

Year	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2035	1,012,602	397,093	455,551	1,865,247	50,858,838	4,918,143	1,928,657	2,212,584	9,059,384	105,767,373
2036	1,001,325	373,676	466,000	1,841,000	52,699,838	5,403,744	2,016,577	2,514,813	9,935,134	115,702,507
2037	984,242	350,447	472,925	1,807,614	54,507,453	5,901,729	2,101,357	2,835,762	10,838,848	126,541,355
2038	969,280	331,816	468,331	1,769,427	56,276,880	6,457,792	2,210,713	3,120,240	11,788,745	138,330,100
2039	951,916	314,486	472,844	1,739,246	58,016,126	7,046,785	2,328,055	3,500,343	12,875,183	151,205,284
2040	933,975	298,333	468,704	1,701,012	59,717,139	7,682,189	2,453,868	3,855,217	13,991,274	165,196,558
2041	928,448	286,166	375,328	1,589,942	61,307,080	8,485,252	2,615,323	3,430,189	14,530,764	179,727,322
2042	892,657	262,544	370,343	1,525,544	62,832,624	9,064,611	2,666,041	3,760,705	15,491,357	195,218,680
2043	924,064	240,142	332,237	1,496,443	64,329,067	10,426,160	2,709,511	3,748,607	16,884,279	212,102,958
2044	947,658	223,912	287,419	1,458,989	65,788,057	11,880,408	2,807,098	3,603,259	18,290,766	230,393,724
2045	908,189	208,059	269,713	1,385,961	67,174,017	12,650,666	2,898,166	3,756,984	19,305,815	249,699,539
2046	902,141	204,398	237,322	1,343,861	68,517,878	13,962,693	3,163,527	3,673,094	20,799,314	270,498,853
2047	892,700	193,984	219,485	1,306,169	69,824,047	15,351,744	3,335,941	3,774,484	22,462,169	292,961,021

C-1. Annual Energy Generation Vs Annual Energy Demand (GWh)



C-2. Nominal Capacity Vs Peak Demand (MW) 2020-47



C-3. Future Generation Capacity Additions

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South MW	Midland MW	North MW	MW	MW
2020	-	-	-	-	-	-	-	-	-	-	0	0
2021	-	-	-	-	-	-	-	-	-	-	0	0
2022	-	-	-	-	-	-	-	-	-	-	0	0
2023	-	-	-	-	-	-	1,500	1,000	300	200	3,000	3,000
2024	-	1,514	-	-	-	3	1,500	1,000	300	89	4,405	7,405
2025	-	-	-	-	-	-	1,500	922	-	-	2,422	9,828
2026	-	-	-	-	-	3	1,500	673	-	-	2,176	12,004
2027	-	607	20	-	-	-	1,500	301	-	-	2,428	14,432
2028	-	-	-	1,577	-	-	1,500	784	-	-	3,861	18,292
2029	-	-	-	1,129	-	1,986	1,500	1,000	263	-	5,879	24,171
2030	-	607	-	2,162	-	639	1,500	1,000	300	200	6,408	30,579
2031	-	-	-	1,347	-	2,154	-	-	-	-	3,501	34,080
2032	-	-	-	1,228	-	2,160	1,442	-	-	-	4,830	38,911
2033	-	3,384	-	534	-	-	1,500	-	-	-	5,418	44,329

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South	Midland	North	MW	MW
								MW	MW	MW		
2034	-	3,313	-	848	-	-	-	-	-	-	4,161	48,490
2035	-	2,372	-	2,596	-	-	-	-	-	-	4,968	53,458
2036	-	2,431	-	2,904	-	-	307	-	-	-	5,642	59,100
2037	-	2,635	-	2,144	-	-	781	-	-	-	5,560	64,660
2038	-	3,115	-	2,045	-	-	685	-	-	-	5,845	70,505
2039	-	2,968	-	2,812	-	-	1,116	-	-	-	6,895	77,401
2040	-	3,567	-	3,001	-	-	-	-	-	-	6,568	83,969
2041	-	1,209	-	1,212	-	-	409	-	-	-	2,830	86,799
2042	-	3,371	-	2,393	-	-	1,221	-	-	-	6,985	93,784
2043	-	3,375	-	2,501	-	-	585	-	-	-	6,462	100,246
2044	-	3,370	-	2,009	-	-	803	-	-	-	6,182	106,428
2045	-	3,348	-	2,609	-	-	1,041	-	-	-	6,998	113,426
2046	-	3,308	528	1,596	-	-	505	-	-	-	5,938	119,363
2047	-	2,885	393	1,330	-	-	1,003	-	-	-	5,610	124,974
Total	**-**	**47,380**	**941**	**37,978**	**0**	**6,945**	**23,397**	**6,680**	**1,163**	**489**	**124,974**	

C-4. List of Projects uptill 2047 (Committed + Candidate)

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2020							
1	Zorlu Solar Pakistan Pvt. Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Jan-20
2	Jabori	Hydro	10	10	PEDO	Committed	Mar-20
3	Trimmu	RLNG	1,263	1,243	PPIB	Committed	Apr-20
4	Jhing	Hydro	15	15	AJK	Committed	Jun-20
5	Karora	Hydro	12	12	PEDO	Committed	Jun-20
6	Koto	Hydro	41	41	PEDO	Committed	Jun-20
Generation Additions in 2020 (MW)			1,441	1,421			
Cumulative Addition up till 2020 (MW)			1,441	1,421			
2021							
1	Etihad Power Generation Ltd.	Bagasse	74	74	AEDB	Committed	Jul-20
2	Karachi Nuclear K-2	Nuclear	1,100	1,059	PAEC	Committed	Nov-20
3	Master Green Energy Ltd.	Wind	50	50	AEDB	Committed	Nov-20
4	Shaheen Renewable Energy-1 Pvt. Ltd.	Wind	51	51	AEDB	Committed	Nov-20
5	Lawi	Hydro	69	69	PEDO	Committed	Jan-21
6	Tricorm Wind Power Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-21
7	Western Energy Pvt. Limited	Wind	50	50	AEDB	Committed	Feb-21
8	Lucky	Local Coal	660	607	PPIB	Committed	Mar-21
9	Access Electric Pvt. Ltd.	Solar	10	10	AEDB	Committed	Mar-21
10	Access Solar Pvt. Ltd.	Solar	12	12	AEDB	Committed	Mar-21
11	Thal Nova	Local Coal	330	300	PPIB	Committed	Mar-21
12	Thar TEL	Local Coal	330	300	PPIB	Committed	Mar-21
13	Thar-I (Shanghai Electric) Unit 1	Local Coal	660	607	PPIB	Committed	Mar-21
14	Riali-II	Hydro	7	7	AJK	Committed	Jun-21
15	Hydro China Dawood Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
16	Tenga Generasi Limited	Wind	50	50	AEDB	Committed	Jun-21
17	Zephyr Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
18	Siddiqsons	Local Coal	330	304	PPIB	Committed	Jun-21
Generation Additions in 2021 (MW)			3,933	3,698			
Cumulative Addition uptill 2021 (MW)			5,374	5,119			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2022							
1	HNDS Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
2	Helios Power Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
3	Thar-I (Shanghai Electric) Unit 2	Local Coal	660	607	PPIB	Committed	Aug-21
4	Karachi Nuclear K-3	Nuclear	1100	1059	PAEC	Committed	Sep-21
5	Buksh Energy Pvt. Ltd.	Solar	12	11.664	AEDB	Committed	Sep-21
6	Safe Solar Power Pvt. Ltd.	Solar	10	10.28	AEDB	Committed	Sep-21
7	Artistic Wind Power Pvt. Limited.	Wind	50	50	AEDB	Committed	Oct-21
8	Meridian Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Nov-21
9	Zhenfa Pakistan New Energy Company (Pvt.) Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Nov-21
10	Karot	Hydro	720	720	PPIB/AJK	Committed	Dec-21
11	Jamshoro CFPP Unit 1	Imp.Coal	660	644	GENCO	Committed	Dec-21
12	Gwadar	Imp.Coal	300	273	PPIB	Committed	Jan-22
13	Gul Ahmed Electric Ltd.	Wind	50	50	AEDB	Committed	Jan-22
14	ACT 2 wind (Pvt.) Ltd.	Wind	50	50	AEDB	Committed	Feb-22
15	Din Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
16	Indus Wind Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
17	Lakeside Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
18	Liberty Wind Power 1 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
19	Liberty Wind Power 2 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
20	Metro Wind Power Ltd.	Wind	60	60	AEDB	Committed	Feb-22
21	NASDA Green Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
22	Trans Atlantic Energy (Pvt.) Limited	Wind	48	48.3	AEDB	Committed	Feb-22
23	Alliance Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
24	Bahawalpur Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
25	Faran Power Limited	Bagasse	27	27	AEDB	Committed	Mar-22
26	Ghotki Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
27	Hamza Sugar Mills Ltd. (Unit-II)	Bagasse	30	30	AEDB	Committed	Mar-22
28	HSM Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
29	Hunza Power (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22
30	Indus Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
31	Ittefaq Power Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
32	Kashmir Power (Pvt.) Ltd.	Bagasse	40	40	AEDB	Committed	Mar-22
33	Mehran Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
34	RYK Energy Ltd.	Bagasse	25	25	AEDB	Committed	Mar-22
35	Sadiqabad Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
36	Shahtaj Sugar Mills Ltd.	Bagasse	32	32	AEDB	Committed	Mar-22
37	Sheikhoo Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
38	TAY Powergen Company (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
39	Two Star Energy (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22
Generation Additions in 2022 (MW)			4,851	4,713			
Cumulative Addition up till 2022 (MW)			10,225	9,832			
2023							
1	Gorkin Matiltan	Hydro	84	84	PEDO	Committed	Nov-22
2	Suki Kinari	Hydro	884	884	PPIB	Committed	Dec-22
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2023
4	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2023
5	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2023
6	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2023
7	CASA	Import	1,000	1,000	GOP	Committed	May-23
Generation Additions in 2023 (MW)			4,968	4,968			
Cumulative Addition up till 2023 (MW)			15,193	14,800			
2024							
1	Tarbela 5th-Extension	Hydro	1,410	1,410	WAPDA	Committed	Sep-23
2	Jamshoro CFPP Unit 2	Imp.Coal	660	644	GENCO	Committed	Dec-23
3	Blue Star	Hydro	3	3	PEDO	Candidate	2024
4	Generic_Candidate Local Coal	Local Coal	1,514	1,514	Yet to be Decided	Candidate	2024

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
5	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2024
6	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2024
7	Generic_Candidate Wind_North	Wind	89	89	Yet to be Decided	Candidate	2024
8	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2024
Generation Additions in 2024 (MW)			6,475	6,459			
Cumulative Addition up till 2024 (MW)			21,668	21,260			
2025							
1	Keyal Khwar	Hydro	128	128	WAPDA	Committed	Sep-24
2	Mohmand	Hydro	800	800	WAPDA	Committed	Nov-24
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2025
4	Generic_Candidate Wind_South	Wind	922	922	Yet to be Decided	Candidate	2025
5	Dasu 1	Hydro	2,160	2,160	WAPDA	Committed	Feb-25
Generation Additions in 2025 (MW)			5,510	5,510			
Cumulative Addition up till 2025 (MW)			27,179	26,770			
2026							
1	Chasma Nuclear C-5	Nuclear	1,100	1,059	PAEC	Committed	Jul-25
2	Harpo	Hydro	35	35	WAPDA	Committed	Jul-25
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2026
4	Generic_Candidate Wind_South	Wind	673	673	Yet to be Decided	Candidate	2026
5	Riali-III	Hydro	3	3	AJK	Candidate	2026
Generation Additions in 2026 (MW)			3,311	3,270			
Cumulative Addition up till 2026 (MW)			30,490	30,040			
2027							
1	Azad Pattan	Hydro	700	701	PPIB	Committed	Sep-26
2	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2027
3	Generic_Candidate Wind_South	Wind	301	301	Yet to be Decided	Candidate	2027
4	Hatim	CCGT_Gas	20	20	PPIB	Candidate	2027
5	Oracle_1	Local Coal	660	607	STDC/ PPIB	Candidate	2027
6	Kohala	Hydro	1,124	1,124	PPIB	Committed	Jun-27
Generation Additions in 2027 (MW)			4,305	4,253			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition up till 2027 (MW)			34,795	34,292			
2028							
1	Generic_Candidate OCGT_RLNG	RLNG	1,577	1,577	Yet to be Decided	Candidate	2028
2	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2028
3	Generic_Candidate Wind_South	Wind	784	784	Yet to be Decided	Candidate	2028
Generation Additions in 2028 (MW)			3,861	3,861			
Cumulative Addition up till 2028 (MW)			38,655	38,153			
2029							
1	Dander	Hydro	56	56	PEDO	Candidate	2029
2	Dubair Kalay	Hydro	66	66	PEDO	Candidate	2029
3	Generic_Candidate OCGT_RLNG	RLNG	1,129	1,129	Yet to be Decided	Candidate	2029
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2029
5	Generic_Candidate Wind_Mid	Wind	263	263	Yet to be Decided	Candidate	2029
6	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2029
7	Nerai-Dubair	Hydro	46	46	PEDO	Candidate	2029
8	Rajdhani	Hydro	132	132	PPIB	Candidate	2029
9	Thakot-III	Hydro	1,686	1,686	WAPDA	Candidate	2029
Generation Additions in 2029 (MW)			5,879	5,878			
Cumulative Addition up till 2029 (MW)			44,534	44,031			
2030							
1	Generic_Candidate OCGT_RLNG	RLNG	2,162	2,162	Yet to be Decided	Candidate	2030
2	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2030
3	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2030
4	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2030
5	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2030
6	Mahl	Hydro	639	640	PPIB	Candidate	2030
7	Oracle_2	Local Coal	660	607	STDC/PPIB	Candidate	2030
Generation Additions in 2030 (MW)			6,461	6,409			
Cumulative Addition up till 2030 (MW)			50,995	50,440			
2031							
1	Generic_Candidate OCGT_RLNG	RLNG	1,347	1,347	Yet to be Decided	Candidate	2031

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2	Thakot-I	Hydro	2,154	2,154	WAPDA	Candidate	2031
Generation Additions in 2031 (MW)			3,501	3,501			
Cumulative Addition up till 2031 (MW)			54,496	53,941			
2032							
1	Dasu_2	Hydro	2,160	2,160	WAPDA	Candidate	2032
2	Generic_Candidate OCGT_RLNG	RLNG	1,228	1,228	Yet to be Decided	Candidate	2032
3	Generic_Candidate Solar	Solar	1,442	1,442	Yet to be Decided	Candidate	2032
Generation Additions in 2032 (MW)			4,830	4,830			
Cumulative Addition up till 2032 (MW)			59,327	58,772			
2033							
1	Generic_Candidate Local Coal	Local Coal	3,384	3,384	Yet to be Decided	Candidate	2033
2	Generic_Candidate OCGT_RLNG	RLNG	534	534	Yet to be Decided	Candidate	2033
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2033
Generation Additions in 2033 (MW)			5,418	5,418			
Cumulative Addition up till 2033 (MW)			64,745	64,190			
2034							
1	Generic_Candidate Local Coal	Local Coal	3,313	3,313	Yet to be Decided	Candidate	2034
2	Generic_Candidate OCGT_RLNG	RLNG	848	848	Yet to be Decided	Candidate	2034
Generation Additions in 2034 (MW)			4,161	4,161			
Cumulative Addition up till 2034 (MW)			68,906	68,352			
2035							
1	Generic_Candidate Local Coal	Local Coal	2,372	2,372	Yet to be Decided	Candidate	2035
2	Generic_Candidate OCGT_RLNG	RLNG	2,596	2,596	Yet to be Decided	Candidate	2035
Generation Additions in 2035 (MW)			4,968	4,968			
Cumulative Addition up till 2035 (MW)			73,874	73,319			
2036							
1	Generic_Candidate Local Coal	Local Coal	2,431	2,431	Yet to be Decided	Candidate	2036
2	Generic_Candidate OCGT_RLNG	RLNG	2,904	2,904	Yet to be Decided	Candidate	2036
3	Generic_Candidate Solar	Solar	307	307	Yet to be Decided	Candidate	2036
Generation Additions in 2036 (MW)			5,642	5,642			
Cumulative Addition up till 2036 (MW)			79,516	78,961			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2037							
1	Generic_Candidate Local Coal	Local Coal	2,635	2,635	Yet to be Decided	Candidate	2037
2	Generic_Candidate OCGT_RLNG	RLNG	2,144	2,144	Yet to be Decided	Candidate	2037
3	Generic_Candidate Solar	Solar	781	781	Yet to be Decided	Candidate	2037
Generation Additions in 2037 (MW)			5,560	5,560			
Cumulative Addition up till 2037 (MW)			85,076	84,521			
2038							
1	Generic_Candidate Local Coal	Local Coal	3,115	3,115	Yet to be Decided	Candidate	2038
2	Generic_Candidate OCGT_RLNG	RLNG	2,045	2,045	Yet to be Decided	Candidate	2038
3	Generic_Candidate Solar	Solar	685	685	Yet to be Decided	Candidate	2038
Generation Additions in 2038 (MW)			5,845	5,845			
Cumulative Addition uptill 2038 (MW)			90,921	90,366			
2039							
1	Generic_Candidate Local Coal	Local Coal	2,968	2,968	Yet to be Decided	Candidate	2039
2	Generic_Candidate OCGT_RLNG	RLNG	2,812	2,812	Yet to be Decided	Candidate	2039
3	Generic_Candidate Solar	Solar	1,116	1,116	Yet to be Decided	Candidate	2039
Generation Additions in 2039 (MW)			6,895	6,895			
Cumulative Addition uptill 2039 (MW)			97,817	97,262			
2040							
1	Generic_Candidate Local Coal	Local Coal	3,567	3,567	Yet to be Decided	Candidate	2040
2	Generic_Candidate OCGT_RLNG	RLNG	3,001	3,001	Yet to be Decided	Candidate	2040
Generation Additions in 2040 (MW)			6,568	6,568			
Cumulative Addition uptill 2040 (MW)			104,385	103,830			
2041							
1	Generic_Candidate Local Coal	Local Coal	1,209	1,209	Yet to be Decided	Candidate	2041
2	Generic_Candidate OCGT_RLNG	RLNG	1,212	1,212	Yet to be Decided	Candidate	2041
3	Generic_Candidate Solar	Solar	409	409	Yet to be Decided	Candidate	2041
Generation Additions in 2041 (MW)			2,830	2,830			
Cumulative Addition uptill 2041 (MW)			107,215	106,660			
2042							

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
1	Generic_Candidate Local Coal	Local Coal	3,371	3,371	Yet to be Decided	Candidate	2042
2	Generic_Candidate OCGT_RLNG	RLNG	2,393	2,393	Yet to be Decided	Candidate	2042
3	Generic_Candidate Solar	Solar	1,221	1,221	Yet to be Decided	Candidate	2042
Generation Additions in 2042 (MW)			6,985	6,985			
Cumulative Addition uptill 2042 (MW)			114,200	113,645			
2043							
1	Generic_Candidate Local Coal	Local Coal	3,375	3,375	Yet to be Decided	Candidate	2043
2	Generic_Candidate OCGT_RLNG	RLNG	2,501	2,501	Yet to be Decided	Candidate	2043
3	Generic_Candidate Solar	Solar	585	585	Yet to be Decided	Candidate	2043
Generation Additions in 2043 (MW)			6,462	6,462			
Cumulative Addition uptill 2043 (MW)			120,662	120,107			
2044							
1	Generic_Candidate Local Coal	Local Coal	3,370	3,370	Yet to be Decided	Candidate	2044
2	Generic_Candidate OCGT_RLNG	RLNG	2,009	2,009	Yet to be Decided	Candidate	2044
3	Generic_Candidate Solar	Solar	803	803	Yet to be Decided	Candidate	2044
Generation Additions in 2044 (MW)			6,182	6,182			
Cumulative Addition uptill 2044 (MW)			126,844	126,289			
2045							
1	Generic_Candidate Local Coal	Local Coal	3,348	3,348	Yet to be Decided	Candidate	2045
2	Generic_Candidate OCGT_RLNG	RLNG	2,609	2,609	Yet to be Decided	Candidate	2045
3	Generic_Candidate Solar	Solar	1,041	1,041	Yet to be Decided	Candidate	2045
Generation Additions in 2045 (MW)			6,998	6,998			
Cumulative Addition uptill 2045 (MW)			133,842	133,287			
2046							
1	Generic_Candidate CCGT_RLNG	RLNG	528	528	Yet to be Decided	Candidate	2046
2	Generic_Candidate Local Coal	Local Coal	3,308	3,308	Yet to be Decided	Candidate	2046
3	Generic_Candidate OCGT_RLNG	RLNG	1,596	1,596	Yet to be Decided	Candidate	2046
4	Generic_Candidate Solar	Solar	505	505	Yet to be Decided	Candidate	2046
Generation Additions in 2046 (MW)			5,938	5,938			
Cumulative Addition uptill 2046 (MW)			139,779	139,224			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2047							
1	Generic_Candidate CCGT_RLNG	RLNG	393	393	Yet to be Decided	Candidate	2047
2	Generic_Candidate Local Coal	Local Coal	2,885	2,885	Yet to be Decided	Candidate	2047
3	Generic_Candidate OCGT_RLNG	RLNG	1,330	1,330	Yet to be Decided	Candidate	2047
4	Generic_Candidate Solar	Solar	1,003	1,003	Yet to be Decided	Candidate	2047
Generation Additions in 2047 (MW)			5,610	5,610			
Cumulative Addition up till 2047 (MW)			145,390	144,835			

C-5. Annual Capacity Factors (%age)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	85	85	85	84	55	23	10	13	14	14	14	17	16	21	22	20	20	19	18	18	17	17	17	17	17	16	14	14
2	Gwadar	Imp. Coal	0	0	84	85	84	83	35	30	30	28	26	28	30	33	31	30	30	28	26	27	26	25	25	25	24	22	21	22
3	Jamshoro Coal	Imp. Coal	0	0	83	83	14	10	5	7	8	10	11	12	11	13	16	15	15	15	14	14	13	14	14	13	13	12	12	12
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	85	85	85	84	83	57	24	22	22	23	22	25	25	28	28	27	26	24	22	23	23	23	21	21	20	19	18	18
6	Sahiwal Coal	Imp. Coal	85	85	84	51	6	5	3	4	5	5	7	9	8	10	12	12	12	12	11	11	10	11	10	10	11	10	10	10
7	Engro Thar	Local Coal	85	85	85	85	84	84	76	78	51	39	36	39	37	41	41	38	38	37	33	33	32	32	30	30	29	27	26	25
8	Lucky	Local Coal	0	87	85	85	84	84	38	37	37	33	29	34	32	36	33	32	33	33	30	29	28	28	27	27	26	25	24	23
9	NEW_Local_Coal	Local Coal	0	0	0	0	84	84	84	82	81	79	75	76	75	74	74	76	77	78	78	79	79	79	78	78	78	77	77	76
10	Oracle	Local Coal	0	0	0	0	0	0	0	83	82	81	79	80	81	81	82	83	84	84	84	85	85	85	85	85	85	85	85	85
11	Siddiqsons	Local Coal	0	88	85	85	85	84	84	83	82	80	78	79	78	80	81	82	82	83	83	83	83	82	82	82	82	82	82	81
12	Thal Nova	Local Coal	0	89	85	85	84	84	83	81	79	74	62	65	52	56	57	56	56	55	50	49	46	46	42	40	39	37	34	33
13	Thar TEL	Local Coal	0	89	85	85	84	84	83	81	79	74	61	64	52	57	56	56	57	55	51	48	47	46	41	41	38	36	34	33
14	Thar-I (Shanghai Electric)	Local Coal	0	87	85	85	84	84	82	79	77	57	44	45	46	49	47	48	48	45	41	39	38	37	35	34	32	31	29	28
15	Balloki	RLNG	92	84	67	67	67	67	67	67	67	67	67	67	67	67	3	4	4	4	4	4	5	5	6	6	6	6	6	6
16	Bhikki	RLNG	89	77	67	67	67	67	67	67	67	67	67	67	67	3	2	2	3	4	4	4	4	4	5	5	6	6	6	6
17	FKPCL	RLNG	25	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	27	8	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	75	36	6	1	0	0	0	0	0	0	2	3	2	1	0	0	1	1	2	3	4	4	0	0	0	0	0	0
20	Haveli	RLNG	92	91	67	67	67	67	67	67	67	67	67	67	67	4	4	5	5	6	6	6	8	8	8	8	7	8	7	6
21	Nandipur	RLNG	71	54	10	3	0	0	0	0	0	1	2	3	3	1	1	1	1	3	3	4	4	4	4	4	5	5	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
23	Orient	RLNG	76	45	8	2	0	0	0	0	0	0	2	3	3	1	0	1	1	2	3	4	4	0	0	0	0	0	0	0
24	Rousch	RLNG	60	18	4	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	74	31	6	1	0	0	0	0	0	0	1	2	2	0	0	0	1	1	2	3	4	0	0	0	0	0	0	0
26	Saphire	RLNG	76	42	7	1	0	0	0	0	0	0	2	3	3	1	0	1	1	1	2	3	4	0	0	0	0	0	0	0
27	Trimmu	RLNG	94	92	20	7	1	0	0	0	1	2	4	5	4	5	6	6	7	7	7	8	8	8	8	8	8	9	9	9
28	Davis	RLNG	1	1	1	0	0	0	0	1	0	0	2	2	1	0	0	0	0	1	1	2	2	2	2	3	0	0	0	0
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	89	89	87	10	4	1	0	1	2	3	4	5	5	6	7	6	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	90	90	88	11	4	1	0	1	2	3	5	6	5	7	8	7	7	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	85	85	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	66	23	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	83	83	83	80	9	2	1	2	3	4	5	6	5	7	9	9	9	10	8	8	8	8	8	8	8	7	0	0
36	Hatim	Gas	0	0	0	0	0	0	0	23	21	20	19	21	15	17	18	17	17	16	16	16	15	15	15	15	14	14	13	14
37	HCPC	Gas	86	86	28	9	3	1	0	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	87	87	26	9	3	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	77	64	11	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	86	86	86	86	84	84	12	8	8	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	88	88	86	14	4	2	1	2	3	4	5	6	5	7	8	8	8	8	8	7	0	0	0	0	0	0	0	0
43	C-1	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
44	C-2	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
45	C-3	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
46	C-4	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
47	C-5	Nuclear	0	0	0	0	0	0	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	74	79	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
50	K-3	Nuclear	0	0	76	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
51	Alliance	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
52	Almoiz	Bagasse	54	54	54	54	54	54	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
53	Bahawalpur	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	54	54	54	54	54	54	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
56	Chiniot	Bagasse	36	36	36	36	36	35	35	35	35	34	34	34	34	34	35	35	35	36	36	36	36	36	36	36	36	36	36	36

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	0	54	54	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
58	Faran	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
59	Ghotki	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
60	Hamza	Bagasse	47	47	47	47	47	46	46	46	46	45	44	45	44	45	46	46	47	47	47	47	47	47	47	47	47	47	47	47
61	Hamza-II	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
62	HSM	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
63	Hunza	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
64	Indus	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
65	Ittefaq	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
66	JDW-II	Bagasse	84	84	84	84	84	83	83	83	82	81	80	81	80	81	82	83	83	83	83	84	84	84	84	84	84	84	84	84
67	JDW-III	Bagasse	78	78	78	78	78	77	77	77	77	75	75	75	75	76	77	77	77	78	78	78	78	78	78	78	78	78	78	78
68	Kashmir	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
69	Mehran	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
70	RYK_Energy	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
71	Ryk_Mills	Bagasse	54	54	54	54	54	54	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
72	Sadiqabad	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
73	Shahtaj	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
74	Sheikhoo	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
75	TAY	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	30	30	30	30	30	30	29	29	29	28	28	28	28	29	29	29	30	30	30	30	30	30	30	30	30	30	30	30
77	Two_Star	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
78	Access_Electric	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
79	Access_Solar	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
81	Best	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
82	Buksh	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
84	Crest	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
85	Helios	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
86	HNDS	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
87	Meridian	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
88	QA_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
89	Safe	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
90	Zhenfa	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
91	Zorlu	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	Allai Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	48	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	Blue Star	Hydro	0	0	0	0	65	66	66	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	40	39	40	45	44	45	45	45	46	46	46	45	45	46	46	47	46	46	46
121	Daral Khwar	Hydro	47	47	47	47	47	47	47	42	42	42	42	42	44	44	43	44	44	44	44	44	44	44	45	44	45	45	45	45
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	Dasu_1	Hydro	0	0	0	0	0	56	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	60	61	64	64	64	64	64	64	64	64	64	64	64	64	64	64
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	56	57	58	63	62	63	63	64	63	64	64	63	63	63	63	64	64	64	64
130	Dubair Khwar	Hydro	51	51	51	51	51	51	51	49	50	50	49	50	50	49	50	50	50	50	50	51	50	50	51	50	50	51	51	50
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	Ghazi Brotha	Hydro	52	52	52	52	52	52	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	Golen Gol	Hydro	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	Gorkin Matiltan	Hydro	0	0	0	32	45	45	45	41	41	41	40	41	41	42	42	42	42	42	42	42	42	43	42	42	43	43	42	42
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	Gulpur	Hydro	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
147	Harpo	Hydro	0	0	0	0	0	0	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
149	Jabori	Hydro	91	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
151	Jagran-I	Hydro	31	31	31	31	31	31	31	30	30	30	29	30	30	30	30	30	30	30	31	31	30	31	31	31	31	31	31	31

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	Jhing	Hydro	95	52	52	52	52	52	52	49	49	49	49	49	49	50	49	50	50	50	50	50	50	50	50	50	50	51	50	50
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
157	Jinnah	Hydro	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
161	Karora	Hydro	61	62	62	62	62	62	62	59	59	59	59	59	60	60	59	60	60	60	60	60	60	60	60	60	60	60	60	60
162	Karot	Hydro	0	0	41	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	25	32	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
168	Khan Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
172	Kohala	Hydro	0	0	0	0	0	0	0	0	61	61	61	61	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
173	Koto	Hydro	0	58	58	58	57	58	57	54	54	54	53	54	56	56	55	55	56	56	56	56	56	56	57	56	57	56	57	57
174	Lawi	Hydro	0	43	49	49	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Machai	Hydro	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	59	59	60	61	62	62	62	62	62	62	62	63	62	62	62	62	62	62
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186	Malakand-III	Hydro	52	52	52	52	52	52	52	52	52	51	51	51	51	52	51	52	51	52	52	52	52	52	52	52	52	52	52	52
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Mangla	Hydro	57	57	57	57	57	57	57	56	56	56	56	56	56	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	35	40	40	40	40	40	39	39	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
201	Neelum Jehlum	Hydro	58	58	58	58	58	58	58	56	56	56	56	55	56	56	57	56	57	57	57	57	57	57	57	57	57	57	57	57
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	50	49	49	56	55	57	58	58	59	59	59	59	59	59	60	60	59	60	60
203	New Bong	Hydro	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
210	Pehur	Hydro	23	24	24	24	23	24	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
216	Ranolia	Hydro	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
219	Riali-II	Hydro	0	87	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
220	Riali-III	Hydro	0	0	0	0	0	0	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
237	Suki Kinari	Hydro	0	0	0	35	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
240	Tarbela_1-10	Hydro	48	48	48	48	48	48	48	48	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48	48
241	Tarbela_11-14	Hydro	48	48	48	48	48	48	48	48	47	47	47	48	47	48	47	47	47	48	48	48	48	48	48	48	48	48	48	48
242	Tarbela_Ext_4	Hydro	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
243	Tarbela_Ext_5	Hydro	0	0	0	0	19	32	32	32	31	31	31	32	32	32	31	32	32	32	32	32	32	32	32	32	32	32	32	32
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	52	53	53	53	53	53	53	53	53	53	54	54	54	53	54	54	53
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	47	48	48	47	48	49	49	49	49	49	49	49	49	49	49	49	49	49	49
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
258	Warsak	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
261	CASA	Cross Border	0	0	0	95	39	39	39	23	23	24	23	23	27	26	24	25	25	25	25	26	26	26	27	28	27	28	29	29
262	Act	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
263	Act_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
264	Artistic_wind	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
265	Artistic_Wind_2	Wind	0	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	0	0	0	33	33	33	30	33	33	33	32	33	33	33	32	33	33	33	33	33	33	33	33	33	33	33	33	33
267	Candidate_Wind_North	Wind	0	0	0	33	33	33	29	33	32	32	32	30	33	32	33	32	33	33	33	33	33	33	33	33	33	33	33	33
268	Candidate_Wind_South	Wind	0	0	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
269	Dawood	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
270	Din	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
271	FFC	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
272	FWEL-I	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
273	FWEL-II	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
274	Gul Ahmed	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
275	Gul_Electric	Wind	0	0	38	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
276	Hawa	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
277	Indus_Energy	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
278	Jhimpir	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
279	Lakeside	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
280	Liberty_Wind_1	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
281	Liberty_Wind_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
282	Master	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
283	Master_Green	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
284	Metro_Power	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
286	NASDA	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
287	Sachal	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
288	Sapphire_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
289	Shaheen	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
290	Tenga	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
291	Three_Gorges_I	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
292	Three_Gorges_II	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
293	Three_Gorges_III	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
294	Trans_Atlantic	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
295	Tricon_A	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
296	Tricon_B	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
297	Tricon_C	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
298	Tricorm	Wind	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
299	UEP	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
300	Western	Wind	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
301	Yunus	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
302	Zephyr	Wind	0	56	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
303	Zorlu_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	30	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	35	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	15	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	88	88	14	4	0	0	0	1	2	3	4	5	5	5	6	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	13	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	11	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	56	21	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	16	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	9	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

C-6. Annual Energy Generation 2020-30 (GWh)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
1	China HUBCO	Imp. Coal	0	0	0	0	0	0	0	4,433	4,382	4,311	8,442
2	Gwadar	Imp. Coal	0	193	2,266	2,266	2,272	2,231	2,231	2,204	2,185	2,142	2,082
3	Jamshoro Coal	Imp. Coal	0	583	2,234	2,234	2,205	2,199	2,175	2,132	2,079	1,940	1,636
4	NEW_Imported_Coal	Imp. Coal	0	583	2,234	2,234	2,205	2,199	2,183	2,127	2,085	1,944	1,614
5	Port Qasim	Imp. Coal	0	1,545	8,643	9,055	8,940	8,914	8,741	8,426	8,258	6,023	4,667
6	Sahiwal Coal	Imp. Coal	9,492	8,649	6,910	6,906	6,905	6,904	6,905	6,882	6,884	6,886	6,883
7	Engro Thar	Local Coal	8,919	7,722	6,696	6,693	6,690	6,689	6,689	6,675	6,673	6,674	6,672
8	Lucky	Local Coal	329	97	41	0	0	0	0	0	0	0	0
9	NEW_Local_Coal	Local Coal	274	86	34	4	0	0	0	0	0	0	0
10	Oracle	Local Coal	1,301	622	112	18	0	0	0	0	0	0	28
11	Siddiqsons	Local Coal	9,599	9,440	6,967	6,964	6,964	6,964	6,964	6,932	6,940	6,943	6,942
12	Thal Nova	Local Coal	2,821	2,112	390	117	0	2	0	0	0	39	69
13	Thar TEL	Local Coal	0	0	0	0	0	0	0	0	0	0	0
14	Thar-I (Shanghai Electric)	Local Coal	1,363	803	149	44	0	0	0	0	0	5	31
15	Balloki	RLNG	2,090	635	139	19	0	0	0	0	0	0	11
16	Bhikki	RLNG	1,321	545	99	14	0	0	0	0	0	0	26
17	FKPCL	RLNG	1,347	735	131	24	0	0	0	0	0	0	31
18	GTPS Block 4	RLNG	2,543	9,998	2,152	738	155	35	0	13	94	193	391
19	Halmore	RLNG	1	1	1	0	0	0	0	1	0	0	2

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
20	Haveli	RLNG	0	0	0	0	0	0	0	0	0	0	42
21	Nandipur	RLNG	0	0	0	0	0	0	0	0	0	0	0
22	NEW_CCGT	RLNG	1,655	1,651	1,617	181	66	17	0	24	32	59	81
23	Orient	RLNG	1,320	1,317	1,294	168	57	14	6	22	27	50	67
24	Rousch	RLNG	1,950	1,945	1,776	0	0	0	0	0	0	0	0
25	Saif	RLNG	1,568	533	121	14	0	0	0	0	0	0	0
26	Saphire	RLNG	5,234	5,221	5,216	5,084	552	108	66	151	207	256	328
27	Trimmu	RLNG	0	0	0	0	0	0	0	41	37	35	34
28	Davis	RLNG	975	973	317	100	39	8	0	13	18	33	0
29	NEW OCGT (Generic)	RLNG	808	806	238	80	29	5	0	8	15	0	0
30	Altern	Gas	1,433	1,195	213	73	0	5	0	0	0	0	0
31	Engro	Gas	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	4,149	4,139	4,139	4,139	4,074	4,021	592	393	404	393	26
33	Guddu-I	Gas	2,737	2,731	2,685	426	133	54	27	51	90	118	145
34	Guddu-II	Gas	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
35	Guddu-V (747)	Gas	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
36	Hatim	Gas	2,187	2,183	2,183	2,183	2,187	2,183	2,183	2,180	2,184	2,175	2,180
37	HCPC	Gas	2,187	2,183	2,183	2,183	2,187	2,183	2,183	2,181	2,185	2,181	2,179
38	Kotri	Gas	0	0	0	0	0	0	7,286	7,244	7,254	7,240	7,237
39	Liberty	Gas	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
40	Mari Combined Cycle	Gas	0	4,548	7,292	7,292	7,307	7,291	7,284	7,240	7,255	7,241	7,238
41	Uch	Gas	0	0	5,823	7,292	7,307	7,292	7,285	7,243	7,255	7,240	7,235
42	Uch-II	Gas	0	0	19	143	144	140	140	140	140	137	136
43	C-1	Nuclear	172	172	172	172	172	169	168	168	168	164	163
44	C-2	Nuclear	0	0	20	149	149	146	146	146	145	142	142
45	C-3	Nuclear	0	0	0	0	0	0	0	0	0	0	0
46	C-4	Nuclear	105	105	105	105	105	103	103	103	103	100	100
47	C-5	Nuclear	197	196	196	196	197	192	190	190	190	185	184
48	Candidate_Nuclear	Nuclear	0	355	355	355	356	348	348	348	346	339	338
49	K-2	Nuclear	0	0	17	126	127	124	124	124	123	121	120
50	K-3	Nuclear	0	0	29	215	215	210	210	210	209	205	204
51	Alliance	Bagasse	62	62	62	62	62	61	60	60	61	59	58
52	Almoiz	Bagasse	0	0	19	143	144	140	140	140	140	137	136
53	Bahawalpur	Bagasse	0	0	17	126	127	124	124	124	123	121	120
54	Candidate_Bagasse	Bagasse	0	0	32	238	238	233	233	233	232	227	226
55	Chanar	Bagasse	0	0	20	148	148	145	145	145	144	141	141
56	Chiniot	Bagasse	0	0	20	149	149	146	146	146	145	142	142
57	Etihad	Bagasse	194	193	193	193	194	191	191	191	191	186	186
58	Faran	Bagasse	180	180	180	180	180	178	178	178	178	174	173
59	Ghotki	Bagasse	0	0	26	191	191	187	187	187	186	182	181

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
60	Hamza	Bagasse	0	0	17	126	127	124	124	124	123	121	120
61	Hamza-II	Bagasse	0	0	16	119	120	117	117	117	116	114	113
62	HSM	Bagasse	144	143	143	143	144	141	140	140	141	137	136
63	Hunza	Bagasse	0	0	29	215	215	210	210	210	209	205	204
64	Indus	Bagasse	0	0	21	153	153	149	149	149	149	146	145
65	Ittefaq	Bagasse	0	0	19	143	144	140	140	140	140	137	136
66	JDW-II	Bagasse	0	0	19	143	144	140	140	140	140	137	136
67	JDW-III	Bagasse	109	109	109	109	109	107	106	106	106	102	101
68	Kashmir	Bagasse	0	0	32	238	238	233	233	233	232	227	226
69	Mehran	Bagasse	0	5	17	17	17	17	17	17	17	17	17
70	RYK_Energy	Bagasse	0	5	19	19	19	19	19	19	19	19	19
71	Ryk_Mills	Bagasse	165	165	165	165	165	165	165	165	165	165	165
72	Sadiqabad	Bagasse	165	165	165	165	165	165	165	165	165	165	165
73	Shahtaj	Bagasse	0	0	14	19	19	19	19	19	19	19	19
74	Sheikhoo	Bagasse	0	0	0	2,482	4,965	7,447	9,929	12,412	14,894	17,377	19,760
75	TAY	Bagasse	165	165	165	165	165	165	165	165	165	165	165
76	Thal_Layyah	Bagasse	0	0	83	83	83	83	83	83	83	83	83
77	Two_Star	Bagasse	0	0	83	83	83	83	83	83	83	83	83
78	Access_Electric	Solar	0	0	48	83	83	83	83	83	83	83	83
79	Access_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
80	Appolo	Solar	0	0	13	17	17	17	17	17	17	17	17
81	Best	Solar	0	0	97	165	165	165	165	165	165	165	165
82	Buksh	Solar	84	165	165	165	165	165	165	165	165	165	165
83	Candidate_Solar	Solar	0	0	0	0	0	0	0	0	0	0	0
84	Crest	Solar	396	395	395	395	396	395	395	395	396	395	395
85	Helios	Solar	0	0	0	0	0	0	0	0	0	0	0
86	HNDS	Solar	0	0	0	0	0	0	0	0	0	0	0
87	Meridian	Solar	0	0	0	0	0	0	0	0	0	0	0
88	QA_Solar	Solar	0	0	0	0	0	0	0	0	0	0	0
89	Safe	Solar	0	0	0	0	0	0	0	0	0	0	0
90	Zhenfa	Solar	0	0	0	0	0	0	0	0	0	0	0
91	Zorlu	Solar	0	0	0	0	0	0	0	2,181	3,256	3,253	3,253
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0
93	Allai Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
100	Azad Pattan	Hydro	0	0	0	0	17	17	17	18	18	18	18
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0
105	Basho	Hydro	767	765	765	765	767	765	765	765	767	765	765
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
109	Blue Star	Hydro	0	0	0	0	0	0	0	0	0	0	0
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	196	190
112	Chakoti Hatian	Hydro	147	147	147	147	147	147	147	131	134	133	131
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0
114	Chashma	Hydro	0	0	0	0	0	4,321	11,975	11,975	11,990	11,975	11,975
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	324	327
121	Daral Khwar	Hydro	581	581	581	581	581	581	580	563	571	571	564
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
123	Dasu_1	Hydro	0	0	0	0	0	0	0	0	0	0	0
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0
129	Dubair Kalay	Hydro	6,563	6,551	6,551	6,551	6,563	6,551	6,540	6,490	6,526	6,488	6,520
130	Dubair Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0
131	Engro_HPP	Hydro	97	97	97	97	97	97	97	95	96	95	95
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0
133	Gabral Utror	Hydro	0	0	0	155	331	331	330	300	301	299	295
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
135	Garhi Habibullah	Hydro	481	480	480	480	481	480	480	480	481	480	480
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0
138	Ghazi Brotha	Hydro	0	0	0	0	0	0	170	169	169	169	169
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
140	Golen Gol	Hydro	27	68	68	68	68	68	68	68	68	68	68
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0
142	Gorkin Matiltan	Hydro	82	82	82	82	82	82	82	78	79	78	77
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0
144	Gulpur	Hydro	0	0	0	0	0	0	0	0	0	0	0
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0
146	Harigehl-Majeedgala	Hydro	10	68	68	68	68	68	68	64	64	64	64
147	Harpo	Hydro	0	0	0	0	0	0	0	0	0	0	0
148	Istaro-Booni	Hydro	195	194	194	194	195	194	194	193	194	193	191
149	Jabori	Hydro	0	0	0	0	0	0	0	0	0	0	0
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0
151	Jagran-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
152	Jagran-III	Hydro	5	65	65	65	65	65	65	62	62	62	62
153	Jagran-IV	Hydro	0	0	1,496	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0
155	Jhing	Hydro	0	0	0	0	0	0	0	0	0	0	0
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
157	Jinnah	Hydro	0	0	0	0	0	232	353	343	344	344	345
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
159	Kalkot Barikot	Hydro	235	234	234	234	235	234	234	234	235	234	234

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0
161	Karora	Hydro	0	0	0	0	0	0	0	0	0	0	0
162	Karot	Hydro	0	0	0	0	0	0	0	0	0	0	0
163	Kasur	Hydro	0	0	0	0	0	0	0	0	6,011	5,972	5,969
164	Kathai-II	Hydro	0	212	212	212	212	212	211	198	199	199	196
165	Kathai-III	Hydro	0	130	295	295	295	295	294	291	291	290	290
166	Keyal Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0
168	Khan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0
171	Khokhra	Hydro	6	6	6	6	6	6	6	6	6	6	6
172	Kohala	Hydro	0	0	0	0	0	0	0	0	0	0	0
173	Koto	Hydro	0	0	0	0	0	0	0	0	0	0	0
174	Lawi	Hydro	0	0	0	0	0	0	0	0	0	0	0
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	3,306
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
177	Luat	Hydro	367	367	367	367	367	367	367	366	367	362	360
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
179	Luspur Murigram	Hydro	5,016	5,004	5,004	5,004	5,016	5,004	5,004	4,910	4,937	4,863	4,893

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
180	Machai	Hydro	0	0	0	0	0	0	0	0	0	0	0
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	0
185	Mahodand	Hydro	0	0	0	0	0	1,633	2,813	2,775	2,793	2,774	2,779
186	Malakand-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0
188	Mangla	Hydro	0	0	0	0	0	0	0	0	0	0	0
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0
192	Middle Palas	Hydro	4,944	4,939	4,939	4,939	4,944	4,931	4,936	4,757	4,797	4,714	4,710
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	200	197
194	Mohmand	Hydro	471	470	470	470	471	470	470	470	471	470	470
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
200	Naran	Hydro	635	634	634	634	635	634	634	632	633	632	632
201	Neelum Jehlum	Hydro	37	37	37	37	37	37	37	36	36	36	36
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	0	0
203	New Bong	Hydro	0	0	0	0	0	0	0	0	0	0	0
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	669	668
207	Patan	Hydro	87	87	87	87	87	87	87	87	87	87	87
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0
209	Patrind	Hydro	0	0	0	0	0	0	0	0	0	0	0
210	Pehur	Hydro	0	5	33	33	33	33	33	33	33	33	33
211	Phandar	Hydro	0	0	0	0	0	0	20	20	20	20	20
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	0	0
216	Ranolia	Hydro	0	0	0	0	0	0	0	0	0	0	0
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0
219	Riali-II	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
220	Riali-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0
226	Shah Jiwana	Hydro	387	386	386	386	387	386	386	379	380	378	377
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0
228	Sharmai	Hydro	0	0	0	1,332	2,800	2,798	2,793	2,763	2,765	2,763	2,762
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0
231	Shounter	Hydro	7,386	7,377	7,377	7,377	7,386	7,377	7,377	7,293	7,231	7,214	7,227
232	Shushghai	Hydro	7,294	7,285	7,285	7,285	7,294	7,285	7,213	7,200	7,139	7,168	7,105
233	SHYOK	Hydro	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,807	3,806
234	Skardu	Hydro	0	0	0	0	1,975	4,005	4,003	3,895	3,854	3,890	3,853
235	Smal Hydel	Hydro	0	0	0	0	0	0	0	0	0	0	0
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0
237	Suki Kinari	Hydro	0	0	0	0	0	0	0	0	0	0	0
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	6,997	7,025
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
240	Tarbela_1-10	Hydro	0	0	0	0	0	0	0	0	0	0	0
241	Tarbela_11-14	Hydro	0	0	0	0	0	0	0	0	0	0	0
242	Tarbela_Ext_4	Hydro	0	0	0	0	0	0	0	0	0	0	0
243	Tarbela_Ext_5	Hydro	0	0	0	0	0	0	0	0	0	0	0
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0
249	TP	Hydro	999	997	997	997	999	997	997	997	999	997	997
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0
252	Trimmu_HPP	Hydro	0	0	0	1,387	3,457	3,456	3,417	2,056	2,055	2,075	1,986
253	Turtonas Uzghor	Hydro	87	87	87	87	87	87	87	87	87	87	87
254	UCC Bhambhwal	Hydro	0	0	58	172	172	172	172	172	172	172	172
255	Upper Palas	Hydro	156	156	156	156	156	156	156	156	156	156	156
256	Upper Spat Gah	Hydro	0	0	102	172	172	172	172	172	172	172	172
257	Wari	Hydro	0	0	0	872	1,747	1,744	1,569	1,744	1,747	2,510	3,248
258	Warsak	Hydro	0	0	0	581	841	840	735	840	804	802	1,358
259	Wazirabad	Hydro	0	0	0	3,440	6,889	10,051	12,361	13,373	16,120	19,429	22,600

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
260	Yulbo	Hydro	0	14	144	144	144	144	144	144	144	144	144
261	CASA	Cross Border	0	0	58	172	172	172	172	172	172	172	172
262	Act	Wind	149	149	149	149	149	149	149	149	149	149	149
263	Act_2	Wind	151	150	150	150	151	150	150	150	151	150	150
264	Artistic_wind	Wind	151	150	150	150	151	150	150	150	151	150	150
265	Artistic_Wind_2	Wind	146	145	145	145	146	145	145	145	146	145	145
266	Candidate_Wind_Mid	Wind	0	0	83	172	172	172	172	172	172	172	172
267	Candidate_Wind_North	Wind	157	157	157	157	157	157	157	157	157	157	157
268	Candidate_Wind_South	Wind	0	0	58	172	172	172	172	172	172	172	172
269	Dawood	Wind	157	157	157	157	157	157	157	157	157	157	157
270	Din	Wind	0	0	58	172	172	172	172	172	172	172	172
271	FFC	Wind	0	0	58	172	172	172	172	172	172	172	172
272	FWEL-I	Wind	0	0	58	172	172	172	172	172	172	172	172
273	FWEL-II	Wind	154	153	153	153	154	153	153	153	154	153	153
274	Gul Ahmed	Wind	0	102	172	172	172	172	172	172	172	172	172
275	Gul_Electric	Wind	146	145	145	145	146	145	145	145	146	145	145
276	Hawa	Wind	0	0	70	206	207	206	206	206	207	206	206
277	Indus_Energy	Wind	0	0	58	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	144	144	144	144	144	144	144	144	144	144	144
279	Lakeside	Wind	154	153	153	153	154	153	153	153	154	153	153

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
280	Liberty_Wind_1	Wind	0	104	175	175	176	175	175	175	176	175	175
281	Liberty_Wind_2	Wind	0	14	144	144	144	144	144	144	144	144	144
282	Master	Wind	144	144	144	144	144	144	144	144	144	144	144
283	Master_Green	Wind	157	156	156	156	157	156	156	156	157	156	156
284	Metro_Power	Wind	157	156	156	156	157	156	156	156	157	156	156
285	Metro_Wind	Wind	0	0	56	166	166	166	166	166	166	166	166
286	NASDA	Wind	157	157	157	157	157	157	157	157	157	157	157
287	Sachal	Wind	157	157	157	157	157	157	157	157	157	157	157
288	Sapphire_Wind	Wind	157	157	157	157	157	157	157	157	157	157	157
289	Shaheen	Wind	0	71	172	172	172	172	172	172	172	172	172
290	Tenga	Wind	288	288	288	288	288	288	288	288	288	288	288
291	Three_Gorges_I	Wind	0	58	172	172	172	172	172	172	172	172	172
292	Three_Gorges_II	Wind	146	145	145	145	146	145	145	145	146	145	145
293	Three_Gorges_III	Wind	0	20	158	158	158	158	158	158	158	158	158
294	Trans_Atlantic	Wind	164	164	164	164	164	164	164	164	164	164	164
295	Tricon_A	Wind	909	392	0	0	0	0	0	0	0	0	0
296	Tricon_B	Wind	2,301	765	0	0	0	0	0	0	0	0	0
297	Tricon_C	Wind	339	144	0	0	0	0	0	0	0	0	0
298	Tricorm	Wind	35	17	13	0	0	0	0	0	0	0	0
299	UEP	Wind	124	50	23	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
300	Western	Wind	0	0	0	0	0	0	0	0	0	0	0
301	Yunus	Wind	0	0	0	0	0	0	0	0	0	0	0
302	Zephyr	Wind	8	0	0	0	0	0	0	0	0	0	0
303	Zorlu_Wind	Wind	49	16	4	0	0	0	0	0	0	0	0
304	KAPCO 1	RFO	139	29	22	2	0	0	0	0	0	0	0
305	KAPCO 2	RFO	9	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	3	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	9	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	28	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	26	8	6	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	1,203	1,200	187	49	3	4	0	16	23	38	58
313	Lalpir	RFO	251	95	35	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	208	80	24	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	611	228	37	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	272	122	44	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	154	43	10	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	123	25	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
320	Saba	RFO	0	0	0	0	0	0	0	4,433	4,382	4,311	8,442
321	AGL	RFO	0	193	2,266	2,266	2,272	2,231	2,231	2,204	2,185	2,142	2,082
322	ATLAS	RFO	0	583	2,234	2,234	2,205	2,199	2,175	2,132	2,079	1,940	1,636
323	HuB N	RFO	0	583	2,234	2,234	2,205	2,199	2,183	2,127	2,085	1,944	1,614
324	Kohinoor	RFO	0	1,545	8,643	9,055	8,940	8,914	8,741	8,426	8,258	6,023	4,667
325	Liberty Tech	RFO	9,492	8,649	6,910	6,906	6,905	6,904	6,905	6,882	6,884	6,886	6,883
326	Nishat C	RFO	8,919	7,722	6,696	6,693	6,690	6,689	6,689	6,675	6,673	6,674	6,672
327	Nishat P	RFO	329	97	41	0	0	0	0	0	0	0	0
328	Reshma	RFO	274	86	34	4	0	0	0	0	0	0	0
Energy Generated			157,170	162,471	170,738	176,918	182,943	188,792	196,045	203,899	215,053	226,322	237,996
Energy Demand			157,170	162,472	170,738	176,918	182,943	188,792	196,044	203,899	215,053	226,322	237,996
Energy Not Served			0.00	0.04	-0.01	0.04	0.00	0.03	-0.02	-0.06	0.00	0.02	-0.02

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

C-7. Annual Energy Generation 2030-47 (GWh)

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	1,862	1,730	2,333	2,378	2,165	2,152	2,078	1,947	1,928	1,886	1,887	1,824	1,857	1,841	1,716	1,560	1,530
2	Gwadar	Imp. Coal	677	717	785	733	729	726	675	618	641	612	596	607	597	571	531	506	518
3	Jamshoro Coal	Imp. Coal	1,358	1,207	1,440	1,753	1,742	1,718	1,663	1,555	1,567	1,524	1,537	1,530	1,520	1,416	1,372	1,339	1,317
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	2,738	2,725	3,093	3,040	2,982	2,800	2,637	2,427	2,453	2,456	2,480	2,325	2,302	2,180	2,114	1,990	1,935
6	Sahiwal Coal	Imp. Coal	1,026	822	1,104	1,296	1,263	1,304	1,260	1,178	1,181	1,134	1,145	1,098	1,141	1,152	1,123	1,094	1,097
7	Engro Thar	Local Coal	2,058	1,964	2,186	2,138	2,023	1,987	1,971	1,762	1,748	1,682	1,677	1,606	1,597	1,543	1,441	1,369	1,343
8	Lucky	Local Coal	1,804	1,725	1,936	1,758	1,724	1,759	1,731	1,612	1,528	1,472	1,486	1,433	1,433	1,375	1,317	1,251	1,236
9	NEW_Local_Coal	Local Coal	10,037	9,967	31,933	53,456	70,580	88,505	107,034	128,650	149,525	174,791	182,736	204,951	227,812	250,018	270,265	290,687	308,603
10	Oracle	Local Coal	8,482	8,591	8,633	8,758	8,877	8,905	8,985	8,985	9,020	9,043	9,021	9,022	9,022	9,045	9,023	9,024	9,024
11	Siddiqsons	Local Coal	2,100	2,088	2,136	2,156	2,184	2,201	2,210	2,201	2,200	2,211	2,195	2,188	2,179	2,180	2,171	2,171	2,160
12	Thal Nova	Local Coal	1,705	1,375	1,478	1,486	1,466	1,478	1,454	1,324	1,287	1,215	1,213	1,115	1,056	1,016	965	884	875
13	Thar TEL	Local Coal	1,694	1,366	1,486	1,473	1,470	1,491	1,449	1,327	1,271	1,233	1,210	1,090	1,070	1,012	958	884	864
14	Thar-I (Shanghai Electric)	Local Coal	4,743	4,914	5,204	5,007	5,061	5,084	4,775	4,346	4,152	4,031	3,988	3,716	3,631	3,445	3,263	3,047	2,949
15	Balloki	RLNG	6,887	6,898	6,895	360	378	423	450	452	461	501	557	624	649	644	658	638	638
16	Bhikki	RLNG	6,674	6,682	283	169	239	327	379	391	431	433	431	465	545	571	583	593	576
17	FKPCL	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	46	31	17	5	5	21	22	27	57	63	67	0	0	0	0	0	0
20	Haveli	RLNG	6,943	6,957	415	462	507	555	592	576	671	821	828	803	792	778	802	730	671
21	Nandipur	RLNG	126	117	52	41	43	52	116	120	140	143	147	150	162	184	191	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	367	627
23	Orient	RLNG	58	51	26	6	22	22	38	46	67	59	0	0	0	0	0	0	0
24	Rousch	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	35	28	6	6	6	13	22	27	56	54	0	0	0	0	0	0	0
26	Saphire	RLNG	50	45	22	6	10	22	26	41	61	66	0	0	0	0	0	0	0
27	Trimmu	RLNG	503	451	552	656	689	727	758	801	905	889	886	882	906	906	926	949	982
28	Davis	RLNG	2	1	0	0	0	0	1	1	2	2	2	2	2	0	0	0	0
29	NEW OCGT (Generic)	RLNG	163	114	20	3	18	37	77	92	188	352	582	735	876	943	1,235	1,244	1,182
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	92	87	119	133	84	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	84	71	99	117	108	91	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	395	341	454	569	538	564	603	525	512	502	509	507	513	504	179	0	0
36	Hatim	Gas	37	27	31	31	30	29	28	27	27	26	26	27	27	25	25	24	24
37	HCPC	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	189	153	204	250	252	251	240	252	159	0	0	0	0	0	0	0	0
43	C-1	Nuclear	2,077	2,082	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,077	2,077	2,082	2,077	2,077	2,077
44	C-2	Nuclear	2,077	2,082	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,077	2,077	2,082	2,077	2,077	2,077
45	C-3	Nuclear	2,175	2,186	2,176	2,181	2,183	2,187	2,182	2,182	2,182	2,187	2,183	2,183	2,183	2,187	2,182	2,182	2,182
46	C-4	Nuclear	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181
47	C-5	Nuclear	7,239	7,262	7,251	7,251	7,249	7,264	7,248	7,248	7,250	7,265	7,249	7,249	7,249	7,266	7,250	7,252	7,249
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	7,238	7,269	7,251	7,247	7,243	7,263	7,248	7,249	7,250	7,266	7,248	7,249	7,248	7,267	7,252	7,250	7,250
50	K-3	Nuclear	7,240	7,268	7,251	7,251	7,250	7,262	7,247	7,252	7,251	7,267	7,249	7,250	7,248	7,266	7,251	7,252	7,250
51	Alliance	Bagasse	137	136	137	139	140	141	142	142	143	144	143	143	143	144	143	143	143
52	Almoiz	Bagasse	164	164	164	167	168	170	171	171	172	172	172	172	172	172	172	172	172
53	Bahawalpur	Bagasse	142	141	143	145	146	147	148	148	149	149	149	149	149	149	149	149	149
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	100	100	101	102	103	104	104	104	105	105	105	105	105	105	105	105	105
56	Chiniot	Bagasse	185	184	187	189	190	194	195	195	196	197	196	196	196	197	196	196	196

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	339	338	340	345	348	350	353	353	355	356	355	355	355	356	355	355	355
58	Faran	Bagasse	121	120	121	123	124	125	126	126	126	127	126	126	126	127	126	126	126
59	Ghotki	Bagasse	205	204	206	209	210	212	214	214	215	215	215	215	215	215	215	215	215
60	Hamza	Bagasse	59	58	59	60	60	61	61	61	62	62	62	62	62	62	62	62	62
61	Hamza-II	Bagasse	137	136	137	139	140	141	142	142	143	144	143	143	143	144	143	143	143
62	HSM	Bagasse	120	120	121	123	124	124	126	126	126	127	126	126	126	127	126	126	126
63	Hunza	Bagasse	227	226	228	231	233	236	236	236	238	238	238	238	238	238	238	238	238
64	Indus	Bagasse	141	141	142	144	145	145	147	147	148	148	148	148	148	148	148	148	148
65	Ittefaq	Bagasse	142	142	143	145	146	147	148	148	149	149	149	149	149	149	149	149	149
66	JDW-II	Bagasse	186	186	187	190	191	192	192	192	193	194	193	193	193	194	193	193	193
67	JDW-III	Bagasse	174	174	175	177	178	179	179	179	180	180	180	180	180	180	180	180	180
68	Kashmir	Bagasse	182	182	183	186	187	188	190	190	191	191	191	191	191	191	191	191	191
69	Mehran	Bagasse	120	120	121	123	124	124	126	126	126	127	126	126	126	127	126	126	126
70	RYK_Energy	Bagasse	113	113	114	116	117	117	119	119	119	120	119	119	119	120	119	119	119
71	Ryk_Mills	Bagasse	137	136	138	139	140	142	142	142	143	144	143	143	143	144	143	143	143
72	Sadiqabad	Bagasse	205	204	206	209	210	212	214	214	215	215	215	215	215	215	215	215	215
73	Shahtaj	Bagasse	146	145	146	149	149	150	152	152	153	153	153	153	153	153	153	153	153
74	Sheikhoo	Bagasse	137	136	137	139	140	141	142	142	143	144	143	143	143	144	143	143	143
75	TAY	Bagasse	137	136	137	139	140	141	142	142	143	144	143	143	143	144	143	143	143

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	102	101	102	106	106	108	108	108	109	109	109	109	109	109	109	109	109
77	Two_Star	Bagasse	227	225	228	231	233	235	236	236	238	238	238	238	238	238	238	238	238
78	Access_Electric	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	19,807	22,146	24,727	24,727	24,727	25,235	26,527	27,661	29,508	29,508	30,184	32,205	33,174	34,502	36,224	37,060	38,720
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
91	Zorlu	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
93	Allai Khwar	Hydro	395	396	395	395	395	396	395	395	395	396	395	395	395	396	395	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
100	Azad Pattan	Hydro	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
109	Blue Star	Hydro	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	765	767	765	765	765	767	765	765	765	767	765	765	765	767	765	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
120	Dander	Hydro	195	220	215	220	223	220	223	224	225	223	222	226	226	231	224	224	225
121	Daral Khwar	Hydro	132	140	140	136	138	140	139	140	140	140	140	142	140	141	141	141	140
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
123	Dasu_1	Hydro	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975
124	Dasu_2	Hydro	0	11,474	11,501	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
129	Dubair Kalay	Hydro	337	364	360	363	365	370	363	369	368	367	366	365	367	369	371	372	370
130	Dubair Khwar	Hydro	568	567	560	567	571	571	571	574	575	576	574	575	574	576	575	576	575
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
138	Ghazi Brotha	Hydro	6,491	6,510	6,513	6,506	6,494	6,522	6,522	6,516	6,527	6,530	6,534	6,502	6,518	6,543	6,526	6,516	6,521
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
140	Golen Gol	Hydro	95	96	96	97	96	97	96	97	97	97	97	97	97	97	97	97	97
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
142	Gorkin Matiltan	Hydro	301	301	309	306	307	312	310	311	311	312	315	312	311	314	315	311	312
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
144	Gulpur	Hydro	480	481	480	480	480	481	480	480	480	481	480	480	480	481	480	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
147	Harpo	Hydro	169	169	169	169	169	169	169	169	169	170	169	169	169	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
149	Jabori	Hydro	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
151	Jagran-I	Hydro	78	80	80	79	80	80	80	80	80	80	80	80	80	81	81	80	80

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
155	Jhing	Hydro	64	65	66	65	65	66	66	66	66	66	66	66	66	66	66	66	66
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
157	Jinnah	Hydro	192	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
161	Karora	Hydro	62	63	63	62	63	63	63	63	63	63	63	63	63	64	63	63	63
162	Karot	Hydro	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	345	350	348	348	349	349	348	349	350	349	349	350	349	350	350	349	349
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
168	Khan Khwar	Hydro	234	235	234	234	234	235	234	234	234	235	234	234	234	235	234	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
172	Kohala	Hydro	5,986	6,114	6,093	6,060	6,085	6,094	6,089	6,101	6,098	6,125	6,103	6,093	6,098	6,123	6,107	6,115	6,104
173	Koto	Hydro	200	205	205	202	204	205	205	207	208	208	208	208	207	210	208	209	208
174	Lawi	Hydro	291	291	291	290	291	291	291	291	291	292	291	291	291	292	291	292	292
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
184	Mahl	Hydro	3,311	3,378	3,403	3,482	3,476	3,476	3,477	3,472	3,473	3,483	3,502	3,483	3,484	3,487	3,488	3,487	3,483
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
186	Malakand-III	Hydro	362	362	366	360	366	366	366	367	367	367	367	367	367	367	367	367	367
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
188	Mangla	Hydro	4,881	4,955	4,977	4,961	4,968	5,000	4,989	4,994	4,993	5,008	4,995	4,993	4,997	5,007	4,994	4,995	4,999
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	2,766	2,723	2,783	2,774	2,790	2,799	2,792	2,832	2,819	2,831	2,821	2,817	2,827	2,819	2,821	2,812	2,813
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
201	Neelum Jehlum	Hydro	4,684	4,791	4,784	4,800	4,789	4,866	4,851	4,870	4,862	4,867	4,860	4,868	4,863	4,874	4,856	4,866	4,861
202	Nerai-Dubair	Hydro	196	227	223	231	235	235	236	238	238	237	238	238	241	242	239	243	240
203	New Bong	Hydro	470	471	470	470	470	471	470	470	470	471	470	470	470	471	470	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	632	634	634	633	633	634	634	633	633	634	634	634	634	634	634	634	633
210	Pehur	Hydro	36	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
215	Rajdhani	Hydro	670	671	670	670	670	671	670	670	670	671	670	670	670	671	670	670	670
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
219	Riali-II	Hydro	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	378	382	381	379	381	382	380	380	381	381	381	382	381	382	381	381	381
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
237	Suki Kinari	Hydro	2,758	2,768	2,777	2,766	2,771	2,777	2,777	2,776	2,778	2,777	2,775	2,780	2,773	2,780	2,779	2,778	2,775
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
240	Tarbela_1-10	Hydro	7,169	7,292	7,234	7,175	7,269	7,261	7,349	7,326	7,344	7,362	7,330	7,336	7,321	7,355	7,337	7,313	7,357
241	Tarbela_11-14	Hydro	7,205	7,096	7,256	7,145	7,095	7,192	7,234	7,224	7,233	7,248	7,256	7,263	7,245	7,239	7,246	7,239	7,237
242	Tarbela_Ext_4	Hydro	3,801	3,813	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811
243	Tarbela_Ext_5	Hydro	3,893	3,947	3,895	3,814	3,981	3,942	3,940	3,980	3,981	3,975	3,982	3,978	3,982	3,984	3,980	3,983	3,986
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
245	Thakot-I	Hydro	9,827	9,954	9,909	10,063	10,071	10,100	10,088	10,092	10,089	10,112	10,101	10,103	10,099	10,119	10,100	10,100	10,094
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	7,042	7,026	7,071	7,207	7,216	7,234	7,220	7,221	7,221	7,234	7,221	7,221	7,221	7,233	7,220	7,221	7,220
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
258	Warsak	Hydro	997	999	997	997	997	999	997	997	997	999	997	997	997	999	997	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
261	CASA	Cross Border	1,989	2,407	2,247	2,109	2,160	2,229	2,195	2,204	2,239	2,303	2,297	2,352	2,425	2,396	2,438	2,505	2,508
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	3,320	3,388	3,382	3,292	3,382	3,388	3,382	3,382	3,382	3,388	3,382	3,382	3,382	3,388	3,382	3,382	3,382
267	Candidate_Wind_North	Wind	1,299	1,424	1,368	1,421	1,358	1,424	1,411	1,421	1,421	1,424	1,421	1,421	1,421	1,424	1,421	1,421	1,421
268	Candidate_Wind_South	Wind	22,807	22,842	22,977	22,977	22,973	23,009	22,977	22,977	22,977	23,009	22,977	22,977	22,977	23,009	22,977	22,977	22,977
269	Dawood	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
270	Din	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
273	FWEL-II	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
274	Gul Ahmed	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
275	Gul_Electric	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
282	Master	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
283	Master_Green	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	206	207	206	206	206	207	206	206	206	207	206	206	206	207	206	206	206
286	NASDA	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
289	Shaheen	Wind	175	176	175	175	175	176	175	175	175	176	175	175	175	176	175	175	175
290	Tenga	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
293	Three_Gorges_III	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
294	Trans_Atlantic	Wind	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
302	Zephyr	Wind	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	63	63	74	63	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			250,462	264,394	278,676	294,572	311,828	330,997	350,196	371,490	394,338	419,677	428,094	451,631	475,646	498,948	519,925	540,294	559,765
Energy Demand			250,462	264,394	278,676	294,572	311,828	330,997	350,196	371,490	394,338	419,677	428,094	451,631	475,646	498,948	519,925	540,294	559,765
Energy Not Served			0.04	0.00	-0.02	0.01	-0.01	0.00	0.03	0.01	-0.03	0.00	0.00	0.01	-0.01	0.00	-0.03	0.03	-0.02

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

C-8. Year wise Cost Breakup-Discounted Prices

FY	Present Worth Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,751,312	6,708,034	6,708,034
2021	0	913,435	4,826,457	5,739,893	12,447,927
2022	0	909,992	3,537,939	4,447,931	16,895,858
2023	215,029	890,290	2,739,694	3,845,013	20,740,870
2024	511,136	876,831	2,111,682	3,499,649	24,240,519
2025	579,057	823,709	1,761,742	3,164,509	27,405,028
2026	608,447	791,391	1,404,241	2,804,080	30,209,108
2027	642,058	730,104	1,317,267	2,689,429	32,898,536
2028	683,448	686,495	1,191,705	2,561,648	35,460,185
2029	830,902	643,657	1,065,786	2,540,345	38,000,530
2030	940,954	593,972	980,002	2,514,928	40,515,458
2031	961,650	518,716	877,290	2,357,657	42,873,115
2032	963,445	475,957	777,625	2,217,027	45,090,142
2033	1,008,553	447,300	546,992	2,002,845	47,092,987
2034	1,022,063	421,836	454,644	1,898,543	48,991,530
2035	1,012,602	397,093	455,551	1,865,247	50,856,777
2036	1,001,325	373,676	466,000	1,841,000	52,697,777
2037	984,242	350,447	472,925	1,807,614	54,505,392
2038	969,280	331,816	468,331	1,769,427	56,274,819
2039	951,916	314,486	472,844	1,739,246	58,014,066
2040	933,975	298,333	468,704	1,701,012	59,715,078
2041	866,970	271,922	437,119	1,576,012	61,291,090
2042	842,295	256,567	426,835	1,525,697	62,816,787
2043	812,079	241,613	417,722	1,471,415	64,288,202
2044	778,309	227,329	402,969	1,408,606	65,696,808
2045	745,656	212,521	385,565	1,343,742	67,040,550
2046	709,054	197,762	365,997	1,272,813	68,313,364
2047	668,868	183,940	345,889	1,198,697	69,512,061

C-9. Year wise Cost Breakup-Un-Discounted Prices (k$)

FY	Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,751,312	6,708,034	6,708,034
2021	0	1,014,928	5,362,730	6,377,658	13,085,692
2022	0	1,123,447	4,367,826	5,491,273	18,576,965
2023	294,964	1,221,248	3,758,154	5,274,366	23,851,331
2024	779,052	1,336,428	3,218,537	5,334,017	29,185,349
2025	980,638	1,394,959	2,983,526	5,359,123	34,544,472
2026	1,144,901	1,489,142	2,642,328	5,276,371	39,820,843
2027	1,342,384	1,526,466	2,754,077	5,622,927	45,443,770
2028	1,587,690	1,594,768	2,768,399	5,950,856	51,394,626
2029	2,144,703	1,661,391	2,750,981	6,557,075	57,951,702
2030	2,698,629	1,703,496	2,810,620	7,212,744	65,164,445
2031	3,064,429	1,652,960	2,795,604	7,512,993	72,677,438
2032	3,411,275	1,685,223	2,753,343	7,849,841	80,527,279
2033	3,967,768	1,759,731	2,151,931	7,879,430	88,406,709
2034	4,467,687	1,843,946	1,987,358	8,298,990	96,705,699
2035	4,918,143	1,928,657	2,212,584	9,059,384	105,765,083
2036	5,403,744	2,016,577	2,514,813	9,935,134	115,700,217
2037	5,901,729	2,101,357	2,835,762	10,838,848	126,539,066
2038	6,457,792	2,210,713	3,120,240	11,788,745	138,327,811
2039	7,046,785	2,328,055	3,500,343	12,875,183	151,202,994
2040	7,682,189	2,453,868	3,855,217	13,991,274	165,194,268
2041	7,923,400	2,485,148	3,994,912	14,403,459	179,597,727
2042	8,553,203	2,605,351	4,334,357	15,492,911	195,090,639
2043	9,162,644	2,726,110	4,713,138	16,601,891	211,692,529
2044	9,757,343	2,849,930	5,051,862	17,659,135	229,351,665
2045	10,386,658	2,960,317	5,370,752	18,717,727	248,069,392
2046	10,974,225	3,060,823	5,664,646	19,699,694	267,769,085
2047	11,502,508	3,163,219	5,948,245	20,613,972	288,383,057

C-10. Year wise Nominal Capacity Addition (MW)

FY	Capacity Addition Over the Plan Period (2020-47) - MW										
	Local Coal	Hydro	RLNG	Nuclear	Imported Coal	RE	Natural Gas	Furnace Oil	Cross Border	Yearly Addition	Total (MW)
2020	602	9,945	6,677	1,230	3,736	1,846	3,010	6,488	0	33,534	-
2021	2,118	119	0	1,059	0	446	0	0	0	3,742	37,276
2022	607	720	0	1,059	917	1,410	0	-1,336	0	3,377	40,653
2023	0	968	0	0	0	3,000	-260	0	1,000	4,708	45,361
2024	1,514	1,413	0	0	644	2,889	-270	0	0	6,189	51,550
2025	0	3,088	0	0	0	2,422	0	0	0	5,510	57,060
2026	0	37	0	1,059	0	2,173	0	0	0	3,269	60,329
2027	607	700	0	0	0	1,801	-192	-1,200	0	1,716	62,045
2028	0	1,122	1,577	0	0	2,284	0	-824	0	4,159	66,204
2029	0	1,986	1,012	0	0	2,763	-106	0	0	5,656	71,860
2030	607	639	1,616	0	0	3,000	-678	-653	0	4,531	76,391
2031	0	2,154	1,347	0	0	0	0	-310	0	3,191	79,582
2032	0	2,160	1,228	0	0	1,442	-29	-367	0	4,434	84,016
2033	3,384	0	534	0	0	1,500	0	-627	0	4,791	88,808
2034	3,313	0	848	0	0	0	0	-156	0	4,005	92,813
2035	2,372	0	2,596	0	0	0	-212	-409	0	4,347	97,160
2036	2,431	0	2,904	0	0	307	-167	-606	0	4,869	102,028
2037	2,635	0	2,144	0	0	781	0	0	0	5,560	107,589
2038	3,115	0	2,045	0	0	685	0	0	0	5,845	113,434
2039	2,968	0	2,812	0	0	1,116	-355	0	0	6,540	119,974
2040	3,567	0	2,595	0	0	0	0	0	0	6,162	126,136
2041	1,209	0	1,010	0	0	409	0	0	0	2,628	128,765
2042	3,371	0	2,196	0	0	1,221	0	0	0	6,788	135,553
2043	3,375	0	2,501	0	0	585	0	0	0	6,462	142,015
2044	3,370	0	1,999	0	0	803	0	0	0	6,172	148,186
2045	3,348	0	2,609	0	0	1,041	-721	0	0	6,277	154,463
2046	3,308	0	1,675	0	0	505	0	0	0	5,488	159,951
2047	2,885	0	1,723	0	0	1,003	0	0	0	5,610	165,561
Total	**50,707**	**25,051**	**43,649**	**4,407**	**5,297**	**35,431**	**20**	**0**	**1,000**	**165,561**	

C-11. IGCEP Generation Mix 2020-2047 (GWh)

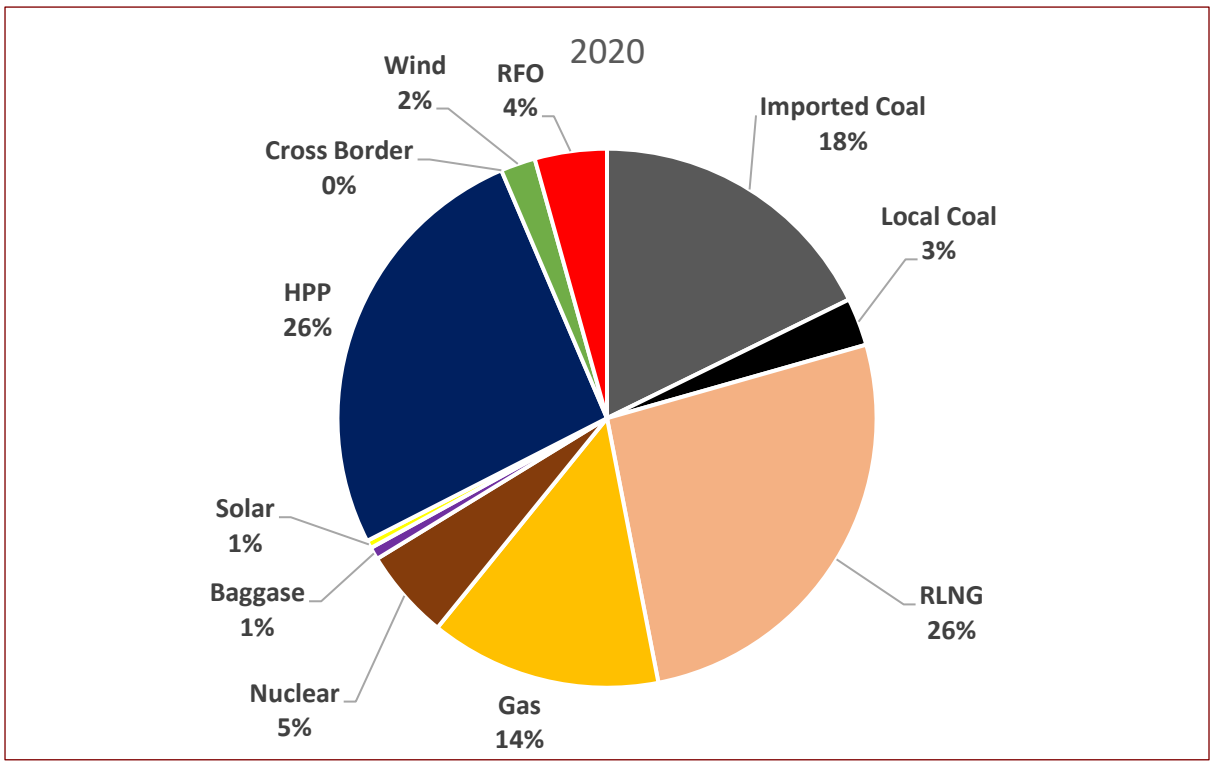


Chart C-1: IGCEP Generation Mix 2020 (GWh)

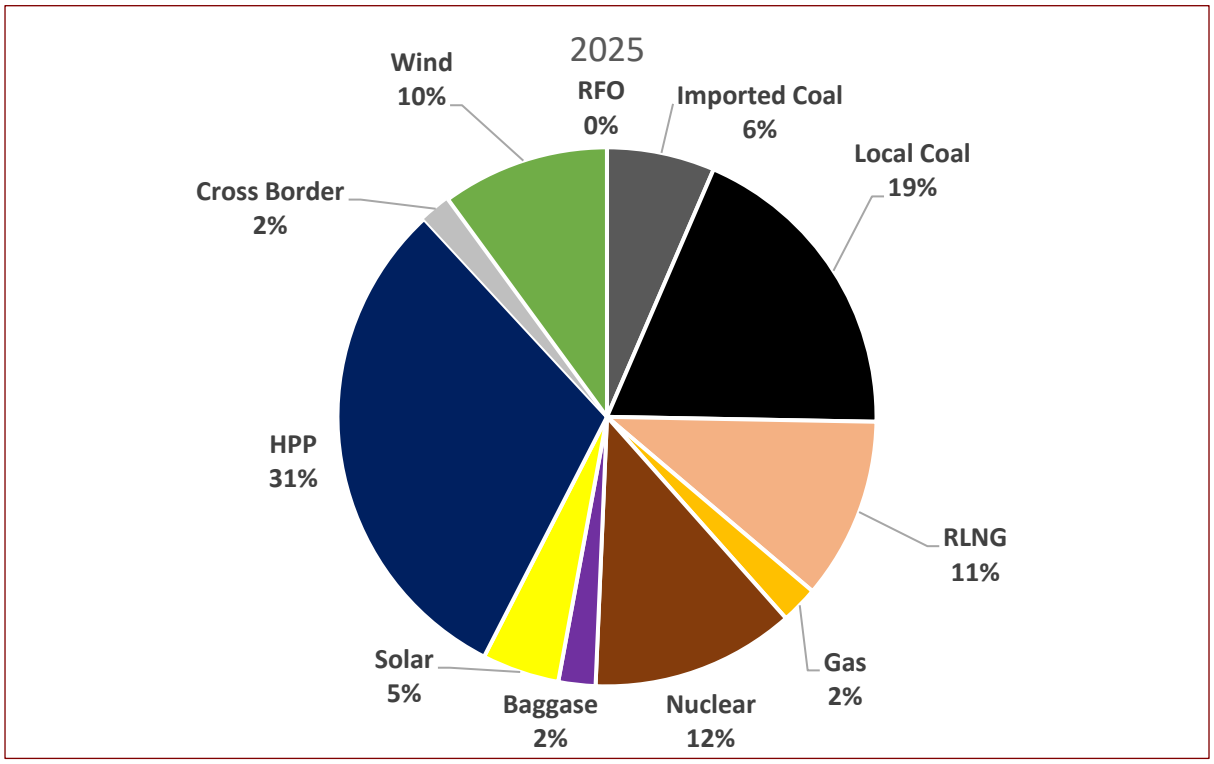


Chart C-2: IGCEP Generation Mix 2025 (GWh)

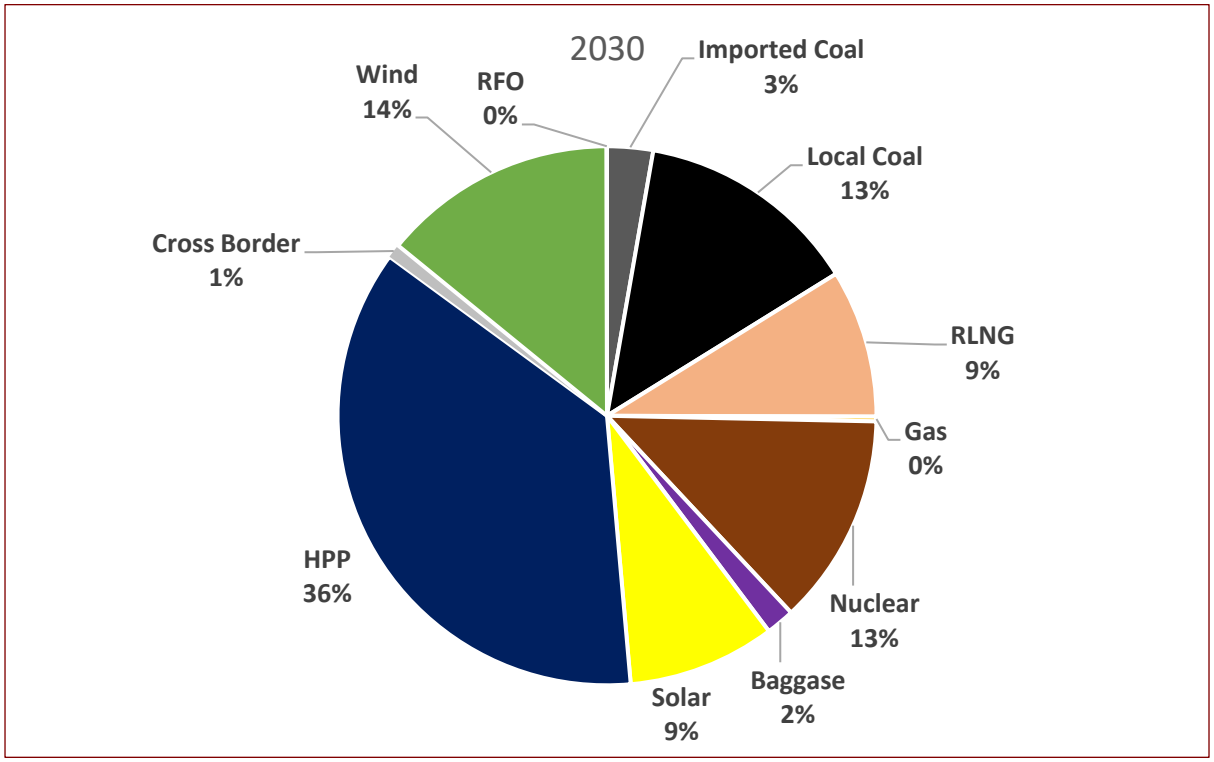


Chart C-3: IGCEP Generation Mix 2030 (GWh)

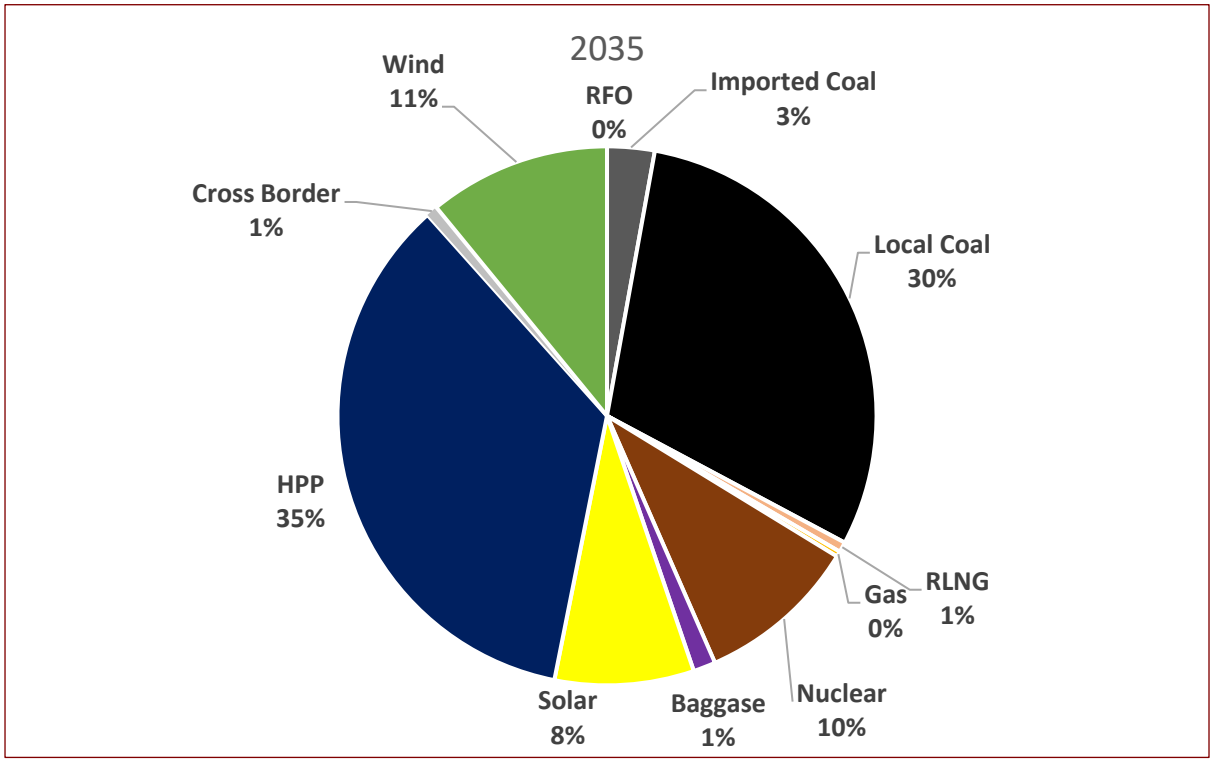


Chart C-4: IGCEP Generation Mix 2035 (GWh)

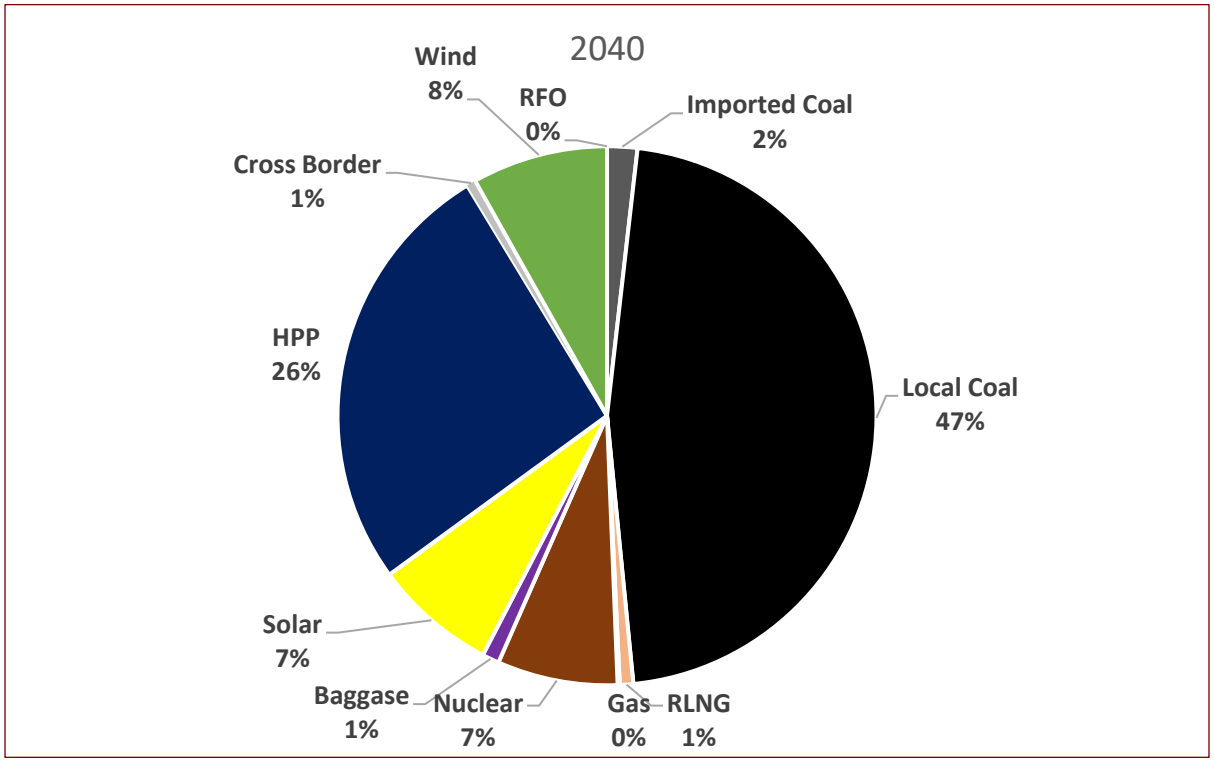


Chart C-5: IGCEP Generation Mix 2040 (GWh)

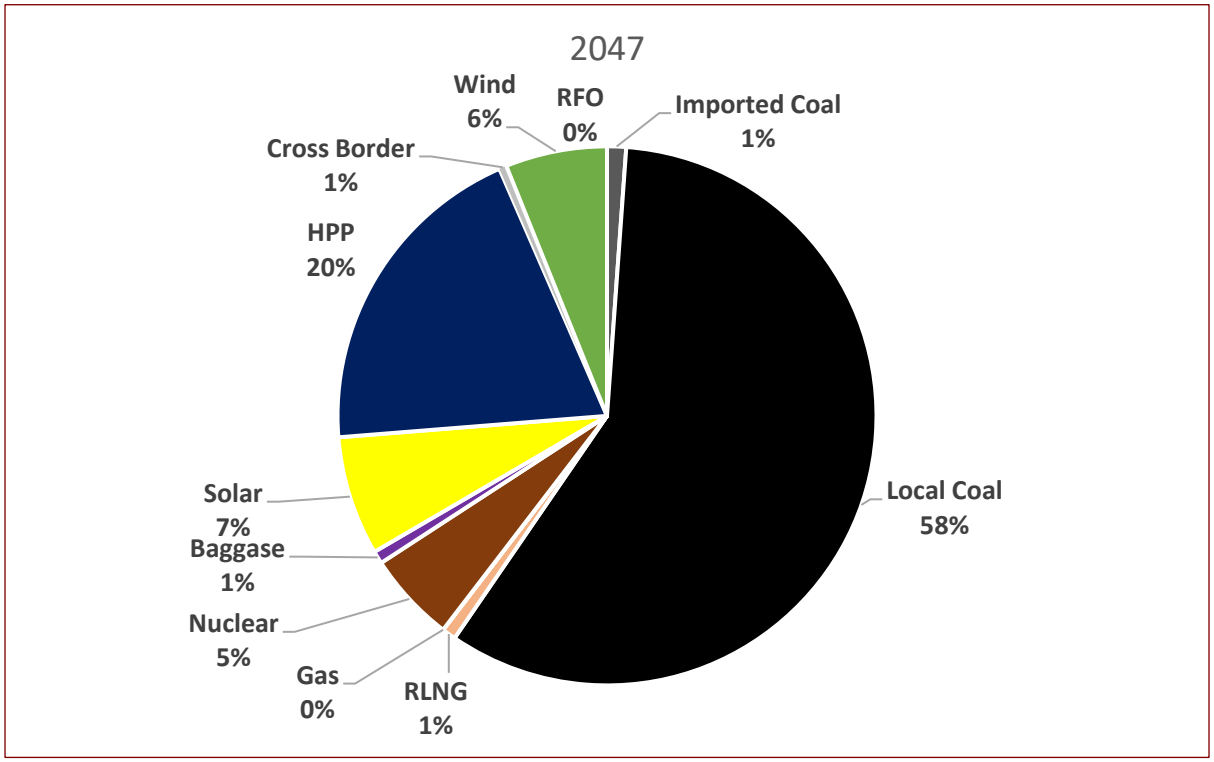


Chart C-6: IGCEP Generation Mix 2047 (GWh)

C-12. IGCEP Generation Mix 2020-47 (MW)

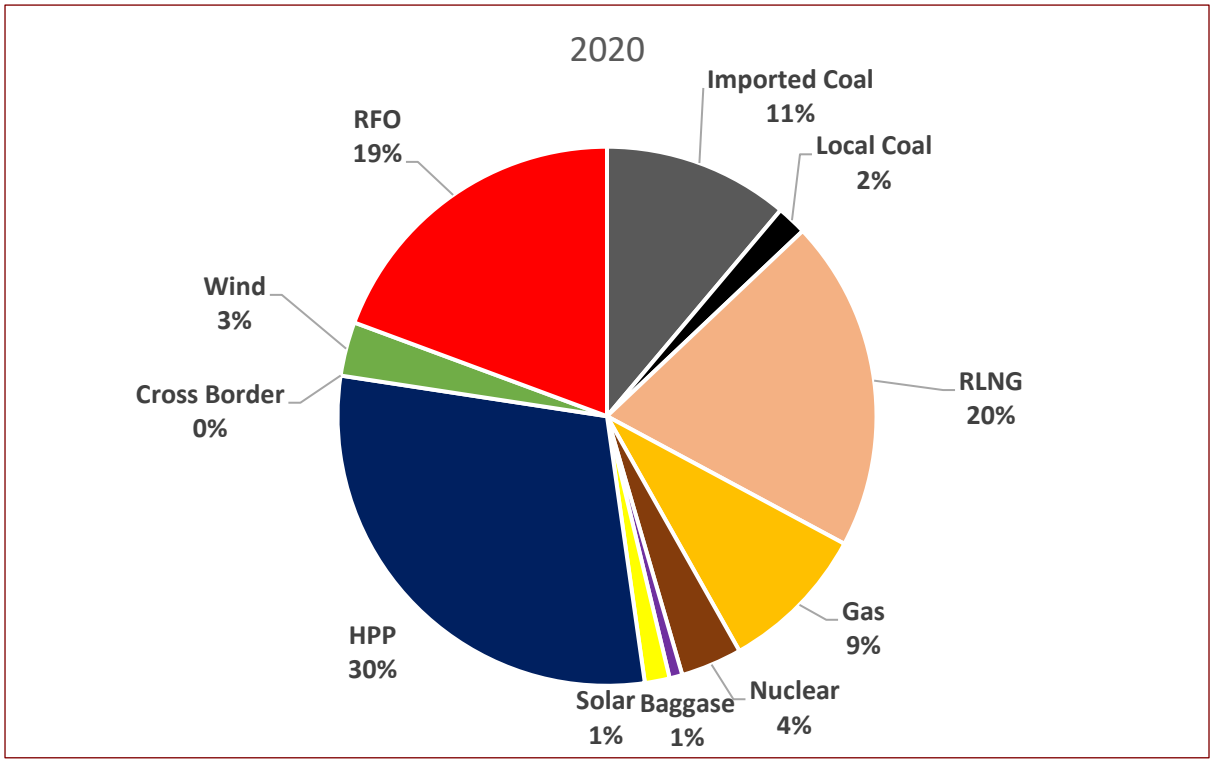


Chart C-7: IGCEP Generation Mix 2020 (MW)

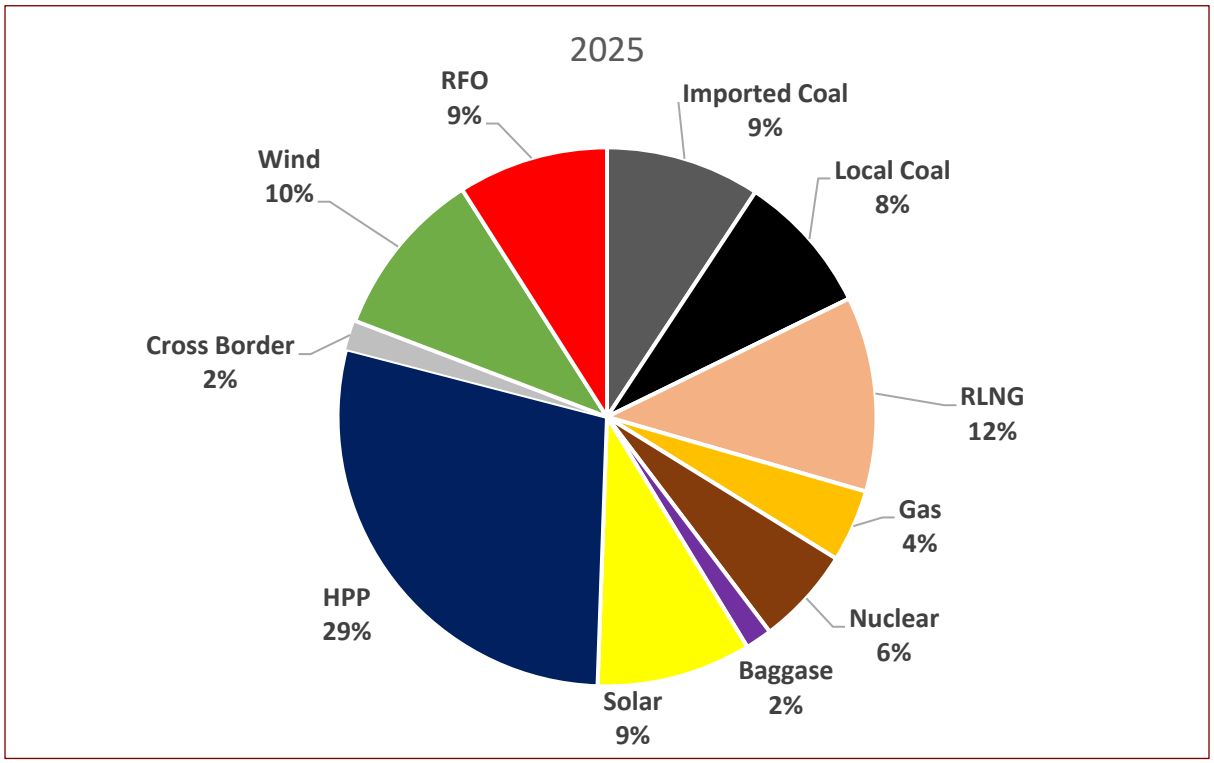


Chart C-8: IGCEP Generation Mix 2025 (MW)

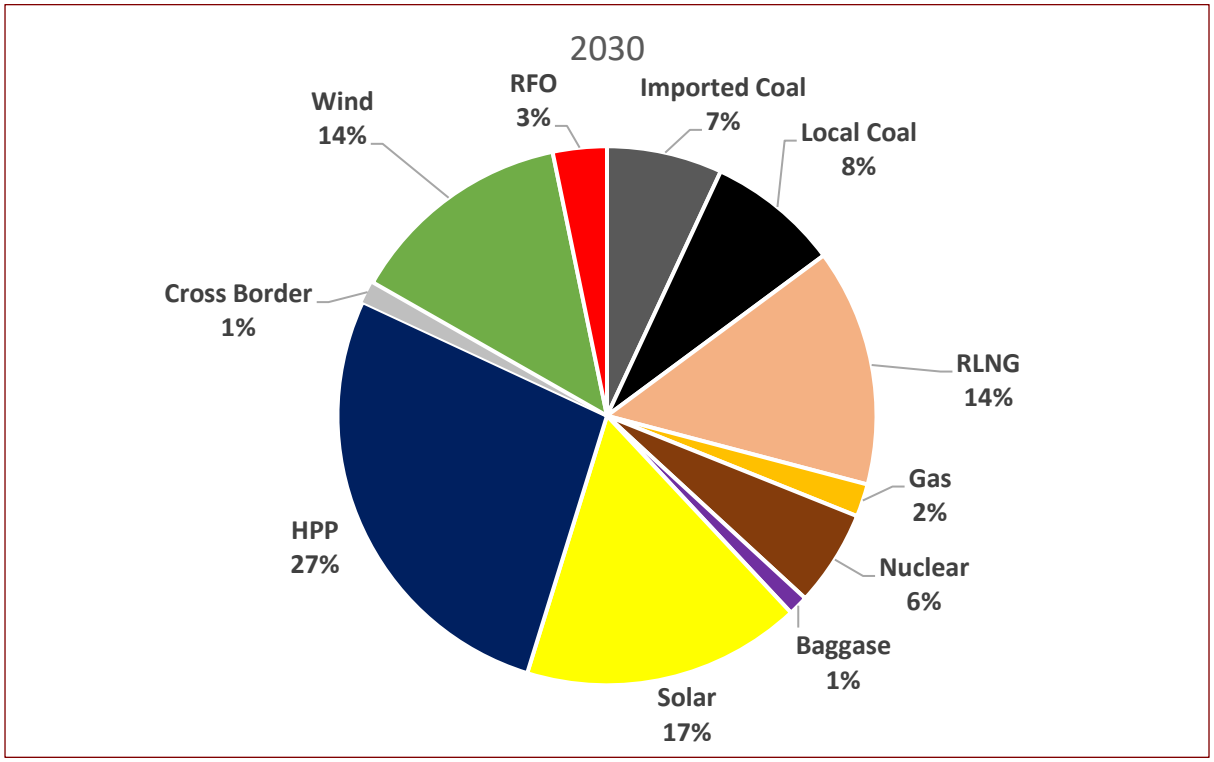


Chart C-9: IGCEP Generation Mix 2030 (MW)

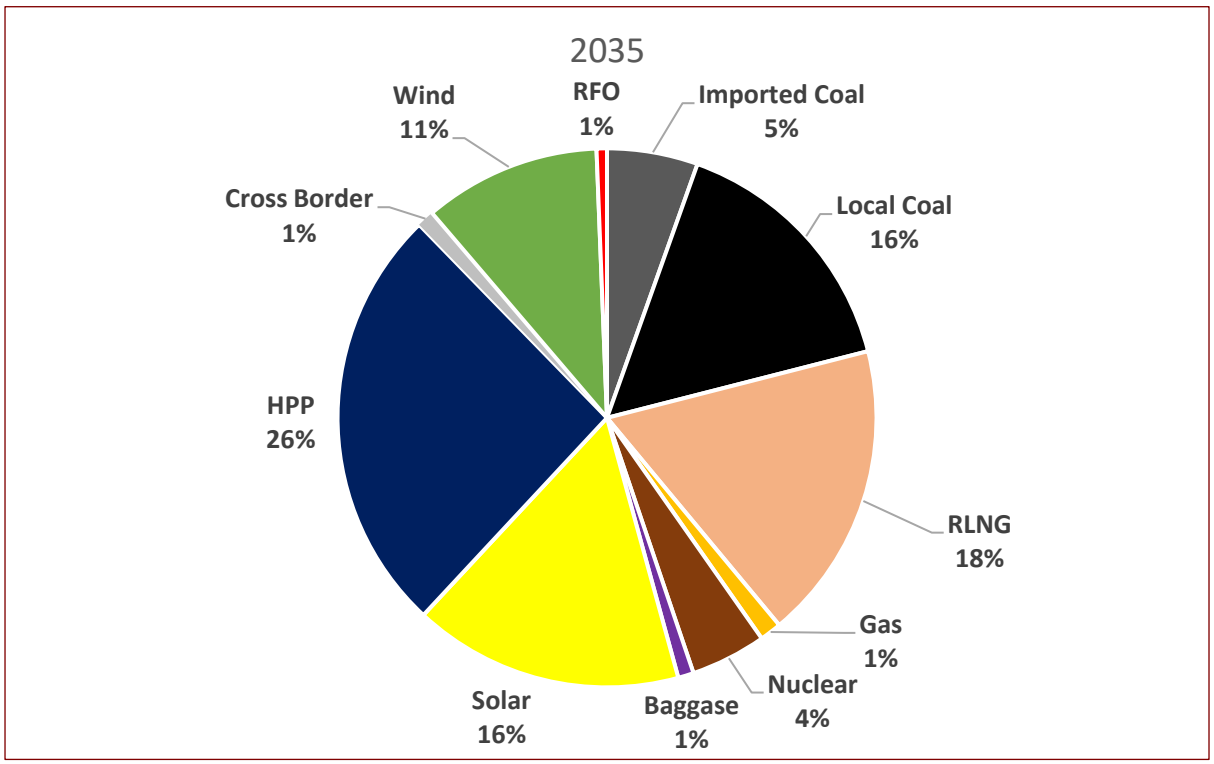


Chart C-10: IGCEP Generation Mix 2035 (MW)

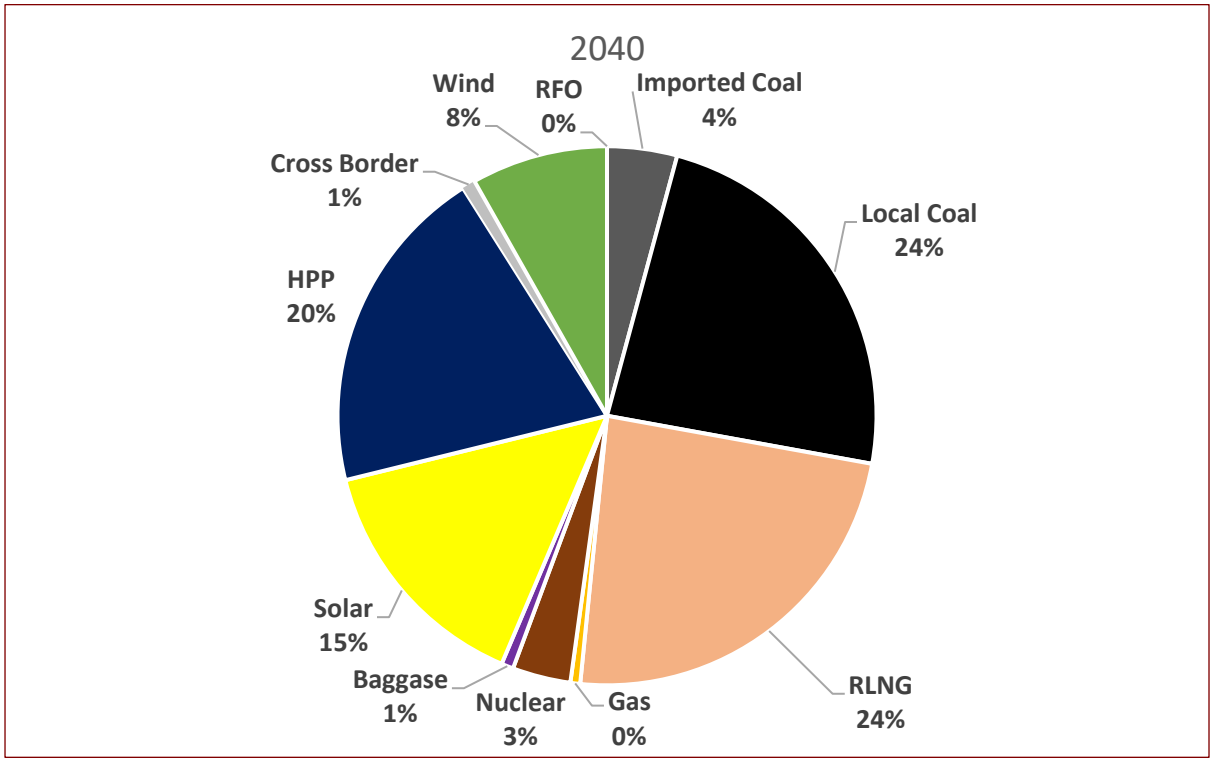


Chart C-11: IGCEP Generation Mix 2040 (MW)

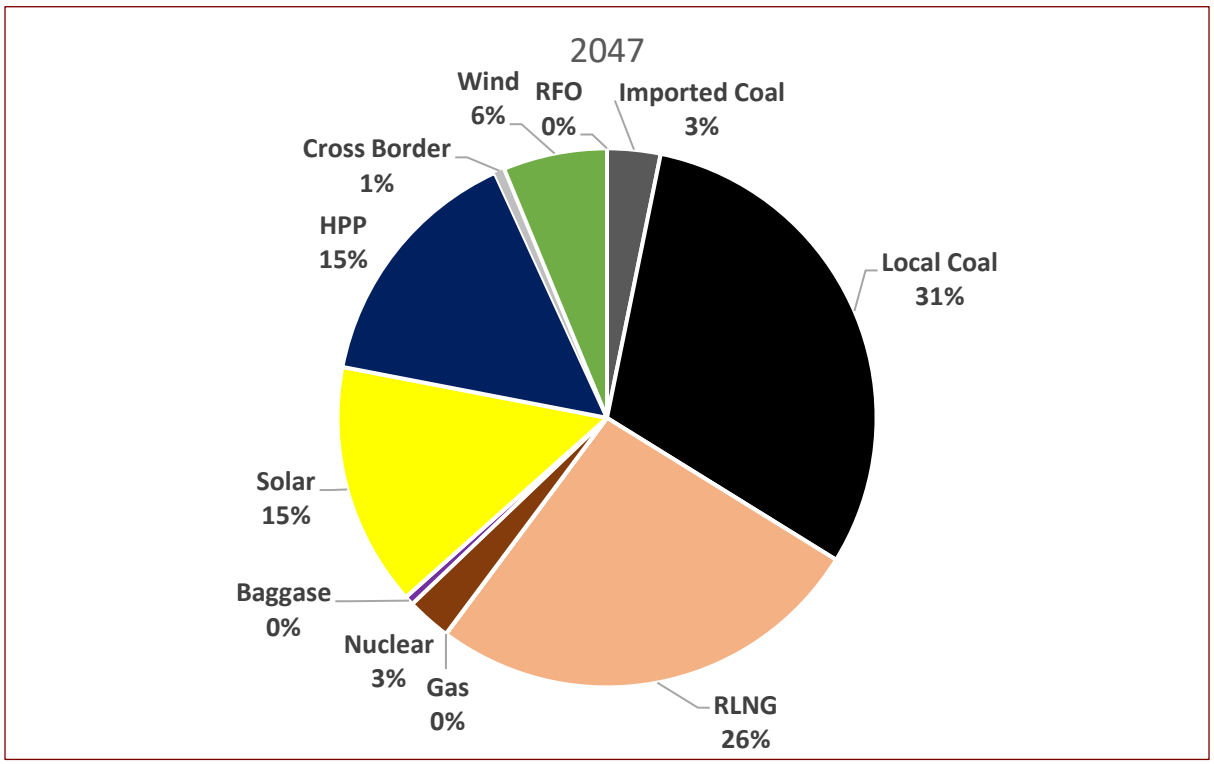


Chart C-12: IGCEP Generation Mix 2047 (MW)

C-13. IGCEP Monthly Generation Mix 2019-47 (GWh)

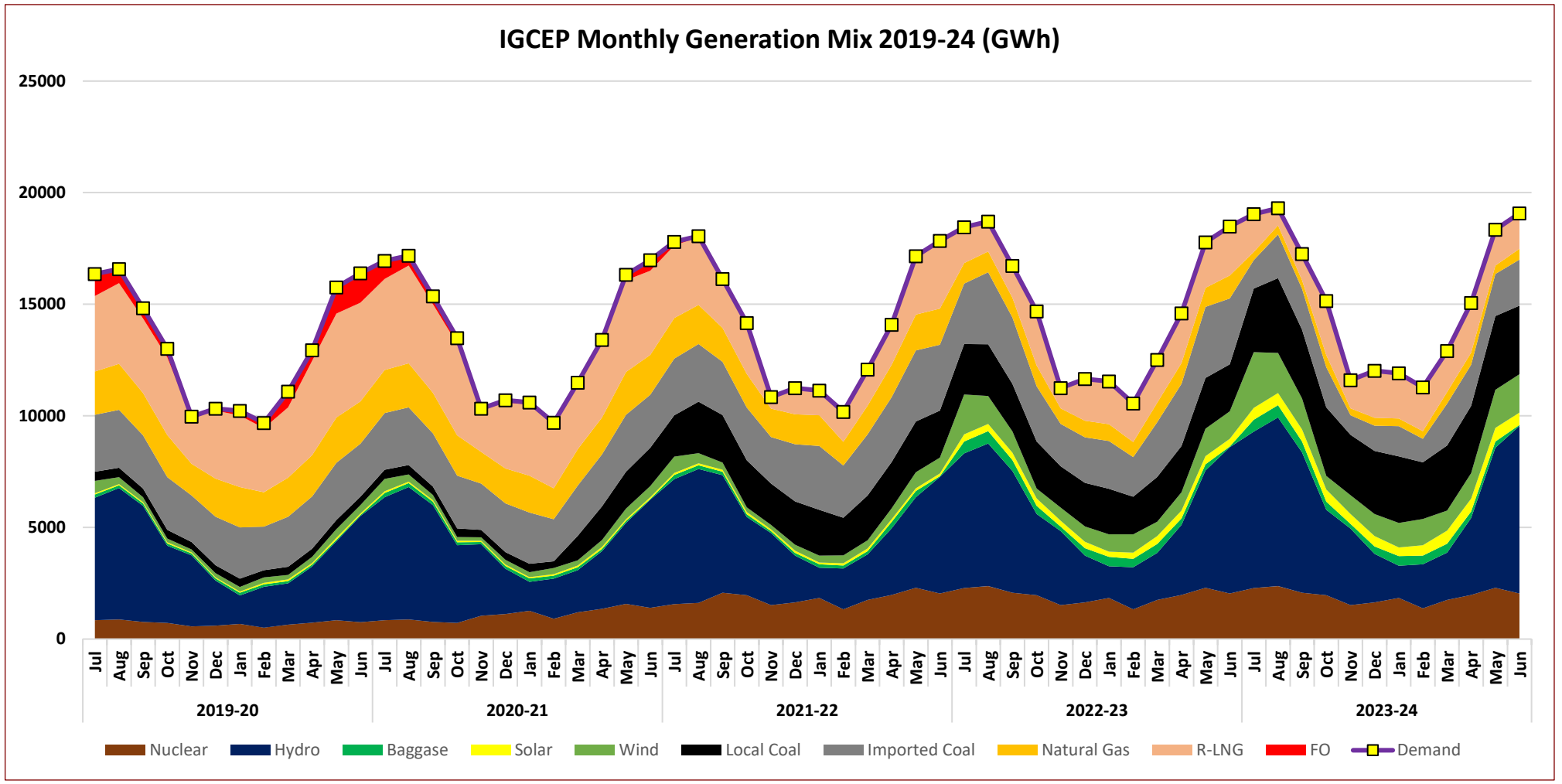


Chart C-13: IGCEP Monthly Generation Mix 2019-24 (GWh)

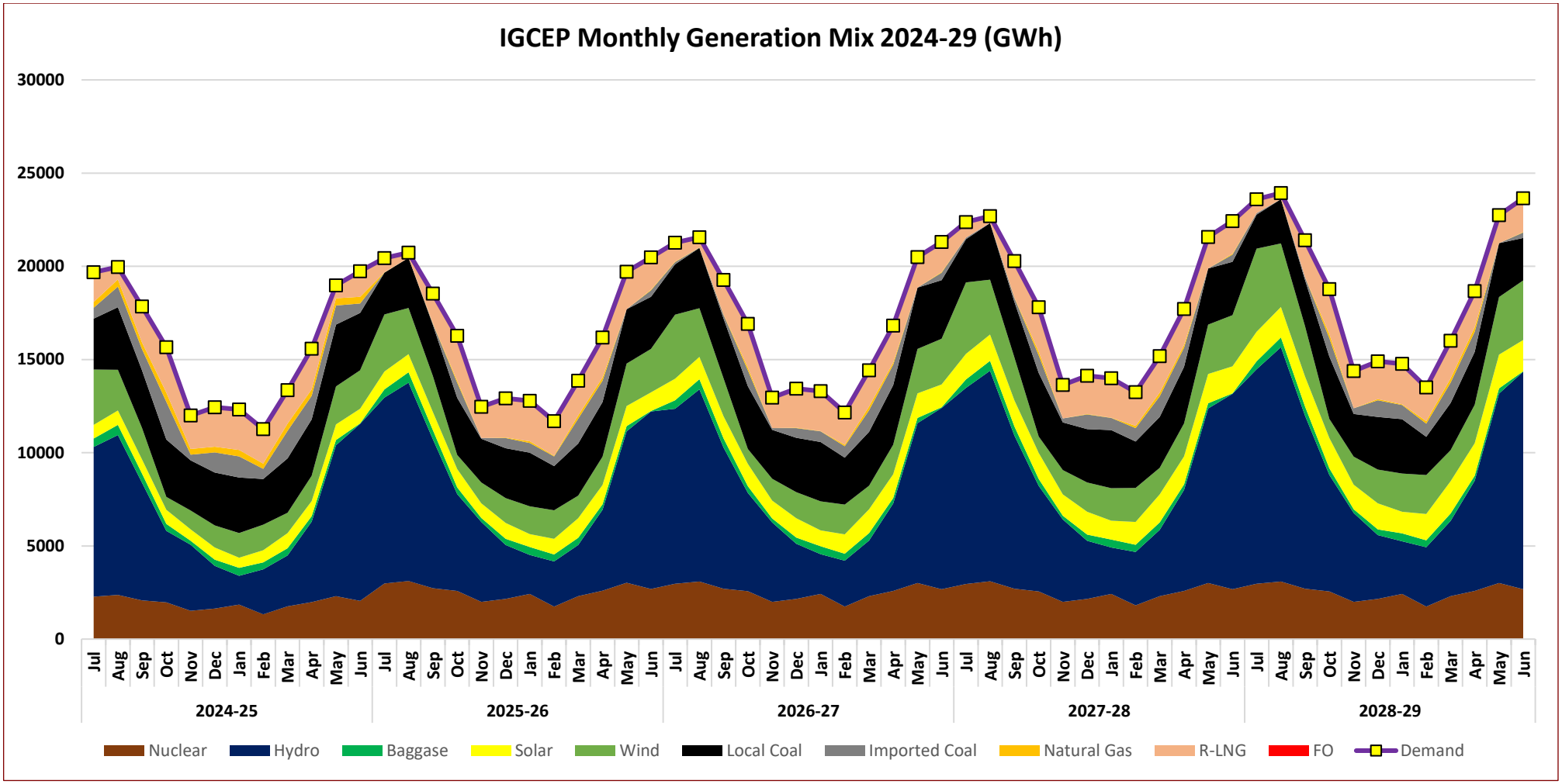


Chart C-14: IGCEP Monthly Generation Mix 2024-29 (GWh)

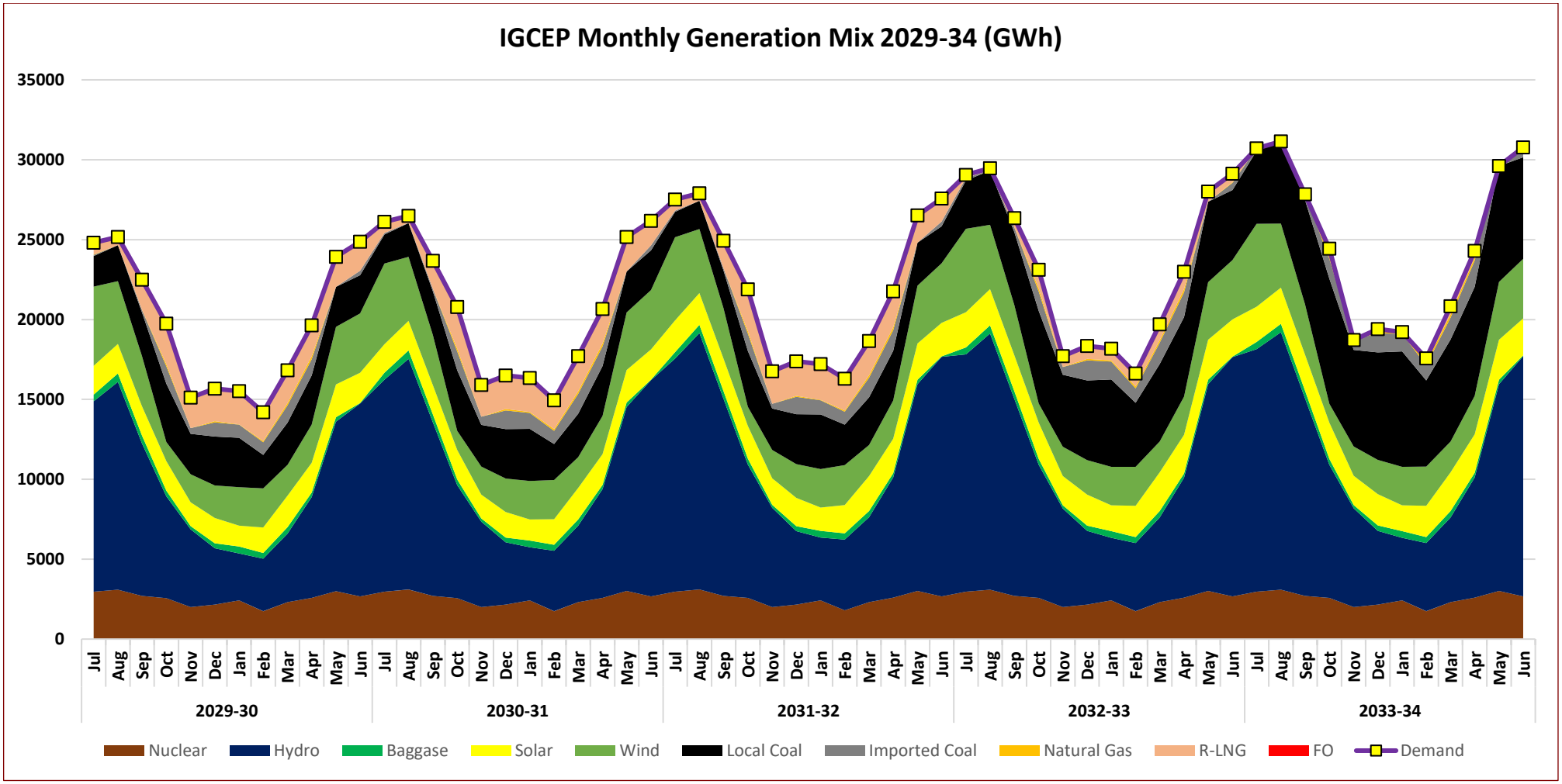


Chart C-15: IGCEP Monthly Generation Mix 2029-34 (GWh)

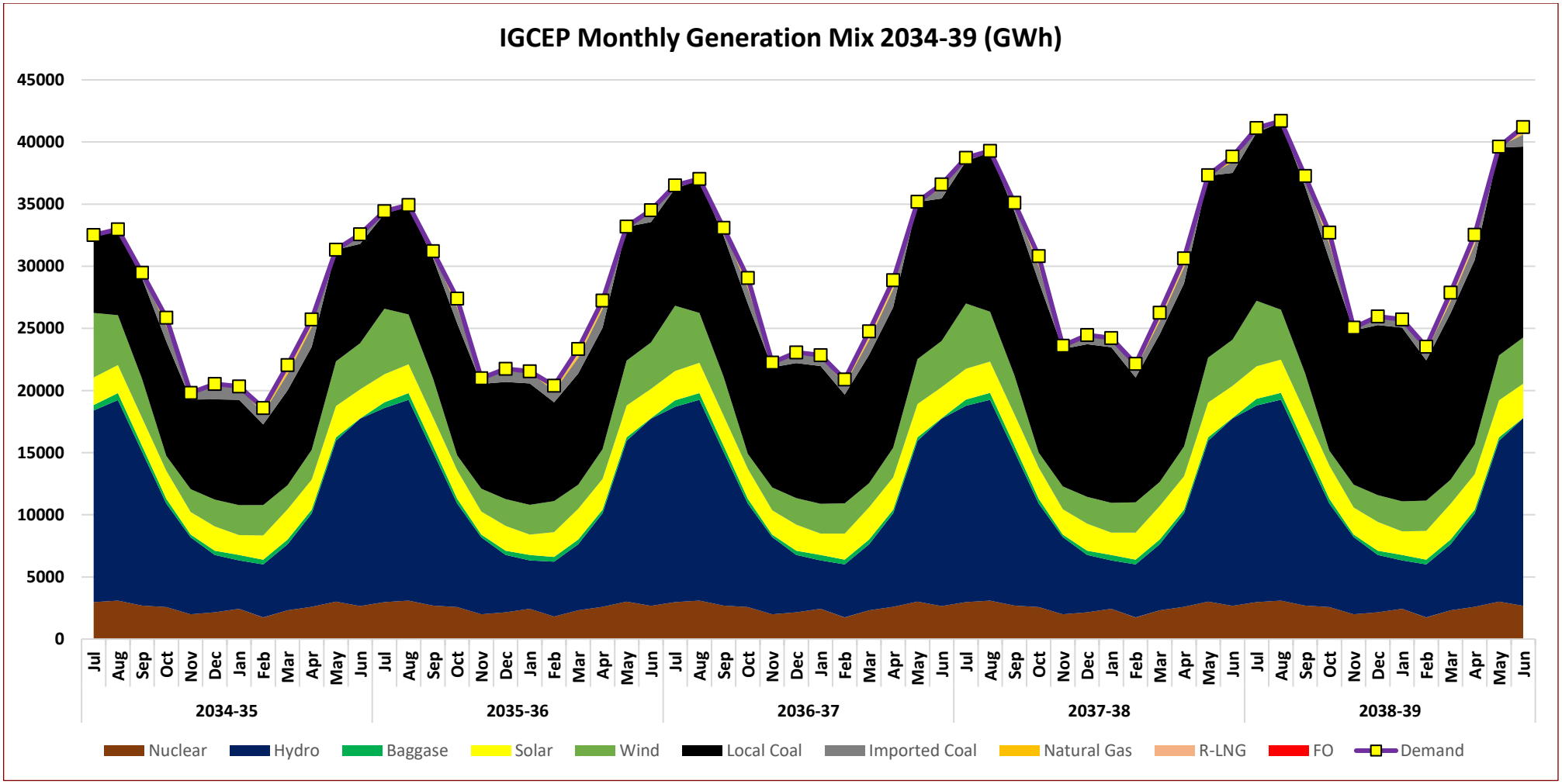


Chart C-16: IGCEP Monthly Generation Mix 2034-39 (GWh)

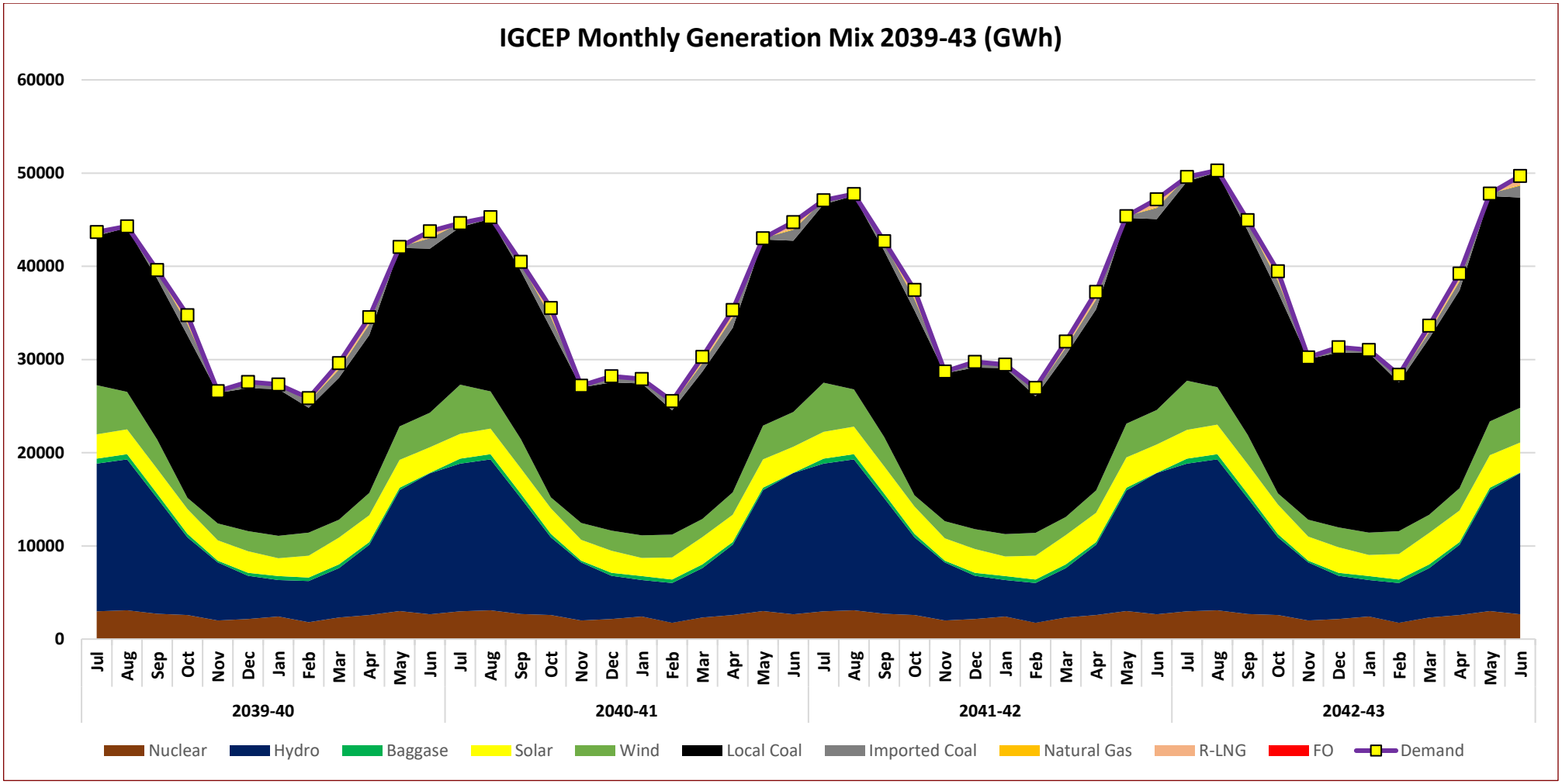


Chart C-17: IGCEP Monthly Generation Mix 2039-43 (GWh)

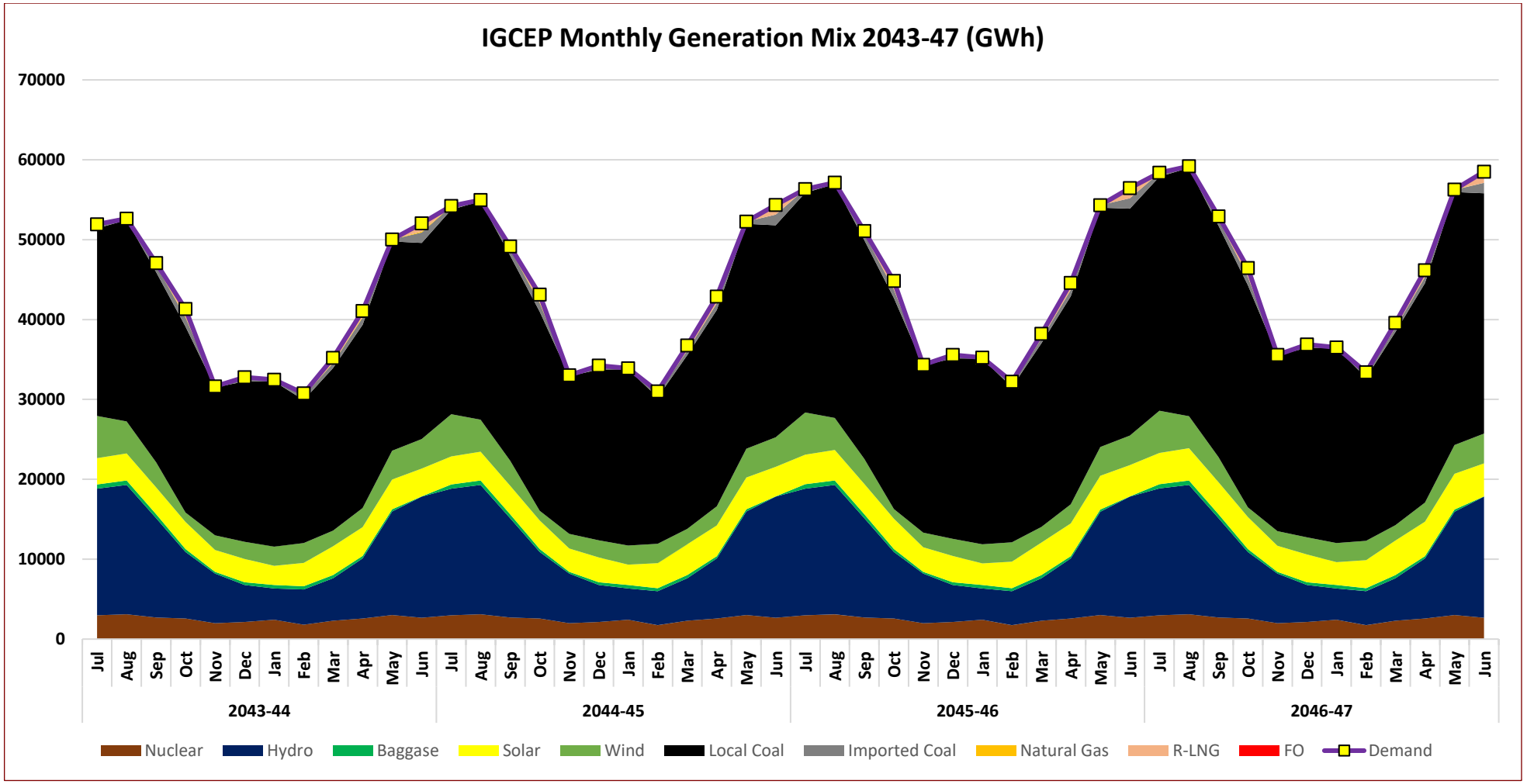


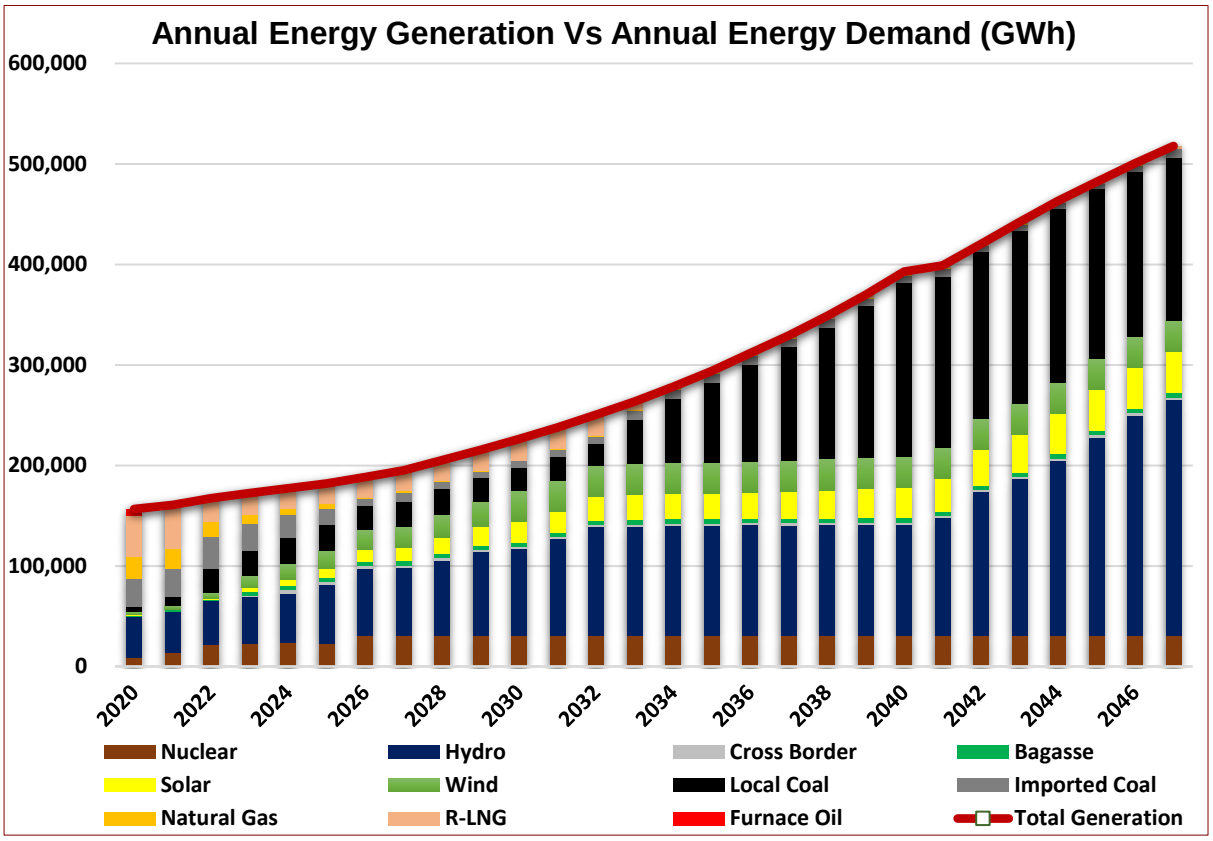
Chart C-18: IGCEP Monthly Generation Mix 2043-47 (GWh)

C-14. Year-wise Present Worth and Un-Discounted Cost

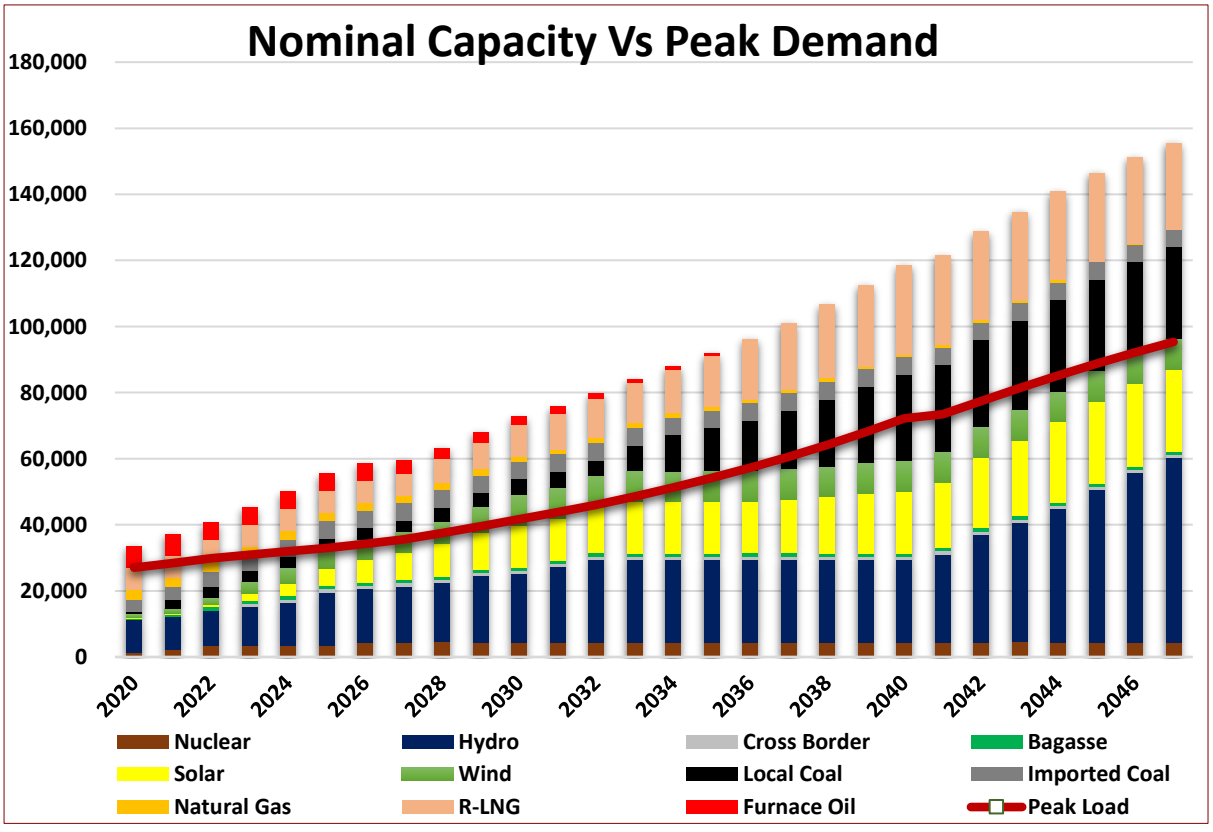
FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,751,312	6,708,034	6,708,034	0	956,722	5,751,312	6,708,034	6,708,034
2021	0	913,435	4,826,457	5,739,893	12,447,927	0	1,014,928	5,362,730	6,377,658	13,085,692
2022	0	909,992	3,537,939	4,447,931	16,895,858	0	1,123,447	4,367,826	5,491,273	18,576,965
2023	215,029	890,290	2,739,694	3,845,013	20,740,870	294,964	1,221,248	3,758,154	5,274,366	23,851,331
2024	511,136	876,831	2,111,682	3,499,649	24,240,519	779,052	1,336,428	3,218,537	5,334,017	29,185,349
2025	579,057	823,709	1,761,742	3,164,509	27,405,028	980,638	1,394,959	2,983,526	5,359,123	34,544,472
2026	608,447	791,391	1,404,241	2,804,080	30,209,108	1,144,901	1,489,142	2,642,328	5,276,371	39,820,843
2027	642,058	730,104	1,317,267	2,689,429	32,898,536	1,342,384	1,526,466	2,754,077	5,622,927	45,443,770
2028	683,448	686,495	1,191,705	2,561,648	35,460,185	1,587,690	1,594,768	2,768,399	5,950,856	51,394,626
2029	830,902	643,657	1,065,786	2,540,345	38,000,530	2,144,703	1,661,391	2,750,981	6,557,075	57,951,702
2030	940,954	593,972	980,002	2,514,928	40,515,458	2,698,629	1,703,496	2,810,620	7,212,744	65,164,445
2031	961,650	518,716	877,290	2,357,657	42,873,115	3,064,429	1,652,960	2,795,604	7,512,993	72,677,438
2032	963,445	475,957	777,625	2,217,027	45,090,142	3,411,275	1,685,223	2,753,343	7,849,841	80,527,279
2033	1,008,553	447,300	546,992	2,002,845	47,092,987	3,967,768	1,759,731	2,151,931	7,879,430	88,406,709
2034	1,022,063	421,836	454,644	1,898,543	48,991,530	4,467,687	1,843,946	1,987,358	8,298,990	96,705,699

FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2035	1,012,602	397,093	455,551	1,865,247	50,856,777	4,918,143	1,928,657	2,212,584	9,059,384	105,765,083
2036	1,001,325	373,676	466,000	1,841,000	52,697,777	5,403,744	2,016,577	2,514,813	9,935,134	115,700,217
2037	984,242	350,447	472,925	1,807,614	54,505,392	5,901,729	2,101,357	2,835,762	10,838,848	126,539,066
2038	969,280	331,816	468,331	1,769,427	56,274,819	6,457,792	2,210,713	3,120,240	11,788,745	138,327,811
2039	951,916	314,486	472,844	1,739,246	58,014,066	7,046,785	2,328,055	3,500,343	12,875,183	151,202,994
2040	933,975	298,333	468,704	1,701,012	59,715,078	7,682,189	2,453,868	3,855,217	13,991,274	165,194,268
2041	866,970	271,922	437,119	1,576,012	61,291,090	7,923,400	2,485,148	3,994,912	14,403,459	179,597,727
2042	842,295	256,567	426,835	1,525,697	62,816,787	8,553,203	2,605,351	4,334,357	15,492,911	195,090,639
2043	812,079	241,613	417,722	1,471,415	64,288,202	9,162,644	2,726,110	4,713,138	16,601,891	211,692,529
2044	778,309	227,329	402,969	1,408,606	65,696,808	9,757,343	2,849,930	5,051,862	17,659,135	229,351,665
2045	745,656	212,521	385,565	1,343,742	67,040,550	10,386,658	2,960,317	5,370,752	18,717,727	248,069,392
2046	709,054	197,762	365,997	1,272,813	68,313,364	10,974,225	3,060,823	5,664,646	19,699,694	267,769,085
2047	668,868	183,940	345,889	1,198,697	69,512,061	11,502,508	3,163,219	5,948,245	20,613,972	288,383,057

D-1. Annual Energy Generation Vs Annual Energy Demand (GWh)



D-2. Nominal Capacity Vs Peak Demand (MW) 2020-47



D-3. Future Generation Capacity Additions

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South	Midland	North	MW	MW
								MW	MW	MW		
2020	-	-	-	-	-	-	-	-	-	-	0	0
2021	-	-	-	-	-	-	-	-	-	-	0	0
2022	-	-	-	-	-	-	-	-	-	-	0	0
2023	-	-	-	-	-	-	1,500	1,000	300	200	3,000	3,000
2024	-	210	-	-	-	3	1,500	1,000	122	-	2,835	5,835
2025	-	-	-	-	-	-	1,500	863	-	-	2,363	8,198
2026	-	-	-	-	-	3	1,500	631	-	-	2,134	10,333
2027	-	-	20	-	-	-	1,500	65	-	-	1,585	11,918
2028	-	607	-	719	-	-	1,500	628	-	-	3,453	15,371
2029	-	-	-	477	-	1,986	1,500	929	-	-	4,891	20,262
2030	-	607	-	2,423	-	639	1,500	1,000	300	200	6,669	26,931
2031	-	-	-	1,079	-	2,154	-	-	-	-	3,233	30,164
2032	-	-	-	987	-	2,160	1,315	-	-	-	4,462	34,626
2033	-	2,989	-	618	-	-	1,500	-	-	-	5,108	39,734

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South	Midland	North	MW	MW
								MW	MW	MW		
2034	-	3,212	-	620	-	-	-	-	-	-	3,832	43,566
2035	-	2,050	-	2,556	-	-	-	-	-	-	4,606	48,172
2036	-	2,236	-	2,773	-	-	103	-	-	-	5,112	53,284
2037	-	2,441	-	1,991	-	-	536	-	-	-	4,968	58,252
2038	-	2,633	-	2,035	-	-	823	-	-	-	5,491	63,743
2039	-	2,905	-	2,437	-	-	952	-	-	-	6,293	70,036
2040	-	3,013	-	2,858	-	-	578	-	-	-	6,449	76,485
2041	-	-	-	-	-	1,632	1,308	-	-	-	2,940	79,425
2042	-	-	-	-	-	6,020	1,500	-	-	-	7,520	86,945
2043	-	816	-	-	-	3,598	1,500	-	-	-	5,914	92,859
2044	-	604	-	-	-	4,137	1,500	-	-	-	6,241	99,100
2045	-	-	-	-	-	5,698	544	-	-	-	6,242	105,342
2046	-	-	-	-	-	5,227	-	-	-	-	5,227	110,569
2047	-	-	-	-	-	4,473	-	-	-	-	4,473	115,042
Total	**-**	**24,322**	**20**	**21,573**	**0**	**37,730**	**24,159**	**6,116**	**722**	**400**	**115,042**	

D-4. List of Projects uptill 2047 (Committed + Candidate)

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2020							
1	Zorlu Solar Pakistan Pvt. Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Jan-20
2	Jabori	Hydro	10	10	PEDO	Committed	Mar-20
3	Trimmu	RLNG	1,263	1,243	PPIB	Committed	Apr-20
4	Jhing	Hydro	15	15	AJK	Committed	Jun-20
5	Karora	Hydro	12	12	PEDO	Committed	Jun-20
6	Koto	Hydro	41	41	PEDO	Committed	Jun-20
Generation Additions in 2020 (MW)			1,441	1,421			
Cumulative Addition up till 2020 (MW)			1,441	1,421			
2021							
1	Etihad Power Generation Ltd.	Bagasse	74	74	AEDB	Committed	Jul-20
2	Karachi Nuclear K-2	Nuclear	1,100	1,059	PAEC	Committed	Nov-20
3	Master Green Energy Ltd.	Wind	60	60	AEDB	Committed	Nov-20
4	Shaheen Renewable Energy-1 Pvt. Ltd.	Wind	51	51	AEDB	Committed	Nov-20
5	Lawi	Hydro	69	69	PEDO	Committed	Jan-21
6	Tricorm Wind Power Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-21
7	Western Energy Pvt. Limited	Wind	50	50	AEDB	Committed	Feb-21
8	Lucky	Local Coal	660	607	PPIB	Committed	Mar-21
9	Access Electric Pvt. Ltd.	Solar	10	10	AEDB	Committed	Mar-21
10	Access Solar Pvt. Ltd.	Solar	12	12	AEDB	Committed	Mar-21
11	Thal Nova	Local Coal	330	300	PPIB	Committed	Mar-21
12	Thar TEL	Local Coal	330	300	PPIB	Committed	Mar-21
13	Thar-I (Shanghai Electric) Unit 1	Local Coal	660	607	PPIB	Committed	Mar-21
14	Riali-II	Hydro	7	7	AJK	Committed	Jun-21
15	Hydro China Dawood Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
16	Tenga Generasi Limited	Wind	50	50	AEDB	Committed	Jun-21
17	Zephyr Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
18	Siddiqsons	Local Coal	330	304	PPIB	Committed	Jun-21
Generation Additions in 2021 (MW)			3,943	3,708			
Cumulative Addition uptill 2021 (MW)			5,384	5,129			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2022							
1	HNDS Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
2	Helios Power Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
3	Thar-I (Shanghai Electric) Unit 2	Local Coal	660	607	PPIB	Committed	Aug-21
4	Karachi Nuclear K-3	Nuclear	1,100	1,059	PAEC	Committed	Sep-21
5	Buksh Energy Pvt. Ltd.	Solar	12	11.664	AEDB	Committed	Sep-21
6	Safe Solar Power Pvt. Ltd.	Solar	10	10.28	AEDB	Committed	Sep-21
7	Artistic Wind Power Pvt. Limited.	Wind	50	50	AEDB	Committed	Oct-21
8	Meridian Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Nov-21
9	Zhenfa Pakistan New Energy Company (Pvt.) Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Nov-21
10	Karot	Hydro	720	720	PPIB/AJK	Committed	Dec-21
11	Jamshoro CFPP Unit 1	Imp.Coal	660	644	GENCO	Committed	Dec-21
12	Gwadar	Imp.Coal	300	273.1	PPIB	Committed	Jan-22
13	Gul Ahmed Electric Ltd.	Wind	50	50	AEDB	Committed	Jan-22
14	ACT 2 wind (Pvt.) Ltd.	Wind	50	50	AEDB	Committed	Feb-22
15	Din Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
16	Indus Wind Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
17	Lakeside Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
18	Liberty Wind Power 1 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
19	Liberty Wind Power 2 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
20	Metro Wind Power Ltd.	Wind	50	50	AEDB	Committed	Feb-22
21	NASDA Green Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
22	Trans Atlantic Energy (Pvt.) Limited	Wind	48	48.3	AEDB	Committed	Feb-22
23	Alliance Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
24	Bahawalpur Energy Ltd.	Bagasse	31	31.2	AEDB	Committed	Mar-22
25	Faran Power Limited	Bagasse	27	26.5	AEDB	Committed	Mar-22
26	Ghotki Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
27	Hamza Sugar Mills Ltd. (Unit-II)	Bagasse	30	30	AEDB	Committed	Mar-22
28	HSM Energy Ltd.	Bagasse	27	26.5	AEDB	Committed	Mar-22
29	Hunza Power (Pvt.) Ltd.	Bagasse	50	49.8	AEDB	Committed	Mar-22

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
30	Indus Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
31	Ittefaq Power Ltd.	Bagasse	31	31.2	AEDB	Committed	Mar-22
32	Kashmir Power (Pvt.) Ltd.	Bagasse	40	40	AEDB	Committed	Mar-22
33	Mehran Energy Ltd.	Bagasse	27	26.5	AEDB	Committed	Mar-22
34	RYK Energy Ltd.	Bagasse	25	25	AEDB	Committed	Mar-22
35	Sadiqabad Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
36	Shahtaj Sugar Mills Ltd.	Bagasse	32	32	AEDB	Committed	Mar-22
37	Sheikhoo Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
38	TAY Powergen Company (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
39	Two Star Energy (Pvt.) Ltd.	Bagasse	50	49.8	AEDB	Committed	Mar-22
Generation Additions in 2022 (MW)			4,841	4,703			
Cumulative Addition up till 2022 (MW)			10,225	9,832			
2023							
1	Gorkin Matiltan	Hydro	84	84	PEDO	Committed	Nov-22
2	Suki Kinari	Hydro	884	884	PPIB	Committed	Dec-22
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2023
4	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2023
5	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2023
6	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2023
7	CASA	Import	1,000	1,000	GOP	Committed	May-23
Generation Additions in 2023 (MW)			4,968	4,968			
Cumulative Addition up till 2023 (MW)			15,193	14,800			
2024							
1	Tarbela 5th-Extension	Hydro	1,410	1,410	WAPDA	Committed	Sep-23
2	Jamshoro CFPP Unit 2	Imp. Coal	660	644	GENCO	Committed	Dec-23
3	Blue Star	Hydro	3	3	PEDO	Candidate	2024
4	Generic_Candidate Local Coal	Local Coal	210	210	Yet to be Decided	Candidate	2024
5	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2024
6	Generic_Candidate Wind_Mid	Wind	122	122	Yet to be Decided	Candidate	2024
7	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2024
Generation Additions in 2024 (MW)			4,905	4,889			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition up till 2024 (MW)			20,098	19,689			
2025							
1	Keyal Khwar	Hydro	128	128	WAPDA	Committed	Sep-24
2	Mohmand	Hydro	800	800	WAPDA	Committed	Nov-24
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2025
4	Generic_Candidate Wind_South	Wind	863	863	Yet to be Decided	Candidate	2025
5	Dasu 1	Hydro	2,160	2,160	WAPDA	Committed	Feb-25
Generation Additions in 2025 (MW)			5,451	5,451			
Cumulative Addition up till 2025 (MW)			25,549	25,141			
2026							
1	Chasma Nuclear C-5	Nuclear	1,100	1,059	PAEC	Committed	Jul-25
2	Harpo	Hydro	35	35	WAPDA	Committed	Jul-25
3	Riali-III	Hydro	3	3	AJK	Candidate	2026
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2026
5	Generic_Candidate Wind_South	Wind	631	631	Yet to be Decided	Candidate	2026
Generation Additions in 2026 (MW)			3,269	3,228			
Cumulative Addition up till 2026 (MW)			28,819	28,368			
2027							
1	Azad Pattan	Hydro	700	701	PPIB	Committed	Sep-26
2	Hatim	CCGT_Gas	20	20	PPIB	Candidate	2027
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2027
4	Generic_Candidate Wind_South	Wind	65	65	Yet to be Decided	Candidate	2027
6	Kohala	Hydro	1,124	1,124	PPIB	Committed	Jun-27
Generation Additions in 2027 (MW)			3,409	3,410			
Cumulative Addition up till 2027 (MW)			32,228	31,778			
2028							
1	Oracle_1	Local Coal	660	607	STDC/ PPIB	Candidate	2028
2	Generic_Candidate OCGT_RLNG	RLNG	719	719	Yet to be Decided	Candidate	2028
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2028
4	Generic_Candidate Wind_South	Wind	628	628	Yet to be Decided	Candidate	2028
Generation Additions in 2028 (MW)			3,506	3,453			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition up till 2028 (MW)			35,734	35,232			
2029							
1	Dander	Hydro	56	56	PEDO	Candidate	2029
2	Dubair Kalay	Hydro	66	66	PEDO	Candidate	2029
3	Nerai-Dubair	Hydro	46	46	PEDO	Candidate	2029
4	Rajdhani	Hydro	132	132	PPIB	Candidate	2029
5	Thakot-III	Hydro	1,686	1,686	WAPDA	Candidate	2029
6	Generic_Candidate OCGT_RLNG	RLNG	477	477	Yet to be Decided	Candidate	2029
7	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2029
8	Generic_Candidate Wind_South	Wind	929	929	Yet to be Decided	Candidate	2029
Generation Additions in 2029 (MW)			4,891	4,891			
Cumulative Addition up till 2029 (MW)			40,625	40,123			
2030							
1	Mahl	Hydro	639	639	PPIB	Candidate	2030
2	Oracle_2	Local Coal	660	607	STDC/ PPIB	Candidate	2030
3	Generic_Candidate OCGT_RLNG	RLNG	2,423	2,423	Yet to be Decided	Candidate	2030
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2030
5	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2030
6	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2030
7	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2030
Generation Additions in 2030 (MW)			6,722	6,669			
Cumulative Addition up till 2030 (MW)			47,347	46,792			
2031							
1	Thakot-I	Hydro	2,154	2,154	WAPDA	Candidate	2031
2	Generic_Candidate OCGT_RLNG	RLNG	1,079	1,079	Yet to be Decided	Candidate	2031
Generation Additions in 2031 (MW)			3,233	3,233			
Cumulative Addition up till 2031 (MW)			50,580	50,025			
2032							
1	Dasu_2	Hydro	2,160	2,160	WAPDA	Candidate	2032
2	Generic_Candidate OCGT_RLNG	RLNG	987	987	Yet to be Decided	Candidate	2032
3	Generic_Candidate Solar	Solar	1,315	1,315	Yet to be Decided	Candidate	2032

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Generation Additions in 2032 (MW)			4,462	4,462			
Cumulative Addition up till 2032 (MW)			55,042	54,487			
2033							
1	Generic_Candidate Local Coal	Local Coal	2,989	2,989	Yet to be Decided	Candidate	2033
2	Generic_Candidate OCGT_RLNG	RLNG	618	618	Yet to be Decided	Candidate	2033
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2033
Generation Additions in 2033 (MW)			5,108	5,108			
Cumulative Addition up till 2033 (MW)			60,150	59,595			
2034							
1	Generic_Candidate Local Coal	Local Coal	3,212	3,212	Yet to be Decided	Candidate	2034
2	Generic_Candidate OCGT_RLNG	RLNG	620	620	Yet to be Decided	Candidate	2034
Generation Additions in 2034 (MW)			3,832	3,832			
Cumulative Addition up till 2034 (MW)			63,982	63,426			
2035							
1	Generic_Candidate Local Coal	Local Coal	2,050	2,050	Yet to be Decided	Candidate	2035
2	Generic_Candidate OCGT_RLNG	RLNG	2,556	2,556	Yet to be Decided	Candidate	2035
Generation Additions in 2035 (MW)			4,606	4,606			
Cumulative Addition up till 2035 (MW)			68,588	68,033			
2036							
1	Generic_Candidate Local Coal	Local Coal	2,236	2,236	Yet to be Decided	Candidate	2036
2	Generic_Candidate OCGT_RLNG	RLNG	2,773	2,773	Yet to be Decided	Candidate	2036
3	Generic_Candidate Solar	Solar	103	103	Yet to be Decided	Candidate	2036
Generation Additions in 2036 (MW)			5,112	5,112			
Cumulative Addition up till 2036 (MW)			73,700	73,144			
2037							
1	Generic_Candidate Local Coal	Local Coal	2,441	2,441	Yet to be Decided	Candidate	2037
2	Generic_Candidate OCGT_RLNG	RLNG	1,991	1,991	Yet to be Decided	Candidate	2037
3	Generic_Candidate Solar	Solar	536	536	Yet to be Decided	Candidate	2037
Generation Additions in 2037 (MW)			4,968	4,968			
Cumulative Addition up till 2037 (MW)			78,668	78,113			
2038							

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
1	Generic_Candidate Local Coal	Local Coal	2,633	2,633	Yet to be Decided	Candidate	2038
2	Generic_Candidate OCGT_RLNG	RLNG	2,035	2,035	Yet to be Decided	Candidate	2038
3	Generic_Candidate Solar	Solar	823	823	Yet to be Decided	Candidate	2038
Generation Additions in 2038 (MW)			5,491	5,491			
Cumulative Addition uptill 2038 (MW)			84,159	83,604			
2039							
1	Generic_Candidate Local Coal	Local Coal	2,905	2,905	Yet to be Decided	Candidate	2039
2	Generic_Candidate OCGT_RLNG	RLNG	2,437	2,437	Yet to be Decided	Candidate	2039
3	Generic_Candidate Solar	Solar	952	952	Yet to be Decided	Candidate	2039
Generation Additions in 2039 (MW)			6,293	6,293			
Cumulative Addition uptill 2039 (MW)			90,452	89,897			
2040							
1	Generic_Candidate Local Coal	Local Coal	3,013	3,013	Yet to be Decided	Candidate	2040
2	Generic_Candidate OCGT_RLNG	RLNG	2,858	2,858	Yet to be Decided	Candidate	2040
3	Generic_Candidate Solar	Solar	578	578	Yet to be Decided	Candidate	2040
Generation Additions in 2040 (MW)			6,449	6,449			
Cumulative Addition uptill 2040 (MW)			96,901	96,346			
2041							
1	Lower Palas	Hydro	666	666	WAPDA	Candidate	2041
2	Thakot-II	Hydro	966	966	WAPDA	Candidate	2041
3	Generic_Candidate Solar	Solar	1,308	1,308	Yet to be Decided	Candidate	2041
Generation Additions in 2041 (MW)			2,940	2,940			
Cumulative Addition uptill 2041 (MW)			99,841	99,286			
2042							
1	Bunji 1	Hydro	3,550	3,550	WAPDA	Candidate	2042
2	Patan	Hydro	2,400	2,400	WAPDA	Candidate	2042
3	Torkhow	Hydro	70	70	PEDO	Candidate	2042
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2042
Generation Additions in 2042 (MW)			7,520	7,520			
Cumulative Addition uptill 2042 (MW)			107,361	106,806			
2043							

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
1	Bunji 2	Hydro	3,550	3,550	WAPDA	Candidate	2043
2	Dowarian	Hydro	40	40	AJK	Candidate	2043
3	Kathai-II	Hydro	8	8	AJK	Candidate	2043
4	Generic_Candidate Local Coal	Local Coal	816	816	Yet to be Decided	Candidate	2043
5	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2043
Generation Additions in 2043 (MW)			5,914	5,914			
Cumulative Addition uptill 2043 (MW)			113,275	112,720			
2044							
1	Asrit Kadam	Hydro	216	216	PEDO	Candidate	2044
2	Bata Kundi	Hydro	96	96	PEDO	Candidate	2044
3	Bhimbal Katha	Hydro	9	9	PEDO	Candidate	2044
4	Dhudnial	Hydro	960	960	WAPDA	Candidate	2044
5	Gwaldai	Hydro	20	20	PEDO	Candidate	2044
6	Harigehl-Majeedgala	Hydro	40	40	AJK	Candidate	2044
7	Jagran-III	Hydro	36	36	AJK	Candidate	2044
8	Jagran-IV	Hydro	24	24	AJK	Candidate	2044
9	Madian	Hydro	156	156	PEDO	Candidate	2044
10	Nagdar	Hydro	36	36	AJK	Candidate	2044
11	Naran	Hydro	188	188	PEDO	Candidate	2044
12	Pashot	Hydro	60	60	PEDO	Candidate	2044
13	Phandar	Hydro	80	80	WAPDA	Candidate	2044
14	Sakhra-I	Hydro	8	8	PEDO	Candidate	2044
15	Sakhra-II	Hydro	8	8	PEDO	Candidate	2044
16	Tangus	Hydro	2,200	2,200	WAPDA	Candidate	2044
17	Generic_Candidate Local Coal	Local Coal	604	604	Yet to be Decided	Candidate	2044
18	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2044
Generation Additions in 2044 (MW)			6,241	6,241			
Cumulative Addition uptill 2044 (MW)			119,516	118,961			
2045							
1	Alka	Hydro	2	2	PPDB	Candidate	2045
2	Basho	Hydro	39	39	WAPDA	Candidate	2045

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
3	Bhan Khwar	Hydro	36	36	PEDO	Candidate	2045
4	Chapri Charkhel	Hydro	12	12	PEDO	Candidate	2045
5	CJ	Hydro	24	24	PPDB	Candidate	2045
6	Diamer Bhasha Dam	Hydro	4,500	4,500	WAPDA	Candidate	2045
7	Gabral Kalam	Hydro	87	87	PEDO	Candidate	2045
8	Gabral Utror	Hydro	82	82	PEDO	Candidate	2045
9	Kalam Asrit	Hydro	212	212	PPIB	Candidate	2045
10	Nandihaar-II	Hydro	10	10	PEDO	Candidate	2045
11	Serai	Hydro	6	6	PEDO	Candidate	2045
12	Shounter	Hydro	48	48	AJK	Candidate	2045
13	SHYOK	Hydro	640	640	WAPDA	Candidate	2045
14	Generic_Candidate Solar	Solar	544	544	Yet to be Decided	Candidate	2045
Generation Additions in 2045 (MW)			6,242	6,242			
Cumulative Addition uptill 2045 (MW)			125,758	125,203			
2046							
1	Arkari Gol	Hydro	99	99	PEDO	Candidate	2046
2	Barum Gol	Hydro	40	40	PEDO	Candidate	2046
3	Chakoti Hatian	Hydro	501	501	PPIB	Candidate	2046
4	Jamshil	Hydro	612	612	PEDO	Candidate	2046
5	Mahodand	Hydro	44	44	PEDO	Candidate	2046
6	Mastuj	Hydro	48	48	PEDO	Candidate	2046
7	Middle Palas	Hydro	399	399	WAPDA	Candidate	2046
8	Nila Da Katha	Hydro	36	36	PEDO	Candidate	2046
9	Okara	Hydro	4	4	PPDB	Candidate	2046
10	Shalfalam	Hydro	60	60	PEDO	Candidate	2046
11	Sharmai	Hydro	150	150	PEDO	Candidate	2046
12	Shigo Kas	Hydro	102	102	PEDO	Candidate	2046
13	Shogosin	Hydro	138	138	PEDO	Candidate	2046
14	Tangar	Hydro	24	24	PEDO	Candidate	2046
15	Trappi	Hydro	33	33	PEDO	Candidate	2046
16	UCC Bhambhwal	Hydro	4	4	PPDB	Candidate	2046

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
17	Wari	Hydro	45	45	PEDO	Candidate	2046
18	Wazirabad	Hydro	88	88	WAPDA	Candidate	2046
19	Yulbo	Hydro	2,800	2,800	WAPDA	Candidate	2046
Generation Additions in 2046 (MW)			5,227	5,227			
Cumulative Addition uptill 2046 (MW)			130,985	130,430			
2047							
1	Artistic-I	Hydro	63	63	PEDO	Candidate	2047
2	Artistic-II	Hydro	54	54	PEDO	Candidate	2047
3	Ashkot	Hydro	300	300	PPIB	Candidate	2047
4	Athmuqam	Hydro	452	452	PPIB	Candidate	2047
5	Balakot	Hydro	300	300	PEDO	Candidate	2047
6	Balakot-II	Hydro	100	100	PEDO	Candidate	2047
7	Balkani	Hydro	8	8	PEDO	Candidate	2047
8	BS Link Tail	Hydro	9	9	PPDB	Candidate	2047
9	Chenavan	Hydro	3	3	PPDB	Candidate	2047
10	Chicha Watni	Hydro	2	2	PPDB	Candidate	2047
11	Chiniot_HPP	Hydro	78	78	WAPDA	Candidate	2047
12	Chota Jabba	Hydro	46	46	PEDO	Candidate	2047
13	Daral Khwar-II	Hydro	10	10	PEDO	Candidate	2047
14	Dhaddar	Hydro	18	18	PEDO	Candidate	2047
15	Engro_HPP	Hydro	5	5	PPDB	Candidate	2047
16	Gahrit	Hydro	376	376	PEDO	Candidate	2047
17	Garhi Habibullah	Hydro	100	100	PEDO	Candidate	2047
18	Ghail	Hydro	2	2	AJK	Candidate	2047
19	Ghanool	Hydro	3	3	PEDO	Candidate	2047
20	Ghorband	Hydro	20	20	PEDO	Candidate	2047
21	Gomat Nar	Hydro	50	50	AJK	Candidate	2047
22	Gugera	Hydro	3	3	PPDB	Candidate	2047
23	Istaro-Booni	Hydro	72	72	PEDO	Candidate	2047
24	Jabri Bedar	Hydro	4	4	PEDO	Candidate	2047
25	Jhing-II	Hydro	6	6	AJK	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
26	Kalkot Barikot	Hydro	48	48	PEDO	Candidate	2047
27	Kari Mushkur	Hydro	496	496	PEDO	Candidate	2047
28	Kasur	Hydro	2	2	PPDB	Candidate	2047
29	Kathai-III	Hydro	1	1	AJK	Candidate	2047
30	Khal	Hydro	66	66	PEDO	Candidate	2047
31	Khanewal	Hydro	2	2	PPDB	Candidate	2047
32	Khanki Barrage	Hydro	16	16	PPDB	Candidate	2047
33	Khokhra	Hydro	2	2	PPDB	Candidate	2047
34	Lower Spat Gah	Hydro	495	495	PEDO	Candidate	2047
35	Luat	Hydro	48	48	AJK	Candidate	2047
36	Lucky_HPP	Hydro	20	20	PPDB	Candidate	2047
37	Luspur Murigram	Hydro	231	231	PEDO	Candidate	2047
38	Machai-III	Hydro	2	2	PEDO	Candidate	2047
39	Mahandri	Hydro	12	12	PEDO	Candidate	2047
40	Mandi	Hydro	4	4	PPDB	Candidate	2047
41	Mehar	Hydro	12	12	PPDB	Candidate	2047
42	Mid Ranjha	Hydro	80	80	WAPDA	Candidate	2047
43	Mujigram	Hydro	63	63	PEDO	Candidate	2047
44	Murree	Hydro	12	12	PPDB	Candidate	2047
45	Nandihaar	Hydro	12	12	PEDO	Candidate	2047
46	Patrak Sheringhal	Hydro	22	22	PEDO	Candidate	2047
47	Punjnad	Hydro	18	18	PPDB	Candidate	2047
48	Qaditrabad	Hydro	24	24	PPDB	Candidate	2047
49	QB Link	Hydro	8	8	PPDB	Candidate	2047
50	Rasul	Hydro	18	18	PPDB	Candidate	2047
51	Ravi	Hydro	6	6	PPDB	Candidate	2047
52	Sahiwal	Hydro	6	6	PPDB	Candidate	2047
53	Sarral-Dhartian	Hydro	9	9	PEDO	Candidate	2047
54	Shah Jiwana	Hydro	78	78	WAPDA	Candidate	2047
55	Shushghai	Hydro	144	144	PEDO	Candidate	2047
56	Soan	Hydro	24	24	PPDB	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
57	Taunsa	Hydro	135	135	PPDB	Candidate	2047
58	TP	Hydro	9	9	PPDB	Candidate	2047
59	Trident	Hydro	8	8	PPDB	Candidate	2047
60	Trimmu_HPP	Hydro	16	16	PPDB	Candidate	2047
61	Turtonas Uzghor	Hydro	82	82	PPIB	Candidate	2047
62	Upper Palas	Hydro	158	158	WAPDA	Candidate	2047
Generation Additions in 2047 (MW)			4,473	4,473			
Cumulative Addition up till 2047 (MW)			135,458	134,903			

D-5. Annual Capacity Factors (%age)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	85	85	85	84	83	31	11	18	14	15	14	17	15	23	22	21	20	19	19	18	18	17	14	14	13	11	13	23
2	Gwadar	Imp. Coal	0	0	84	84	84	84	37	75	37	30	26	28	31	34	31	32	31	30	28	27	26	25	21	22	27	22	34	35
3	Jamshoro Coal	Imp. Coal	0	0	83	83	26	13	5	10	9	10	10	11	10	13	15	15	15	15	14	14	14	13	11	13	10	9	8	11
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	85	85	85	84	84	77	30	34	25	24	23	25	25	30	28	28	28	25	24	23	23	22	17	19	21	17	25	34
6	Sahiwal Coal	Imp. Coal	85	85	84	17	7	6	3	5	5	5	7	9	7	10	11	12	12	11	11	10	10	10	7	8	8	8	8	8
7	Engro Thar	Local Coal	85	85	85	85	84	84	79	81	68	40	38	39	36	43	41	41	40	38	37	34	34	32	27	30	34	35	36	38
8	Lucky	Local Coal	0	87	85	85	84	84	64	81	41	37	31	35	33	38	35	34	34	33	32	30	29	27	21	27	31	34	35	37
9	NEW_Local_Coal	Local Coal	0	0	0	0	85	84	83	83	81	80	75	75	71	72	73	75	77	78	79	79	79	79	77	76	75	72	70	69
10	Oracle	Local Coal	0	0	0	0	0	0	0	0	82	80	79	79	77	81	82	83	84	84	84	85	85	85	85	85	85	84	83	83
11	Siddiqsons	Local Coal	0	88	85	85	85	84	83	83	81	80	75	76	73	79	81	82	82	83	83	83	83	83	83	83	84	84	83	83
12	Thal Nova	Local Coal	0	89	85	85	85	84	83	83	80	77	68	64	51	58	57	57	58	57	53	51	50	48	42	51	44	47	49	53
13	Thar TEL	Local Coal	0	89	85	85	85	84	83	83	81	77	70	63	52	58	57	58	58	58	54	52	50	47	42	51	44	47	49	53
14	Thar-I (Shanghai Electric)	Local Coal	0	87	85	85	84	84	83	83	79	65	44	44	44	50	47	49	50	49	47	43	41	38	36	41	39	44	42	43
15	Balloki	RLNG	92	82	67	67	67	67	67	67	67	67	67	67	67	67	3	3	4	4	4	4	4	4	4	3	3	3	3	3
16	Bhikki	RLNG	89	76	67	67	67	67	67	67	67	67	67	67	67	2	1	2	2	3	4	4	4	4	3	3	2	3	2	3
17	FKPCL	RLNG	22	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	25	7	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	75	29	5	1	0	0	0	0	0	0	1	2	1	0	0	0	0	1	1	2	3	3	0	0	0	0	0	0
20	Haveli	RLNG	92	90	67	67	67	67	67	67	67	67	67	67	67	4	4	4	5	5	5	5	7	6	4	4	3	4	4	4
21	Nandipur	RLNG	71	46	7	1	0	0	0	0	0	0	2	3	2	1	0	1	1	1	2	3	4	3	2	2	1	2	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	76	40	6	1	0	0	0	0	0	0	2	2	2	1	0	0	1	1	2	3	3	0	0	0	0	0	0	0
24	Rousch	RLNG	58	16	3	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	74	24	4	0	0	0	0	0	0	0	1	2	1	0	0	0	0	0	1	2	3	0	0	0	0	0	0	0
26	Saphire	RLNG	76	35	6	1	0	0	0	0	0	0	1	2	1	0	0	0	0	1	1	2	4	0	0	0	0	0	0	0
27	Trimmu	RLNG	94	92	16	4	2	0	0	1	1	2	3	4	4	5	5	6	6	7	7	8	8	8	5	5	4	5	7	7
28	Davis	RLNG	1	0	1	0	0	0	0	3	0	0	1	1	1	0	0	0	0	0	0	1	1	2	1	1	0	0	0	0
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	89	89	40	7	4	1	0	2	2	3	4	5	4	5	6	6	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	90	90	88	8	4	2	1	2	2	3	4	5	4	6	7	7	7	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	85	85	22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	65	19	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	83	83	82	80	11	2	1	3	3	4	5	6	5	7	8	8	8	9	9	8	8	8	5	5	5	1	0	0
36	Hatim	Gas	0	0	0	0	0	0	0	39	23	22	20	19	14	16	17	17	16	16	16	16	15	13	11	10	9	10	8	7
37	HCPC	Gas	86	86	20	7	4	1	0	2	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	87	87	19	6	4	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	77	57	9	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	86	86	86	86	84	84	19	11	9	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	88	88	86	9	5	2	1	3	2	4	4	5	5	6	8	8	7	7	8	7	0	0	0	0	0	0	0	0
43	C-1	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
44	C-2	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
45	C-3	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
46	C-4	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
47	C-5	Nuclear	0	0	0	0	0	0	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	74	79	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
50	K-3	Nuclear	0	0	76	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
51	Alliance	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	53	54	54	54	54	54	54	54	54	54	53	53
52	Almoiz	Bagasse	54	54	54	54	54	54	53	53	53	52	52	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	53	53
53	Bahawalpur	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	53	54	54	54	54	54	54	54	54	54	53	53
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	54	54	54	54	54	54	53	53	53	52	52	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	53	53
56	Chiniot	Bagasse	36	36	36	36	36	36	35	35	35	34	33	33	33	34	35	35	35	36	36	36	36	36	36	36	36	36	35	35

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	0	54	54	54	54	53	53	53	53	52	51	51	51	52	53	53	53	54	54	54	54	54	54	54	54	54	53	53
58	Faran	Bagasse	0	0	29	54	54	53	53	53	53	52	52	51	51	52	53	53	53	54	54	54	54	54	54	54	54	54	53	53
59	Ghotki	Bagasse	0	0	29	54	54	53	53	53	53	52	52	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	53	53
60	Hamza	Bagasse	47	47	47	47	47	47	46	46	46	45	44	44	44	44	46	46	47	47	47	47	47	47	47	47	47	47	46	46
61	Hamza-II	Bagasse	0	0	29	54	54	54	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	53	53
62	HSM	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	53	54	54	54	54	54	54	54	54	54	53	53
63	Hunza	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	53	53
64	Indus	Bagasse	0	0	29	54	54	53	53	53	53	52	52	51	51	52	53	53	53	54	54	54	54	54	54	54	54	54	53	53
65	Ittefaq	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	53	53
66	JDW-II	Bagasse	84	84	84	84	84	83	83	83	82	81	80	80	80	81	82	83	83	83	83	84	84	84	84	84	83	83	83	83
67	JDW-III	Bagasse	78	78	78	78	78	78	77	77	77	76	75	75	75	75	77	77	77	78	78	78	78	78	78	78	78	78	77	77
68	Kashmir	Bagasse	0	0	29	54	54	53	53	53	53	52	52	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	53	53
69	Mehran	Bagasse	0	0	29	54	54	53	53	53	53	52	52	51	51	52	53	53	53	54	54	54	54	54	54	54	54	54	53	53
70	RYK_Energy	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	53	54	54	54	54	54	54	54	54	54	53	53
71	Ryk_Mills	Bagasse	54	54	54	54	54	54	53	53	53	52	52	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	53	53
72	Sadiqabad	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	53	53
73	Shahtaj	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	53	54	54	54	54	54	54	54	54	54	53	53
74	Sheikhoo	Bagasse	0	0	29	54	54	54	53	53	53	52	51	51	51	52	53	53	53	54	54	54	54	54	54	54	54	54	53	53
75	TAY	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	50	52	53	53	53	54	54	54	54	54	54	54	54	54	53	53

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	30	30	30	30	30	30	29	29	29	28	28	28	28	28	29	29	30	30	30	30	30	30	30	30	30	30	29	29
77	Two_Star	Bagasse	0	0	29	54	54	54	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	53	53
78	Access_Electric	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
79	Access_Solar	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
81	Best	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
82	Buksh	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
84	Crest	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
85	Helios	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
86	HNDS	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
87	Meridian	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
88	QA_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
89	Safe	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
90	Zhenfa	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
91	Zorlu	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68	68	68	
93	Allai Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	30

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	48	48
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	48	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	40
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44	44
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	42	42	42
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	38	38
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	60	60
109	Blue Star	Hydro	0	0	0	0	65	66	66	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	41	41	41	41
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62	62

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34	34
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	41	39	40	44	44	45	46	45	46	46	47	45	45	46	47	46	47	48	49
121	Daral Khwar	Hydro	47	47	47	47	47	47	47	41	42	42	42	42	45	44	44	44	44	44	44	45	45	44	45	44	45	46	46	46
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
123	Dasu_1	Hydro	0	0	0	0	0	56	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	60	61	64	64	64	64	64	64	64	64	64	64	64	64	64	64
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56	56
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44	45
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45	45	45	46
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	59	57	58	61	63	63	64	63	63	63	64	63	63	64	64	64	65	64	65
130	Dubair Khwar	Hydro	51	51	51	51	51	51	51	50	50	49	49	49	50	50	50	50	50	50	50	50	50	50	50	51	50	51	51	51
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	41	41

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
138	Ghazi Brotha	Hydro	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	52
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68
140	Golen Gol	Hydro	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
142	Gorkin Matiltan	Hydro	0	0	0	32	45	45	45	41	40	41	41	41	42	42	41	42	42	43	42	43	42	42	42	42	42	43	43	44
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
144	Gulpur	Hydro	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	45	45	45
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	61	61	61
147	Harpo	Hydro	0	0	0	0	0	0	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
149	Jabori	Hydro	91	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
151	Jagran-I	Hydro	31	31	31	31	31	31	31	30	30	30	30	29	30	30	30	30	30	30	30	31	31	31	31	31	31	31	31	31

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	44	44	44	44
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43	43	43
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
155	Jhing	Hydro	95	52	52	52	52	52	52	49	49	49	49	49	49	49	50	50	50	50	50	50	50	50	50	51	51	51	51	51
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
157	Jinnah	Hydro	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
161	Karora	Hydro	61	62	62	62	62	62	62	59	59	59	58	59	60	60	60	60	60	60	60	60	60	60	60	61	61	61	61	61
162	Karot	Hydro	0	0	41	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56	56	56
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	25	32	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	32
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
168	Khan Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
172	Kohala	Hydro	0	0	0	0	0	0	0	0	61	61	61	61	62	62	62	62	62	62	62	62	62	62	62	62	62	63	63	63
173	Koto	Hydro	0	54	58	58	57	58	58	54	54	54	54	54	56	56	55	56	56	56	56	56	56	57	56	57	57	57	57	57
174	Lawi	Hydro	0	43	49	49	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43	43	43	43	43
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
180	Machai	Hydro	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	49	49	49
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	58	59	61	60	62	62	62	62	62	62	62	62	62	62	62	63	63	63
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	47
186	Malakand-III	Hydro	52	52	52	52	52	52	52	51	51	52	51	51	51	51	52	51	51	52	52	52	52	52	52	52	52	52	52	52
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
188	Mangla	Hydro	57	57	57	57	57	57	57	56	56	56	56	56	57	57	56	56	57	57	57	57	57	57	57	57	57	57	57	57
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	53

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	35	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	42	42
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62	62
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41	41
201	Neelum Jehlum	Hydro	58	58	58	58	58	58	58	56	57	56	56	56	56	56	57	57	57	57	57	57	57	57	57	57	57	58	58	58
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	52	49	50	57	56	58	59	59	59	60	59	59	59	59	60	61	61	63	63
203	New Bong	Hydro	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	43
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	36
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	48	49	49
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59	59	59
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
210	Pehur	Hydro	23	24	24	24	23	24	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	46	46	46
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
216	Ranolia	Hydro	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
219	Riali-II	Hydro	0	87	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
220	Riali-III	Hydro	0	0	0	0	0	0	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49	49	49
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	51
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49	49
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	66	66
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
237	Suki Kinari	Hydro	0	0	0	35	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	46
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46	46
240	Tarbela_1-10	Hydro	48	48	48	48	48	48	47	47	47	48	47	47	47	46	47	47	47	48	48	48	48	48	48	48	48	48	48	48
241	Tarbela_11-14	Hydro	48	48	48	48	48	48	48	48	47	47	47	48	47	48	47	48	48	48	48	48	48	48	48	48	48	48	48	48
242	Tarbela_Ext_4	Hydro	31	31	31	31	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
243	Tarbela_Ext_5	Hydro	0	0	0	0	19	32	32	32	32	31	31	31	31	32	31	32	32	32	32	32	32	32	32	32	32	32	32	32
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	52	53	53	53	53	53	53	53	54	53	54	54	54	54	54	54	54
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55	55	55	55	55

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	47	47	47	48	48	49	49	49	49	49	49	49	49	49	49	49	49	49	49
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	50	50	50	50
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	53
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	37
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	64
258	Warsak	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46
261	CASA	Cross Border	0	0	0	95	39	39	39	24	24	23	23	23	27	28	24	24	25	25	26	26	26	27	27	27	27	29	31	33
262	Act	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
263	Act_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
264	Artistic_wind	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
265	Artistic_Wind_2	Wind	0	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	0	0	0	33	33	33	30	33	32	32	32	33	33	33	32	33	33	33	33	33	33	33	33	33	33	33	33	33
267	Candidate_Wind_North	Wind	0	0	0	33	33	33	32	33	31	32	31	33	33	32	33	33	33	33	33	33	33	33	33	33	33	33	33	33
268	Candidate_Wind_South	Wind	0	0	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
269	Dawood	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
270	Din	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
271	FFC	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
272	FWEL-I	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
273	FWEL-II	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
274	Gul Ahmed	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
275	Gul_Electric	Wind	0	0	38	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
276	Hawa	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
277	Indus_Energy	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
278	Jhimpir	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
279	Lakeside	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
280	Liberty_Wind_1	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
281	Liberty_Wind_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
282	Master	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
283	Master_Green	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
284	Metro_Power	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
286	NASDA	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
287	Sachal	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
288	Sapphire_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
289	Shaheen	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
290	Tenga	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
291	Three_Gorges_I	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
292	Three_Gorges_II	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
293	Three_Gorges_III	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
294	Trans_Atlantic	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
295	Tricon_A	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
296	Tricon_B	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
297	Tricon_C	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
298	Tricorm	Wind	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
299	UEP	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
300	Western	Wind	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
301	Yunus	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
302	Zephyr	Wind	0	56	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
303	Zorlu_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	30	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	33	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	14	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	88	88	10	2	1	1	0	2	2	2	4	5	4	5	6	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	12	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	10	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	54	19	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	15	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

D-6. Annual Energy Generation 2020-30 (GWh)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
1	China HUBCO	Imp. Coal	9,330	9,308	9,308	9,152	9,095	3,351	1,219	1,981	1,544	1,626	1,530
2	Gwadar	Imp. Coal	0	0	1,000	2,017	2,006	2,001	882	1,795	886	726	622
3	Jamshoro Coal	Imp. Coal	0	0	2,733	4,695	2,314	1,436	561	1,084	977	1,088	1,176
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	9,270	9,248	9,248	9,107	9,124	8,327	3,254	3,700	2,774	2,662	2,491
6	Sahiwal Coal	Imp. Coal	9,285	9,263	9,172	1,875	781	665	332	509	494	554	775
7	Engro Thar	Local Coal	4,493	4,482	4,482	4,482	4,425	4,412	4,191	4,288	3,591	2,127	2,013
8	Lucky	Local Coal	0	1,546	4,531	4,531	4,472	4,461	3,407	4,307	2,170	1,976	1,649
9	NEW_Local_Coal	Local Coal	0	0	0	0	1,571	1,542	1,536	1,528	1,500	1,465	1,379
10	Oracle	Local Coal	0	0	0	0	0	0	0	0	4,369	4,271	8,369
11	Siddiqsons	Local Coal	0	193	2,266	2,266	2,272	2,231	2,222	2,218	2,172	2,123	1,996
12	Thal Nova	Local Coal	0	583	2,234	2,234	2,239	2,199	2,190	2,178	2,116	2,037	1,794
13	Thar TEL	Local Coal	0	583	2,234	2,234	2,239	2,199	2,190	2,178	2,122	2,033	1,835
14	Thar-I (Shanghai Electric)	Local Coal	0	1,545	8,643	9,055	8,971	8,914	8,789	8,774	8,447	6,896	4,684
15	Balloki	RLNG	9,482	8,509	6,910	6,908	6,906	6,904	6,905	6,891	6,885	6,889	6,885
16	Bhikki	RLNG	8,884	7,554	6,696	6,694	6,692	6,690	6,688	6,682	6,675	6,677	6,676
17	FKPCL	RLNG	296	91	21	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	255	73	25	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
19	Halmore	RLNG	1,298	496	92	10	0	0	0	0	0	0	24
20	Haveli	RLNG	9,599	9,377	6,967	6,965	6,964	6,964	6,964	6,943	6,942	6,945	6,943
21	Nandipur	RLNG	2,811	1,831	271	36	4	8	0	0	0	15	61
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	1,358	719	104	11	0	0	0	0	0	0	30
24	Rousch	RLNG	2,017	562	102	0	0	0	0	0	0	0	11
25	Saif	RLNG	1,313	425	70	4	0	0	0	0	0	0	20
26	Saphire	RLNG	1,344	616	98	11	0	0	0	0	0	0	26
27	Trimmu	RLNG	2,543	9,993	1,699	484	253	36	0	72	76	172	320
28	Davis	RLNG	1	0	1	0	0	0	0	3	0	0	1
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	1
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	1,655	1,651	739	138	76	23	4	31	32	55	81
32	Foundation	Gas	1,320	1,317	1,284	122	65	27	13	35	26	48	66
33	Guddu-I	Gas	1,950	1,945	511	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	1,537	459	77	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	5,234	5,221	5,209	5,035	671	133	74	221	206	245	302
36	Hatim	Gas	0	0	0	0	0	0	0	68	41	38	35
37	HCPC	Gas	975	973	229	77	44	10	0	18	18	28	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
38	Kotri	Gas	808	806	181	60	34	8	0	13	15	0	0
39	Liberty	Gas	1,427	1,061	163	49	11	5	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	4,149	4,139	4,139	4,139	4,074	4,058	898	550	427	390	0
42	Uch-II	Gas	2,737	2,731	2,684	288	148	57	27	83	74	110	135
43	C-1	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
44	C-2	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
45	C-3	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,179	2,175	2,180	2,175	2,175
46	C-4	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,182	2,181	2,185	2,181	2,181
47	C-5	Nuclear	0	0	0	0	0	0	7,285	7,247	7,259	7,250	7,235
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	4,548	7,292	7,292	7,307	7,292	7,285	7,244	7,261	7,250	7,236
50	K-3	Nuclear	0	0	5,823	7,292	7,307	7,292	7,285	7,245	7,256	7,244	7,234
51	Alliance	Bagasse	0	0	19	143	144	140	140	140	140	136	135
52	Almoiz	Bagasse	172	172	172	172	172	171	168	168	168	164	162
53	Bahawalpur	Bagasse	0	0	20	149	149	146	146	146	145	141	140
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	105	105	105	105	105	105	103	103	102	101	99
56	Chiniot	Bagasse	197	196	196	196	197	196	190	190	189	186	183

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
57	Etihad	Bagasse	0	355	355	355	356	348	348	348	347	337	334
58	Faran	Bagasse	0	0	17	126	127	124	124	124	123	120	120
59	Ghotki	Bagasse	0	0	29	215	215	210	210	210	210	204	203
60	Hamza	Bagasse	62	62	62	62	62	61	60	60	60	59	58
61	Hamza-II	Bagasse	0	0	19	143	144	141	140	140	140	136	135
62	HSM	Bagasse	0	0	17	126	127	124	124	124	123	120	119
63	Hunza	Bagasse	0	0	32	238	238	233	232	233	232	226	223
64	Indus	Bagasse	0	0	20	148	148	145	145	145	144	140	140
65	Ittefaq	Bagasse	0	0	20	149	149	146	146	146	145	141	140
66	JDW-II	Bagasse	194	193	193	193	194	192	191	191	190	187	185
67	JDW-III	Bagasse	180	180	180	180	180	180	178	178	178	175	173
68	Kashmir	Bagasse	0	0	26	191	191	187	187	187	186	182	180
69	Mehran	Bagasse	0	0	17	126	127	124	123	124	123	120	120
70	RYK_Energy	Bagasse	0	0	16	119	120	117	117	117	116	113	112
71	Ryk_Mills	Bagasse	144	143	143	143	144	143	140	140	140	137	135
72	Sadiqabad	Bagasse	0	0	29	215	215	210	209	210	210	204	202
73	Shahtaj	Bagasse	0	0	21	153	153	149	149	149	149	145	144
74	Sheikhoo	Bagasse	0	0	19	143	144	141	140	140	140	136	135
75	TAY	Bagasse	0	0	19	143	144	140	140	140	140	136	135

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
76	Thal_Layyah	Bagasse	109	109	109	109	109	108	106	106	106	102	100
77	Two_Star	Bagasse	0	0	32	238	238	234	233	233	232	227	223
78	Access_Electric	Solar	0	5	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	0	5	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	0	0	14	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	2,482	4,965	7,447	9,929	12,412	14,894	17,377	19,790
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	0	0	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	0	0	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	0	0	48	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	0	0	13	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	0	0	97	165	165	165	165	165	165	165	165
91	Zorlu	Solar	84	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0
93	Allai Khwar	Hydro	396	395	395	395	396	395	395	395	396	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	2,181	3,256	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
109	Blue Star	Hydro	0	0	0	0	17	17	17	18	18	18	18
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
114	Chashma	Hydro	767	765	765	765	767	765	765	765	767	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	200	193
121	Daral Khwar	Hydro	147	147	147	147	147	147	147	130	134	133	131
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
123	Dasu_1	Hydro	0	0	0	0	0	4,321	11,975	11,975	11,990	11,975	11,975
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	343	331
130	Dubair Khwar	Hydro	581	581	581	581	581	581	580	569	567	563	563
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0
138	Ghazi Brotha	Hydro	6,563	6,551	6,551	6,551	6,563	6,551	6,551	6,491	6,518	6,484	6,479
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0
140	Golen Gol	Hydro	97	97	97	97	97	97	97	95	96	96	95
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0
142	Gorkin Matiltan	Hydro	0	0	0	155	331	331	329	301	298	302	302
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0
144	Gulpur	Hydro	481	480	480	480	481	480	480	480	481	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0
147	Harpo	Hydro	0	0	0	0	0	0	170	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0
149	Jabori	Hydro	27	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0
151	Jagran-I	Hydro	82	82	82	82	82	82	82	79	78	78	78

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0
155	Jhing	Hydro	10	68	68	68	68	68	68	64	64	64	64
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
157	Jinnah	Hydro	195	194	194	194	195	194	194	193	194	192	191
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0
161	Karora	Hydro	5	65	65	65	65	65	65	62	62	62	61
162	Karot	Hydro	0	0	1,496	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	232	353	344	345	344	344
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0
168	Khan Khwar	Hydro	235	234	234	234	235	234	234	234	235	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0
172	Kohala	Hydro	0	0	0	0	0	0	0	0	6,006	6,009	5,976
173	Koto	Hydro	0	182	212	212	212	212	212	198	199	200	198
174	Lawi	Hydro	0	130	295	295	295	295	294	290	291	291	290
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	3,273
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0
186	Malakand-III	Hydro	367	367	367	367	367	367	367	364	364	367	362
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0
188	Mangla	Hydro	5,016	5,004	5,004	5,004	5,016	5,004	5,004	4,926	4,930	4,929	4,866
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	1,633	2,824	2,792	2,787	2,829	2,771
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0
201	Neelum Jehlum	Hydro	4,944	4,939	4,939	4,939	4,944	4,939	4,936	4,764	4,811	4,732	4,732
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	208	196
203	New Bong	Hydro	471	470	470	470	471	470	470	470	471	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
209	Patrind	Hydro	635	634	634	634	635	634	634	632	633	632	632
210	Pehur	Hydro	37	37	37	37	37	37	37	36	36	36	36
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	670	669
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0
219	Riali-II	Hydro	0	5	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	0	0	0	0	0	0	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	387	386	386	386	387	386	386	379	379	379	377
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0
237	Suki Kinari	Hydro	0	0	0	1,332	2,800	2,798	2,796	2,768	2,762	2,763	2,760
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0
240	Tarbela_1-10	Hydro	7,386	7,377	7,377	7,377	7,386	7,377	7,247	7,237	7,217	7,301	7,264
241	Tarbela_11-14	Hydro	7,294	7,285	7,285	7,285	7,294	7,285	7,285	7,194	7,175	7,173	7,143
242	Tarbela_Ext_4	Hydro	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,807	3,787
243	Tarbela_Ext_5	Hydro	0	0	0	0	1,975	4,005	3,960	3,939	3,940	3,848	3,853
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	6,988	6,981
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0
258	Warsak	Hydro	999	997	997	997	999	997	997	997	999	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0
261	CASA	Cross Border	0	0	0	1,387	3,457	3,456	3,416	2,091	2,100	2,019	2,047
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	0	0	58	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	0	0	102	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
266	Candidate_Wind_Mid	Wind	0	0	0	872	1,229	1,226	1,099	1,226	1,180	1,172	2,043
267	Candidate_Wind_North	Wind	0	0	0	581	582	581	559	581	544	555	1,101
268	Candidate_Wind_South	Wind	0	0	0	3,440	6,889	9,849	11,986	12,245	14,424	17,575	20,747
269	Dawood	Wind	0	14	144	144	144	144	144	144	144	144	144
270	Din	Wind	0	0	58	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	151	150	150	150	151	150	150	150	151	150	150
273	FWEL-II	Wind	151	150	150	150	151	150	150	150	151	150	150
274	Gul Ahmed	Wind	146	145	145	145	146	145	145	145	146	145	145
275	Gul_Electric	Wind	0	0	83	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	0	0	58	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	0	0	58	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	0	0	58	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	0	0	58	172	172	172	172	172	172	172	172
282	Master	Wind	154	153	153	153	154	153	153	153	154	153	153
283	Master_Green	Wind	0	102	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	146	145	145	145	146	145	145	145	146	145	145

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
285	Metro_Wind	Wind	0	0	70	206	207	206	206	206	207	206	206
286	NASDA	Wind	0	0	58	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	154	153	153	153	154	153	153	153	154	153	153
289	Shaheen	Wind	0	104	175	175	176	175	175	175	176	175	175
290	Tenga	Wind	0	14	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	157	156	156	156	157	156	156	156	157	156	156
293	Three_Gorges_III	Wind	157	156	156	156	157	156	156	156	157	156	156
294	Trans_Atlantic	Wind	0	0	56	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	0	71	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	0	58	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	146	145	145	145	146	145	145	145	146	145	145
302	Zephyr	Wind	0	20	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
304	KAPCO 1	RFO	888	336	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	2,192	599	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	306	121	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	33	12	6	0	0	0	0	0	0	0	0
308	HUBCO	RFO	114	21	2	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	8	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	44	8	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	121	20	13	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	6	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	9	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	19	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	23	5	3	0	0	0	0	0	0	0	0
321	AGL	RFO	1,203	1,200	141	27	12	11	0	21	21	23	55
322	ATLAS	RFO	235	74	14	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
323	HuB N	RFO	193	47	2	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	587	203	22	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	262	100	22	0	0	0	0	0	0	0	0
326	Nishat C	RFO	144	28	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	111	17	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			**156,629**	**160,611**	**167,363**	**172,388**	**177,275**	**181,935**	**188,253**	**195,101**	**205,317**	**215,619**	**226,307**
Energy Demand			**156,629**	**160,611**	**167,363**	**172,388**	**177,275**	**181,935**	**188,254**	**195,101**	**205,317**	**215,619**	**226,307**
Energy Not Served			**0.00**	**0.02**	**0.05**	**0.02**	**0.00**	**-0.03**	**0.05**	**0.05**	**0.00**	**0.01**	**-0.02**

*(All numbers in red color, in this table, represent retirement of the corresponding plant.)

D-7. Annual Energy Generation 2030-47 (GWh)

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	1,881	1,601	2,464	2,439	2,310	2,210	2,124	2,051	1,966	1,981	1,910	1,531	1,575	1,475	1,194	1,461	2,548
2	Gwadar	Imp. Coal	669	736	817	749	757	736	727	677	646	626	596	494	533	658	538	824	846
3	Jamshoro Coal	Imp. Coal	1,276	1,106	1,445	1,745	1,722	1,727	1,651	1,601	1,547	1,567	1,462	1,197	1,446	1,158	1,035	913	1,294
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	2,683	2,705	3,306	3,084	3,083	3,002	2,753	2,589	2,451	2,499	2,352	1,877	2,060	2,245	1,824	2,760	3,747
6	Sahiwal Coal	Imp. Coal	955	711	1,043	1,230	1,254	1,268	1,253	1,206	1,136	1,120	1,054	769	917	906	864	823	840
7	Engro Thar	Local Coal	2,062	1,906	2,244	2,171	2,174	2,123	1,997	1,962	1,776	1,792	1,680	1,429	1,602	1,779	1,846	1,889	1,991
8	Lucky	Local Coal	1,864	1,749	2,002	1,844	1,793	1,834	1,772	1,700	1,606	1,558	1,458	1,116	1,450	1,651	1,813	1,854	1,948
9	NEW_Local_Coal	Local Coal	1,371	1,308	20,293	40,921	55,943	72,563	89,949	108,718	128,943	150,759	149,275	146,436	150,512	151,614	146,497	141,742	140,264
10	Oracle	Local Coal	8,368	8,195	8,568	8,694	8,848	8,905	8,986	8,986	9,020	9,043	9,022	9,003	8,989	9,012	8,986	8,873	8,879
11	Siddiqsons	Local Coal	2,013	1,945	2,091	2,144	2,191	2,202	2,222	2,215	2,211	2,217	2,212	2,211	2,211	2,241	2,233	2,216	2,216
12	Thal Nova	Local Coal	1,691	1,333	1,518	1,486	1,501	1,541	1,496	1,398	1,351	1,318	1,250	1,091	1,330	1,150	1,234	1,280	1,390
13	Thar TEL	Local Coal	1,651	1,359	1,520	1,488	1,536	1,530	1,516	1,406	1,358	1,308	1,242	1,096	1,328	1,149	1,245	1,278	1,397
14	Thar-I (Shanghai Electric)	Local Coal	4,714	4,675	5,298	5,026	5,204	5,327	5,176	4,956	4,557	4,388	4,018	3,839	4,333	4,202	4,666	4,493	4,566
15	Balloki	RLNG	6,890	6,899	6,896	272	352	386	413	430	447	465	456	381	344	336	356	330	336
16	Bhikki	RLNG	6,679	6,683	203	119	153	226	321	367	400	427	418	265	304	248	276	240	265
17	FKPCL	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	30	25	5	0	5	5	20	21	26	53	57	0	0	0	0	0	0
20	Haveli	RLNG	6,945	6,958	386	429	462	501	543	558	569	757	671	445	425	353	441	419	441
21	Nandipur	RLNG	104	65	44	11	27	43	49	85	120	140	126	61	70	48	71	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	36	28	12	5	6	22	22	28	56	56	0	0	0	0	0	0	0
24	Rousch	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	29	22	6	0	6	6	6	19	27	38	0	0	0	0	0	0	0
26	Saphire	RLNG	31	26	6	0	6	7	22	22	35	65	0	0	0	0	0	0	0
27	Trimmu	RLNG	457	384	522	589	641	704	721	758	860	895	859	563	574	476	594	727	768
28	Davis	RLNG	1	1	0	0	0	0	0	0	1	1	2	1	1	0	0	0	0
29	NEW OCGT (Generic)	RLNG	90	36	4	0	1	19	36	49	87	212	310	88	156	152	138	161	257
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	86	81	96	118	84	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	70	66	87	104	100	91	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	369	287	426	526	527	537	552	546	507	497	493	329	337	308	18	0	0
36	Hatim	Gas	34	24	28	29	29	28	28	27	27	26	24	19	18	16	18	14	12
37	HCPC	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	164	141	197	238	240	229	221	241	159	0	0	0	0	0	0	0	0
43	C-1	Nuclear	2,077	2,082	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,078	2,078
44	C-2	Nuclear	2,077	2,082	2,076	2,077	2,077	2,081	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,078	2,078
45	C-3	Nuclear	2,175	2,185	2,183	2,182	2,181	2,187	2,182	2,183	2,182	2,187	2,183	2,182	2,182	2,187	2,182	2,182	2,182
46	C-4	Nuclear	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,182	2,182
47	C-5	Nuclear	7,239	7,267	7,253	7,253	7,253	7,264	7,248	7,248	7,251	7,264	7,247	7,248	7,251	7,265	7,251	7,259	7,260
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	7,239	7,269	7,252	7,253	7,248	7,264	7,250	7,249	7,252	7,264	7,249	7,249	7,250	7,266	7,254	7,258	7,258
50	K-3	Nuclear	7,238	7,268	7,251	7,252	7,255	7,262	7,249	7,251	7,251	7,264	7,250	7,248	7,250	7,267	7,253	7,257	7,260
51	Alliance	Bagasse	135	133	136	139	139	141	142	142	143	144	143	143	143	143	142	140	140
52	Almoiz	Bagasse	162	163	164	167	168	170	171	171	172	172	172	172	172	171	171	168	168
53	Bahawalpur	Bagasse	140	139	142	144	146	146	148	148	149	149	149	149	148	149	148	146	146
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	99	99	100	102	103	104	104	104	105	105	105	105	105	105	104	103	103
56	Chiniot	Bagasse	182	182	184	189	190	194	195	195	196	197	196	196	196	195	195	190	190

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	334	331	338	344	345	349	353	353	355	356	355	355	355	354	353	348	348
58	Faran	Bagasse	119	119	120	122	123	124	126	126	126	127	126	126	126	126	126	124	124
59	Ghotki	Bagasse	202	200	204	208	209	212	214	214	215	215	215	215	214	214	214	210	210
60	Hamza	Bagasse	58	58	58	60	60	61	61	61	62	62	62	62	62	62	61	60	60
61	Hamza-II	Bagasse	135	136	136	139	139	141	142	142	143	144	143	143	143	143	142	140	140
62	HSM	Bagasse	119	118	120	122	123	124	126	126	126	127	126	126	126	126	126	124	124
63	Hunza	Bagasse	223	222	226	230	231	235	236	236	238	238	238	238	236	237	236	233	233
64	Indus	Bagasse	139	139	141	143	144	145	147	147	148	148	148	148	148	148	147	145	145
65	Ittefaq	Bagasse	140	140	142	144	145	147	148	148	149	149	149	149	148	149	148	146	146
66	JDW-II	Bagasse	185	186	186	189	191	192	192	192	193	194	193	193	193	193	192	191	191
67	JDW-III	Bagasse	173	174	174	177	178	179	179	179	180	180	180	180	180	180	179	178	178
68	Kashmir	Bagasse	179	180	182	185	187	188	190	190	191	191	191	191	191	190	190	187	187
69	Mehran	Bagasse	119	119	120	122	123	124	126	126	126	127	126	126	126	126	126	124	124
70	RYK_Energy	Bagasse	112	112	114	115	116	117	119	119	119	120	119	119	119	119	119	117	117
71	Ryk_Mills	Bagasse	135	136	136	139	140	142	142	142	143	144	143	143	143	143	142	140	140
72	Sadiqabad	Bagasse	202	202	204	208	209	212	214	214	215	215	215	215	214	214	214	210	210
73	Shahtaj	Bagasse	144	143	145	148	149	150	152	152	153	153	153	153	153	152	152	149	149
74	Sheikhoo	Bagasse	135	135	136	139	139	141	142	142	143	144	143	143	142	143	142	140	140
75	TAY	Bagasse	135	133	136	139	139	141	142	142	143	144	143	143	142	143	142	140	140

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	100	100	101	105	106	108	108	108	109	109	109	109	109	108	108	106	106
77	Two_Star	Bagasse	223	222	226	230	231	235	236	236	238	238	238	238	236	237	236	233	233
78	Access_Electric	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	19,766	21,939	24,506	24,518	24,518	24,689	25,576	26,937	28,512	29,468	31,634	34,116	36,598	39,081	39,981	39,981	39,981
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
91	Zorlu	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11	11
93	Allai Khwar	Hydro	395	396	395	395	395	396	395	395	395	396	395	395	395	396	395	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	262	264

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	291
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	199
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,218
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	917	917	918	918
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,960
100	Azad Pattan	Hydro	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	981
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	508
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	142	142
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	151	152	152
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	349	349	349	350
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119	119	119
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	48	48
109	Blue Star	Hydro	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	12,986	25,868	25,848	25,771	25,640	25,471
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,420	2,420
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	65	65

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	765	767	765	765	765	767	765	765	765	767	765	765	765	767	765	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	173
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72	72	72
120	Dander	Hydro	195	217	215	222	224	221	226	226	229	223	222	225	232	229	230	237	239
121	Daral Khwar	Hydro	133	142	140	139	140	141	140	140	141	142	139	142	140	142	144	145	146
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
123	Dasu_1	Hydro	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975
124	Dasu_2	Hydro	0	11,474	11,506	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	4,738	4,737	4,734	4,739
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17,528	17,538	17,547
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	158	158	158	159	159
129	Dubair Kalay	Hydro	336	354	364	365	368	368	367	366	372	368	366	369	368	368	373	372	374
130	Dubair Khwar	Hydro	564	568	564	571	568	575	575	572	575	575	574	573	576	576	575	577	575
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	304	311	313

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	310	311	310
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,636
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	509
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
138	Ghazi Brotha	Hydro	6,509	6,493	6,506	6,509	6,512	6,539	6,521	6,521	6,528	6,524	6,537	6,522	6,519	6,547	6,534	6,539	6,551
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119
140	Golen Gol	Hydro	95	96	96	96	96	96	97	97	97	97	97	97	97	97	97	97	97
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	211
142	Gorkin Matiltan	Hydro	302	308	311	304	309	313	315	311	314	313	313	310	312	313	315	317	322
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
144	Gulpur	Hydro	480	481	480	480	480	481	480	480	480	481	480	480	480	481	480	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	78	78	79	79
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	212	212	213	213
147	Harpo	Hydro	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260
149	Jabori	Hydro	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
151	Jagran-I	Hydro	76	80	79	80	80	80	80	80	80	81	80	80	80	81	81	81	81

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	137	138	138	138
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	91	91	91	91
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,626	2,630
155	Jhing	Hydro	64	65	65	66	65	66	66	66	66	66	66	66	66	67	67	67	67
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
157	Jinnah	Hydro	191	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	847	849	850
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	161
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,963
161	Karora	Hydro	62	63	63	63	63	63	63	63	64	64	63	63	64	64	64	64	64
162	Karot	Hydro	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	39	40	39	39	39
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	345	349	349	349	348	349	349	349	350	350	349	350	350	350	352	353	353
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260
168	Khan Khwar	Hydro	234	235	234	234	234	235	234	234	234	235	234	234	234	235	234	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
172	Kohala	Hydro	5,983	6,114	6,105	6,083	6,079	6,112	6,104	6,103	6,098	6,137	6,096	6,116	6,124	6,148	6,167	6,191	6,195
173	Koto	Hydro	198	206	204	203	204	207	206	208	208	208	208	208	208	209	210	210	211
174	Lawi	Hydro	291	291	291	290	291	291	290	291	292	292	291	291	291	292	291	292	292
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	2,514	2,510	2,513	2,516	2,513	2,515	2,519
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	311
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	787
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	663	663	663	664
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
184	Mahl	Hydro	3,295	3,421	3,361	3,490	3,484	3,478	3,478	3,484	3,484	3,487	3,492	3,483	3,488	3,506	3,515	3,543	3,539
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	182	183
186	Malakand-III	Hydro	362	360	362	366	364	366	366	367	367	367	367	366	367	367	367	367	367
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
188	Mangla	Hydro	4,878	5,008	4,973	4,927	4,938	5,008	4,992	4,994	4,995	5,011	4,997	5,000	4,999	5,014	5,004	5,004	5,004
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	225	225

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,709	1,709
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	2,788	2,783	2,833	2,798	2,786	2,815	2,805	2,824	2,824	2,830	2,805	2,820	2,824	2,831	2,811	2,820	2,833
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	133	133	133	134
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	673	673	675	675
201	Neelum Jehlum	Hydro	4,732	4,757	4,741	4,825	4,841	4,839	4,833	4,867	4,863	4,868	4,861	4,862	4,871	4,881	4,897	4,908	4,916
202	Nerai-Dubair	Hydro	200	229	228	235	238	239	239	240	239	240	238	238	241	245	246	252	255
203	New Bong	Hydro	470	471	470	470	470	471	470	470	470	471	470	470	470	471	470	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	132	136
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	245	250	257	260
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	12,336	12,337	12,361	12,334	12,317	12,335
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	632	634	634	633	633	634	634	633	634	634	634	634	634	634	634	634	634
210	Pehur	Hydro	36	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	319	319	320	320
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
215	Rajdhani	Hydro	665	669	670	670	670	671	670	670	670	671	670	670	670	671	670	670	670
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
219	Riali-II	Hydro	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41	41
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34	34	34
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	22	22
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	307
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	283	282

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	655	661
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	451	451
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	533	533
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	206	206	206
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	468
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,720	3,725	3,725
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	378	383	381	380	380	382	381	381	381	382	381	381	382	383	382	383	384
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
237	Suki Kinari	Hydro	2,761	2,772	2,767	2,768	2,771	2,776	2,777	2,776	2,775	2,776	2,770	2,775	2,774	2,781	2,776	2,776	2,780
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	94	98
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	8,818	8,815	8,807	8,817
240	Tarbela_1-10	Hydro	7,215	7,195	7,120	7,167	7,270	7,283	7,361	7,332	7,341	7,343	7,338	7,332	7,333	7,349	7,355	7,351	7,373
241	Tarbela_11-14	Hydro	7,219	7,119	7,239	7,127	7,192	7,215	7,247	7,228	7,225	7,264	7,259	7,232	7,231	7,250	7,248	7,285	7,258
242	Tarbela_Ext_4	Hydro	3,811	3,777	3,786	3,807	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811
243	Tarbela_Ext_5	Hydro	3,851	3,858	3,937	3,837	3,897	3,938	3,937	3,975	3,978	3,978	3,979	3,980	3,983	3,984	3,979	3,984	3,992
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	439
245	Thakot-I	Hydro	9,861	9,982	9,984	10,073	10,068	10,108	10,083	10,095	10,101	10,118	10,099	10,097	10,096	10,127	10,121	10,140	10,142
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	4,660	4,660	4,661	4,672	4,669	4,674	4,674

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	6,975	7,036	7,029	7,213	7,209	7,234	7,221	7,221	7,222	7,235	7,221	7,222	7,223	7,239	7,227	7,228	7,228
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	306	306	306	306	306	306
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	154	154
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	355
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	507
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252	251
258	Warsak	Hydro	997	999	997	997	997	999	997	997	997	999	997	997	997	999	997	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	350	350
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11,245	11,244
261	CASA	Cross Border	2,058	2,392	2,413	2,114	2,144	2,235	2,219	2,262	2,270	2,300	2,349	2,388	2,328	2,413	2,571	2,688	2,913
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	2,098	2,102	2,098	2,007	2,098	2,102	2,098	2,098	2,098	2,102	2,098	2,098	2,098	2,102	2,098	2,098	2,098
267	Candidate_Wind_North	Wind	1,163	1,165	1,121	1,163	1,163	1,165	1,163	1,163	1,163	1,165	1,163	1,163	1,163	1,165	1,163	1,163	1,163
268	Candidate_Wind_South	Wind	20,740	21,018	21,020	21,037	21,037	21,067	21,037	21,037	21,037	21,067	21,037	21,037	21,037	21,067	21,037	21,037	21,037
269	Dawood	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
270	Din	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
273	FWEL-II	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
274	Gul Ahmed	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
275	Gul_Electric	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
282	Master	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
283	Master_Green	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	206	207	206	206	206	207	206	206	206	207	206	206	206	207	206	206	206
286	NASDA	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
289	Shaheen	Wind	175	176	175	175	175	176	175	175	175	176	175	175	175	176	175	175	175
290	Tenga	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
293	Three_Gorges_III	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
294	Trans_Atlantic	Wind	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
302	Zephyr	Wind	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	62	54	67	57	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			237,710	250,505	263,584	278,168	293,992	311,585	329,160	348,663	369,577	392,776	399,001	420,427	442,248	463,352	482,245	500,503	517,860
Energy Demand			237,710	250,505	263,584	278,168	293,992	311,585	329,160	348,663	369,577	392,776	399,001	420,427	442,248	463,352	482,245	500,503	517,860
Energy Not Served			0.04	0.00	0.01	0.01	0.01	0.00	0.03	0.05	0.03	0.00	-0.01	0.02	0.03	0.00	0.06	0.03	0.01

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

D-8. Year wise Cost Breakup-Discounted Prices

FY	Present Worth Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,703,732	6,660,454	6,660,454
2021	0	913,213	4,699,602	5,612,815	12,273,269
2022	0	909,992	3,368,357	4,278,349	16,551,618
2023	215,029	890,290	2,577,583	3,682,901	20,234,519
2024	366,566	851,884	2,113,608	3,332,058	23,566,577
2025	444,209	800,570	1,735,894	2,980,673	26,547,250
2026	484,090	770,088	1,353,640	2,607,818	29,155,068
2027	474,741	703,847	1,306,986	2,485,574	31,640,642
2028	543,082	660,783	1,135,630	2,339,495	33,980,137
2029	675,153	614,532	1,010,621	2,300,306	36,280,443
2030	805,011	568,929	919,893	2,293,833	38,574,276
2031	835,385	495,095	823,734	2,154,214	40,728,490
2032	845,170	453,437	724,001	2,022,608	42,751,098
2033	889,151	424,885	499,559	1,813,595	44,564,693
2034	908,945	400,418	403,975	1,713,337	46,278,030
2035	901,209	376,077	408,427	1,685,714	47,963,743
2036	893,370	353,160	419,215	1,665,744	49,629,488
2037	879,725	330,538	425,739	1,636,002	51,265,489
2038	865,948	312,281	423,910	1,602,139	52,867,628
2039	854,463	295,842	425,481	1,575,786	54,443,414
2040	838,966	280,250	422,848	1,542,064	55,985,478
2041	791,229	253,391	373,178	1,417,798	57,403,276
2042	827,731	247,034	312,379	1,387,144	58,790,420
2043	819,468	228,541	292,337	1,340,346	60,130,766
2044	820,477	213,907	262,361	1,296,745	61,427,510
2045	842,971	193,641	229,199	1,265,810	62,693,321
2046	835,203	190,529	204,970	1,230,702	63,924,023
2047	824,929	180,795	190,810	1,196,534	65,120,557

D-9. Year wise Cost Breakup-Un-Discounted Prices (k$)

FY	Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,703,732	6,660,454	6,660,454
2021	0	1,014,681	5,221,780	6,236,461	12,896,915
2022	0	1,123,447	4,158,466	5,281,913	18,178,827
2023	294,964	1,221,248	3,535,779	5,051,991	23,230,818
2024	558,705	1,298,406	3,221,472	5,078,582	28,309,400
2025	752,272	1,355,772	2,939,752	5,047,796	33,357,196
2026	910,900	1,449,056	2,547,113	4,907,070	38,264,265
2027	992,566	1,471,569	2,732,583	5,196,719	43,460,984
2028	1,261,610	1,535,037	2,638,133	5,434,780	48,895,764
2029	1,742,688	1,586,215	2,608,590	5,937,492	54,833,256
2030	2,308,748	1,631,672	2,638,229	6,578,649	61,411,906
2031	2,662,067	1,577,687	2,624,940	6,864,694	68,276,600
2032	2,992,498	1,605,486	2,563,476	7,161,460	75,438,060
2033	3,498,025	1,671,548	1,965,325	7,134,898	82,572,958
2034	3,973,217	1,750,322	1,765,871	7,489,410	90,062,368
2035	4,377,116	1,826,583	1,983,704	8,187,403	98,249,771
2036	4,821,157	1,905,860	2,262,332	8,989,348	107,239,119
2037	5,275,022	1,981,976	2,552,822	9,809,820	117,048,940
2038	5,769,348	2,080,562	2,824,282	10,674,192	127,723,132
2039	6,325,362	2,190,039	3,149,725	11,665,126	139,388,258
2040	6,900,718	2,305,128	3,478,038	12,683,884	152,072,143
2041	7,231,189	2,315,783	3,410,539	12,957,511	165,029,654
2042	8,405,313	2,508,539	3,172,102	14,085,954	179,115,608
2043	9,246,007	2,578,619	3,298,420	15,123,047	194,238,654
2044	10,285,986	2,681,668	3,289,114	16,256,768	210,495,422
2045	11,742,210	2,697,333	3,192,634	17,632,177	228,127,599
2046	12,926,678	2,948,867	3,172,385	19,047,930	247,175,529
2047	14,186,290	3,109,128	3,281,350	20,576,768	267,752,297

D-10. Year wise Nominal Capacity Addition (MW)

FY	Capacity Addition Over the Plan Period (2020-47) - MW										
	Local Coal	Hydro	RLNG	Nuclear	Imported Coal	RE	Natural Gas	Furnace Oil	Cross Border	Yearly Addition	Total (MW)
2020	602	9,945	6,677	1,230	3,736	1,846	3,010	6,488	0	33,534	-
2021	2,118	119	0	1,059	0	446	0	0	0	3,742	37,276
2022	607	720	0	1,059	917	1,410	0	-1,336	0	3,377	40,653
2023	0	968	0	0	0	3,000	-260	0	1,000	4,708	45,361
2024	210	1,413	0	0	644	2,622	-270	0	0	4,619	49,979
2025	0	3,088	0	0	0	2,363	0	0	0	5,451	55,431
2026	0	37	0	1,059	0	2,131	0	0	0	3,227	58,658
2027	0	700	0	0	0	1,565	-192	-1,200	0	873	59,531
2028	607	1,122	719	0	0	2,128	0	-824	0	3,751	63,283
2029	0	1,986	360	0	0	2,429	-106	0	0	4,668	67,951
2030	607	639	1,877	0	0	3,000	-678	-653	0	4,792	72,743
2031	0	2,154	1,079	0	0	0	0	-310	0	2,923	75,666
2032	0	2,160	987	0	0	1,315	-29	-367	0	4,066	79,732
2033	2,989	0	618	0	0	1,500	0	-627	0	4,481	84,213
2034	3,212	0	620	0	0	0	0	-156	0	3,676	87,888
2035	2,050	0	2,556	0	0	0	-212	-409	0	3,985	91,874
2036	2,236	0	2,773	0	0	103	-167	-606	0	4,339	96,212
2037	2,441	0	1,991	0	0	536	0	0	0	4,968	101,181
2038	2,633	0	2,035	0	0	823	0	0	0	5,491	106,672
2039	2,905	0	2,437	0	0	952	-355	0	0	5,938	112,610
2040	3,013	0	2,452	0	0	578	0	0	0	6,043	118,653
2041	0	1,632	-202	0	0	1,308	0	0	0	2,738	121,391
2042	0	6,020	-197	0	0	1,500	0	0	0	7,323	128,714
2043	816	3,598	0	0	0	1,500	0	0	0	5,914	134,628
2044	604	4,137	-10	0	0	1,500	0	0	0	6,231	140,859
2045	0	5,698	0	0	0	544	-721	0	0	5,521	146,379
2046	0	5,227	-450	0	0	0	0	0	0	4,777	151,156
2047	0	4,473	0	0	0	0	0	0	0	4,473	155,630
Total	**27,649**	**55,836**	**26,322**	**4,407**	**5,297**	**35,098**	**20**	**0**	**1,000**	**155,630**	

D-11. IGCEP Generation Mix 2020-2047 (GWh)

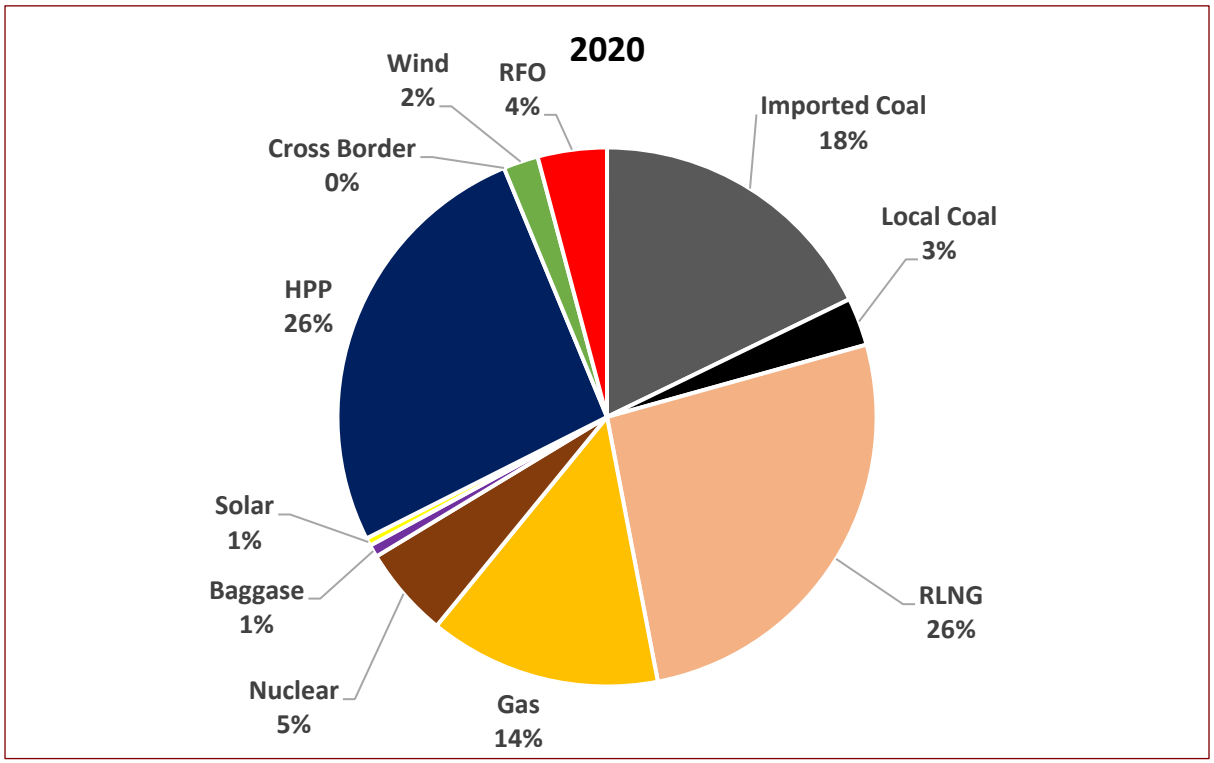


Chart D-1: IGCEP Generation Mix 2020 (GWh)

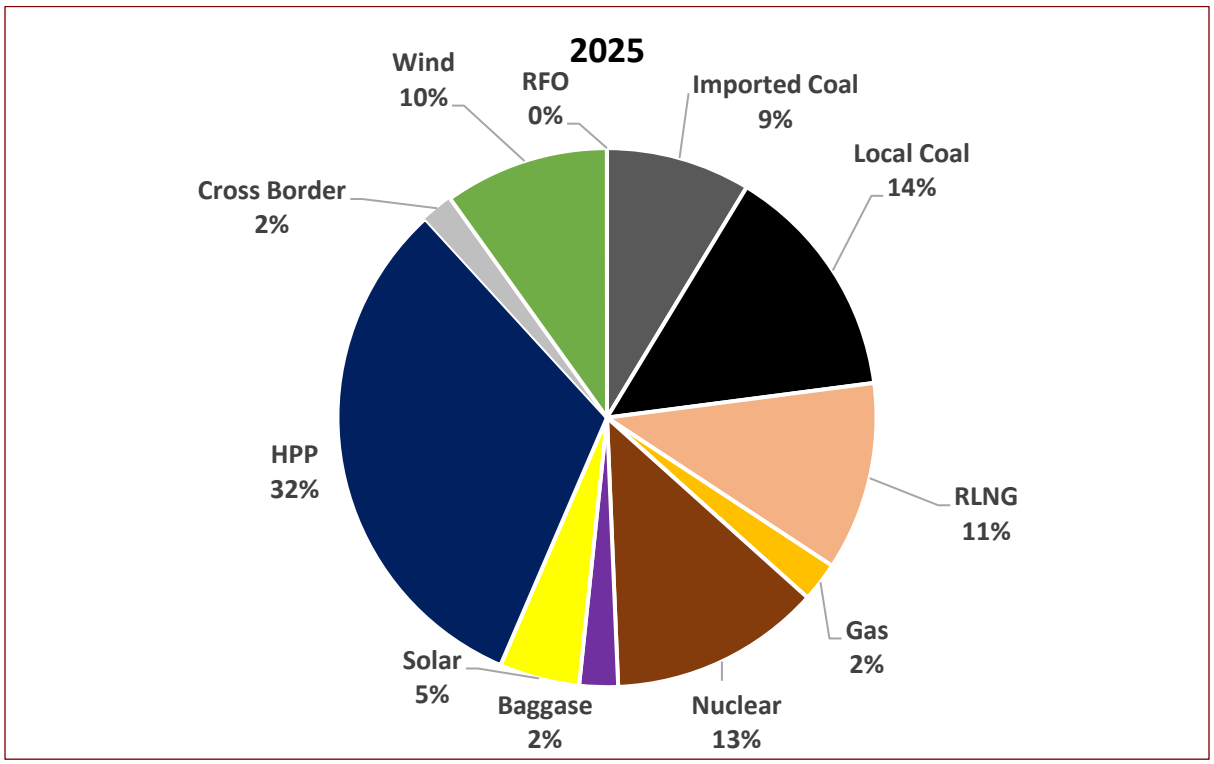


Chart D-2: IGCEP Generation Mix 2025 (GWh)

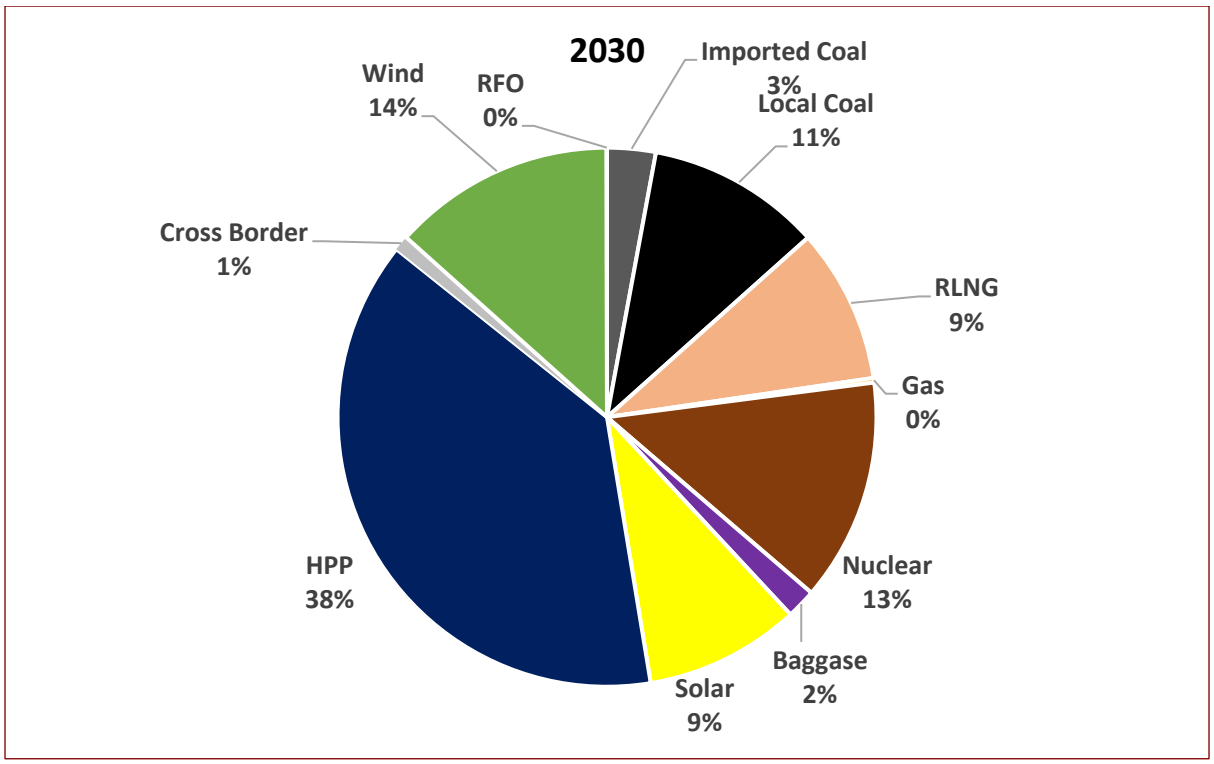


Chart D-3: IGCEP Generation Mix 2030 (GWh)

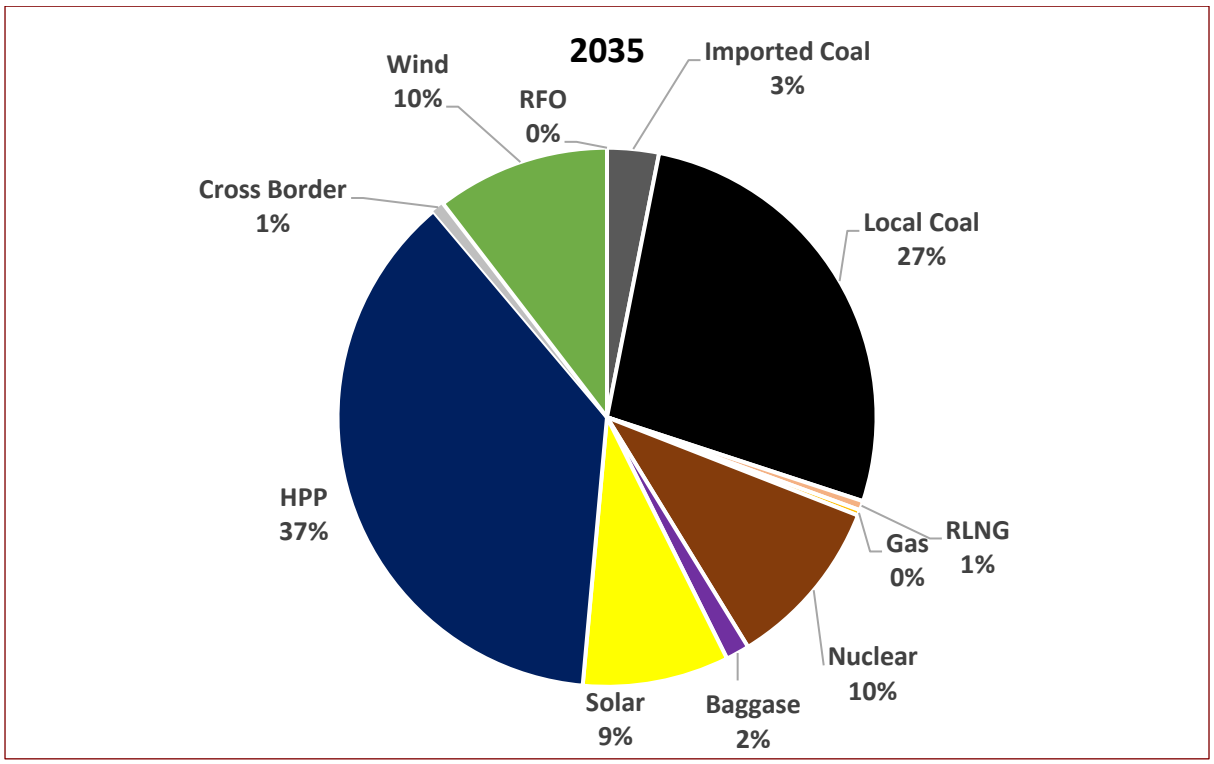


Chart D-4: IGCEP Generation Mix 2035 (GWh)

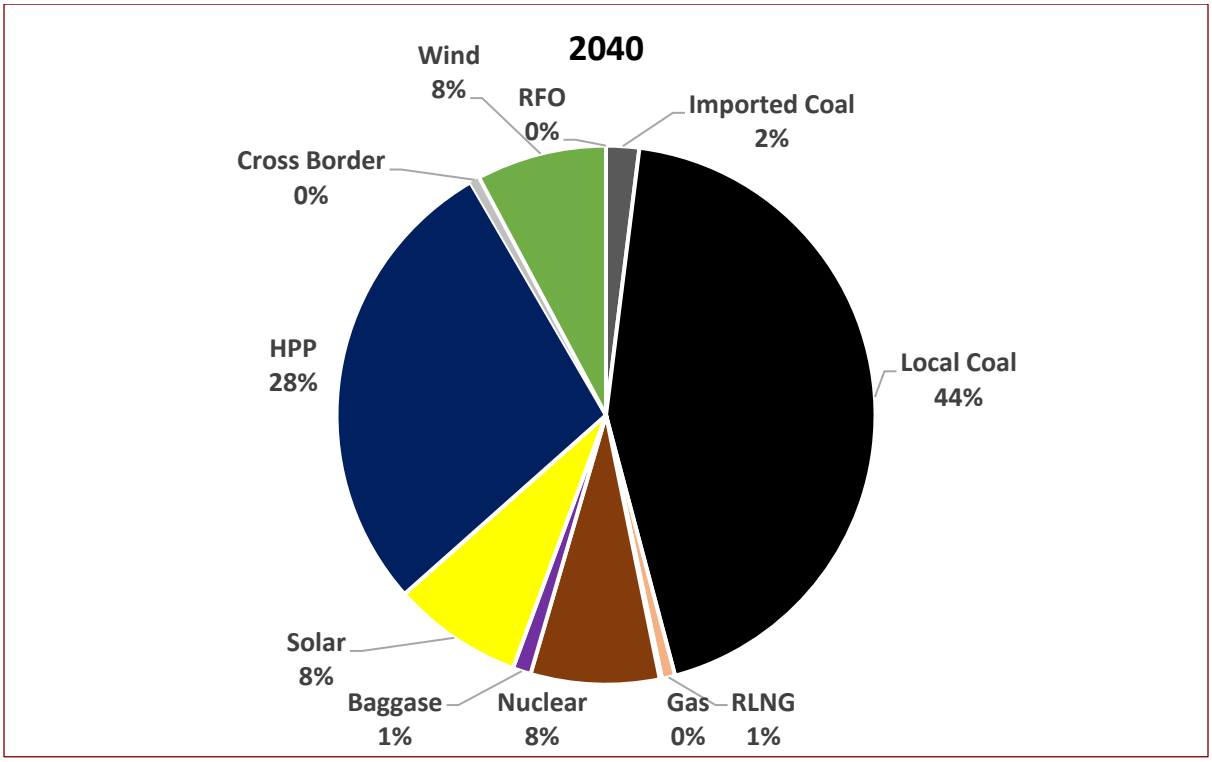


Chart D-5: IGCEP Generation Mix 2040 (GWh)

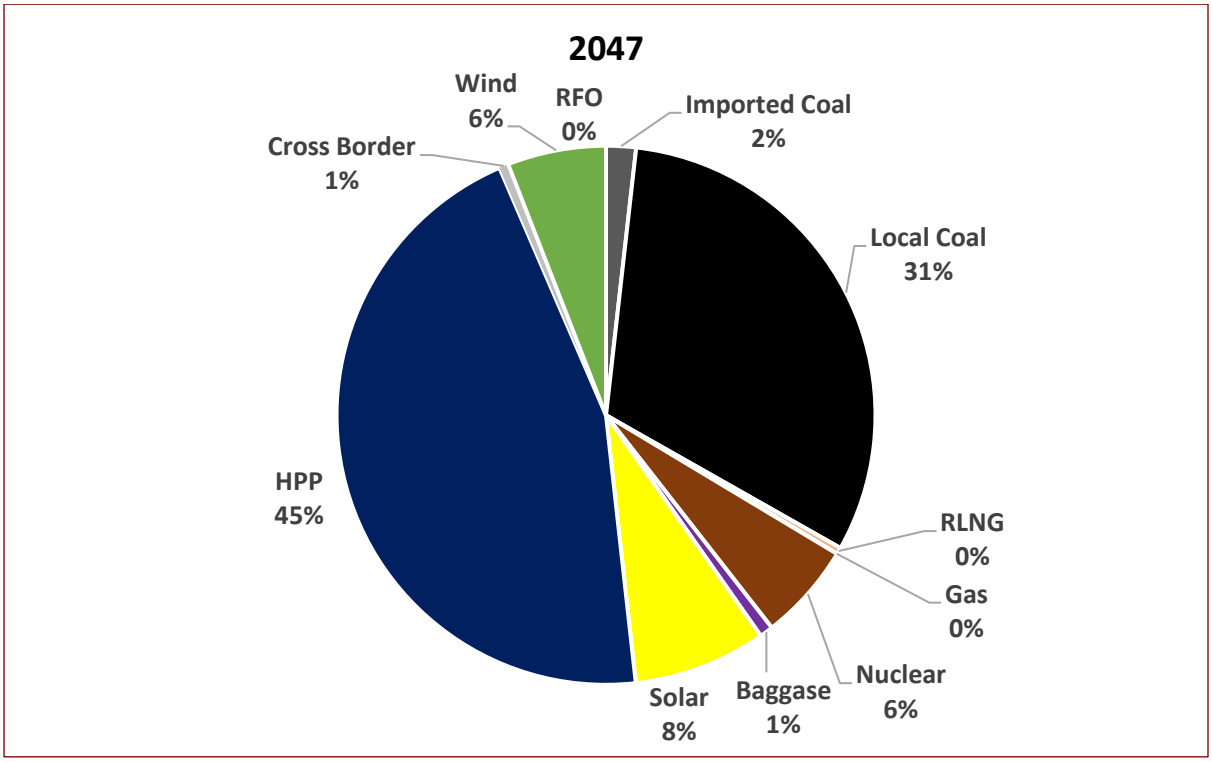


Chart D-6: IGCEP Generation Mix 2047 (GWh)

D-12. IGCEP Generation Mix 2020-47 (MW)

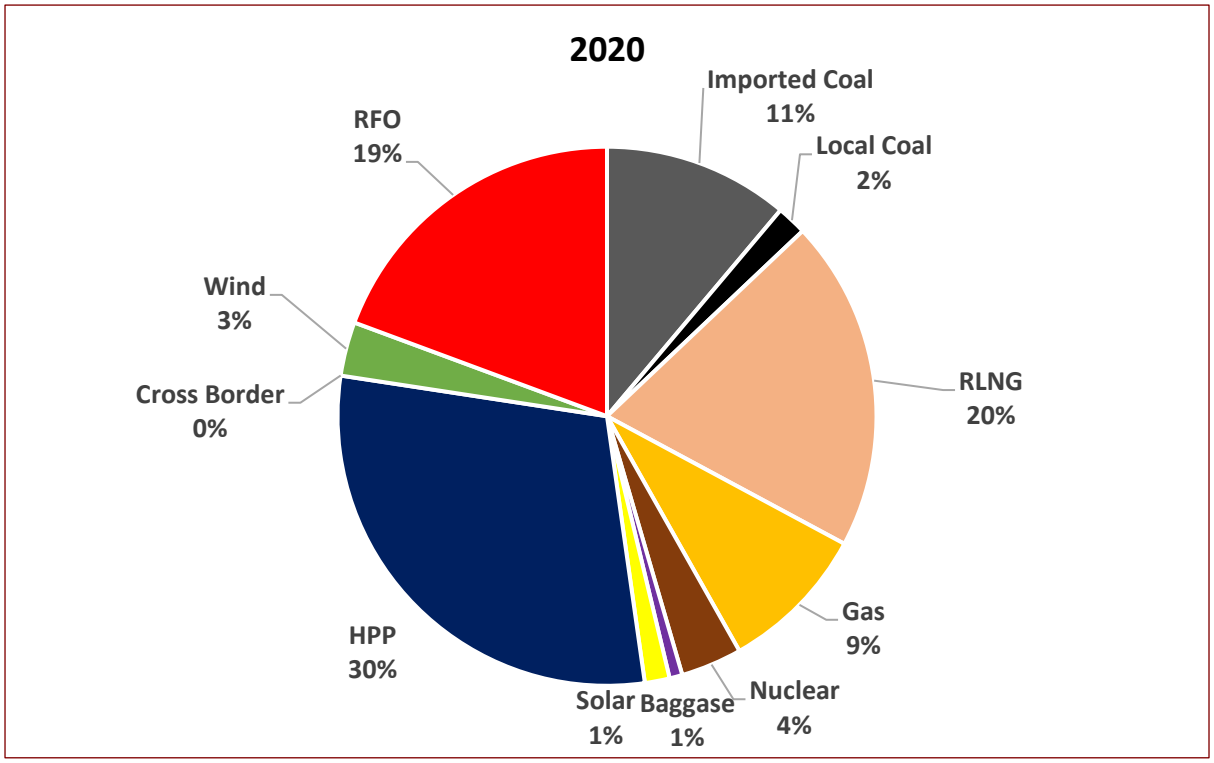


Chart D-7: IGCEP Generation Mix 2020 (MW)

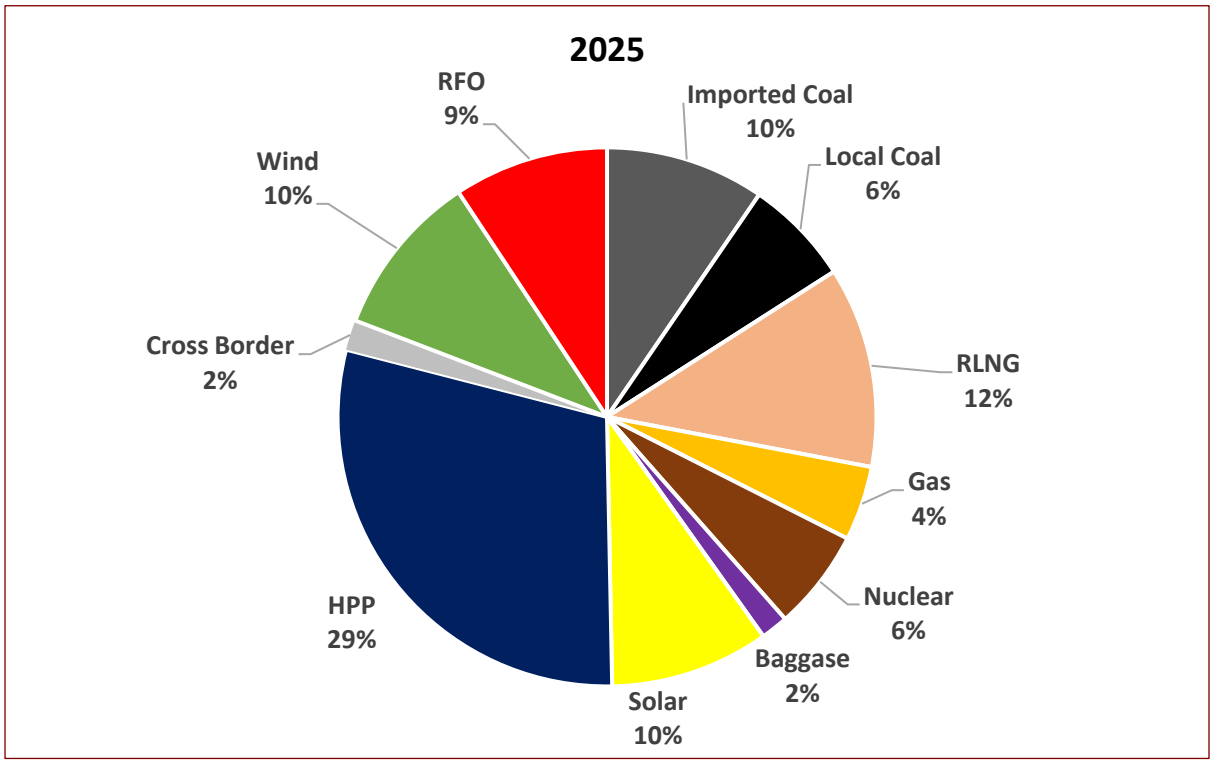


Chart D-8: IGCEP Generation Mix 2025 (MW)

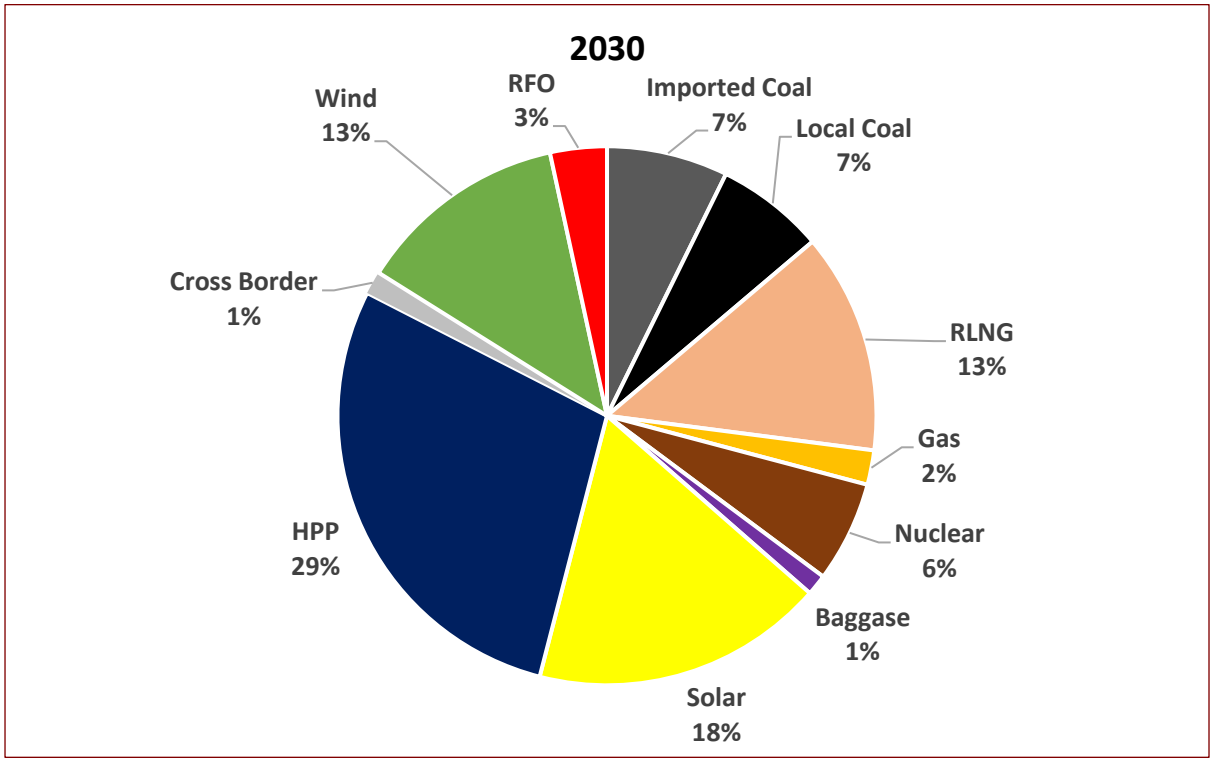


Chart D-9: IGCEP Generation Mix 2030 (MW)

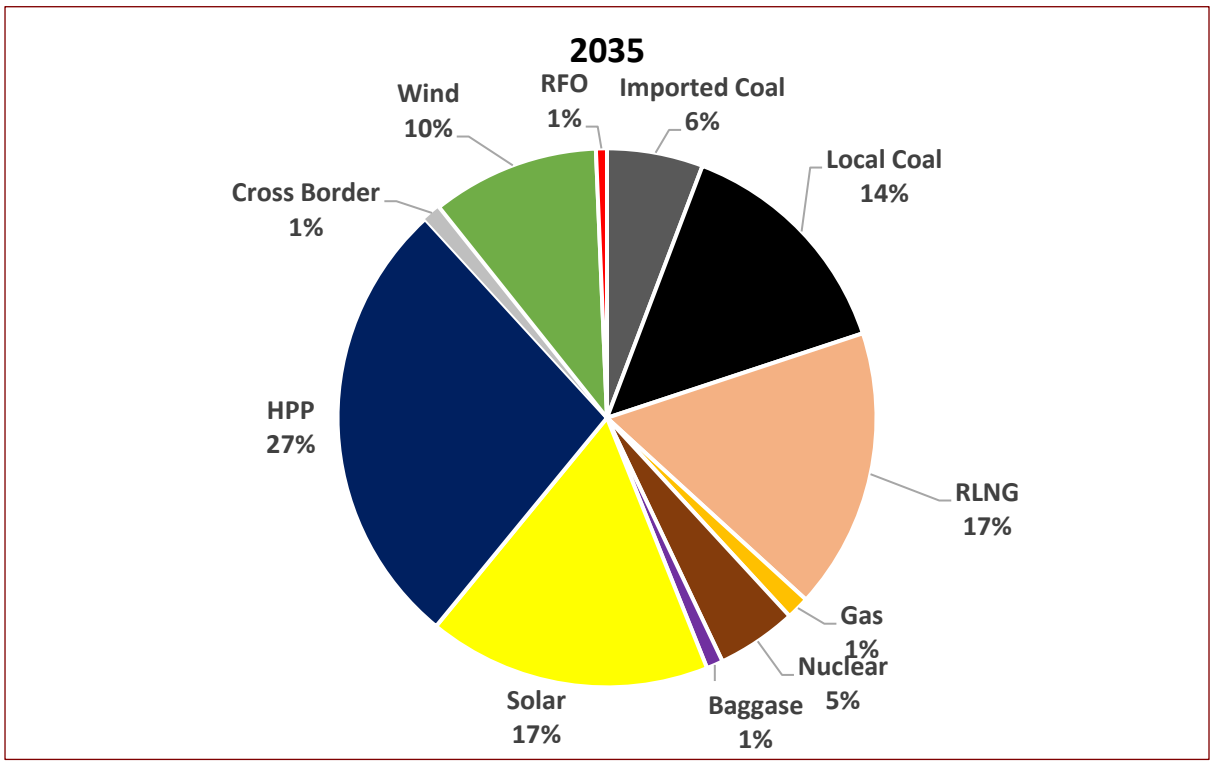


Chart D-10: IGCEP Generation Mix 2035 (MW)

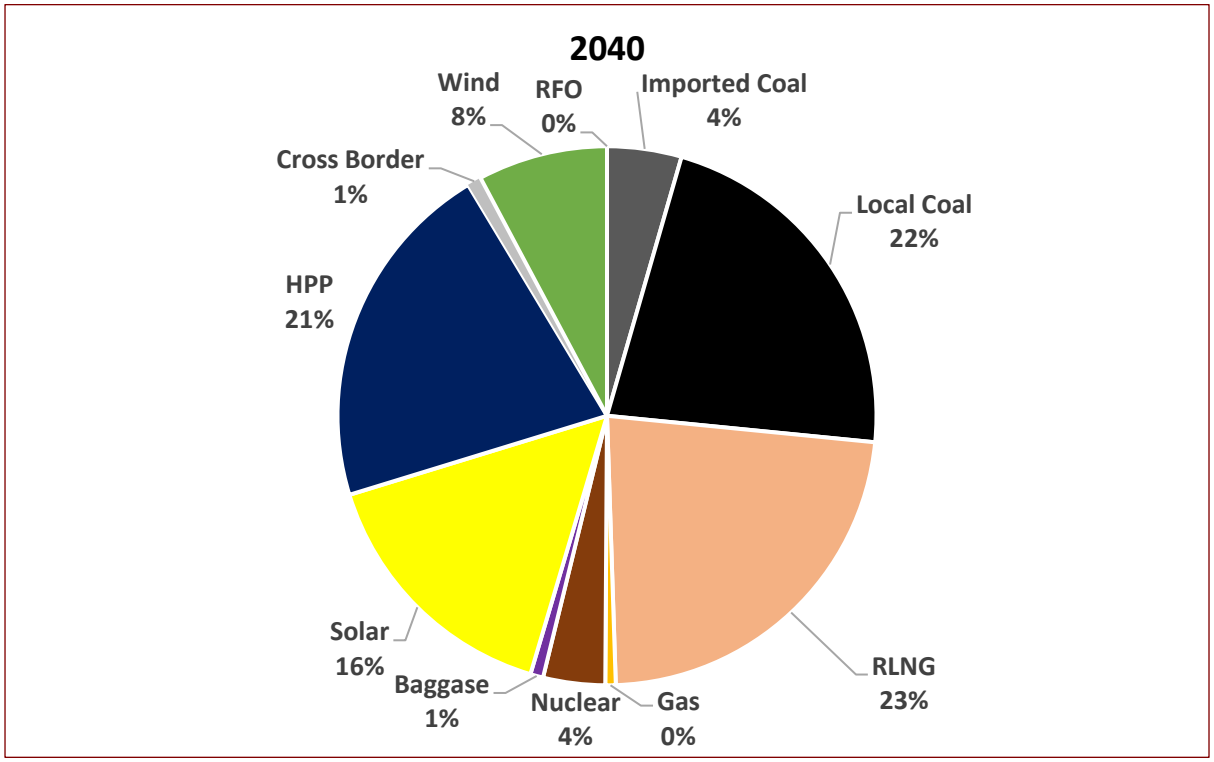


Chart D-11: IGCEP Generation Mix 2040 (MW)

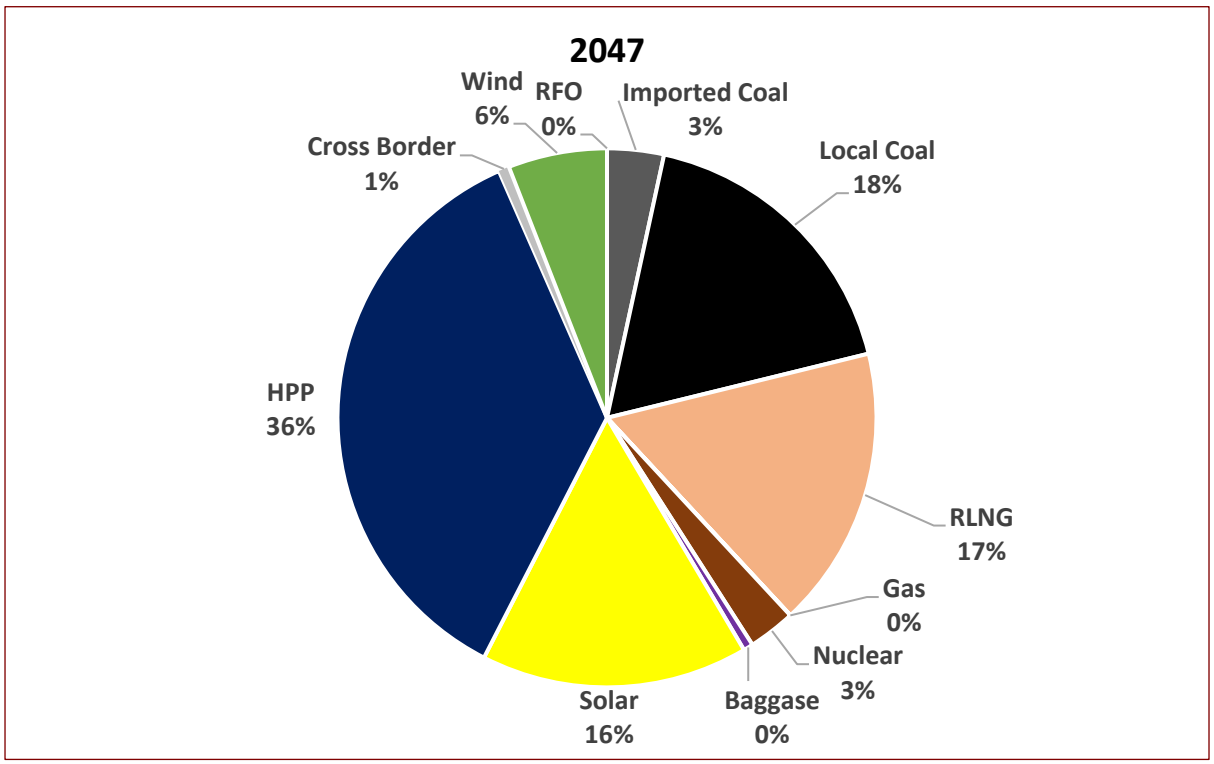


Chart D-12: IGCEP Generation Mix 2047 (MW)

D-13. IGCEP Monthly Generation Mix 2019-47 (GWh)

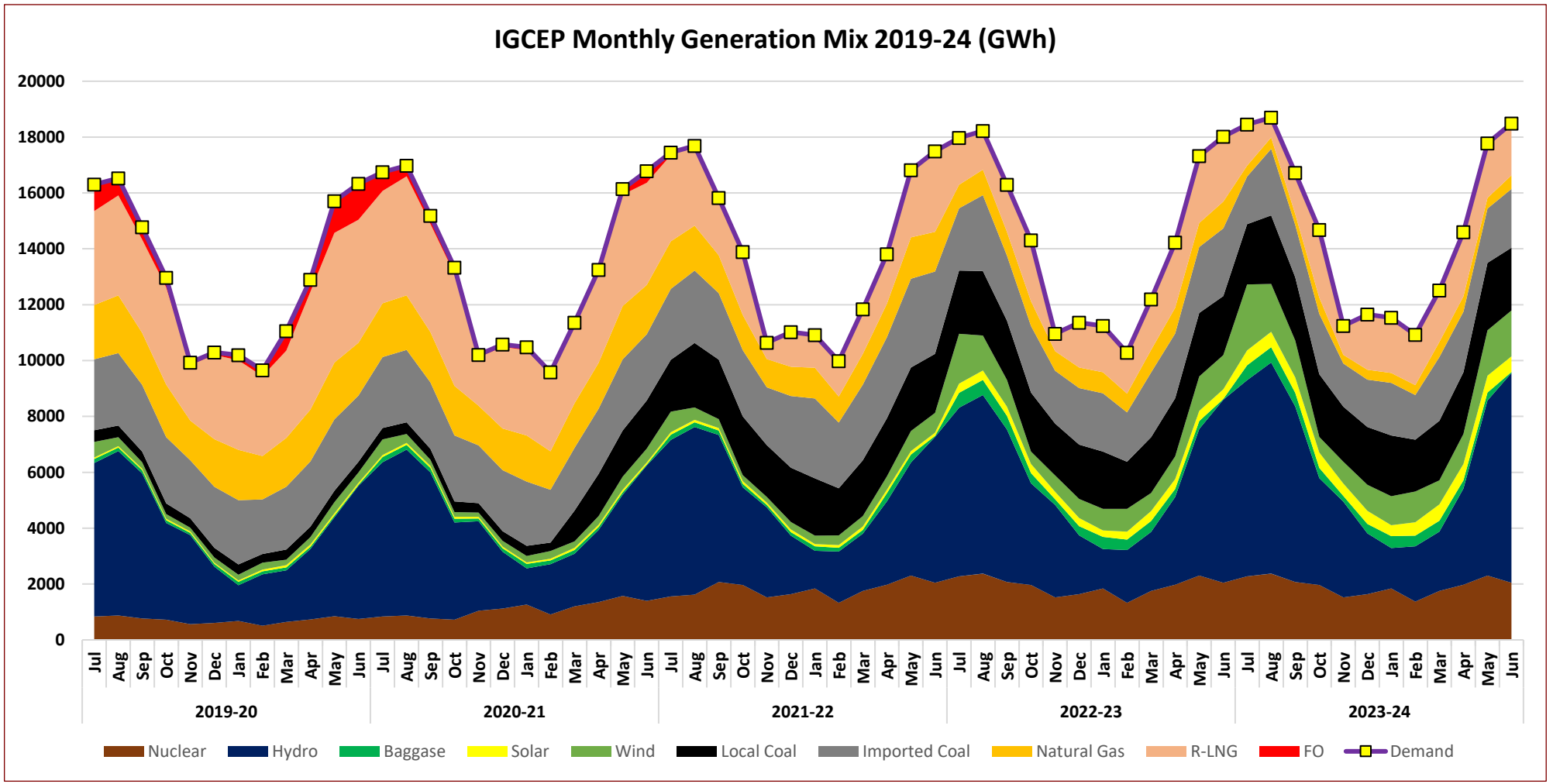


Chart D-13: IGCEP Monthly Generation Mix 2019-24 (GWh)

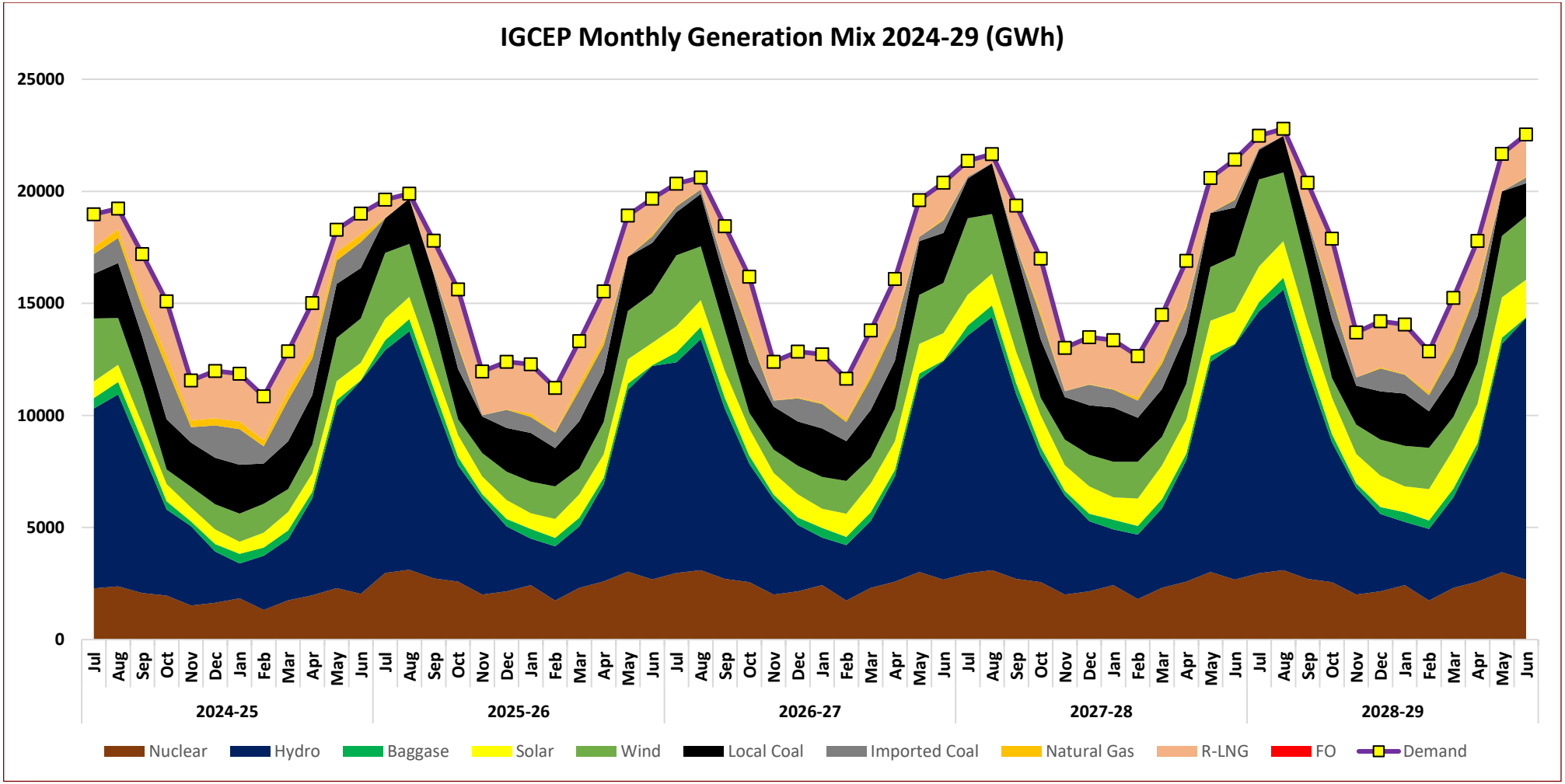


Chart D-14: IGCEP Monthly Generation Mix 2024-29 (GWh)

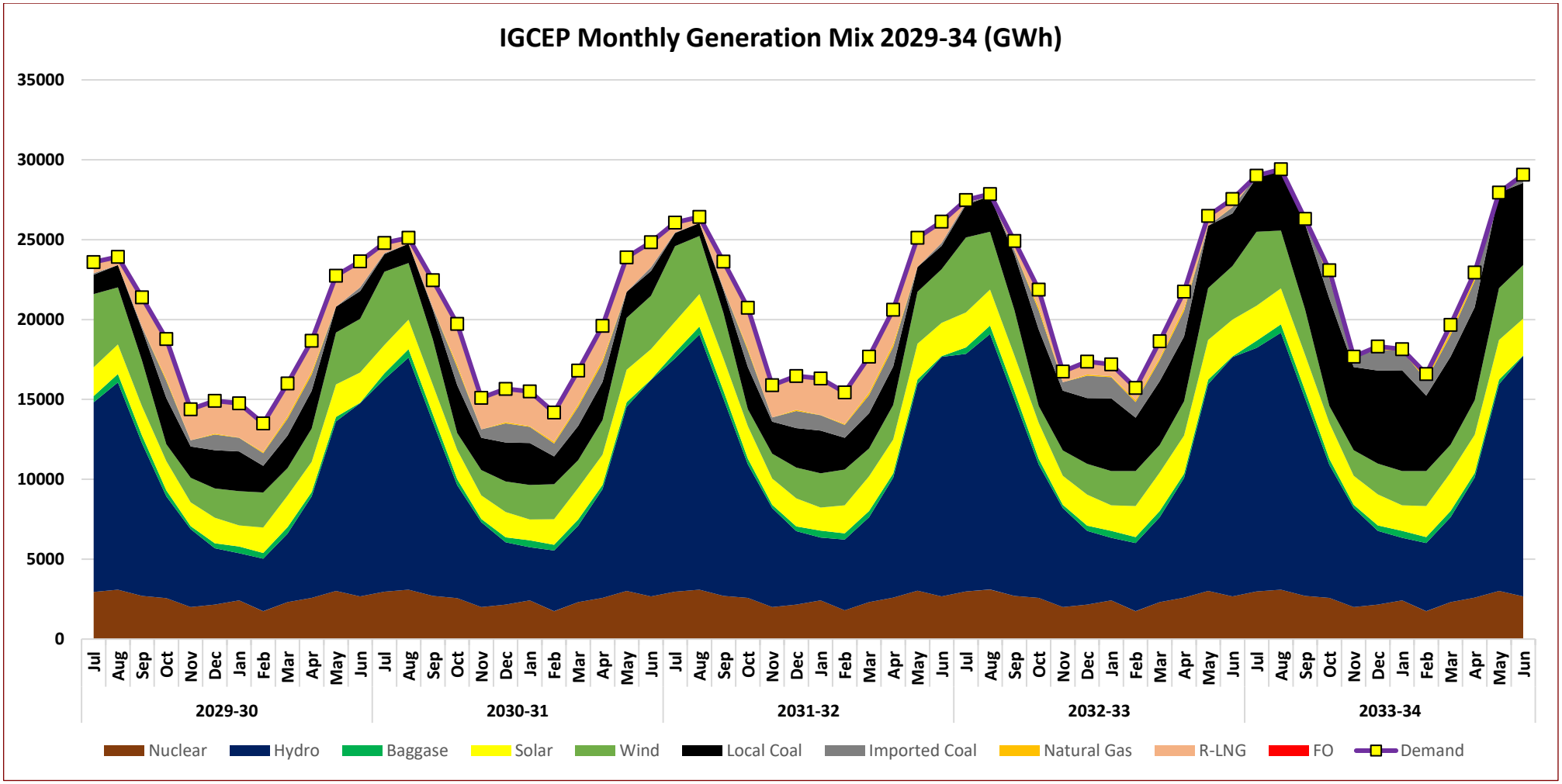


Chart D-15: IGCEP Monthly Generation Mix 2029-34 (GWh)

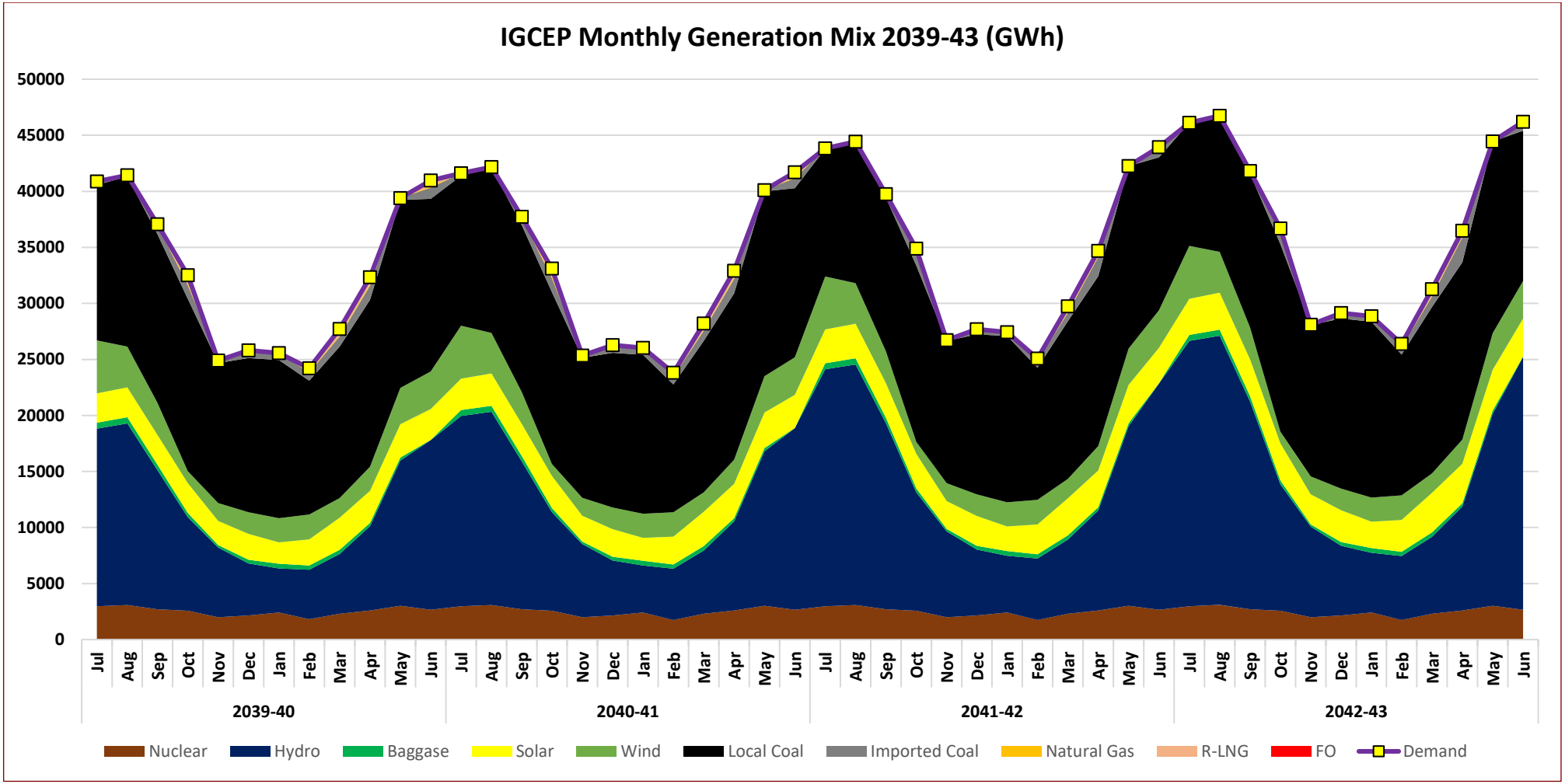


Chart D-16: IGCEP Monthly Generation Mix 2034-39 (GWh)

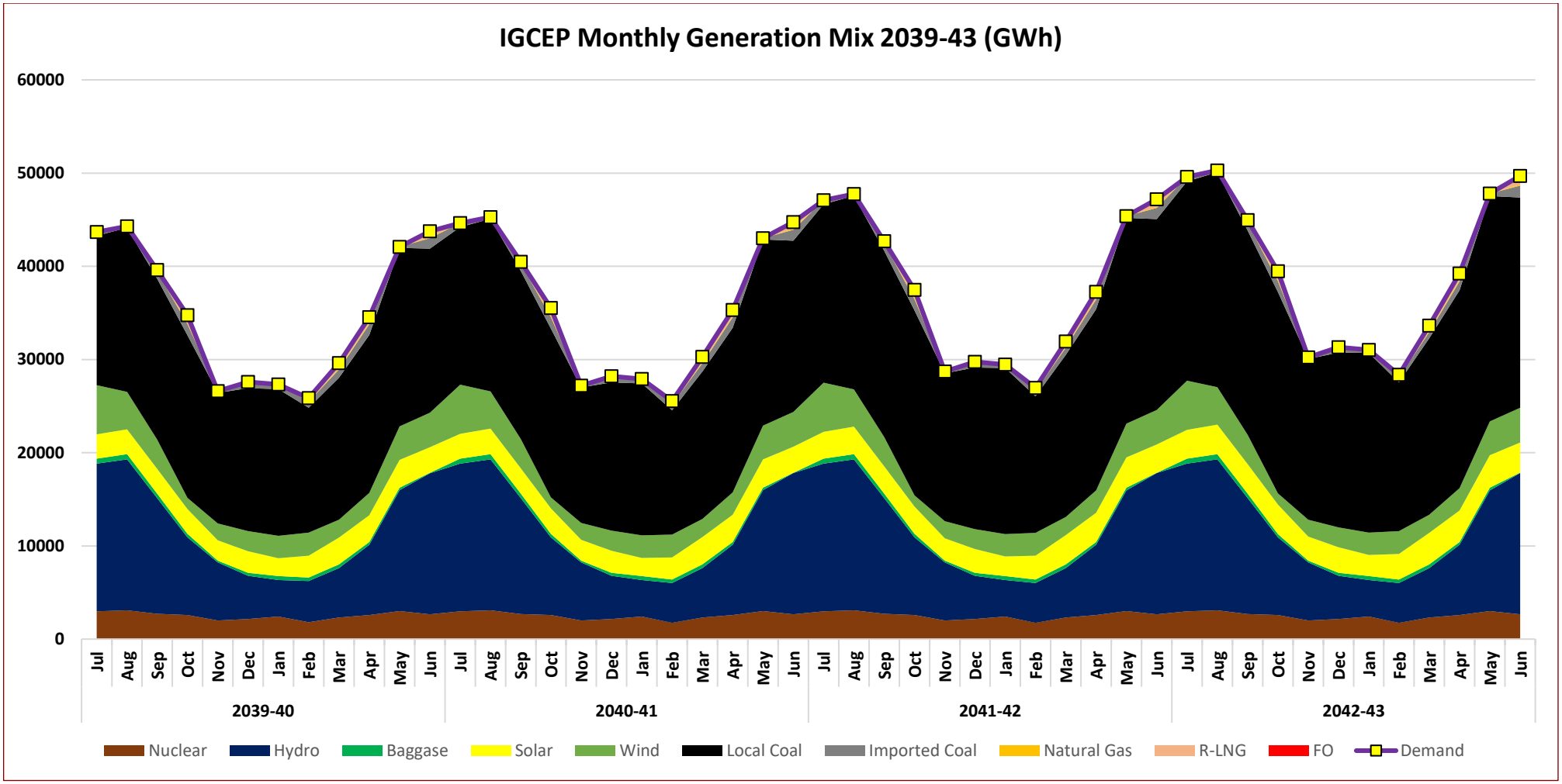


Chart D-17: IGCEP Monthly Generation Mix 2039-43 (GWh)

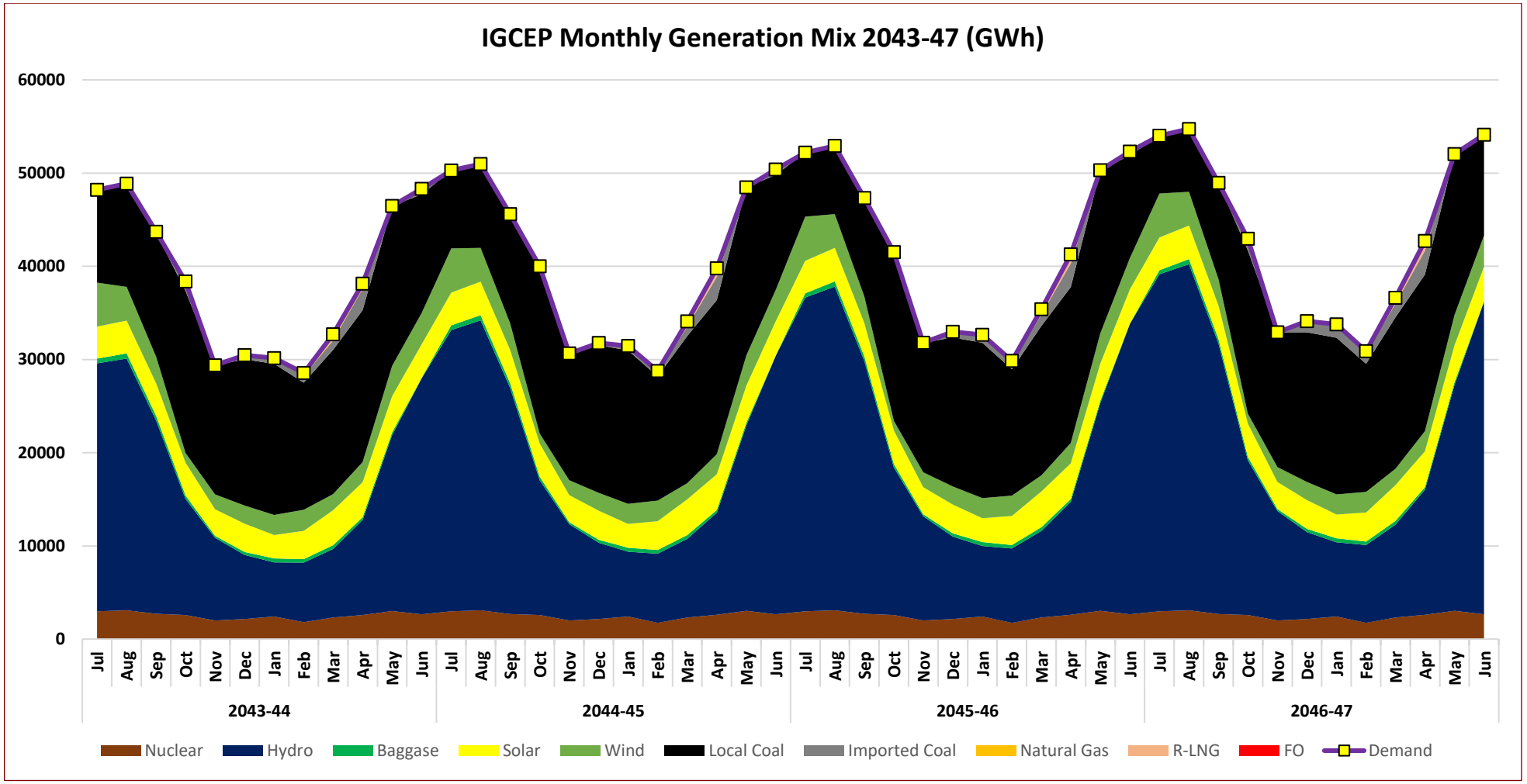


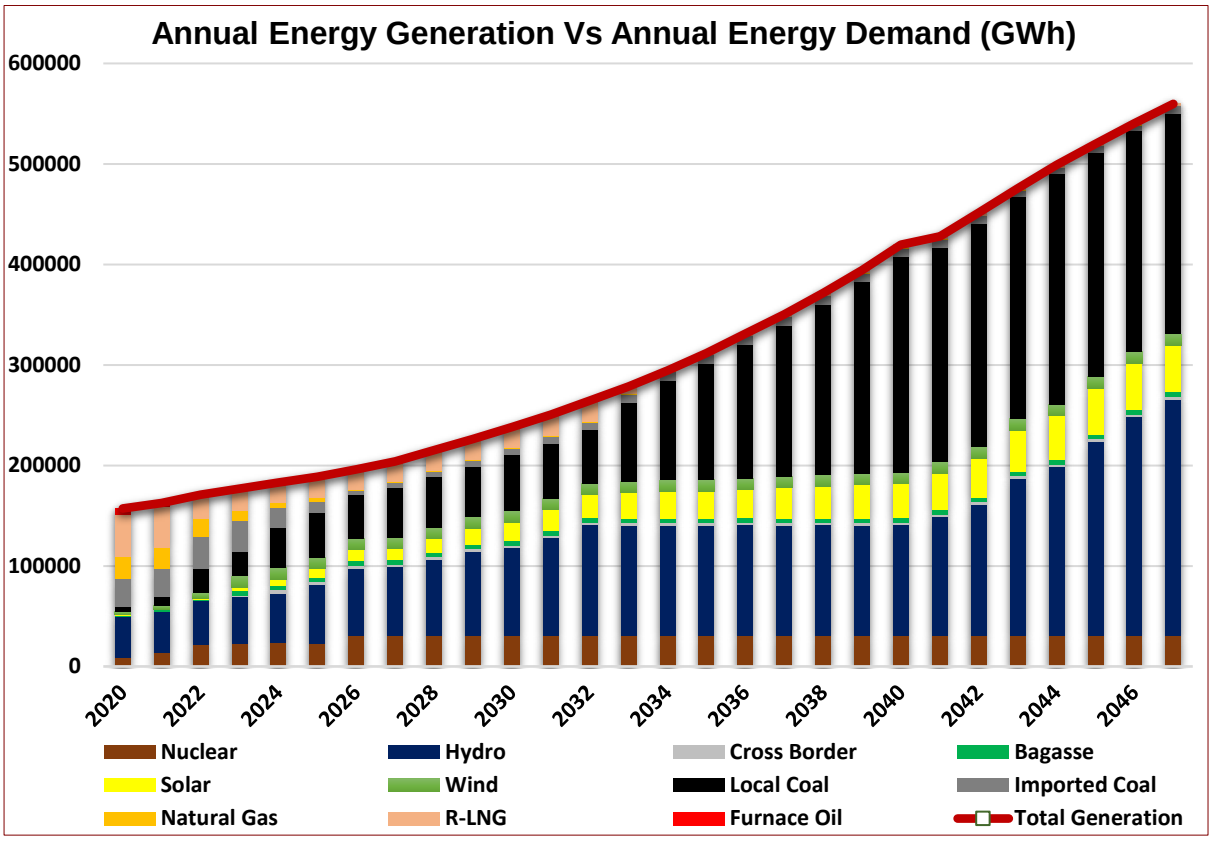
Chart D-18: IGCEP Monthly Generation Mix 2043-47 (GWh)

D-14. Year-wise Present Worth and Un-Discounted Cost

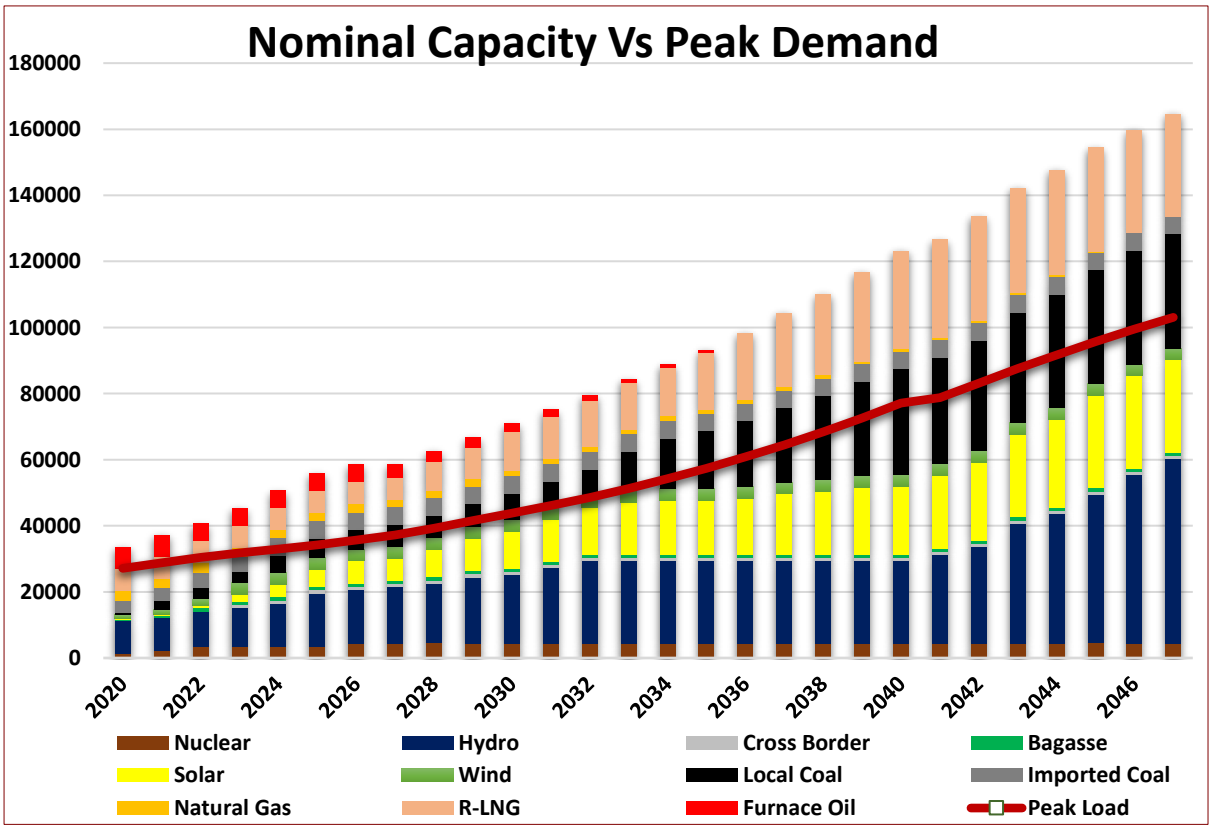
FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,703,732	6,660,454	6,660,454	0	956,722	5,703,732	6,660,454	6,660,454
2021	0	913,213	4,699,602	5,612,815	12,273,269	0	1,014,681	5,221,780	6,236,461	12,896,915
2022	0	909,992	3,368,357	4,278,349	16,551,618	0	1,123,447	4,158,466	5,281,913	18,178,827
2023	215,029	890,290	2,577,583	3,682,901	20,234,519	294,964	1,221,248	3,535,779	5,051,991	23,230,818
2024	366,566	851,884	2,113,608	3,332,058	23,566,577	558,705	1,298,406	3,221,472	5,078,582	28,309,400
2025	444,209	800,570	1,735,894	2,980,673	26,547,250	752,272	1,355,772	2,939,752	5,047,796	33,357,196
2026	484,090	770,088	1,353,640	2,607,818	29,155,068	910,900	1,449,056	2,547,113	4,907,070	38,264,265
2027	474,741	703,847	1,306,986	2,485,574	31,640,642	992,566	1,471,569	2,732,583	5,196,719	43,460,984
2028	543,082	660,783	1,135,630	2,339,495	33,980,137	1,261,610	1,535,037	2,638,133	5,434,780	48,895,764
2029	675,153	614,532	1,010,621	2,300,306	36,280,443	1,742,688	1,586,215	2,608,590	5,937,492	54,833,256
2030	805,011	568,929	919,893	2,293,833	38,574,276	2,308,748	1,631,672	2,638,229	6,578,649	61,411,906
2031	835,385	495,095	823,734	2,154,214	40,728,490	2,662,067	1,577,687	2,624,940	6,864,694	68,276,600
2032	845,170	453,437	724,001	2,022,608	42,751,098	2,992,498	1,605,486	2,563,476	7,161,460	75,438,060
2033	889,151	424,885	499,559	1,813,595	44,564,693	3,498,025	1,671,548	1,965,325	7,134,898	82,572,958
2034	908,945	400,418	403,975	1,713,337	46,278,030	3,973,217	1,750,322	1,765,871	7,489,410	90,062,368

FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2035	901,209	376,077	408,427	1,685,714	47,963,743	4,377,116	1,826,583	1,983,704	8,187,403	98,249,771
2036	893,370	353,160	419,215	1,665,744	49,629,488	4,821,157	1,905,860	2,262,332	8,989,348	107,239,119
2037	879,725	330,538	425,739	1,636,002	51,265,489	5,275,022	1,981,976	2,552,822	9,809,820	117,048,940
2038	865,948	312,281	423,910	1,602,139	52,867,628	5,769,348	2,080,562	2,824,282	10,674,192	127,723,132
2039	854,463	295,842	425,481	1,575,786	54,443,414	6,325,362	2,190,039	3,149,725	11,665,126	139,388,258
2040	838,966	280,250	422,848	1,542,064	55,985,478	6,900,718	2,305,128	3,478,038	12,683,884	152,072,143
2041	791,229	253,391	373,178	1,417,798	57,403,276	7,231,189	2,315,783	3,410,539	12,957,511	165,029,654
2042	827,731	247,034	312,379	1,387,144	58,790,420	8,405,313	2,508,539	3,172,102	14,085,954	179,115,608
2043	819,468	228,541	292,337	1,340,346	60,130,766	9,246,007	2,578,619	3,298,420	15,123,047	194,238,654
2044	820,477	213,907	262,361	1,296,745	61,427,510	10,285,986	2,681,668	3,289,114	16,256,768	210,495,422
2045	842,971	193,641	229,199	1,265,810	62,693,321	11,742,210	2,697,333	3,192,634	17,632,177	228,127,599
2046	835,203	190,529	204,970	1,230,702	63,924,023	12,926,678	2,948,867	3,172,385	19,047,930	247,175,529
2047	824,929	180,795	190,810	1,196,534	65,120,557	14,186,290	3,109,128	3,281,350	20,576,768	267,752,297

E-1. Annual Energy Generation Vs Annual Energy Demand (GWh)



E-2. Nominal Capacity Vs Peak Demand (MW) 2020-47



E-3. Future Generation Capacity Additions

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South MW	Midland MW	North MW	MW	MW
2020	-	-	-	-	-	-	-	-	-	-	0	0
2021	-	-	-	-	-	-	-	-	-	-	0	0
2022	-	-	-	-	-	-	-	-	-	-	0	0
2023	-	-	20	-	-	5	1,500	1,000	300	200	3,025	3,025
2024	-	1,988	-	-	-	-	1,500	-	-	-	3,488	6,513
2025	-	607	-	-	-	-	1,482	-	-	-	2,089	8,602
2026	-	-	-	-	-	3	1,500	-	-	-	1,503	10,105
2027	-	843	-	-	-	40	-	-	-	-	883	10,988
2028	-	103	-	2,020	-	-	1,500	-	-	-	3,623	14,611
2029	-	158	-	908	-	1,874	1,500	-	-	-	4,440	19,051
2030	-	917	-	3,010	-	639	1,500	-	-	-	6,066	25,117
2031	-	-	-	901	-	2,154	1,500	-	-	-	4,555	29,672
2032	-	7	-	1,204	-	2,160	1,500	-	-	-	4,871	34,543
2033	-	3,919	-	-	-	-	1,500	-	-	-	5,419	39,962

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South MW	Midland MW	North MW	MW	MW
2034	-	3,360	-	633	-	-	567	-	-	-	4,560	44,522
2035	-	2,248	-	2,719	-	-	-	-	-	-	4,967	49,490
2036	-	2,375	-	2,831	-	-	742	-	-	-	5,948	55,438
2037	-	2,551	-	2,058	-	-	1,354	-	-	-	5,963	61,401
2038	-	2,963	-	2,202	-	-	669	-	-	-	5,833	67,234
2039	-	3,206	-	2,572	-	-	1,124	-	-	-	6,901	74,135
2040	-	3,528	-	2,933	-	-	360	-	-	-	6,821	80,956
2041	-	32	-	270	-	1,844	1,500	-	-	-	3,645	84,601
2042	-	1,237	-	2,102	-	2,400	1,500	-	-	-	7,239	91,841
2043	-	-	-	-	-	7,100	1,500	-	-	-	8,600	100,441
2044	-	1,125	-	-	-	2,793	1,500	-	-	-	5,418	105,859
2045	-	7	-	-	-	5,960	1,500	-	-	-	7,467	113,326
2046	-	-	-	-	-	5,884	-	-	-	-	5,884	119,210
2047	-	-	-	-	-	4,874	12	-	-	-	4,886	124,096
Total	**-**	**31,173**	**20**	**26,363**	**0**	**37,730**	**27,309**	**1,000**	**300**	**200**	**124,096**	

E-4. List of Projects uptill 2047 (Committed + Candidate)

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2020							
1	Zorlu Solar Pakistan Pvt. Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Jan-20
2	Jabori	Hydro	10	10	PEDO	Committed	Mar-20
3	Trimmu	RLNG	1,263	1,243	PPIB	Committed	Apr-20
4	Jhing	Hydro	15	15	AJK	Committed	Jun-20
5	Karora	Hydro	12	12	PEDO	Committed	Jun-20
6	Koto	Hydro	41	41	PEDO	Committed	Jun-20
Generation Additions in 2020 (MW)			1,441	1,421			
Cumulative Addition up till 2020 (MW)			1,441	1,421			
2021							
1	Etihad Power Generation Ltd.	Bagasse	74	74	AEDB	Committed	Jul-20
2	Karachi Nuclear K-2	Nuclear	1,100	1,059	PAEC	Committed	Nov-20
3	Master Green Energy Ltd.	Wind	60	60	AEDB	Committed	Nov-20
4	Shaheen Renewable Energy-1 Pvt. Ltd.	Wind	51	51	AEDB	Committed	Nov-20
5	Lawi	Hydro	69	69	PEDO	Committed	Jan-21
6	Tricorm Wind Power Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-21
7	Western Energy Pvt. Limited	Wind	50	50	AEDB	Committed	Feb-21
8	Lucky	Local Coal	660	607	PPIB	Committed	Mar-21
9	Access Electric Pvt. Ltd.	Solar	10	10	AEDB	Committed	Mar-21
10	Access Solar Pvt. Ltd.	Solar	12	12	AEDB	Committed	Mar-21
11	Thal Nova	Local Coal	330	300	PPIB	Committed	Mar-21
12	Thar TEL	Local Coal	330	300	PPIB	Committed	Mar-21
13	Thar-I (Shanghai Electric) Unit 1	Local Coal	660	607	PPIB	Committed	Mar-21
14	Riali-II	Hydro	7	7	AJK	Committed	Jun-21
15	Hydro China Dawood Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
16	Tenga Generasi Limited	Wind	50	50	AEDB	Committed	Jun-21
17	Zephyr Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
18	Siddiqsons	Local Coal	330	304	PPIB	Committed	Jun-21
Generation Additions in 2021 (MW)			3,943	3,708			
Cumulative Addition uptill 2021 (MW)			5,384	5,129			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2022							
1	HNDS Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
2	Helios Power Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
3	Thar-I (Shanghai Electric) Unit 2	Local Coal	660	607	PPIB	Committed	Aug-21
4	Karachi Nuclear K-3	Nuclear	1,100	1,059	PAEC	Committed	Sep-21
5	Buksh Energy Pvt. Ltd.	Solar	12	12	AEDB	Committed	Sep-21
6	Safe Solar Power Pvt. Ltd.	Solar	10	10	AEDB	Committed	Sep-21
7	Artistic Wind Power Pvt. Limited.	Wind	50	50	AEDB	Committed	Oct-21
8	Meridian Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Nov-21
9	Zhenfa Pakistan New Energy Company (Pvt.) Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Nov-21
10	Karot	Hydro	720	720	PPIB/AJK	Committed	Dec-21
11	Jamshoro CFPP Unit 1	Imp.Coal	660	644	GENCO	Committed	Dec-21
12	Gwadar	Imp.Coal	300	273	PPIB	Committed	Jan-22
13	Gul Ahmed Electric Ltd.	Wind	50	50	AEDB	Committed	Jan-22
14	ACT 2 wind (Pvt.) Ltd.	Wind	50	50	AEDB	Committed	Feb-22
15	Din Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
16	Indus Wind Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
17	Lakeside Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
18	Liberty Wind Power 1 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
19	Liberty Wind Power 2 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
20	Metro Wind Power Ltd.	Wind	50	50	AEDB	Committed	Feb-22
21	NASDA Green Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
22	Trans Atlantic Energy (Pvt.) Limited	Wind	48	48	AEDB	Committed	Feb-22
23	Alliance Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
24	Bahawalpur Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
25	Faran Power Limited	Bagasse	27	27	AEDB	Committed	Mar-22
26	Ghotki Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
27	Hamza Sugar Mills Ltd. (Unit-II)	Bagasse	30	30	AEDB	Committed	Mar-22
28	HSM Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
29	Hunza Power (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
30	Indus Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
31	Ittefaq Power Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
32	Kashmir Power (Pvt.) Ltd.	Bagasse	40	40	AEDB	Committed	Mar-22
33	Mehran Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
34	RYK Energy Ltd.	Bagasse	25	25	AEDB	Committed	Mar-22
35	Sadiqabad Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
36	Shahtaj Sugar Mills Ltd.	Bagasse	32	32	AEDB	Committed	Mar-22
37	Sheikhoo Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
38	TAY Powergen Company (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
39	Two Star Energy (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22
Generation Additions in 2022 (MW)			4,841	4,703			
Cumulative Addition up till 2022 (MW)			10,225	9,832			
2023							
1	Gorkin Matiltan	Hydro	84	84	PEDO	Committed	Nov-22
2	Suki Kinari	Hydro	884	884	PPIB	Committed	Dec-22
3	Hatim	CCGT_Gas	20	20	PPIB	Candidate	2023
4	Blue Star	Hydro	3	3	PEDO	Candidate	2023
5	Machai-III	Hydro	2	2	PEDO	Candidate	2023
6	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2023
7	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2023
8	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2023
9	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2023
10	CASA	Import	1,000	1,000	GOP	Committed	May-23
Generation Additions in 2023 (MW)			4,993	4,993			
Cumulative Addition up till 2023 (MW)			15,218	14,825			
2024							
1	Tarbela 5th-Extension	Hydro	1,410	1,410	WAPDA	Committed	Sep-23
2	Jamshoro CFPP Unit 2	Imp. Coal	660	644	GENCO	Committed	Dec-23
3	Generic_Candidate Local Coal	Local Coal	1,988	1,988	Yet to be Decided	Candidate	2024
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2024
Generation Additions in 2024 (MW)			5,558	5,542			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition up till 2024 (MW)			20,776	20,367			
2025							
1	Keyal Khwar	Hydro	128	128	WAPDA	Committed	Sep-24
2	Mohmand	Hydro	800	800	WAPDA	Committed	Nov-24
3	Oracle_1	Local Coal	660	607	STDC/ PPIB	Candidate	2025
4	Generic_Candidate Solar	Solar	1,482	1,482	Yet to be Decided	Candidate	2025
5	Dasu 1	Hydro	2,160	2,160	WAPDA	Committed	Feb-25
Generation Additions in 2025 (MW)			5,230	5,177			
Cumulative Addition up till 2025 (MW)			26,006	25,544			
2026							
1	Chasma Nuclear C-5	Nuclear	1,100	1,059	PAEC	Committed	Jul-25
2	Harpo	Hydro	35	35	WAPDA	Committed	Jul-25
3	Riali-III	Hydro	3	3	AJK	Candidate	2026
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2026
Generation Additions in 2026 (MW)			2,638	2,597			
Cumulative Addition up till 2026 (MW)			28,644	28,141			
2027							
1	Azad Pattan	Hydro	700	701	PPIB	Committed	Sep-26
2	Dowarian	Hydro	40	40	AJK	Candidate	2027
3	Generic_Candidate Local Coal	Local Coal	236	236	Yet to be Decided	Candidate	2027
4	Oracle_2	Local Coal	660	607	STDC/ PPIB	Candidate	2027
6	Kohala	Hydro	1,124	1,124	PPIB	Committed	Jun-27
Generation Additions in 2027 (MW)			2,760	2,708			
Cumulative Addition up till 2027 (MW)			31,404	30,848			
2028							
1	Generic_Candidate Local Coal	Local Coal	103	103	Yet to be Decided	Candidate	2028
2	Generic_Candidate OCGT_RLNG	RLNG	2,020	2,020	Yet to be Decided	Candidate	2028
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2028
Generation Additions in 2028 (MW)			3,623	3,623			
Cumulative Addition up till 2028 (MW)			35,027	34,471			
2029							

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
1	Dander	Hydro	56	56	PEDO	Candidate	2029
2	Rajdhani	Hydro	132	132	PPIB	Candidate	2029
3	Thakot-III	Hydro	1,686	1,686	WAPDA	Candidate	2029
4	Generic_Candidate Local Coal	Local Coal	158	158	Yet to be Decided	Candidate	2029
5	Generic_Candidate OCGT_RLNG	RLNG	908	908	Yet to be Decided	Candidate	2029
6	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2029
Generation Additions in 2029 (MW)			4,440	4,440			
Cumulative Addition up till 2029 (MW)			39,467	38,911			
2030							
1	Mahl	Hydro	639	639	PPIB	Candidate	2030
2	Generic_Candidate Local Coal	Local Coal	917	917	Yet to be Decided	Candidate	2030
3	Generic_Candidate OCGT_RLNG	RLNG	3,010	3,010	Yet to be Decided	Candidate	2030
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2030
Generation Additions in 2030 (MW)			6,066	6,066			
Cumulative Addition up till 2030 (MW)			45,533	44,977			
2031							
1	Thakot-I	Hydro	2,154	2,154	WAPDA	Candidate	2031
2	Generic_Candidate OCGT_RLNG	RLNG	901	901	Yet to be Decided	Candidate	2031
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2031
Generation Additions in 2031 (MW)			4,555	4,555			
Cumulative Addition up till 2031 (MW)			50,088	49,532			
2032							
1	Dasu_2	Hydro	2,160	2,160	WAPDA	Candidate	2032
2	Generic_Candidate Local Coal	Local Coal	7	7	Yet to be Decided	Candidate	2032
3	Generic_Candidate OCGT_RLNG	RLNG	1,204	1,204	Yet to be Decided	Candidate	2032
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2032
Generation Additions in 2032 (MW)			4,871	4,871			
Cumulative Addition up till 2032 (MW)			54,959	54,404			
2033							
1	Generic_Candidate Local Coal	Local Coal	3,919	3,919	Yet to be Decided	Candidate	2033
2	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2033

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Generation Additions in 2033 (MW)			5,419	5,419			
Cumulative Addition up till 2033 (MW)			60,378	59,822			
2034							
1	Generic_Candidate Local Coal	Local Coal	3,360	3,360	Yet to be Decided	Candidate	2034
2	Generic_Candidate OCGT_RLNG	RLNG	633	633	Yet to be Decided	Candidate	2034
3	Generic_Candidate Solar	Solar	567	567	Yet to be Decided	Candidate	2034
Generation Additions in 2034 (MW)			4,560	4,560			
Cumulative Addition up till 2034 (MW)			64,938	64,383			
2035							
1	Generic_Candidate Local Coal	Local Coal	2,248	2,248	Yet to be Decided	Candidate	2035
2	Generic_Candidate OCGT_RLNG	RLNG	2,719	2,719	Yet to be Decided	Candidate	2035
Generation Additions in 2035 (MW)			4,967	4,967			
Cumulative Addition up till 2035 (MW)			69,906	69,350			
2036							
1	Generic_Candidate Local Coal	Local Coal	2,375	2,375	Yet to be Decided	Candidate	2036
2	Generic_Candidate OCGT_RLNG	RLNG	2,831	2,831	Yet to be Decided	Candidate	2036
3	Generic_Candidate Solar	Solar	742	742	Yet to be Decided	Candidate	2036
Generation Additions in 2036 (MW)			5,948	5,948			
Cumulative Addition up till 2036 (MW)			75,853	75,298			
2037							
1	Generic_Candidate Local Coal	Local Coal	2,551	2,551	Yet to be Decided	Candidate	2037
2	Generic_Candidate OCGT_RLNG	RLNG	2,058	2,058	Yet to be Decided	Candidate	2037
3	Generic_Candidate Solar	Solar	1,354	1,354	Yet to be Decided	Candidate	2037
Generation Additions in 2037 (MW)			5,963	5,963			
Cumulative Addition up till 2037 (MW)			81,816	81,261			
2038							
1	Generic_Candidate Local Coal	Local Coal	2,963	2,963	Yet to be Decided	Candidate	2038
2	Generic_Candidate OCGT_RLNG	RLNG	2,202	2,202	Yet to be Decided	Candidate	2038
3	Generic_Candidate Solar	Solar	669	669	Yet to be Decided	Candidate	2038
Generation Additions in 2038 (MW)			5,833	5,833			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition uptill 2038 (MW)			87,650	87,094			
2039							
1	Generic_Candidate Local Coal	Local Coal	3,206	3,206	Yet to be Decided	Candidate	2039
2	Generic_Candidate OCGT_RLNG	RLNG	2,572	2,572	Yet to be Decided	Candidate	2039
3	Generic_Candidate Solar	Solar	1,124	1,124	Yet to be Decided	Candidate	2039
Generation Additions in 2039 (MW)			6,901	6,901			
Cumulative Addition uptill 2039 (MW)			94,551	93,996			
2040							
1	Generic_Candidate Local Coal	Local Coal	3,528	3,528	Yet to be Decided	Candidate	2040
2	Generic_Candidate OCGT_RLNG	RLNG	2,933	2,933	Yet to be Decided	Candidate	2040
3	Generic_Candidate Solar	Solar	360	360	Yet to be Decided	Candidate	2040
Generation Additions in 2040 (MW)			6,821	6,821			
Cumulative Addition uptill 2040 (MW)			101,372	100,816			
2041							
1	Bata Kundi	Hydro	96	96	PEDO	Candidate	2041
2	Lower Palas	Hydro	666	666	WAPDA	Candidate	2041
3	Nerai-Dubair	Hydro	46	46	PEDO	Candidate	2041
4	Thakot-II	Hydro	966	966	WAPDA	Candidate	2041
5	Torkhow	Hydro	70	70	PEDO	Candidate	2041
6	Generic_Candidate Local Coal	Local Coal	32	32	Yet to be Decided	Candidate	2041
7	Generic_Candidate OCGT_RLNG	RLNG	270	270	Yet to be Decided	Candidate	2041
8	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2041
Generation Additions in 2041 (MW)			3,645	3,645			
Cumulative Addition uptill 2041 (MW)			105,017	104,462			
2042							
1	Patan	Hydro	2,400	2,400	WAPDA	Candidate	2042
2	Generic_Candidate Local Coal	Local Coal	1,237	1,237	Yet to be Decided	Candidate	2042
3	Generic_Candidate OCGT_RLNG	RLNG	2,102	2,102	Yet to be Decided	Candidate	2042
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2042
Generation Additions in 2042 (MW)			7,239	7,239			
Cumulative Addition uptill 2042 (MW)			112,256	111,701			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2043							
1	Bunji	Hydro	7,100	7,100	WAPDA	Candidate	2043
2	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2043
Generation Additions in 2043 (MW)			8,600	8,600			
Cumulative Addition uptill 2043 (MW)			120,856	120,301			
2044							
1	Asrit Kadam	Hydro	216	216	PEDO	Candidate	2044
2	Chenavan	Hydro	3	3	PPDB	Candidate	2044
3	Dubair Kalay	Hydro	66	66	PEDO	Candidate	2044
4	Kalam Asrit	Hydro	212	212	PPIB	Candidate	2044
5	Kathai-II	Hydro	8	8	AJK	Candidate	2044
6	Phandar	Hydro	80	80	WAPDA	Candidate	2044
7	Sakhra-I	Hydro	8	8	PEDO	Candidate	2044
8	Tangus	Hydro	2,200	2,200	WAPDA	Candidate	2044
9	Generic_Candidate Local Coal	Local Coal	1,125	1,125	Yet to be Decided	Candidate	2044
10	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2044
Generation Additions in 2044 (MW)			5,418	5,418			
Cumulative Addition uptill 2044 (MW)			126,275	125,719			
2045							
1	Arkari Gol	Hydro	99	99	PEDO	Candidate	2045
2	Bhan Khwar	Hydro	36	36	PEDO	Candidate	2045
3	Bhimbal Katha	Hydro	9	9	PEDO	Candidate	2045
4	Chakoti Hatian	Hydro	501	501	PPIB	Candidate	2045
5	Dhudnial	Hydro	960	960	WAPDA	Candidate	2045
6	Gabral Kalam	Hydro	87	87	PEDO	Candidate	2045
7	Gabral Utror	Hydro	82	82	PEDO	Candidate	2045
8	Gwaldai	Hydro	20	20	PEDO	Candidate	2045
9	Harigehl-Majeedgala	Hydro	40	40	AJK	Candidate	2045
10	Jagran-III	Hydro	36	36	AJK	Candidate	2045
11	Jagran-IV	Hydro	24	24	AJK	Candidate	2045
12	Jamshil	Hydro	612	612	PEDO	Candidate	2045

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
13	Jhing-II	Hydro	6	6	AJK	Candidate	2045
14	Madian	Hydro	156	156	PEDO	Candidate	2045
15	Nagdar	Hydro	36	36	AJK	Candidate	2045
16	Naran	Hydro	188	188	PEDO	Candidate	2045
17	Okara	Hydro	4	4	PPDB	Candidate	2045
18	Pashot	Hydro	60	60	PEDO	Candidate	2045
19	Sakhra-II	Hydro	8	8	PEDO	Candidate	2045
20	Serai	Hydro	6	6	PEDO	Candidate	2045
21	Shogosin	Hydro	138	138	PEDO	Candidate	2045
22	Shounter	Hydro	48	48	AJK	Candidate	2045
23	UCC Bhambhwal	Hydro	4	4	PPDB	Candidate	2045
24	Yulbo	Hydro	2,800	2,800	WAPDA	Candidate	2045
25	Generic_Candidate Local Coal	Local Coal	7	7	Yet to be Decided	Candidate	2045
26	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2045
Generation Additions in 2045 (MW)			7,467	7,467			
Cumulative Addition uptill 2045 (MW)			133,742	133,187			
2046							
1	Alka	Hydro	2	2	PPDB	Candidate	2046
2	Barum Gol	Hydro	40	40	PEDO	Candidate	2046
3	Chapri Charkhel	Hydro	12	12	PEDO	Candidate	2046
4	Diamer Bhasha Dam	Hydro	4,500	4,500	WAPDA	Candidate	2046
5	Ghanool	Hydro	3	3	PEDO	Candidate	2046
6	Mastuj	Hydro	48	48	PEDO	Candidate	2046
7	Middle Palas	Hydro	399	399	WAPDA	Candidate	2046
8	Shalfalam	Hydro	60	60	PEDO	Candidate	2046
9	Shigo Kas	Hydro	102	102	PEDO	Candidate	2046
10	SHYOK	Hydro	640	640	WAPDA	Candidate	2046
11	Trappi	Hydro	33	33	PEDO	Candidate	2046
12	Wari	Hydro	45	45	PEDO	Candidate	2046
Generation Additions in 2046 (MW)			5,884	5,884			
Cumulative Addition uptill 2046 (MW)			139,626	139,070			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2047							
1	Artistic-I	Hydro	63	63	PEDO	Candidate	2047
2	Artistic-II	Hydro	54	54	PEDO	Candidate	2047
3	Ashkot	Hydro	300	300	PPIB	Candidate	2047
4	Athmuqam	Hydro	452	452	PPIB	Candidate	2047
5	Balakot	Hydro	300	300	PEDO	Candidate	2047
6	Balakot-II	Hydro	100	100	PEDO	Candidate	2047
7	Balkani	Hydro	8	8	PEDO	Candidate	2047
8	Basho	Hydro	39	39	WAPDA	Candidate	2047
9	BS Link Tail	Hydro	9	9	PPDB	Candidate	2047
10	Chicha Watni	Hydro	2	2	PPDB	Candidate	2047
11	Chiniot_HPP	Hydro	78	78	WAPDA	Candidate	2047
12	Chota Jabba	Hydro	46	46	PEDO	Candidate	2047
13	CJ	Hydro	24	24	PPDB	Candidate	2047
14	Daral Khwar-II	Hydro	10	10	PEDO	Candidate	2047
15	Dhaddar	Hydro	18	18	PEDO	Candidate	2047
16	Engro_HPP	Hydro	5	5	PPDB	Candidate	2047
17	Gahrit	Hydro	376	376	PEDO	Candidate	2047
18	Garhi Habibullah	Hydro	100	100	PEDO	Candidate	2047
19	Ghail	Hydro	2	2	AJK	Candidate	2047
20	Ghorband	Hydro	20	20	PEDO	Candidate	2047
21	Gomat Nar	Hydro	50	50	AJK	Candidate	2047
22	Gugera	Hydro	3	3	PPDB	Candidate	2047
23	Istaro-Booni	Hydro	72	72	PEDO	Candidate	2047
24	Jabri Bedar	Hydro	4	4	PEDO	Candidate	2047
25	Kalkot Barikot	Hydro	48	48	PEDO	Candidate	2047
26	Kari Mushkur	Hydro	496	496	PEDO	Candidate	2047
27	Kasur	Hydro	2	2	PPDB	Candidate	2047
28	Kathai-III	Hydro	1	1	AJK	Candidate	2047
29	Khal	Hydro	66	66	PEDO	Candidate	2047
30	Khanewal	Hydro	2	2	PPDB	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
31	Khanki Barrage	Hydro	16	16	PPDB	Candidate	2047
32	Khokhra	Hydro	2	2	PPDB	Candidate	2047
33	Lower Spat Gah	Hydro	495	495	PEDO	Candidate	2047
34	Luat	Hydro	48	48	AJK	Candidate	2047
35	Lucky_HPP	Hydro	20	20	PPDB	Candidate	2047
36	Luspur Murigram	Hydro	231	231	PEDO	Candidate	2047
37	Mahandri	Hydro	12	12	PEDO	Candidate	2047
38	Mahodand	Hydro	44	44	PEDO	Candidate	2047
39	Mandi	Hydro	4	4	PPDB	Candidate	2047
40	Mehar	Hydro	12	12	PPDB	Candidate	2047
41	Mid Ranjha	Hydro	80	80	WAPDA	Candidate	2047
42	Mujigram	Hydro	63	63	PEDO	Candidate	2047
43	Murree	Hydro	12	12	PPDB	Candidate	2047
44	Nandihaar	Hydro	12	12	PEDO	Candidate	2047
45	Nandihaar-II	Hydro	10	10	PEDO	Candidate	2047
46	Nila Da Katha	Hydro	36	36	PEDO	Candidate	2047
47	Patrak Sheringhal	Hydro	22	22	PEDO	Candidate	2047
48	Punjnad	Hydro	18	18	PPDB	Candidate	2047
49	Qaditrabad	Hydro	24	24	PPDB	Candidate	2047
50	QB Link	Hydro	8	8	PPDB	Candidate	2047
51	Rasul	Hydro	18	18	PPDB	Candidate	2047
52	Ravi	Hydro	6	6	PPDB	Candidate	2047
53	Sahiwal	Hydro	6	6	PPDB	Candidate	2047
54	Sarral-Dhartian	Hydro	9	9	PEDO	Candidate	2047
55	Shah Jiwana	Hydro	78	78	WAPDA	Candidate	2047
56	Sharmai	Hydro	150	150	PEDO	Candidate	2047
57	Shushghai	Hydro	144	144	PEDO	Candidate	2047
58	Soan	Hydro	24	24	PPDB	Candidate	2047
59	Tangar	Hydro	24	24	PEDO	Candidate	2047
60	Taunsa	Hydro	135	135	PPDB	Candidate	2047
61	TP	Hydro	9	9	PPDB	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
62	Trident	Hydro	8	8	PPDB	Candidate	2047
63	Trimmu_HPP	Hydro	16	16	PPDB	Candidate	2047
64	Turtonas Uzghor	Hydro	82	82	PPIB	Candidate	2047
65	Upper Palas	Hydro	158	158	WAPDA	Candidate	2047
66	Wazirabad	Hydro	88	88	WAPDA	Candidate	2047
67	Generic_Candidate Solar	Solar	12	12	Yet to be Decided	Candidate	2047
Generation Additions in 2047 (MW)			4,886	4,886			
Cumulative Addition up till 2047 (MW)			144,512	143,956			

E-5. Annual Capacity Factors (%age)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	85	85	85	84	64	14	7	10	12	14	15	17	16	18	19	19	20	20	20	20	20	18	17	14	13	12	10	17
2	Gwadar	Imp. Coal	0	0	84	85	84	84	33	38	33	35	35	35	36	39	36	33	32	32	29	29	27	26	25	22	24	26	26	31
3	Jamshoro Coal	Imp. Coal	0	0	83	83	12	7	4	5	6	7	8	11	9	10	13	13	13	14	14	14	14	13	12	11	11	10	9	9
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	85	85	85	84	84	65	21	21	22	24	22	26	29	31	28	27	28	27	26	25	25	23	22	17	20	19	17	28
6	Sahiwal Coal	Imp. Coal	85	85	84	49	5	3	1	3	4	4	6	7	6	8	8	9	9	10	10	10	11	10	10	8	10	9	8	8
7	Engro Thar	Local Coal	85	85	85	85	84	84	83	83	82	79	78	70	56	44	43	43	43	38	36	35	32	32	30	27	38	32	39	43
8	Lucky	Local Coal	0	87	85	85	84	84	78	82	79	64	46	38	38	40	39	39	36	34	34	31	29	29	27	24	26	31	30	37
9	NEW_Local_Coal	Local Coal	0	0	0	0	85	85	84	83	83	83	83	83	83	81	80	81	81	81	81	80	80	80	80	79	79	77	75	75
10	Oracle	Local Coal	0	0	0	0	0	85	84	84	84	84	84	84	84	85	85	85	85	85	85	85	85	85	85	85	85	85	85	85
11	Siddiqsons	Local Coal	0	88	85	85	85	85	84	83	83	83	84	83	84	84	85	85	85	85	84	84	84	85	85	85	85	85	85	85
12	Thal Nova	Local Coal	0	89	85	85	85	84	84	83	83	83	83	81	79	68	59	59	57	56	55	48	43	42	43	47	49	48	49	55
13	Thar TEL	Local Coal	0	89	85	85	85	85	84	83	83	83	83	81	79	68	59	60	57	56	55	48	43	41	43	47	48	48	48	55
14	Thar-I (Shanghai Electric)	Local Coal	0	87	85	85	85	84	84	83	83	82	81	78	77	62	50	51	51	49	45	41	40	37	36	43	43	41	47	50
15	Balloki	RLNG	92	84	67	67	67	67	67	67	67	67	67	67	67	67	1	2	3	4	5	6	6	6	6	4	4	3	3	3
16	Bhikki	RLNG	89	77	67	67	67	67	67	67	67	67	67	67	67	0	0	0	1	2	2	4	5	5	4	2	3	3	2	3
17	FKPCL	RLNG	25	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	27	9	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	75	36	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	2	2	0	0	0	0	0	0
20	Haveli	RLNG	92	91	67	67	67	67	67	67	67	67	67	67	67	2	3	4	5	6	6	6	6	6	6	5	5	4	5	5
21	Nandipur	RLNG	71	54	10	3	0	0	0	0	0	0	0	2	1	0	0	0	1	1	1	2	2	2	2	1	2	2	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	76	45	8	2	0	0	0	0	0	0	0	1	1	0	0	0	0	1	1	2	1	0	0	0	0	0	0	0
24	Rousch	RLNG	60	18	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	74	31	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1	1	0	0	0	0	0	0	0
26	Saphire	RLNG	76	42	7	1	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	1	2	0	0	0	0	0	0	0
27	Trimmu	RLNG	94	92	20	7	1	0	0	0	0	0	2	3	3	4	4	5	6	7	7	7	8	8	7	6	6	5	7	7
28	Davis	RLNG	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	89	89	87	10	3	0	0	0	0	1	3	4	4	4	6	5	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	90	90	88	11	4	1	0	0	1	2	4	4	4	5	6	6	7	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	85	85	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	66	23	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	83	83	83	80	7	1	0	1	2	3	4	5	4	6	7	7	7	8	8	9	9	9	8	6	7	2	0	0
36	Hatim	Gas	0	0	0	82	8	5	1	32	15	16	16	20	11	12	12	13	13	14	13	14	12	12	10	7	8	7	7	7
37	HCPC	Gas	86	86	28	9	3	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	87	87	26	9	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	77	64	11	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	86	86	86	86	84	84	9	7	8	8	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	88	88	86	14	4	1	0	0	1	2	4	4	4	5	6	7	7	7	8	7	0	0	0	0	0	0	0	0
43	C-1	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
44	C-2	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
45	C-3	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
46	C-4	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
47	C-5	Nuclear	0	0	0	0	0	0	79	78	78	78	78	78	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	74	79	79	79	79	79	78	78	78	78	78	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78
50	K-3	Nuclear	0	0	76	79	79	79	79	78	78	78	78	78	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78
51	Alliance	Bagasse	0	0	29	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
52	Almoiz	Bagasse	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
53	Bahawalpur	Bagasse	0	0	29	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
56	Chiniot	Bagasse	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	0	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
58	Faran	Bagasse	0	0	29	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
59	Ghotki	Bagasse	0	0	29	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
60	Hamza	Bagasse	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
61	Hamza-II	Bagasse	0	0	29	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
62	HSM	Bagasse	0	0	29	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
63	Hunza	Bagasse	0	0	29	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
64	Indus	Bagasse	0	0	29	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
65	Ittefaq	Bagasse	0	0	29	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
66	JDW-II	Bagasse	84	84	84	84	84	84	84	84	83	83	84	84	83	84	84	84	84	84	84	84	84	84	84	84	84	84	84	84
67	JDW-III	Bagasse	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
68	Kashmir	Bagasse	0	0	29	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
69	Mehran	Bagasse	0	0	29	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
70	RYK_Energy	Bagasse	0	0	29	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
71	Ryk_Mills	Bagasse	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
72	Sadiqabad	Bagasse	0	0	29	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
73	Shahtaj	Bagasse	0	0	29	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
74	Sheikhoo	Bagasse	0	0	29	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
75	TAY	Bagasse	0	0	29	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30
77	Two_Star	Bagasse	0	0	29	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
78	Access_Electric	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
79	Access_Solar	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
81	Best	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
82	Buksh	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
84	Crest	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
85	Helios	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
86	HNDS	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
87	Meridian	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
88	QA_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
89	Safe	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
90	Zhenfa	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
91	Zorlu	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68	68
93	Allai Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	30	30

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	49	48
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	48	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	40
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	42	42	42	42	42
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	38	38
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	60
109	Blue Star	Hydro	0	0	0	66	65	66	66	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	42	42	42
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	35	35	35
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	45	45	45	49	48	47	47	47	48	47	47	47	47	48	47	48	48	49	49
121	Daral Khwar	Hydro	47	47	47	47	47	47	47	42	42	43	43	43	45	45	45	45	46	46	46	45	45	45	45	45	45	46	46	47
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
123	Dasu_1	Hydro	0	0	0	0	0	56	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	62	62	64	64	64	64	64	64	64	64	64	64	64	64	64	64
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	45
128	Dowarian	Hydro	0	0	0	0	0	0	0	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	45	46	45
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	64	65	65
130	Dubair Khwar	Hydro	51	51	51	51	51	51	51	51	50	51	50	50	50	51	50	50	51	51	50	51	51	51	51	51	51	51	51	51
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	30
138	Ghazi Brotha	Hydro	52	52	52	52	52	52	52	51	51	51	51	51	52	52	52	51	51	52	52	51	51	52	51	51	51	52	51	52
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68
140	Golen Gol	Hydro	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
142	Gorkin Matiltan	Hydro	0	0	0	32	45	45	45	43	43	43	43	43	44	44	43	43	43	43	43	43	43	43	43	43	43	43	44	44
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
144	Gulpur	Hydro	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45	45
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	61	61	61
147	Harpo	Hydro	0	0	0	0	0	0	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
149	Jabori	Hydro	91	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
151	Jagran-I	Hydro	31	31	31	31	31	31	31	30	30	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44	44
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49	49
155	Jhing	Hydro	95	52	52	52	52	52	52	49	49	50	50	50	51	51	51	51	51	51	51	51	51	51	51	51	51	51	52	51
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	53	53
157	Jinnah	Hydro	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46	46
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
161	Karora	Hydro	61	62	62	62	62	62	62	59	59	60	60	60	60	60	61	60	61	61	61	61	61	61	61	61	61	61	61	61
162	Karot	Hydro	0	0	41	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56	56
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	25	32	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	32	32
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
168	Khan Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
172	Kohala	Hydro	0	0	0	0	0	0	0	0	62	62	62	62	63	63	62	63	63	63	63	62	63	63	63	63	63	63	63	63
173	Koto	Hydro	0	54	58	58	57	58	58	55	55	56	56	56	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
174	Lawi	Hydro	0	43	49	49	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43	43	43	43	43
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
180	Machai	Hydro	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
181	Machai-III	Hydro	0	0	0	55	55	55	55	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59	59
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49	49
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	61	61	63	62	63	63	63	63	63	63	63	63	63	63	63	63	63	63
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
186	Malakand-III	Hydro	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52	52
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
188	Mangla	Hydro	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	35	41	40	40	40	41	41	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	41
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	42
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
201	Neelum Jehlum	Hydro	58	58	58	58	58	58	58	57	57	57	57	57	58	58	58	58	58	58	58	58	57	58	58	58	58	58	58	58
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	60	60	60	61	63	63
203	New Bong	Hydro	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	36	36
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	50	51
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59	59	59
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
210	Pehur	Hydro	23	24	24	24	23	24	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46	46
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
216	Ranolia	Hydro	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
219	Riali-II	Hydro	0	87	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
220	Riali-III	Hydro	0	0	0	0	0	0	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49	49
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51	51
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44	44
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49	49
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	66
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
237	Suki Kinari	Hydro	0	0	0	35	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46	46
240	Tarbela_1-10	Hydro	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
241	Tarbela_11-14	Hydro	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
242	Tarbela_Ext_4	Hydro	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
243	Tarbela_Ext_5	Hydro	0	0	0	0	19	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	53	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55	55	55	55	55

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49	49
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	50	50	50	50	50
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	54
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	37	37
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	64
258	Warsak	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46
261	CASA	Cross Border	0	0	0	95	39	39	39	28	28	28	28	28	28	28	28	29	29	29	29	30	30	30	31	31	31	32	33	36
262	Act	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
263	Act_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
264	Artistic_wind	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
265	Artistic_Wind_2	Wind	0	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	0	0	0	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
267	Candidate_Wind_North	Wind	0	0	0	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
268	Candidate_Wind_South	Wind	0	0	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
269	Dawood	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
270	Din	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
271	FFC	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
272	FWEL-I	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
273	FWEL-II	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
274	Gul Ahmed	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
275	Gul_Electric	Wind	0	0	38	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
276	Hawa	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
277	Indus_Energy	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
278	Jhimpir	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
279	Lakeside	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
280	Liberty_Wind_1	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
281	Liberty_Wind_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
282	Master	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
283	Master_Green	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
284	Metro_Power	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
286	NASDA	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
287	Sachal	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
288	Sapphire_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
289	Shaheen	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
290	Tenga	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
291	Three_Gorges_I	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
292	Three_Gorges_II	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
293	Three_Gorges_III	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
294	Trans_Atlantic	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
295	Tricon_A	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
296	Tricon_B	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
297	Tricon_C	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
298	Tricorm	Wind	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
299	UEP	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
300	Western	Wind	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
301	Yunus	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
302	Zephyr	Wind	0	56	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
303	Zorlu_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	30	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	35	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	15	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	88	88	14	4	0	0	0	0	0	1	3	4	4	4	4	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	13	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	11	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	56	21	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	16	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	9	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

E-6. Annual Energy Generation 2020-30 (GWh)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
1	China HUBCO	Imp. Coal	9,330	9,308	9,308	9,162	7,059	1,545	788	1,077	1,314	1,562	1,596
2	Gwadar	Imp. Coal	0	0	1,000	2,033	2,006	1,998	795	916	799	828	827
3	Jamshoro Coal	Imp. Coal	0	0	2,733	4,703	1,117	753	430	603	732	835	953
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	9,270	9,248	9,248	9,163	9,114	7,056	2,278	2,286	2,413	2,615	2,423
6	Sahiwal Coal	Imp. Coal	9,285	9,263	9,202	5,376	574	306	152	298	414	490	660
7	Engro Thar	Local Coal	4,493	4,482	4,482	4,482	4,425	4,414	4,378	4,370	4,338	4,192	4,092
8	Lucky	Local Coal	0	1,546	4,531	4,531	4,472	4,461	4,153	4,358	4,221	3,402	2,465
9	NEW_Local_Coal	Local Coal	0	0	0	0	14,862	14,826	14,594	16,252	17,046	18,168	24,871
10	Oracle	Local Coal	0	0	0	0	0	4,528	4,467	8,977	8,962	8,928	8,985
11	Siddiqsons	Local Coal	0	193	2,266	2,266	2,272	2,266	2,231	2,220	2,225	2,220	2,244
12	Thal Nova	Local Coal	0	583	2,234	2,234	2,239	2,211	2,199	2,187	2,193	2,188	2,185
13	Thar TEL	Local Coal	0	583	2,234	2,234	2,239	2,225	2,199	2,187	2,193	2,188	2,173
14	Thar-I (Shanghai Electric)	Local Coal	0	1,545	8,643	9,055	9,062	8,918	8,905	8,871	8,868	8,757	8,601
15	Balloki	RLNG	9,492	8,656	6,910	6,906	6,905	6,904	6,905	6,897	6,896	6,895	6,894
16	Bhikki	RLNG	8,919	7,722	6,696	6,693	6,691	6,690	6,689	6,685	6,683	6,682	6,683
17	FKPCL	RLNG	329	98	41	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	274	88	34	4	0	0	0	0	0	0	0
19	Halmore	RLNG	1,301	622	112	17	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
20	Haveli	RLNG	9,599	9,440	6,967	6,964	6,963	6,963	6,964	6,954	6,953	6,950	6,948
21	Nandipur	RLNG	2,821	2,113	390	115	0	0	0	0	0	0	11
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	1,363	803	149	41	0	0	0	0	0	0	6
24	Rousch	RLNG	2,090	637	139	18	0	0	0	0	0	0	0
25	Saif	RLNG	1,321	546	99	13	0	0	0	0	0	0	0
26	Saphire	RLNG	1,347	735	131	23	0	0	0	0	0	0	3
27	Trimmu	RLNG	2,543	9,998	2,152	728	78	16	0	0	0	33	196
28	Davis	RLNG	1	1	1	0	0	0	0	1	0	0	0
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	0
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	1,655	1,651	1,617	180	60	6	0	0	6	27	62
32	Foundation	Gas	1,320	1,317	1,294	163	53	8	0	0	15	26	57
33	Guddu-I	Gas	1,950	1,945	1,776	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	1,568	535	121	14	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	5,234	5,221	5,216	5,084	475	51	1	76	124	208	246
36	Hatim	Gas	0	0	0	144	14	9	1	57	27	27	29
37	HCPC	Gas	975	973	317	99	30	3	0	0	3	13	0
38	Kotri	Gas	808	806	238	80	22	3	0	0	0	0	0
39	Liberty	Gas	1,433	1,196	213	71	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	4,149	4,139	4,139	4,139	4,074	4,064	424	348	381	372	42
42	Uch-II	Gas	2,737	2,731	2,685	422	114	19	0	0	44	69	117
43	C-1	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,078	2,082	2,078	2,078
44	C-2	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,078	2,082	2,078	2,078
45	C-3	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,183	2,182	2,187	2,182	2,182
46	C-4	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,183	2,182	2,187	2,182	2,182
47	C-5	Nuclear	0	0	0	0	0	0	7,292	7,275	7,293	7,278	7,278
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	4,548	7,292	7,292	7,307	7,292	7,292	7,276	7,295	7,279	7,278
50	K-3	Nuclear	0	0	5,823	7,292	7,307	7,292	7,292	7,277	7,293	7,278	7,278
51	Alliance	Bagasse	0	0	19	143	144	143	143	142	143	142	143
52	Almoiz	Bagasse	172	172	172	172	172	172	172	171	171	171	172
53	Bahawalpur	Bagasse	0	0	20	149	149	149	149	148	149	148	149
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	105	105	105	105	105	105	105	105	105	104	105
56	Chiniot	Bagasse	197	196	196	196	197	196	196	196	195	196	196
57	Etihad	Bagasse	0	355	355	355	356	355	355	353	354	353	355
58	Faran	Bagasse	0	0	17	126	127	126	126	126	126	126	126
59	Ghotki	Bagasse	0	0	29	215	215	215	215	214	214	214	215

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
60	Hamza	Bagasse	62	62	62	62	62	62	62	62	62	61	62
61	Hamza-II	Bagasse	0	0	19	143	144	143	143	142	143	142	143
62	HSM	Bagasse	0	0	17	126	127	126	126	126	126	126	126
63	Hunza	Bagasse	0	0	32	238	238	238	238	236	237	236	238
64	Indus	Bagasse	0	0	20	148	148	148	148	147	148	147	148
65	Ittefaq	Bagasse	0	0	20	149	149	149	149	148	149	148	149
66	JDW-II	Bagasse	194	193	193	193	194	193	193	193	193	192	193
67	JDW-III	Bagasse	180	180	180	180	180	180	180	180	180	179	180
68	Kashmir	Bagasse	0	0	26	191	191	191	191	190	190	190	191
69	Mehran	Bagasse	0	0	17	126	127	126	126	126	126	126	126
70	RYK_Energy	Bagasse	0	0	16	119	120	119	119	119	119	119	119
71	Ryk_Mills	Bagasse	144	143	143	143	144	143	143	143	143	142	143
72	Sadiqabad	Bagasse	0	0	29	215	215	215	215	214	214	214	215
73	Shahtaj	Bagasse	0	0	21	153	153	153	153	152	152	152	153
74	Sheikhoo	Bagasse	0	0	19	143	144	143	143	142	143	142	143
75	TAY	Bagasse	0	0	19	143	144	143	143	142	143	142	143
76	Thal_Layyah	Bagasse	109	109	109	109	109	109	109	109	108	108	109
77	Two_Star	Bagasse	0	0	32	238	238	238	238	236	237	236	238
78	Access_Electric	Solar	0	5	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	0	5	19	19	19	19	19	19	19	19	19

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	0	0	14	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	2,482	4,965	7,417	9,900	9,900	12,382	14,865	17,347
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	0	0	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	0	0	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	0	0	48	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	0	0	13	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	0	0	97	165	165	165	165	165	165	165	165
91	Zorlu	Solar	84	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0
93	Allai Khwar	Hydro	396	395	395	395	396	395	395	395	396	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	2,181	3,256	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
109	Blue Star	Hydro	0	0	0	17	17	17	17	18	18	18	18
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0
114	Chashma	Hydro	767	765	765	765	767	765	765	765	767	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	221	222
121	Daral Khwar	Hydro	147	147	147	147	147	147	147	132	134	135	136
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
123	Dasu_1	Hydro	0	0	0	0	0	4,321	11,975	11,975	11,990	11,975	11,975
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0
128	Dowarian	Hydro	0	0	0	0	0	0	0	156	158	158	158
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	0	0
130	Dubair Khwar	Hydro	581	581	581	581	581	581	581	575	575	575	574
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0
138	Ghazi Brotha	Hydro	6,563	6,551	6,551	6,551	6,563	6,551	6,551	6,498	6,510	6,502	6,515
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
140	Golen Gol	Hydro	97	97	97	97	97	97	97	96	97	97	97
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0
142	Gorkin Matiltan	Hydro	0	0	0	155	331	331	331	315	316	320	316
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0
144	Gulpur	Hydro	481	480	480	480	481	480	480	480	481	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0
147	Harpo	Hydro	0	0	0	0	0	0	170	169	170	170	170
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0
149	Jabori	Hydro	27	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0
151	Jagran-I	Hydro	82	82	82	82	82	82	82	80	80	80	80
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0
155	Jhing	Hydro	10	68	68	68	68	68	68	65	65	65	65
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
157	Jinnah	Hydro	195	194	194	194	195	194	194	193	194	193	194
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0
161	Karora	Hydro	5	65	65	65	65	65	65	62	63	63	63
162	Karot	Hydro	0	0	1,496	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	232	353	344	347	347	348
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0
168	Khan Khwar	Hydro	235	234	234	234	235	234	234	234	235	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0
172	Kohala	Hydro	0	0	0	0	0	0	0	0	6,095	6,103	6,088
173	Koto	Hydro	0	182	212	212	212	212	212	203	204	206	206
174	Lawi	Hydro	0	130	295	295	295	295	295	290	290	290	290
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	10	10	10	10	10	10	10	10
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	3,434
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0
186	Malakand-III	Hydro	367	367	367	367	367	367	367	367	367	367	367
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0
188	Mangla	Hydro	5,016	5,004	5,004	5,004	5,016	5,004	5,004	4,957	4,978	4,956	4,962
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	1,633	2,841	2,819	2,822	2,819	2,841
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0
201	Neelum Jehlum	Hydro	4,944	4,939	4,939	4,939	4,944	4,939	4,939	4,857	4,876	4,870	4,867
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	0	0
203	New Bong	Hydro	471	470	470	470	471	470	470	470	471	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0
209	Patrind	Hydro	635	634	634	634	635	634	634	633	634	634	634
210	Pehur	Hydro	37	37	37	37	37	37	37	37	37	37	37
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	670	670
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0
219	Riali-II	Hydro	0	5	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
220	Riali-III	Hydro	0	0	0	0	0	0	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	387	386	386	386	387	386	386	382	383	382	382
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0
237	Suki Kinari	Hydro	0	0	0	1,332	2,800	2,798	2,798	2,776	2,779	2,777	2,778
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
240	Tarbela_1-10	Hydro	7,386	7,377	7,377	7,377	7,386	7,377	7,377	7,318	7,328	7,324	7,345
241	Tarbela_11-14	Hydro	7,294	7,285	7,285	7,285	7,294	7,285	7,285	7,227	7,238	7,239	7,228
242	Tarbela_Ext_4	Hydro	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811
243	Tarbela_Ext_5	Hydro	0	0	0	0	1,975	4,005	4,005	3,976	3,979	3,980	3,975
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	7,213	7,213
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0
258	Warsak	Hydro	999	997	997	997	999	997	997	997	999	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0
261	CASA	Cross Border	0	0	0	1,387	3,457	3,456	3,456	2,417	2,468	2,466	2,460
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	0	0	58	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	0	0	102	172	172	172	172	172	172	172	172
266	Candidate_Wind_Mid	Wind	0	0	0	872	874	872	872	872	874	872	872
267	Candidate_Wind_North	Wind	0	0	0	581	582	581	581	581	582	581	581
268	Candidate_Wind_South	Wind	0	0	0	3,440	3,444	3,440	3,440	3,440	3,444	3,440	3,440
269	Dawood	Wind	0	14	144	144	144	144	144	144	144	144	144
270	Din	Wind	0	0	58	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	151	150	150	150	151	150	150	150	151	150	150
273	FWEL-II	Wind	151	150	150	150	151	150	150	150	151	150	150
274	Gul Ahmed	Wind	146	145	145	145	146	145	145	145	146	145	145
275	Gul_Electric	Wind	0	0	83	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	0	0	58	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	0	0	58	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
280	Liberty_Wind_1	Wind	0	0	58	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	0	0	58	172	172	172	172	172	172	172	172
282	Master	Wind	154	153	153	153	154	153	153	153	154	153	153
283	Master_Green	Wind	0	102	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	146	145	145	145	146	145	145	145	146	145	145
285	Metro_Wind	Wind	0	0	70	206	207	206	206	206	207	206	206
286	NASDA	Wind	0	0	58	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	154	153	153	153	154	153	153	153	154	153	153
289	Shaheen	Wind	0	104	175	175	176	175	175	175	176	175	175
290	Tenga	Wind	0	14	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	157	156	156	156	157	156	156	156	157	156	156
293	Three_Gorges_III	Wind	157	156	156	156	157	156	156	156	157	156	156
294	Trans_Atlantic	Wind	0	0	56	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	0	71	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
300	Western	Wind	0	58	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	146	145	145	145	146	145	145	145	146	145	145
302	Zephyr	Wind	0	20	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164
304	KAPCO 1	RFO	909	393	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	2,301	768	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	339	144	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	35	17	13	0	0	0	0	0	0	0	0
308	HUBCO	RFO	124	51	23	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	8	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	49	17	4	0	0	0	0	0	0	0	0
313	Lalpir	RFO	139	30	22	2	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	9	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	3	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	9	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	28	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
320	Saba	RFO	26	8	6	0	0	0	0	0	0	0	0
321	AGL	RFO	1,203	1,200	187	49	0	4	0	0	0	16	39
322	ATLAS	RFO	251	96	35	0	0	0	0	0	0	0	0
323	HuB N	RFO	208	81	24	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	611	228	37	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	272	123	44	0	0	0	0	0	0	0	0
326	Nishat C	RFO	154	45	10	0	0	0	0	0	0	0	0
327	Nishat P	RFO	123	25	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			**157,170**	**162,471**	**170,738**	**176,918**	**182,943**	**188,792**	**196,045**	**203,899**	**215,053**	**226,322**	**237,996**
Energy Demand			**157,170**	**162,472**	**170,738**	**176,918**	**182,943**	**188,792**	**196,044**	**203,899**	**215,053**	**226,322**	**237,996**
Energy Not Served			**0.00**	**0.04**	**-0.01**	**0.04**	**0.00**	**0.03**	**-0.02**	**-0.06**	**0.00**	**0.02**	**-0.02**

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

E-7. Annual Energy Generation 2030-47 (GWh)

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	1,819	1,730	1,974	2,112	2,113	2,149	2,217	2,225	2,196	2,150	2,015	1,820	1,522	1,386	1,350	1,081	1,811
2	Gwadar	Imp. Coal	826	854	926	851	789	779	770	694	682	645	629	599	518	577	621	620	734
3	Jamshoro Coal	Imp. Coal	1,228	968	1,116	1,469	1,490	1,524	1,554	1,540	1,537	1,617	1,478	1,387	1,196	1,233	1,158	1,020	1,044
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	2,815	3,153	3,330	3,009	2,985	3,045	2,936	2,806	2,699	2,679	2,541	2,437	1,837	2,160	2,032	1,869	3,021
6	Sahiwal Coal	Imp. Coal	765	687	818	919	931	984	1,060	1,105	1,143	1,183	1,142	1,091	905	1,057	1,028	857	908
7	Engro Thar	Local Coal	3,685	2,976	2,309	2,268	2,270	2,270	1,992	1,895	1,827	1,715	1,687	1,603	1,431	1,985	1,682	2,056	2,244
8	Lucky	Local Coal	2,038	2,048	2,152	2,097	2,099	1,908	1,824	1,808	1,623	1,522	1,553	1,431	1,276	1,365	1,632	1,620	1,981
9	NEW_Local_Coal	Local Coal	24,770	24,700	51,949	74,886	91,697	109,174	126,649	147,331	169,114	193,807	192,852	202,314	199,900	207,441	202,042	197,385	195,845
10	Oracle	Local Coal	8,959	8,955	9,021	9,025	9,026	9,048	9,025	9,026	9,025	9,048	9,026	9,027	9,027	9,050	9,031	9,036	9,038
11	Siddiqsons	Local Coal	2,219	2,230	2,250	2,254	2,254	2,260	2,254	2,248	2,241	2,248	2,254	2,254	2,254	2,264	2,259	2,259	2,261
12	Thal Nova	Local Coal	2,131	2,085	1,789	1,542	1,543	1,508	1,465	1,434	1,250	1,133	1,106	1,138	1,246	1,287	1,271	1,281	1,450
13	Thar TEL	Local Coal	2,127	2,080	1,786	1,559	1,566	1,510	1,461	1,433	1,256	1,141	1,088	1,120	1,242	1,276	1,264	1,274	1,451
14	Thar-I (Shanghai Electric)	Local Coal	8,277	8,187	6,556	5,349	5,477	5,421	5,239	4,771	4,396	4,245	3,955	3,877	4,536	4,608	4,337	4,953	5,300
15	Balloki	RLNG	6,892	6,901	6,901	81	177	294	423	522	578	591	590	569	374	375	353	325	346
16	Bhikki	RLNG	6,679	6,685	35	14	39	92	178	235	355	469	467	419	241	314	251	247	276
17	FKPCL	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	8	5	0	0	0	1	11	11	20	32	37	0	0	0	0	0	0
20	Haveli	RLNG	6,948	6,961	194	318	415	509	604	611	624	665	637	650	519	510	437	487	511
21	Nandipur	RLNG	61	43	1	0	1	23	27	42	65	92	82	87	49	67	64	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	23	9	0	0	0	6	11	15	28	20	0	0	0	0	0	0	0
24	Rousch	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	6	6	0	0	0	0	11	11	17	17	0	0	0	0	0	0	0
26	Saphire	RLNG	16	6	0	0	0	6	11	11	22	33	0	0	0	0	0	0	0
27	Trimmu	RLNG	355	301	451	485	586	670	717	723	768	864	819	783	622	622	589	753	745
28	Davis	RLNG	0	0	0	0	0	0	0	1	1	1	1	1	1	0	0	0	0
29	NEW OCGT (Generic)	RLNG	9	6	0	0	0	0	20	62	119	251	278	351	92	170	207	144	228
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	76	76	80	103	70	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	65	62	73	84	94	83	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	305	269	364	430	451	465	483	526	552	559	540	506	371	461	54	0	0
36	Hatim	Gas	34	19	22	22	23	23	24	23	24	22	20	18	13	13	11	12	12
37	HCPC	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	139	126	165	186	206	225	227	234	153	0	0	0	0	0	0	0	0
43	C-1	Nuclear	2,078	2,083	2,078	2,077	2,077	2,082	2,077	2,077	2,077	2,082	2,077	2,078	2,077	2,082	2,078	2,078	2,078
44	C-2	Nuclear	2,078	2,083	2,078	2,077	2,077	2,082	2,077	2,077	2,077	2,082	2,077	2,077	2,077	2,082	2,078	2,078	2,078
45	C-3	Nuclear	2,182	2,187	2,183	2,182	2,183	2,187	2,183	2,183	2,182	2,187	2,183	2,183	2,183	2,187	2,182	2,183	2,182
46	C-4	Nuclear	2,182	2,187	2,183	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,182	2,181	2,186	2,182	2,182	2,182
47	C-5	Nuclear	7,279	7,304	7,284	7,254	7,254	7,267	7,254	7,253	7,256	7,270	7,254	7,256	7,254	7,269	7,256	7,261	7,259
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	7,279	7,304	7,284	7,252	7,254	7,269	7,251	7,254	7,253	7,271	7,254	7,256	7,256	7,271	7,258	7,262	7,260
50	K-3	Nuclear	7,279	7,304	7,283	7,251	7,255	7,267	7,252	7,255	7,253	7,270	7,256	7,258	7,254	7,269	7,258	7,262	7,262
51	Alliance	Bagasse	142	143	143	143	143	144	143	143	143	144	143	143	143	144	143	143	143
52	Almoiz	Bagasse	172	171	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
53	Bahawalpur	Bagasse	148	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105	105
56	Chiniot	Bagasse	196	195	196	196	196	197	196	196	196	197	196	196	196	197	196	196	196

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	353	354	355	355	355	356	355	355	355	356	355	355	355	356	355	355	355
58	Faran	Bagasse	126	126	126	126	126	127	126	126	126	127	126	126	126	127	126	126	126
59	Ghotki	Bagasse	214	214	215	215	215	215	215	215	215	215	215	215	215	215	215	215	215
60	Hamza	Bagasse	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62	62
61	Hamza-II	Bagasse	142	143	143	143	143	144	143	143	143	144	143	143	143	144	143	143	143
62	HSM	Bagasse	126	126	126	126	126	127	126	126	126	127	126	126	126	127	126	126	126
63	Hunza	Bagasse	238	237	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238
64	Indus	Bagasse	147	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148	148
65	Ittefaq	Bagasse	148	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149
66	JDW-II	Bagasse	193	193	193	193	193	194	193	193	193	194	193	193	193	194	193	193	193
67	JDW-III	Bagasse	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180	180
68	Kashmir	Bagasse	191	190	191	191	191	191	191	191	191	191	191	191	191	191	191	191	191
69	Mehran	Bagasse	126	126	126	126	126	127	126	126	126	127	126	126	126	127	126	126	126
70	RYK_Energy	Bagasse	119	119	119	119	119	120	119	119	119	120	119	119	119	120	119	119	119
71	Ryk_Mills	Bagasse	143	143	143	143	143	144	143	143	143	144	143	143	143	144	143	143	143
72	Sadiqabad	Bagasse	214	214	215	215	215	215	215	215	215	215	215	215	215	215	215	215	215
73	Shahtaj	Bagasse	153	152	153	153	153	153	153	153	153	153	153	153	153	153	153	153	153
74	Sheikhoo	Bagasse	142	143	143	143	143	144	143	143	143	144	143	143	143	144	143	143	143
75	TAY	Bagasse	142	143	143	143	143	144	143	143	143	144	143	143	143	144	143	143	143

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	109	108	109	109	109	109	109	109	109	109	109	109	109	109	109	109	109
77	Two_Star	Bagasse	237	237	238	238	238	238	238	238	238	238	238	238	238	238	238	238	238
78	Access_Electric	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	19,829	22,312	24,794	25,733	25,733	26,962	29,202	30,309	32,169	32,764	35,246	37,728	40,211	42,693	45,175	45,175	45,195
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
91	Zorlu	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
93	Allai Khwar	Hydro	395	396	395	395	395	396	395	395	395	396	395	395	395	396	395	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260	263	264

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	290
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	201
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,222
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	918	917	918	918
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,962
100	Azad Pattan	Hydro	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	996
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	508
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	142	142
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	350	350	350	351	351	350	351
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119	119	119
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	48
109	Blue Star	Hydro	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	25,873	25,892	25,870	25,870	25,870
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,420	2,420	2,420
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	65

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	765	767	765	765	765	767	765	765	765	767	765	765	765	767	765	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	9	9
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	179
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
120	Dander	Hydro	221	241	236	228	230	229	234	229	233	231	232	236	232	235	236	242	242
121	Daral Khwar	Hydro	136	143	142	143	143	145	144	144	143	144	143	143	143	144	145	146	147
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
123	Dasu_1	Hydro	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975
124	Dasu_2	Hydro	0	11,807	11,785	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	74
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,741	4,744	4,744
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17,537	17,554
128	Dowarian	Hydro	158	159	159	158	158	159	158	158	158	158	159	159	159	159	159	159	159
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	370	369	374	373
130	Dubair Khwar	Hydro	574	576	576	575	574	577	576	574	576	577	577	577	575	577	577	576	577
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	311	312	314

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	311	311	311
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,638
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	509
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
138	Ghazi Brotha	Hydro	6,513	6,563	6,551	6,551	6,521	6,543	6,544	6,545	6,526	6,548	6,543	6,524	6,514	6,540	6,546	6,533	6,551
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120
140	Golen Gol	Hydro	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97	97
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	211
142	Gorkin Matiltan	Hydro	317	324	323	318	315	315	317	316	314	318	317	315	318	320	320	320	322
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
144	Gulpur	Hydro	480	481	480	480	480	481	480	480	480	481	480	480	480	481	480	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79	79	79
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	213	213	213
147	Harpo	Hydro	170	170	170	169	169	169	169	169	169	169	169	169	169	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260
149	Jabori	Hydro	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
151	Jagran-I	Hydro	80	81	81	81	81	81	81	81	81	81	81	81	81	81	81	82	82

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	138	138	138
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	91	91
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,626	2,627	2,630
155	Jhing	Hydro	66	67	67	67	67	67	67	67	67	67	67	67	67	67	67	68	68
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	28	28
157	Jinnah	Hydro	193	195	194	194	194	195	194	194	194	194	194	194	194	195	194	194	194
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	848	848	850	850
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	165
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,959
161	Karora	Hydro	63	64	63	64	64	64	64	64	64	64	64	64	64	64	64	64	64
162	Karot	Hydro	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	40	39	39	39
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	345	352	350	351	351	351	350	351	351	351	350	352	351	352	352	353	353
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	261
168	Khan Khwar	Hydro	234	235	234	234	234	235	234	234	234	235	234	234	234	235	234	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
172	Kohala	Hydro	6,097	6,188	6,145	6,135	6,145	6,164	6,158	6,160	6,142	6,168	6,152	6,151	6,168	6,188	6,203	6,216	6,207
173	Koto	Hydro	206	209	209	209	209	210	209	209	209	210	210	210	210	210	210	211	211
174	Lawi	Hydro	290	294	292	291	292	292	291	292	292	292	292	292	292	292	292	293	292
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	2,520	2,520	2,517	2,521	2,516	2,518	2,517
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	316
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	788
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	664	664	664
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
184	Mahl	Hydro	3,434	3,509	3,489	3,509	3,509	3,513	3,506	3,512	3,501	3,514	3,524	3,512	3,508	3,526	3,540	3,544	3,550
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	183
186	Malakand-III	Hydro	367	367	367	367	367	367	367	367	367	367	367	367	367	367	367	367	367
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
188	Mangla	Hydro	4,959	5,016	5,004	5,004	5,004	5,016	5,004	5,001	5,002	5,016	5,004	5,004	5,004	5,016	5,004	5,004	5,004
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	226	226

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,714	1,711
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	2,841	2,844	2,831	2,830	2,819	2,832	2,824	2,830	2,831	2,825	2,827	2,834	2,818	2,836	2,835	2,830	2,840
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	286
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	133	134	134
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	675	676	677
201	Neelum Jehlum	Hydro	4,873	4,930	4,909	4,887	4,892	4,893	4,881	4,884	4,888	4,886	4,892	4,892	4,894	4,900	4,907	4,913	4,924
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	0	238	243	243	243	247	253	255
203	New Bong	Hydro	470	471	470	470	470	471	470	470	470	471	470	470	470	471	470	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	137
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13	13
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	259	262	265
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	12,344	12,334	12,365	12,344	12,345	12,344
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	634	635	634	634	634	635	634	634	634	634	634	634	634	635	634	634	634
210	Pehur	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	320	320	320	321
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
215	Rajdhani	Hydro	670	671	670	670	670	671	670	670	670	671	670	670	670	671	670	670	670
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
219	Riali-II	Hydro	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41	41
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34	34
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	22	22
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	307
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	284	284

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	666
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	452	452
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	533	533	533
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	206	207	206
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	470
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,725	3,725
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	382	385	384	382	382	383	383	382	382	383	383	382	383	385	383	384	383
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
237	Suki Kinari	Hydro	2,775	2,787	2,783	2,780	2,778	2,782	2,775	2,782	2,779	2,782	2,781	2,783	2,779	2,781	2,783	2,787	2,785
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	101
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	8,820	8,819	8,820	8,822
240	Tarbela_1-10	Hydro	7,345	7,386	7,377	7,331	7,359	7,350	7,330	7,346	7,356	7,353	7,365	7,359	7,335	7,368	7,336	7,373	7,377
241	Tarbela_11-14	Hydro	7,237	7,294	7,285	7,255	7,239	7,237	7,258	7,280	7,242	7,273	7,266	7,263	7,271	7,245	7,266	7,254	7,270
242	Tarbela_Ext_4	Hydro	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811
243	Tarbela_Ext_5	Hydro	3,972	3,986	3,986	3,986	3,984	3,982	3,985	3,984	3,988	3,992	3,994	3,989	3,988	3,991	3,990	3,994	3,991
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	444
245	Thakot-I	Hydro	10,088	10,172	10,132	10,117	10,118	10,139	10,114	10,114	10,110	10,137	10,124	10,118	10,122	10,142	10,133	10,142	10,141
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	4,667	4,664	4,665	4,678	4,671	4,673	4,674

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	7,214	7,237	7,221	7,227	7,226	7,240	7,226	7,226	7,225	7,239	7,226	7,227	7,227	7,240	7,227	7,228	7,228
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	307	307	306	306	306	307	307
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	155	155
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	357
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13	13
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	507
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252	252
258	Warsak	Hydro	997	999	997	997	997	999	997	997	997	999	997	997	997	999	997	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	351
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11,247	11,250	11,248
261	CASA	Cross Border	2,433	2,452	2,468	2,484	2,559	2,582	2,552	2,532	2,623	2,634	2,616	2,673	2,699	2,730	2,782	2,870	3,148
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	872	874	872	872	872	874	872	872	872	874	872	872	872	874	872	872	872
267	Candidate_Wind_North	Wind	581	582	581	581	581	582	581	581	581	582	581	581	581	582	581	581	581
268	Candidate_Wind_South	Wind	3,440	3,444	3,440	3,440	3,440	3,444	3,440	3,440	3,440	3,444	3,440	3,440	3,440	3,444	3,440	3,440	3,440
269	Dawood	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
270	Din	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
273	FWEL-II	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
274	Gul Ahmed	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
275	Gul_Electric	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
282	Master	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
283	Master_Green	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	206	207	206	206	206	207	206	206	206	207	206	206	206	207	206	206	206
286	NASDA	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
289	Shaheen	Wind	175	176	175	175	175	176	175	175	175	176	175	175	175	176	175	175	175
290	Tenga	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
293	Three_Gorges_III	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
294	Trans_Atlantic	Wind	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
302	Zephyr	Wind	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	55	51	55	45	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			250,462	264,394	278,676	294,572	311,828	330,997	350,196	371,490	394,338	419,677	428,094	451,631	475,646	498,948	519,925	540,294	559,765
Energy Demand			250,462	264,394	278,676	294,572	311,828	330,997	350,196	371,490	394,338	419,677	428,094	451,631	475,646	498,948	519,925	540,294	559,765
Energy Not Served			0.04	0.00	-0.02	0.01	-0.01	0.00	0.03	0.01	-0.03	0.00	0.00	0.01	-0.01	0.00	-0.03	0.03	-0.02

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

E-8. Year wise Cost Breakup-Discounted Prices

FY	Present Worth Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,751,312	6,708,034	6,708,034
2021	0	913,213	4,828,740	5,741,953	12,449,987
2022	0	909,992	3,537,939	4,447,931	16,897,919
2023	217,695	890,676	2,738,230	3,846,602	20,744,520
2024	428,749	865,183	2,177,493	3,471,426	24,215,946
2025	480,034	807,186	1,831,358	3,118,578	27,334,524
2026	471,087	768,818	1,494,671	2,734,577	30,069,100
2027	482,687	703,250	1,425,864	2,611,801	32,680,901
2028	510,447	658,535	1,308,045	2,477,027	35,157,928
2029	604,545	607,997	1,201,309	2,413,851	37,571,779
2030	696,663	558,918	1,124,689	2,380,271	39,952,050
2031	754,511	489,603	961,077	2,205,192	42,157,242
2032	777,637	449,790	857,719	2,085,146	44,242,388
2033	853,883	425,421	610,939	1,890,242	46,132,630
2034	887,364	402,943	507,378	1,797,685	47,930,315
2035	889,024	379,790	506,176	1,774,990	49,705,305
2036	891,324	358,355	513,647	1,763,326	51,468,631
2037	886,522	337,024	517,677	1,741,224	53,209,854
2038	879,157	319,453	512,501	1,711,112	54,920,966
2039	873,806	303,745	511,411	1,688,962	56,609,928
2040	864,423	288,811	503,162	1,656,395	58,266,323
2041	821,357	261,941	447,441	1,530,739	59,797,062
2042	815,282	256,834	414,358	1,486,474	61,283,536
2043	855,904	238,640	356,565	1,451,109	62,734,645
2044	832,227	221,027	334,754	1,388,008	64,122,654
2045	850,204	219,672	291,896	1,361,772	65,484,426
2046	862,200	198,479	257,288	1,317,967	66,802,393
2047	855,415	188,677	237,346	1,281,439	68,083,831

E-9. Year wise Cost Breakup-Un-Discounted Prices (k$)

FY	Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,751,312	6,708,034	6,708,034
2021	0	1,014,681	5,365,267	6,379,948	13,087,982
2022	0	1,123,447	4,367,826	5,491,273	18,579,255
2023	298,622	1,221,778	3,756,146	5,276,546	23,855,801
2024	653,481	1,318,676	3,318,843	5,291,001	29,146,802
2025	812,942	1,366,976	3,101,421	5,281,339	34,428,141
2026	886,433	1,446,667	2,812,488	5,145,588	39,573,729
2027	1,009,178	1,470,322	2,981,126	5,460,626	45,034,356
2028	1,185,798	1,529,814	3,038,664	5,754,276	50,788,631
2029	1,560,436	1,569,346	3,100,788	6,230,570	57,019,201
2030	1,998,011	1,602,962	3,225,578	6,826,551	63,845,752
2031	2,404,353	1,560,187	3,062,603	7,027,143	70,872,895
2032	2,753,383	1,592,576	3,036,932	7,382,891	78,255,785
2033	3,359,277	1,673,654	2,403,505	7,436,437	85,692,222
2034	3,878,884	1,761,362	2,217,870	7,858,116	93,550,338
2035	4,317,933	1,844,615	2,458,462	8,621,010	102,171,348
2036	4,810,114	1,933,898	2,771,945	9,515,957	111,687,305
2037	5,315,779	2,020,870	3,104,105	10,440,754	122,128,060
2038	5,857,353	2,128,345	3,414,521	11,400,219	133,528,279
2039	6,468,557	2,248,542	3,785,839	12,502,939	146,031,218
2040	7,110,104	2,375,544	4,138,640	13,624,288	159,655,506
2041	7,506,533	2,393,923	4,089,245	13,989,700	173,645,206
2042	8,278,898	2,608,061	4,207,661	15,094,620	188,739,826
2043	9,657,114	2,692,561	4,023,101	16,372,776	205,112,602
2044	10,433,301	2,770,930	4,196,674	17,400,905	222,513,507
2045	11,842,966	3,059,931	4,065,987	18,968,884	241,482,391
2046	13,344,510	3,071,909	3,982,123	20,398,542	261,880,933
2047	14,710,565	3,244,675	4,081,642	22,036,881	283,917,815

E-10. Year wise Nominal Capacity Addition (MW)

FY	Capacity Addition Over the Plan Period (2020-47) - MW										
	Local Coal	Hydro	RLNG	Nuclear	Imported Coal	RE	Natural Gas	Furnace Oil	Cross Border	Yearly Addition	Total (MW)
2020	602	9,945	6,677	1,230	3,736	1,846	3,010	6,488	0	33,534	-
2021	2,118	119	0	1,059	0	446	0	0	0	3,742	37,276
2022	607	720	0	1,059	917	1,410	0	-1,336	0	3,377	40,653
2023	0	973	0	0	0	3,000	-240	0	1,000	4,733	45,386
2024	1,988	1,410	0	0	644	1,500	-270	0	0	5,272	50,657
2025	607	3,088	0	0	0	1,482	0	0	0	5,177	55,834
2026	0	37	0	1,059	0	1,500	0	0	0	2,596	58,430
2027	843	740	0	0	0	0	-212	-1,200	0	171	58,601
2028	103	1,122	2,020	0	0	1,500	0	-824	0	3,921	62,522
2029	158	1,874	791	0	0	1,500	-106	0	0	4,217	66,739
2030	917	639	2,464	0	0	1,500	-678	-653	0	4,189	70,929
2031	0	2,154	901	0	0	1,500	0	-310	0	4,245	75,174
2032	7	2,160	1,204	0	0	1,500	-29	-367	0	4,475	79,649
2033	3,919	0	0	0	0	1,500	0	-627	0	4,792	84,441
2034	3,360	0	633	0	0	567	0	-156	0	4,404	88,845
2035	2,248	0	2,719	0	0	0	-212	-409	0	4,346	93,191
2036	2,375	0	2,831	0	0	742	-167	-606	0	5,175	98,366
2037	2,551	0	2,058	0	0	1,354	0	0	0	5,963	104,329
2038	2,963	0	2,202	0	0	669	0	0	0	5,833	110,162
2039	3,206	0	2,572	0	0	1,124	-355	0	0	6,546	116,709
2040	3,528	0	2,527	0	0	360	0	0	0	6,415	123,124
2041	32	1,844	68	0	0	1,500	0	0	0	3,443	126,567
2042	1,237	2,400	1,905	0	0	1,500	0	0	0	7,042	133,609
2043	0	7,100	0	0	0	1,500	0	0	0	8,600	142,209
2044	1,125	2,793	-10	0	0	1,500	0	0	0	5,408	147,617
2045	7	5,960	0	0	0	1,500	-721	0	0	6,746	154,364
2046	0	5,884	-450	0	0	0	0	0	0	5,434	159,797
2047	0	4,874	0	0	0	12	0	0	0	4,886	164,683
Total	**34,500**	**55,836**	**31,112**	**4,407**	**5,297**	**32,511**	**20**	**0**	**1,000**	**164,683**	

E-11. IGCEP Generation Mix 2020-2047 (GWh)

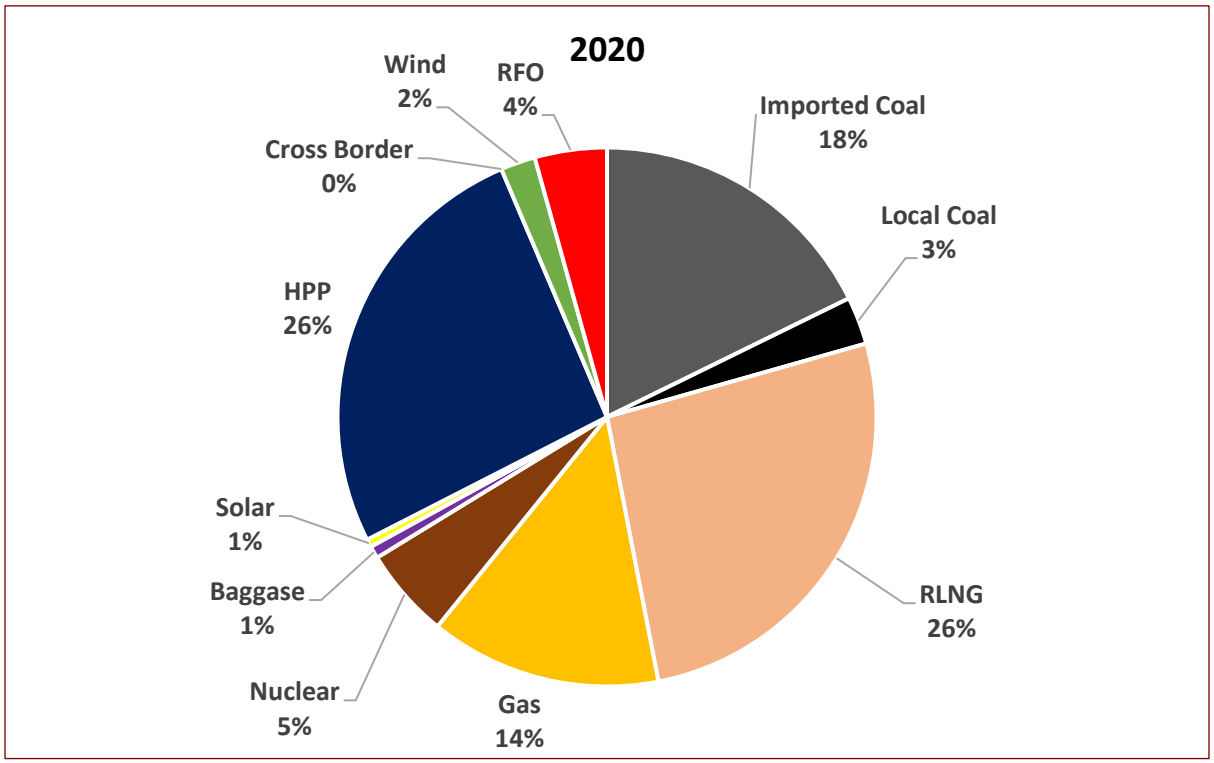


Chart E-1: IGCEP Generation Mix 2020 (GWh)

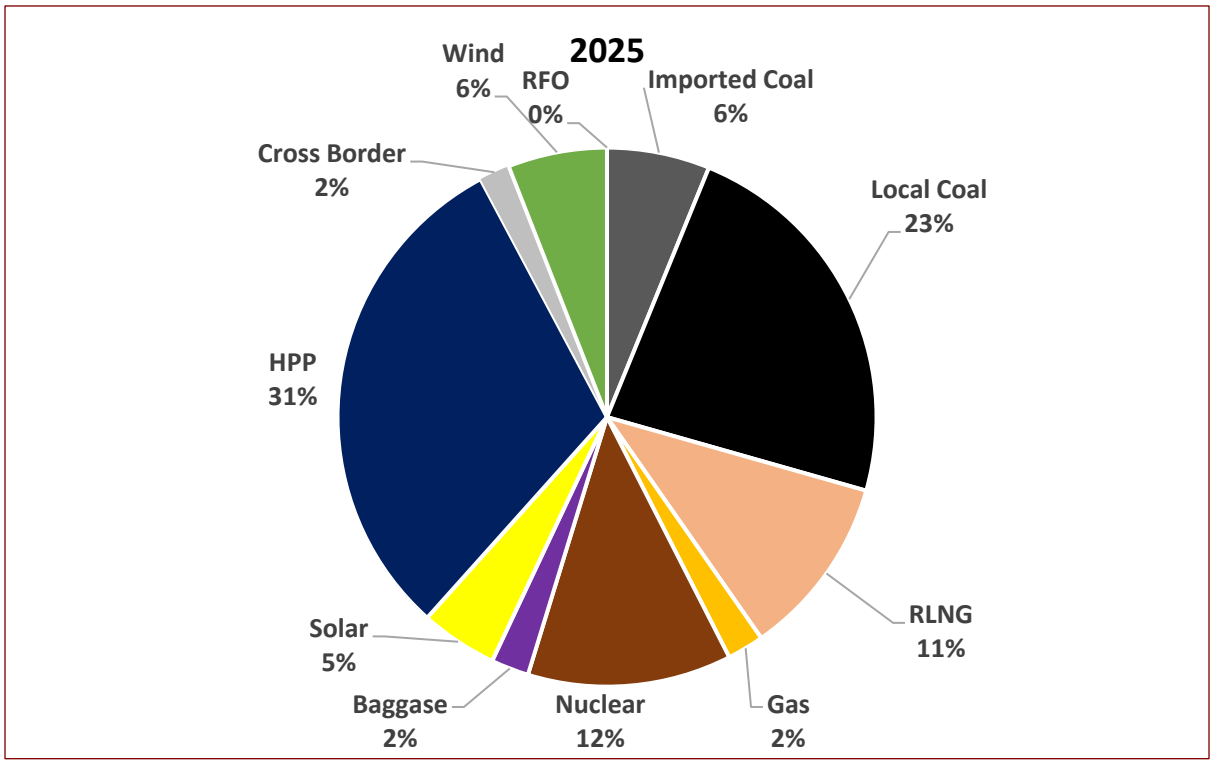


Chart E-2: IGCEP Generation Mix 2025 (GWh)

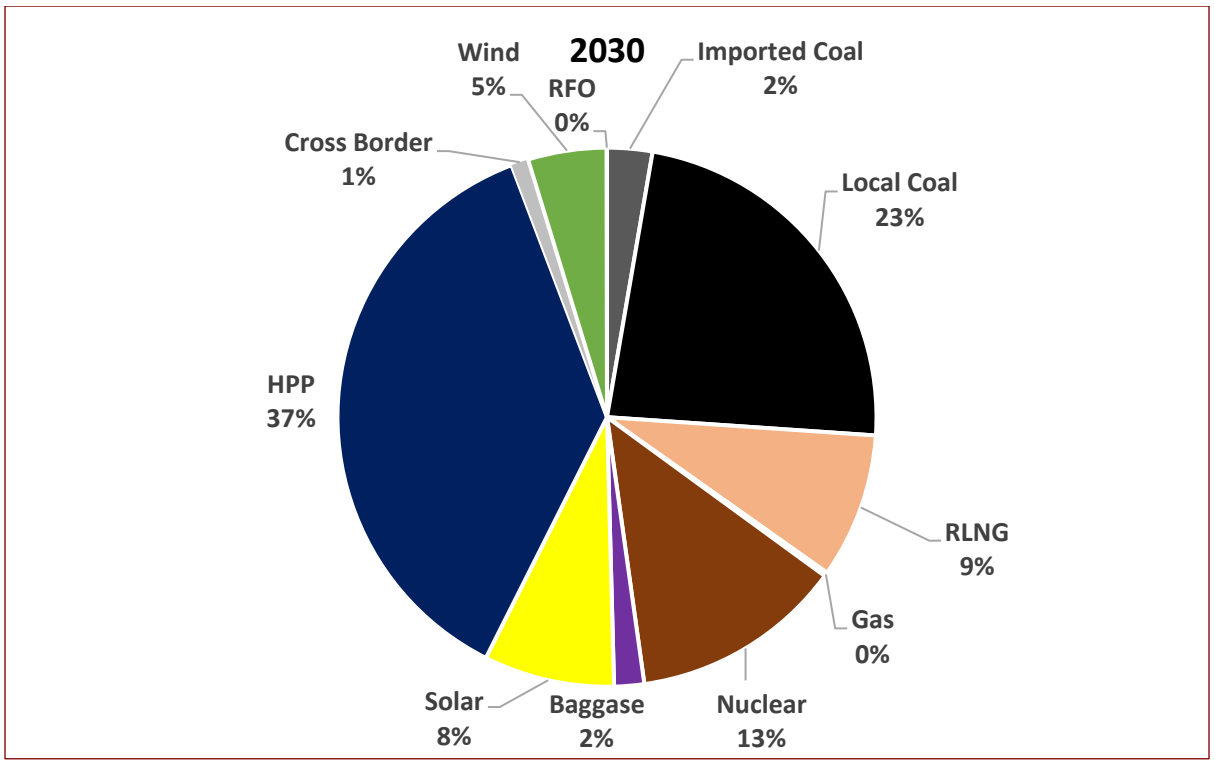


Chart E-3: IGCEP Generation Mix 2030 (GWh)

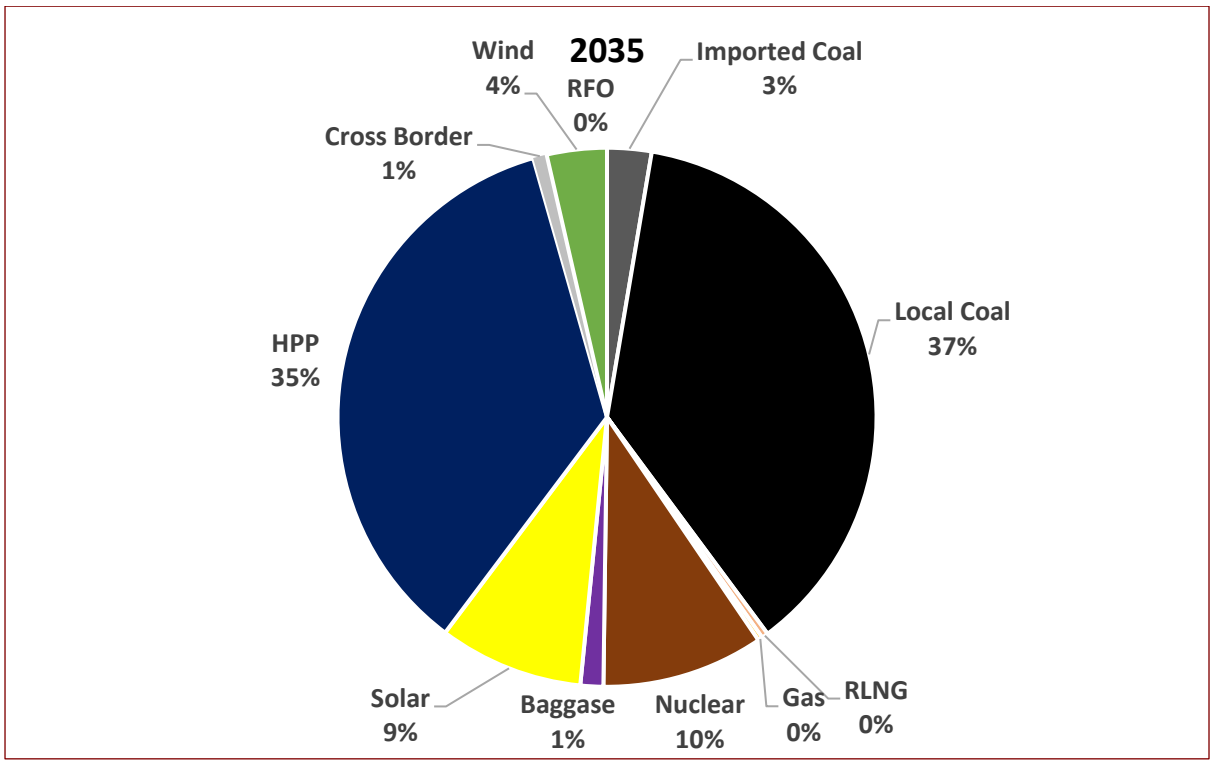


Chart E-4: IGCEP Generation Mix 2035 (GWh)

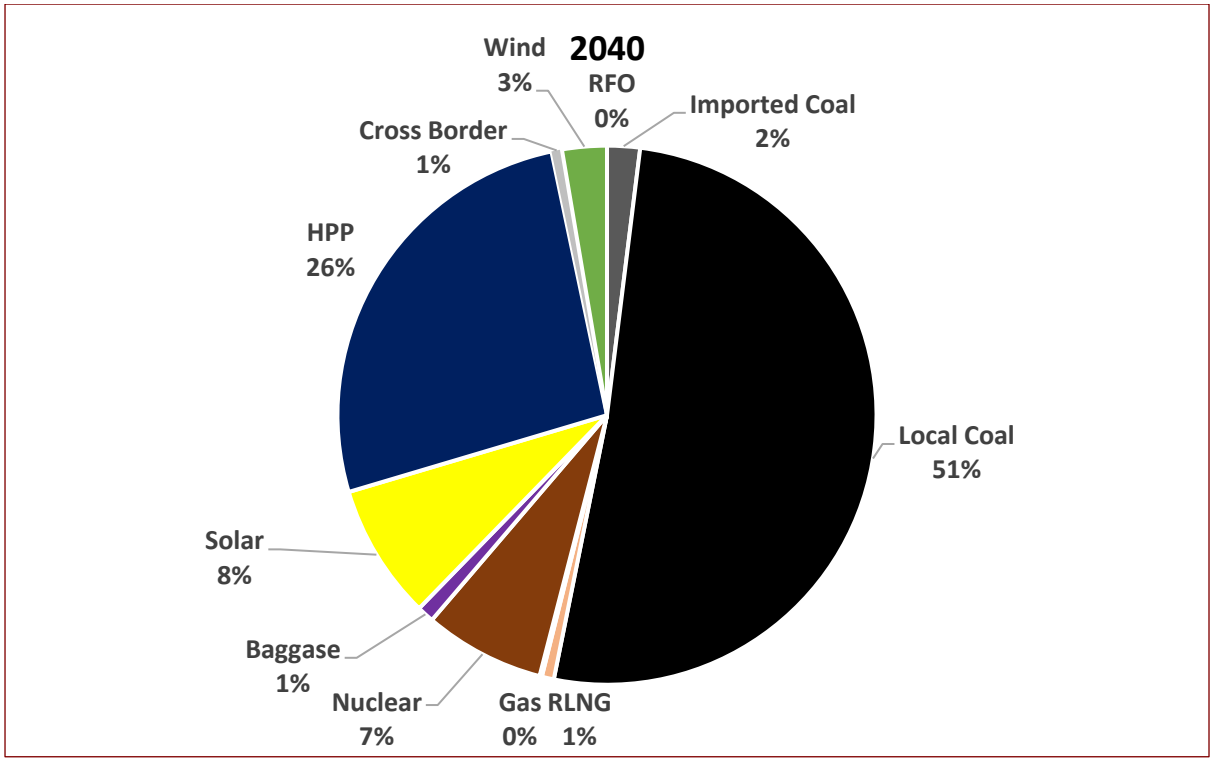


Chart E-5: IGCEP Generation Mix 2040 (GWh)

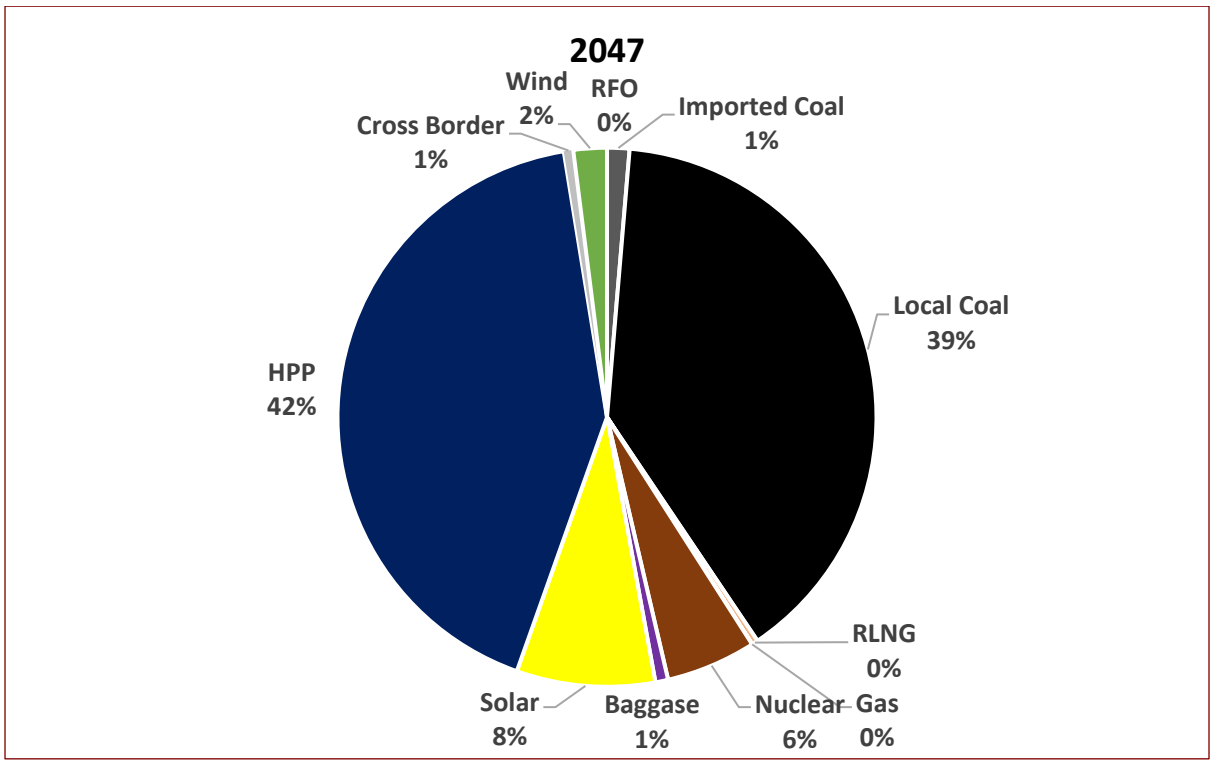


Chart E-6: IGCEP Generation Mix 2047 (GWh)

E-12. IGCEP Generation Mix 2020-47 (MW)

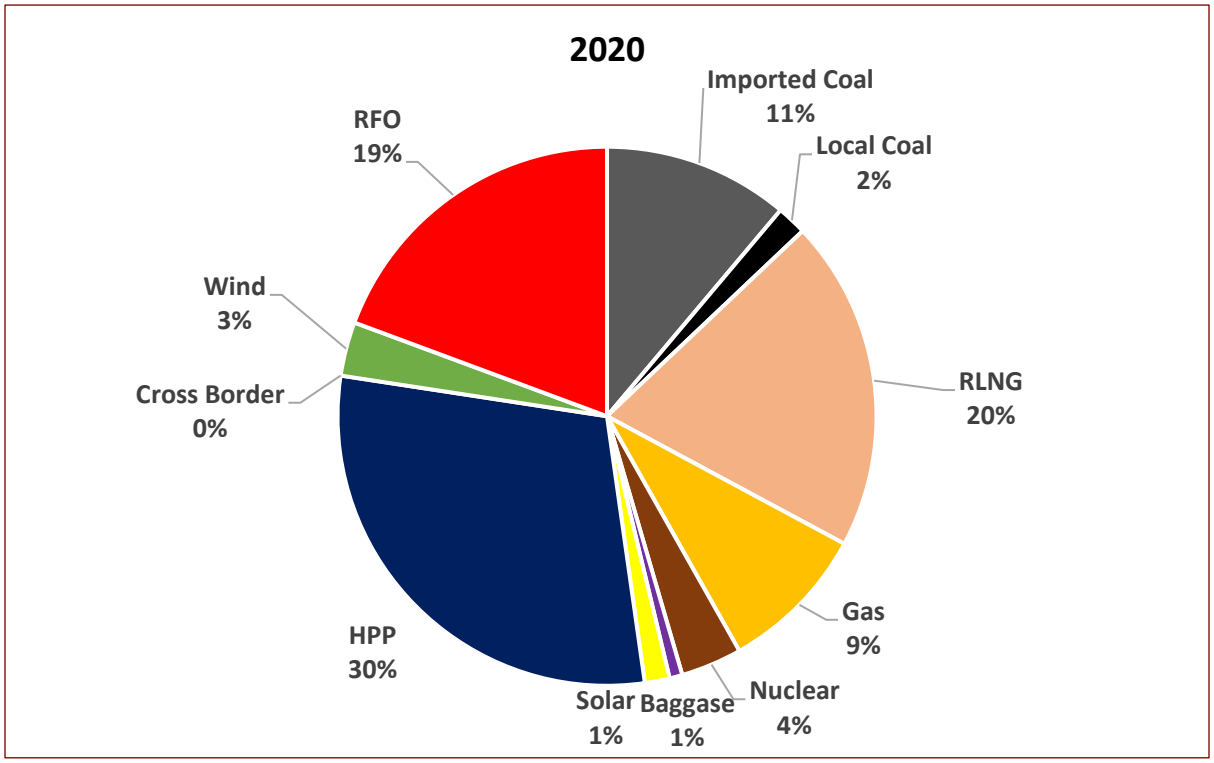


Chart E-7: IGCEP Generation Mix 2020 (MW)

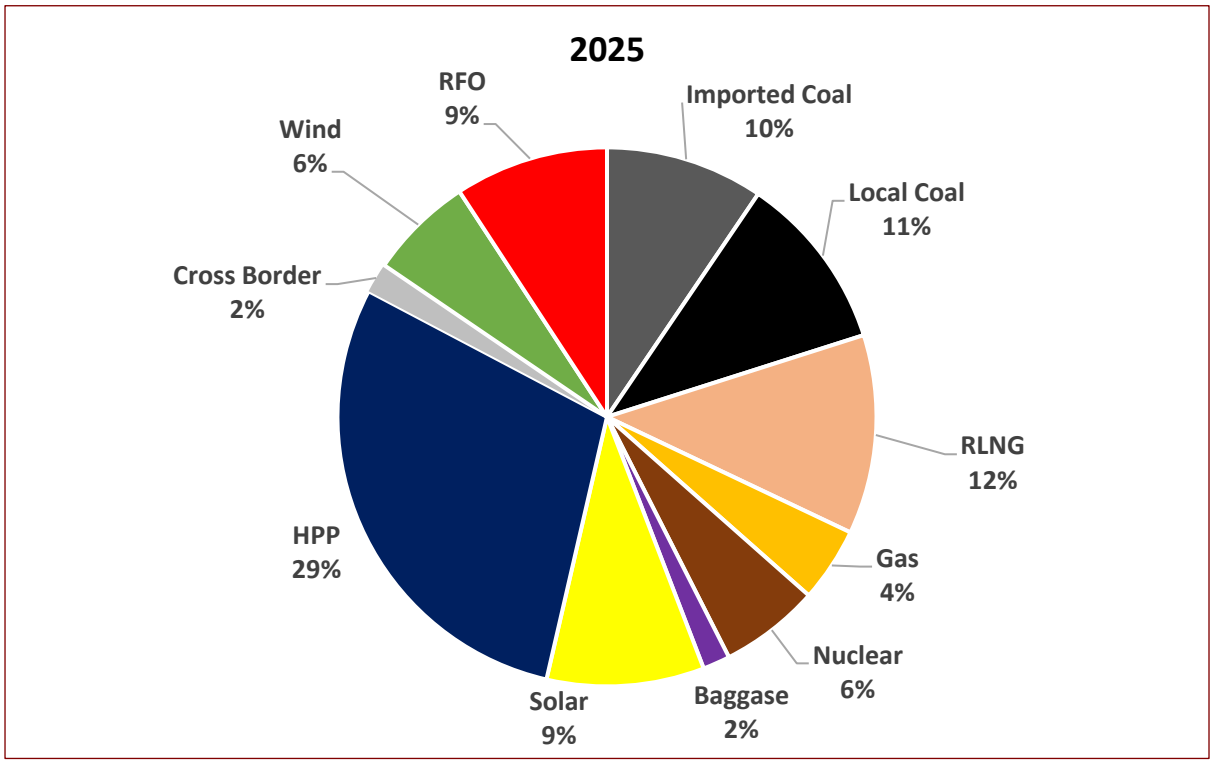


Chart E-8: IGCEP Generation Mix 2025 (MW)

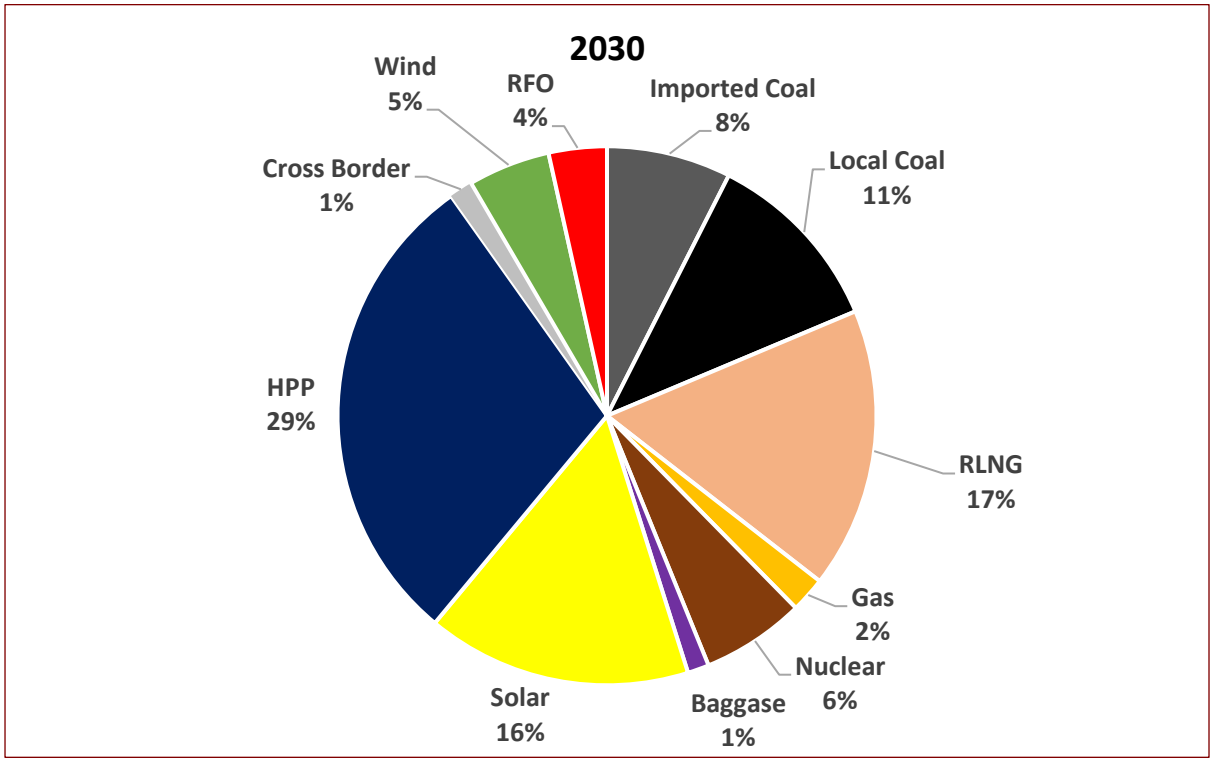


Chart E-9: IGCEP Generation Mix 2030 (MW)

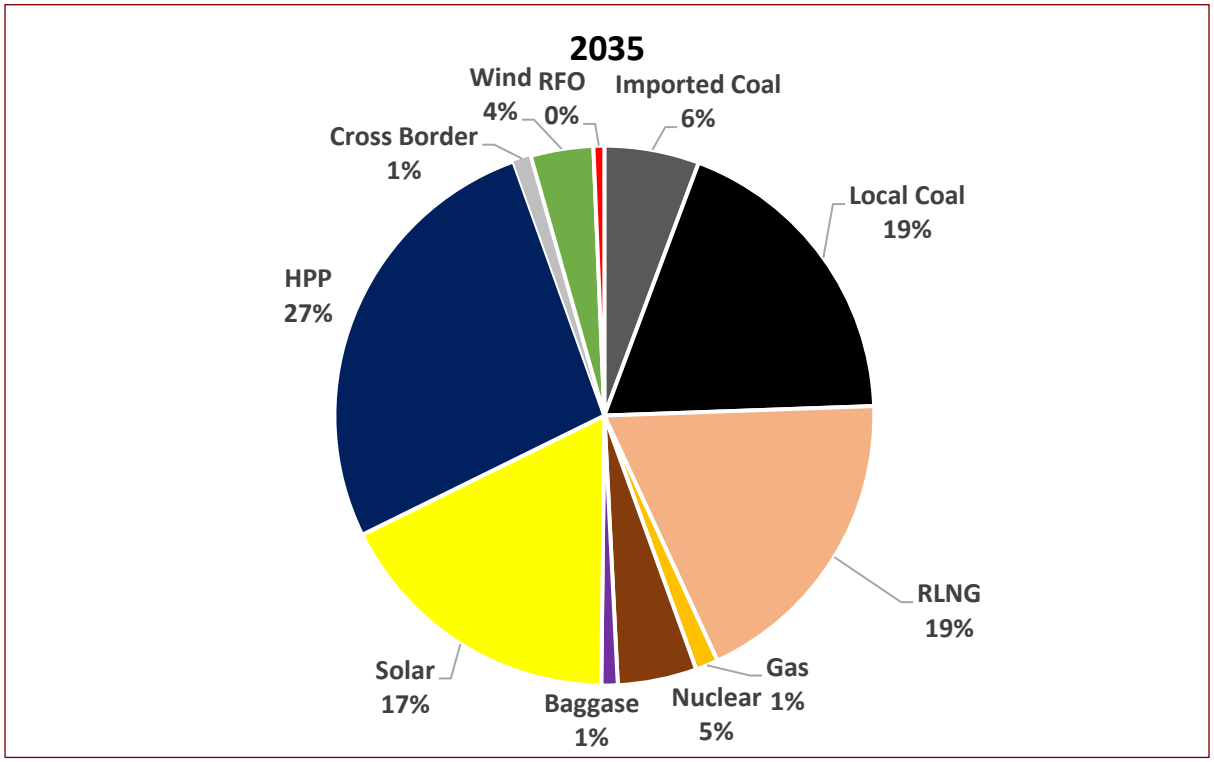


Chart E-10: IGCEP Generation Mix 2035 (MW)

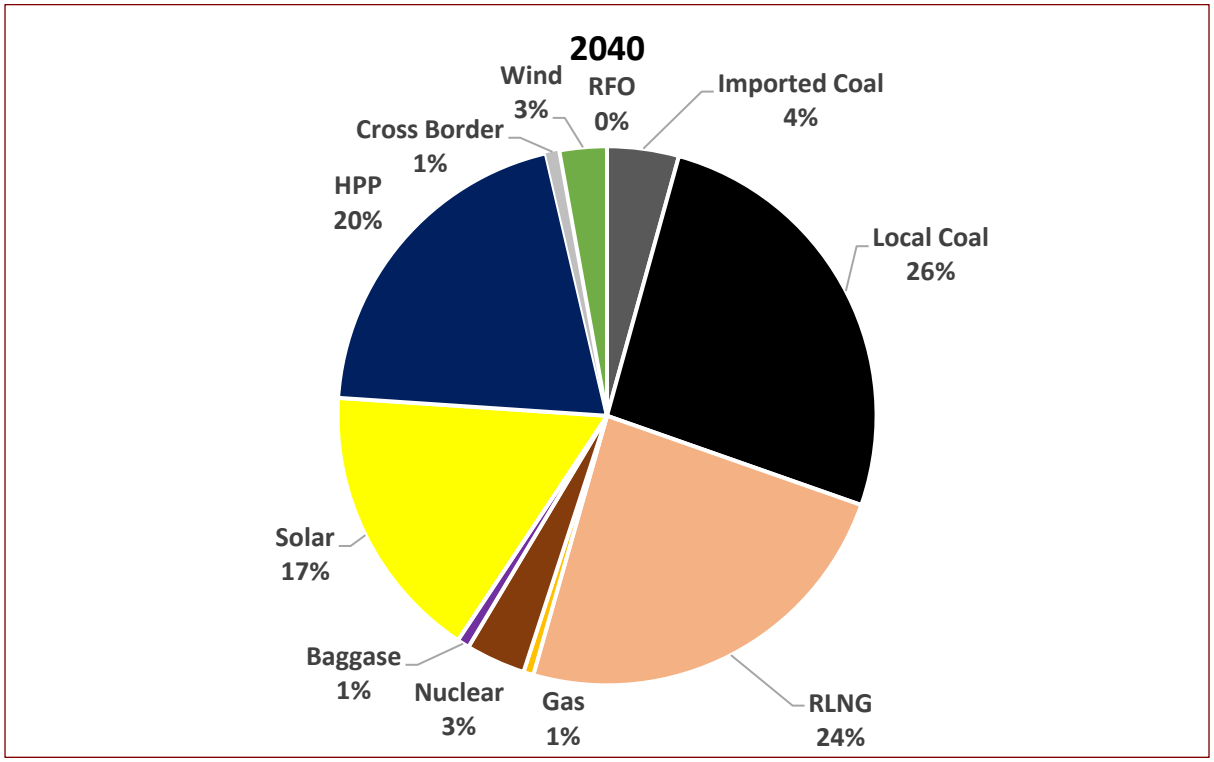


Chart E-11: IGCEP Generation Mix 2040 (MW)

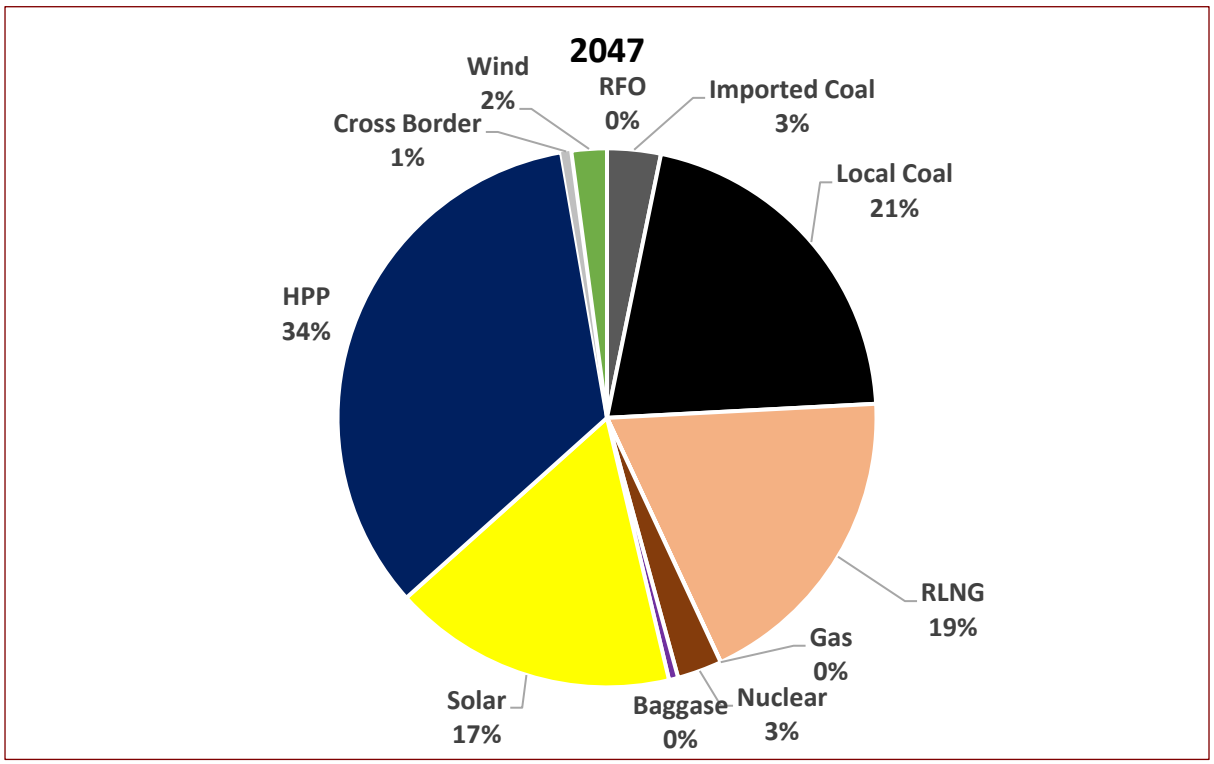


Chart E-12: IGCEP Generation Mix 2047 (MW)

E-13. IGCEP Monthly Generation Mix 2019-47 (GWh)

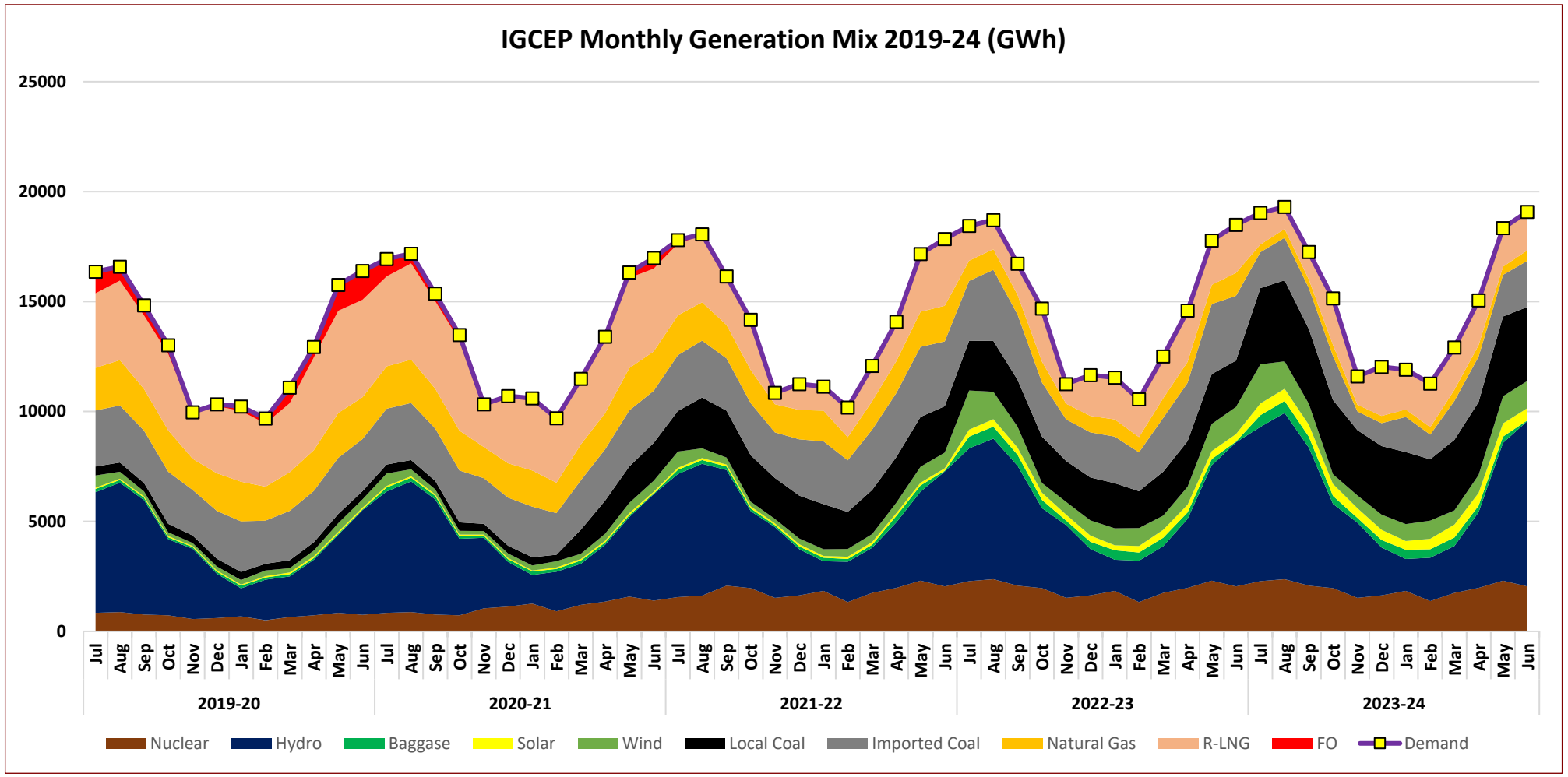


Chart E-13: IGCEP Monthly Generation Mix 2019-24 (GWh)

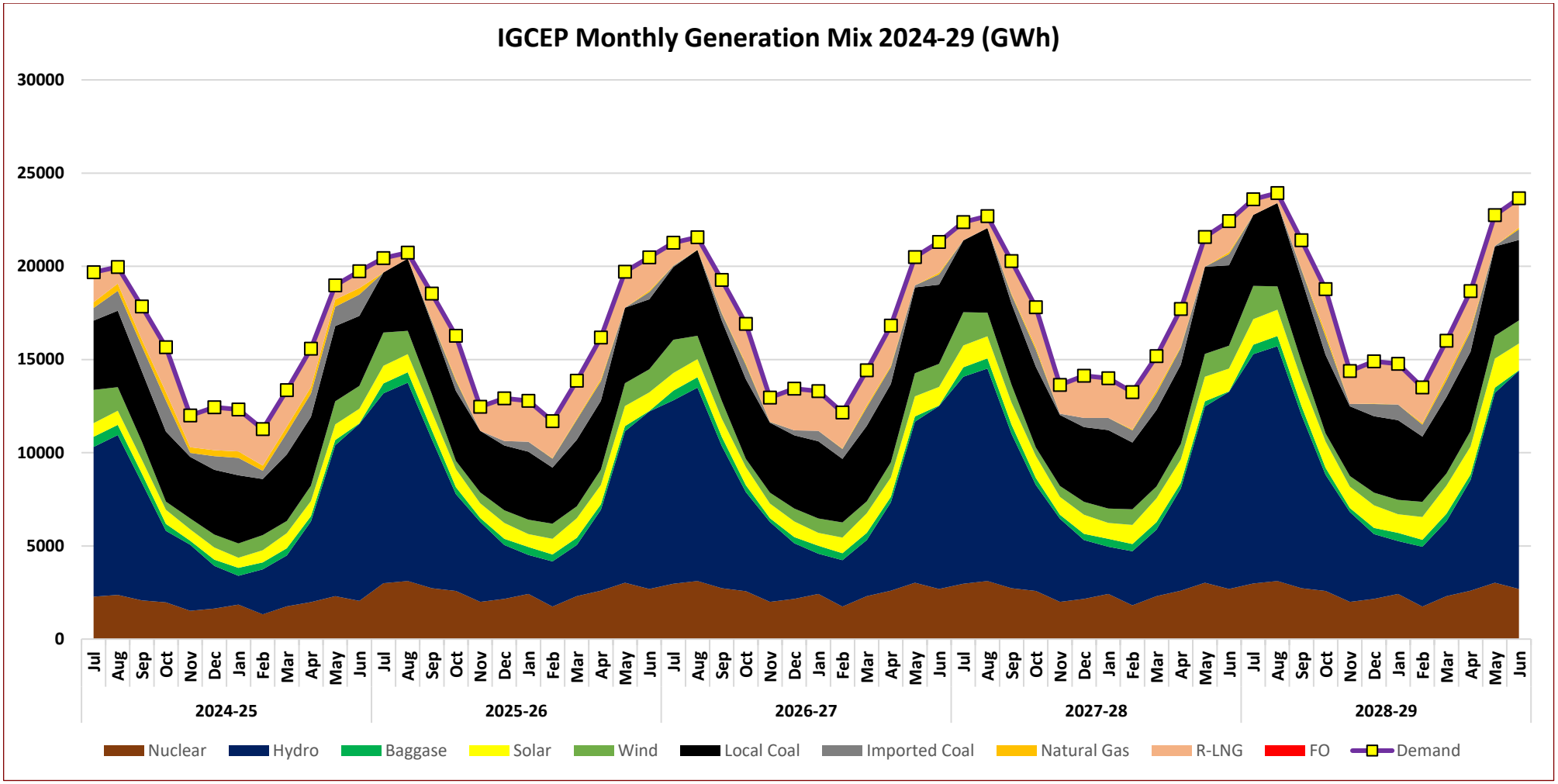


Chart E-14: IGCEP Monthly Generation Mix 2024-29 (GWh)

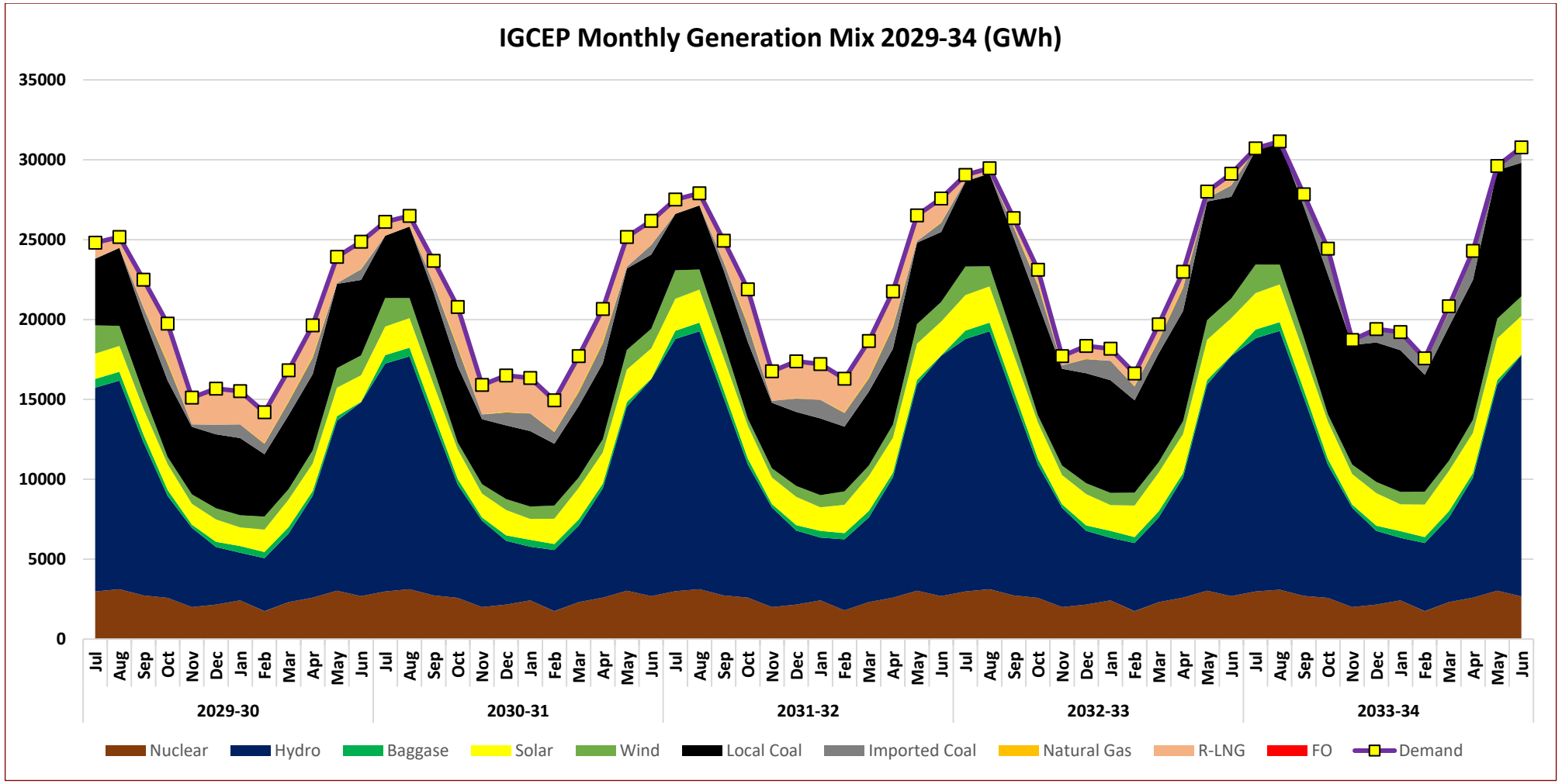


Chart E-15: IGCEP Monthly Generation Mix 2029-34 (GWh)

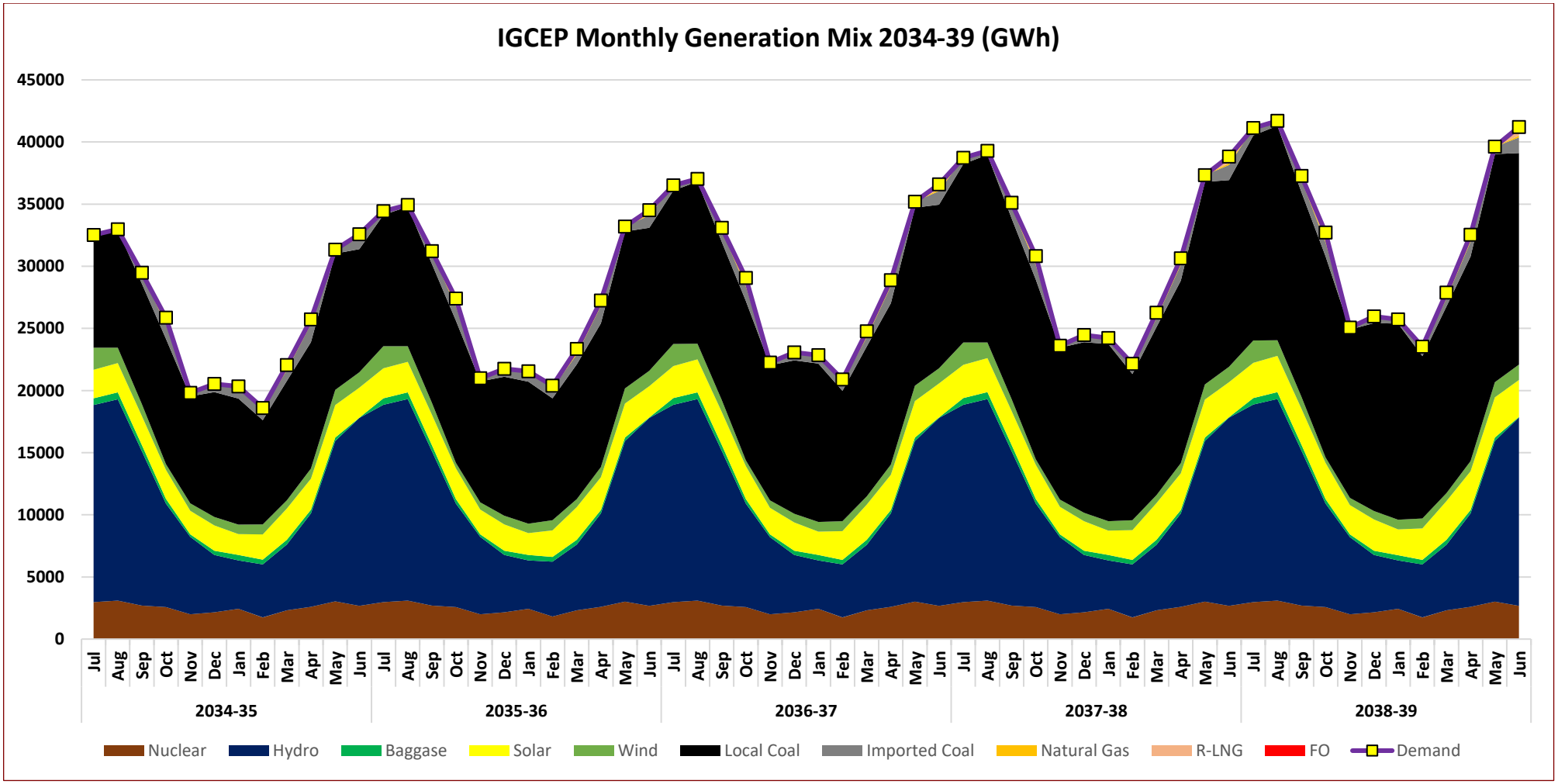


Chart E-16: IGCEP Monthly Generation Mix 2034-39 (GWh)

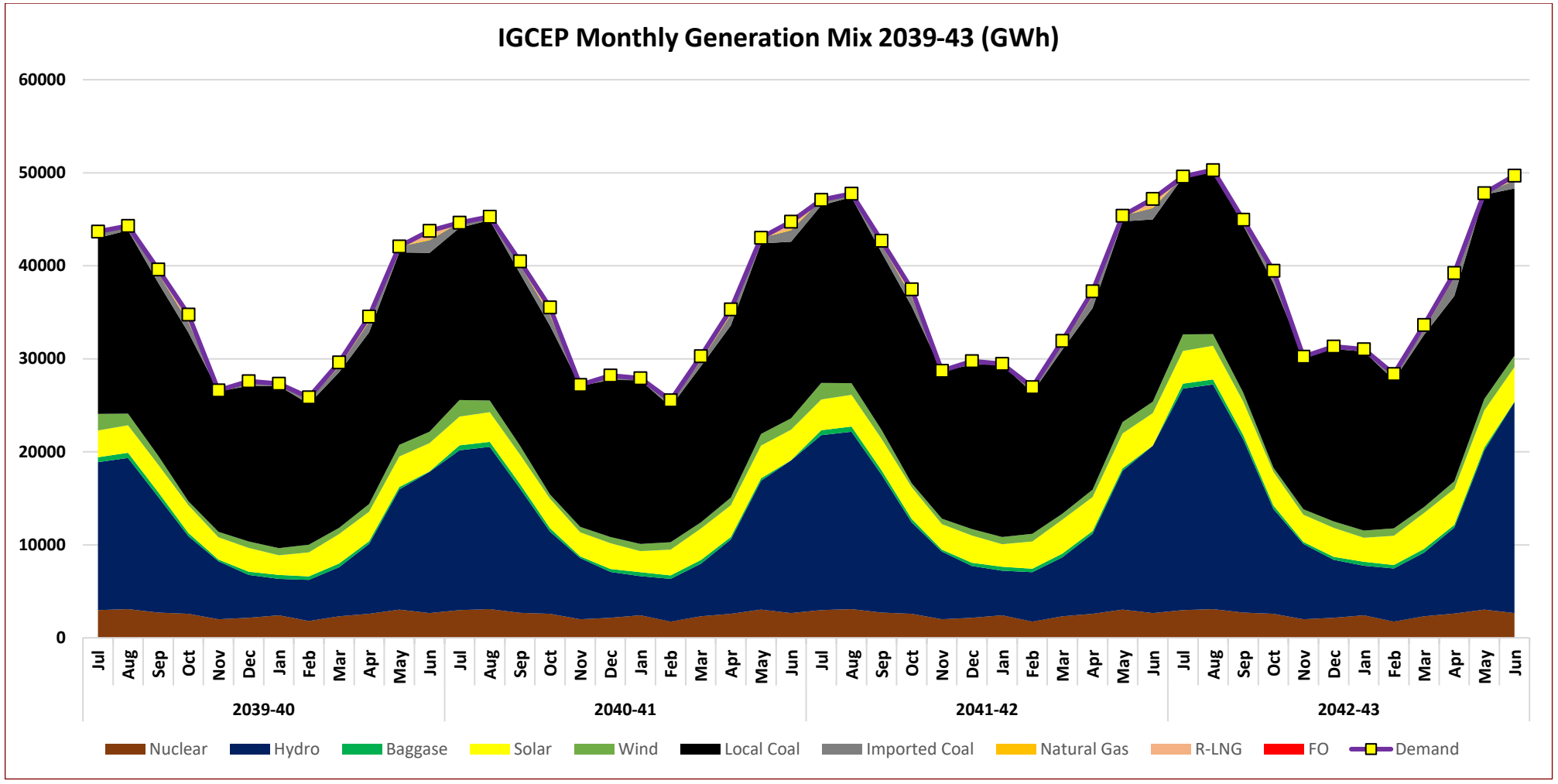


Chart E-17: IGCEP Monthly Generation Mix 2039-43 (GWh)

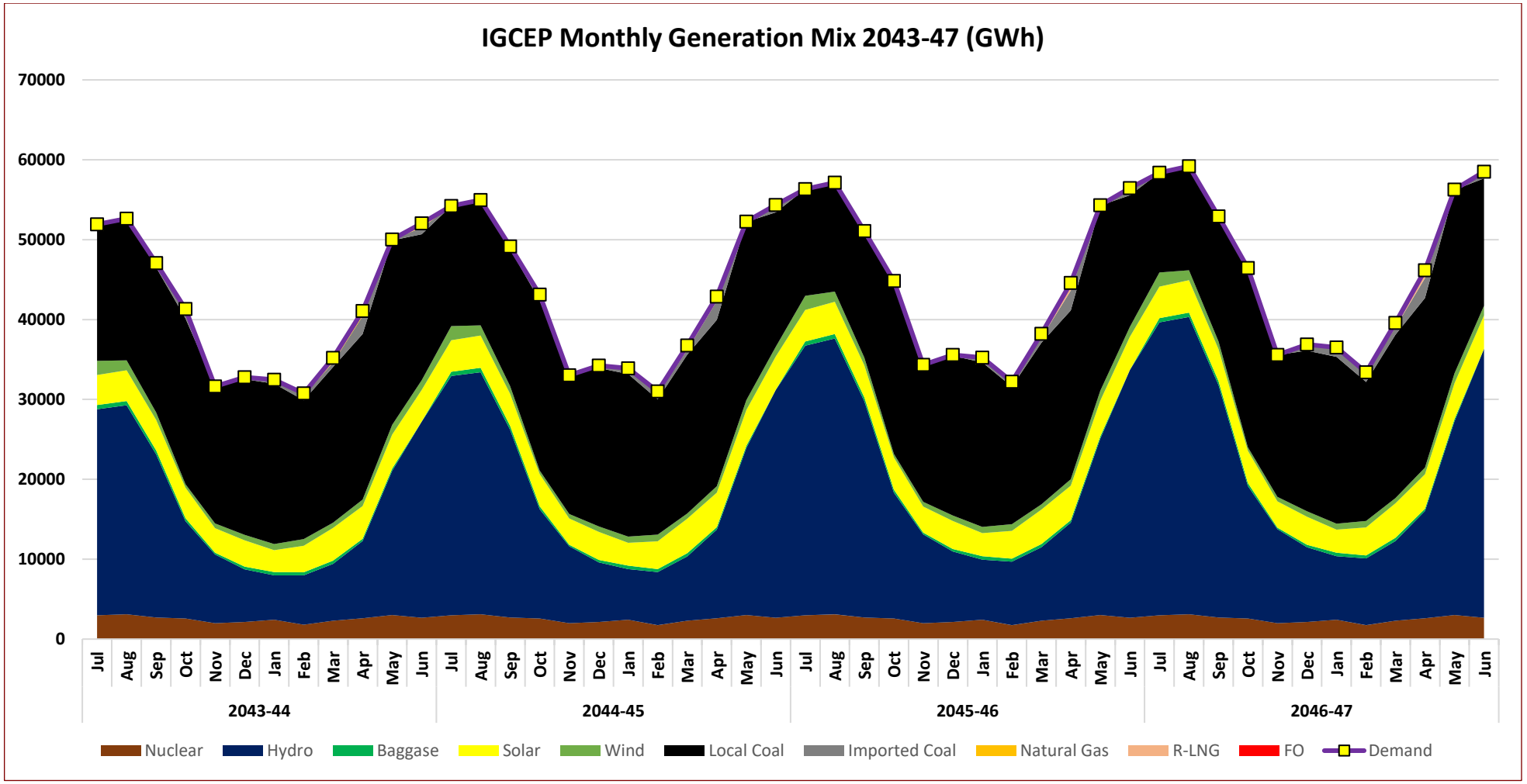


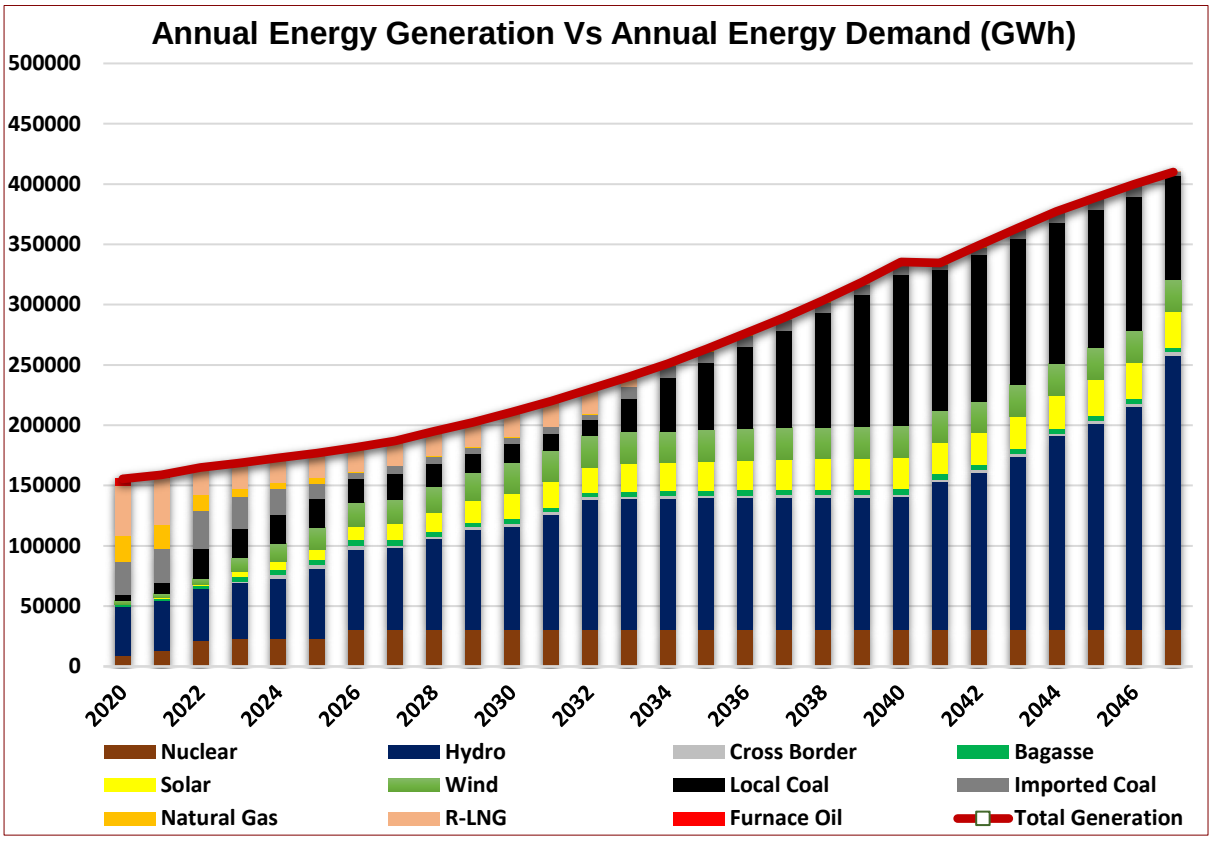
Chart E-18: IGCEP Monthly Generation Mix 2043-47 (GWh)

E-14. Year-wise Present Worth and Un-Discounted Cost

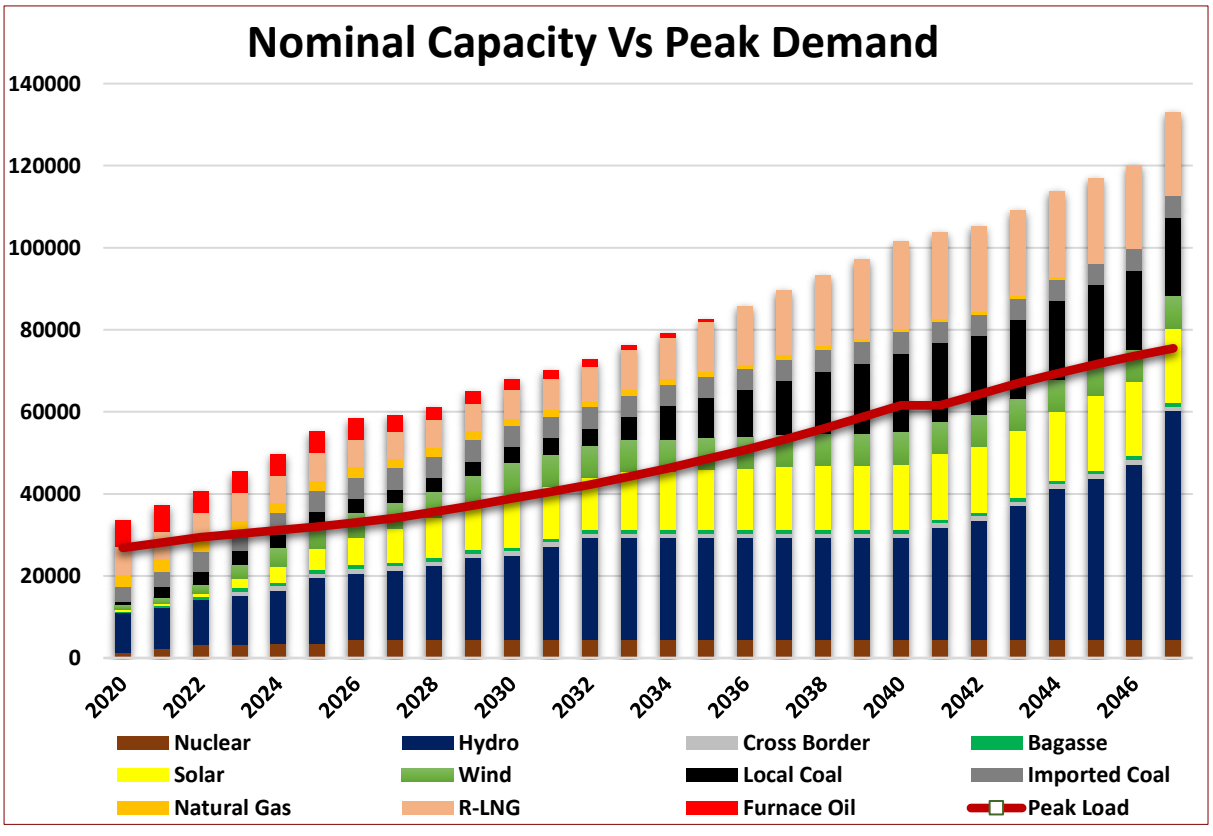
FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,751,312	6,708,034	6,708,034	0	956,722	5,751,312	6,708,034	6,708,034
2021	0	913,213	4,828,740	5,741,953	12,449,987	0	1,014,681	5,365,267	6,379,948	13,087,982
2022	0	909,992	3,537,939	4,447,931	16,897,919	0	1,123,447	4,367,826	5,491,273	18,579,255
2023	217,695	890,676	2,738,230	3,846,602	20,744,520	298,622	1,221,778	3,756,146	5,276,546	23,855,801
2024	428,749	865,183	2,177,493	3,471,426	24,215,946	653,481	1,318,676	3,318,843	5,291,001	29,146,802
2025	480,034	807,186	1,831,358	3,118,578	27,334,524	812,942	1,366,976	3,101,421	5,281,339	34,428,141
2026	471,087	768,818	1,494,671	2,734,577	30,069,100	886,433	1,446,667	2,812,488	5,145,588	39,573,729
2027	482,687	703,250	1,425,864	2,611,801	32,680,901	1,009,178	1,470,322	2,981,126	5,460,626	45,034,356
2028	510,447	658,535	1,308,045	2,477,027	35,157,928	1,185,798	1,529,814	3,038,664	5,754,276	50,788,631
2029	604,545	607,997	1,201,309	2,413,851	37,571,779	1,560,436	1,569,346	3,100,788	6,230,570	57,019,201
2030	696,663	558,918	1,124,689	2,380,271	39,952,050	1,998,011	1,602,962	3,225,578	6,826,551	63,845,752
2031	754,511	489,603	961,077	2,205,192	42,157,242	2,404,353	1,560,187	3,062,603	7,027,143	70,872,895
2032	777,637	449,790	857,719	2,085,146	44,242,388	2,753,383	1,592,576	3,036,932	7,382,891	78,255,785
2033	853,883	425,421	610,939	1,890,242	46,132,630	3,359,277	1,673,654	2,403,505	7,436,437	85,692,222
2034	887,364	402,943	507,378	1,797,685	47,930,315	3,878,884	1,761,362	2,217,870	7,858,116	93,550,338

FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2035	889,024	379,790	506,176	1,774,990	49,705,305	4,317,933	1,844,615	2,458,462	8,621,010	102,171,348
2036	891,324	358,355	513,647	1,763,326	51,468,631	4,810,114	1,933,898	2,771,945	9,515,957	111,687,305
2037	886,522	337,024	517,677	1,741,224	53,209,854	5,315,779	2,020,870	3,104,105	10,440,754	122,128,060
2038	879,157	319,453	512,501	1,711,112	54,920,966	5,857,353	2,128,345	3,414,521	11,400,219	133,528,279
2039	873,806	303,745	511,411	1,688,962	56,609,928	6,468,557	2,248,542	3,785,839	12,502,939	146,031,218
2040	864,423	288,811	503,162	1,656,395	58,266,323	7,110,104	2,375,544	4,138,640	13,624,288	159,655,506
2041	821,357	261,941	447,441	1,530,739	59,797,062	7,506,533	2,393,923	4,089,245	13,989,700	173,645,206
2042	815,282	256,834	414,358	1,486,474	61,283,536	8,278,898	2,608,061	4,207,661	15,094,620	188,739,826
2043	855,904	238,640	356,565	1,451,109	62,734,645	9,657,114	2,692,561	4,023,101	16,372,776	205,112,602
2044	832,227	221,027	334,754	1,388,008	64,122,654	10,433,301	2,770,930	4,196,674	17,400,905	222,513,507
2045	850,204	219,672	291,896	1,361,772	65,484,426	11,842,966	3,059,931	4,065,987	18,968,884	241,482,391
2046	862,200	198,479	257,288	1,317,967	66,802,393	13,344,510	3,071,909	3,982,123	20,398,542	261,880,933
2047	855,415	188,677	237,346	1,281,439	68,083,831	14,710,565	3,244,675	4,081,642	22,036,881	283,917,815

F-1. Annual Energy Generation Vs Annual Energy Demand (GWh)



F-2. Nominal Capacity Vs Peak Demand (MW) 2020-47



F-3. Future Generation Capacity Additions

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South MW	Midland MW	North MW	MW	MW
2020	-	-	-	-	-	-	-	-	-	-	0	0
2021	-	-	-	-	-	-	-	-	-	-	0	0
2022	-	-	-	-	-	-	-	-	-	-	0	0
2023	-	-	-	-	-	-	1,500	1,000	300	200	3,000	3,000
2024	-	-	-	-	-	-	1,500	1,000	78	-	2,578	5,578
2025	-	-	-	-	-	-	1,500	854	-	-	2,354	7,932
2026	-	-	-	-	-	3	1,500	625	-	-	2,128	10,059
2027	-	-	-	-	-	-	1,500	52	-	-	1,552	11,611
2028	-	-	-	-	-	-	1,500	154	-	-	1,654	13,265
2029	-	-	-	-	-	1,874	1,500	641	-	-	4,015	17,280
2030	-	607	-	1,224	-	639	1,500	901	-	-	4,871	22,151
2031	-	-	-	462	-	2,154	-	-	-	-	2,616	24,767
2032	-	-	-	682	-	2,160	-	-	-	-	2,842	27,609
2033	-	1,493	-	1,362	-	-	1,411	-	-	-	4,266	31,875

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South MW	Midland MW	North MW	MW	MW
2034	-	2,659	-	299	-	-	7	-	-	-	2,965	34,840
2035	-	1,577	-	1,941	-	-	402	-	-	-	3,920	38,760
2036	-	1,641	-	2,241	-	-	270	-	-	-	4,152	42,912
2037	-	1,658	-	1,562	-	-	598	-	-	-	3,819	46,731
2038	-	2,092	-	1,448	-	-	179	-	-	-	3,719	50,449
2039	-	1,899	-	2,250	-	-	56	-	-	-	4,205	54,655
2040	-	2,223	-	2,131	-	-	270	-	-	-	4,623	59,278
2041	-	-	-	-	-	2,489	-	-	-	-	2,489	61,767
2042	-	-	-	-	-	1,698	-	-	-	-	1,698	63,465
2043	-	-	-	-	-	3,620	291	-	-	-	3,911	67,376
2044	-	-	-	-	-	4,198	428	-	-	-	4,626	72,002
2045	-	-	-	57	-	2,421	1,500	-	-	-	3,978	75,980
2046	-	-	-	-	-	3,483	-	-	-	-	3,483	79,463
2047	-	-	-	-	-	12,991	-	-	-	-	12,991	92,454
Total	**-**	**15,848**	**0**	**15,659**	**0**	**37,730**	**17,412**	**5,226**	**378**	**200**	**92,454**	

F-4. List of Projects uptill 2047 (Committed + Candidate)

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2020							
1	Zorlu Solar Pakistan Pvt. Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Jan-20
2	Jabori	Hydro	10	10	PEDO	Committed	Mar-20
3	Trimmu	RLNG	1,263	1,243	PPIB	Committed	Apr-20
4	Jhing	Hydro	15	15	AJK	Committed	Jun-20
5	Karora	Hydro	12	12	PEDO	Committed	Jun-20
6	Koto	Hydro	41	41	PEDO	Committed	Jun-20
Generation Additions in 2020 (MW)			1,441	1,421			
Cumulative Addition up till 2020 (MW)			1,441	1,421			
2021							
1	Etihad Power Generation Ltd.	Bagasse	74	74	AEDB	Committed	Jul-20
2	Karachi Nuclear K-2	Nuclear	1,100	1,059	PAEC	Committed	Nov-20
3	Master Green Energy Ltd.	Wind	60	60	AEDB	Committed	Nov-20
4	Shaheen Renewable Energy-1 Pvt. Ltd.	Wind	51	51	AEDB	Committed	Nov-20
5	Lawi	Hydro	69	69	PEDO	Committed	Jan-21
6	Tricorm Wind Power Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-21
7	Western Energy Pvt. Limited	Wind	50	50	AEDB	Committed	Feb-21
8	Lucky	Local Coal	660	607	PPIB	Committed	Mar-21
9	Access Electric Pvt. Ltd.	Solar	10	10	AEDB	Committed	Mar-21
10	Access Solar Pvt. Ltd.	Solar	12	12	AEDB	Committed	Mar-21
11	Thal Nova	Local Coal	330	300	PPIB	Committed	Mar-21
12	Thar TEL	Local Coal	330	300	PPIB	Committed	Mar-21
13	Thar-I (Shanghai Electric) Unit 1	Local Coal	660	607	PPIB	Committed	Mar-21
14	Riali-II	Hydro	7	7	AJK	Committed	Jun-21
15	Hydro China Dawood Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
16	Tenga Generasi Limited	Wind	50	50	AEDB	Committed	Jun-21
17	Zephyr Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
18	Siddiqsons	Local Coal	330	304	PPIB	Committed	Jun-21
Generation Additions in 2021 (MW)			3,943	3,708			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition uptill 2021 (MW)			5,384	5,129			
2022							
1	HNDS Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
2	Helios Power Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
3	Thar-I (Shanghai Electric) Unit 2	Local Coal	660	607	PPIB	Committed	Aug-21
4	Karachi Nuclear K-3	Nuclear	1,100	1,059	PAEC	Committed	Sep-21
5	Buksh Energy Pvt. Ltd.	Solar	12	12	AEDB	Committed	Sep-21
6	Safe Solar Power Pvt. Ltd.	Solar	10	10.28	AEDB	Committed	Sep-21
7	Artistic Wind Power Pvt. Limited.	Wind	50	50	AEDB	Committed	Oct-21
8	Meridian Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Nov-21
9	Zhenfa Pakistan New Energy Company (Pvt.) Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Nov-21
10	Karot	Hydro	720	720	PPIB/AJK	Committed	Dec-21
11	Jamshoro CFPP Unit 1	Imp.Coal	660	644	GENCO	Committed	Dec-21
12	Gwadar	Imp.Coal	300	273	PPIB	Committed	Jan-22
13	Gul Ahmed Electric Ltd.	Wind	50	50	AEDB	Committed	Jan-22
14	ACT 2 wind (Pvt.) Ltd.	Wind	50	50	AEDB	Committed	Feb-22
15	Din Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
16	Indus Wind Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
17	Lakeside Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
18	Liberty Wind Power 1 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
19	Liberty Wind Power 2 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
20	Metro Wind Power Ltd.	Wind	50	50	AEDB	Committed	Feb-22
21	NASDA Green Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
22	Trans Atlantic Energy (Pvt.) Limited	Wind	48	48	AEDB	Committed	Feb-22
23	Alliance Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
24	Bahawalpur Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
25	Faran Power Limited	Bagasse	27	27	AEDB	Committed	Mar-22
26	Ghotki Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
27	Hamza Sugar Mills Ltd. (Unit-II)	Bagasse	30	30	AEDB	Committed	Mar-22
28	HSM Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
29	Hunza Power (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22
30	Indus Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
31	Ittefaq Power Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
32	Kashmir Power (Pvt.) Ltd.	Bagasse	40	40	AEDB	Committed	Mar-22
33	Mehran Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
34	RYK Energy Ltd.	Bagasse	25	25	AEDB	Committed	Mar-22
35	Sadiqabad Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
36	Shahtaj Sugar Mills Ltd.	Bagasse	32	32	AEDB	Committed	Mar-22
37	Sheikhoo Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
38	TAY Powergen Company (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
39	Two Star Energy (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22
Generation Additions in 2022 (MW)			4,841	4,703			
Cumulative Addition up till 2022 (MW)			10,225	9,832			
2023							
1	Gorkin Matiltan	Hydro	84	84	PEDO	Committed	Nov-22
2	Suki Kinari	Hydro	884	884	PPIB	Committed	Dec-22
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2023
4	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2023
5	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2023
6	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2023
7	CASA	Import	1,000	1,000	GOP	Committed	May-23
Generation Additions in 2023 (MW)			4,968	4,968			
Cumulative Addition up till 2023 (MW)			15,193	14,800			
2024							
1	Tarbela 5th-Extension	Hydro	1,410	1,410	WAPDA	Committed	Sep-23
2	Jamshoro CFPP Unit 2	Imp.Coal	660	644	GENCO	Committed	Dec-23
3	Generic_Candidate Solar	Solar	1500	1500	Yet to be Decided	Candidate	2024
4	Generic_Candidate Wind_Mid	Wind	78	78	Yet to be Decided	Candidate	2024
5	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2024
Generation Additions in 2024 (MW)			4,648	4,632			
Cumulative Addition up till 2024 (MW)			19,841	19,433			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2025							
1	Keyal Khwar	Hydro	128	128	WAPDA	Committed	Sep-24
2	Mohmand	Hydro	800	800	WAPDA	Committed	Nov-24
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2025
4	Generic_Candidate Wind_South	Wind	854	854	Yet to be Decided	Candidate	2025
5	Dasu 1	Hydro	2,160	2,160	WAPDA	Committed	Feb-25
Generation Additions in 2025 (MW)			5,442	5,442			
Cumulative Addition up till 2025 (MW)			25,283	24,874			
2026							
1	Chasma Nuclear C-5	Nuclear	1,100	1,059	PAEC	Committed	Jul-25
2	Harpo	Hydro	35	35	WAPDA	Committed	Jul-25
3	Riali-III	Hydro	3	3	AJK	Candidate	2026
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2026
5	Generic_Candidate Wind_South	Wind	625	625	Yet to be Decided	Candidate	2026
Generation Additions in 2026 (MW)			3,263	3,221			
Cumulative Addition up till 2026 (MW)			28,545	28,095			
2027							
1	Azad Pattan	Hydro	700	701	PPIB	Committed	Sep-26
2	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2027
3	Generic_Candidate Wind_South	Wind	52	52	Yet to be Decided	Candidate	2027
6	Kohala	Hydro	1,124	1,124	PPIB	Committed	Jun-27
Generation Additions in 2027 (MW)			3,376	3,376			
Cumulative Addition up till 2027 (MW)			31,921	31,472			
2028							
1	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2028
2	Generic_Candidate Wind_South	Wind	154	154	Yet to be Decided	Candidate	2028
Generation Additions in 2028 (MW)			1,654	1,654			
Cumulative Addition up till 2028 (MW)			33,575	33,125			
2029							
1	Dander	Hydro	56	56	PEDO	Candidate	2029
2	Rajdhani	Hydro	132	132	PPIB	Candidate	2029

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
3	Thakot-III	Hydro	1,686	1,686	WAPDA	Candidate	2029
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2029
5	Generic_Candidate Wind_South	Wind	641	641	Yet to be Decided	Candidate	2029
Generation Additions in 2029 (MW)			4,015	4,015			
Cumulative Addition up till 2029 (MW)			37,590	37,140			
2030							
1	Mahl	Hydro	639	639	PPIB	Candidate	2030
2	Oracle_1	Local Coal	660	607	STDC/ PPIB	Candidate	2030
3	Generic_Candidate OCGT_RLNG	RLNG	1,224	1,224	Yet to be Decided	Candidate	2030
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2030
5	Generic_Candidate Wind_South	Wind	901	901	Yet to be Decided	Candidate	2030
Generation Additions in 2030 (MW)			4,924	4,871			
Cumulative Addition up till 2030 (MW)			42,514	42,011			
2031							
1	Thakot-I	Hydro	2,154	2,154	WAPDA	Candidate	2031
2	Generic_Candidate OCGT_RLNG	RLNG	462	462	Yet to be Decided	Candidate	2031
Generation Additions in 2031 (MW)			2,616	2,616			
Cumulative Addition up till 2031 (MW)			45,130	44,627			
2032							
1	Dasu_2	Hydro	2,160	2,160	WAPDA	Candidate	2032
2	Generic_Candidate OCGT_RLNG	RLNG	682	682	Yet to be Decided	Candidate	2032
Generation Additions in 2032 (MW)			2,842	2,842			
Cumulative Addition up till 2032 (MW)			47,972	47,469			
2033							
1	Generic_Candidate Local Coal	Local Coal	886	886	Yet to be Decided	Candidate	2033
2	Oracle_2	Local Coal	660	607	STDC/ PPIB	Candidate	2033
3	Generic_Candidate OCGT_RLNG	RLNG	1,362	1,362	Yet to be Decided	Candidate	2033
4	Generic_Candidate Solar	Solar	1,411	1,411	Yet to be Decided	Candidate	2033
Generation Additions in 2033 (MW)			4,319	4,266			
Cumulative Addition up till 2033 (MW)			52,291	51,735			
2034							

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
1	Generic_Candidate Local Coal	Local Coal	2,659	2,659	Yet to be Decided	Candidate	2034
2	Generic_Candidate OCGT_RLNG	RLNG	299	299	Yet to be Decided	Candidate	2034
3	Generic_Candidate Solar	Solar	7	7	Yet to be Decided	Candidate	2034
Generation Additions in 2034 (MW)			2,965	2,965			
Cumulative Addition up till 2034 (MW)			55,256	54,700			
2035							
1	Generic_Candidate Local Coal	Local Coal	1,577	1,577	Yet to be Decided	Candidate	2035
2	Generic_Candidate OCGT_RLNG	RLNG	1,941	1,941	Yet to be Decided	Candidate	2035
3	Generic_Candidate Solar	Solar	402	402	Yet to be Decided	Candidate	2035
Generation Additions in 2035 (MW)			3,920	3,920			
Cumulative Addition up till 2035 (MW)			59,176	58,620			
2036							
1	Generic_Candidate Local Coal	Local Coal	1,641	1,641	Yet to be Decided	Candidate	2036
2	Generic_Candidate OCGT_RLNG	RLNG	2,241	2,241	Yet to be Decided	Candidate	2036
3	Generic_Candidate Solar	Solar	270	270	Yet to be Decided	Candidate	2036
Generation Additions in 2036 (MW)			4,152	4,152			
Cumulative Addition up till 2036 (MW)			63,328	62,772			
2037							
1	Generic_Candidate Local Coal	Local Coal	1,658	1,658	Yet to be Decided	Candidate	2037
2	Generic_Candidate OCGT_RLNG	RLNG	1,562	1,562	Yet to be Decided	Candidate	2037
3	Generic_Candidate Solar	Solar	598	598	Yet to be Decided	Candidate	2037
Generation Additions in 2037 (MW)			3,819	3,819			
Cumulative Addition up till 2037 (MW)			67,147	66,591			
2038							
1	Generic_Candidate Local Coal	Local Coal	2,092	2,092	Yet to be Decided	Candidate	2038
2	Generic_Candidate OCGT_RLNG	RLNG	1,448	1,448	Yet to be Decided	Candidate	2038
3	Generic_Candidate Solar	Solar	179	179	Yet to be Decided	Candidate	2038
Generation Additions in 2038 (MW)			3,719	3,719			
Cumulative Addition uptill 2038 (MW)			70,865	70,310			
2039							

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
1	Generic_Candidate Local Coal	Local Coal	1,899	1,899	Yet to be Decided	Candidate	2039
2	Generic_Candidate OCGT_RLNG	RLNG	2,250	2,250	Yet to be Decided	Candidate	2039
3	Generic_Candidate Solar	Solar	56	56	Yet to be Decided	Candidate	2039
Generation Additions in 2039 (MW)			4,205	4,205			
Cumulative Addition uptill 2039 (MW)			75,071	74,515			
2040							
1	Generic_Candidate Local Coal	Local Coal	2,223	2,223	Yet to be Decided	Candidate	2040
2	Generic_Candidate OCGT_RLNG	RLNG	2,131	2,131	Yet to be Decided	Candidate	2040
3	Generic_Candidate Solar	Solar	270	270	Yet to be Decided	Candidate	2040
Generation Additions in 2040 (MW)			4,623	4,623			
Cumulative Addition uptill 2040 (MW)			79,694	79,138			
2041							
1	Blue Star	Hydro	3	3	PEDO	Candidate	2041
2	Dowarian	Hydro	40	40	AJK	Candidate	2041
3	Nerai-Dubair	Hydro	46	46	PEDO	Candidate	2041
4	Patan	Hydro	2,400	2,400	WAPDA	Candidate	2041
Generation Additions in 2041 (MW)			2,489	2,489			
Cumulative Addition uptill 2041 (MW)			82,183	81,627			
2042							
1	Dubair Kalay	Hydro	66	66	PEDO	Candidate	2042
2	Lower Palas	Hydro	666	666	WAPDA	Candidate	2042
3	Thakot-II	Hydro	966	966	WAPDA	Candidate	2042
Generation Additions in 2042 (MW)			1,698	1,698			
Cumulative Addition uptill 2042 (MW)			83,881	83,325			
2043							
1	Bunji 1	Hydro	3,550	3,550	WAPDA	Candidate	2043
2	Torkhow	Hydro	70	70	PEDO	Candidate	2043
3	Generic_Candidate Solar	Solar	291	291	Yet to be Decided	Candidate	2043
Generation Additions in 2043 (MW)			3,911	3,911			
Cumulative Addition uptill 2043 (MW)			87,792	87,237			
2044							

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
1	Bunji 2	Hydro	3,550	3,550	WAPDA	Candidate	2044
2	Sakhra-I	Hydro	8	8	PEDO	Candidate	2044
3	SHYOK	Hydro	640	640	WAPDA	Candidate	2044
4	Generic_Candidate Solar	Solar	428	428	Yet to be Decided	Candidate	2044
Generation Additions in 2044 (MW)			4,626	4,626			
Cumulative Addition uptill 2044 (MW)			92,418	91,862			
2045							
1	Asrit Kadam	Hydro	216	216	PEDO	Candidate	2045
2	Bhan Khwar	Hydro	36	36	PEDO	Candidate	2045
3	Bhimbal Katha	Hydro	9	9	PEDO	Candidate	2045
4	Chakoti Hatian	Hydro	501	501	PPIB	Candidate	2045
5	Chapri Charkhel	Hydro	12	12	PEDO	Candidate	2045
6	Dhudnial	Hydro	960	960	WAPDA	Candidate	2045
7	Gabral Kalam	Hydro	87	87	PEDO	Candidate	2045
8	Gwaldai	Hydro	20	20	PEDO	Candidate	2045
9	Harigehl-Majeedgala	Hydro	40	40	AJK	Candidate	2045
10	Kathai-II	Hydro	8	8	AJK	Candidate	2045
11	Naran	Hydro	188	188	PEDO	Candidate	2045
12	Pashot	Hydro	60	60	PEDO	Candidate	2045
13	Phandar	Hydro	80	80	WAPDA	Candidate	2045
14	Sakhra-II	Hydro	8	8	PEDO	Candidate	2045
15	Serai	Hydro	6	6	PEDO	Candidate	2045
16	Shigo Kas	Hydro	102	102	PEDO	Candidate	2045
17	Wazirabad	Hydro	88	88	WAPDA	Candidate	2045
18	Generic_Candidate OCGT_RLNG	RLNG	57	57	Yet to be Decided	Candidate	2045
19	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2045
Generation Additions in 2045 (MW)			3,978	3,978			
Cumulative Addition uptill 2045 (MW)			96,396	95,841			
2046							
1	Arkari Gol	Hydro	99	99	PEDO	Candidate	2046
2	Bata Kundi	Hydro	96	96	PEDO	Candidate	2046

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
3	Gabral Utror	Hydro	82	82	PEDO	Candidate	2046
4	Jagran-III	Hydro	36	36	AJK	Candidate	2046
5	Kalam Asrit	Hydro	212	212	PPIB	Candidate	2046
6	Madian	Hydro	156	156	PEDO	Candidate	2046
7	Mahodand	Hydro	44	44	PEDO	Candidate	2046
8	Middle Palas	Hydro	399	399	WAPDA	Candidate	2046
9	Mujigram	Hydro	63	63	PEDO	Candidate	2046
10	Nagdar	Hydro	36	36	AJK	Candidate	2046
11	Shalfalam	Hydro	60	60	PEDO	Candidate	2046
12	Tangus	Hydro	2,200	2,200	WAPDA	Candidate	2046
Generation Additions in 2046 (MW)			3,483	3,483			
Cumulative Addition uptill 2046 (MW)			99,879	99,324			
2047							
1	Alka	Hydro	2	2	PPDB	Candidate	2047
2	Artistic-I	Hydro	63	63	PEDO	Candidate	2047
3	Artistic-II	Hydro	54	54	PEDO	Candidate	2047
4	Ashkot	Hydro	300	300	PPIB	Candidate	2047
5	Athmuqam	Hydro	452	452	PPIB	Candidate	2047
6	Balakot	Hydro	300	300	PEDO	Candidate	2047
7	Balakot-II	Hydro	100	100	PEDO	Candidate	2047
8	Balkani	Hydro	8	8	PEDO	Candidate	2047
9	Barum Gol	Hydro	40	40	PEDO	Candidate	2047
10	Basho	Hydro	39	39	WAPDA	Candidate	2047
11	BS Link Tail	Hydro	9	9	PPDB	Candidate	2047
12	Chenavan	Hydro	3	3	PPDB	Candidate	2047
13	Chicha Watni	Hydro	2	2	PPDB	Candidate	2047
14	Chiniot_HPP	Hydro	78	78	WAPDA	Candidate	2047
15	Chota Jabba	Hydro	46	46	PEDO	Candidate	2047
16	CJ	Hydro	24	24	PPDB	Candidate	2047
17	Daral Khwar-II	Hydro	10	10	PEDO	Candidate	2047
18	Dhaddar	Hydro	18	18	PEDO	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
19	Diamer Bhasha Dam	Hydro	4,500	4,500	WAPDA	Candidate	2047
20	Engro_HPP	Hydro	5	5	PPDB	Candidate	2047
21	Gahrit	Hydro	376	376	PEDO	Candidate	2047
22	Garhi Habibullah	Hydro	100	100	PEDO	Candidate	2047
23	Ghail	Hydro	2	2	AJK	Candidate	2047
24	Ghanool	Hydro	3	3	PEDO	Candidate	2047
25	Ghorband	Hydro	20	20	PEDO	Candidate	2047
26	Gomat Nar	Hydro	50	50	AJK	Candidate	2047
27	Gugera	Hydro	3	3	PPDB	Candidate	2047
28	Istaro-Booni	Hydro	72	72	PEDO	Candidate	2047
29	Jabri Bedar	Hydro	4	4	PEDO	Candidate	2047
30	Jagran-IV	Hydro	24	24	AJK	Candidate	2047
31	Jamshil	Hydro	612	612	PEDO	Candidate	2047
32	Jhing-II	Hydro	6	6	AJK	Candidate	2047
33	Kalkot Barikot	Hydro	48	48	PEDO	Candidate	2047
34	Kari Mushkur	Hydro	496	496	PEDO	Candidate	2047
35	Kasur	Hydro	2	2	PPDB	Candidate	2047
36	Kathai-III	Hydro	1	1	AJK	Candidate	2047
37	Khal	Hydro	66	66	PEDO	Candidate	2047
38	Khanewal	Hydro	2	2	PPDB	Candidate	2047
39	Khanki Barrage	Hydro	16	16	PPDB	Candidate	2047
40	Khokhra	Hydro	2	2	PPDB	Candidate	2047
41	Lower Spat Gah	Hydro	495	495	PEDO	Candidate	2047
42	Luat	Hydro	48	48	AJK	Candidate	2047
43	Lucky_HPP	Hydro	20	20	PPDB	Candidate	2047
44	Luspur Murigram	Hydro	231	231	PEDO	Candidate	2047
45	Machai-III	Hydro	2	2	PEDO	Candidate	2047
46	Mahandri	Hydro	12	12	PEDO	Candidate	2047
47	Mandi	Hydro	4	4	PPDB	Candidate	2047
48	Mastuj	Hydro	48	48	PEDO	Candidate	2047
49	Mehar	Hydro	12	12	PPDB	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
50	Mid Ranjha	Hydro	80	80	WAPDA	Candidate	2047
51	Murree	Hydro	12	12	PPDB	Candidate	2047
52	Nandihaar	Hydro	12	12	PEDO	Candidate	2047
53	Nandihaar-II	Hydro	10	10	PEDO	Candidate	2047
54	Nila Da Katha	Hydro	36	36	PEDO	Candidate	2047
55	Okara	Hydro	4	4	PPDB	Candidate	2047
56	Patrak Sheringhal	Hydro	22	22	PEDO	Candidate	2047
57	Punjnad	Hydro	18	18	PPDB	Candidate	2047
58	Qaditrabad	Hydro	24	24	PPDB	Candidate	2047
59	QB Link	Hydro	8	8	PPDB	Candidate	2047
60	Rasul	Hydro	18	18	PPDB	Candidate	2047
61	Ravi	Hydro	6	6	PPDB	Candidate	2047
62	Sahiwal	Hydro	6	6	PPDB	Candidate	2047
63	Sarral-Dhartian	Hydro	9	9	PEDO	Candidate	2047
64	Shah Jiwana	Hydro	78	78	WAPDA	Candidate	2047
65	Sharmai	Hydro	150	150	PEDO	Candidate	2047
66	Shogosin	Hydro	138	138	PEDO	Candidate	2047
67	Shounter	Hydro	48	48	AJK	Candidate	2047
68	Shushghai	Hydro	144	144	PEDO	Candidate	2047
69	Soan	Hydro	24	24	PPDB	Candidate	2047
70	Tangar	Hydro	24	24	PEDO	Candidate	2047
71	Taunsa	Hydro	135	135	PPDB	Candidate	2047
72	TP	Hydro	9	9	PPDB	Candidate	2047
73	Trappi	Hydro	33	33	PEDO	Candidate	2047
74	Trident	Hydro	8	8	PPDB	Candidate	2047
75	Trimmu_HPP	Hydro	16	16	PPDB	Candidate	2047
76	Turtonas Uzghor	Hydro	82	82	PPIB	Candidate	2047
77	UCC Bhambhwal	Hydro	4	4	PPDB	Candidate	2047
78	Upper Palas	Hydro	158	158	WAPDA	Candidate	2047
79	Wari	Hydro	45	45	PEDO	Candidate	2047
80	Yulbo	Hydro	2,800	2,800	WAPDA	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Generation Additions in 2047 (MW)			12,991	12,991			
Cumulative Addition up till 2047 (MW)			112,870	112,315			

F-5. Annual Capacity Factors (%age)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	85	85	85	83	72	25	8	13	13	12	11	11	9	26	24	22	21	20	19	19	18	10	14	18	18	20	25	6
2	Gwadar	Imp. Coal	0	0	84	84	84	83	34	33	31	28	23	24	26	35	34	33	33	32	31	31	28	18	27	30	35	35	36	26
3	Jamshoro Coal	Imp. Coal	0	0	83	83	15	9	4	6	7	7	8	9	6	12	16	15	15	15	14	14	14	7	9	12	11	10	13	1
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	85	85	85	84	84	59	23	24	22	20	18	19	17	32	31	30	30	29	25	25	24	16	20	27	31	33	35	14
6	Sahiwal Coal	Imp. Coal	85	85	84	10	5	4	2	3	4	4	5	5	4	9	10	10	11	11	10	11	10	5	7	6	8	6	7	1
7	Engro Thar	Local Coal	85	85	85	85	84	84	61	79	48	39	32	32	31	45	44	42	42	41	38	39	39	25	31	40	41	42	44	30
8	Lucky	Local Coal	0	87	85	85	84	84	37	41	39	31	26	27	28	42	39	37	35	35	34	35	33	20	30	35	36	36	37	28
9	NEW_Local_Coal	Local Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	68	69	72	75	77	78	79	79	76	78	76	73	72	69	54
10	Oracle	Local Coal	0	0	0	0	0	0	0	0	0	0	76	67	50	74	80	82	83	83	84	84	85	85	85	85	84	83	83	67
11	Siddiqsons	Local Coal	0	88	85	85	85	84	83	83	81	79	65	45	45	70	77	81	82	82	83	83	83	84	84	84	83	83	83	66
12	Thal Nova	Local Coal	0	89	85	85	85	84	83	82	80	76	46	42	44	58	56	56	57	59	57	59	57	40	51	55	53	47	46	39
13	Thar TEL	Local Coal	0	89	85	85	85	84	83	83	81	76	45	42	43	58	56	56	57	59	58	58	57	39	50	55	53	47	46	38
14	Thar-I (Shanghai Electric)	Local Coal	0	87	85	85	84	84	80	82	79	50	41	39	37	50	49	50	51	51	48	49	48	33	44	49	47	46	45	33
15	Balloki	RLNG	91	81	67	67	67	67	67	67	67	67	67	67	67	67	1	2	2	3	3	4	4	1	3	2	2	2	2	0
16	Bhikki	RLNG	88	73	67	67	67	67	67	67	67	67	67	67	67	1	0	1	1	1	1	2	3	0	1	1	1	1	1	0
17	FKPCL	RLNG	17	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	20	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	74	24	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Haveli	RLNG	92	90	67	67	67	67	67	67	67	67	67	67	67	2	3	4	4	4	4	5	5	3	4	3	3	3	3	0
21	Nandipur	RLNG	71	40	5	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	1	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	76	34	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
24	Rousch	RLNG	54	14	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	73	21	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Saphire	RLNG	75	29	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0
27	Trimmu	RLNG	94	92	13	3	1	0	0	0	0	0	2	2	1	4	5	5	5	6	6	6	7	4	5	5	4	4	3	1
28	Davis	RLNG	1	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	89	89	21	5	3	0	0	1	1	2	2	3	2	5	5	5	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	90	90	25	6	4	1	0	1	2	2	2	3	2	5	6	6	7	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	85	85	19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	62	18	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	83	83	82	42	9	2	1	2	2	3	4	4	3	6	8	8	7	8	7	7	7	4	5	5	4	2	0	0
36	Hatim	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	HCPC	Gas	86	86	18	5	3	0	0	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	87	87	17	4	3	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	76	54	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	86	86	86	85	84	84	9	7	7	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	88	88	76	7	4	1	0	1	2	2	3	4	2	5	6	6	6	6	7	6	0	0	0	0	0	0	0	0
43	C-1	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
44	C-2	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
45	C-3	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
46	C-4	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
47	C-5	Nuclear	0	0	0	0	0	0	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	74	79	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
50	K-3	Nuclear	0	0	76	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
51	Alliance	Bagasse	0	0	29	54	54	53	53	53	53	52	50	48	44	50	52	53	53	53	54	54	54	54	54	54	53	53	53	41
52	Almoiz	Bagasse	54	54	54	54	54	53	53	53	53	52	51	49	47	51	52	53	53	54	54	54	54	54	54	54	53	53	53	42
53	Bahawalpur	Bagasse	0	0	29	54	54	53	53	53	53	51	50	48	44	49	52	53	53	54	54	54	54	54	54	54	53	53	53	42
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	54	54	54	54	54	53	53	53	53	52	51	49	47	51	52	53	53	54	54	54	54	54	54	54	53	53	53	42
56	Chiniot	Bagasse	36	36	36	36	36	35	34	35	35	33	33	31	30	33	34	35	35	36	36	36	36	36	36	36	35	35	35	25

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	0	54	54	54	54	53	53	53	53	52	50	48	44	49	52	53	53	54	54	54	54	54	54	54	53	53	53	42
58	Faran	Bagasse	0	0	29	54	54	53	53	53	52	51	50	48	44	50	52	53	53	54	54	54	54	54	54	54	53	53	53	41
59	Ghotki	Bagasse	0	0	29	54	54	53	53	53	53	52	50	48	44	49	52	53	53	53	54	54	54	54	54	54	53	53	53	42
60	Hamza	Bagasse	47	47	47	47	47	46	46	46	45	44	44	42	41	44	45	46	46	47	47	47	47	47	47	47	46	46	46	37
61	Hamza-II	Bagasse	0	0	29	54	54	53	53	53	53	51	51	48	44	49	52	53	53	54	54	54	54	54	54	54	53	53	53	42
62	HSM	Bagasse	0	0	29	54	54	53	53	53	53	52	51	48	44	49	52	53	53	54	54	54	54	54	54	54	53	53	53	42
63	Hunza	Bagasse	0	0	29	54	54	53	53	53	53	52	50	47	44	49	52	53	53	54	54	54	54	54	54	54	53	53	53	42
64	Indus	Bagasse	0	0	29	54	54	53	53	53	53	51	50	48	44	50	52	53	53	53	54	54	54	54	54	54	53	53	53	41
65	Ittefaq	Bagasse	0	0	29	54	54	53	53	53	53	52	50	48	44	50	52	53	53	54	54	54	54	54	54	54	53	53	53	42
66	JDW-II	Bagasse	84	84	84	84	84	83	82	82	82	81	80	78	75	80	81	82	82	83	83	83	84	83	83	83	83	83	82	68
67	JDW-III	Bagasse	78	78	78	78	78	77	77	77	77	75	74	73	71	75	76	77	77	78	78	78	78	78	78	78	77	77	77	64
68	Kashmir	Bagasse	0	0	29	54	54	53	53	53	53	52	51	48	44	49	52	53	53	53	54	54	54	54	54	54	53	53	53	41
69	Mehran	Bagasse	0	0	29	54	54	53	53	53	53	52	51	48	44	49	52	53	53	54	54	54	54	54	54	54	53	53	53	42
70	RYK_Energy	Bagasse	0	0	29	54	54	53	53	53	53	52	50	47	43	49	52	53	53	53	54	54	54	54	54	54	53	53	53	41
71	Ryk_Mills	Bagasse	54	54	54	54	54	53	53	53	53	52	51	49	47	50	52	53	53	54	54	54	54	54	54	54	53	53	53	42
72	Sadiqabad	Bagasse	0	0	29	54	54	53	53	53	53	52	51	48	44	50	52	53	53	54	54	54	54	54	54	54	53	53	53	42
73	Shahtaj	Bagasse	0	0	29	54	54	53	53	53	53	52	50	48	44	49	52	53	53	54	54	54	54	54	54	54	53	53	53	41
74	Sheikhoo	Bagasse	0	0	29	54	54	53	53	53	53	52	51	48	44	50	52	53	53	54	54	54	54	54	54	54	53	53	53	42
75	TAY	Bagasse	0	0	29	54	54	53	53	53	52	52	50	48	44	49	52	53	53	53	54	54	54	54	54	54	53	53	53	42

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	30	30	30	30	30	29	29	29	29	28	28	27	27	28	28	29	29	30	30	30	30	30	30	30	29	29	29	26
77	Two_Star	Bagasse	0	0	29	54	54	53	53	53	53	52	50	48	44	49	52	53	53	54	54	54	54	54	54	54	53	53	53	41
78	Access_Electric	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
79	Access_Solar	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
81	Best	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
82	Buksh	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
84	Crest	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
85	Helios	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
86	HNDS	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
87	Meridian	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
88	QA_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
89	Safe	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
90	Zhenfa	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
91	Zorlu	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68
93	Allai Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	30

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	48
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	48	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	57
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	38	38
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	60
109	Blue Star	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	66	66	65	66	66	66
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	41	41	41	32
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62	62

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	39	41	39	45	44	45	45	45	46	46	46	46	46	46	47	47	48	48	49
121	Daral Khwar	Hydro	47	47	47	47	47	47	46	41	42	41	41	41	44	45	44	45	44	44	45	45	45	45	45	46	45	46	46	46
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
123	Dasu_1	Hydro	0	0	0	0	0	56	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	62	61	64	64	64	64	64	64	64	64	64	64	64	64	64	64
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45	45	45	45	45	45
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	63	63	64	64	64	64
130	Dubair Khwar	Hydro	51	51	51	51	51	51	51	50	50	49	50	48	50	50	50	49	50	50	50	50	50	50	51	50	50	51	51	49
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	41	41

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	57
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
138	Ghazi Brotha	Hydro	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	52	51	52
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68
140	Golen Gol	Hydro	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
142	Gorkin Matiltan	Hydro	0	0	0	32	45	45	45	41	41	41	41	41	42	42	42	42	41	42	42	42	43	43	43	43	43	43	43	43
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
144	Gulpur	Hydro	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45	45
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	61	61	60
147	Harpo	Hydro	0	0	0	0	0	0	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
149	Jabori	Hydro	91	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
151	Jagran-I	Hydro	31	31	31	31	31	31	31	30	30	29	29	29	30	31	30	30	30	31	31	31	31	31	31	31	31	31	31	31

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	43
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
155	Jhing	Hydro	95	52	52	52	52	52	52	48	48	48	48	48	49	50	50	50	50	50	51	50	50	51	51	51	51	51	51	51
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
157	Jinnah	Hydro	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	45
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
161	Karora	Hydro	61	62	62	62	62	62	62	59	59	59	59	59	60	60	60	60	60	60	60	60	60	60	61	61	61	61	61	61
162	Karot	Hydro	0	0	41	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	25	32	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	32
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
168	Khan Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
172	Kohala	Hydro	0	0	0	0	0	0	0	0	61	61	61	61	62	62	62	62	62	62	62	62	62	62	63	63	63	63	63	63
173	Koto	Hydro	0	54	58	58	57	57	58	53	54	54	55	54	56	56	55	55	56	56	57	56	56	57	57	57	57	57	57	57
174	Lawi	Hydro	0	43	49	49	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43	43	43	43
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
180	Machai	Hydro	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	48
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	58	58	61	61	62	62	62	62	62	62	62	63	63	63	63	63	63	63
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	47
186	Malakand-III	Hydro	52	52	52	52	52	52	52	51	51	51	51	51	50	51	51	52	51	52	52	52	52	52	52	52	52	52	52	51
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
188	Mangla	Hydro	57	57	57	57	57	57	57	56	56	56	56	56	56	57	57	56	57	57	57	57	57	57	57	57	57	57	57	57
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	35	40	39	40	40	39	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	51
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	40
201	Neelum Jehlum	Hydro	58	58	58	58	58	58	58	56	56	56	56	55	56	57	56	57	57	57	57	57	57	57	58	58	58	58	58	57
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	59	59	61	61	62	62
203	New Bong	Hydro	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	49	49
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59	59	59	58
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
210	Pehur	Hydro	23	24	24	24	23	24	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	45
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	58	58	57	57	57	57	58	58	58	58	58	58	58	58	58	58	58	58	58
216	Ranolia	Hydro	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
219	Riali-II	Hydro	0	87	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
220	Riali-III	Hydro	0	0	0	0	0	0	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49	48
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	40
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	52

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	49
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	66	66	66
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
237	Suki Kinari	Hydro	0	0	0	35	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	44
240	Tarbela_1-10	Hydro	48	48	48	48	48	48	48	47	47	47	47	47	48	47	47	47	47	48	48	48	48	48	48	48	48	48	48	48
241	Tarbela_11-14	Hydro	48	48	48	48	48	48	48	48	47	47	47	48	47	47	47	47	48	48	48	48	48	48	48	48	48	48	48	47
242	Tarbela_Ext_4	Hydro	31	31	31	31	31	31	31	31	31	31	31	31	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31
243	Tarbela_Ext_5	Hydro	0	0	0	0	19	32	32	32	31	32	32	31	30	31	31	32	32	32	32	32	32	32	32	32	32	32	32	32
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	52	52	53	53	53	53	54	53	54	53	54	54	54	54	54	54	54
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55	55	55	55

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	47	47	47	45	47	49	49	49	49	49	49	49	49	49	49	49	49	49	48
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	50	50	48
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
258	Warsak	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45	44
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
261	CASA	Cross Border	0	0	0	95	39	39	39	23	23	23	22	23	26	27	23	24	25	25	26	27	26	26	28	29	28	28	30	35
262	Act	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
263	Act_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
264	Artistic_wind	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
265	Artistic_Wind_2	Wind	0	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	0	0	0	33	33	33	31	33	33	31	33	33	33	33	32	33	33	33	33	33	33	33	33	33	33	33	33	33
267	Candidate_Wind_North	Wind	0	0	0	33	33	33	31	32	32	32	32	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
268	Candidate_Wind_South	Wind	0	0	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
269	Dawood	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
270	Din	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
271	FFC	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
272	FWEL-I	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
273	FWEL-II	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
274	Gul Ahmed	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
275	Gul_Electric	Wind	0	0	38	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
276	Hawa	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
277	Indus_Energy	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
278	Jhimpir	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
279	Lakeside	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
280	Liberty_Wind_1	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
281	Liberty_Wind_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
282	Master	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
283	Master_Green	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
284	Metro_Power	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
286	NASDA	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
287	Sachal	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
288	Sapphire_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
289	Shaheen	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
290	Tenga	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
291	Three_Gorges_I	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
292	Three_Gorges_II	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
293	Three_Gorges_III	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
294	Trans_Atlantic	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
295	Tricon_A	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
296	Tricon_B	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
297	Tricon_C	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
298	Tricorm	Wind	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
299	UEP	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
300	Western	Wind	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
301	Yunus	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
302	Zephyr	Wind	0	56	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
303	Zorlu_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	28	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	30	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	13	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	88	88	8	1	0	0	0	1	1	1	2	3	2	4	5	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	11	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	9	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	44	17	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	14	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

F-6. Annual Energy Generation 2020-30 (GWh)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
1	China HUBCO	Imp. Coal	9,330	9,308	9,308	9,140	7,928	2,718	927	1,415	1,390	1,298	1,209
2	Gwadar	Imp. Coal	0	0	1,000	2,001	2,006	1,992	815	783	737	660	551
3	Jamshoro Coal	Imp. Coal	0	0	2,733	4,665	1,369	1,036	426	721	794	833	889
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	9,270	9,248	9,248	9,103	9,122	6,443	2,518	2,593	2,421	2,199	1,964
6	Sahiwal Coal	Imp. Coal	9,285	9,263	9,150	1,108	597	418	191	381	410	448	536
7	Engro Thar	Local Coal	4,493	4,482	4,482	4,482	4,425	4,412	3,208	4,185	2,555	2,037	1,683
8	Lucky	Local Coal	0	1,546	4,531	4,531	4,472	4,461	1,950	2,180	2,056	1,649	1,385
9	NEW_Local_Coal	Local Coal	0	0	0	0	0	0	0	0	0	0	0
10	Oracle	Local Coal	0	0	0	0	0	0	0	0	0	0	4,043
11	Siddiqsons	Local Coal	0	193	2,266	2,266	2,272	2,231	2,222	2,210	2,166	2,116	1,744
12	Thal Nova	Local Coal	0	583	2,234	2,234	2,239	2,199	2,175	2,163	2,120	2,002	1,215
13	Thar TEL	Local Coal	0	583	2,234	2,234	2,239	2,199	2,178	2,169	2,122	2,008	1,192
14	Thar-I (Shanghai Electric)	Local Coal	0	1,545	8,643	9,055	8,946	8,914	8,554	8,684	8,396	5,326	4,307
15	Balloki	RLNG	9,458	8,361	6,910	6,907	6,905	6,904	6,904	6,888	6,885	6,886	6,885
16	Bhikki	RLNG	8,810	7,301	6,696	6,694	6,691	6,688	6,687	6,682	6,674	6,674	6,677
17	FKPCL	RLNG	229	75	12	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	208	66	13	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
19	Halmore	RLNG	1,287	406	61	0	0	0	0	0	0	0	0
20	Haveli	RLNG	9,599	9,327	6,967	6,964	6,964	6,964	6,964	6,940	6,940	6,943	6,943
21	Nandipur	RLNG	2,790	1,563	214	19	0	0	0	0	0	0	7
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	1,354	608	90	1	0	0	0	0	0	0	0
24	Rousch	RLNG	1,887	477	72	0	0	0	0	0	0	0	0
25	Saif	RLNG	1,298	366	62	0	0	0	0	0	0	0	0
26	Saphire	RLNG	1,337	505	71	0	0	0	0	0	0	0	0
27	Trimmu	RLNG	2,543	9,982	1,403	326	151	32	0	0	1	47	172
28	Davis	RLNG	1	0	0	0	0	0	0	1	0	0	0
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	0
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	1,655	1,651	397	96	63	8	0	16	26	31	37
32	Foundation	Gas	1,320	1,317	359	93	60	14	0	17	24	25	33
33	Guddu-I	Gas	1,950	1,945	428	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	1,474	414	61	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	5,234	5,221	5,204	2,640	558	105	42	114	122	168	236
36	Hatim	Gas	0	0	0	0	0	0	0	0	0	0	0
37	HCPC	Gas	975	973	200	53	35	3	0	9	13	15	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
38	Kotri	Gas	808	806	156	36	24	3	0	0	11	0	0
39	Liberty	Gas	1,412	1,007	127	13	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	4,149	4,139	4,139	4,103	4,074	4,044	446	334	343	289	0
42	Uch-II	Gas	2,737	2,731	2,349	226	133	37	0	45	52	51	98
43	C-1	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,082	2,077	2,077
44	C-2	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,082	2,077	2,077
45	C-3	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,183	2,180	2,179	2,179	2,180
46	C-4	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,183	2,181	2,186	2,181	2,179
47	C-5	Nuclear	0	0	0	0	0	0	7,284	7,244	7,267	7,250	7,244
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	4,548	7,292	7,292	7,307	7,288	7,284	7,244	7,262	7,245	7,247
50	K-3	Nuclear	0	0	5,823	7,292	7,307	7,288	7,285	7,244	7,267	7,246	7,244
51	Alliance	Bagasse	0	0	19	143	144	140	139	139	139	136	132
52	Almoiz	Bagasse	172	172	172	172	172	168	167	167	168	164	161
53	Bahawalpur	Bagasse	0	0	20	149	149	146	145	145	144	140	137
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	105	105	105	105	105	103	102	102	102	100	98
56	Chiniot	Bagasse	197	196	196	196	197	190	188	189	189	183	180

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
57	Etihad	Bagasse	0	355	355	355	356	348	346	345	344	336	326
58	Faran	Bagasse	0	0	17	126	127	124	123	123	122	119	115
59	Ghotki	Bagasse	0	0	29	215	215	210	209	209	208	203	198
60	Hamza	Bagasse	62	62	62	62	62	60	60	60	60	58	57
61	Hamza-II	Bagasse	0	0	19	143	144	140	139	139	139	135	133
62	HSM	Bagasse	0	0	17	126	127	124	123	123	122	120	118
63	Hunza	Bagasse	0	0	32	238	238	233	231	231	230	225	220
64	Indus	Bagasse	0	0	20	148	148	145	144	144	143	139	137
65	Ittefaq	Bagasse	0	0	20	149	149	146	145	145	144	141	138
66	JDW-II	Bagasse	194	193	193	193	194	191	190	190	190	186	184
67	JDW-III	Bagasse	180	180	180	180	180	178	178	177	177	174	172
68	Kashmir	Bagasse	0	0	26	191	191	187	186	186	185	181	177
69	Mehran	Bagasse	0	0	17	126	127	124	123	123	122	120	118
70	RYK_Energy	Bagasse	0	0	16	119	120	117	116	116	116	113	110
71	Ryk_Mills	Bagasse	144	143	143	143	144	140	139	139	140	136	134
72	Sadiqabad	Bagasse	0	0	29	215	215	210	209	209	208	203	200
73	Shahtaj	Bagasse	0	0	21	153	153	149	149	149	148	144	141
74	Sheikhoo	Bagasse	0	0	19	143	144	140	139	139	138	136	133
75	TAY	Bagasse	0	0	19	143	144	140	139	139	138	136	132

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
76	Thal_Layyah	Bagasse	109	109	109	109	109	106	105	106	106	100	99
77	Two_Star	Bagasse	0	0	32	238	238	233	231	231	230	225	218
78	Access_Electric	Solar	0	5	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	0	5	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	0	0	14	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	2,482	4,965	7,447	9,929	12,412	14,894	17,353	19,807
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	0	0	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	0	0	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	0	0	48	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	0	0	13	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	0	0	97	165	165	165	165	165	165	165	165
91	Zorlu	Solar	84	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0
93	Allai Khwar	Hydro	396	395	395	395	396	395	395	395	396	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	2,181	3,256	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
109	Blue Star	Hydro	0	0	0	0	0	0	0	0	0	0	0
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
114	Chashma	Hydro	767	765	765	765	767	765	765	765	767	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	193	199
121	Daral Khwar	Hydro	147	147	147	147	147	147	144	129	132	131	130
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
123	Dasu_1	Hydro	0	0	0	0	0	4,321	11,975	11,975	11,990	11,975	11,975
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	0	0
130	Dubair Khwar	Hydro	581	581	581	581	581	580	580	566	568	564	564
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0
138	Ghazi Brotha	Hydro	6,563	6,551	6,551	6,551	6,563	6,551	6,542	6,479	6,526	6,472	6,496
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0
140	Golen Gol	Hydro	97	97	97	97	97	97	97	96	96	95	95
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0
142	Gorkin Matiltan	Hydro	0	0	0	155	331	330	330	302	301	304	301
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0
144	Gulpur	Hydro	481	480	480	480	481	480	480	480	481	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0
147	Harpo	Hydro	0	0	0	0	0	0	170	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0
149	Jabori	Hydro	27	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0
151	Jagran-I	Hydro	82	82	82	82	82	82	82	78	78	76	77

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0
155	Jhing	Hydro	10	68	68	68	68	68	68	64	63	63	63
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
157	Jinnah	Hydro	195	194	194	194	195	194	194	193	194	193	190
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0
161	Karora	Hydro	5	65	65	65	65	65	65	62	62	62	62
162	Karot	Hydro	0	0	1,496	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	232	353	344	345	346	345
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0
168	Khan Khwar	Hydro	235	234	234	234	235	234	234	234	235	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0
172	Kohala	Hydro	0	0	0	0	0	0	0	0	6,001	6,012	5,976
173	Koto	Hydro	0	182	212	212	212	211	212	195	200	199	201
174	Lawi	Hydro	0	130	295	295	295	295	294	291	291	291	290
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	3,257
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0
186	Malakand-III	Hydro	367	367	367	367	367	367	367	362	364	359	362
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0
188	Mangla	Hydro	5,016	5,004	5,004	5,004	5,016	5,004	5,003	4,910	4,921	4,887	4,865
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	1,633	2,831	2,764	2,779	2,789	2,764
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0
201	Neelum Jehlum	Hydro	4,944	4,939	4,939	4,939	4,944	4,937	4,931	4,748	4,754	4,754	4,714
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	0	0
203	New Bong	Hydro	471	470	470	470	471	470	470	470	471	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
209	Patrind	Hydro	635	634	634	634	635	634	634	632	633	632	632
210	Pehur	Hydro	37	37	37	37	37	37	37	36	36	36	36
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	668	669
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0
219	Riali-II	Hydro	0	5	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	0	0	0	0	0	0	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	387	386	386	386	387	386	386	380	379	378	377
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0
237	Suki Kinari	Hydro	0	0	0	1,332	2,800	2,797	2,795	2,765	2,765	2,759	2,760
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0
240	Tarbela_1-10	Hydro	7,386	7,377	7,377	7,377	7,386	7,377	7,367	7,205	7,270	7,215	7,147
241	Tarbela_11-14	Hydro	7,294	7,285	7,285	7,285	7,294	7,285	7,232	7,197	7,117	7,141	7,091
242	Tarbela_Ext_4	Hydro	3,815	3,811	3,811	3,811	3,815	3,811	3,792	3,808	3,815	3,811	3,811
243	Tarbela_Ext_5	Hydro	0	0	0	0	1,975	4,003	3,973	3,943	3,897	3,905	3,901
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	6,990	6,931
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0
258	Warsak	Hydro	999	997	997	997	999	997	997	997	999	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0
261	CASA	Cross Border	0	0	0	1,387	3,457	3,444	3,397	2,057	2,028	2,003	1,969
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	0	0	58	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	0	0	102	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
266	Candidate_Wind_Mid	Wind	0	0	0	872	1,101	1,094	1,013	1,100	1,101	1,042	1,095
267	Candidate_Wind_North	Wind	0	0	0	581	582	581	536	555	570	555	561
268	Candidate_Wind_South	Wind	0	0	0	3,440	6,889	9,816	11,793	12,136	12,688	14,875	17,885
269	Dawood	Wind	0	14	144	144	144	144	144	144	144	144	144
270	Din	Wind	0	0	58	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	151	150	150	150	151	150	150	150	151	150	150
273	FWEL-II	Wind	151	150	150	150	151	150	150	150	151	150	150
274	Gul Ahmed	Wind	146	145	145	145	146	145	145	145	146	145	145
275	Gul_Electric	Wind	0	0	83	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	0	0	58	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	0	0	58	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	0	0	58	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	0	0	58	172	172	172	172	172	172	172	172
282	Master	Wind	154	153	153	153	154	153	153	153	154	153	153
283	Master_Green	Wind	0	102	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	146	145	145	145	146	145	145	145	146	145	145

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
285	Metro_Wind	Wind	0	0	70	206	207	206	206	206	207	206	206
286	NASDA	Wind	0	0	58	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	154	153	153	153	154	153	153	153	154	153	153
289	Shaheen	Wind	0	104	175	175	176	175	175	175	176	175	175
290	Tenga	Wind	0	14	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	157	156	156	156	157	156	156	156	157	156	156
293	Three_Gorges_III	Wind	157	156	156	156	157	156	156	156	157	156	156
294	Trans_Atlantic	Wind	0	0	56	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	0	71	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	0	58	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	146	145	145	145	146	145	145	145	146	145	145
302	Zephyr	Wind	0	20	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
304	KAPCO 1	RFO	851	287	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	1,957	507	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	274	90	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	28	8	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	90	11	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	4	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	33	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	84	15	8	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	9	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	15	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	18	4	1	0	0	0	0	0	0	0	0
321	AGL	RFO	1,203	1,200	104	8	1	4	0	10	15	19	25
322	ATLAS	RFO	211	47	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
323	HuB N	RFO	163	31	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	479	184	14	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	241	74	5	0	0	0	0	0	0	0	0
326	Nishat C	RFO	118	17	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	86	6	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			155,517	158,996	164,969	168,679	172,940	176,858	181,808	187,022	194,992	202,521	211,000
Energy Demand			155,517	158,996	164,969	168,679	172,940	176,858	181,808	187,022	194,992	202,521	211,000
Energy Not Served			0.00	0.00	0.01	-0.07	0.00	0.00	0.02	-0.03	0.00	-0.03	0.03

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

F-7. Annual Energy Generation 2030-47 (GWh)

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	1,257	1,003	2,794	2,642	2,455	2,305	2,187	2,075	2,061	2,026	1,078	1,569	1,930	1,930	2,159	2,771	653
2	Gwadar	Imp. Coal	567	628	832	816	799	799	774	744	737	679	442	654	719	841	846	871	629
3	Jamshoro Coal	Imp. Coal	977	635	1,348	1,803	1,712	1,690	1,699	1,570	1,592	1,537	836	1,014	1,338	1,215	1,170	1,412	151
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	2,120	1,800	3,474	3,348	3,274	3,250	3,123	2,751	2,734	2,582	1,693	2,156	2,905	3,343	3,632	3,767	1,475
6	Sahiwal Coal	Imp. Coal	589	463	936	1,136	1,126	1,162	1,164	1,120	1,154	1,118	590	735	607	837	671	761	124
7	Engro Thar	Local Coal	1,675	1,640	2,362	2,308	2,226	2,216	2,147	1,989	2,049	2,061	1,342	1,655	2,093	2,166	2,241	2,314	1,557
8	Lucky	Local Coal	1,446	1,507	2,256	2,079	1,958	1,885	1,881	1,811	1,852	1,759	1,076	1,579	1,867	1,923	1,923	1,991	1,514
9	NEW_Local_Coal	Local Coal	0	0	5,270	21,370	32,430	44,483	56,512	71,461	85,832	102,186	97,762	99,950	97,854	93,801	92,372	88,476	69,055
10	Oracle	Local Coal	3,573	2,678	7,914	8,537	8,722	8,870	8,860	8,986	8,986	9,031	8,989	8,990	8,991	8,912	8,878	8,860	7,108
11	Siddiqsons	Local Coal	1,193	1,201	1,873	2,053	2,147	2,194	2,188	2,219	2,223	2,230	2,233	2,249	2,249	2,229	2,215	2,216	1,763
12	Thal Nova	Local Coal	1,105	1,163	1,523	1,476	1,478	1,510	1,539	1,503	1,552	1,507	1,052	1,333	1,455	1,404	1,228	1,210	1,016
13	Thar TEL	Local Coal	1,103	1,142	1,529	1,480	1,482	1,505	1,544	1,514	1,534	1,500	1,025	1,326	1,443	1,401	1,230	1,210	1,005
14	Thar-I (Shanghai Electric)	Local Coal	4,155	3,952	5,367	5,231	5,310	5,400	5,402	5,132	5,238	5,075	3,477	4,690	5,213	4,997	4,843	4,794	3,550
15	Balloki	RLNG	6,893	6,900	6,898	154	173	242	321	338	400	415	92	259	241	157	206	172	0
16	Bhikki	RLNG	6,681	6,684	92	18	57	93	142	145	238	322	32	64	122	102	133	133	0
17	FKPCL	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	0	0	0	0	0	0	5	5	5	5	0	0	0	0	0	0	0
20	Haveli	RLNG	6,951	6,959	240	321	392	412	456	459	486	546	315	404	361	303	319	278	3
21	Nandipur	RLNG	43	0	2	0	0	11	15	14	36	54	4	11	1	12	34	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	5	0	0	0	0	1	6	6	6	22	0	0	0	0	0	0	0
24	Rousch	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	0	0	0	0	0	0	3	6	6	6	0	0	0	0	0	0	0
26	Saphire	RLNG	0	0	0	0	0	0	6	6	6	18	0	0	0	0	0	0	0
27	Trimmu	RLNG	193	100	449	513	528	587	627	619	682	749	433	498	495	391	424	379	89
28	Davis	RLNG	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	4	17	35	0	19	0	0	26	60	0
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	61	32	86	101	71	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	49	26	70	90	91	83	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	256	191	358	499	474	454	478	434	465	469	265	319	304	234	40	0	0
36	Hatim	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	HCPC	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	126	62	154	188	193	195	198	202	143	0	0	0	0	0	0	0	0
43	C-1	Nuclear	2,077	2,082	2,077	2,077	2,078	2,082	2,077	2,077	2,077	2,082	2,077	2,077	2,077	2,082	2,078	2,078	2,078
44	C-2	Nuclear	2,077	2,082	2,078	2,077	2,078	2,082	2,077	2,077	2,077	2,082	2,077	2,077	2,077	2,082	2,078	2,078	2,078
45	C-3	Nuclear	2,175	2,179	2,175	2,175	2,176	2,180	2,182	2,182	2,182	2,187	2,182	2,182	2,182	2,187	2,182	2,182	2,175
46	C-4	Nuclear	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,182
47	C-5	Nuclear	7,248	7,278	7,257	7,252	7,259	7,269	7,251	7,249	7,251	7,270	7,252	7,251	7,252	7,271	7,257	7,259	7,261
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	7,245	7,277	7,256	7,259	7,259	7,268	7,250	7,250	7,250	7,270	7,253	7,253	7,253	7,271	7,257	7,258	7,260
50	K-3	Nuclear	7,242	7,276	7,255	7,257	7,257	7,271	7,251	7,252	7,250	7,270	7,253	7,252	7,253	7,272	7,260	7,260	7,265
51	Alliance	Bagasse	126	115	130	137	139	140	140	142	142	144	142	142	142	141	140	139	109
52	Almoiz	Bagasse	154	149	160	164	167	168	171	171	171	172	171	171	171	169	168	168	131
53	Bahawalpur	Bagasse	131	122	134	142	145	145	146	148	148	149	148	148	148	146	146	145	114
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	94	91	97	100	102	102	104	104	104	105	104	104	104	103	103	102	80
56	Chiniot	Bagasse	172	164	178	185	189	189	195	195	195	197	195	195	195	191	190	190	139

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	311	290	321	339	344	347	349	353	353	356	353	353	353	349	348	345	271
58	Faran	Bagasse	111	103	116	120	122	123	124	126	126	127	126	126	126	124	124	123	96
59	Ghotki	Bagasse	189	175	194	204	208	210	210	214	214	215	214	214	214	211	210	209	164
60	Hamza	Bagasse	55	54	57	59	60	60	61	61	61	62	61	61	61	61	60	60	49
61	Hamza-II	Bagasse	126	116	128	137	139	140	141	142	142	144	142	142	142	141	140	139	109
62	HSM	Bagasse	111	102	113	121	122	123	124	126	126	127	126	126	126	124	124	123	97
63	Hunza	Bagasse	207	193	214	227	231	232	234	236	236	238	236	236	236	233	233	231	182
64	Indus	Bagasse	130	121	134	141	144	144	145	147	147	148	147	147	147	145	145	144	112
65	Ittefaq	Bagasse	131	121	135	142	144	145	147	148	148	149	148	148	148	146	146	145	114
66	JDW-II	Bagasse	179	174	184	187	190	190	192	192	192	194	192	192	192	191	191	190	157
67	JDW-III	Bagasse	168	163	172	176	177	178	179	179	179	180	179	179	179	179	178	177	148
68	Kashmir	Bagasse	167	153	172	182	186	186	187	190	190	191	190	190	190	187	187	186	145
69	Mehran	Bagasse	111	101	114	121	123	123	124	126	126	127	126	126	126	124	124	123	97
70	RYK_Energy	Bagasse	104	95	108	114	115	116	117	119	119	120	119	119	119	117	117	116	91
71	Ryk_Mills	Bagasse	128	124	132	137	139	140	142	142	142	144	142	142	142	141	140	139	109
72	Sadiqabad	Bagasse	190	176	195	205	209	210	211	214	214	215	214	214	214	211	210	209	164
73	Shahtaj	Bagasse	134	124	137	145	148	149	150	152	152	153	152	152	152	150	149	149	116
74	Sheikhoo	Bagasse	126	116	130	136	139	140	141	142	142	144	142	142	142	141	140	139	109
75	TAY	Bagasse	126	116	129	136	139	140	140	142	142	144	142	142	142	141	140	139	109

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	98	97	99	102	106	106	108	108	108	109	108	108	108	106	106	106	93
77	Two_Star	Bagasse	209	195	214	226	230	232	234	236	236	238	236	236	236	233	233	231	180
78	Access_Electric	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	19,774	19,840	22,026	22,206	22,871	23,317	24,307	24,604	24,697	25,143	25,143	25,143	25,625	26,333	28,816	28,816	28,816
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
91	Zorlu	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
93	Allai Khwar	Hydro	395	396	395	395	395	396	395	395	395	396	395	395	395	396	395	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	258	261

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	289
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,213
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	917	917	918
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,951
100	Azad Pattan	Hydro	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	972
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	502
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	142
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	351	351
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119	119	119
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	48
109	Blue Star	Hydro	0	0	0	0	0	0	0	0	0	0	17	17	17	17	17	17	17
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	12,920	25,747	25,644	25,395	20,191
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,420	2,420	2,420
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	65	65

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	765	767	765	765	765	767	765	765	765	767	765	765	765	767	765	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	172
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	71
120	Dander	Hydro	191	220	217	221	223	220	225	224	227	226	228	225	231	234	234	235	242
121	Daral Khwar	Hydro	130	140	141	139	141	139	140	141	141	142	141	142	144	144	145	145	146
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
123	Dasu_1	Hydro	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975
124	Dasu_2	Hydro	0	11,720	11,524	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	71
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,738	4,736	4,731
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17,419
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	158	158	158	159	159	159	158
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	0	0	366	367	373	368	368	371
130	Dubair Khwar	Hydro	548	569	569	565	559	567	571	570	574	575	575	576	573	576	576	576	560
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	308	311	311

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	310	306
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,628
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	503
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
138	Ghazi Brotha	Hydro	6,492	6,519	6,513	6,506	6,508	6,504	6,509	6,519	6,522	6,538	6,536	6,511	6,524	6,529	6,543	6,531	6,550
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119
140	Golen Gol	Hydro	95	97	96	96	96	96	97	97	97	97	97	97	97	97	97	97	97
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	208
142	Gorkin Matiltan	Hydro	301	309	308	310	310	306	308	312	309	314	315	314	315	317	318	319	319
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
144	Gulpur	Hydro	480	481	480	480	480	481	480	480	480	481	480	480	480	481	480	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78	79	79
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	213	213	210
147	Harpo	Hydro	169	169	169	169	169	169	169	169	169	169	169	169	169	170	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260
149	Jabori	Hydro	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
151	Jagran-I	Hydro	77	79	81	79	80	80	81	80	80	81	81	81	81	81	81	81	81

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	138	137
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,557
155	Jhing	Hydro	64	65	66	65	66	66	66	66	66	66	66	67	67	67	67	67	67
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
157	Jinnah	Hydro	192	194	194	194	194	194	194	194	194	194	194	194	194	195	194	194	194
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	850	844
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	159
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,931
161	Karora	Hydro	62	64	63	63	63	63	63	63	64	64	64	64	64	64	64	64	64
162	Karot	Hydro	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39	39	39
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	346	350	349	349	347	349	349	350	349	350	351	351	352	352	351	353	353
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	255
168	Khan Khwar	Hydro	234	235	234	234	234	235	234	234	234	235	234	234	234	235	234	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
172	Kohala	Hydro	5,997	6,134	6,101	6,086	6,110	6,119	6,099	6,095	6,110	6,128	6,118	6,152	6,154	6,179	6,182	6,201	6,177
173	Koto	Hydro	199	205	205	203	203	207	206	208	206	208	209	209	209	210	210	210	208
174	Lawi	Hydro	290	292	290	290	291	291	291	290	291	291	292	292	292	291	292	292	292
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	2,511	2,512	2,515	2,515	2,515	2,498
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	312
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	197
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	77
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	775
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	664	650
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
184	Mahl	Hydro	3,228	3,410	3,400	3,477	3,488	3,491	3,482	3,486	3,483	3,491	3,512	3,504	3,512	3,526	3,521	3,533	3,531
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	182	182
186	Malakand-III	Hydro	361	359	364	363	366	366	367	367	366	367	367	367	367	367	367	367	362
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
188	Mangla	Hydro	4,867	4,949	4,980	4,971	4,945	4,989	4,997	4,993	4,997	5,007	4,998	5,004	5,004	5,016	5,004	5,004	5,004
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	222

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,710	1,699
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	2,783	2,786	2,789	2,796	2,788	2,819	2,818	2,809	2,803	2,817	2,826	2,814	2,822	2,830	2,821	2,835	2,802
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285	283
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	133	132
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	71
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	675	674	665
201	Neelum Jehlum	Hydro	4,696	4,735	4,794	4,735	4,796	4,816	4,858	4,840	4,858	4,867	4,874	4,888	4,884	4,900	4,904	4,903	4,852
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	0	234	236	240	246	245	248	250
203	New Bong	Hydro	470	471	470	470	470	471	470	470	470	471	470	470	470	471	470	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	135
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	254	258	258
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	12,333	12,334	12,336	12,360	12,336	12,339	12,208
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	632	634	634	633	634	634	633	634	634	634	634	634	634	635	634	634	634
210	Pehur	Hydro	36	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	319	320	316
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
215	Rajdhani	Hydro	659	666	663	662	670	671	670	670	670	671	670	670	670	671	670	670	670
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
219	Riali-II	Hydro	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41	41
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34	34
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	22	21
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	304
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	282	274

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	649
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	451	451	442
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	525
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	201
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	464
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	3,728	3,719	3,723	3,685
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	377	380	381	379	381	381	380	381	380	382	381	382	382	383	383	383	383
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70
237	Suki Kinari	Hydro	2,767	2,773	2,771	2,767	2,772	2,773	2,774	2,775	2,775	2,776	2,773	2,777	2,774	2,777	2,780	2,778	2,761
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	93
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8,811	8,537
240	Tarbela_1-10	Hydro	7,158	7,308	7,244	7,164	7,228	7,296	7,297	7,359	7,315	7,350	7,322	7,326	7,325	7,383	7,374	7,354	7,353
241	Tarbela_11-14	Hydro	7,200	7,062	7,174	7,083	7,124	7,213	7,205	7,198	7,229	7,247	7,264	7,262	7,219	7,263	7,246	7,244	7,081
242	Tarbela_Ext_4	Hydro	3,811	3,720	3,718	3,811	3,811	3,783	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811
243	Tarbela_Ext_5	Hydro	3,826	3,775	3,858	3,884	3,897	3,925	3,960	3,980	3,981	3,985	3,982	3,986	3,984	3,981	3,986	3,986	3,940
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	429
245	Thakot-I	Hydro	9,875	9,859	10,032	10,077	10,088	10,102	10,098	10,095	10,097	10,119	10,105	10,119	10,118	10,138	10,125	10,140	10,105
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	4,665	4,667	4,677	4,668	4,672	4,628

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	6,876	6,659	6,972	7,203	7,220	7,221	7,222	7,221	7,222	7,236	7,226	7,227	7,227	7,240	7,227	7,227	7,024
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	306	306	306	306	295
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	346
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	507
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	206
258	Warsak	Hydro	997	999	997	997	997	999	997	997	997	999	997	997	997	999	997	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	349	349	339
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11,224
261	CASA	Cross Border	2,026	2,288	2,401	2,020	2,095	2,199	2,210	2,248	2,336	2,302	2,279	2,447	2,511	2,447	2,486	2,623	3,058
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	1,100	1,101	1,100	1,050	1,100	1,101	1,100	1,100	1,100	1,101	1,100	1,100	1,100	1,101	1,100	1,100	1,100
267	Candidate_Wind_North	Wind	581	582	574	581	571	582	581	581	581	582	581	581	581	582	581	581	581
268	Candidate_Wind_South	Wind	17,916	17,999	17,943	17,974	17,974	17,999	17,974	17,974	17,974	17,999	17,974	17,974	17,974	17,999	17,974	17,974	17,974
269	Dawood	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
270	Din	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
273	FWEL-II	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
274	Gul Ahmed	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
275	Gul_Electric	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
282	Master	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
283	Master_Green	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	206	207	206	206	206	207	206	206	206	207	206	206	206	207	206	206	206
286	NASDA	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
289	Shaheen	Wind	175	176	175	175	175	176	175	175	175	176	175	175	175	176	175	175	175
290	Tenga	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
293	Three_Gorges_III	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
294	Trans_Atlantic	Wind	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
302	Zephyr	Wind	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	39	21	59	49	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
323	HuB N	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
324	Kohinoor	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			219,955	229,947	239,973	251,102	263,075	276,322	289,232	303,495	318,619	335,312	334,620	349,103	363,586	377,221	388,825	399,800	409,965
Energy Demand			219,955	229,947	239,973	251,102	263,075	276,322	289,232	303,495	318,619	335,312	334,620	349,103	363,585	377,221	388,825	399,800	409,965
Energy Not Served			-0.03	0.00	-0.02	-0.04	0.01	0.00	-0.01	0.00	0.01	0.00	0.00	-0.01	-0.02	0.00	-0.04	0.02	-0.04

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

F-8. Year wise Cost Breakup-Discounted Prices

FY	Present Worth Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,606,627	6,563,349	6,563,349
2021	0	913,213	4,589,416	5,502,630	12,065,979
2022	0	909,992	3,255,572	4,165,564	16,231,543
2023	215,029	890,290	2,449,873	3,555,191	19,786,734
2024	342,831	847,836	2,020,655	3,211,321	22,998,054
2025	422,073	796,814	1,640,502	2,859,389	25,857,443
2026	463,678	766,629	1,261,555	2,491,863	28,349,306
2027	454,443	700,411	1,189,672	2,344,526	30,693,832
2028	447,120	645,082	1,058,095	2,150,298	32,844,130
2029	555,162	595,231	925,843	2,076,236	34,920,366
2030	648,899	541,681	833,283	2,023,863	36,944,229
2031	685,871	468,080	734,469	1,888,421	38,832,650
2032	691,412	424,593	642,159	1,758,164	40,590,814
2033	705,790	390,505	431,341	1,527,636	42,118,450
2034	722,990	365,424	330,312	1,418,726	43,537,176
2035	717,800	341,294	326,796	1,385,889	44,923,065
2036	709,660	318,049	331,150	1,358,858	46,281,923
2037	693,338	294,975	333,399	1,321,712	47,603,635
2038	678,853	276,265	328,330	1,283,448	48,887,083
2039	661,079	258,661	331,419	1,251,159	50,138,243
2040	645,927	242,839	325,121	1,213,887	51,352,130
2041	631,413	233,064	249,423	1,113,900	52,466,030
2042	597,205	210,959	241,647	1,049,811	53,515,840
2043	598,058	193,303	221,346	1,012,708	54,528,548
2044	607,240	178,780	194,241	980,261	55,508,809
2045	594,960	164,751	173,935	933,646	56,442,455
2046	581,313	150,097	155,100	886,510	57,328,965
2047	713,065	158,859	97,245	969,169	58,298,135

F-9. Year wise Cost Breakup-Un-Discounted Prices (k$)

FY	Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,606,627	6,563,349	6,563,349
2021	0	1,014,681	5,099,352	6,114,033	12,677,382
2022	0	1,123,447	4,019,225	5,142,671	17,820,054
2023	294,964	1,221,248	3,360,594	4,876,805	22,696,859
2024	522,528	1,292,235	3,079,797	4,894,560	27,591,419
2025	714,784	1,349,411	2,778,205	4,842,400	32,433,819
2026	872,492	1,442,549	2,373,839	4,688,879	37,122,698
2027	950,127	1,464,386	2,487,309	4,901,822	42,024,520
2028	1,038,686	1,498,563	2,458,016	4,995,265	47,019,785
2029	1,432,970	1,536,396	2,389,762	5,359,128	52,378,913
2030	1,861,024	1,553,525	2,389,834	5,804,383	58,183,296
2031	2,185,620	1,491,602	2,340,486	6,017,708	64,201,004
2032	2,448,086	1,503,358	2,273,698	6,225,143	70,426,147
2033	2,776,663	1,536,292	1,696,947	6,009,902	76,436,049
2034	3,160,366	1,597,355	1,443,873	6,201,593	82,637,642
2035	3,486,307	1,657,642	1,587,225	6,731,174	89,368,816
2036	3,829,748	1,716,380	1,787,080	7,333,208	96,702,024
2037	4,157,404	1,768,735	1,999,130	7,925,269	104,627,293
2038	4,522,832	1,840,607	2,187,489	8,550,928	113,178,221
2039	4,893,797	1,914,800	2,453,407	9,262,004	122,440,225
2040	5,312,918	1,997,419	2,674,205	9,984,542	132,424,767
2041	5,770,599	2,130,013	2,279,521	10,180,133	142,604,899
2042	6,064,407	2,142,209	2,453,840	10,660,456	153,265,355
2043	6,747,854	2,181,032	2,497,437	11,426,322	164,691,677
2044	7,612,725	2,241,295	2,435,122	12,289,142	176,980,819
2045	8,287,527	2,294,907	2,422,839	13,005,273	189,986,092
2046	8,997,150	2,323,093	2,400,526	13,720,769	203,706,861
2047	12,262,563	2,731,903	1,672,323	16,666,789	220,373,650

F-10. Year wise Nominal Capacity Addition (MW)

FY	Capacity Addition Over the Plan Period (2020-47) - MW										
	Local Coal	Hydro	RLNG	Nuclear	Imported Coal	RE	Natural Gas	Furnace Oil	Cross Border	Yearly Addition	Total (MW)
2020	602	9,945	6,677	1,230	3,736	1,846	3,010	6,488	0	33,534	-
2021	2,118	119	0	1,059	0	446	0	0	0	3,742	37,276
2022	607	720	0	1,059	917	1,410	0	-1,336	0	3,377	40,653
2023	0	968	0	0	0	3,000	-260	0	1,000	4,708	45,361
2024	0	1,410	0	0	644	2,578	-270	0	0	4,362	49,723
2025	0	3,088	0	0	0	2,354	0	0	0	5,442	55,164
2026	0	37	0	1,059	0	2,125	0	0	0	3,221	58,385
2027	0	700	0	0	0	1,552	-212	-1,200	0	840	59,225
2028	0	1,122	0	0	0	1,654	0	-824	0	1,952	61,176
2029	0	1,874	-117	0	0	2,141	-106	0	0	3,792	64,968
2030	607	639	678	0	0	2,401	-678	-653	0	2,994	67,962
2031	0	2,154	462	0	0	0	0	-310	0	2,306	70,268
2032	0	2,160	682	0	0	0	-29	-367	0	2,446	72,714
2033	1,493	0	1,362	0	0	1,411	0	-627	0	3,639	76,353
2034	2,659	0	299	0	0	7	0	-156	0	2,809	79,162
2035	1,577	0	1,941	0	0	402	-212	-409	0	3,299	82,461
2036	1,641	0	2,241	0	0	270	-167	-606	0	3,379	85,840
2037	1,658	0	1,562	0	0	598	0	0	0	3,819	89,659
2038	2,092	0	1,448	0	0	179	0	0	0	3,719	93,378
2039	1,899	0	2,250	0	0	56	-355	0	0	3,850	97,228
2040	2,223	0	1,725	0	0	270	0	0	0	4,217	101,445
2041	0	2,489	-202	0	0	0	0	0	0	2,287	103,732
2042	0	1,698	-197	0	0	0	0	0	0	1,501	105,233
2043	0	3,620	0	0	0	291	0	0	0	3,911	109,145
2044	0	4,198	-10	0	0	428	0	0	0	4,615	113,760
2045	0	2,421	57	0	0	1,500	-721	0	0	3,257	117,017
2046	0	3,483	-450	0	0	0	0	0	0	3,033	120,050
2047	0	12,991	0	0	0	0	0	0	0	12,991	133,041
Total	19,175	55,836	20,408	4,407	5,297	26,917	0	0	1,000	133,041	

F-11. IGCEP Generation Mix 2020-2047 (GWh)

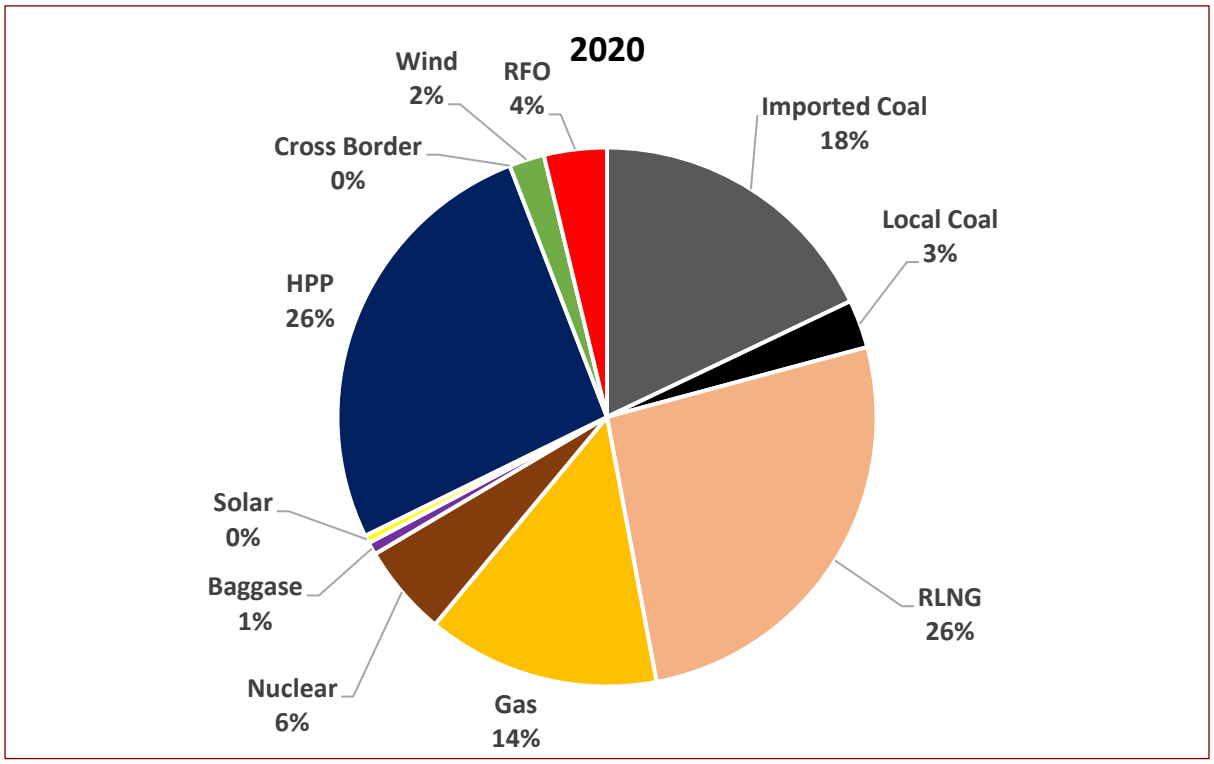


Chart F-1: IGCEP Generation Mix 2020 (GWh)

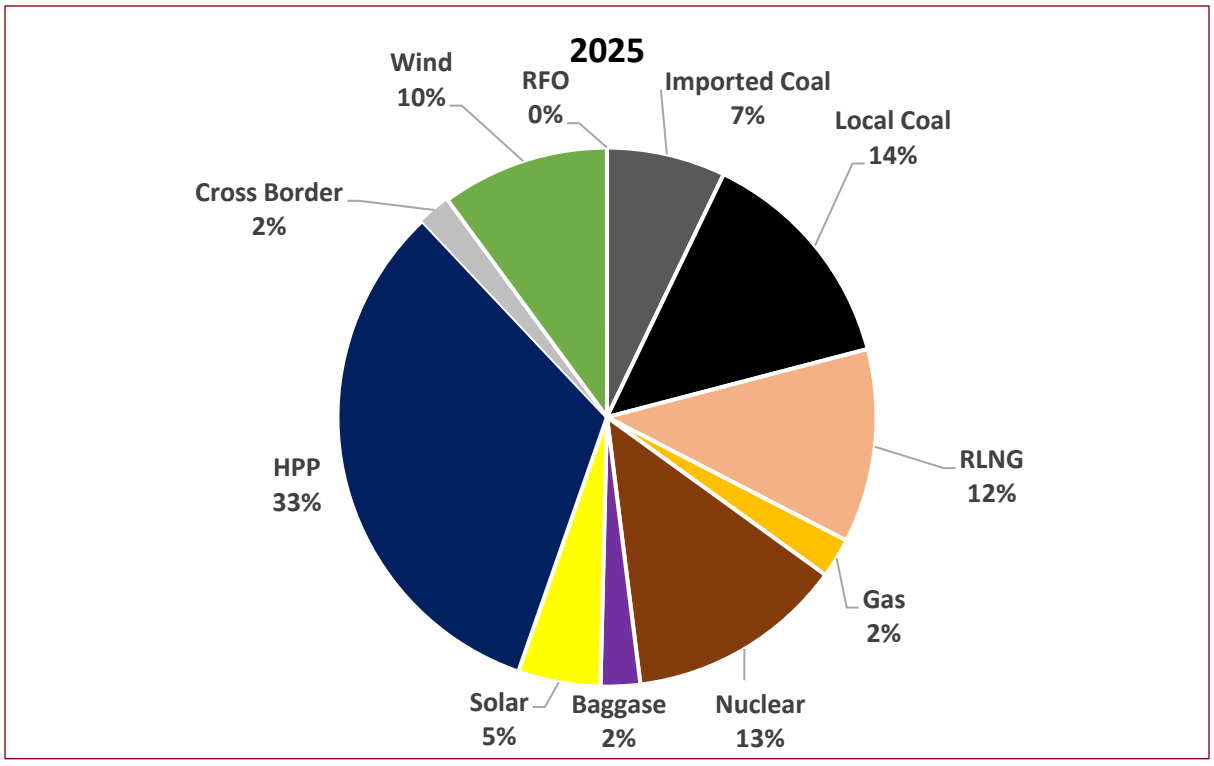


Chart F-2: IGCEP Generation Mix 2025 (GWh)

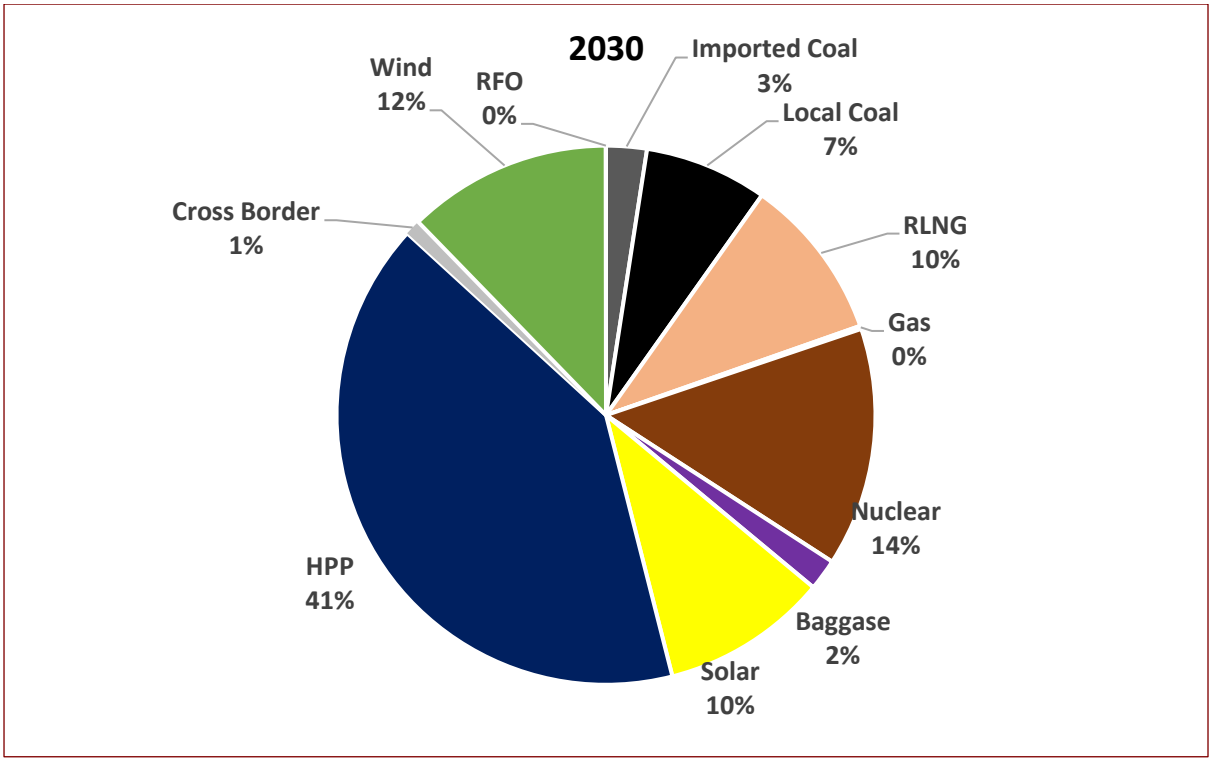


Chart F-3: IGCEP Generation Mix 2030 (GWh)

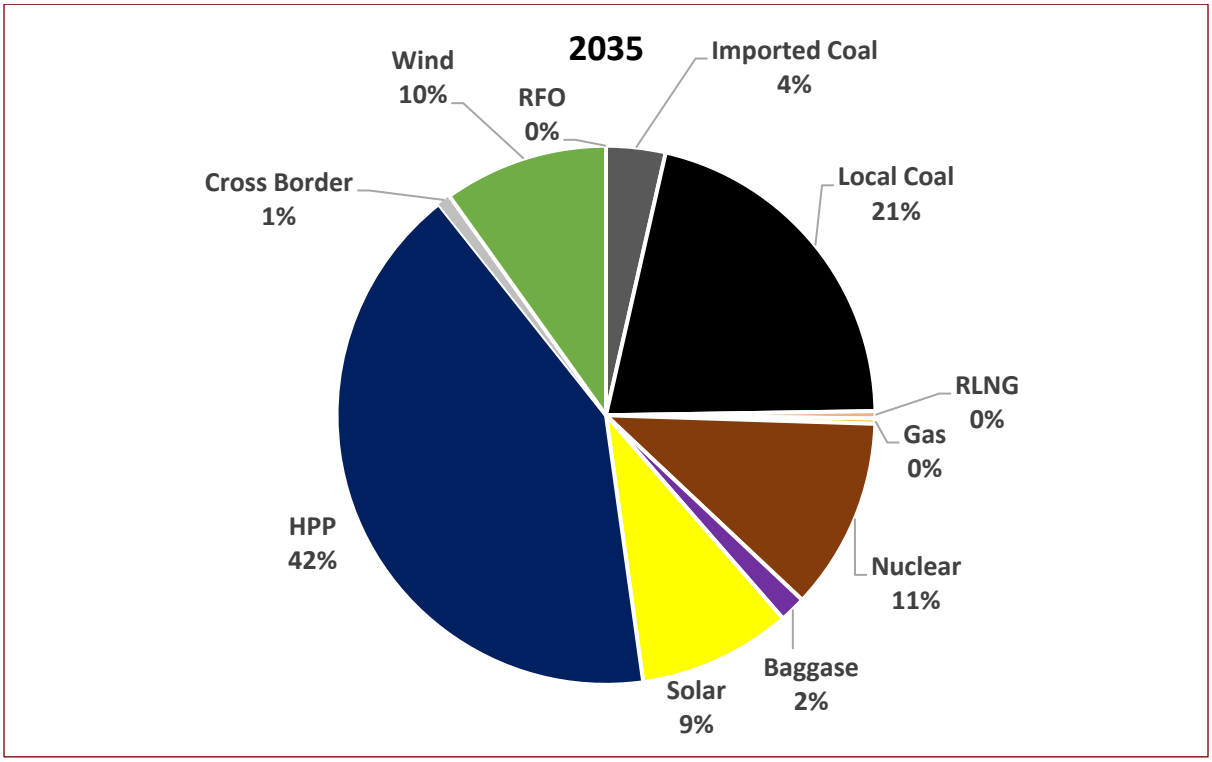


Chart F-4: IGCEP Generation Mix 2035 (GWh)

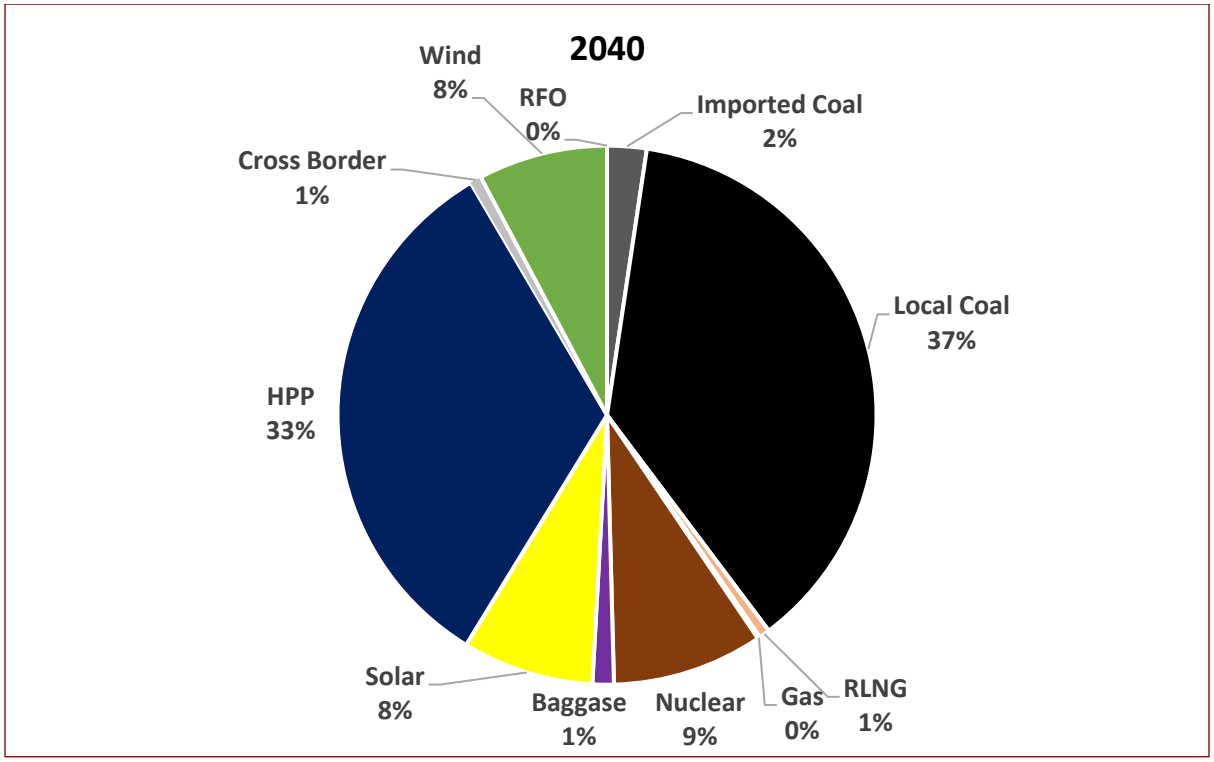


Chart F-5: IGCEP Generation Mix 2040 (GWh)

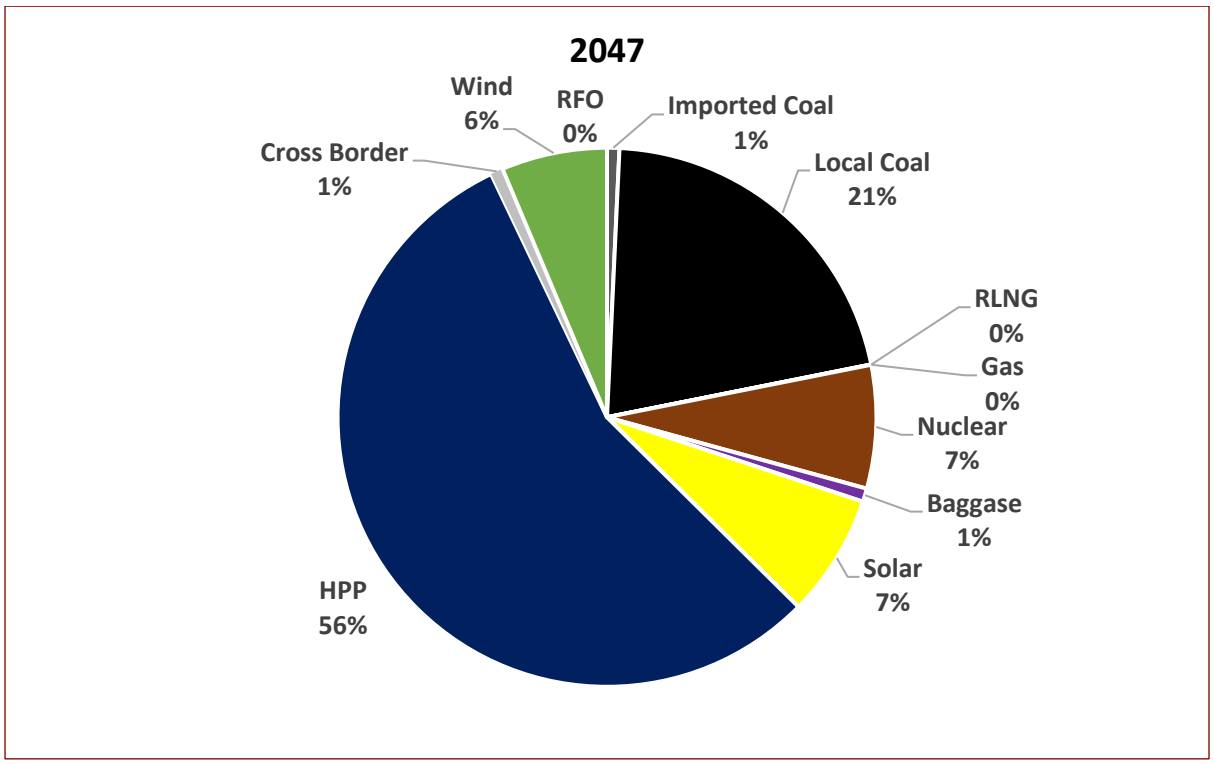


Chart F-6: IGCEP Generation Mix 2047 (GWh)

F-12. IGCEP Generation Mix 2020-47 (MW)

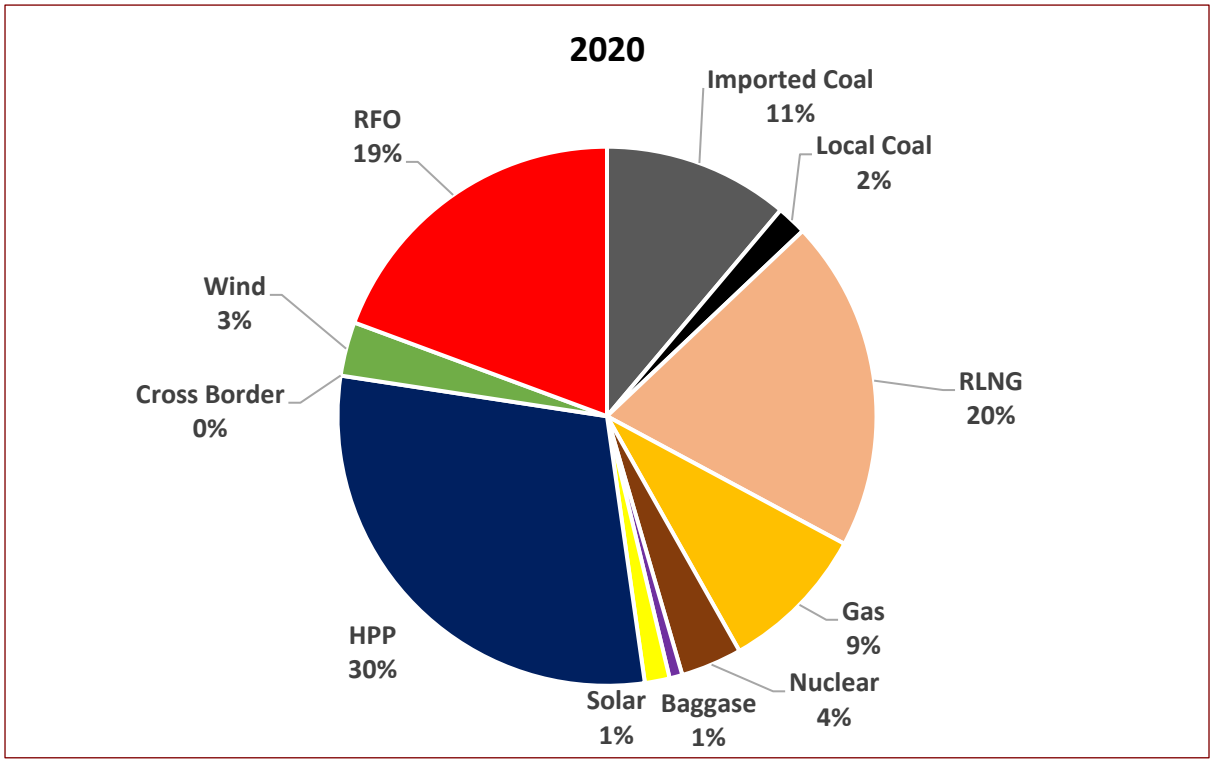


Chart F-7: IGCEP Generation Mix 2020 (MW)

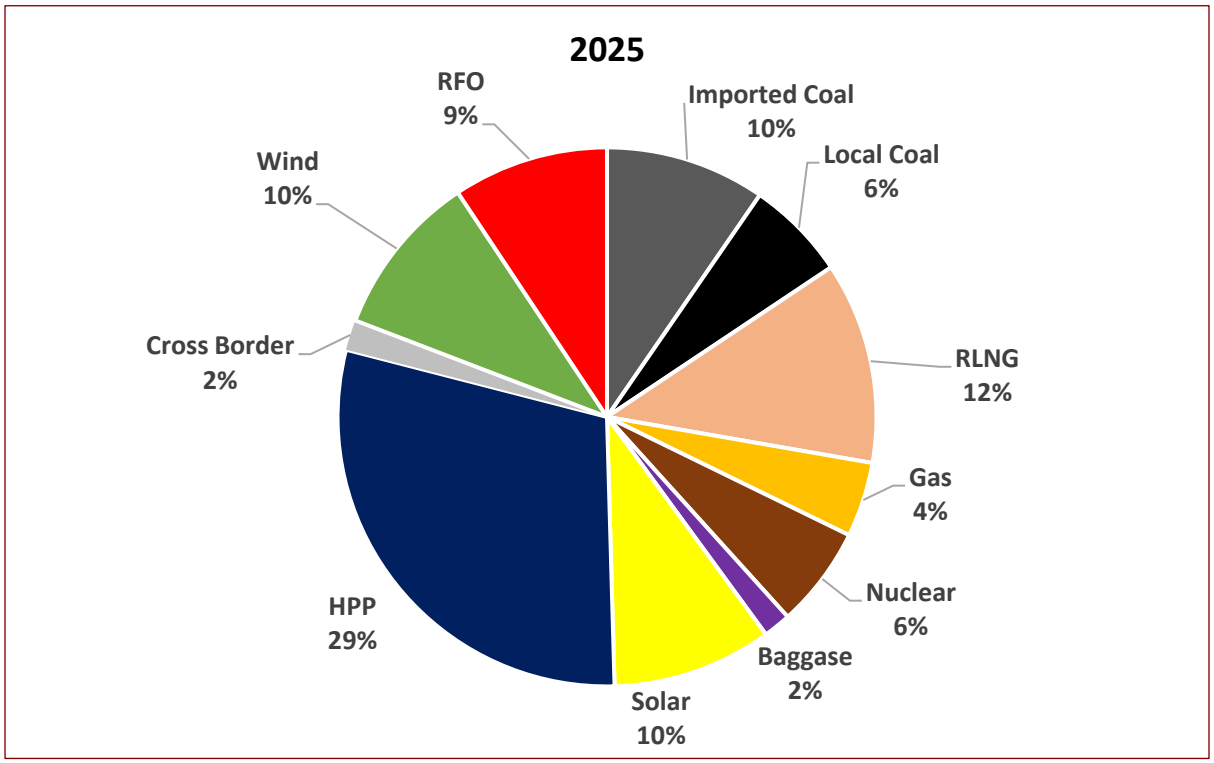


Chart F-8: IGCEP Generation Mix 2025 (MW)

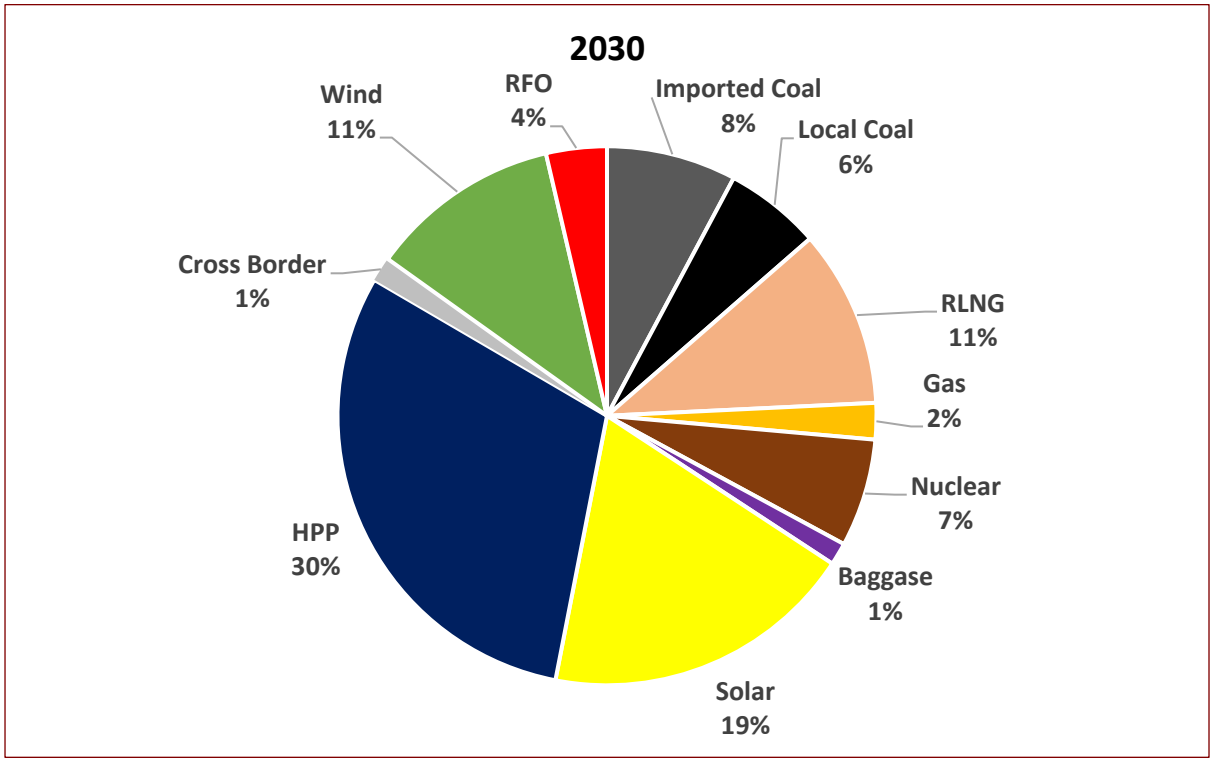


Chart F-9: IGCEP Generation Mix 2030 (MW)

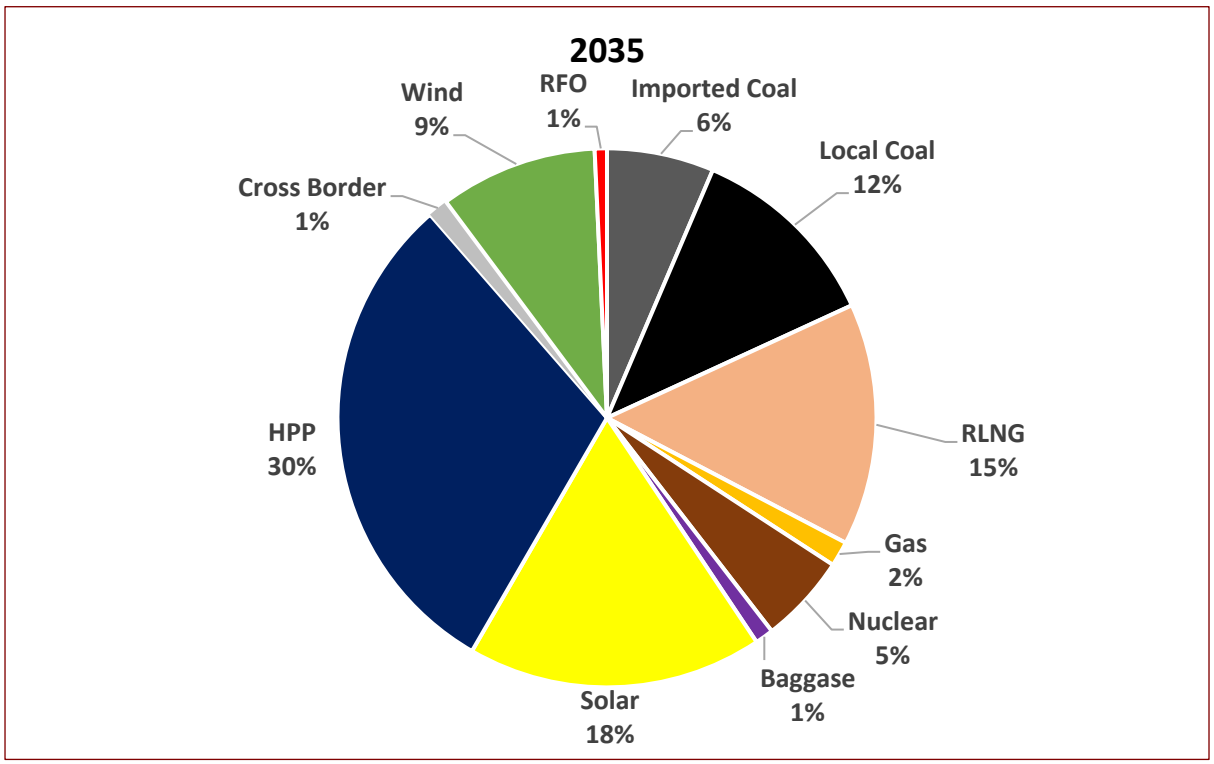


Chart F-10: IGCEP Generation Mix 2035 (MW)

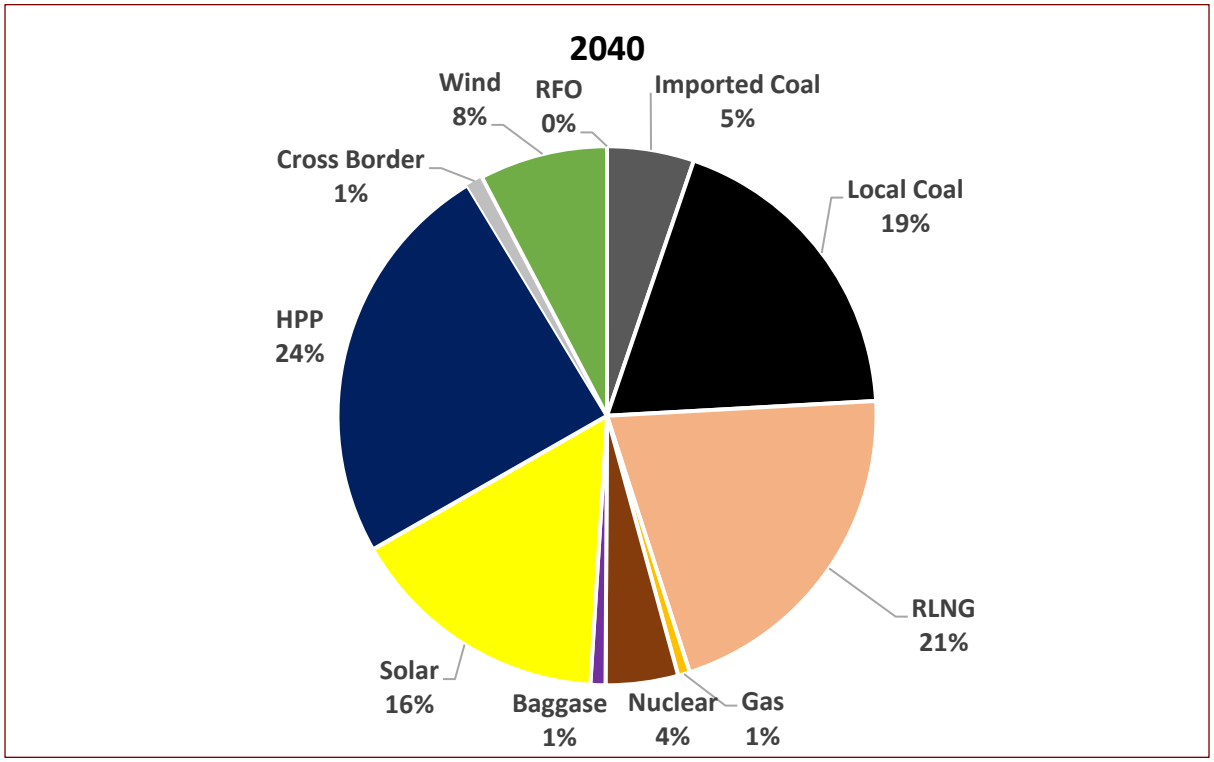


Chart F-11: IGCEP Generation Mix 2040 (MW)

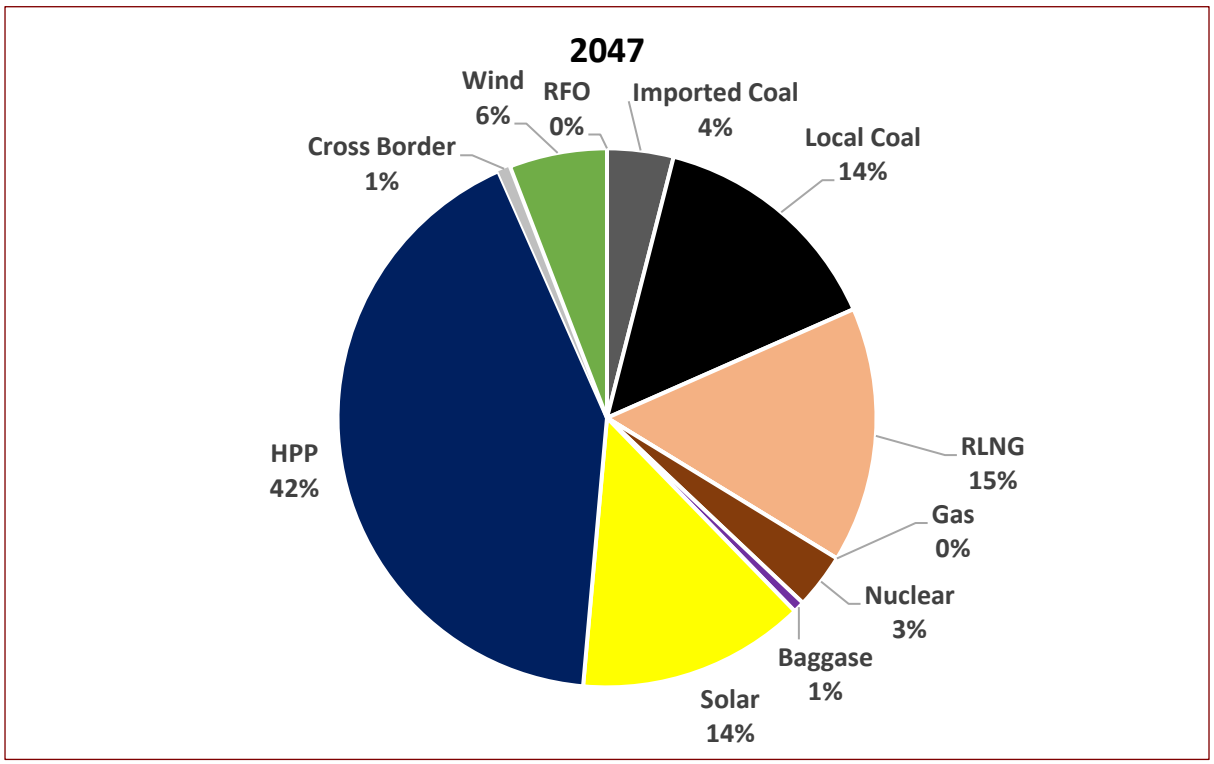


Chart F-12: IGCEP Generation Mix 2047 (MW)

F-13. IGCEP Monthly Generation Mix 2019-47 (GWh)

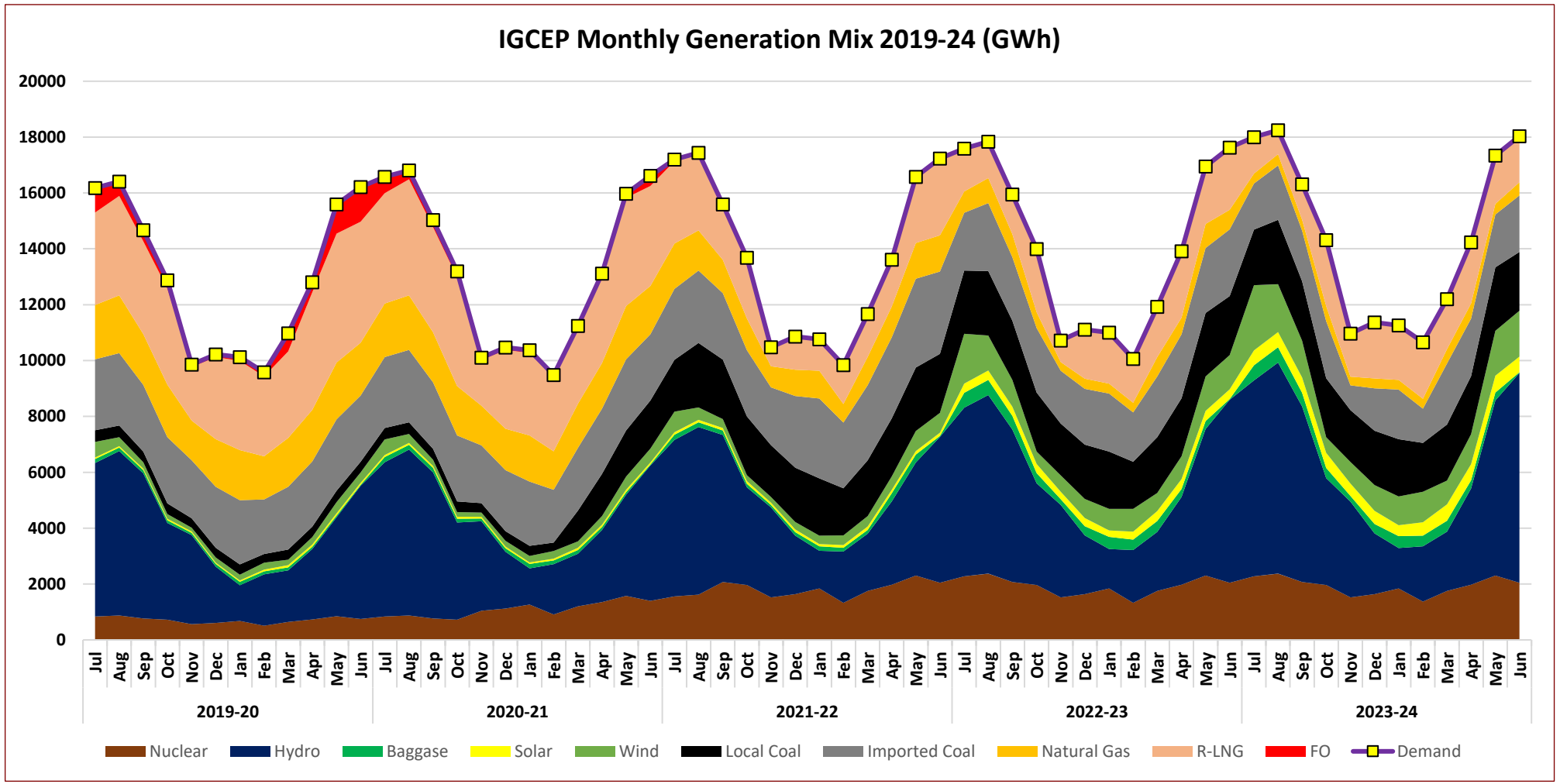


Chart F-13: IGCEP Monthly Generation Mix 2019-24 (GWh)

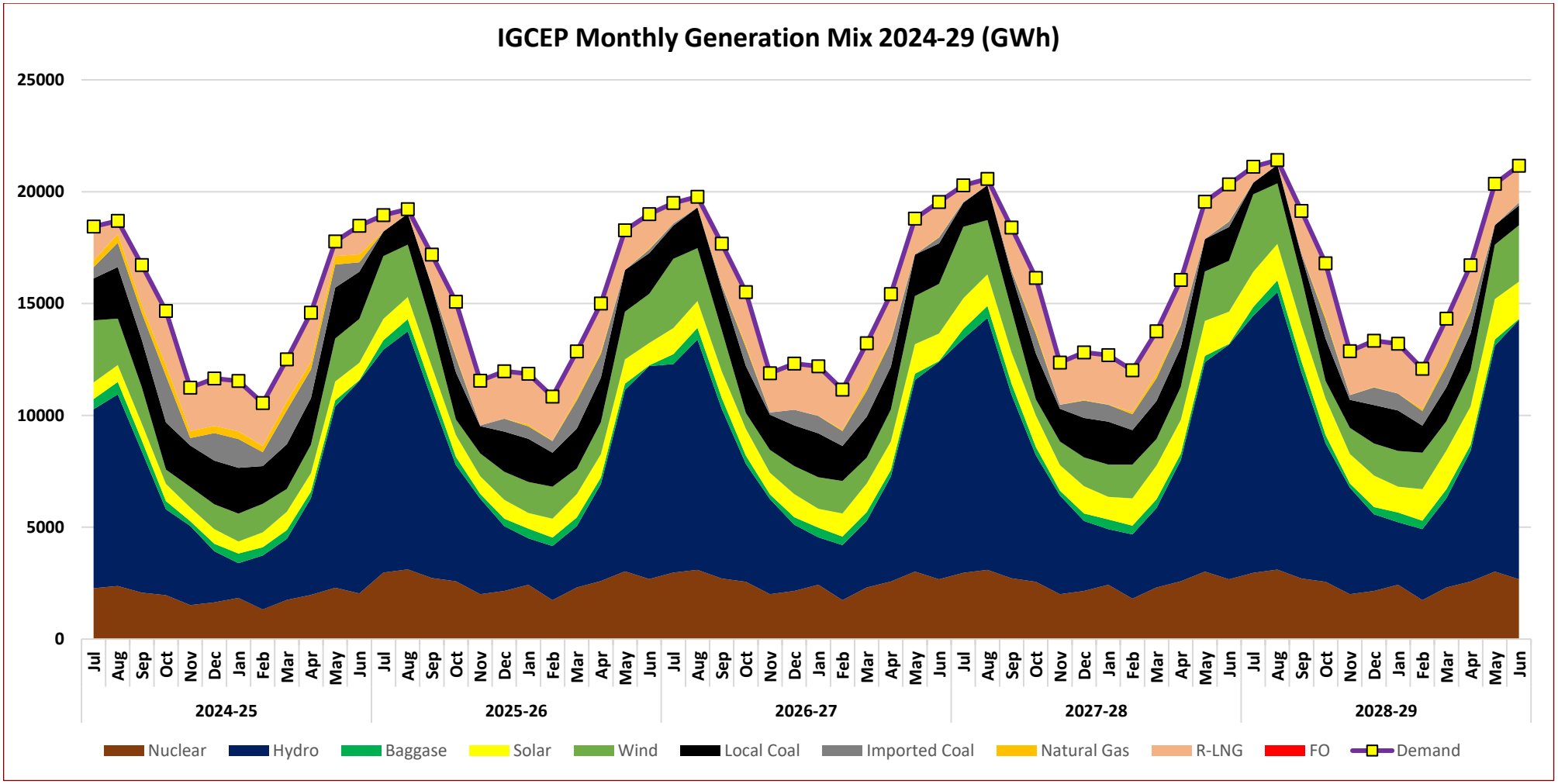


Chart F-14: IGCEP Monthly Generation Mix 2024-29 (GWh)

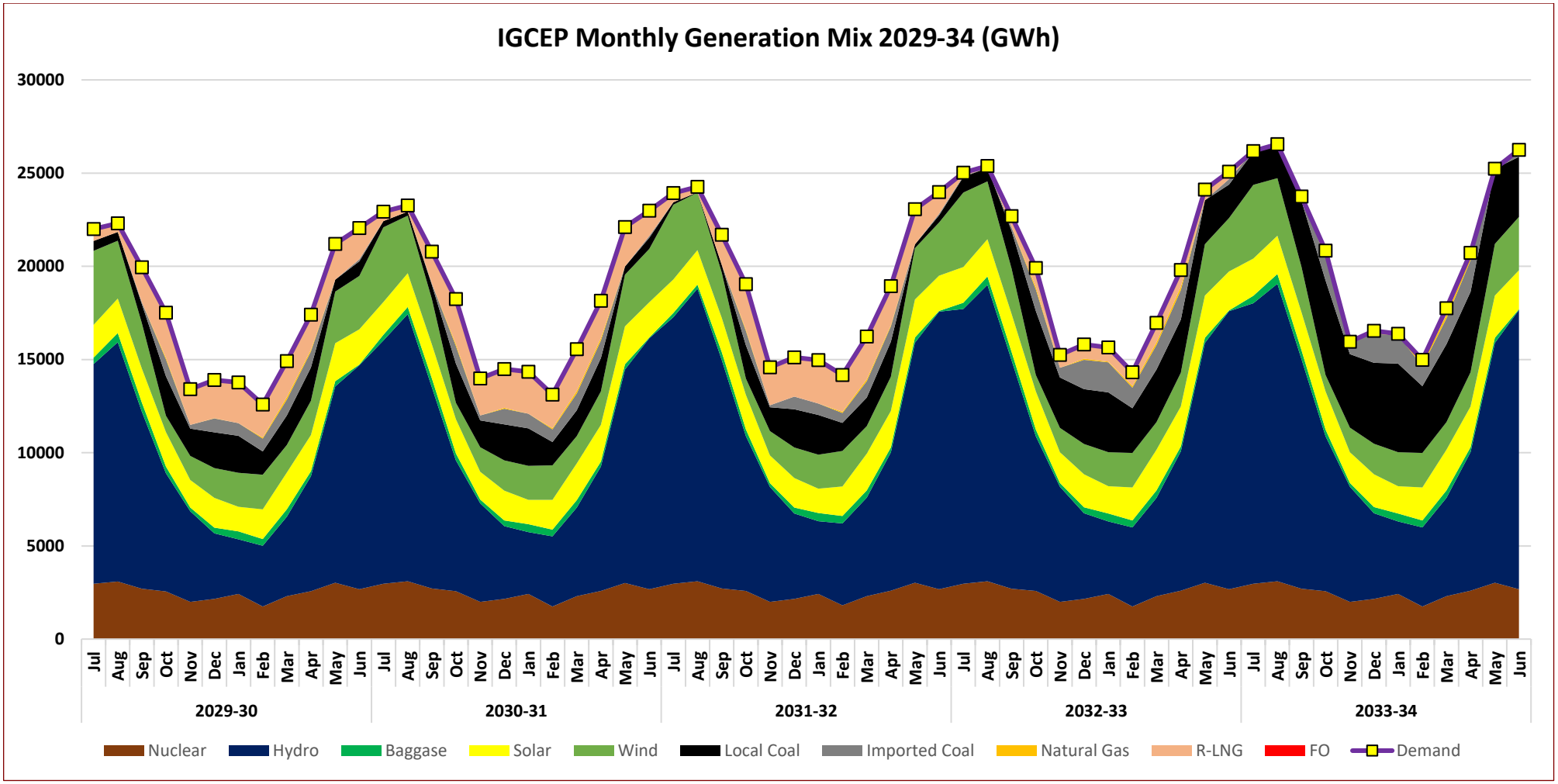


Chart F-15: IGCEP Monthly Generation Mix 2029-34 (GWh)

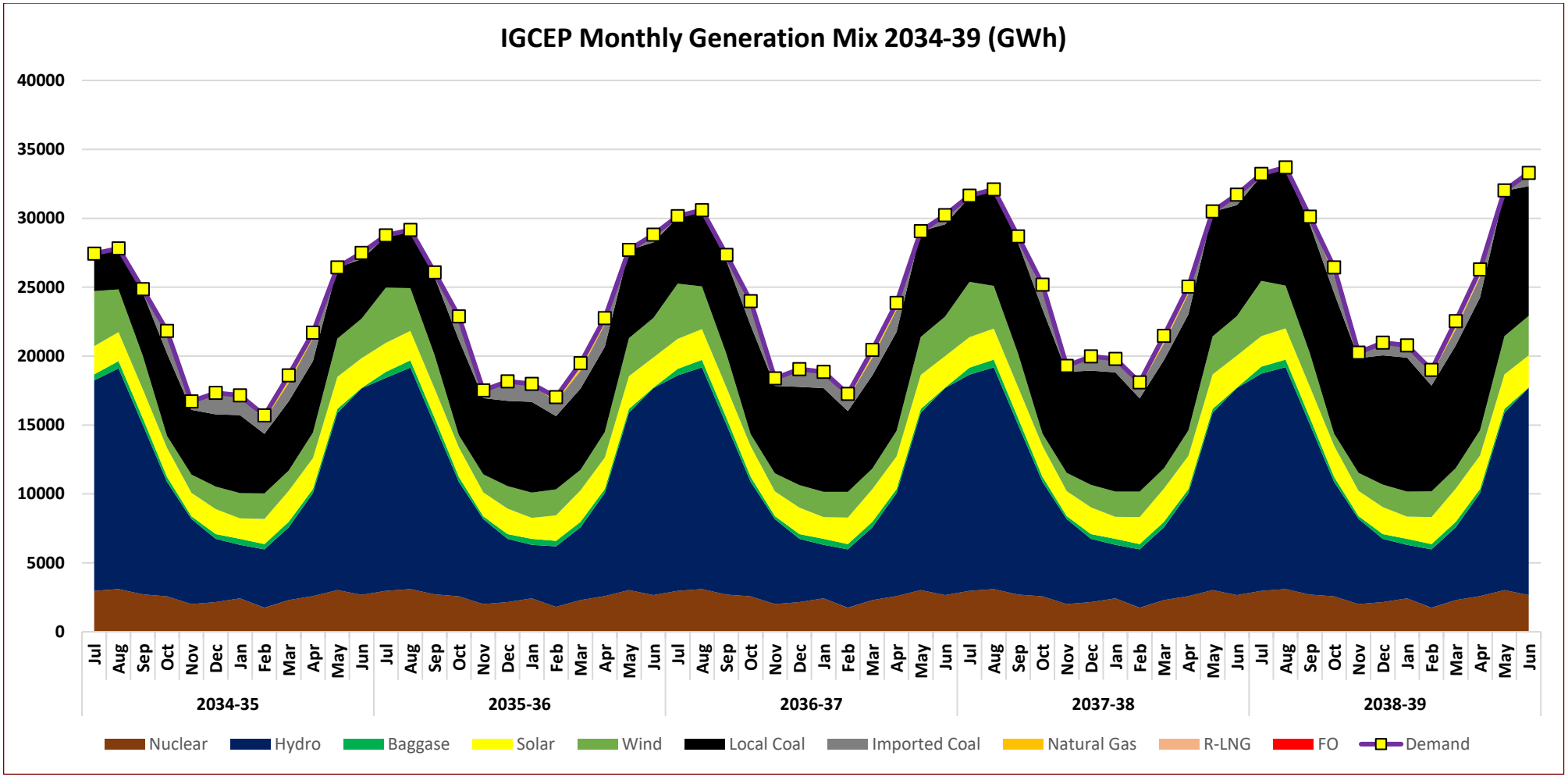


Chart F-16: IGCEP Monthly Generation Mix 2034-39 (GWh)

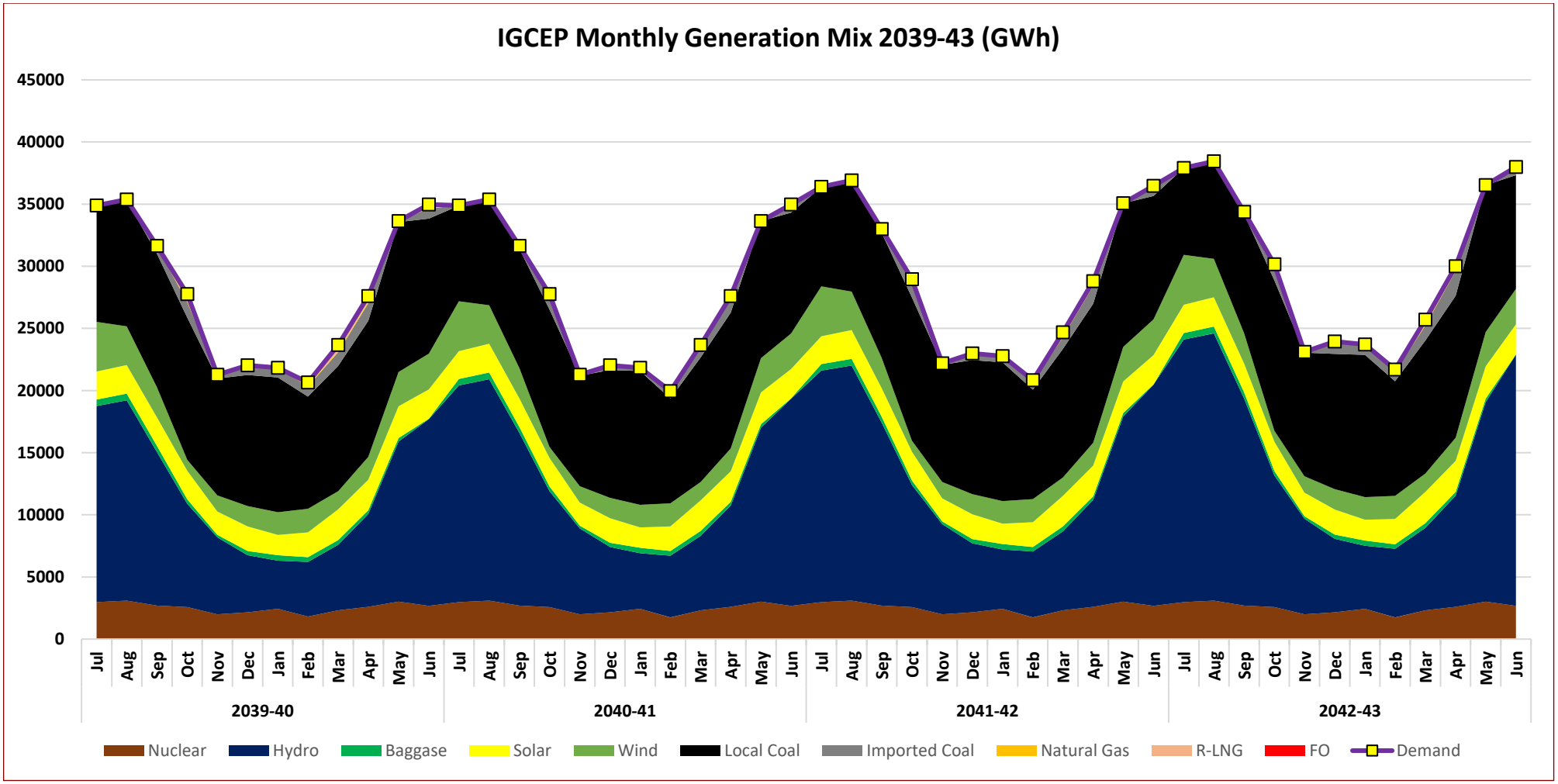


Chart F-17: IGCEP Monthly Generation Mix 2039-43 (GWh)

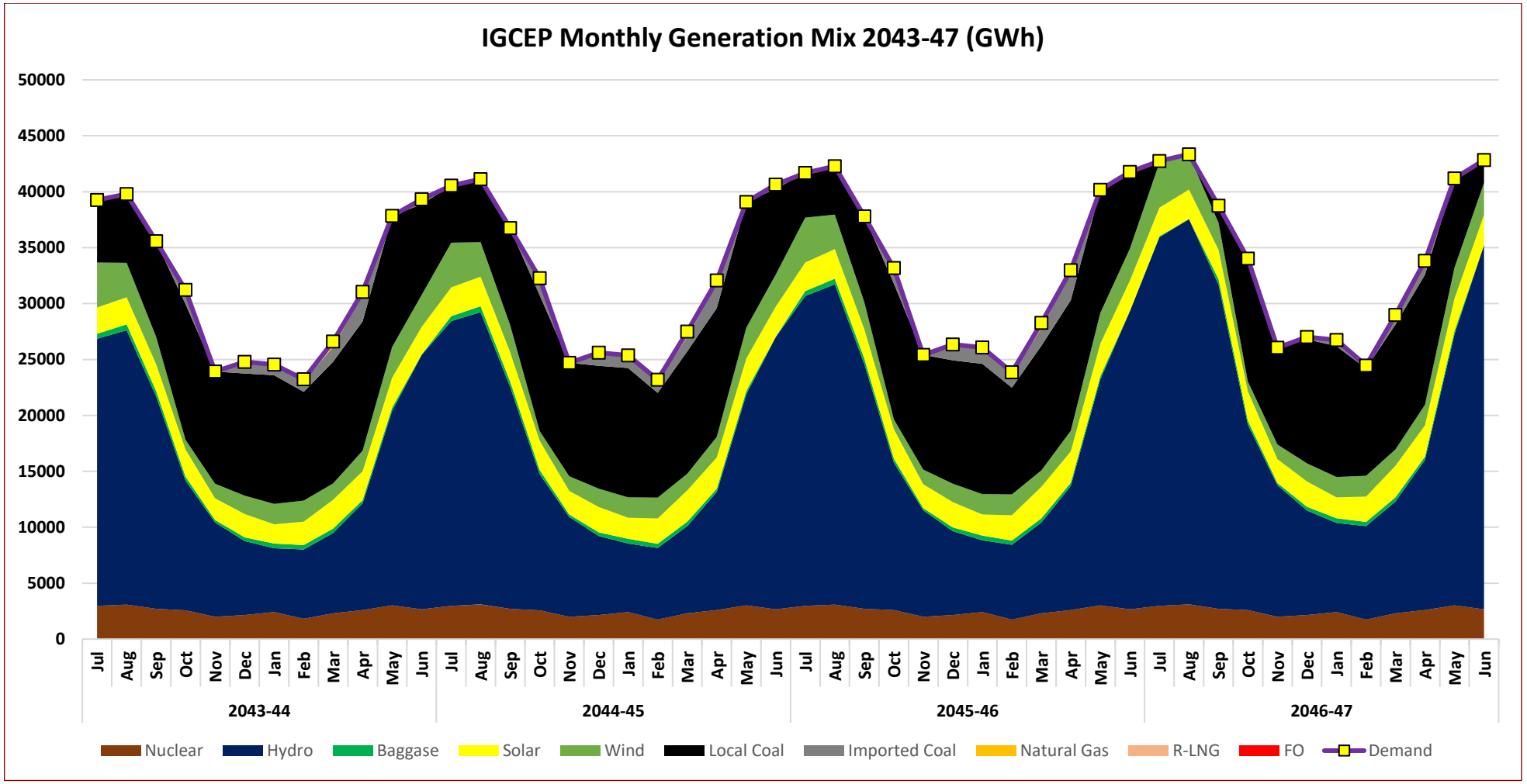


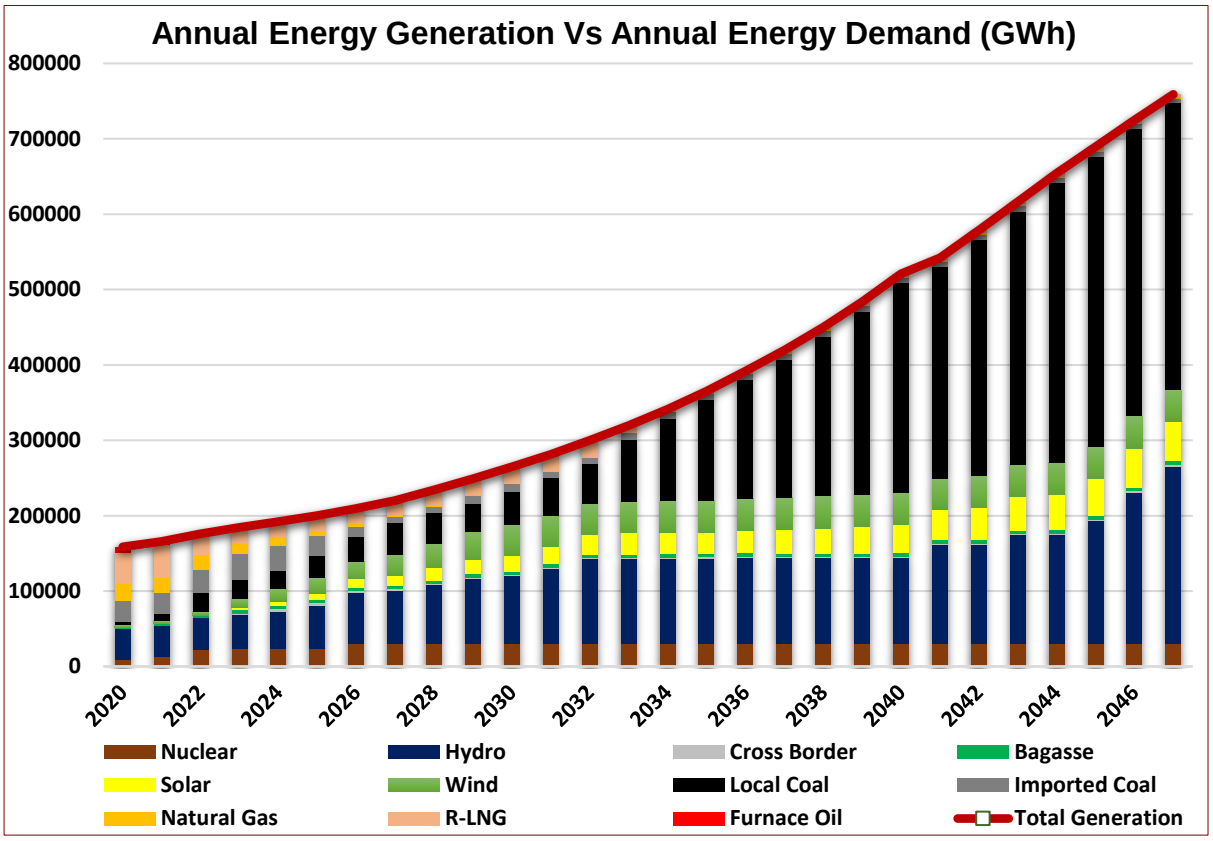
Chart F-18: IGCEP Monthly Generation Mix 2043-47 (GWh)

F-14. Year-wise Present Worth and Un-Discounted Cost

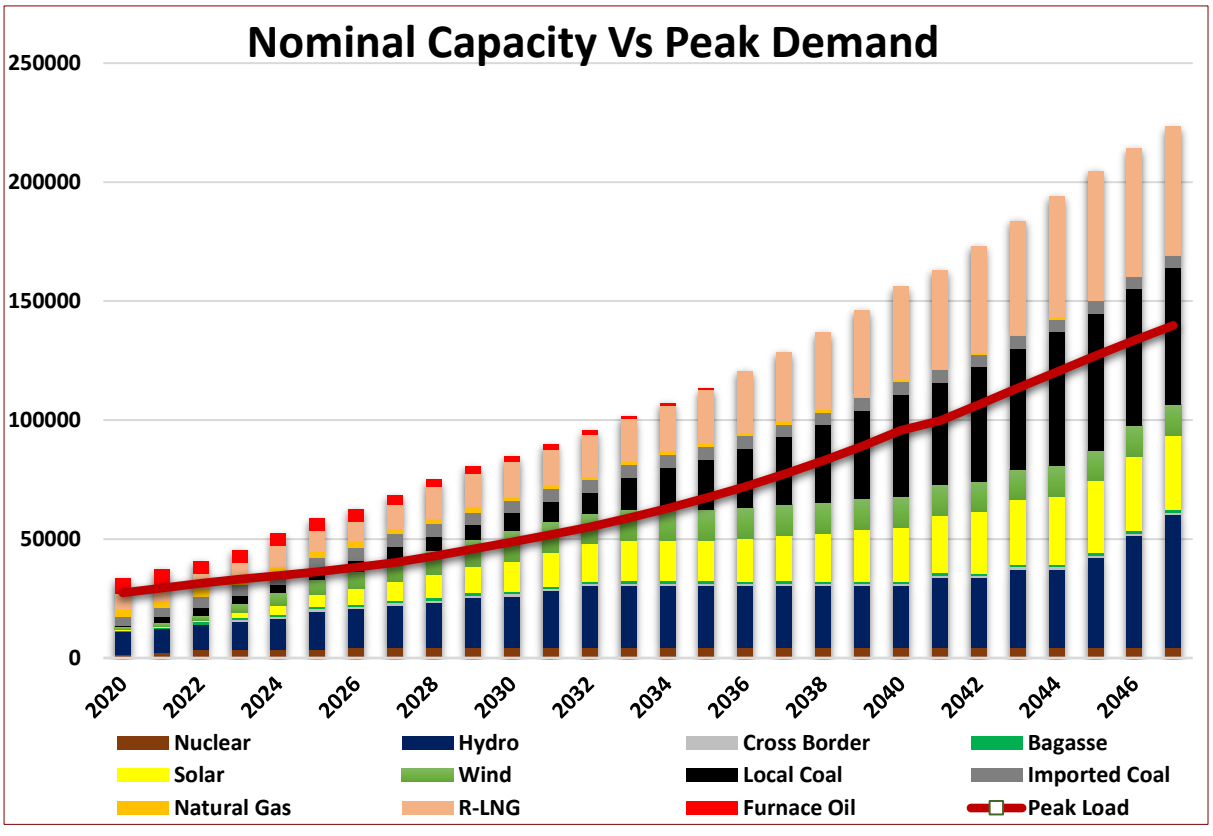
FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,606,627	6,563,349	6,563,349	0	956,722	5,606,627	6,563,349	6,563,349
2021	0	913,213	4,589,416	5,502,630	12,065,979	0	1,014,681	5,099,352	6,114,033	12,677,382
2022	0	909,992	3,255,572	4,165,564	16,231,543	0	1,123,447	4,019,225	5,142,671	17,820,054
2023	215,029	890,290	2,449,873	3,555,191	19,786,734	294,964	1,221,248	3,360,594	4,876,805	22,696,859
2024	342,831	847,836	2,020,655	3,211,321	22,998,054	522,528	1,292,235	3,079,797	4,894,560	27,591,419
2025	422,073	796,814	1,640,502	2,859,389	25,857,443	714,784	1,349,411	2,778,205	4,842,400	32,433,819
2026	463,678	766,629	1,261,555	2,491,863	28,349,306	872,492	1,442,549	2,373,839	4,688,879	37,122,698
2027	454,443	700,411	1,189,672	2,344,526	30,693,832	950,127	1,464,386	2,487,309	4,901,822	42,024,520
2028	447,120	645,082	1,058,095	2,150,298	32,844,130	1,038,686	1,498,563	2,458,016	4,995,265	47,019,785
2029	555,162	595,231	925,843	2,076,236	34,920,366	1,432,970	1,536,396	2,389,762	5,359,128	52,378,913
2030	648,899	541,681	833,283	2,023,863	36,944,229	1,861,024	1,553,525	2,389,834	5,804,383	58,183,296
2031	685,871	468,080	734,469	1,888,421	38,832,650	2,185,620	1,491,602	2,340,486	6,017,708	64,201,004
2032	691,412	424,593	642,159	1,758,164	40,590,814	2,448,086	1,503,358	2,273,698	6,225,143	70,426,147
2033	705,790	390,505	431,341	1,527,636	42,118,450	2,776,663	1,536,292	1,696,947	6,009,902	76,436,049
2034	722,990	365,424	330,312	1,418,726	43,537,176	3,160,366	1,597,355	1,443,873	6,201,593	82,637,642

FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2035	717,800	341,294	326,796	1,385,889	44,923,065	3,486,307	1,657,642	1,587,225	6,731,174	89,368,816
2036	709,660	318,049	331,150	1,358,858	46,281,923	3,829,748	1,716,380	1,787,080	7,333,208	96,702,024
2037	693,338	294,975	333,399	1,321,712	47,603,635	4,157,404	1,768,735	1,999,130	7,925,269	104,627,293
2038	678,853	276,265	328,330	1,283,448	48,887,083	4,522,832	1,840,607	2,187,489	8,550,928	113,178,221
2039	661,079	258,661	331,419	1,251,159	50,138,243	4,893,797	1,914,800	2,453,407	9,262,004	122,440,225
2040	645,927	242,839	325,121	1,213,887	51,352,130	5,312,918	1,997,419	2,674,205	9,984,542	132,424,767
2041	631,413	233,064	249,423	1,113,900	52,466,030	5,770,599	2,130,013	2,279,521	10,180,133	142,604,899
2042	597,205	210,959	241,647	1,049,811	53,515,840	6,064,407	2,142,209	2,453,840	10,660,456	153,265,355
2043	598,058	193,303	221,346	1,012,708	54,528,548	6,747,854	2,181,032	2,497,437	11,426,322	164,691,677
2044	607,240	178,780	194,241	980,261	55,508,809	7,612,725	2,241,295	2,435,122	12,289,142	176,980,819
2045	594,960	164,751	173,935	933,646	56,442,455	8,287,527	2,294,907	2,422,839	13,005,273	189,986,092
2046	581,313	150,097	155,100	886,510	57,328,965	8,997,150	2,323,093	2,400,526	13,720,769	203,706,861
2047	713,065	158,859	97,245	969,169	58,298,135	12,262,563	2,731,903	1,672,323	16,666,789	220,373,650

G-1. Annual Energy Generation Vs Annual Energy Demand (GWh)



G-2. Nominal Capacity Vs Peak Demand (MW) 2020-47



G-3. Future Generation Capacity Additions

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South MW	Midland MW	North MW	MW	MW
2020	-	-	-	-	-	-	-	-	-	-	0	0
2021	-	-	-	-	-	-	-	-	-	-	0	0
2022	-	-	-	-	-	-	-	-	-	-	0	0
2023	-	-	-	-	-	-	1,500	1,000	300	200	3,000	3,000
2024	-	-	20	2,031	-	8	1,500	1,000	300	200	5,059	8,059
2025	-	607	-	-	-	-	1,500	1,000	98	-	3,205	11,264
2026	-	607	-	-	-	3	1,500	881	-	-	2,991	14,256
2027	-	1,543	-	1,512	-	709	1,500	1,000	300	51	6,615	20,870
2028	-	-	-	3,024	-	96	1,500	1,000	300	200	6,120	26,990
2029	-	-	-	1,116	-	1,986	1,500	1,000	300	200	6,102	33,092
2030	-	1,261	-	913	-	639	1,500	1,000	300	200	5,813	38,906
2031	-	1,350	-	618	-	2,154	1,429	-	-	-	5,552	44,457
2032	-	157	-	2,226	-	2,160	1,500	-	-	-	6,043	50,500
2033	-	4,680	-	575	-	-	1,500	-	-	-	6,756	57,256
2034	-	4,364	-	1,294	-	-	-	-	-	-	5,658	62,915
2035	-	3,344	-	3,313	-	-	-	-	-	-	6,657	69,572
2036	-	3,498	-	3,518	-	-	1,009	-	-	-	8,025	77,597
2037	-	3,711	-	3,099	-	-	1,074	-	-	-	7,884	85,481
2038	-	4,221	-	3,245	-	-	884	-	-	-	8,350	93,831
2039	-	4,640	-	3,675	-	-	1,474	-	-	-	9,790	103,621

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South	Midland	North	MW	MW
								MW	MW	MW		
2040	-	5,499	-	3,678	-	-	1,130	-	-	-	10,307	113,928
2041	-	69	-	1,960	-	3,436	1,500	-	-	-	6,965	120,892
2042	-	5,174	640	3,148	-	-	1,500	-	-	-	10,462	131,354
2043	-	2,609	215	2,832	-	3,550	1,500	-	-	-	10,707	142,061
2044	-	5,496	-	3,230	-	-	1,500	-	-	-	10,225	152,286
2045	-	1,357	-	3,347	-	4,936	1,500	-	-	-	11,141	163,427
2046	-	-	-	-	-	9,166	1,175	-	-	-	10,341	173,768
2047	-	-	-	-	-	8,887	22	-	-	-	8,909	182,677
Total	**-**	**54,189**	**875**	**48,354**	**0**	**37,730**	**30,698**	**7,881**	**1,898**	**1,051**	**182,677**	

G-4. List of Projects uptill 2047 (Committed + Candidate)

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2020							
1	Zorlu Solar Pakistan Pvt. Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Jan-20
2	Jabori	Hydro	10	10	PEDO	Committed	Mar-20
3	Trimmu	RLNG	1,263	1,243	PPIB	Committed	Apr-20
4	Jhing	Hydro	15	15	AJK	Committed	Jun-20
5	Karora	Hydro	12	12	PEDO	Committed	Jun-20
6	Koto	Hydro	41	41	PEDO	Committed	Jun-20
Generation Additions in 2020 (MW)			1,441	1,421			
Cumulative Addition up till 2020 (MW)			1,441	1,421			
2021							
1	Etihad Power Generation Ltd.	Bagasse	74	74	AEDB	Committed	Jul-20
2	Karachi Nuclear K-2	Nuclear	1,100	1,059	PAEC	Committed	Nov-20
3	Master Green Energy Ltd.	Wind	60	60	AEDB	Committed	Nov-20
4	Shaheen Renewable Energy-1 Pvt. Ltd.	Wind	51	51	AEDB	Committed	Nov-20
5	Lawi	Hydro	69	69	PEDO	Committed	Jan-21
6	Tricorm Wind Power Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-21
7	Western Energy Pvt. Limited	Wind	50	50	AEDB	Committed	Feb-21
8	Lucky	Local Coal	660	607	PPIB	Committed	Mar-21
9	Access Electric Pvt. Ltd.	Solar	10	10	AEDB	Committed	Mar-21
10	Access Solar Pvt. Ltd.	Solar	12	12	AEDB	Committed	Mar-21
11	Thal Nova	Local Coal	330	300	PPIB	Committed	Mar-21
12	Thar TEL	Local Coal	330	300	PPIB	Committed	Mar-21
13	Thar-I (Shanghai Electric) Unit 1	Local Coal	660	607	PPIB	Committed	Mar-21
14	Riali-II	Hydro	7	7	AJK	Committed	Jun-21
15	Hydro China Dawood Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
16	Tenga Generasi Limited	Wind	50	50	AEDB	Committed	Jun-21
17	Zephyr Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
18	Siddiqsons	Local Coal	330	304	PPIB	Committed	Jun-21
Generation Additions in 2021 (MW)			3,943	3,708			
Cumulative Addition uptill 2021 (MW)			5,384	5,129			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2022							
1	HNDS Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
2	Helios Power Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
3	Thar-I (Shanghai Electric) Unit 2	Local Coal	660	607	PPIB	Committed	Aug-21
4	Karachi Nuclear K-3	Nuclear	1,100	1,059	PAEC	Committed	Sep-21
5	Buksh Energy Pvt. Ltd.	Solar	12	12	AEDB	Committed	Sep-21
6	Safe Solar Power Pvt. Ltd.	Solar	10	10	AEDB	Committed	Sep-21
7	Artistic Wind Power Pvt. Limited.	Wind	50	50	AEDB	Committed	Oct-21
8	Meridian Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Nov-21
9	Zhenfa Pakistan New Energy Company (Pvt.) Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Nov-21
10	Karot	Hydro	720	720	PPIB/AJK	Committed	Dec-21
11	Jamshoro CFPP Unit 1	Imp.Coal	660	644	GENCO	Committed	Dec-21
12	Gwadar	Imp.Coal	300	273	PPIB	Committed	Jan-22
13	Gul Ahmed Electric Ltd.	Wind	50	50	AEDB	Committed	Jan-22
14	ACT 2 wind (Pvt.) Ltd.	Wind	50	50	AEDB	Committed	Feb-22
15	Din Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
16	Indus Wind Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
17	Lakeside Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
18	Liberty Wind Power 1 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
19	Liberty Wind Power 2 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
20	Metro Wind Power Ltd.	Wind	50	50	AEDB	Committed	Feb-22
21	NASDA Green Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
22	Trans Atlantic Energy (Pvt.) Limited	Wind	48	48	AEDB	Committed	Feb-22
23	Alliance Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
24	Bahawalpur Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
25	Faran Power Limited	Bagasse	27	27	AEDB	Committed	Mar-22
26	Ghotki Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
27	Hamza Sugar Mills Ltd. (Unit-II)	Bagasse	30	30	AEDB	Committed	Mar-22
28	HSM Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
29	Hunza Power (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
30	Indus Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
31	Ittefaq Power Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
32	Kashmir Power (Pvt.) Ltd.	Bagasse	40	40	AEDB	Committed	Mar-22
33	Mehran Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
34	RYK Energy Ltd.	Bagasse	25	25	AEDB	Committed	Mar-22
35	Sadiqabad Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
36	Shahtaj Sugar Mills Ltd.	Bagasse	32	32	AEDB	Committed	Mar-22
37	Sheikhoo Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
38	TAY Powergen Company (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
39	Two Star Energy (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22
Generation Additions in 2022 (MW)			4,841	4,703			
Cumulative Addition up till 2022 (MW)			10,225	9,832			
2023							
1	Gorkin Matiltan	Hydro	84	84	PEDO	Committed	Nov-22
2	Suki Kinari	Hydro	884	884	PPIB	Committed	Dec-22
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2023
4	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2023
5	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2023
6	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2023
7	CASA	Import	1,000	1,000	GOP	Committed	May-23
Generation Additions in 2023 (MW)			4,968	4,968			
Cumulative Addition up till 2023 (MW)			15,193	14,800			
2024							
1	Tarbela 5th-Extension	Hydro	1,410	1,410	WAPDA	Committed	Sep-23
2	Jamshoro CFPP Unit 2	Imp.Coal	660	644	GENCO	Committed	Dec-23
3	Hatim	CCGT_Gas	20	20	PPIB	Candidate	2024
4	Jhing-II	Hydro	6	6	AJK	Candidate	2024
5	Kasur	Hydro	2	2	PPDB	Candidate	2024
6	Generic_Candidate OCGT_RLNG	RLNG	2,031	2,031	Yet to be Decided	Candidate	2024
7	Generic_Candidate Solar	Solar	1500	1500	Yet to be Decided	Candidate	2024
8	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2024

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
9	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2024
10	Generic_Candidate Wind_South	Wind	1000	1000	Yet to be Decided	Candidate	2024
Generation Additions in 2024 (MW)			7,129	7,113			
Cumulative Addition up till 2024 (MW)			22,322	21,913			
2025							
1	Keyal Khwar	Hydro	128	128	WAPDA	Committed	Sep-24
2	Mohmand	Hydro	800	800	WAPDA	Committed	Nov-24
3	Oracle_1	Local Coal	660	607	STDC/ PPIB	Candidate	2025
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2025
5	Generic_Candidate Wind_Mid	Wind	98	98	Yet to be Decided	Candidate	2025
6	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2025
7	Dasu 1	Hydro	2,160	2,160	WAPDA	Committed	Feb-25
Generation Additions in 2025 (MW)			6,346	6,293			
Cumulative Addition up till 2025 (MW)			28,668	28,207			
2026							
1	Chasma Nuclear C-5	Nuclear	1,100	1,059	PAEC	Committed	Jul-25
2	Harpo	Hydro	35	35	WAPDA	Committed	Jul-25
3	Riali-III	Hydro	3	3	AJK	Candidate	2026
4	Oracle_2	Local Coal	660	607	STDC/ PPIB	Candidate	2026
5	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2026
6	Generic_Candidate Wind_South	Wind	881	881	Yet to be Decided	Candidate	2026
Generation Additions in 2026 (MW)			4,179	4,085			
Cumulative Addition up till 2026 (MW)			32,848	32,292			
2027							
1	Azad Pattan	Hydro	700	701	PPIB	Committed	Sep-26
2	Blue Star	Hydro	3	3	PEDO	Candidate	2027
3	Dowarian	Hydro	40	40	AJK	Candidate	2027
4	Lower Palas	Hydro	666	666	WAPDA	Candidate	2027
5	Generic_Candidate Local Coal	Local Coal	1,543	1,543	Yet to be Decided	Candidate	2027
6	Generic_Candidate OCGT_RLNG	RLNG	1,512	1,512	Yet to be Decided	Candidate	2027
7	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2027

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
8	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2027
9	Generic_Candidate Wind_North	Wind	51	51	Yet to be Decided	Candidate	2027
10	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2027
11	Kohala	Hydro	1,124	1,124	PPIB	Committed	Jun-27
Generation Additions in 2027 (MW)			8,439	8,439			
Cumulative Addition up till 2027 (MW)			41,286	40,731			
2028							
1	Bata Kundi	Hydro	96	96	PEDO	Candidate	2028
2	Generic_Candidate OCGT_RLNG	RLNG	3,024	3,024	Yet to be Decided	Candidate	2028
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2028
4	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2028
5	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2028
6	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2028
Generation Additions in 2028 (MW)			6,120	6,120			
Cumulative Addition up till 2028 (MW)			47,406	46,851			
2029							
1	Dander	Hydro	56	56	PEDO	Candidate	2029
2	Dubair Kalay	Hydro	66	66	PEDO	Candidate	2029
3	Nerai-Dubair	Hydro	46	46	PEDO	Candidate	2029
4	Rajdhani	Hydro	132	132	PPIB	Candidate	2029
5	Thakot-III	Hydro	1,686	1,686	WAPDA	Candidate	2029
6	Generic_Candidate OCGT_RLNG	RLNG	1,116	1,116	Yet to be Decided	Candidate	2029
7	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2029
8	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2029
9	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2029
10	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2029
Generation Additions in 2029 (MW)			6,102	6,102			
Cumulative Addition up till 2029 (MW)			53,508	52,953			
2030							
1	Mahl	Hydro	639	639	PPIB	Candidate	2030
2	Generic_Candidate Local Coal	Local Coal	1,261	1,261	Yet to be Decided	Candidate	2030

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
3	Generic_Candidate OCGT_RLNG	RLNG	913	913	Yet to be Decided	Candidate	2030
4	Generic_Candidate Solar	Solar	1500	1500	Yet to be Decided	Candidate	2030
5	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2030
6	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2030
7	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2030
Generation Additions in 2030 (MW)			5,813	5,813			
Cumulative Addition up till 2030 (MW)			59,322	58,766			
2031							
1	Thakot-I	Hydro	2,154	2,154	WAPDA	Candidate	2031
2	Generic_Candidate Local Coal	Local Coal	1,350	1,350	Yet to be Decided	Candidate	2031
3	Generic_Candidate OCGT_RLNG	RLNG	618	618	Yet to be Decided	Candidate	2031
4	Generic_Candidate Solar	Solar	1,429	1,429	Yet to be Decided	Candidate	2031
Generation Additions in 2031 (MW)			5,552	5,552			
Cumulative Addition up till 2031 (MW)			64,873	64,318			
2032							
1	Dasu_2	Hydro	2,160	2,160	WAPDA	Candidate	2032
2	Generic_Candidate Local Coal	Local Coal	157	157	Yet to be Decided	Candidate	2032
3	Generic_Candidate OCGT_RLNG	RLNG	2,226	2,226	Yet to be Decided	Candidate	2032
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2032
Generation Additions in 2032 (MW)			6,043	6,043			
Cumulative Addition up till 2032 (MW)			70,916	70,361			
2033							
1	Generic_Candidate Local Coal	Local Coal	4,680	4,680	Yet to be Decided	Candidate	2033
2	Generic_Candidate OCGT_RLNG	RLNG	575	575	Yet to be Decided	Candidate	2033
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2033
Generation Additions in 2033 (MW)			6,756	6,756			
Cumulative Addition up till 2033 (MW)			77,672	77,117			
2034							
1	Generic_Candidate Local Coal	Local Coal	4,364	4,364	Yet to be Decided	Candidate	2034
2	Generic_Candidate OCGT_RLNG	RLNG	1,294	1,294	Yet to be Decided	Candidate	2034
Generation Additions in 2034 (MW)			5,658	5,658			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition up till 2034 (MW)			83,331	82,775			
2035							
1	Generic_Candidate Local Coal	Local Coal	3,344	3,344	Yet to be Decided	Candidate	2035
2	Generic_Candidate OCGT_RLNG	RLNG	3,313	3,313	Yet to be Decided	Candidate	2035
Generation Additions in 2035 (MW)			6,657	6,657			
Cumulative Addition up till 2035 (MW)			89,988	89,432			
2036							
1	Generic_Candidate Local Coal	Local Coal	3,498	3,498	Yet to be Decided	Candidate	2036
2	Generic_Candidate OCGT_RLNG	RLNG	3,518	3,518	Yet to be Decided	Candidate	2036
3	Generic_Candidate Solar	Solar	1,009	1,009	Yet to be Decided	Candidate	2036
Generation Additions in 2036 (MW)			8,025	8,025			
Cumulative Addition up till 2036 (MW)			98,013	97,457			
2037							
1	Generic_Candidate Local Coal	Local Coal	3,711	3,711	Yet to be Decided	Candidate	2037
2	Generic_Candidate OCGT_RLNG	RLNG	3,099	3,099	Yet to be Decided	Candidate	2037
3	Generic_Candidate Solar	Solar	1,074	1,074	Yet to be Decided	Candidate	2037
Generation Additions in 2037 (MW)			7,884	7,884			
Cumulative Addition up till 2037 (MW)			105,897	105,342			
2038							
1	Generic_Candidate Local Coal	Local Coal	4,221	4,221	Yet to be Decided	Candidate	2038
2	Generic_Candidate OCGT_RLNG	RLNG	3,245	3,245	Yet to be Decided	Candidate	2038
3	Generic_Candidate Solar	Solar	884	884	Yet to be Decided	Candidate	2038
Generation Additions in 2038 (MW)			8,350	8,350			
Cumulative Addition uptill 2038 (MW)			114,247	113,692			
2039							
1	Generic_Candidate Local Coal	Local Coal	4,640	4,640	Yet to be Decided	Candidate	2039
2	Generic_Candidate OCGT_RLNG	RLNG	3,675	3,675	Yet to be Decided	Candidate	2039
3	Generic_Candidate Solar	Solar	1,474	1,474	Yet to be Decided	Candidate	2039
Generation Additions in 2039 (MW)			9,790	9,790			
Cumulative Addition uptill 2039 (MW)			124,037	123,481			
2040							

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
1	Generic_Candidate Local Coal	Local Coal	5,499	5,499	Yet to be Decided	Candidate	2040
2	Generic_Candidate OCGT_RLNG	RLNG	3,678	3,678	Yet to be Decided	Candidate	2040
3	Generic_Candidate Solar	Solar	1,130	1,130	Yet to be Decided	Candidate	2040
Generation Additions in 2040 (MW)			10,307	10,307			
Cumulative Addition uptill 2040 (MW)			134,344	133,788			
2041							
1	Patan	Hydro	2,400	2,400	WAPDA	Candidate	2041
2	Thakot-II	Hydro	966	966	WAPDA	Candidate	2041
3	Torkhow	Hydro	70	70	PEDO	Candidate	2041
4	Generic_Candidate Local Coal	Local Coal	69	69	Yet to be Decided	Candidate	2041
5	Generic_Candidate OCGT_RLNG	RLNG	1,960	1,960	Yet to be Decided	Candidate	2041
6	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2041
Generation Additions in 2041 (MW)			6,965	6,965			
Cumulative Addition uptill 2041 (MW)			141,308	140,753			
2042							
1	Generic_Candidate Local Coal	Local Coal	5,174	5,174	Yet to be Decided	Candidate	2042
2	Generic_Candidate OCGT_RLNG	RLNG	3,148	3,148	Yet to be Decided	Candidate	2042
3	Generic_Candidate CCGT_RLNG	RLNG	640	640	Yet to be Decided	Candidate	2042
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2042
Generation Additions in 2042 (MW)			10,462	10,462			
Cumulative Addition uptill 2042 (MW)			151,770	151,215			
2043							
1	Bunji 1	Hydro	3,550	3,550	WAPDA	Candidate	2043
2	Generic_Candidate Local Coal	Local Coal	2,609	2,609	Yet to be Decided	Candidate	2043
3	Generic_Candidate OCGT_RLNG	RLNG	2,832	2,832	Yet to be Decided	Candidate	2043
4	Generic_Candidate CCGT_RLNG	RLNG	215	215	Yet to be Decided	Candidate	2043
5	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2043
Generation Additions in 2043 (MW)			10,707	10,707			
Cumulative Addition uptill 2043 (MW)			162,477	161,922			
2044							
1	Generic_Candidate Local Coal	Local Coal	5,496	5,496	Yet to be Decided	Candidate	2044

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2	Generic_Candidate OCGT_RLNG	RLNG	3,230	3,230	Yet to be Decided	Candidate	2044
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2044
Generation Additions in 2044 (MW)			10,225	10,225			
Cumulative Addition uptill 2044 (MW)			172,702	172,147			
2045							
1	Asrit Kadam	Hydro	216	216	PEDO	Candidate	2045
2	Bhimbal Katha	Hydro	9	9	PEDO	Candidate	2045
3	Bunji 2	Hydro	3,550	3,550	WAPDA	Candidate	2045
4	Gabral Kalam	Hydro	87	87	PEDO	Candidate	2045
5	Gabral Utror	Hydro	82	82	PEDO	Candidate	2045
6	Gwaldai	Hydro	20	20	PEDO	Candidate	2045
7	Harigehl-Majeedgala	Hydro	40	40	AJK	Candidate	2045
8	Kalam Asrit	Hydro	212	212	PPIB	Candidate	2045
9	Madian	Hydro	156	156	PEDO	Candidate	2045
10	Mahodand	Hydro	44	44	PEDO	Candidate	2045
11	Mastuj	Hydro	48	48	PEDO	Candidate	2045
12	Nagdar	Hydro	36	36	AJK	Candidate	2045
13	Nandihaar-II	Hydro	10	10	PEDO	Candidate	2045
14	Naran	Hydro	188	188	PEDO	Candidate	2045
15	Okara	Hydro	4	4	PPDB	Candidate	2045
16	Pashot	Hydro	60	60	PEDO	Candidate	2045
17	Phandar	Hydro	80	80	WAPDA	Candidate	2045
18	Sakhra-I	Hydro	8	8	PEDO	Candidate	2045
19	Sakhra-II	Hydro	8	8	PEDO	Candidate	2045
20	Serai	Hydro	6	6	PEDO	Candidate	2045
21	Shounter	Hydro	48	48	AJK	Candidate	2045
22	Tangar	Hydro	24	24	PEDO	Candidate	2045
23	Generic_Candidate Local Coal	Local Coal	1,357	1,357	Yet to be Decided	Candidate	2045
24	Generic_Candidate OCGT_RLNG	RLNG	3,347	3,347	Yet to be Decided	Candidate	2045
25	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2045
Generation Additions in 2045 (MW)			11,141	11,141			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition uptill 2045 (MW)			183,843	183,287			
2046							
1	Alka	Hydro	2	2	PPDB	Candidate	2046
2	Barum Gol	Hydro	40	40	PEDO	Candidate	2046
3	Basho	Hydro	39	39	WAPDA	Candidate	2046
4	Bhan Khwar	Hydro	36	36	PEDO	Candidate	2046
5	Chakoti Hatian	Hydro	501	501	PPIB	Candidate	2046
6	CJ	Hydro	24	24	PPDB	Candidate	2046
7	Dhudnial	Hydro	960	960	WAPDA	Candidate	2046
8	Diamer Bhasha Dam	Hydro	4,500	4,500	WAPDA	Candidate	2046
9	Jagran-III	Hydro	36	36	AJK	Candidate	2046
10	Jagran-IV	Hydro	24	24	AJK	Candidate	2046
11	Kathai-II	Hydro	8	8	AJK	Candidate	2046
12	Middle Palas	Hydro	399	399	WAPDA	Candidate	2046
13	Mujigram	Hydro	63	63	PEDO	Candidate	2046
14	Sharmai	Hydro	150	150	PEDO	Candidate	2046
15	Shigo Kas	Hydro	102	102	PEDO	Candidate	2046
16	Tangus	Hydro	2,200	2,200	WAPDA	Candidate	2046
17	Trappi	Hydro	33	33	PEDO	Candidate	2046
18	UCC Bhambhwal	Hydro	4	4	PPDB	Candidate	2046
19	Wari	Hydro	45	45	PEDO	Candidate	2046
20	Generic_Candidate Solar	Solar	1,175	1,175	Yet to be Decided	Candidate	2046
Generation Additions in 2046 (MW)			10,341	10,341			
Cumulative Addition uptill 2046 (MW)			194,184	193,628			
2047							
1	Arkari Gol	Hydro	99	99	PEDO	Candidate	2047
2	Artistic-I	Hydro	63	63	PEDO	Candidate	2047
3	Artistic-II	Hydro	54	54	PEDO	Candidate	2047
4	Ashkot	Hydro	300	300	PPIB	Candidate	2047
5	Athmuqam	Hydro	452	452	PPIB	Candidate	2047
6	Balakot	Hydro	300	300	PEDO	Candidate	2047
7	Balakot-II	Hydro	100	100	PEDO	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
8	Balkani	Hydro	8	8	PEDO	Candidate	2047
9	BS Link Tail	Hydro	9	9	PPDB	Candidate	2047
10	Chapri Charkhel	Hydro	12	12	PEDO	Candidate	2047
11	Chenavan	Hydro	3	3	PPDB	Candidate	2047
12	Chicha Watni	Hydro	2	2	PPDB	Candidate	2047
13	Chiniot_HPP	Hydro	78	78	WAPDA	Candidate	2047
14	Chota Jabba	Hydro	46	46	PEDO	Candidate	2047
15	Daral Khwar-II	Hydro	10	10	PEDO	Candidate	2047
16	Dhaddar	Hydro	18	18	PEDO	Candidate	2047
17	Engro_HPP	Hydro	5	5	PPDB	Candidate	2047
18	Gahrit	Hydro	376	376	PEDO	Candidate	2047
19	Garhi Habibullah	Hydro	100	100	PEDO	Candidate	2047
20	Ghail	Hydro	2	2	AJK	Candidate	2047
21	Ghanool	Hydro	3	3	PEDO	Candidate	2047
22	Ghorband	Hydro	20	20	PEDO	Candidate	2047
23	Gomat Nar	Hydro	50	50	AJK	Candidate	2047
24	Gugera	Hydro	3	3	PPDB	Candidate	2047
25	Istaro-Booni	Hydro	72	72	PEDO	Candidate	2047
26	Jabri Bedar	Hydro	4	4	PEDO	Candidate	2047
27	Jamshil	Hydro	612	612	PEDO	Candidate	2047
28	Kalkot Barikot	Hydro	48	48	PEDO	Candidate	2047
29	Kari Mushkur	Hydro	496	496	PEDO	Candidate	2047
30	Kathai-III	Hydro	1	1	AJK	Candidate	2047
31	Khal	Hydro	66	66	PEDO	Candidate	2047
32	Khanewal	Hydro	2	2	PPDB	Candidate	2047
33	Khanki Barrage	Hydro	16	16	PPDB	Candidate	2047
34	Khokhra	Hydro	2	2	PPDB	Candidate	2047
35	Lower Spat Gah	Hydro	495	495	PEDO	Candidate	2047
36	Luat	Hydro	48	48	AJK	Candidate	2047
37	Lucky_HPP	Hydro	20	20	PPDB	Candidate	2047
38	Luspur Murigram	Hydro	231	231	PEDO	Candidate	2047
39	Machai-III	Hydro	2	2	PEDO	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
40	Mahandri	Hydro	12	12	PEDO	Candidate	2047
41	Mandi	Hydro	4	4	PPDB	Candidate	2047
42	Mehar	Hydro	12	12	PPDB	Candidate	2047
43	Mid Ranjha	Hydro	80	80	WAPDA	Candidate	2047
44	Murree	Hydro	12	12	PPDB	Candidate	2047
45	Nandihaar	Hydro	12	12	PEDO	Candidate	2047
46	Nila Da Katha	Hydro	36	36	PEDO	Candidate	2047
47	Patrak Sheringhal	Hydro	22	22	PEDO	Candidate	2047
48	Punjnad	Hydro	18	18	PPDB	Candidate	2047
49	Qaditrabad	Hydro	24	24	PPDB	Candidate	2047
50	QB Link	Hydro	8	8	PPDB	Candidate	2047
51	Rasul	Hydro	18	18	PPDB	Candidate	2047
52	Ravi	Hydro	6	6	PPDB	Candidate	2047
53	Sahiwal	Hydro	6	6	PPDB	Candidate	2047
54	Sarral-Dhartian	Hydro	9	9	PEDO	Candidate	2047
55	Shah Jiwana	Hydro	78	78	WAPDA	Candidate	2047
56	Shalfalam	Hydro	60	60	PEDO	Candidate	2047
57	Shogosin	Hydro	138	138	PEDO	Candidate	2047
58	Shushghai	Hydro	144	144	PEDO	Candidate	2047
59	SHYOK	Hydro	640	640	WAPDA	Candidate	2047
60	Soan	Hydro	24	24	PPDB	Candidate	2047
61	Taunsa	Hydro	135	135	PPDB	Candidate	2047
62	TP	Hydro	9	9	PPDB	Candidate	2047
63	Trident	Hydro	8	8	PPDB	Candidate	2047
64	Trimmu_HPP	Hydro	16	16	PPDB	Candidate	2047
65	Turtonas Uzghor	Hydro	82	82	PPIB	Candidate	2047
66	Upper Palas	Hydro	158	158	WAPDA	Candidate	2047
67	Wazirabad	Hydro	88	88	WAPDA	Candidate	2047
68	Yulbo	Hydro	2,800	2,800	WAPDA	Candidate	2047
69	Generic_Candidate Solar	Solar	22	22	Yet to be Decided	Candidate	2047
Generation Additions in 2047 (MW)			8,909	8,909			
Cumulative Addition up till 2047 (MW)			203,093	202,537			

G-5. Annual Capacity Factors (%age)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	85	85	85	84	84	82	28	18	20	24	21	18	19	20	19	19	18	18	18	18	17	16	15	17	15	17	13	12
2	Gwadar	Imp. Coal	0	0	84	85	84	84	81	40	41	40	36	29	30	31	30	27	27	26	25	25	23	24	23	23	22	22	24	18
3	Jamshoro Coal	Imp. Coal	0	0	83	84	83	48	13	10	13	14	14	13	14	14	16	15	15	14	13	14	13	12	12	13	12	15	12	11
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	85	85	85	85	84	83	58	31	33	34	30	25	27	27	25	24	23	23	23	22	19	20	20	21	19	20	15	17
6	Sahiwal Coal	Imp. Coal	85	85	85	82	40	19	7	5	7	10	12	11	10	11	12	12	12	12	12	11	10	10	10	11	11	12	10	10
7	Engro Thar	Local Coal	85	85	85	85	84	84	82	79	74	53	42	38	41	40	36	35	33	32	30	30	29	28	29	28	28	28	27	27
8	Lucky	Local Coal	0	87	85	85	84	84	82	57	43	42	39	34	33	33	32	32	29	28	27	27	26	26	25	24	25	23	25	26
9	NEW_Local_Coal	Local Coal	0	0	0	0	0	0	0	82	80	79	77	76	78	76	75	76	77	78	78	78	77	78	77	78	77	79	78	78
10	Oracle	Local Coal	0	0	0	0	0	84	84	83	82	81	80	81	81	82	84	84	84	84	84	85	85	85	85	85	85	85	85	85
11	Siddiqsons	Local Coal	0	88	85	85	85	84	84	83	81	80	80	79	81	81	81	82	81	82	82	82	81	82	82	82	81	83	85	85
12	Thal Nova	Local Coal	0	89	85	85	85	84	84	82	78	77	73	51	54	53	50	50	48	46	45	43	39	38	37	42	37	40	30	38
13	Thar TEL	Local Coal	0	89	85	85	85	84	84	82	79	77	73	51	54	53	49	49	48	46	45	43	39	39	38	42	37	40	30	38
14	Thar-I (Shanghai Electric)	Local Coal	0	87	85	85	85	84	83	80	77	75	60	44	49	46	42	41	39	38	36	35	32	32	31	35	31	35	29	32
15	Balloki	RLNG	92	87	67	67	67	67	67	67	67	67	67	67	67	67	4	4	4	5	5	7	7	7	6	6	6	7	6	5
16	Bhikki	RLNG	90	79	67	67	67	67	67	67	67	67	67	67	67	4	3	4	4	4	4	5	6	6	6	6	6	6	5	5
17	FKPCL	RLNG	28	10	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	29	12	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	76	44	11	4	4	0	0	0	0	2	3	4	4	2	1	1	3	4	4	4	5	5	0	0	0	0	0	0
20	Haveli	RLNG	92	91	67	67	67	67	67	67	67	67	67	67	67	5	5	6	6	7	8	8	8	8	7	7	7	7	6	7
21	Nandipur	RLNG	72	63	16	6	4	1	0	0	1	3	4	4	4	3	2	3	3	4	4	4	5	5	5	5	5	5	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8	8	8	7	7
23	Orient	RLNG	78	60	14	5	4	1	0	0	1	3	4	4	4	3	1	2	4	4	4	4	4	0	0	0	0	0	0	0
24	Rousch	RLNG	67	22	7	2	3	0	0	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	75	42	10	4	3	0	0	0	0	2	3	4	4	1	1	1	2	4	4	4	4	0	0	0	0	0	0	0
26	Saphire	RLNG	76	54	12	5	4	1	0	0	1	2	4	4	4	3	1	2	3	4	4	4	5	0	0	0	0	0	0	0
27	Trimmu	RLNG	94	92	44	12	9	3	2	1	2	4	5	5	5	6	7	7	7	9	8	8	8	8	9	9	9	9	8	9
28	Davis	RLNG	1	1	2	1	0	0	0	3	1	3	3	2	2	1	1	2	2	2	2	2	3	3	3	3	0	0	0	0
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	89	89	87	22	11	7	3	3	4	5	7	6	6	7	7	7	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	90	90	89	24	14	8	4	3	4	5	7	6	7	7	8	8	9	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	85	85	84	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	68	34	8	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	83	83	83	81	79	10	5	4	5	7	8	7	7	8	9	9	10	9	9	9	9	9	9	9	9	8	0	0
36	Hatim	Gas	0	0	0	0	81	12	6	26	25	25	24	22	18	19	18	17	17	17	16	16	16	15	15	15	15	13	9	7
37	HCPC	Gas	86	86	84	19	11	7	3	2	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	87	87	84	17	10	6	2	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	77	69	18	8	5	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	86	86	86	86	84	84	61	12	14	16	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	88	88	87	83	16	9	4	3	4	6	7	7	7	7	9	9	8	8	9	7	0	0	0	0	0	0	0	0
43	C-1	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
44	C-2	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
45	C-3	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
46	C-4	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
47	C-5	Nuclear	0	0	0	0	0	0	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	74	79	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
50	K-3	Nuclear	0	0	76	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
51	Alliance	Bagasse	0	0	29	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
52	Almoiz	Bagasse	54	54	54	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
53	Bahawalpur	Bagasse	0	0	29	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	54	54	54	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
56	Chiniot	Bagasse	36	36	36	36	36	36	35	35	34	34	34	34	34	35	35	35	36	36	36	36	36	36	36	36	36	36	36	36

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	0	54	54	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
58	Faran	Bagasse	0	0	29	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
59	Ghotki	Bagasse	0	0	29	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
60	Hamza	Bagasse	47	47	47	47	47	47	46	46	45	45	45	45	45	46	46	46	47	47	47	47	47	47	47	47	47	47	47	47
61	Hamza-II	Bagasse	0	0	29	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
62	HSM	Bagasse	0	0	29	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
63	Hunza	Bagasse	0	0	29	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
64	Indus	Bagasse	0	0	29	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
65	Ittefaq	Bagasse	0	0	29	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
66	JDW-II	Bagasse	84	84	84	84	84	84	83	83	82	81	81	81	81	83	83	83	83	83	84	84	84	84	84	84	84	84	84	84
67	JDW-III	Bagasse	78	78	78	78	78	78	77	77	76	76	75	75	75	77	77	77	78	78	78	78	78	78	78	78	78	78	78	78
68	Kashmir	Bagasse	0	0	29	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
69	Mehran	Bagasse	0	0	29	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
70	RYK_Energy	Bagasse	0	0	29	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
71	Ryk_Mills	Bagasse	54	54	54	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
72	Sadiqabad	Bagasse	0	0	29	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
73	Shahtaj	Bagasse	0	0	29	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
74	Sheikhoo	Bagasse	0	0	29	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
75	TAY	Bagasse	0	0	29	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	30	30	30	30	30	30	29	29	29	29	28	28	29	29	29	29	30	30	30	30	30	30	30	30	30	30	30	30
77	Two_Star	Bagasse	0	0	29	54	54	54	53	53	53	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54
78	Access_Electric	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
79	Access_Solar	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
81	Best	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
82	Buksh	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
84	Crest	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
85	Helios	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
86	HNDS	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
87	Meridian	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
88	QA_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
89	Safe	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
90	Zhenfa	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
91	Zorlu	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68	68
93	Allai Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	48
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	48	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	40
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	41	41	40	41	41	41	42	42	41	42	41	42	42	42	41	42	42	42	42	42
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	38
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	60
109	Blue Star	Hydro	0	0	0	0	0	0	0	65	65	65	65	65	65	65	70	70	70	70	70	70	70	70	70	70	70	70	70	70
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	42	42	42
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	38	39	39	44	43	44	45	45	46	46	46	45	45	46	46	46	47	47	49
121	Daral Khwar	Hydro	47	47	47	47	47	47	47	41	41	41	42	42	44	43	43	43	44	44	44	44	44	44	45	45	45	45	46	46
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
123	Dasu_1	Hydro	0	0	0	0	0	56	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	61	61	64	64	64	64	64	64	64	64	64	64	64	64	64	64
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	45
128	Dowarian	Hydro	0	0	0	0	0	0	0	44	43	44	44	44	44	44	44	44	44	45	45	45	45	45	45	45	45	45	45	45
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	57	57	57	62	61	64	63	62	63	63	63	64	65	64	64	64	64	64	65
130	Dubair Khwar	Hydro	51	51	51	51	51	51	51	50	50	50	50	50	49	50	50	50	50	51	51	51	51	51	51	51	50	50	51	51
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39	40	41

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
138	Ghazi Brotha	Hydro	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68
140	Golen Gol	Hydro	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
142	Gorkin Matiltan	Hydro	0	0	0	32	45	45	45	42	41	41	41	41	42	42	42	43	42	42	43	43	43	43	43	43	42	43	43	44
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
144	Gulpur	Hydro	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	45	45
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	61	61
147	Harpo	Hydro	0	0	0	0	0	0	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
149	Jabori	Hydro	91	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
151	Jagran-I	Hydro	31	31	31	31	31	31	31	30	29	29	30	30	30	30	30	31	31	31	31	31	31	31	31	31	31	31	31	31

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
155	Jhing	Hydro	95	52	52	52	52	52	52	49	48	49	49	48	49	50	49	50	50	50	50	51	50	50	50	50	50	51	51	51
156	Jhing-II	Hydro	0	0	0	0	53	53	53	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
157	Jinnah	Hydro	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
161	Karora	Hydro	61	62	62	62	62	62	62	59	59	59	59	59	60	60	60	60	60	60	60	60	60	60	60	60	60	61	61	61
162	Karot	Hydro	0	0	41	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
163	Kasur	Hydro	0	0	0	0	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	25	32	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
168	Khan Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
172	Kohala	Hydro	0	0	0	0	0	0	0	0	61	61	61	61	62	62	62	62	62	62	62	62	62	62	62	62	62	62	63	63
173	Koto	Hydro	0	58	58	58	57	58	57	53	54	54	53	54	56	55	55	56	56	56	56	56	56	56	56	57	56	57	57	57
174	Lawi	Hydro	0	43	49	49	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
175	Lower Palas	Hydro	0	0	0	0	0	0	0	42	42	42	42	42	42	42	43	43	43	43	43	43	43	43	43	43	43	43	43	43
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
180	Machai	Hydro	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	49	49
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	59	59	61	61	62	62	62	62	62	62	62	62	62	62	62	62	63	63
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	47	47
186	Malakand-III	Hydro	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	52	51	52	52	52	52	52	52	52	52	52	52	52
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
188	Mangla	Hydro	57	57	57	57	57	57	57	57	55	55	55	55	56	56	56	57	57	57	57	57	57	57	57	57	57	57	57	57
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	53	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	35	41	40	40	40	39	40	40	40	39	40	40	40	40	40	40	40	40	40	40	40	40	41
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51	52
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	42
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62	63
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
201	Neelum Jehlum	Hydro	58	58	58	58	58	58	58	56	56	56	56	56	57	57	57	57	57	57	57	57	57	57	57	57	57	57	58	58
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	49	48	49	55	54	59	58	59	59	59	59	59	59	59	60	60	60	62	63
203	New Bong	Hydro	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	36	36
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	48	50
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59	59	59	59
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
210	Pehur	Hydro	23	24	24	24	23	24	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	46	46
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	57	58	58	57	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
216	Ranolia	Hydro	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
219	Riali-II	Hydro	0	87	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
220	Riali-III	Hydro	0	0	0	0	0	0	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49	49
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	51
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	51
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49	49
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
237	Suki Kinari	Hydro	0	0	0	35	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	44	47
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46
240	Tarbela_1-10	Hydro	48	48	48	48	48	48	48	47	47	47	47	47	47	47	47	48	47	48	48	48	48	48	48	48	48	48	48	48
241	Tarbela_11-14	Hydro	48	48	48	48	48	48	48	47	47	47	47	47	47	47	48	47	48	48	48	48	48	48	48	48	48	48	48	48
242	Tarbela_Ext_4	Hydro	31	31	31	31	31	31	31	31	30	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
243	Tarbela_Ext_5	Hydro	0	0	0	0	19	32	32	31	32	31	31	31	31	31	31	32	32	32	32	32	32	32	32	32	32	32	32	32
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	52	52	53	53	53	53	54	54	54	53	54	54	54	53	54	54	54
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55	55	55	55	55

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	48	48	48	48	48	49	49	49	49	49	49	49	49	49	49	49	49	49	49
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	50	50	50	50	50
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	53
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	37
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	64
258	Warsak	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
261	CASA	Cross Border	0	0	0	95	39	39	39	23	22	22	21	21	25	26	22	23	24	24	25	25	26	26	27	27	27	29	31	34
262	Act	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
263	Act_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
264	Artistic_wind	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
265	Artistic_Wind_2	Wind	0	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	0	0	0	33	33	33	31	33	33	32	33	32	32	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
267	Candidate_Wind_North	Wind	0	0	0	33	33	33	31	33	33	33	33	33	33	31	32	32	33	33	33	33	33	33	33	33	33	33	33	33
268	Candidate_Wind_South	Wind	0	0	0	39	39	39	39	39	39	39	38	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
269	Dawood	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
270	Din	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
271	FFC	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
272	FWEL-I	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
273	FWEL-II	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
274	Gul Ahmed	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
275	Gul_Electric	Wind	0	0	38	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
276	Hawa	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
277	Indus_Energy	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
278	Jhimpir	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
279	Lakeside	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
280	Liberty_Wind_1	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
281	Liberty_Wind_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
282	Master	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
283	Master_Green	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
284	Metro_Power	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
286	NASDA	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
287	Sachal	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
288	Sapphire_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
289	Shaheen	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
290	Tenga	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
291	Three_Gorges_I	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
292	Three_Gorges_II	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
293	Three_Gorges_III	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
294	Trans_Atlantic	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
295	Tricon_A	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
296	Tricon_B	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
297	Tricon_C	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
298	Tricorm	Wind	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
299	UEP	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
300	Western	Wind	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
301	Yunus	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
302	Zephyr	Wind	0	56	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
303	Zorlu_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	32	17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	41	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	19	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	4	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	6	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	1	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	4	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	88	88	21	8	5	5	3	2	3	5	6	6	5	7	6	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	15	7	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	13	6	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	59	28	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	24	9	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	11	5	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	9	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

G-6. Annual Energy Generation 2020-30 (GWh)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
1	China HUBCO	Imp. Coal	9,330	9,308	9,308	9,207	9,177	8,972	3,065	1,919	2,170	2,616	2,351
2	Gwadar	Imp. Coal	0	0	1,000	2,033	2,006	2,001	1,947	950	985	959	867
3	Jamshoro Coal	Imp. Coal	0	0	2,733	4,716	7,401	5,419	1,479	1,177	1,502	1,629	1,627
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	9,270	9,248	9,248	9,248	9,125	9,076	6,308	3,365	3,616	3,662	3,317
6	Sahiwal Coal	Imp. Coal	9,285	9,263	9,238	8,980	4,409	2,073	713	584	763	1,048	1,276
7	Engro Thar	Local Coal	4,493	4,482	4,482	4,482	4,425	4,412	4,350	4,192	3,926	2,780	2,236
8	Lucky	Local Coal	0	1,546	4,531	4,531	4,472	4,461	4,382	3,023	2,293	2,255	2,090
9	NEW_Local_Coal	Local Coal	0	0	0	0	0	0	0	11,104	10,864	10,669	18,931
10	Oracle	Local Coal	0	0	0	0	0	4,457	8,914	8,805	8,745	8,602	8,525
11	Siddiqsons	Local Coal	0	193	2,266	2,266	2,272	2,231	2,231	2,197	2,168	2,127	2,127
12	Thal Nova	Local Coal	0	583	2,234	2,234	2,239	2,199	2,199	2,142	2,067	2,017	1,907
13	Thar TEL	Local Coal	0	583	2,234	2,234	2,239	2,199	2,199	2,147	2,069	2,015	1,915
14	Thar-I (Shanghai Electric)	Local Coal	0	1,545	8,643	9,055	9,072	8,914	8,849	8,554	8,263	7,932	6,333
15	Balloki	RLNG	9,518	8,947	6,909	6,908	6,906	6,905	6,904	6,888	6,884	6,883	6,884
16	Bhikki	RLNG	9,019	7,902	6,696	6,695	6,692	6,690	6,688	6,681	6,676	6,674	6,672
17	FKPCL	RLNG	373	136	69	12	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	297	126	53	14	0	0	0	0	0	0	0
19	Halmore	RLNG	1,311	767	191	77	63	7	0	0	5	31	58

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
20	Haveli	RLNG	9,599	9,475	6,966	6,966	6,964	6,964	6,964	6,938	6,941	6,941	6,942
21	Nandipur	RLNG	2,849	2,464	613	232	163	41	0	0	51	109	153
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	1,384	1,060	258	94	76	17	0	0	22	46	69
24	Rousch	RLNG	2,318	775	235	82	88	11	0	0	0	51	28
25	Saif	RLNG	1,338	755	178	62	59	6	0	0	4	31	57
26	Saphire	RLNG	1,350	962	212	89	68	12	0	0	16	41	65
27	Trimmu	RLNG	2,543	10,005	4,757	1,319	934	351	173	129	262	453	572
28	Davis	RLNG	1	1	2	0	0	0	0	3	1	3	3
29	NEW OCGT (Generic)	RLNG	0	0	0	0	59	22	0	0	0	63	309
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	1,655	1,651	1,623	416	214	128	62	48	70	87	124
32	Foundation	Gas	1,320	1,317	1,296	357	199	119	65	41	57	74	101
33	Guddu-I	Gas	1,950	1,945	1,912	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	1,608	804	194	67	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	5,234	5,221	5,221	5,115	5,011	634	289	240	309	413	513
36	Hatim	Gas	0	0	0	0	142	22	10	45	44	43	43
37	HCPC	Gas	975	973	954	210	119	74	35	28	38	51	0
38	Kotri	Gas	808	806	784	157	94	56	23	15	31	0	0
39	Liberty	Gas	1,442	1,275	339	153	87	32	11	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	4,149	4,139	4,139	4,139	4,074	4,064	2,910	566	656	747	74
42	Uch-II	Gas	2,737	2,731	2,702	2,596	494	278	136	106	134	175	232
43	C-1	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
44	C-2	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
45	C-3	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,183	2,180	2,185	2,175	2,175
46	C-4	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,183	2,181	2,185	2,181	2,181
47	C-5	Nuclear	0	0	0	0	0	0	7,285	7,242	7,255	7,237	7,230
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	4,548	7,292	7,292	7,307	7,292	7,285	7,243	7,252	7,224	7,235
50	K-3	Nuclear	0	0	5,823	7,292	7,307	7,292	7,286	7,236	7,252	7,234	7,231
51	Alliance	Bagasse	0	0	19	143	144	142	140	140	139	137	137
52	Almoiz	Bagasse	172	172	172	172	172	172	168	168	167	164	164
53	Bahawalpur	Bagasse	0	0	20	149	149	148	146	145	145	142	142
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	105	105	105	105	105	105	103	103	102	100	100
56	Chiniot	Bagasse	197	196	196	196	197	196	190	190	189	185	185
57	Etihad	Bagasse	0	355	355	355	356	353	348	348	346	339	339
58	Faran	Bagasse	0	0	17	126	127	126	124	124	123	121	120
59	Ghotki	Bagasse	0	0	29	215	215	214	210	210	209	205	205

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
60	Hamza	Bagasse	62	62	62	62	62	62	60	60	60	59	59
61	Hamza-II	Bagasse	0	0	19	143	144	142	140	140	139	137	136
62	HSM	Bagasse	0	0	17	126	127	126	124	124	123	121	120
63	Hunza	Bagasse	0	0	32	238	238	236	233	232	231	227	226
64	Indus	Bagasse	0	0	20	148	148	147	145	145	144	141	141
65	Ittefaq	Bagasse	0	0	20	149	149	148	146	146	145	142	142
66	JDW-II	Bagasse	194	193	193	193	194	193	191	191	189	187	186
67	JDW-III	Bagasse	180	180	180	180	180	180	178	178	176	174	174
68	Kashmir	Bagasse	0	0	26	191	191	190	187	187	186	182	181
69	Mehran	Bagasse	0	0	17	126	127	126	124	124	123	121	120
70	RYK_Energy	Bagasse	0	0	16	119	120	118	117	117	116	114	113
71	Ryk_Mills	Bagasse	144	143	143	143	144	143	140	140	139	137	137
72	Sadiqabad	Bagasse	0	0	29	215	215	214	210	210	209	205	205
73	Shahtaj	Bagasse	0	0	21	153	153	152	149	149	149	146	145
74	Sheikhoo	Bagasse	0	0	19	143	144	142	140	140	139	137	137
75	TAY	Bagasse	0	0	19	143	144	142	140	140	139	137	137
76	Thal_Layyah	Bagasse	109	109	109	109	109	109	106	106	105	103	102
77	Two_Star	Bagasse	0	0	32	238	238	236	233	232	231	227	227
78	Access_Electric	Solar	0	5	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	0	5	19	19	19	19	19	19	19	19	19

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	0	0	14	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	2,482	4,965	7,447	9,929	12,412	14,886	17,377	19,814
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	0	0	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	0	0	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	0	0	48	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	0	0	13	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	0	0	97	165	165	165	165	165	165	165	165
91	Zorlu	Solar	84	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0
93	Allai Khwar	Hydro	396	395	395	395	396	395	395	395	396	395	394
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	2,181	3,256	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	344	344	337
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
109	Blue Star	Hydro	0	0	0	0	0	0	0	17	17	17	17
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0
114	Chashma	Hydro	767	765	765	765	767	765	765	765	767	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	185	189
121	Daral Khwar	Hydro	147	147	147	147	147	147	147	129	130	130	131
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
123	Dasu_1	Hydro	0	0	0	0	0	4,321	11,975	11,975	11,990	11,975	11,975
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0
128	Dowarian	Hydro	0	0	0	0	0	0	0	155	152	154	154
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	327	329
130	Dubair Khwar	Hydro	581	581	581	581	581	581	580	567	566	565	565
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0
138	Ghazi Brotha	Hydro	6,563	6,551	6,551	6,551	6,563	6,551	6,551	6,481	6,483	6,493	6,462
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
140	Golen Gol	Hydro	97	97	97	97	97	97	97	95	95	95	96
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0
142	Gorkin Matiltan	Hydro	0	0	0	155	331	331	329	308	302	302	300
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0
144	Gulpur	Hydro	481	480	480	480	481	480	480	480	481	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0
147	Harpo	Hydro	0	0	0	0	0	0	170	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0
149	Jabori	Hydro	27	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0
151	Jagran-I	Hydro	82	82	82	82	82	82	82	78	77	77	78
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0
155	Jhing	Hydro	10	68	68	68	68	68	68	65	64	64	64
156	Jhing-II	Hydro	0	0	0	0	28	28	28	28	28	28	28
157	Jinnah	Hydro	195	194	194	194	195	194	194	193	191	191	192
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0
161	Karora	Hydro	5	65	65	65	65	65	65	62	62	62	62
162	Karot	Hydro	0	0	1,496	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737
163	Kasur	Hydro	0	0	0	0	4	4	4	4	4	4	4
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	232	353	343	343	345	344
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0
168	Khan Khwar	Hydro	235	234	234	234	235	234	234	234	235	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0
172	Kohala	Hydro	0	0	0	0	0	0	0	0	5,990	5,999	5,986
173	Koto	Hydro	0	212	212	212	212	212	211	197	197	199	196
174	Lawi	Hydro	0	130	295	295	295	295	294	292	292	292	292
175	Lower Palas	Hydro	0	0	0	0	0	0	0	2,476	2,459	2,439	2,440
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	3,302
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0
186	Malakand-III	Hydro	367	367	367	367	367	367	367	364	360	362	360
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0
188	Mangla	Hydro	5,016	5,004	5,004	5,004	5,016	5,004	5,004	4,952	4,843	4,833	4,851
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	1,633	2,841	2,804	2,777	2,771	2,762
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0
201	Neelum Jehlum	Hydro	4,944	4,939	4,939	4,939	4,944	4,939	4,935	4,772	4,747	4,745	4,725
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	196	193
203	New Bong	Hydro	471	470	470	470	471	470	470	470	471	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0
209	Patrind	Hydro	635	634	634	634	635	634	634	632	633	632	632
210	Pehur	Hydro	37	37	37	37	37	37	37	36	36	36	36
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	664	665
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0
219	Riali-II	Hydro	0	5	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
220	Riali-III	Hydro	0	0	0	0	0	0	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	387	386	386	386	387	386	386	381	380	380	380
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0
237	Suki Kinari	Hydro	0	0	0	1,332	2,800	2,798	2,793	2,765	2,770	2,766	2,764
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
240	Tarbela_1-10	Hydro	7,386	7,377	7,377	7,377	7,386	7,377	7,377	7,198	7,163	7,209	7,233
241	Tarbela_11-14	Hydro	7,294	7,285	7,285	7,285	7,294	7,285	7,285	7,176	7,209	7,109	7,082
242	Tarbela_Ext_4	Hydro	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,773	3,776	3,808	3,811
243	Tarbela_Ext_5	Hydro	0	0	0	0	1,975	4,005	3,968	3,814	3,903	3,816	3,859
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	7,050	7,019
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0
258	Warsak	Hydro	999	997	997	997	999	997	997	997	999	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0
261	CASA	Cross Border	0	0	0	1,387	3,457	3,456	3,426	2,022	1,971	1,922	1,853
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	0	0	58	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	0	0	102	172	172	172	172	172	172	172	172
266	Candidate_Wind_Mid	Wind	0	0	0	872	1,747	2,030	1,922	2,902	3,741	4,535	5,519
267	Candidate_Wind_North	Wind	0	0	0	581	1,165	1,163	1,096	1,310	1,878	2,473	3,010
268	Candidate_Wind_South	Wind	0	0	0	3,440	6,889	10,319	13,247	16,738	20,045	23,307	26,367
269	Dawood	Wind	0	14	144	144	144	144	144	144	144	144	144
270	Din	Wind	0	0	58	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	151	150	150	150	151	150	150	150	151	150	150
273	FWEL-II	Wind	151	150	150	150	151	150	150	150	151	150	150
274	Gul Ahmed	Wind	146	145	145	145	146	145	145	145	146	145	145
275	Gul_Electric	Wind	0	0	83	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	0	0	58	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	0	0	58	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
280	Liberty_Wind_1	Wind	0	0	58	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	0	0	58	172	172	172	172	172	172	172	172
282	Master	Wind	154	153	153	153	154	153	153	153	154	153	153
283	Master_Green	Wind	0	102	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	146	145	145	145	146	145	145	145	146	145	145
285	Metro_Wind	Wind	0	0	70	206	207	206	206	206	207	206	206
286	NASDA	Wind	0	0	58	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	154	153	153	153	154	153	153	153	154	153	153
289	Shaheen	Wind	0	104	175	175	176	175	175	175	176	175	175
290	Tenga	Wind	0	14	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	157	156	156	156	157	156	156	156	157	156	156
293	Three_Gorges_III	Wind	157	156	156	156	157	156	156	156	157	156	156
294	Trans_Atlantic	Wind	0	0	56	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	0	71	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
300	Western	Wind	0	58	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	146	145	145	145	146	145	145	145	146	145	145
302	Zephyr	Wind	0	20	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164
304	KAPCO 1	RFO	957	506	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	2,665	1,069	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	422	221	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	57	30	24	5	0	0	0	0	0	0	0
308	HUBCO	RFO	153	102	95	15	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	2	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	6	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	10	4	2	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	53	34	24	4	0	0	0	0	0	0	0
313	Lalpir	RFO	191	59	35	7	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	10	0	2	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	9	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	22	9	10	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	50	15	18	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
320	Saba	RFO	44	13	10	2	0	0	0	0	0	0	0
321	AGL	RFO	1,203	1,200	284	106	72	66	39	27	43	63	80
322	ATLAS	RFO	283	136	67	11	0	0	0	0	0	0	0
323	HuB N	RFO	245	116	62	3	0	0	0	0	0	0	0
324	Kohinoor	RFO	644	309	59	10	0	3	0	0	0	0	0
325	Liberty Tech	RFO	406	149	80	15	0	0	0	0	0	0	0
326	Nishat C	RFO	192	88	44	10	0	0	0	0	0	0	0
327	Nishat P	RFO	154	64	21	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			158,698	165,662	176,072	184,615	192,344	200,096	209,651	220,138	234,417	249,217	264,595
Energy Demand			158,698	165,662	176,072	184,615	192,344	200,096	209,651	220,138	234,417	249,217	264,595
Energy Not Served			0.00	0.00	-0.02	0.02	0.00	-0.04	-0.01	0.02	0.00	-0.04	0.01

*Red Color represents the retirement of plant.

G-7. Annual Energy Generation 2030-47 (GWh)

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	1,998	2,122	2,157	2,128	2,043	1,975	2,009	1,992	1,921	1,857	1,749	1,670	1,843	1,679	1,874	1,428	1,344
2	Gwadar	Imp. Coal	695	726	734	719	646	649	617	595	595	559	562	545	547	533	518	564	437
3	Jamshoro Coal	Imp. Coal	1,482	1,546	1,585	1,806	1,748	1,703	1,587	1,518	1,577	1,424	1,340	1,376	1,475	1,381	1,641	1,298	1,220
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	2,759	2,941	2,924	2,768	2,578	2,490	2,500	2,515	2,420	2,121	2,192	2,197	2,309	2,115	2,224	1,669	1,826
6	Sahiwal Coal	Imp. Coal	1,181	1,120	1,215	1,356	1,294	1,265	1,319	1,289	1,167	1,122	1,088	1,118	1,175	1,162	1,303	1,087	1,136
7	Engro Thar	Local Coal	1,981	2,142	2,092	1,880	1,856	1,722	1,665	1,597	1,606	1,517	1,488	1,516	1,501	1,473	1,455	1,406	1,411
8	Lucky	Local Coal	1,823	1,768	1,769	1,697	1,691	1,547	1,489	1,437	1,424	1,362	1,364	1,311	1,288	1,312	1,205	1,324	1,386
9	NEW_Local_Coal	Local Coal	27,656	29,464	59,606	87,826	111,882	136,718	162,539	191,674	222,605	258,709	260,615	294,460	315,565	351,349	364,345	363,215	361,649
10	Oracle	Local Coal	8,586	8,657	8,723	8,880	8,882	8,960	8,985	8,986	9,021	9,044	9,023	9,023	9,024	9,046	9,025	9,028	9,033
11	Siddiqsons	Local Coal	2,104	2,154	2,146	2,170	2,171	2,168	2,185	2,180	2,175	2,174	2,179	2,171	2,177	2,173	2,197	2,258	2,258
12	Thal Nova	Local Coal	1,347	1,431	1,390	1,320	1,318	1,277	1,206	1,193	1,123	1,025	1,006	970	1,095	975	1,047	795	1,003
13	Thar TEL	Local Coal	1,345	1,411	1,389	1,293	1,290	1,269	1,199	1,186	1,126	1,032	1,022	992	1,097	983	1,044	790	1,005
14	Thar-I (Shanghai Electric)	Local Coal	4,715	5,235	4,905	4,514	4,327	4,153	4,052	3,860	3,727	3,463	3,449	3,326	3,717	3,339	3,760	3,057	3,416
15	Balloki	RLNG	6,884	6,896	6,891	407	440	462	493	555	687	699	702	640	641	637	711	580	554
16	Bhikki	RLNG	6,672	6,681	370	328	384	422	431	431	514	581	582	589	583	592	610	508	492
17	FKPCL	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	65	64	32	21	21	48	67	67	73	84	89	0	0	0	0	0	0
20	Haveli	RLNG	6,941	6,954	482	541	587	634	713	828	817	817	801	773	724	716	761	642	689
21	Nandipur	RLNG	154	151	116	60	113	128	150	150	150	187	192	196	196	206	201	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	452	602	590	591	513	555
23	Orient	RLNG	71	69	53	24	34	64	69	75	75	64	0	0	0	0	0	0	0
24	Rousch	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	64	64	26	22	22	44	67	69	75	63	0	0	0	0	0	0	0
26	Saphire	RLNG	69	69	46	22	28	58	69	73	74	86	0	0	0	0	0	0	0
27	Trimmu	RLNG	560	566	627	715	709	797	926	908	919	928	909	937	934	941	994	895	1,005
28	Davis	RLNG	2	2	1	1	1	2	2	2	2	2	3	3	3	0	0	0	0
29	NEW OCGT (Generic)	RLNG	393	450	114	38	75	147	340	522	743	896	1,169	1,263	1,500	1,660	2,261	1,885	1,896
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	113	107	126	138	95	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	92	96	105	122	113	106	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	471	436	506	577	598	608	563	565	591	575	551	569	567	574	219	0	0
36	Hatim	Gas	38	31	32	32	30	30	29	28	29	28	27	26	27	26	24	16	13
37	HCPC	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	207	203	225	270	275	257	264	272	175	0	0	0	0	0	0	0	0
43	C-1	Nuclear	2,077	2,082	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,077	2,077	2,081	2,077	2,077	2,078
44	C-2	Nuclear	2,077	2,082	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,077	2,077	2,082	2,077	2,077	2,078
45	C-3	Nuclear	2,180	2,185	2,176	2,176	2,181	2,187	2,182	2,182	2,182	2,187	2,182	2,182	2,182	2,187	2,182	2,183	2,183
46	C-4	Nuclear	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,182
47	C-5	Nuclear	7,239	7,259	7,242	7,239	7,243	7,261	7,249	7,248	7,251	7,263	7,251	7,249	7,251	7,265	7,252	7,253	7,262
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	7,233	7,260	7,248	7,233	7,247	7,261	7,251	7,249	7,250	7,262	7,251	7,248	7,251	7,264	7,253	7,253	7,263
50	K-3	Nuclear	7,233	7,259	7,243	7,248	7,243	7,262	7,251	7,251	7,250	7,264	7,251	7,248	7,250	7,263	7,255	7,254	7,263
51	Alliance	Bagasse	136	138	139	140	140	143	142	143	143	144	143	143	143	144	143	143	143
52	Almoiz	Bagasse	164	165	168	168	168	171	171	172	172	172	172	172	172	172	172	172	172
53	Bahawalpur	Bagasse	142	143	145	146	146	149	148	148	149	149	149	149	149	149	149	149	149
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	100	101	103	103	103	105	104	105	105	105	105	105	105	105	105	105	105
56	Chiniot	Bagasse	185	188	190	190	190	195	195	196	196	197	196	196	196	197	196	196	196

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	338	340	345	348	348	354	353	355	355	356	355	355	355	356	355	355	355
58	Faran	Bagasse	120	121	123	124	124	125	126	126	126	127	126	126	126	127	126	126	126
59	Ghotki	Bagasse	204	206	209	210	210	214	214	215	215	215	215	215	215	215	215	215	215
60	Hamza	Bagasse	59	59	60	60	60	62	61	62	62	62	62	62	62	62	62	62	62
61	Hamza-II	Bagasse	136	137	139	140	140	142	142	143	143	144	143	143	143	144	143	143	143
62	HSM	Bagasse	120	121	124	124	124	126	126	126	126	127	126	126	126	127	126	126	126
63	Hunza	Bagasse	226	228	231	233	233	237	236	238	238	238	238	238	238	238	238	238	238
64	Indus	Bagasse	141	142	145	145	145	147	147	148	148	148	148	148	148	148	148	148	148
65	Ittefaq	Bagasse	142	143	145	146	146	149	148	149	149	149	149	149	149	149	149	149	149
66	JDW-II	Bagasse	186	187	191	191	191	193	192	193	193	194	193	193	193	194	193	193	193
67	JDW-III	Bagasse	174	175	178	178	178	180	179	180	180	180	180	180	180	180	180	180	180
68	Kashmir	Bagasse	181	183	186	187	187	190	190	191	191	191	191	191	191	191	191	191	191
69	Mehran	Bagasse	120	121	123	124	124	126	126	126	126	127	126	126	126	127	126	126	126
70	RYK_Energy	Bagasse	113	114	117	117	117	119	119	119	119	120	119	119	119	120	119	119	119
71	Ryk_Mills	Bagasse	137	138	140	140	140	143	142	143	143	144	143	143	143	144	143	143	143
72	Sadiqabad	Bagasse	205	206	209	210	210	214	214	215	215	215	215	215	215	215	215	215	215
73	Shahtaj	Bagasse	145	147	149	149	149	152	152	153	153	153	153	153	153	153	153	153	153
74	Sheikhoo	Bagasse	136	138	139	140	140	143	142	143	143	144	143	143	143	144	143	143	143
75	TAY	Bagasse	136	137	139	140	140	143	142	143	143	144	143	143	143	144	143	143	143

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	102	103	106	106	106	108	108	109	109	109	109	109	109	109	109	109	109
77	Two_Star	Bagasse	226	228	231	233	233	237	236	238	238	238	238	238	238	238	238	238	238
78	Access_Electric	Solar	17	16	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	22,192	24,706	27,189	27,189	27,189	28,859	30,637	32,100	34,539	36,410	38,892	41,375	43,857	46,339	48,822	50,766	50,803
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	165	164	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
91	Zorlu	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
93	Allai Khwar	Hydro	395	396	395	395	395	396	395	395	395	396	395	395	395	396	395	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	263

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	290
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,222
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	917	917	918
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,964
100	Azad Pattan	Hydro	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	993
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	509
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	142	142
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	151	152
106	Bata Kundi	Hydro	341	342	341	350	349	350	349	349	350	350	350	349	349	350	350	350	350
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119	119
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	48	48
109	Blue Star	Hydro	17	17	17	18	18	18	18	18	18	18	18	18	18	18	18	18	18
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	12,986	12,995	25,875	25,875	25,871
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,420	2,420
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	765	767	765	765	765	767	765	765	765	767	765	765	765	767	765	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	174
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72	72
120	Dander	Hydro	192	214	212	217	222	223	224	225	225	219	222	225	226	225	230	232	242
121	Daral Khwar	Hydro	131	138	137	136	136	138	137	140	140	140	140	141	141	141	141	144	146
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
123	Dasu_1	Hydro	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975
124	Dasu_2	Hydro	0	11,527	11,516	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	74
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,738	4,746
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17,541	17,555
128	Dowarian	Hydro	154	153	155	154	155	156	158	158	158	158	158	158	158	158	158	159	159
129	Dubair Kalay	Hydro	328	359	352	367	362	361	363	364	364	372	373	367	370	371	370	371	374
130	Dubair Khwar	Hydro	565	561	565	565	568	573	575	576	576	577	576	576	577	576	574	576	576
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	297	303	314

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	310	310	310
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,636
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	508
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
138	Ghazi Brotha	Hydro	6,484	6,499	6,502	6,460	6,494	6,513	6,513	6,519	6,507	6,520	6,515	6,518	6,511	6,535	6,520	6,523	6,534
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120
140	Golen Gol	Hydro	95	96	96	96	96	96	96	96	97	97	97	97	97	97	97	97	97
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	210
142	Gorkin Matiltan	Hydro	302	312	312	310	314	310	310	316	315	316	314	314	314	313	314	317	321
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
144	Gulpur	Hydro	480	481	480	480	480	481	480	480	480	481	480	480	480	481	480	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	77	78	79
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	212	212	213
147	Harpo	Hydro	169	169	169	169	169	169	169	169	169	170	169	169	169	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260
149	Jabori	Hydro	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
151	Jagran-I	Hydro	79	79	80	79	81	81	80	80	80	81	80	80	80	81	81	81	82

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	138	138
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	91
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,634
155	Jhing	Hydro	63	65	66	65	66	66	66	66	66	66	66	66	66	66	67	67	67
156	Jhing-II	Hydro	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
157	Jinnah	Hydro	193	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	846	848	850
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	160
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,960
161	Karora	Hydro	62	63	63	63	63	63	63	63	63	64	63	63	64	64	64	64	64
162	Karot	Hydro	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737
163	Kasur	Hydro	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	40
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	344	348	348	347	348	349	348	349	349	350	349	349	348	349	349	352	352
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260
168	Khan Khwar	Hydro	234	235	234	234	234	235	234	234	234	235	234	234	234	235	234	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
172	Kohala	Hydro	5,998	6,123	6,084	6,095	6,117	6,121	6,101	6,111	6,117	6,114	6,120	6,099	6,122	6,131	6,136	6,167	6,203
173	Koto	Hydro	198	205	204	204	206	206	207	206	206	207	208	208	208	208	208	210	211
174	Lawi	Hydro	292	292	292	292	292	292	291	292	292	292	292	292	292	292	292	291	292
175	Lower Palas	Hydro	2,456	2,460	2,479	2,510	2,512	2,518	2,513	2,517	2,516	2,519	2,518	2,514	2,513	2,517	2,515	2,517	2,520
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	315
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	788
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	663	663	664
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
184	Mahl	Hydro	3,279	3,411	3,400	3,473	3,482	3,478	3,477	3,494	3,489	3,495	3,481	3,480	3,489	3,490	3,498	3,520	3,547
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	181	181	183
186	Malakand-III	Hydro	362	362	362	362	366	366	366	367	367	367	367	367	367	367	367	367	367
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
188	Mangla	Hydro	4,855	4,906	4,922	4,886	4,965	4,991	4,995	4,992	4,990	5,005	4,995	4,993	4,997	5,010	5,000	5,004	5,004
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	222	223	225

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,709	1,712
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	2,794	2,798	2,794	2,766	2,789	2,803	2,796	2,821	2,809	2,823	2,824	2,827	2,829	2,818	2,824	2,829	2,841
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	284	286
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	133	133	133
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	675	674	676
201	Neelum Jehlum	Hydro	4,738	4,832	4,812	4,821	4,827	4,871	4,862	4,871	4,865	4,875	4,865	4,860	4,862	4,873	4,875	4,894	4,915
202	Nerai-Dubair	Hydro	198	223	219	238	235	238	238	238	236	238	236	239	240	243	243	249	255
203	New Bong	Hydro	470	471	470	470	470	471	470	470	470	471	470	470	470	471	470	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	135
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13	13
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	244	251	265
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	12,334	12,336	12,339	12,362	12,339	12,339	12,344
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	633	634	633	633	633	634	633	633	633	634	633	634	634	634	634	634	634
210	Pehur	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	318	319	320
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
215	Rajdhani	Hydro	668	666	668	670	670	671	670	670	670	671	670	670	670	671	670	670	670
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
219	Riali-II	Hydro	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34	34
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	22	22
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	307
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	283

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	658	664
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	451	451
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	533
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	206	206	207
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	470
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,724
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	380	383	380	381	382	382	382	382	382	384	382	381	382	382	382	382	385
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
237	Suki Kinari	Hydro	2,765	2,776	2,773	2,775	2,778	2,777	2,779	2,784	2,783	2,781	2,771	2,773	2,776	2,779	2,777	2,779	2,784
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	88	92	98
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8,819	8,823
240	Tarbela_1-10	Hydro	7,176	7,219	7,229	7,188	7,290	7,263	7,302	7,310	7,298	7,308	7,345	7,337	7,343	7,374	7,341	7,347	7,377
241	Tarbela_11-14	Hydro	7,087	7,105	7,134	7,216	7,149	7,215	7,217	7,233	7,258	7,263	7,267	7,243	7,256	7,264	7,262	7,285	7,275
242	Tarbela_Ext_4	Hydro	3,771	3,793	3,810	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811
243	Tarbela_Ext_5	Hydro	3,816	3,865	3,858	3,859	3,903	3,985	3,984	3,989	3,982	3,988	3,986	3,983	3,985	3,988	3,985	3,987	3,991
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	442
245	Thakot-I	Hydro	9,842	9,931	10,035	10,068	10,080	10,108	10,098	10,096	10,103	10,118	10,104	10,101	10,096	10,119	10,106	10,119	10,138
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	4,658	4,658	4,657	4,667	4,661	4,669	4,674

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	7,066	7,075	7,101	7,206	7,215	7,232	7,219	7,219	7,219	7,232	7,220	7,220	7,219	7,232	7,223	7,227	7,228
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	306	306	306	307	306	306	307
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	153	154
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	356
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	507
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252	252
258	Warsak	Hydro	997	999	997	997	997	999	997	997	997	999	997	997	997	999	997	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	350
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11,252
261	CASA	Cross Border	1,820	2,168	2,302	1,954	1,972	2,083	2,097	2,154	2,226	2,291	2,271	2,396	2,366	2,388	2,518	2,712	2,950
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	5,328	5,403	5,469	5,494	5,519	5,528	5,519	5,519	5,519	5,528	5,519	5,519	5,519	5,528	5,519	5,519	5,519
267	Candidate_Wind_North	Wind	3,054	3,060	2,876	2,918	2,990	3,017	3,054	3,054	3,054	3,060	3,054	3,054	3,054	3,060	3,054	3,054	3,054
268	Candidate_Wind_South	Wind	26,847	27,029	27,109	27,089	27,109	27,146	27,109	27,109	27,109	27,146	27,109	27,109	27,109	27,146	27,109	27,109	27,109
269	Dawood	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
270	Din	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
273	FWEL-II	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
274	Gul Ahmed	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
275	Gul_Electric	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
282	Master	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
283	Master_Green	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	206	207	206	206	206	207	206	206	206	207	206	206	206	207	206	206	206
286	NASDA	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
289	Shaheen	Wind	175	176	175	175	175	176	175	175	175	176	175	175	175	176	175	175	175
290	Tenga	Wind	144	143	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
293	Three_Gorges_III	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
294	Trans_Atlantic	Wind	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
302	Zephyr	Wind	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	79	75	90	65	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			281,209	299,875	319,387	341,228	365,189	391,987	419,467	450,150	483,486	520,726	541,957	578,516	616,490	654,224	689,593	724,672	759,041
Energy Demand			281,209	299,875	319,387	341,228	365,189	391,987	419,467	450,150	483,486	520,726	541,957	578,516	616,490	654,224	689,593	724,672	759,041
Energy Not Served			0.01	0.00	-0.03	-0.02	0.01	0.00	-0.01	-0.01	-0.03	0.00	-0.01	0.02	-0.03	0.00	0.00	-0.02	-0.03

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

G-8. Year wise Cost Breakup-Discounted Prices

FY	Present Worth Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,887,227	6,843,948	6,843,948
2021	0	913,435	5,054,879	5,968,314	12,812,262
2022	0	909,992	3,830,700	4,740,692	17,552,955
2023	215,029	890,290	3,032,024	4,137,343	21,690,297
2024	448,811	871,557	2,574,852	3,895,220	25,585,517
2025	587,342	826,966	2,096,470	3,510,778	29,096,295
2026	675,640	801,877	1,645,805	3,123,323	32,219,617
2027	925,578	776,646	1,427,470	3,129,694	35,349,312
2028	1,018,112	743,527	1,307,770	3,069,410	38,418,722
2029	1,144,980	696,753	1,209,597	3,051,331	41,470,053
2030	1,235,052	643,614	1,135,880	3,014,546	44,484,598
2031	1,292,889	574,942	981,338	2,849,169	47,333,768
2032	1,281,518	531,581	901,719	2,714,818	50,048,585
2033	1,341,086	505,490	664,161	2,510,737	52,559,322
2034	1,359,503	481,454	579,030	2,419,986	54,979,308
2035	1,350,997	457,592	585,975	2,394,564	57,373,872
2036	1,343,963	435,807	603,710	2,383,481	59,757,353
2037	1,326,969	413,131	623,879	2,363,979	62,121,332
2038	1,310,418	394,917	629,886	2,335,221	64,456,553
2039	1,297,742	378,788	639,727	2,316,258	66,772,811
2040	1,287,312	364,479	633,216	2,285,007	69,057,818
2041	1,243,331	347,649	573,551	2,164,531	71,222,349
2042	1,214,203	331,119	570,598	2,115,919	73,338,268
2043	1,201,590	311,533	548,045	2,061,169	75,399,437
2044	1,159,236	296,383	536,794	1,992,414	77,391,851
2045	1,140,997	275,997	505,748	1,922,742	79,314,592
2046	1,172,401	253,619	441,099	1,867,119	81,181,711
2047	1,186,288	252,260	397,611	1,836,159	83,017,871

G-9. Year wise Cost Breakup-Un-Discounted Prices (k$)

FY	Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,887,227	6,843,948	6,843,948
2021	0	1,014,928	5,616,532	6,631,460	13,475,408
2022	0	1,123,447	4,729,260	5,852,706	19,328,115
2023	294,964	1,221,248	4,159,155	5,675,367	25,003,482
2024	684,058	1,328,390	3,924,481	5,936,930	30,940,411
2025	994,669	1,400,474	3,550,391	5,945,534	36,885,945
2026	1,271,336	1,508,873	3,096,873	5,877,082	42,763,028
2027	1,935,154	1,623,775	2,984,485	6,543,414	49,306,441
2028	2,365,133	1,727,257	3,038,026	7,130,415	56,436,856
2029	2,955,395	1,798,442	3,122,182	7,876,019	64,312,875
2030	3,542,095	1,845,866	3,257,672	8,645,632	72,958,508
2031	4,119,966	1,832,130	3,127,167	9,079,264	82,037,771
2032	4,537,480	1,882,172	3,192,721	9,612,372	91,650,144
2033	5,275,989	1,988,657	2,612,888	9,877,534	101,527,677
2034	5,942,717	2,104,550	2,531,078	10,578,345	112,106,022
2035	6,561,708	2,222,493	2,846,043	11,630,244	123,736,266
2036	7,252,823	2,351,876	3,257,981	12,862,680	136,598,946
2037	7,956,791	2,477,223	3,740,916	14,174,931	150,773,877
2038	8,730,613	2,631,119	4,196,595	15,558,326	166,332,203
2039	9,606,845	2,804,070	4,735,731	17,146,646	183,478,849
2040	10,588,478	2,997,937	5,208,370	18,794,786	202,273,635
2041	11,363,025	3,177,228	5,241,789	19,782,041	222,055,676
2042	12,329,801	3,362,392	5,794,219	21,486,412	243,542,088
2043	13,557,473	3,515,013	6,183,556	23,256,042	266,798,130
2044	14,532,881	3,715,641	6,729,577	24,978,099	291,776,229
2045	15,893,575	3,844,516	7,044,846	26,782,937	318,559,166
2046	18,145,585	3,925,326	6,827,020	28,897,931	347,457,097
2047	20,400,572	4,338,118	6,837,709	31,576,399	379,033,496

G-10. Year wise Nominal Capacity Addition (MW)

FY	Capacity Addition Over the Plan Period (2020-47) - MW										
	Local Coal	Hydro	RLNG	Nuclear	Imported Coal	RE	Natural Gas	Furnace Oil	Cross Border	Yearly Addition	Total (MW)
2020	602	9,945	6,677	1,230	3,736	1,846	3,010	6,488	0	33,534	-
2021	2,118	119	0	1,059	0	446	0	0	0	3,742	37,276
2022	607	720	0	1,059	917	1,410	0	-1,336	0	3,377	40,653
2023	0	968	0	0	0	3,000	-260	0	1,000	4,708	45,361
2024	0	1,418	2,031	0	644	3,000	-250	0	0	6,843	52,204
2025	607	3,088	0	0	0	2,598	0	0	0	6,293	58,497
2026	607	37	0	1,059	0	2,381	0	0	0	4,084	62,581
2027	1,543	1,409	1,512	0	0	2,851	-212	-1,200	0	5,903	68,484
2028	0	1,218	3,024	0	0	3,000	0	-824	0	6,418	74,902
2029	0	1,986	999	0	0	3,000	-106	0	0	5,879	80,781
2030	1,261	639	367	0	0	3,000	-678	-653	0	3,936	84,717
2031	1,350	2,154	618	0	0	1,429	0	-310	0	5,242	89,959
2032	157	2,160	2,226	0	0	1,500	-29	-367	0	5,647	95,606
2033	4,680	0	575	0	0	1,500	0	-627	0	6,129	101,735
2034	4,364	0	1,294	0	0	0	0	-156	0	5,502	107,237
2035	3,344	0	3,313	0	0	0	-212	-409	0	6,036	113,273
2036	3,498	0	3,518	0	0	1,009	-167	-606	0	7,252	120,525
2037	3,711	0	3,099	0	0	1,074	0	0	0	7,884	128,410
2038	4,221	0	3,245	0	0	884	0	0	0	8,350	136,760
2039	4,640	0	3,675	0	0	1,474	-355	0	0	9,435	146,194
2040	5,499	0	3,272	0	0	1,130	0	0	0	9,901	156,095
2041	69	3,436	1,758	0	0	1,500	0	0	0	6,763	162,858
2042	5,174	0	3,590	0	0	1,500	0	0	0	10,265	173,123
2043	2,609	3,550	3,047	0	0	1,500	0	0	0	10,707	183,830
2044	5,496	0	3,219	0	0	1,500	0	0	0	10,215	194,045
2045	1,357	4,936	3,347	0	0	1,500	-721	0	0	10,420	204,464
2046	0	9,166	-450	0	0	1,175	0	0	0	9,891	214,355
2047	0	8,887	0	0	0	22	0	0	0	8,909	223,264
Total	57,516	55,836	53,958	4,407	5,297	45,230	20	0	1,000	223,264	

G-11. IGCEP Generation Mix 2020-2047 (GWh)

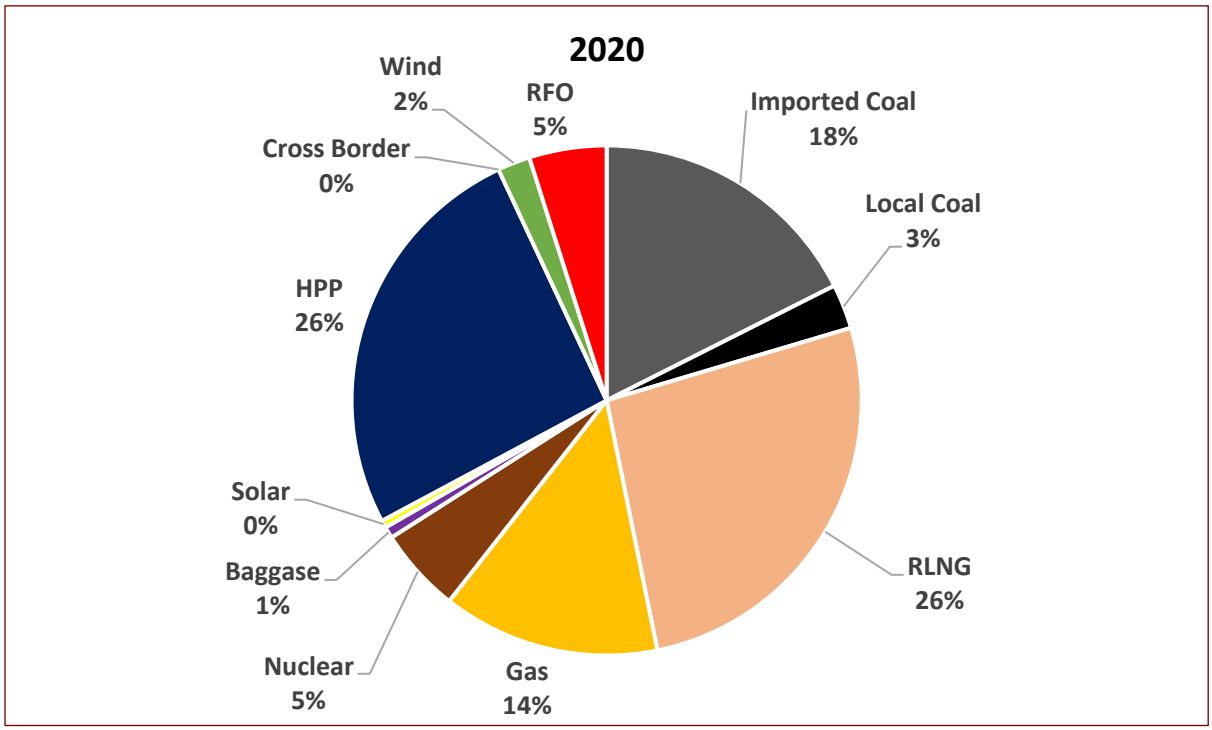


Chart G-1: IGCEP Generation Mix 2020 (GWh)

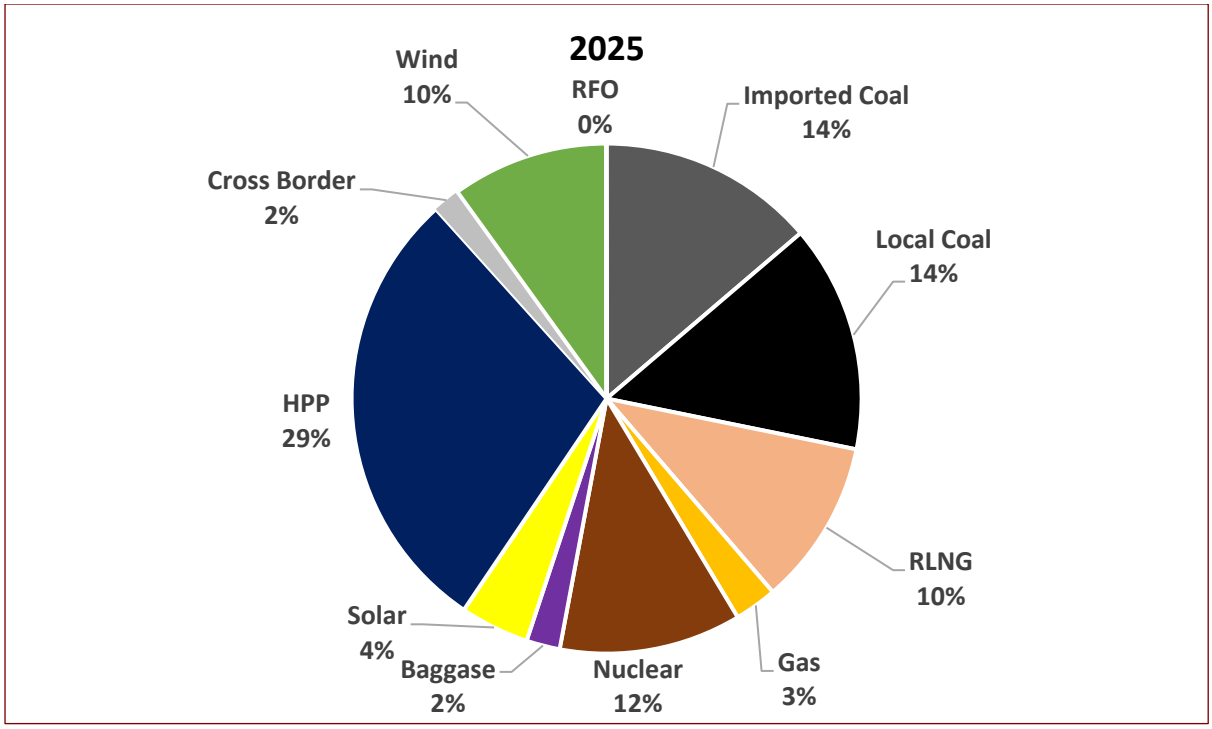


Chart G-2: IGCEP Generation Mix 2025 (GWh)

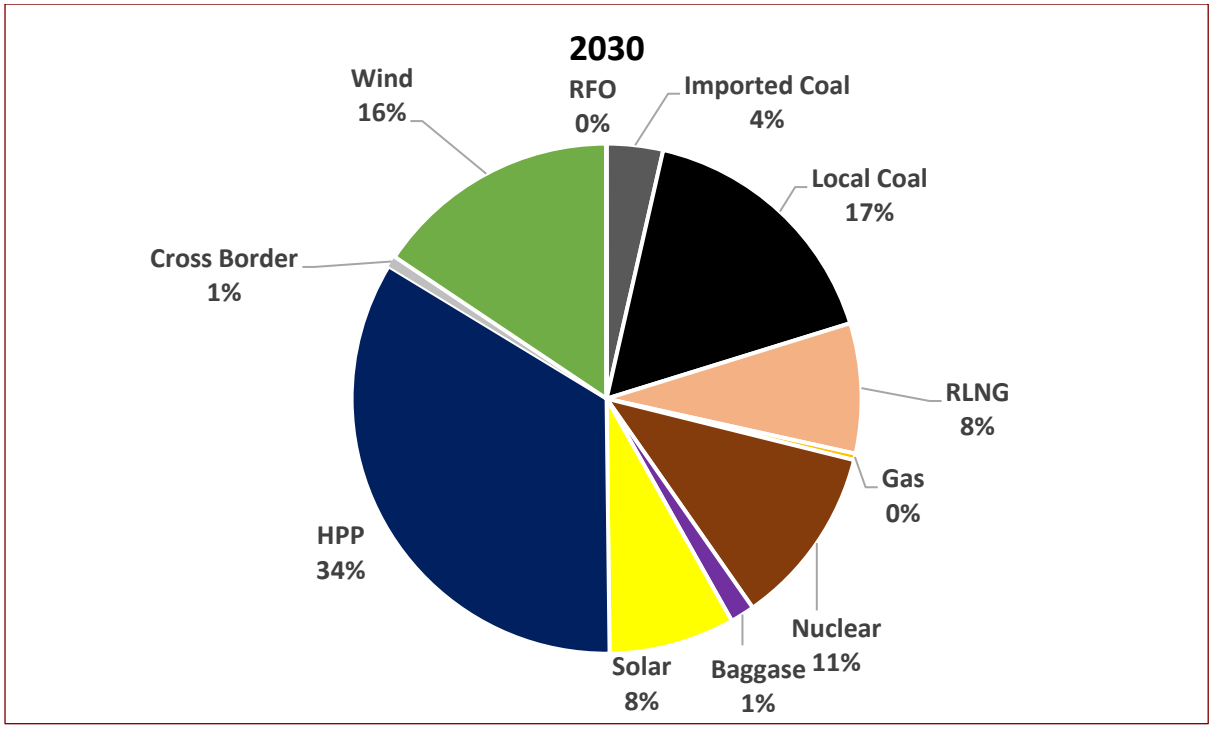


Chart G-3: IGCEP Generation Mix 2030 (GWh)

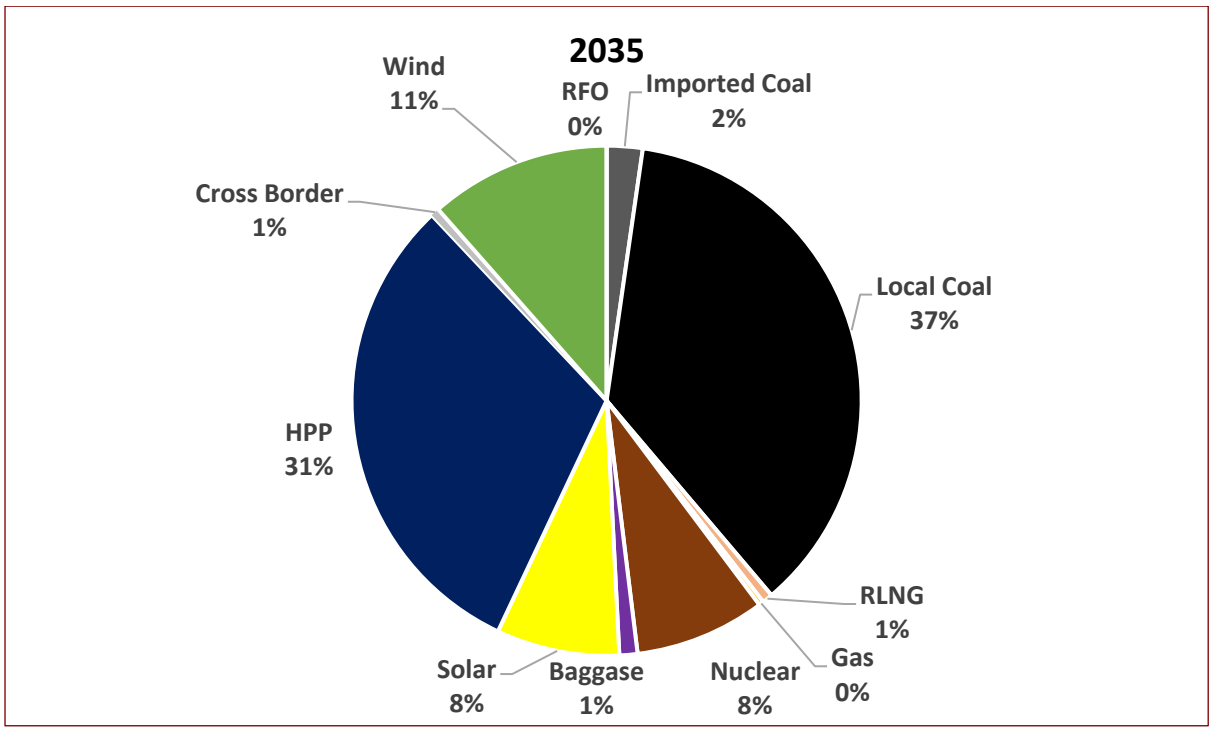


Chart G-4: IGCEP Generation Mix 2035 (GWh)

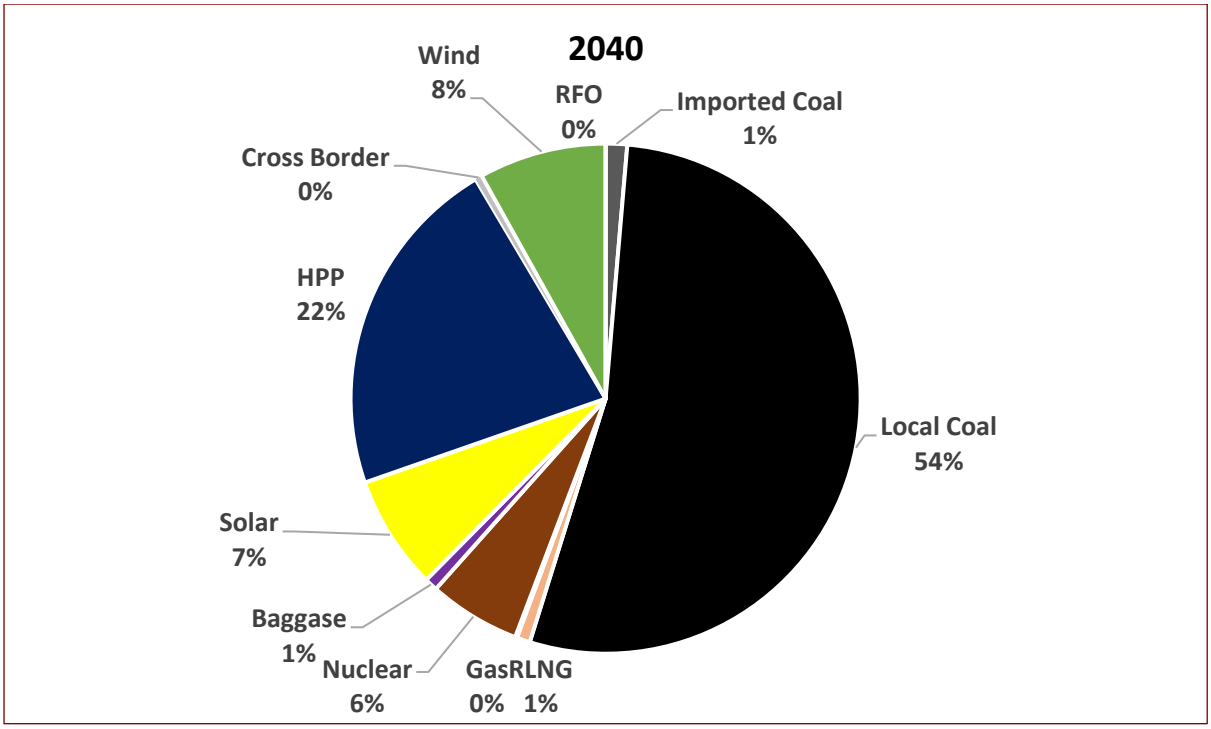


Chart G-5: IGCEP Generation Mix 2040 (GWh)

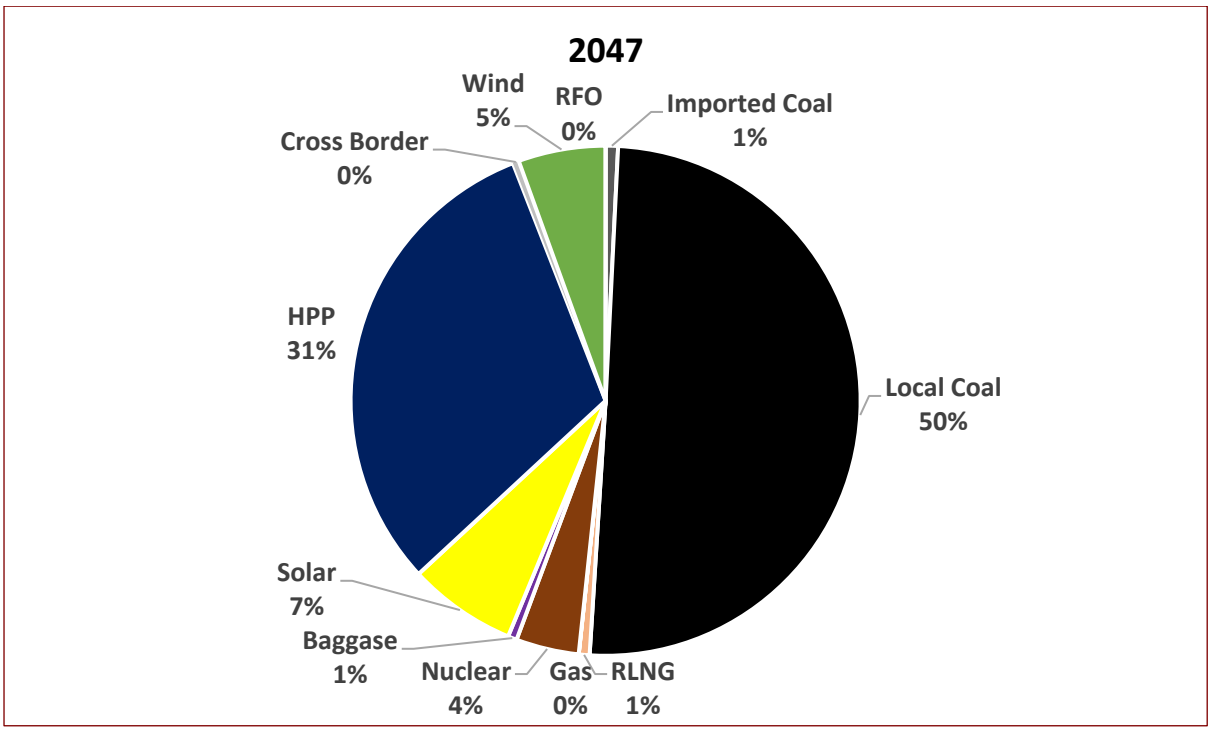


Chart G-6: IGCEP Generation Mix 2047 (GWh)

G-12. IGCEP Generation Mix 2020-47 (MW)

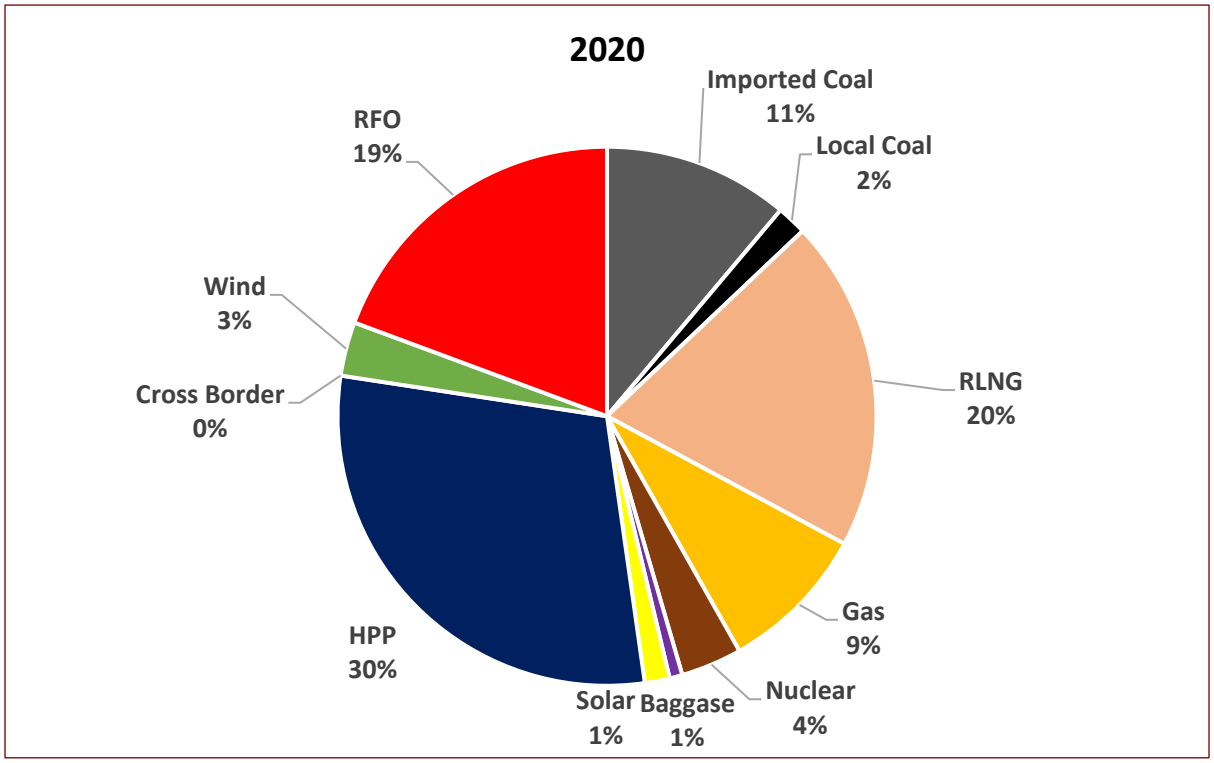


Chart G-7: IGCEP Generation Mix 2020 (MW)

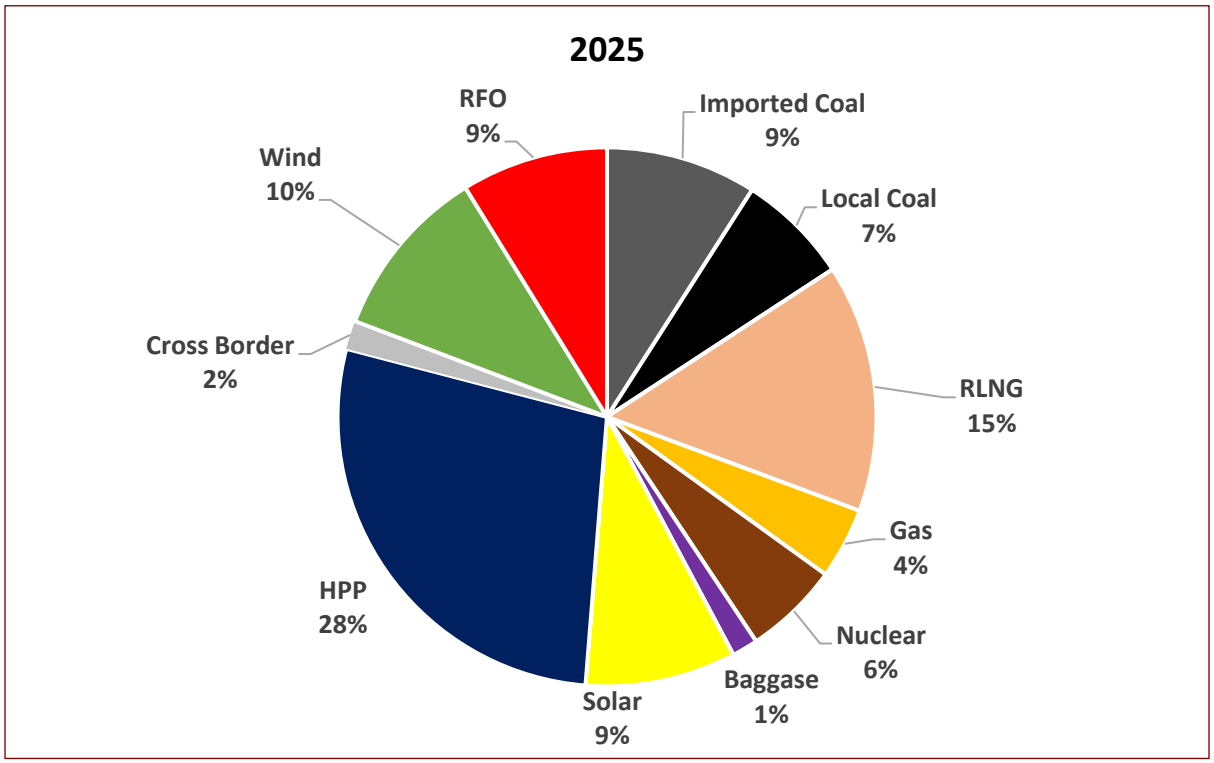


Chart G-8: IGCEP Generation Mix 2025 (MW)

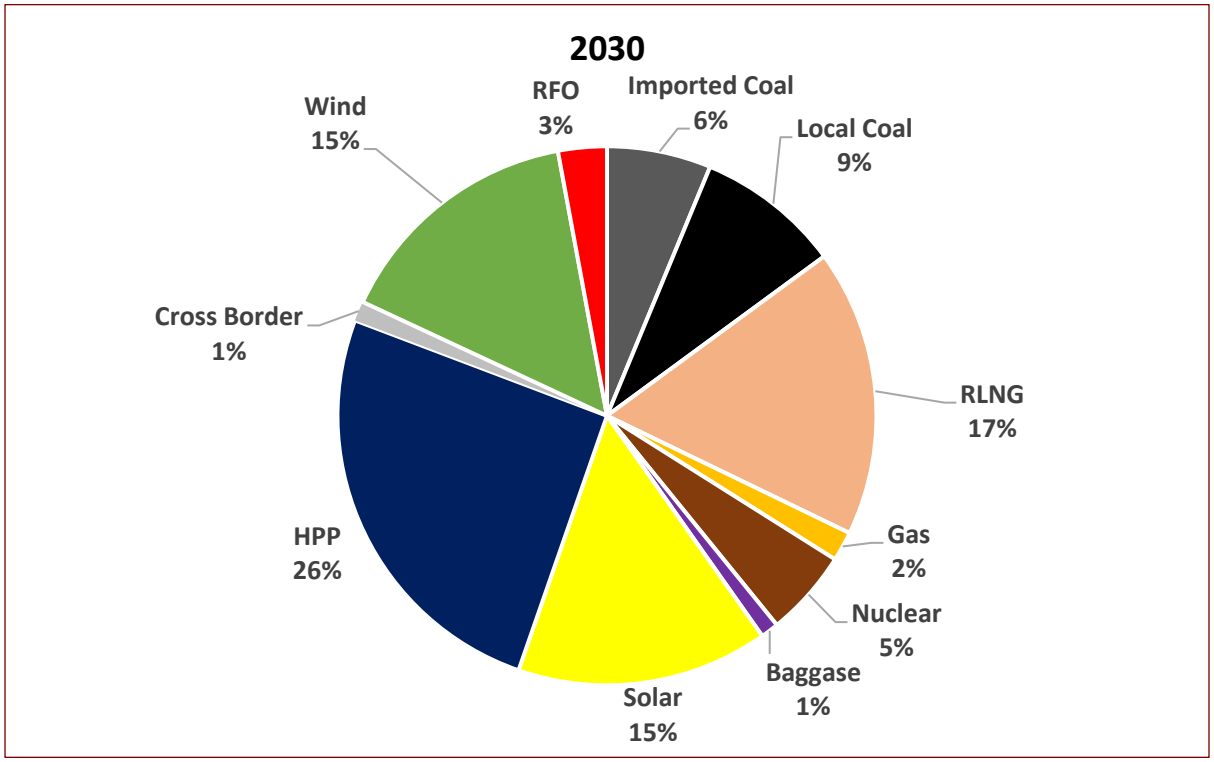


Chart G-9: IGCEP Generation Mix 2030 (MW)

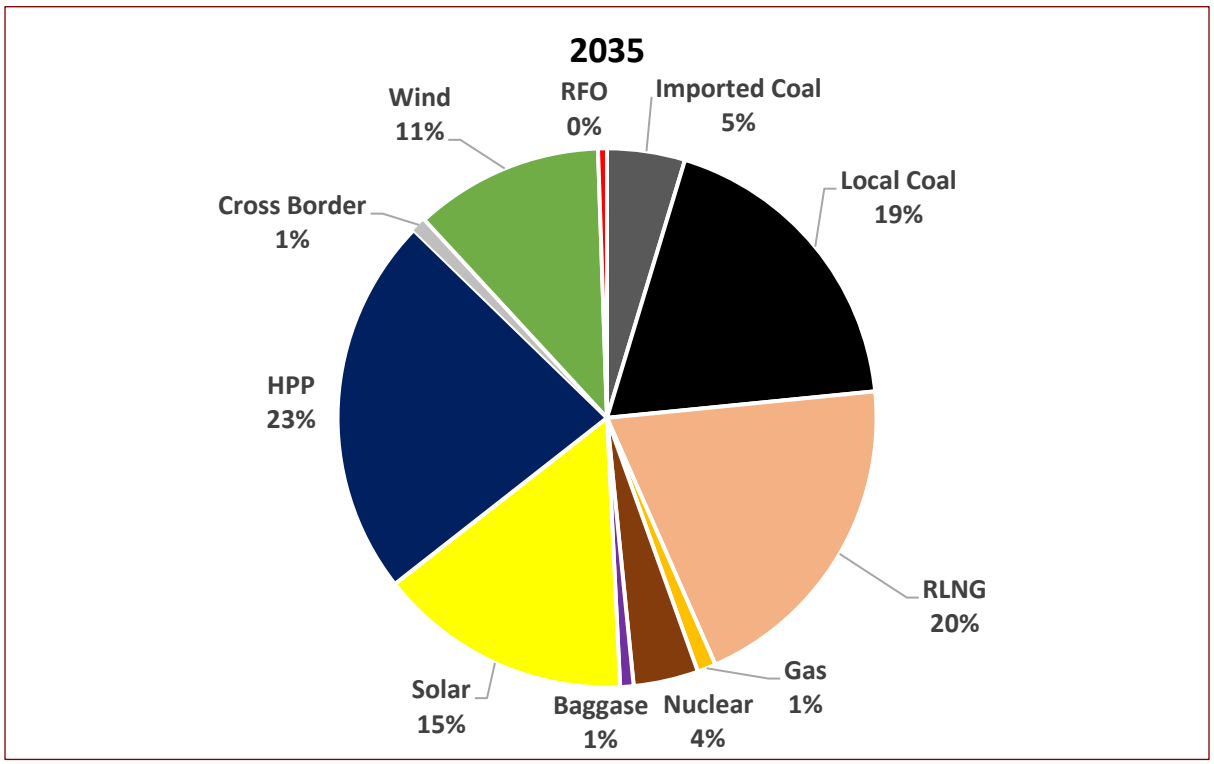


Chart G-10: IGCEP Generation Mix 2035 (MW)

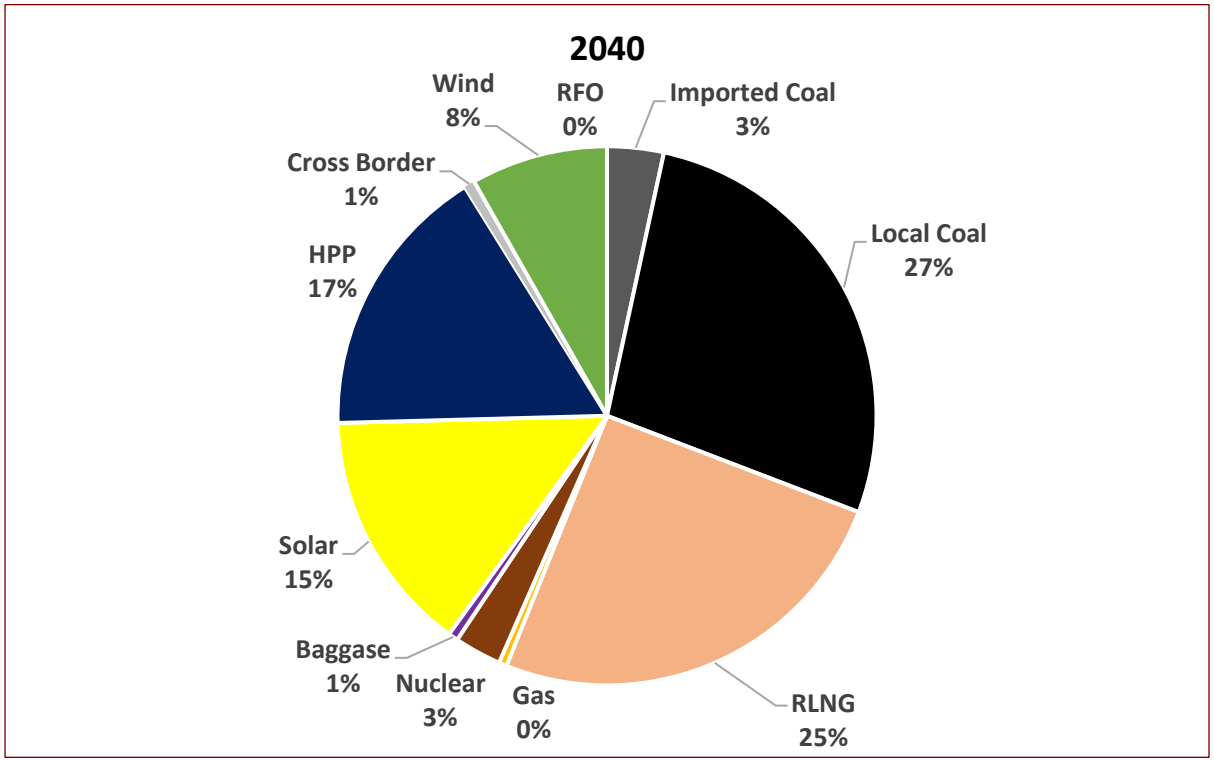


Chart G-11: IGCEP Generation Mix 2040 (MW)

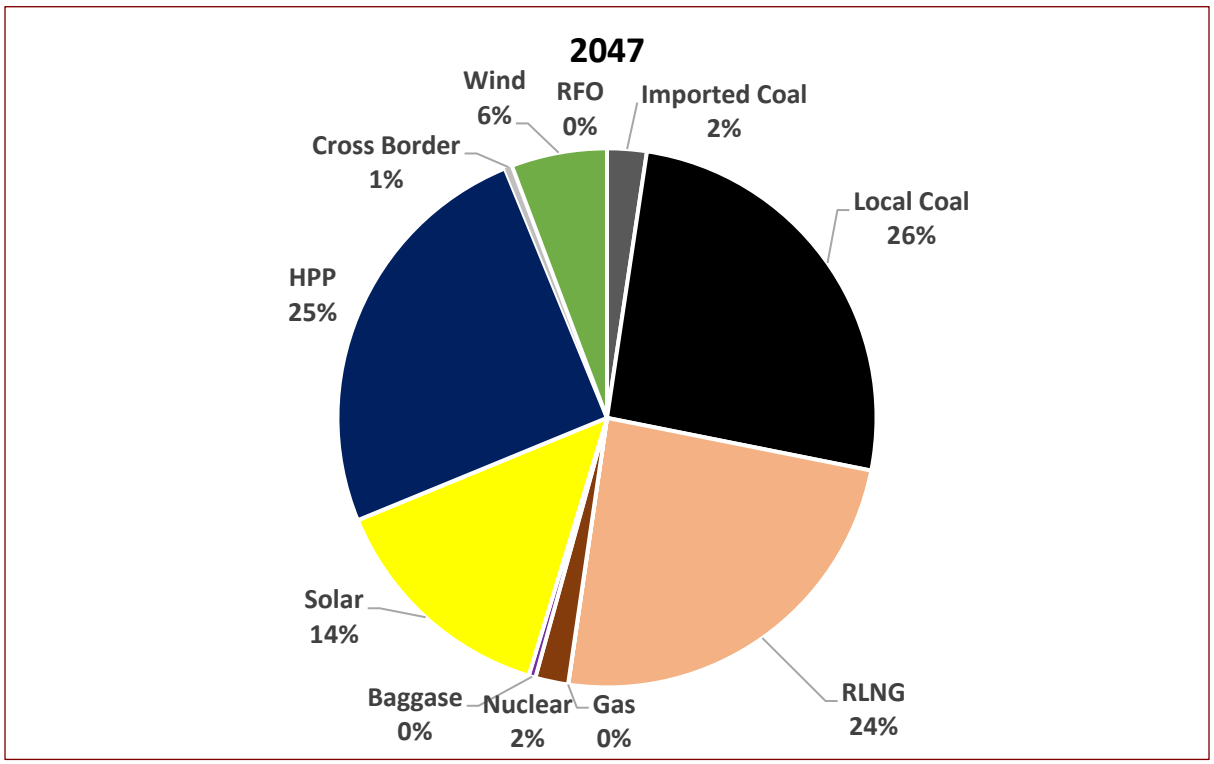


Chart G-12: IGCEP Generation Mix 2047 (MW)

G-13. IGCEP Monthly Generation Mix 2019-47 (GWh)

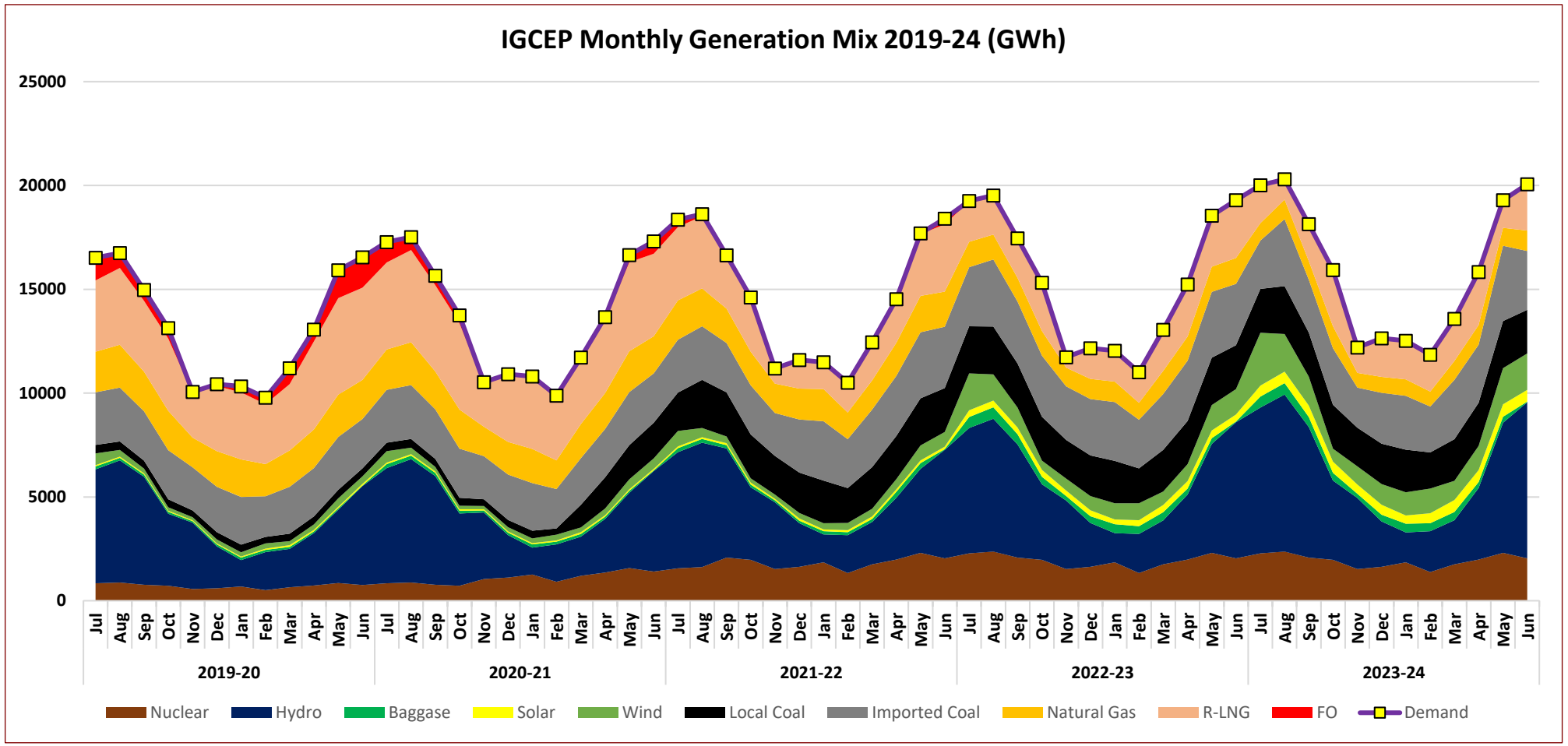


Chart G-13: IGCEP Monthly Generation Mix 2019-24 (GWh)

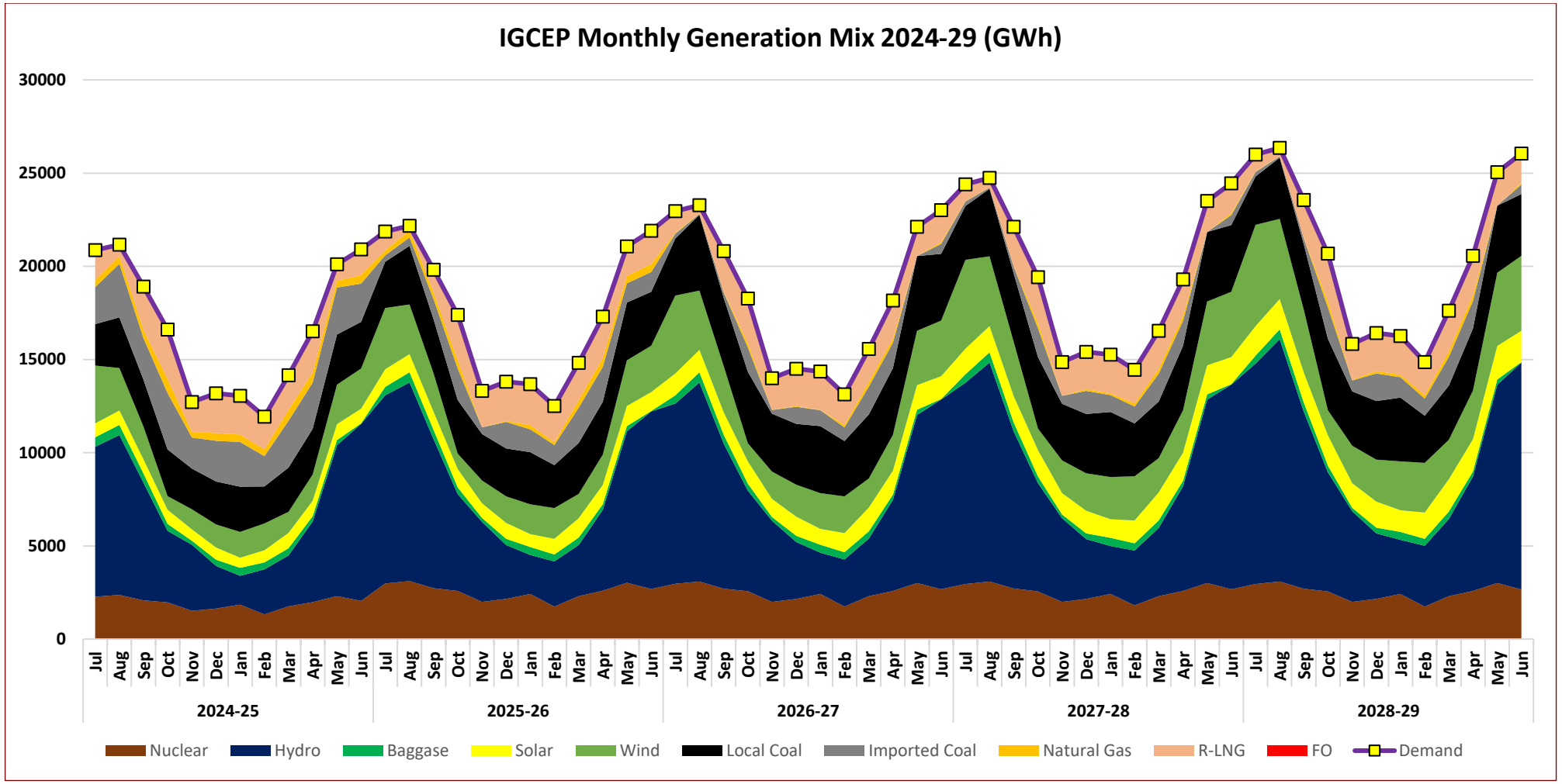


Chart G-14: IGCEP Monthly Generation Mix 2024-29 (GWh)

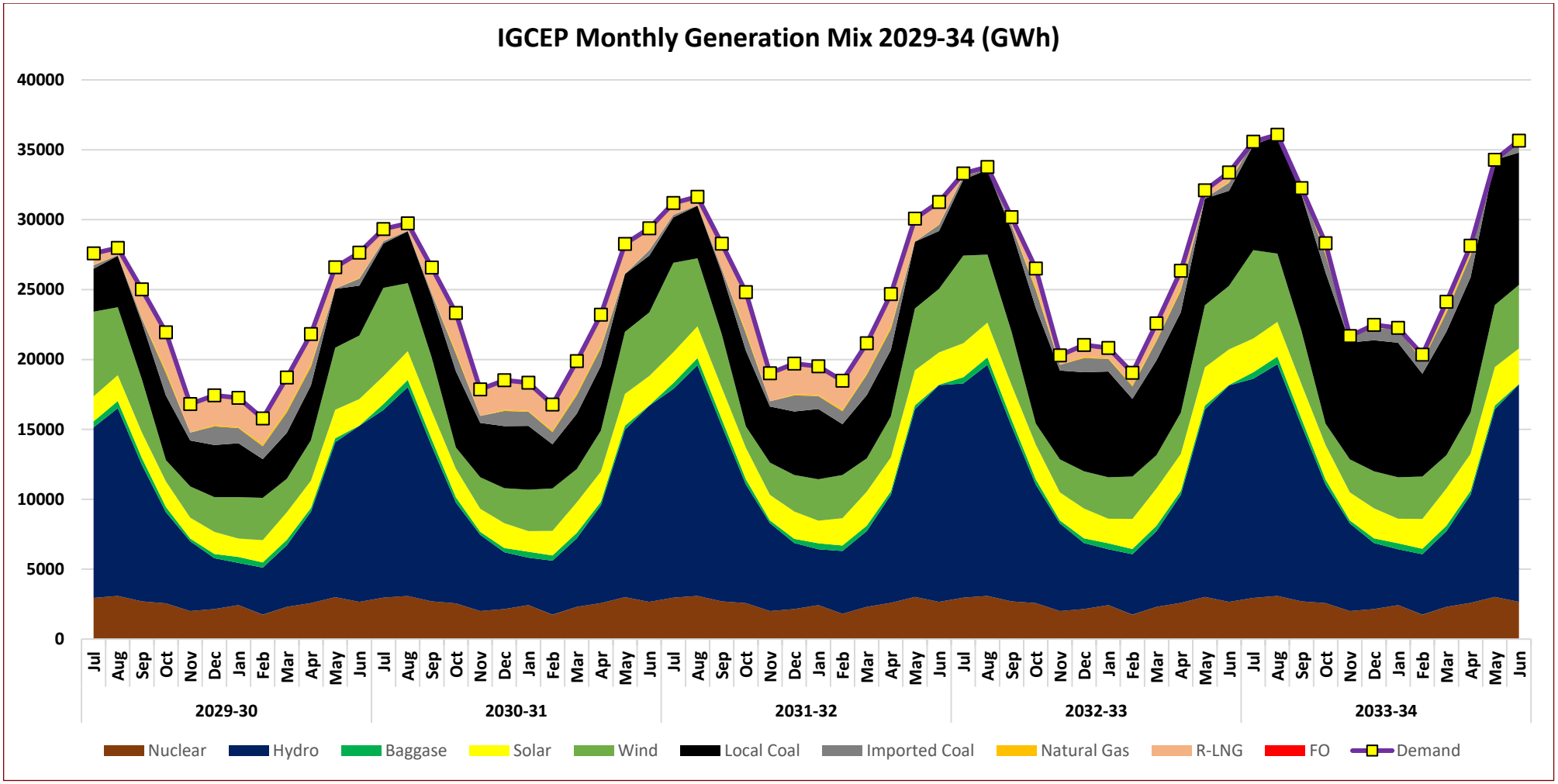


Chart G-15: IGCEP Monthly Generation Mix 2029-34 (GWh)

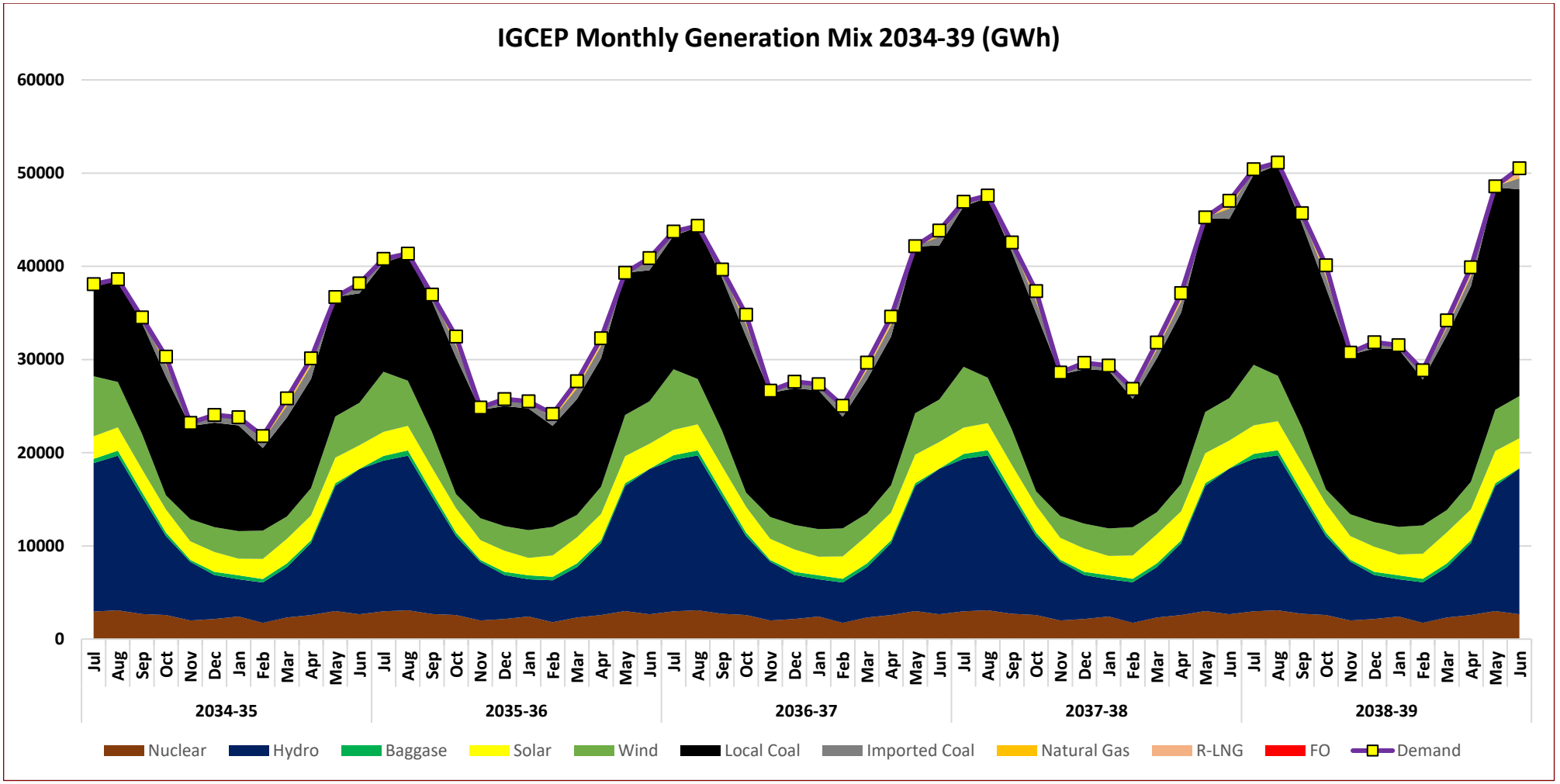


Chart G-16: IGCEP Monthly Generation Mix 2034-39 (GWh)

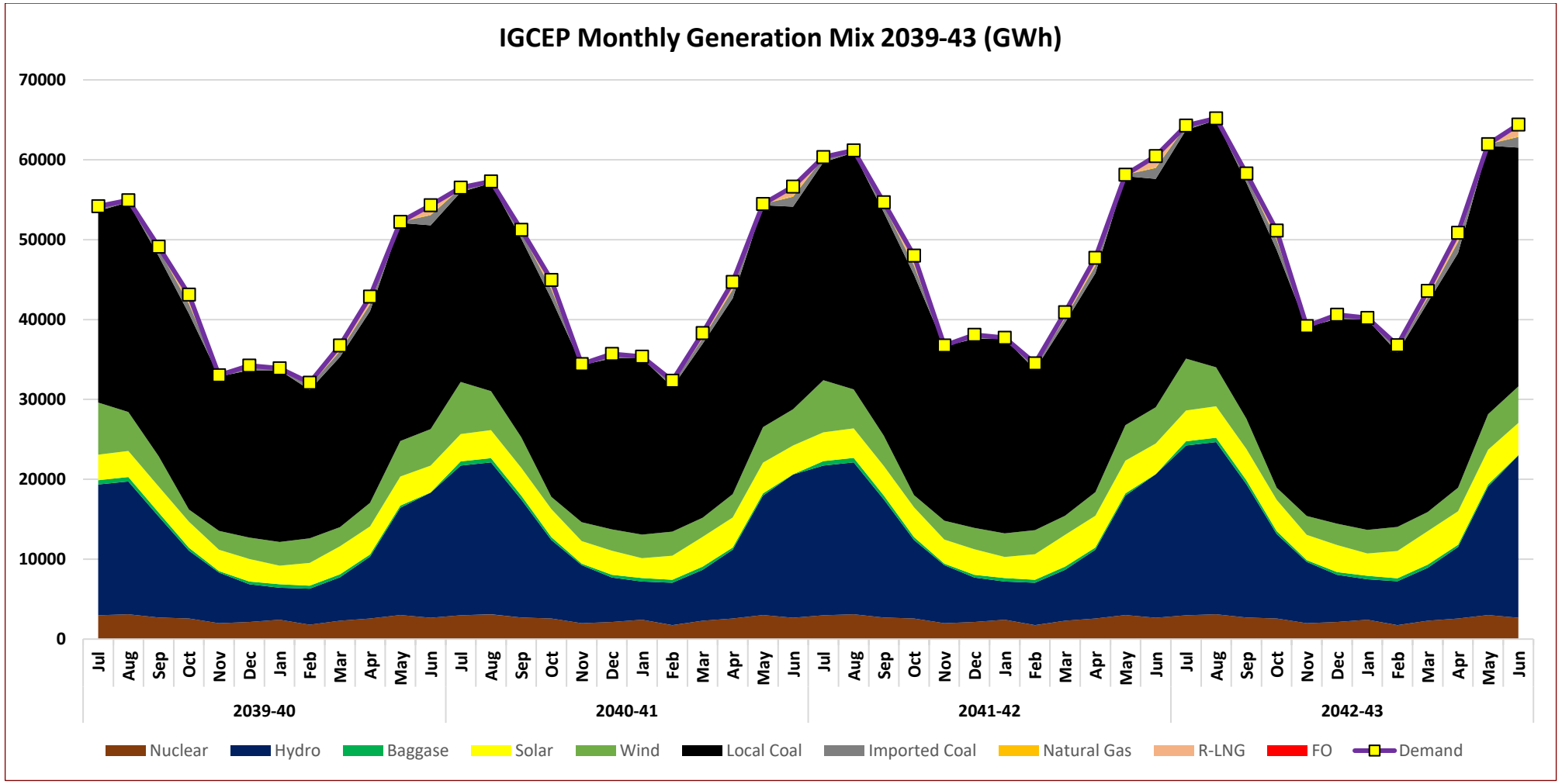


Chart G-17: IGCEP Monthly Generation Mix 2039-43 (GWh)

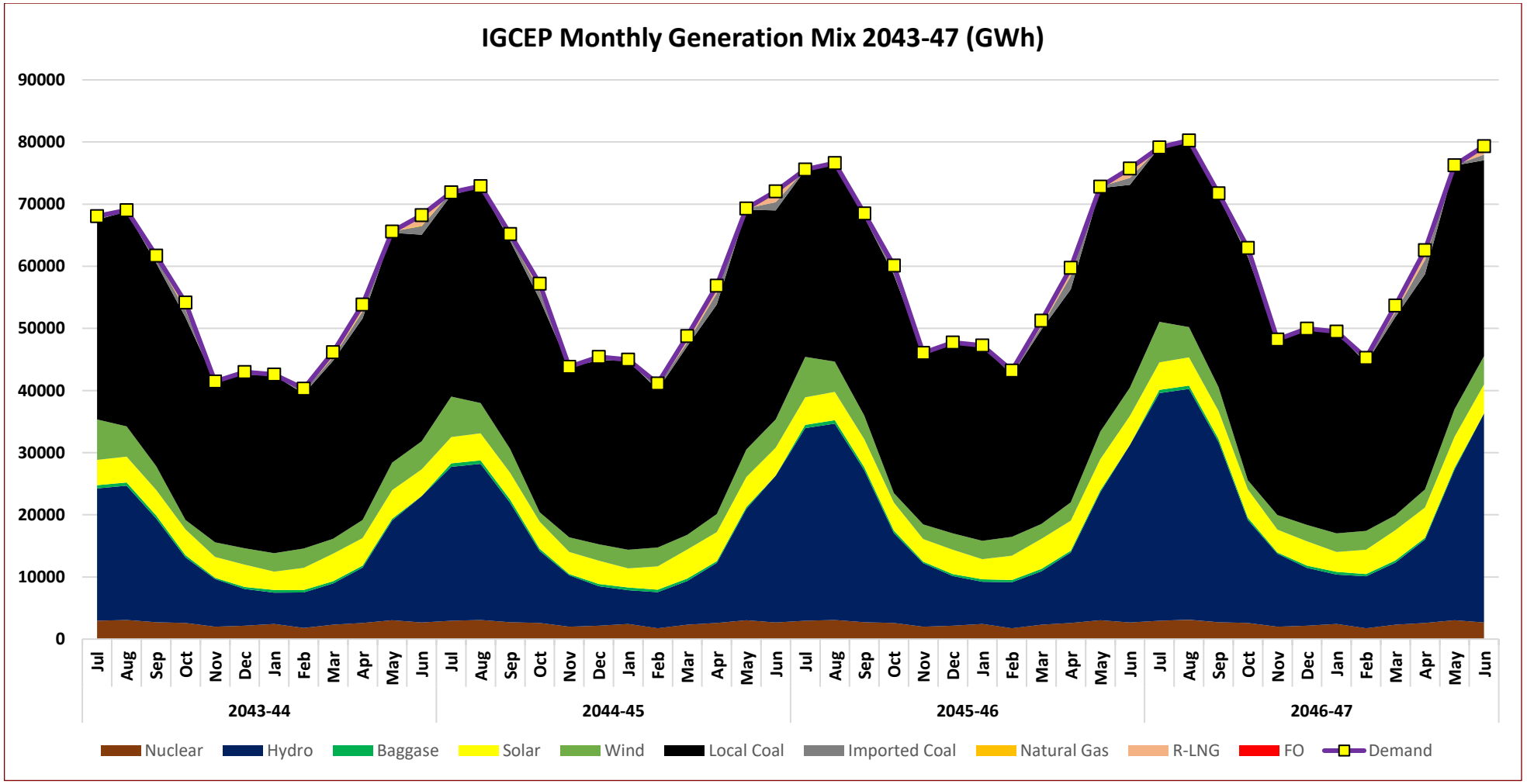


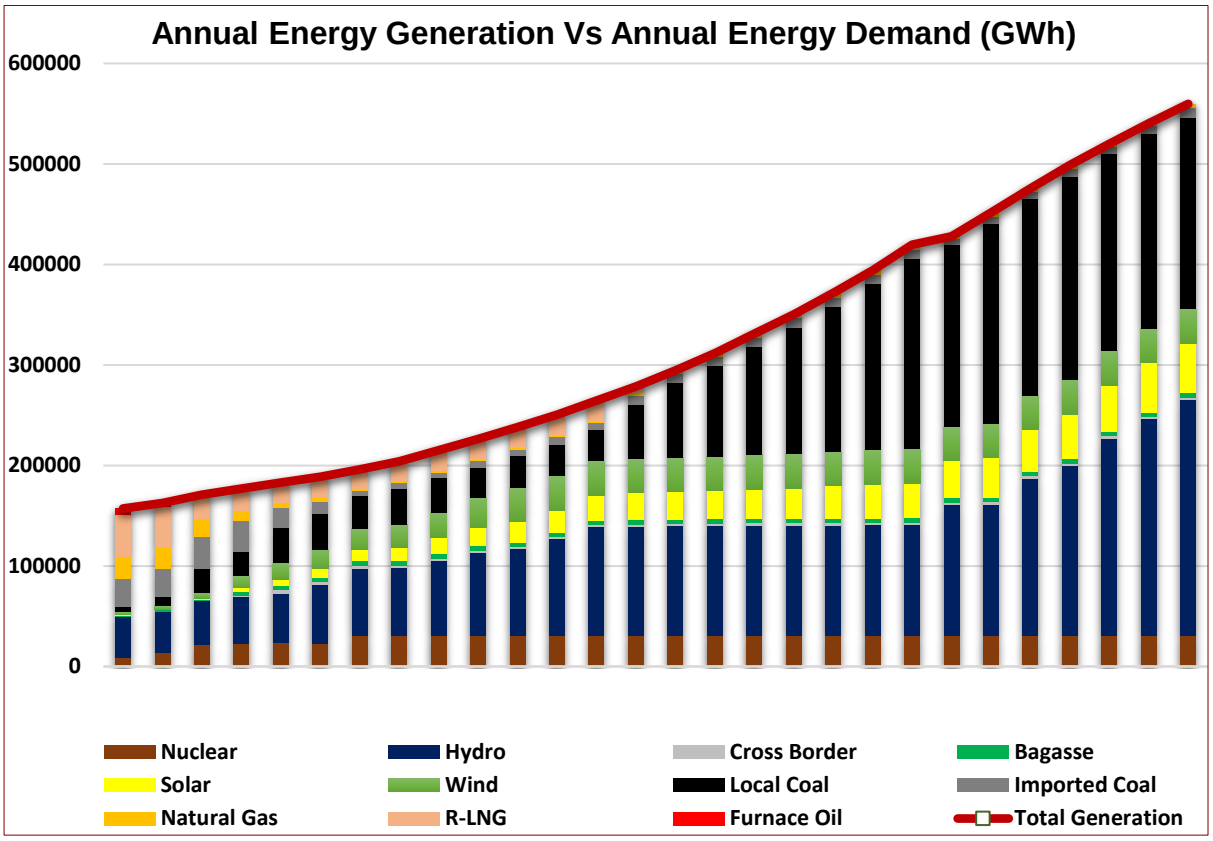
Chart G-18: IGCEP Monthly Generation Mix 2043-47 (GWh)

G-14. Year-wise Present Worth and Un-Discounted Cost

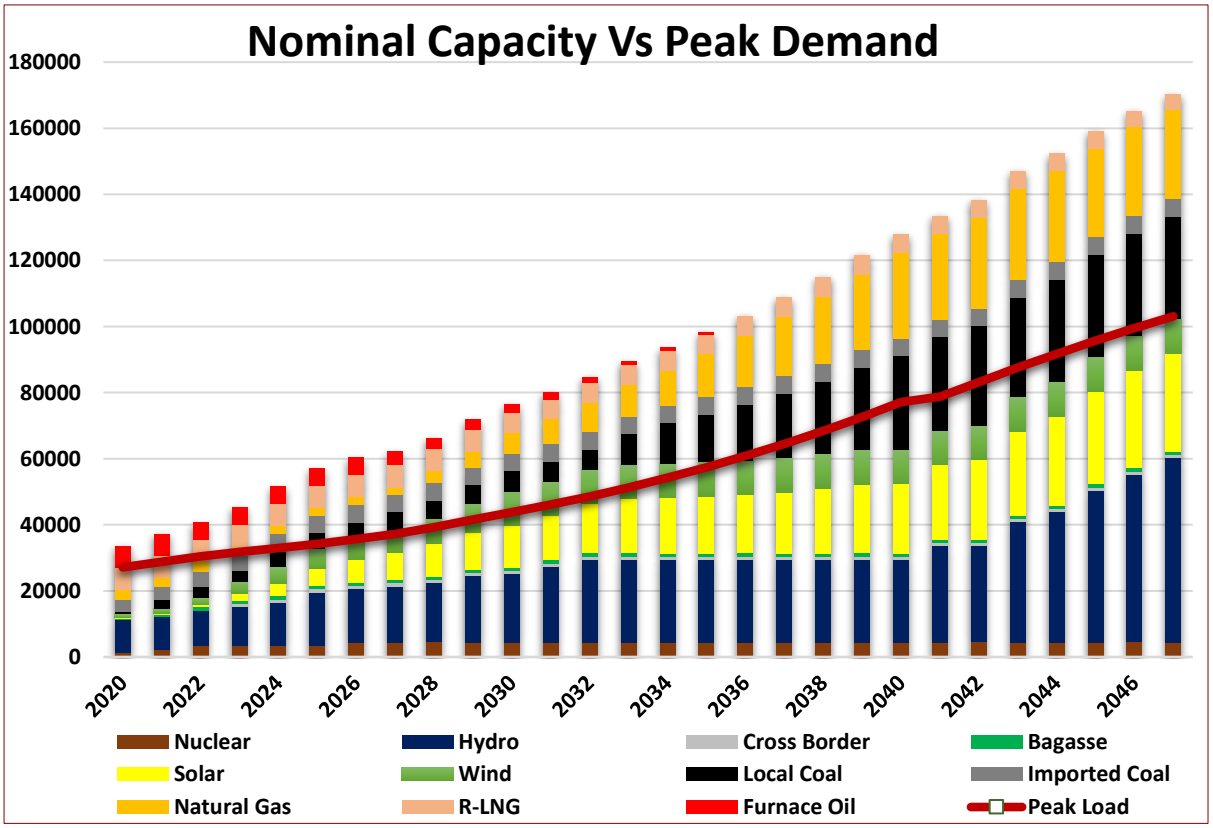
FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,887,227	6,843,948	6,843,948	0	956,722	5,887,227	6,843,948	6,843,948
2021	0	913,435	5,054,879	5,968,314	12,812,262	0	1,014,928	5,616,532	6,631,460	13,475,408
2022	0	909,992	3,830,700	4,740,692	17,552,955	0	1,123,447	4,729,260	5,852,706	19,328,115
2023	215,029	890,290	3,032,024	4,137,343	21,690,297	294,964	1,221,248	4,159,155	5,675,367	25,003,482
2024	448,811	871,557	2,574,852	3,895,220	25,585,517	684,058	1,328,390	3,924,481	5,936,930	30,940,411
2025	587,342	826,966	2,096,470	3,510,778	29,096,295	994,669	1,400,474	3,550,391	5,945,534	36,885,945
2026	675,640	801,877	1,645,805	3,123,323	32,219,617	1,271,336	1,508,873	3,096,873	5,877,082	42,763,028
2027	925,578	776,646	1,427,470	3,129,694	35,349,312	1,935,154	1,623,775	2,984,485	6,543,414	49,306,441
2028	1,018,112	743,527	1,307,770	3,069,410	38,418,722	2,365,133	1,727,257	3,038,026	7,130,415	56,436,856
2029	1,144,980	696,753	1,209,597	3,051,331	41,470,053	2,955,395	1,798,442	3,122,182	7,876,019	64,312,875
2030	1,235,052	643,614	1,135,880	3,014,546	44,484,598	3,542,095	1,845,866	3,257,672	8,645,632	72,958,508
2031	1,292,889	574,942	981,338	2,849,169	47,333,768	4,119,966	1,832,130	3,127,167	9,079,264	82,037,771
2032	1,281,518	531,581	901,719	2,714,818	50,048,585	4,537,480	1,882,172	3,192,721	9,612,372	91,650,144
2033	1,341,086	505,490	664,161	2,510,737	52,559,322	5,275,989	1,988,657	2,612,888	9,877,534	101,527,677
2034	1,359,503	481,454	579,030	2,419,986	54,979,308	5,942,717	2,104,550	2,531,078	10,578,345	112,106,022

FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2035	1,350,997	457,592	585,975	2,394,564	57,373,872	6,561,708	2,222,493	2,846,043	11,630,244	123,736,266
2036	1,343,963	435,807	603,710	2,383,481	59,757,353	7,252,823	2,351,876	3,257,981	12,862,680	136,598,946
2037	1,326,969	413,131	623,879	2,363,979	62,121,332	7,956,791	2,477,223	3,740,916	14,174,931	150,773,877
2038	1,310,418	394,917	629,886	2,335,221	64,456,553	8,730,613	2,631,119	4,196,595	15,558,326	166,332,203
2039	1,297,742	378,788	639,727	2,316,258	66,772,811	9,606,845	2,804,070	4,735,731	17,146,646	183,478,849
2040	1,287,312	364,479	633,216	2,285,007	69,057,818	10,588,478	2,997,937	5,208,370	18,794,786	202,273,635
2041	1,243,331	347,649	573,551	2,164,531	71,222,349	11,363,025	3,177,228	5,241,789	19,782,041	222,055,676
2042	1,214,203	331,119	570,598	2,115,919	73,338,268	12,329,801	3,362,392	5,794,219	21,486,412	243,542,088
2043	1,201,590	311,533	548,045	2,061,169	75,399,437	13,557,473	3,515,013	6,183,556	23,256,042	266,798,130
2044	1,159,236	296,383	536,794	1,992,414	77,391,851	14,532,881	3,715,641	6,729,577	24,978,099	291,776,229
2045	1,140,997	275,997	505,748	1,922,742	79,314,592	15,893,575	3,844,516	7,044,846	26,782,937	318,559,166
2046	1,172,401	253,619	441,099	1,867,119	81,181,711	18,145,585	3,925,326	6,827,020	28,897,931	347,457,097
2047	1,186,288	252,260	397,611	1,836,159	83,017,871	20,400,572	4,338,118	6,837,709	31,576,399	379,033,496

H-1. Annual Energy Generation Vs Annual Energy Demand (GWh)



H-2. Nominal Capacity Vs Peak Demand (MW) 2020-47



H-3. Future Generation Capacity Additions

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South MW	Midland MW	North MW	MW	MW
2020	-	-	-	-	-	-	-	-	-	-	0	0
2021	-	-	-	-	-	-	-	-	-	-	0	0
2022	-	-	-	-	-	-	-	-	-	-	0	0
2023	-	-	-	-	-	-	1,500	1,000	300	200	3,000	3,000
2024	-	1,514	-	-	-	3	1,500	1,000	300	89	4,405	7,405
2025	-	-	-	-	-	-	1,500	922	-	-	2,422	9,828
2026	-	-	-	-	-	3	1,500	673	-	-	2,176	12,004
2027	-	607	20	-	-	-	1,500	301	-	-	2,428	14,432
2028	-	-	-	1,577	-	-	1,500	784	-	-	3,861	18,292
2029	-	-	-	1,129	-	1,986	1,500	1,000	263	-	5,879	24,171
2030	-	607	-	2,162	-	639	1,500	1,000	300	200	6,408	30,579
2031	-	-	-	1,108	-	2,154	806	-	-	-	4,067	34,647
2032	-	-	-	1,211	-	2,160	1,500	-	-	-	4,871	39,518
2033	-	3,056	-	862	-	-	1,500	-	-	-	5,418	44,936

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South MW	Midland MW	North MW	MW	MW
2034	-	3,207	517	374	-	-	215	-	-	-	4,313	49,249
2035	-	2,131	125	2,572	-	-	466	-	-	-	5,295	54,544
2036	-	2,411	-	2,874	-	-	473	-	-	-	5,759	60,303
2037	-	2,653	108	2,027	-	-	751	-	-	-	5,540	65,842
2038	-	2,543	384	2,090	-	-	1,165	-	-	-	6,182	72,024
2039	-	3,016	145	2,614	-	-	1,132	-	-	-	6,907	78,931
2040	-	3,355	255	2,901	-	-	193	-	-	-	6,704	85,635
2041	-	-	-	-	-	4,238	1,500	-	-	-	5,738	91,373
2042	-	1,761	98	1,746	-	44	1,500	-	-	-	5,149	96,522
2043	-	-	-	-	-	7,108	1,500	-	-	-	8,608	105,130
2044	-	878	-	-	-	3,035	1,500	-	-	-	5,413	110,543
2045	-	-	-	-	-	6,460	1,113	-	-	-	7,573	118,116
2046	-	-	-	-	-	4,893	1,500	-	-	-	6,393	124,508
2047	-	-	-	-	-	5,007	105	-	-	-	5,112	129,620
Total	**-**	**27,740**	**1,652**	**25,247**	**0**	**37,730**	**28,918**	**6,680**	**1,163**	**489**	**129,620**	

H-4. List of Projects uptill 2047 (Committed + Candidate)

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2020							
1	Zorlu Solar Pakistan Pvt. Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Jan-20
2	Jabori	Hydro	10	10	PEDO	Committed	Mar-20
3	Trimmu	RLNG	1,263	1,243	PPIB	Committed	Apr-20
4	Jhing	Hydro	15	15	AJK	Committed	Jun-20
5	Karora	Hydro	12	12	PEDO	Committed	Jun-20
6	Koto	Hydro	41	41	PEDO	Committed	Jun-20
Generation Additions in 2020 (MW)			1,441	1,421			
Cumulative Addition up till 2020 (MW)			1,441	1,421			
2021							
1	Etihad Power Generation Ltd.	Bagasse	74	74	AEDB	Committed	Jul-20
2	Karachi Nuclear K-2	Nuclear	1,100	1,059	PAEC	Committed	Nov-20
3	Master Green Energy Ltd.	Wind	60	60	AEDB	Committed	Nov-20
4	Shaheen Renewable Energy-1 Pvt. Ltd.	Wind	51	51	AEDB	Committed	Nov-20
5	Lawi	Hydro	69	69	PEDO	Committed	Jan-21
6	Tricorm Wind Power Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-21
7	Western Energy Pvt. Limited	Wind	50	50	AEDB	Committed	Feb-21
8	Lucky	Local Coal	660	607	PPIB	Committed	Mar-21
9	Access Electric Pvt. Ltd.	Solar	10	10	AEDB	Committed	Mar-21
10	Access Solar Pvt. Ltd.	Solar	12	12	AEDB	Committed	Mar-21
11	Thal Nova	Local Coal	330	300	PPIB	Committed	Mar-21
12	Thar TEL	Local Coal	330	300	PPIB	Committed	Mar-21
13	Thar-I (Shanghai Electric) Unit 1	Local Coal	660	607	PPIB	Committed	Mar-21
14	Riali-II	Hydro	7	7	AJK	Committed	Jun-21
15	Hydro China Dawood Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
16	Tenga Generasi Limited	Wind	50	50	AEDB	Committed	Jun-21
17	Zephyr Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
18	Siddiqsons	Local Coal	330	304	PPIB	Committed	Jun-21
Generation Additions in 2021 (MW)			3,943	3,708			
Cumulative Addition uptill 2021 (MW)			5,384	5,129			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2022							
1	HNDS Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
2	Helios Power Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
3	Thar-I (Shanghai Electric) Unit 2	Local Coal	660	607	PPIB	Committed	Aug-21
4	Karachi Nuclear K-3	Nuclear	1,100	1,059	PAEC	Committed	Sep-21
5	Buksh Energy Pvt. Ltd.	Solar	12	12	AEDB	Committed	Sep-21
6	Safe Solar Power Pvt. Ltd.	Solar	10	10	AEDB	Committed	Sep-21
7	Artistic Wind Power Pvt. Limited.	Wind	50	50	AEDB	Committed	Oct-21
8	Meridian Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Nov-21
9	Zhenfa Pakistan New Energy Company (Pvt.) Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Nov-21
10	Karot	Hydro	720	720	PPIB/AJK	Committed	Dec-21
11	Jamshoro CFPP Unit 1	Imp.Coal	660	644	GENCO	Committed	Dec-21
12	Gwadar	Imp.Coal	300	273	PPIB	Committed	Jan-22
13	Gul Ahmed Electric Ltd.	Wind	50	50	AEDB	Committed	Jan-22
14	ACT 2 wind (Pvt.) Ltd.	Wind	50	50	AEDB	Committed	Feb-22
15	Din Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
16	Indus Wind Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
17	Lakeside Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
18	Liberty Wind Power 1 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
19	Liberty Wind Power 2 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
20	Metro Wind Power Ltd.	Wind	50	50	AEDB	Committed	Feb-22
21	NASDA Green Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
22	Trans Atlantic Energy (Pvt.) Limited	Wind	48	48	AEDB	Committed	Feb-22
23	Alliance Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
24	Bahawalpur Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
25	Faran Power Limited	Bagasse	27	27	AEDB	Committed	Mar-22
26	Ghotki Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
27	Hamza Sugar Mills Ltd. (Unit-II)	Bagasse	30	30	AEDB	Committed	Mar-22
28	HSM Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
29	Hunza Power (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
30	Indus Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
31	Ittefaq Power Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
32	Kashmir Power (Pvt.) Ltd.	Bagasse	40	40	AEDB	Committed	Mar-22
33	Mehran Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
34	RYK Energy Ltd.	Bagasse	25	25	AEDB	Committed	Mar-22
35	Sadiqabad Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
36	Shahtaj Sugar Mills Ltd.	Bagasse	32	32	AEDB	Committed	Mar-22
37	Sheikhoo Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
38	TAY Powergen Company (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
39	Two Star Energy (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22
Generation Additions in 2022 (MW)			4,841	4,703			
Cumulative Addition up till 2022 (MW)			10,225	9,832			
2023							
1	Gorkin Matiltan	Hydro	84	84	PEDO	Committed	Nov-22
2	Suki Kinari	Hydro	884	884	PPIB	Committed	Dec-22
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2023
4	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2023
5	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2023
6	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2023
7	CASA	Import	1,000	1,000	GOP	Committed	May-23
Generation Additions in 2023 (MW)			4,968	4,968			
Cumulative Addition up till 2023 (MW)			15,193	14,800			
2024							
1	Tarbela 5th-Extension	Hydro	1,410	1,410	WAPDA	Committed	Sep-23
2	Jamshoro CFPP Unit 2	Imp. Coal	660	644	GENCO	Committed	Dec-23
3	Blue Star	Hydro	3	3	PEDO	Candidate	2024
4	Generic_Candidate Local Coal	Local Coal	1,514	1,514	Yet to be Decided	Candidate	2024
5	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2024
6	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2024
7	Generic_Candidate Wind_North	Wind	89	89	Yet to be Decided	Candidate	2024
8	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2024

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Generation Additions in 2024 (MW)			6,475	6,459			
Cumulative Addition up till 2024 (MW)			21,668	21,260			
2025							
1	Keyal Khwar	Hydro	128	128	WAPDA	Committed	Sep-24
2	Mohmand	Hydro	800	800	WAPDA	Committed	Nov-24
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2025
4	Generic_Candidate Wind_South	Wind	922	922	Yet to be Decided	Candidate	2025
5	Dasu 1	Hydro	2,160	2,160	WAPDA	Committed	Feb-25
Generation Additions in 2025 (MW)			5,510	5,510			
Cumulative Addition up till 2025 (MW)			27,179	26,770			
2026							
1	Chasma Nuclear C-5	Nuclear	1,100	1,059	PAEC	Committed	Jul-25
2	Harpo	Hydro	35	35	WAPDA	Committed	Jul-25
3	Riali-III	Hydro	3	3	AJK	Candidate	2026
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2026
5	Generic_Candidate Wind_South	Wind	673	673	Yet to be Decided	Candidate	2026
Generation Additions in 2026 (MW)			3,311	3,270			
Cumulative Addition up till 2026 (MW)			30,490	30,040			
2027							
1	Azad Pattan	Hydro	700	701	PPIB	Committed	Sep-26
2	Hatim	CCGT_Gas	20	20	PPIB	Candidate	2027
3	Oracle_1	Local Coal	660	607	STDC/ PPIB	Candidate	2027
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2027
5	Generic_Candidate Wind_South	Wind	301	301	Yet to be Decided	Candidate	2027
6	Kohala	Hydro	1,124	1,124	PPIB	Committed	Jun-27
Generation Additions in 2027 (MW)			4,305	4,253			
Cumulative Addition up till 2027 (MW)			34,795	34,292			
2028							
1	Generic_Candidate OCGT_Gas	Gas	1,577	1,577	Yet to be Decided	Candidate	2028
2	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2028
3	Generic_Candidate Wind_South	Wind	784	784	Yet to be Decided	Candidate	2028

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Generation Additions in 2028 (MW)			3,861	3,861			
Cumulative Addition up till 2028 (MW)			38,655	38,153			
2029							
1	Dander	Hydro	56	56	PEDO	Candidate	2029
2	Dubair Kalay	Hydro	66	66	PEDO	Candidate	2029
3	Nerai-Dubair	Hydro	46	46	PEDO	Candidate	2029
4	Rajdhani	Hydro	132	132	PPIB	Candidate	2029
5	Thakot-III	Hydro	1,686	1,686	WAPDA	Candidate	2029
6	Generic_Candidate OCGT_Gas	Gas	1,129	1,129	Yet to be Decided	Candidate	2029
7	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2029
8	Generic_Candidate Wind_Mid	Wind	263	263	Yet to be Decided	Candidate	2029
9	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2029
Generation Additions in 2029 (MW)			5,879	5,879			
Cumulative Addition up till 2029 (MW)			44,534	44,032			
2030							
1	Mahl	Hydro	639	639	PPIB	Candidate	2030
2	Oracle_2	Local Coal	660	607	STDC/ PPIB	Candidate	2030
3	Generic_Candidate OCGT_Gas	Gas	2,162	2,162	Yet to be Decided	Candidate	2030
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2030
5	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2030
6	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2030
7	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2030
Generation Additions in 2030 (MW)			6,461	6,408			
Cumulative Addition up till 2030 (MW)			50,995	50,440			
2031							
1	Thakot-I	Hydro	2,154	2,154	WAPDA	Candidate	2031
2	Generic_Candidate OCGT_Gas	Gas	1,108	1,108	Yet to be Decided	Candidate	2031
3	Generic_Candidate Solar	Solar	806	806	Yet to be Decided	Candidate	2031
Generation Additions in 2031 (MW)			4,067	4,067			
Cumulative Addition up till 2031 (MW)			55,063	54,507			
2032							

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
1	Dasu_2	Hydro	2,160	2,160	WAPDA	Candidate	2032
2	Generic_Candidate OCGT_Gas	Gas	1,211	1,211	Yet to be Decided	Candidate	2032
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2032
Generation Additions in 2032 (MW)			4,871	4,871			
Cumulative Addition up till 2032 (MW)			59,934	59,378			
2033							
1	Generic_Candidate Local Coal	Local Coal	3,056	3,056	Yet to be Decided	Candidate	2033
2	Generic_Candidate OCGT_Gas	Gas	862	862	Yet to be Decided	Candidate	2033
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2033
Generation Additions in 2033 (MW)			5,418	5,418			
Cumulative Addition up till 2033 (MW)			65,352	64,796			
2034							
1	Generic_Candidate Local Coal	Local Coal	3,207	3,207	Yet to be Decided	Candidate	2034
2	Generic_Candidate OCGT_Gas	Gas	374	374	Yet to be Decided	Candidate	2034
3	Generic_Candidate CCGT_Gas	Gas	517	517	Yet to be Decided	Candidate	2034
4	Generic_Candidate Solar	Solar	215	215	Yet to be Decided	Candidate	2034
Generation Additions in 2034 (MW)			4,313	4,313			
Cumulative Addition up till 2034 (MW)			69,665	69,109			
2035							
1	Generic_Candidate Local Coal	Local Coal	2,131	2,131	Yet to be Decided	Candidate	2035
2	Generic_Candidate OCGT_Gas	Gas	2,572	2,572	Yet to be Decided	Candidate	2035
3	Generic_Candidate CCGT_Gas	Gas	125	125	Yet to be Decided	Candidate	2035
4	Generic_Candidate Solar	Solar	466	466	Yet to be Decided	Candidate	2035
Generation Additions in 2035 (MW)			5,295	5,295			
Cumulative Addition up till 2035 (MW)			74,960	74,404			
2036							
1	Generic_Candidate Local Coal	Local Coal	2,411	2,411	Yet to be Decided	Candidate	2036
2	Generic_Candidate OCGT_Gas	Gas	2,874	2,874	Yet to be Decided	Candidate	2036
3	Generic_Candidate Solar	Solar	473	473	Yet to be Decided	Candidate	2036
Generation Additions in 2036 (MW)			5,759	5,759			
Cumulative Addition up till 2036 (MW)			80,719	80,163			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2037							
1	Generic_Candidate Local Coal	Local Coal	2,653	2,653	Yet to be Decided	Candidate	2037
2	Generic_Candidate OCGT_Gas	Gas	2,027	2,027	Yet to be Decided	Candidate	2037
3	Generic_Candidate CCGT_Gas	Gas	108	108	Yet to be Decided	Candidate	2037
4	Generic_Candidate Solar	Solar	751	751	Yet to be Decided	Candidate	2037
Generation Additions in 2037 (MW)			5,540	5,540			
Cumulative Addition up till 2037 (MW)			86,258	85,703			
2038							
1	Generic_Candidate Local Coal	Local Coal	2,543	2,543	Yet to be Decided	Candidate	2038
2	Generic_Candidate OCGT_Gas	Gas	2,090	2,090	Yet to be Decided	Candidate	2038
3	Generic_Candidate CCGT_Gas	Gas	384	384	Yet to be Decided	Candidate	2038
4	Generic_Candidate Solar	Solar	1,165	1,165	Yet to be Decided	Candidate	2038
Generation Additions in 2038 (MW)			6,182	6,182			
Cumulative Addition uptill 2038 (MW)			92,440	91,885			
2039							
1	Generic_Candidate Local Coal	Local Coal	3,016	3,016	Yet to be Decided	Candidate	2039
2	Generic_Candidate OCGT_Gas	Gas	2,614	2,614	Yet to be Decided	Candidate	2039
3	Generic_Candidate CCGT_Gas	Gas	145	145	Yet to be Decided	Candidate	2039
4	Generic_Candidate Solar	Solar	1,132	1,132	Yet to be Decided	Candidate	2039
Generation Additions in 2039 (MW)			6,907	6,907			
Cumulative Addition uptill 2039 (MW)			99,347	98,792			
2040							
1	Generic_Candidate Local Coal	Local Coal	3,355	3,355	Yet to be Decided	Candidate	2040
2	Generic_Candidate OCGT_Gas	Gas	2,901	2,901	Yet to be Decided	Candidate	2040
3	Generic_Candidate CCGT_Gas	Gas	255	255	Yet to be Decided	Candidate	2040
4	Generic_Candidate Solar	Solar	193	193	Yet to be Decided	Candidate	2040
Generation Additions in 2040 (MW)			6,704	6,704			
Cumulative Addition uptill 2040 (MW)			106,051	105,496			
2041							
1	Bata Kundi	Hydro	96	96	PEDO	Candidate	2041
2	Dowarian	Hydro	40	40	AJK	Candidate	2041

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
3	Lower Palas	Hydro	666	666	WAPDA	Candidate	2041
4	Patan	Hydro	2,400	2,400	WAPDA	Candidate	2041
5	Thakot-II	Hydro	966	966	WAPDA	Candidate	2041
6	Torkhow	Hydro	70	70	PEDO	Candidate	2041
7	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2041
Generation Additions in 2041 (MW)			5,738	5,738			
Cumulative Addition uptill 2041 (MW)			111,789	111,234			
2042							
1	Jagran-III	Hydro	36	36	AJK	Candidate	2042
2	Kathai-II	Hydro	8	8	AJK	Candidate	2042
3	Generic_Candidate Local Coal	Local Coal	1,761	1,761	Yet to be Decided	Candidate	2042
4	Generic_Candidate OCGT_Gas	Gas	1,746	1,746	Yet to be Decided	Candidate	2042
5	Generic_Candidate CCGT_Gas	Gas	98	98	Yet to be Decided	Candidate	2042
6	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2042
Generation Additions in 2042 (MW)			5,149	5,149			
Cumulative Addition uptill 2042 (MW)			116,938	116,382			
2043							
1	Bunji	Hydro	7,100	7,100	WAPDA	Candidate	2043
2	Sakhra-I	Hydro	8	8	PEDO	Candidate	2043
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2043
Generation Additions in 2043 (MW)			8,608	8,608			
Cumulative Addition uptill 2043 (MW)			125,546	124,990			
2044							
1	Asrit Kadam	Hydro	216	216	PEDO	Candidate	2044
2	Chenavan	Hydro	3	3	PPDB	Candidate	2044
3	Gwaldai	Hydro	20	20	PEDO	Candidate	2044
4	Harigehl-Majeedgala	Hydro	40	40	AJK	Candidate	2044
5	Kalam Asrit	Hydro	212	212	PPIB	Candidate	2044
6	Madian	Hydro	156	156	PEDO	Candidate	2044
7	Nagdar	Hydro	36	36	AJK	Candidate	2044
8	Okara	Hydro	4	4	PPDB	Candidate	2044

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
9	Pashot	Hydro	60	60	PEDO	Candidate	2044
10	Phandar	Hydro	80	80	WAPDA	Candidate	2044
11	Sakhra-II	Hydro	8	8	PEDO	Candidate	2044
12	Tangus	Hydro	2,200	2,200	WAPDA	Candidate	2044
13	Generic_Candidate Local Coal	Local Coal	878	878	Yet to be Decided	Candidate	2044
14	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2044
Generation Additions in 2044 (MW)			5,413	5,413			
Cumulative Addition uptill 2044 (MW)			130,959	130,404			
2045							
1	Bhan Khwar	Hydro	36	36	PEDO	Candidate	2045
2	Bhimbal Katha	Hydro	9	9	PEDO	Candidate	2045
3	Dhudnial	Hydro	960	960	WAPDA	Candidate	2045
4	Diamer Bhasha Dam	Hydro	4,500	4,500	WAPDA	Candidate	2045
5	Gabral Kalam	Hydro	87	87	PEDO	Candidate	2045
6	Jagran-IV	Hydro	24	24	AJK	Candidate	2045
7	Nandihaar-II	Hydro	10	10	PEDO	Candidate	2045
8	Naran	Hydro	188	188	PEDO	Candidate	2045
9	Serai	Hydro	6	6	PEDO	Candidate	2045
10	SHYOK	Hydro	640	640	WAPDA	Candidate	2045
11	Generic_Candidate Solar	Solar	1,113	1,113	Yet to be Decided	Candidate	2045
Generation Additions in 2045 (MW)			7,573	7,573			
Cumulative Addition uptill 2045 (MW)			138,532	137,976			
2046							
1	Alka	Hydro	2	2	PPDB	Candidate	2046
2	Arkari Gol	Hydro	99	99	PEDO	Candidate	2046
3	Artistic-II	Hydro	54	54	PEDO	Candidate	2046
4	Ashkot	Hydro	300	300	PPIB	Candidate	2046
5	Athmuqam	Hydro	452	452	PPIB	Candidate	2046
6	Balakot-II	Hydro	100	100	PEDO	Candidate	2046
7	Barum Gol	Hydro	40	40	PEDO	Candidate	2046
8	Basho	Hydro	39	39	WAPDA	Candidate	2046

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
9	Chakoti Hatian	Hydro	501	501	PPIB	Candidate	2046
10	Chapri Charkhel	Hydro	12	12	PEDO	Candidate	2046
11	Chota Jabba	Hydro	46	46	PEDO	Candidate	2046
12	CJ	Hydro	24	24	PPDB	Candidate	2046
13	Gabral Utror	Hydro	82	82	PEDO	Candidate	2046
14	Garhi Habibullah	Hydro	100	100	PEDO	Candidate	2046
15	Ghanool	Hydro	3	3	PEDO	Candidate	2046
16	Jamshil	Hydro	612	612	PEDO	Candidate	2046
17	Jhing-II	Hydro	6	6	AJK	Candidate	2046
18	Kari Mushkur	Hydro	496	496	PEDO	Candidate	2046
19	Khal	Hydro	66	66	PEDO	Candidate	2046
20	Lower Spat Gah	Hydro	495	495	PEDO	Candidate	2046
21	Mahodand	Hydro	44	44	PEDO	Candidate	2046
22	Mastuj	Hydro	48	48	PEDO	Candidate	2046
23	Middle Palas	Hydro	399	399	WAPDA	Candidate	2046
24	Mujigram	Hydro	63	63	PEDO	Candidate	2046
25	Nila Da Katha	Hydro	36	36	PEDO	Candidate	2046
26	Shalfalam	Hydro	60	60	PEDO	Candidate	2046
27	Sharmai	Hydro	150	150	PEDO	Candidate	2046
28	Shigo Kas	Hydro	102	102	PEDO	Candidate	2046
29	Shogosin	Hydro	138	138	PEDO	Candidate	2046
30	Shounter	Hydro	48	48	AJK	Candidate	2046
31	Tangar	Hydro	24	24	PEDO	Candidate	2046
32	Trappi	Hydro	33	33	PEDO	Candidate	2046
33	Turtonas Uzghor	Hydro	82	82	PPIB	Candidate	2046
34	UCC Bhambhwal	Hydro	4	4	PPDB	Candidate	2046
35	Wari	Hydro	45	45	PEDO	Candidate	2046
36	Wazirabad	Hydro	88	88	WAPDA	Candidate	2046
37	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2046
Generation Additions in 2046 (MW)			6,393	6,393			
Cumulative Addition uptill 2046 (MW)			144,924	144,369			
2047							

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
1	Artistic-I	Hydro	63	63	PEDO	Candidate	2047
2	Balakot	Hydro	300	300	PEDO	Candidate	2047
3	Balkani	Hydro	8	8	PEDO	Candidate	2047
4	BS Link Tail	Hydro	9	9	PPDB	Candidate	2047
5	Chicha Watni	Hydro	2	2	PPDB	Candidate	2047
6	Chiniot_HPP	Hydro	78	78	WAPDA	Candidate	2047
7	Daral Khwar-II	Hydro	10	10	PEDO	Candidate	2047
8	Dhaddar	Hydro	18	18	PEDO	Candidate	2047
9	Engro_HPP	Hydro	5	5	PPDB	Candidate	2047
10	Gahrit	Hydro	376	376	PEDO	Candidate	2047
11	Ghail	Hydro	2	2	AJK	Candidate	2047
12	Ghorband	Hydro	20	20	PEDO	Candidate	2047
13	Gomat Nar	Hydro	50	50	AJK	Candidate	2047
14	Gugera	Hydro	3	3	PPDB	Candidate	2047
15	Istaro-Booni	Hydro	72	72	PEDO	Candidate	2047
16	Jabri Bedar	Hydro	4	4	PEDO	Candidate	2047
17	Kalkot Barikot	Hydro	48	48	PEDO	Candidate	2047
18	Kasur	Hydro	2	2	PPDB	Candidate	2047
19	Kathai-III	Hydro	1	1	AJK	Candidate	2047
20	Khanewal	Hydro	2	2	PPDB	Candidate	2047
21	Khanki Barrage	Hydro	16	16	PPDB	Candidate	2047
22	Khokhra	Hydro	2	2	PPDB	Candidate	2047
23	Luat	Hydro	48	48	AJK	Candidate	2047
24	Lucky_HPP	Hydro	20	20	PPDB	Candidate	2047
25	Luspur Murigram	Hydro	231	231	PEDO	Candidate	2047
26	Machai-III	Hydro	2	2	PEDO	Candidate	2047
27	Mahandri	Hydro	12	12	PEDO	Candidate	2047
28	Mandi	Hydro	4	4	PPDB	Candidate	2047
29	Mehar	Hydro	12	12	PPDB	Candidate	2047
30	Mid Ranjha	Hydro	80	80	WAPDA	Candidate	2047
31	Murree	Hydro	12	12	PPDB	Candidate	2047
32	Nandihaar	Hydro	12	12	PEDO	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
33	Patrak Sheringhal	Hydro	22	22	PEDO	Candidate	2047
34	Punjnad	Hydro	18	18	PPDB	Candidate	2047
35	Qaditrabad	Hydro	24	24	PPDB	Candidate	2047
36	QB Link	Hydro	8	8	PPDB	Candidate	2047
37	Rasul	Hydro	18	18	PPDB	Candidate	2047
38	Ravi	Hydro	6	6	PPDB	Candidate	2047
39	Sahiwal	Hydro	6	6	PPDB	Candidate	2047
40	Sarral-Dhartian	Hydro	9	9	PEDO	Candidate	2047
41	Shah Jiwana	Hydro	78	78	WAPDA	Candidate	2047
42	Shushghai	Hydro	144	144	PEDO	Candidate	2047
43	Soan	Hydro	24	24	PPDB	Candidate	2047
44	Taunsa	Hydro	135	135	PPDB	Candidate	2047
45	TP	Hydro	9	9	PPDB	Candidate	2047
46	Trident	Hydro	8	8	PPDB	Candidate	2047
47	Trimmu_HPP	Hydro	16	16	PPDB	Candidate	2047
48	Upper Palas	Hydro	158	158	WAPDA	Candidate	2047
49	Yulbo	Hydro	2,800	2,800	WAPDA	Candidate	2047
50	Generic_Candidate Solar	Solar	105	105	Yet to be Decided	Candidate	2047
Generation Additions in 2047 (MW)			5,112	5,112			
Cumulative Addition up till 2047 (MW)			150,036	149,481			

H-5. Annual Capacity Factors (%age)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	85	85	85	84	55	23	10	13	13	13	13	16	15	22	23	22	21	21	21	22	22	14	18	15	17	13	16	26
2	Gwadar	Imp. Coal	0	0	84	85	84	83	35	30	29	28	26	27	29	34	32	31	32	32	31	32	30	21	25	22	29	27	34	35
3	Jamshoro Coal	Imp. Coal	0	0	83	83	14	10	5	7	8	9	10	11	10	14	17	17	17	16	17	16	16	9	14	14	14	10	10	15
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	85	85	85	84	83	57	24	22	21	22	21	23	24	30	29	29	29	26	27	26	27	18	22	20	23	19	28	34
6	Sahiwal Coal	Imp. Coal	85	85	84	51	6	5	3	4	5	5	7	9	7	11	13	13	13	13	13	13	13	8	10	12	12	9	10	10
7	Engro Thar	Local Coal	85	85	85	85	84	84	76	78	51	39	36	38	35	42	43	42	41	39	40	38	38	25	32	30	39	42	36	36
8	Lucky	Local Coal	0	87	85	85	84	84	38	37	37	33	30	31	31	37	35	34	34	34	35	33	33	22	27	26	31	39	35	35
9	NEW_Local_Coal	Local Coal	0	0	0	0	84	84	84	82	81	79	76	75	73	74	74	76	77	78	79	79	79	77	79	77	77	75	74	72
10	Oracle	Local Coal	0	0	0	0	0	0	0	83	82	81	79	79	80	81	82	83	84	84	84	85	85	85	85	85	85	85	85	84
11	Siddiqsons	Local Coal	0	88	85	85	85	84	84	83	82	80	78	79	77	80	80	81	82	82	82	82	82	82	82	82	83	84	84	84
12	Thal Nova	Local Coal	0	89	85	85	84	84	83	81	79	74	63	56	51	57	58	59	59	58	58	55	55	37	50	51	52	48	50	52
13	Thar TEL	Local Coal	0	89	85	85	84	84	83	81	79	74	62	56	51	57	58	59	59	58	59	55	54	37	50	51	52	48	50	52
14	Thar-I (Shanghai Electric)	Local Coal	0	87	85	85	84	84	82	79	77	57	44	44	42	51	48	50	51	49	50	49	47	30	39	44	47	44	45	50
15	Balloki	RLNG	92	84	67	67	67	67	67	67	67	67	67	67	67	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Bhikki	RLNG	89	77	67	67	67	67	67	67	67	67	67	67	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	FKPCL	RLNG	25	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	27	8	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	75	36	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Haveli	RLNG	92	91	67	67	67	67	67	67	67	67	67	67	67	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Nandipur	RLNG	71	54	10	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12	12	12	11	11	11	10	8	8	8	10	9	9	9
23	Orient	RLNG	76	45	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Rousch	RLNG	60	18	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	74	31	6	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Saphire	RLNG	76	42	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	Trimmu	RLNG	94	92	20	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Davis	RLNG	1	1	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	3	2	2	2	1	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	89	89	87	10	4	1	0	1	1	2	3	4	5	6	6	6	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	90	90	88	11	4	1	0	1	2	3	4	5	5	6	6	6	7	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	85	85	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	66	23	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	83	83	83	80	9	2	1	2	3	4	5	6	5	8	8	8	9	9	8	8	8	5	7	5	5	1	0	0
36	Hatim	Gas	0	0	0	0	0	0	0	23	21	20	19	20	15	17	18	18	18	18	19	20	19	13	15	14	13	12	11	10
37	HCPC	Gas	86	86	28	9	3	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	87	87	26	9	3	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	77	64	11	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	86	86	86	86	84	84	12	8	8	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	88	88	86	14	4	2	1	2	3	4	5	6	5	7	8	8	8	7	8	7	0	0	0	0	0	0	0	0
43	C-1	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
44	C-2	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
45	C-3	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
46	C-4	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
47	C-5	Nuclear	0	0	0	0	0	0	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	74	79	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
50	K-3	Nuclear	0	0	76	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
51	Alliance	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
52	Almoiz	Bagasse	54	54	54	54	54	54	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
53	Bahawalpur	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	54	54	54	54	54	54	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
56	Chiniot	Bagasse	36	36	36	36	36	35	35	35	35	34	34	34	33	34	35	35	35	36	36	36	36	36	36	36	36	36	36	36

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	0	54	54	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
58	Faran	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
59	Ghotki	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
60	Hamza	Bagasse	47	47	47	47	47	46	46	46	46	45	44	44	44	45	46	46	47	47	47	47	47	47	47	47	47	47	47	47
61	Hamza-II	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
62	HSM	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
63	Hunza	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
64	Indus	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
65	Ittefaq	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
66	JDW-II	Bagasse	84	84	84	84	84	83	83	83	82	81	80	80	80	81	82	83	83	83	83	84	84	84	84	84	84	83	83	83
67	JDW-III	Bagasse	78	78	78	78	78	77	77	77	77	75	75	75	75	76	77	77	77	78	78	78	78	78	78	78	78	78	78	78
68	Kashmir	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
69	Mehran	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
70	RYK_Energy	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
71	Ryk_Mills	Bagasse	54	54	54	54	54	54	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
72	Sadiqabad	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
73	Shahtaj	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
74	Sheikhoo	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
75	TAY	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	30	30	30	30	30	30	29	29	29	28	28	28	28	29	29	29	30	30	30	30	30	30	30	30	30	30	30	30
77	Two_Star	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
78	Access_Electric	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
79	Access_Solar	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
81	Best	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
82	Buksh	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
84	Crest	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
85	Helios	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
86	HNDS	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
87	Meridian	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
88	QA_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
89	Safe	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
90	Zhenfa	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
91	Zorlu	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68	68
93	Allai Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	30

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	48	48
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	48	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	58
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	40
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	41	42	41	41	42	42
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	38	38
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	60
109	Blue Star	Hydro	0	0	0	0	65	66	66	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	42	41	41
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	35	35	35
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	43
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	40	39	40	45	44	45	45	44	45	46	46	45	44	46	46	46	47	49	49
121	Daral Khwar	Hydro	47	47	47	47	47	47	47	42	42	42	42	42	44	44	44	44	44	44	44	44	44	44	45	45	45	45	46	46
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
123	Dasu_1	Hydro	0	0	0	0	0	56	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	60	61	64	64	64	64	64	64	64	64	64	64	64	64	64	64
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44	45
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45	45	45	45	45	46
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	56	57	58	63	62	62	63	63	63	63	64	63	65	63	63	65	64	65	65
130	Dubair Khwar	Hydro	51	51	51	51	51	51	51	49	50	50	49	50	50	49	50	50	50	50	50	51	50	51	51	51	50	51	51	51
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	41	41

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	58
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	30
138	Ghazi Brotha	Hydro	52	52	52	52	52	52	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	52	51	51	51	51	51	52
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68
140	Golen Gol	Hydro	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
142	Gorkin Matiltan	Hydro	0	0	0	32	45	45	45	41	41	41	40	41	41	42	42	41	42	42	42	42	42	42	43	43	42	43	43	44
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
144	Gulpur	Hydro	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44	45	45
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	61	61
147	Harpo	Hydro	0	0	0	0	0	0	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
149	Jabori	Hydro	91	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
151	Jagran-I	Hydro	31	31	31	31	31	31	31	30	30	30	29	30	30	30	30	30	30	30	31	31	30	31	31	31	31	31	31	31

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43	44	44	44
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
155	Jhing	Hydro	95	52	52	52	52	52	52	49	49	49	49	49	49	50	50	50	50	50	50	50	50	50	50	51	50	51	51	51
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	53
157	Jinnah	Hydro	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	46	46	46
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45
161	Karora	Hydro	61	62	62	62	62	62	62	59	59	59	59	59	60	60	59	60	60	60	60	60	60	60	60	60	60	61	61	61
162	Karot	Hydro	0	0	41	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56	56	56	56
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	25	32	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	32
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45
168	Khan Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
172	Kohala	Hydro	0	0	0	0	0	0	0	0	61	61	61	61	62	62	62	62	62	62	62	62	62	62	62	62	62	62	63	63
173	Koto	Hydro	0	58	58	58	57	58	57	54	54	54	53	55	56	56	55	56	56	56	56	56	56	56	56	57	56	57	57	57
174	Lawi	Hydro	0	43	49	49	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43	43	43	43	43
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	7
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
180	Machai	Hydro	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	49	49	49
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	59	59	60	61	62	62	62	62	62	62	62	62	62	62	62	63	63	63
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	47
186	Malakand-III	Hydro	52	52	52	52	52	52	52	52	52	51	51	51	51	52	51	52	51	52	52	52	52	52	52	52	52	52	52	52
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
188	Mangla	Hydro	57	57	57	57	57	57	57	56	56	56	56	56	56	57	57	56	57	57	57	57	57	57	57	57	57	57	57	57
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	35	40	40	40	40	40	39	39	40	39	40	40	40	40	40	40	40	40	40	40	40	40	40
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	52
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	42	42
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	63	62
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
201	Neelum Jehlum	Hydro	58	58	58	58	58	58	58	56	56	56	56	55	56	56	56	56	57	57	57	57	57	57	57	57	57	58	58	58
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	50	49	49	56	55	58	58	58	58	59	59	58	59	59	60	59	61	63	63
203	New Bong	Hydro	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	36	36	36
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	48	48	49
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59	59	59	59
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
210	Pehur	Hydro	23	24	24	24	23	24	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	46	46	46
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
216	Ranolia	Hydro	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
219	Riali-II	Hydro	0	87	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
220	Riali-III	Hydro	0	0	0	0	0	0	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59	59
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49	49	49
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	66	66
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
237	Suki Kinari	Hydro	0	0	0	35	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46	46
240	Tarbela_1-10	Hydro	48	48	48	48	48	48	48	48	47	47	47	47	47	47	47	47	48	47	48	48	48	48	48	48	48	48	48	48
241	Tarbela_11-14	Hydro	48	48	48	48	48	48	48	48	47	47	47	48	47	48	47	47	47	48	48	48	48	48	48	48	48	48	48	48
242	Tarbela_Ext_4	Hydro	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
243	Tarbela_Ext_5	Hydro	0	0	0	0	19	32	32	32	31	31	31	32	32	32	31	32	32	32	32	32	32	32	32	32	32	32	32	32
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	52	53	52	53	53	53	53	53	53	53	54	53	54	53	54	54	54
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55	55	55	55	55

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	47	48	48	47	48	49	49	49	49	49	49	49	49	49	49	49	49	49	49
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	50	50	50	50	50
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	53
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	37
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	64
258	Warsak	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
261	CASA	Cross Border	0	0	0	95	39	39	39	23	23	24	23	22	27	25	24	24	25	25	25	25	26	26	26	26	26	29	30	33
262	Act	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
263	Act_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
264	Artistic_wind	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
265	Artistic_Wind_2	Wind	0	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	0	0	0	33	33	33	28	33	33	33	32	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
267	Candidate_Wind_North	Wind	0	0	0	33	33	33	32	33	32	32	32	30	33	32	32	32	33	33	33	33	33	33	33	33	33	33	33	33
268	Candidate_Wind_South	Wind	0	0	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
269	Dawood	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
270	Din	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
271	FFC	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
272	FWEL-I	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
273	FWEL-II	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
274	Gul Ahmed	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
275	Gul_Electric	Wind	0	0	38	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
276	Hawa	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
277	Indus_Energy	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
278	Jhimpir	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
279	Lakeside	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
280	Liberty_Wind_1	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
281	Liberty_Wind_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
282	Master	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
283	Master_Green	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
284	Metro_Power	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
286	NASDA	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
287	Sachal	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
288	Sapphire_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
289	Shaheen	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
290	Tenga	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
291	Three_Gorges_I	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
292	Three_Gorges_II	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
293	Three_Gorges_III	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
294	Trans_Atlantic	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
295	Tricon_A	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
296	Tricon_B	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
297	Tricon_C	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
298	Tricorm	Wind	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
299	UEP	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
300	Western	Wind	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
301	Yunus	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
302	Zephyr	Wind	0	56	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
303	Zorlu_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	30	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	35	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	15	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	88	88	14	4	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	13	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	11	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	56	21	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	16	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	9	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

H-6. Annual Energy Generation 2020-30 (GWh)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
1	China HUBCO	Imp. Coal	9,330	9,308	9,308	9,162	5,992	2,470	1,051	1,394	1,434	1,459	1,461
2	Gwadar	Imp. Coal	0	0	1,000	2,033	2,006	1,974	837	707	685	661	612
3	Jamshoro Coal	Imp. Coal	0	0	2,733	4,703	1,234	1,102	534	748	898	1,044	1,182
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	9,270	9,248	9,248	9,158	9,079	6,154	2,618	2,344	2,331	2,361	2,288
6	Sahiwal Coal	Imp. Coal	9,285	9,263	9,202	5,520	627	524	306	430	497	569	774
7	Engro Thar	Local Coal	4,493	4,482	4,482	4,482	4,425	4,412	3,998	4,102	2,677	2,065	1,919
8	Lucky	Local Coal	0	1,546	4,531	4,531	4,472	4,453	2,028	1,966	1,997	1,764	1,573
9	NEW_Local_Coal	Local Coal	0	0	0	0	11,230	11,114	11,084	10,902	10,747	10,455	10,013
10	Oracle	Local Coal	0	0	0	0	0	0	0	4,433	4,383	4,311	8,444
11	Siddiqsons	Local Coal	0	193	2,266	2,266	2,272	2,231	2,231	2,204	2,185	2,143	2,082
12	Thal Nova	Local Coal	0	583	2,234	2,234	2,205	2,199	2,175	2,132	2,079	1,942	1,648
13	Thar TEL	Local Coal	0	583	2,234	2,234	2,205	2,199	2,183	2,127	2,085	1,944	1,622
14	Thar-I (Shanghai Electric)	Local Coal	0	1,545	8,643	9,055	8,940	8,914	8,741	8,426	8,263	6,034	4,668
15	Balloki	RLNG	9,492	8,649	6,910	6,906	6,905	6,904	6,905	6,882	6,884	6,886	6,883
16	Bhikki	RLNG	8,919	7,722	6,696	6,693	6,690	6,689	6,689	6,675	6,673	6,674	6,673
17	FKPCL	RLNG	329	97	41	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	274	86	34	4	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
19	Halmore	RLNG	1,301	622	112	18	0	0	0	0	0	0	0
20	Haveli	RLNG	9,599	9,440	6,967	6,964	6,964	6,964	6,964	6,932	6,940	6,943	6,942
21	Nandipur	RLNG	2,821	2,112	390	117	0	2	0	0	0	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	1,363	803	149	44	0	0	0	0	0	0	0
24	Rousch	RLNG	2,090	635	139	19	0	0	0	0	0	0	0
25	Saif	RLNG	1,321	545	99	14	0	0	0	0	0	0	0
26	Saphire	RLNG	1,347	735	131	24	0	0	0	0	0	0	0
27	Trimmu	RLNG	2,543	9,998	2,152	738	155	35	0	13	0	0	0
28	Davis	RLNG	1	1	1	0	0	0	0	1	0	0	0
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	411	549	904
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	1,655	1,651	1,617	181	66	17	0	24	27	43	58
32	Foundation	Gas	1,320	1,317	1,294	168	57	14	6	22	23	39	52
33	Guddu-I	Gas	1,950	1,945	1,776	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	1,568	533	121	14	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	5,234	5,221	5,216	5,084	552	108	66	151	207	255	323
36	Hatim	Gas	0	0	0	0	0	0	0	41	37	35	34
37	HCPC	Gas	975	973	317	100	39	8	0	13	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
38	Kotri	Gas	808	806	238	80	29	5	0	8	0	0	0
39	Liberty	Gas	1,433	1,195	213	73	0	5	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	4,149	4,139	4,139	4,139	4,074	4,021	592	393	396	384	26
42	Uch-II	Gas	2,737	2,731	2,685	426	133	54	27	51	90	116	145
43	C-1	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
44	C-2	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
45	C-3	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,183	2,180	2,184	2,175	2,180
46	C-4	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,183	2,181	2,185	2,181	2,179
47	C-5	Nuclear	0	0	0	0	0	0	7,286	7,244	7,254	7,240	7,238
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	4,548	7,292	7,292	7,307	7,291	7,284	7,240	7,255	7,241	7,239
50	K-3	Nuclear	0	0	5,823	7,292	7,307	7,292	7,285	7,243	7,255	7,241	7,237
51	Alliance	Bagasse	0	0	19	143	144	140	140	140	140	137	136
52	Almoiz	Bagasse	172	172	172	172	172	169	168	168	168	164	163
53	Bahawalpur	Bagasse	0	0	20	149	149	146	146	146	145	142	142
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	105	105	105	105	105	103	103	103	103	100	100
56	Chiniot	Bagasse	197	196	196	196	197	192	190	190	190	185	184

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
57	Etihad	Bagasse	0	355	355	355	356	348	348	348	346	339	338
58	Faran	Bagasse	0	0	17	126	127	124	124	124	123	121	120
59	Ghotki	Bagasse	0	0	29	215	215	210	210	210	209	205	204
60	Hamza	Bagasse	62	62	62	62	62	61	60	60	61	59	58
61	Hamza-II	Bagasse	0	0	19	143	144	140	140	140	140	137	136
62	HSM	Bagasse	0	0	17	126	127	124	124	124	123	121	120
63	Hunza	Bagasse	0	0	32	238	238	233	233	233	232	227	226
64	Indus	Bagasse	0	0	20	148	148	145	145	145	144	141	141
65	Ittefaq	Bagasse	0	0	20	149	149	146	146	146	145	142	142
66	JDW-II	Bagasse	194	193	193	193	194	191	191	191	191	186	186
67	JDW-III	Bagasse	180	180	180	180	180	178	178	178	178	174	173
68	Kashmir	Bagasse	0	0	26	191	191	187	187	187	186	182	181
69	Mehran	Bagasse	0	0	17	126	127	124	124	124	123	121	120
70	RYK_Energy	Bagasse	0	0	16	119	120	117	117	117	116	114	113
71	Ryk_Mills	Bagasse	144	143	143	143	144	141	140	140	141	137	136
72	Sadiqabad	Bagasse	0	0	29	215	215	210	210	210	209	205	204
73	Shahtaj	Bagasse	0	0	21	153	153	149	149	149	149	146	145
74	Sheikhoo	Bagasse	0	0	19	143	144	140	140	140	140	137	136
75	TAY	Bagasse	0	0	19	143	144	140	140	140	140	137	136

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
76	Thal_Layyah	Bagasse	109	109	109	109	109	107	106	106	106	102	101
77	Two_Star	Bagasse	0	0	32	238	238	233	233	233	232	227	226
78	Access_Electric	Solar	0	5	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	0	5	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	0	0	14	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	2,482	4,965	7,447	9,929	12,412	14,894	17,377	19,761
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	0	0	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	0	0	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	0	0	48	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	0	0	13	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	0	0	97	165	165	165	165	165	165	165	165
91	Zorlu	Solar	84	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0
93	Allai Khwar	Hydro	396	395	395	395	396	395	395	395	396	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	2,181	3,256	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
109	Blue Star	Hydro	0	0	0	0	17	17	17	18	18	18	18
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
114	Chashma	Hydro	767	765	765	765	767	765	765	765	767	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	197	191
121	Daral Khwar	Hydro	147	147	147	147	147	147	147	131	134	133	132
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
123	Dasu_1	Hydro	0	0	0	0	0	4,321	11,975	11,975	11,990	11,975	11,975
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	325	328
130	Dubair Khwar	Hydro	581	581	581	581	581	581	580	563	571	571	564
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0
138	Ghazi Brotha	Hydro	6,563	6,551	6,551	6,551	6,563	6,551	6,540	6,490	6,526	6,488	6,520
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0
140	Golen Gol	Hydro	97	97	97	97	97	97	97	95	96	95	95
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0
142	Gorkin Matiltan	Hydro	0	0	0	155	331	331	330	300	302	299	295
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0
144	Gulpur	Hydro	481	480	480	480	481	480	480	480	481	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0
147	Harpo	Hydro	0	0	0	0	0	0	170	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0
149	Jabori	Hydro	27	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0
151	Jagran-I	Hydro	82	82	82	82	82	82	82	78	79	78	77

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0
155	Jhing	Hydro	10	68	68	68	68	68	68	64	64	64	64
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
157	Jinnah	Hydro	195	194	194	194	195	194	194	193	194	193	191
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0
161	Karora	Hydro	5	65	65	65	65	65	65	62	62	62	62
162	Karot	Hydro	0	0	1,496	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	232	353	343	344	344	345
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0
168	Khan Khwar	Hydro	235	234	234	234	235	234	234	234	235	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0
172	Kohala	Hydro	0	0	0	0	0	0	0	0	6,011	5,972	5,972
173	Koto	Hydro	0	212	212	212	212	212	211	198	199	199	196
174	Lawi	Hydro	0	130	295	295	295	295	294	291	291	290	290
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	3,310
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0
186	Malakand-III	Hydro	367	367	367	367	367	367	367	366	367	362	360
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0
188	Mangla	Hydro	5,016	5,004	5,004	5,004	5,016	5,004	5,004	4,909	4,937	4,864	4,893
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	1,633	2,828	2,775	2,793	2,772	2,779
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0
201	Neelum Jehlum	Hydro	4,944	4,939	4,939	4,939	4,944	4,931	4,936	4,757	4,797	4,716	4,712
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	201	198
203	New Bong	Hydro	471	470	470	470	471	470	470	470	471	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
209	Patrind	Hydro	635	634	634	634	635	634	634	632	633	632	632
210	Pehur	Hydro	37	37	37	37	37	37	37	36	36	36	36
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	669	668
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0
219	Riali-II	Hydro	0	5	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	0	0	0	0	0	0	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	387	386	386	386	387	386	386	379	380	378	377
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0
237	Suki Kinari	Hydro	0	0	0	1,332	2,800	2,798	2,793	2,763	2,767	2,763	2,763
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0
240	Tarbela_1-10	Hydro	7,386	7,377	7,377	7,377	7,386	7,377	7,377	7,293	7,231	7,214	7,227
241	Tarbela_11-14	Hydro	7,294	7,285	7,285	7,285	7,294	7,285	7,213	7,200	7,139	7,169	7,105
242	Tarbela_Ext_4	Hydro	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,807	3,806
243	Tarbela_Ext_5	Hydro	0	0	0	0	1,975	4,005	4,003	3,895	3,854	3,890	3,854
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	6,997	7,025
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0
258	Warsak	Hydro	999	997	997	997	999	997	997	997	999	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0
261	CASA	Cross Border	0	0	0	1,387	3,457	3,456	3,417	2,056	2,056	2,076	1,990
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	0	0	58	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	0	0	102	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
266	Candidate_Wind_Mid	Wind	0	0	0	872	1,747	1,744	1,486	1,744	1,747	2,510	3,248
267	Candidate_Wind_North	Wind	0	0	0	581	841	840	802	840	804	802	1,358
268	Candidate_Wind_South	Wind	0	0	0	3,440	6,889	10,051	12,361	13,373	16,120	19,429	22,600
269	Dawood	Wind	0	14	144	144	144	144	144	144	144	144	144
270	Din	Wind	0	0	58	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	151	150	150	150	151	150	150	150	151	150	150
273	FWEL-II	Wind	151	150	150	150	151	150	150	150	151	150	150
274	Gul Ahmed	Wind	146	145	145	145	146	145	145	145	146	145	145
275	Gul_Electric	Wind	0	0	83	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	0	0	58	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	0	0	58	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	0	0	58	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	0	0	58	172	172	172	172	172	172	172	172
282	Master	Wind	154	153	153	153	154	153	153	153	154	153	153
283	Master_Green	Wind	0	102	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	146	145	145	145	146	145	145	145	146	145	145

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
285	Metro_Wind	Wind	0	0	70	206	207	206	206	206	207	206	206
286	NASDA	Wind	0	0	58	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	154	153	153	153	154	153	153	153	154	153	153
289	Shaheen	Wind	0	104	175	175	176	175	175	175	176	175	175
290	Tenga	Wind	0	14	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	157	156	156	156	157	156	156	156	157	156	156
293	Three_Gorges_III	Wind	157	156	156	156	157	156	156	156	157	156	156
294	Trans_Atlantic	Wind	0	0	56	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	0	71	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	0	58	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	146	145	145	145	146	145	145	145	146	145	145
302	Zephyr	Wind	0	20	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
304	KAPCO 1	RFO	909	392	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	2,301	765	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	339	144	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	35	17	13	0	0	0	0	0	0	0	0
308	HUBCO	RFO	124	50	23	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	8	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	49	16	4	0	0	0	0	0	0	0	0
313	Lalpir	RFO	139	29	22	2	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	9	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	3	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	9	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	28	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	26	8	6	0	0	0	0	0	0	0	0
321	AGL	RFO	1,203	1,200	187	49	3	4	0	16	0	0	0
322	ATLAS	RFO	251	95	35	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
323	HuB N	RFO	208	80	24	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	611	228	37	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	272	122	44	0	0	0	0	0	0	0	0
326	Nishat C	RFO	154	43	10	0	0	0	0	0	0	0	0
327	Nishat P	RFO	123	25	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			**157,170**	**162,471**	**170,738**	**176,918**	**182,943**	**188,792**	**196,045**	**203,899**	**215,053**	**226,322**	**237,996**
Energy Demand			**157,170**	**162,472**	**170,738**	**176,918**	**182,943**	**188,792**	**196,044**	**203,899**	**215,053**	**226,322**	**237,996**
Energy Not Served			**0.00**	**0.04**	**-0.01**	**0.04**	**0.00**	**0.03**	**-0.02**	**-0.06**	**0.00**	**0.02**	**-0.02**

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

H-7. Annual Energy Generation 2030-47 (GWh)

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	1,737	1,619	2,432	2,557	2,421	2,327	2,253	2,331	2,357	2,390	1,547	2,001	1,685	1,891	1,377	1,734	2,852
2	Gwadar	Imp. Coal	647	706	823	773	752	767	775	733	762	724	492	586	537	699	634	806	827
3	Jamshoro Coal	Imp. Coal	1,278	1,175	1,587	1,926	1,961	1,901	1,836	1,873	1,832	1,863	1,068	1,595	1,525	1,555	1,138	1,165	1,649
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	2,544	2,606	3,238	3,139	3,176	3,113	2,878	2,952	2,876	2,958	1,976	2,393	2,196	2,478	2,051	3,043	3,686
6	Sahiwal Coal	Imp. Coal	961	809	1,167	1,368	1,400	1,453	1,411	1,463	1,441	1,447	877	1,068	1,320	1,284	1,031	1,049	1,062
7	Engro Thar	Local Coal	2,002	1,843	2,199	2,251	2,240	2,152	2,046	2,120	1,996	1,990	1,320	1,669	1,603	2,082	2,206	1,900	1,901
8	Lucky	Local Coal	1,673	1,673	1,990	1,841	1,827	1,831	1,829	1,836	1,779	1,767	1,146	1,444	1,375	1,635	2,081	1,841	1,871
9	NEW_Local_Coal	Local Coal	9,927	9,729	29,730	50,593	66,114	83,805	102,418	120,780	141,926	166,369	161,590	177,286	173,859	179,557	173,886	171,045	167,930
10	Oracle	Local Coal	8,445	8,543	8,617	8,727	8,852	8,905	8,986	8,986	9,020	9,043	9,023	9,023	9,006	9,028	8,991	8,994	8,911
11	Siddiqsons	Local Coal	2,092	2,050	2,133	2,133	2,162	2,179	2,179	2,184	2,180	2,202	2,193	2,192	2,189	2,204	2,233	2,250	2,224
12	Thal Nova	Local Coal	1,464	1,350	1,501	1,533	1,556	1,566	1,532	1,521	1,439	1,442	977	1,320	1,331	1,359	1,250	1,323	1,357
13	Thar TEL	Local Coal	1,474	1,352	1,495	1,536	1,554	1,549	1,533	1,551	1,446	1,429	980	1,311	1,329	1,370	1,255	1,319	1,363
14	Thar-I (Shanghai Electric)	Local Coal	4,673	4,526	5,430	5,158	5,364	5,429	5,207	5,304	5,169	4,961	3,228	4,197	4,656	4,980	4,637	4,805	5,360
15	Balloki	RLNG	6,885	6,897	6,894	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Bhikki	RLNG	6,674	6,682	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	FKPCL	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Haveli	RLNG	6,943	6,957	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Nandipur	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	NEW_CCGT	RLNG	0	0	0	527	671	653	733	1,106	1,216	1,397	1,024	1,211	1,078	1,401	1,268	1,264	1,282
23	Orient	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Rousch	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Saphire	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	Trimmu	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Davis	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	NEW OCGT (Generic)	RLNG	1,230	833	1,521	1,553	1,701	1,947	2,126	2,283	2,562	2,840	1,398	2,288	1,669	1,926	1,706	1,656	2,094
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	76	87	105	111	77	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	66	71	87	95	90	85	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	384	336	491	518	512	546	548	507	498	491	347	438	325	344	20	0	0
36	Hatim	Gas	35	26	30	31	32	32	32	34	34	33	23	26	25	23	21	19	17
37	HCPC	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	184	153	218	238	238	241	226	243	159	0	0	0	0	0	0	0	0
43	C-1	Nuclear	2,077	2,082	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,077	2,077	2,081	2,077	2,078	2,078
44	C-2	Nuclear	2,077	2,082	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,081	2,077	2,077	2,078
45	C-3	Nuclear	2,175	2,186	2,176	2,182	2,181	2,187	2,182	2,182	2,182	2,187	2,182	2,182	2,182	2,187	2,183	2,182	2,183
46	C-4	Nuclear	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,182
47	C-5	Nuclear	7,240	7,262	7,251	7,246	7,249	7,261	7,249	7,249	7,251	7,266	7,250	7,251	7,251	7,262	7,250	7,255	7,260
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	7,241	7,268	7,250	7,253	7,248	7,263	7,248	7,248	7,249	7,266	7,248	7,250	7,250	7,265	7,251	7,255	7,261
50	K-3	Nuclear	7,242	7,268	7,250	7,251	7,249	7,263	7,246	7,250	7,251	7,265	7,250	7,251	7,252	7,265	7,251	7,256	7,261
51	Alliance	Bagasse	135	136	137	139	140	141	142	142	143	144	143	143	143	144	142	142	142
52	Almoiz	Bagasse	163	163	164	167	168	170	171	171	172	172	172	172	172	172	171	171	171
53	Bahawalpur	Bagasse	141	140	142	144	146	146	148	148	149	149	149	149	149	149	148	148	147
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	100	100	101	102	103	104	104	104	105	105	105	105	105	105	104	104	104
56	Chiniot	Bagasse	184	183	187	189	190	194	195	195	196	197	196	196	196	197	195	195	195

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	336	337	339	344	348	349	353	353	355	356	355	355	355	356	353	353	353
58	Faran	Bagasse	120	120	121	122	124	125	126	126	126	127	126	126	126	127	126	126	125
59	Ghotki	Bagasse	204	204	205	208	210	212	214	214	215	215	215	215	215	215	214	214	212
60	Hamza	Bagasse	58	58	59	60	60	61	61	61	62	62	62	62	62	62	61	61	61
61	Hamza-II	Bagasse	135	136	137	139	140	141	142	142	143	144	143	143	143	144	142	142	142
62	HSM	Bagasse	120	119	120	122	124	124	126	126	126	127	126	126	126	127	126	126	125
63	Hunza	Bagasse	225	225	228	230	233	235	236	236	238	238	238	238	238	238	236	236	236
64	Indus	Bagasse	140	140	141	143	145	145	147	147	148	148	148	148	148	148	147	147	147
65	Ittefaq	Bagasse	141	141	141	144	146	147	148	148	149	149	149	149	149	149	148	148	147
66	JDW-II	Bagasse	186	186	187	189	191	192	192	192	193	194	193	193	193	194	192	192	192
67	JDW-III	Bagasse	173	173	175	177	178	179	179	179	180	180	180	180	180	180	179	179	179
68	Kashmir	Bagasse	181	181	182	185	187	188	190	190	191	191	191	191	191	191	190	190	189
69	Mehran	Bagasse	120	120	121	122	124	124	126	126	126	127	126	126	126	127	126	126	124
70	RYK_Energy	Bagasse	113	113	114	115	117	118	119	119	119	120	119	119	119	120	119	119	117
71	Ryk_Mills	Bagasse	136	136	138	139	140	142	142	142	143	144	143	143	143	144	142	142	142
72	Sadiqabad	Bagasse	203	204	205	208	210	212	214	214	215	215	215	215	215	215	214	214	212
73	Shahtaj	Bagasse	144	144	146	148	149	150	152	152	153	153	153	153	153	153	152	152	151
74	Sheikhoo	Bagasse	135	135	137	139	140	141	142	142	143	144	143	143	143	144	142	142	142
75	TAY	Bagasse	136	135	136	139	140	141	142	142	143	144	143	143	143	144	142	142	142

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	101	101	102	105	106	108	108	108	109	109	109	109	109	109	108	108	108
77	Two_Star	Bagasse	225	224	228	230	233	236	236	236	238	238	238	238	238	238	236	236	236
78	Access_Electric	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	21,103	23,621	26,137	26,512	27,283	28,067	29,311	31,238	33,111	33,430	35,913	38,395	40,877	43,360	45,201	47,683	47,857
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
91	Zorlu	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
93	Allai Khwar	Hydro	395	396	395	395	395	396	395	395	395	396	395	395	395	396	395	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	258	262

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	288
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	198	199
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,219	1,221
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	917	917	917	917
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,962	1,962
100	Azad Pattan	Hydro	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	973
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	506	509
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	142	142
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152	152
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	350	348	349	350	348	349	350
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119	119	119
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	48
109	Blue Star	Hydro	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	25,865	25,883	25,825	25,777	25,732
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,420	2,420
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	65

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	765	767	765	765	765	767	765	765	765	767	765	765	765	767	765	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	9	9
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	168	174
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72	72
120	Dander	Hydro	197	219	215	219	223	218	223	225	225	223	218	226	225	228	231	239	240
121	Daral Khwar	Hydro	132	140	140	138	139	139	138	139	139	140	140	141	142	141	143	145	146
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
123	Dasu_1	Hydro	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975
124	Dasu_2	Hydro	0	11,474	11,501	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,734	4,737	4,738
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17,530	17,541	17,543
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	158	158	158	158	158	159	159
129	Dubair Kalay	Hydro	337	364	360	361	366	366	363	364	368	365	373	367	366	374	370	373	373
130	Dubair Khwar	Hydro	568	567	560	569	567	574	574	570	576	575	576	575	576	575	576	576	576
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	303	309	311

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	310	310
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,634
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	506	508
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
138	Ghazi Brotha	Hydro	6,493	6,510	6,513	6,510	6,509	6,520	6,523	6,513	6,531	6,530	6,544	6,511	6,516	6,528	6,522	6,535	6,551
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	118
140	Golen Gol	Hydro	95	96	96	96	96	96	96	97	97	97	97	97	97	97	97	97	97
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	210
142	Gorkin Matiltan	Hydro	301	303	309	308	304	308	311	310	310	311	310	313	315	313	315	320	323
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
144	Gulpur	Hydro	480	481	480	480	480	481	480	480	480	481	480	480	480	481	480	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	77	78	78	79
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	212	212	212	213
147	Harpo	Hydro	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260
149	Jabori	Hydro	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
151	Jagran-I	Hydro	78	80	79	79	80	80	80	80	80	80	80	80	80	80	81	81	82

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	137	137	137	137	138	138
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	91	91
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,618	2,626
155	Jhing	Hydro	64	65	66	65	65	66	65	66	66	66	66	66	67	66	67	67	67
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28	28
157	Jinnah	Hydro	192	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	845	847	849	850
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	162
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,952	1,961
161	Karora	Hydro	62	63	63	63	63	63	63	63	63	63	63	63	64	64	64	64	64
162	Karot	Hydro	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	39	39	39	39	39	39
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	346	349	348	348	347	348	347	349	349	348	349	349	349	350	350	353	353
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	258	259
168	Khan Khwar	Hydro	234	235	234	234	234	235	234	234	234	235	234	234	234	235	234	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
172	Kohala	Hydro	5,989	6,107	6,089	6,061	6,082	6,086	6,081	6,087	6,091	6,111	6,094	6,122	6,103	6,113	6,136	6,181	6,195
173	Koto	Hydro	201	205	205	202	204	205	206	207	207	208	207	208	209	208	209	210	210
174	Lawi	Hydro	291	291	291	290	291	291	291	291	292	291	292	292	291	292	291	292	292
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	2,516	2,512	2,515	2,517	2,513	2,516	2,514
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	300	311
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	199
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	787
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	663	663	664	664
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
184	Mahl	Hydro	3,314	3,374	3,401	3,481	3,471	3,477	3,469	3,477	3,479	3,483	3,492	3,479	3,483	3,494	3,506	3,526	3,541
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	182	182
186	Malakand-III	Hydro	362	362	366	360	366	366	366	366	367	367	367	367	367	367	367	367	367
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
188	Mangla	Hydro	4,880	4,953	4,977	4,952	4,936	4,987	4,992	4,990	4,990	5,005	4,993	4,996	4,993	5,011	5,002	5,004	5,004
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	224	225

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,711	1,712
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	2,764	2,711	2,783	2,759	2,799	2,792	2,814	2,806	2,833	2,819	2,806	2,807	2,826	2,828	2,820	2,833	2,828
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285	285
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	133	133	133	133
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	674	675	676
201	Neelum Jehlum	Hydro	4,686	4,794	4,763	4,754	4,785	4,839	4,852	4,858	4,860	4,869	4,859	4,864	4,864	4,872	4,876	4,904	4,895
202	Nerai-Dubair	Hydro	198	226	222	233	235	233	234	237	237	236	237	236	240	239	246	252	253
203	New Bong	Hydro	470	471	470	470	470	471	470	470	470	471	470	470	470	471	470	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	135	135
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13	13	13
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	236	250	254	258
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	12,335	12,338	12,337	12,362	12,338	12,342	12,339
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	632	634	634	633	633	634	634	633	633	634	634	634	634	634	634	634	634
210	Pehur	Hydro	36	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	319	319	319	321
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
215	Rajdhani	Hydro	670	671	670	670	669	671	670	670	670	671	670	670	670	671	670	670	670
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
219	Riali-II	Hydro	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41	41	41
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34	34	34
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	22	22
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	307
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	282	282

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	660	659
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	451	451
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	533	533
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	206	207
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	468
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,714	3,721	3,724
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	378	382	381	380	381	381	380	381	381	381	381	381	381	382	381	383	383
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
237	Suki Kinari	Hydro	2,758	2,768	2,777	2,765	2,770	2,774	2,773	2,775	2,774	2,778	2,774	2,774	2,774	2,779	2,773	2,778	2,780
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	92	93
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	8,817	8,814	8,815	8,821
240	Tarbela_1-10	Hydro	7,169	7,238	7,234	7,273	7,258	7,320	7,281	7,328	7,319	7,352	7,341	7,342	7,340	7,364	7,345	7,364	7,365
241	Tarbela_11-14	Hydro	7,204	7,095	7,255	7,144	7,189	7,203	7,209	7,250	7,250	7,255	7,234	7,260	7,265	7,274	7,237	7,282	7,245
242	Tarbela_Ext_4	Hydro	3,801	3,813	3,799	3,785	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811
243	Tarbela_Ext_5	Hydro	3,892	3,946	3,895	3,862	3,895	3,971	3,974	3,975	3,983	3,978	3,980	3,981	3,982	3,984	3,985	3,988	3,983
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	437
245	Thakot-I	Hydro	9,827	9,986	9,906	10,064	10,060	10,095	10,086	10,088	10,091	10,113	10,095	10,092	10,097	10,116	10,114	10,133	10,131
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	4,659	4,657	4,659	4,668	4,664	4,671	4,673

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	7,036	7,025	7,071	7,203	7,206	7,231	7,219	7,219	7,219	7,232	7,221	7,219	7,221	7,236	7,226	7,228	7,228
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	306	306	306	306	306	306	306
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	154	154
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	353	355
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	507
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252	252
258	Warsak	Hydro	997	999	997	997	997	999	997	997	997	999	997	997	997	999	997	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	349	350
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11,249
261	CASA	Cross Border	1,950	2,379	2,222	2,075	2,115	2,193	2,181	2,188	2,182	2,269	2,282	2,306	2,244	2,312	2,506	2,664	2,853
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	169	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	169	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	3,320	3,388	3,382	3,382	3,382	3,388	3,382	3,382	3,382	3,388	3,382	3,382	3,382	3,388	3,382	3,382	3,382
267	Candidate_Wind_North	Wind	1,299	1,424	1,368	1,358	1,385	1,424	1,421	1,421	1,421	1,424	1,421	1,421	1,421	1,424	1,421	1,421	1,421
268	Candidate_Wind_South	Wind	22,847	22,741	22,977	22,863	22,977	22,960	22,977	22,977	22,977	23,009	22,977	22,977	22,977	23,009	22,977	22,977	22,977
269	Dawood	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
270	Din	Wind	169	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
273	FWEL-II	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
274	Gul Ahmed	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
275	Gul_Electric	Wind	169	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	169	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	169	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	169	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	169	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
282	Master	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
283	Master_Green	Wind	169	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	203	207	206	206	206	207	206	206	206	207	206	206	206	207	206	206	206
286	NASDA	Wind	169	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
289	Shaheen	Wind	173	176	175	175	175	176	175	175	175	176	175	175	175	176	175	175	175
290	Tenga	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
293	Three_Gorges_III	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
294	Trans_Atlantic	Wind	164	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	169	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	169	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
302	Zephyr	Wind	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			250,462	264,394	278,676	294,572	311,828	330,997	350,196	371,490	394,338	419,677	428,094	451,631	475,646	498,948	519,925	540,294	559,765
Energy Demand			250,462	264,394	278,676	294,572	311,828	330,997	350,196	371,490	394,338	419,677	428,094	451,631	475,646	498,948	519,925	540,294	559,765
Energy Not Served			0.04	0.00	-0.02	0.01	-0.01	0.00	0.03	0.01	-0.03	0.00	0.00	0.01	-0.01	0.00	-0.03	0.03	-0.02

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

H-8. Year wise Cost Breakup-Discounted Prices

FY	Present Worth Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,751,312	6,708,034	6,708,034
2021	0	913,435	4,826,457	5,739,893	12,447,927
2022	0	909,992	3,537,939	4,447,931	16,895,858
2023	215,029	890,290	2,739,694	3,845,013	20,740,870
2024	511,136	876,831	2,111,682	3,499,649	24,240,519
2025	579,057	823,709	1,761,742	3,164,509	27,405,028
2026	608,447	791,391	1,404,241	2,804,080	30,209,108
2027	642,058	730,104	1,317,267	2,689,429	32,898,536
2028	683,448	689,769	1,197,471	2,570,688	35,469,224
2029	830,902	648,700	1,069,744	2,549,345	38,018,570
2030	940,954	602,137	980,404	2,523,494	40,542,064
2031	968,485	529,045	866,024	2,363,553	42,905,617
2032	970,039	487,012	765,016	2,222,068	45,127,685
2033	1,006,777	457,291	543,275	2,007,343	47,135,027
2034	1,021,409	431,776	449,292	1,902,477	49,037,505
2035	1,010,440	408,624	451,140	1,870,204	50,907,709
2036	999,872	386,767	460,321	1,846,960	52,754,669
2037	983,362	363,920	466,015	1,813,297	54,567,966
2038	963,408	345,087	466,236	1,774,731	56,342,697
2039	947,599	328,310	468,141	1,744,050	58,086,747
2040	928,837	312,477	464,150	1,705,464	59,792,211
2041	925,255	298,938	371,788	1,595,980	61,388,191
2042	872,417	277,435	377,228	1,527,081	62,915,271
2043	907,480	257,196	328,814	1,493,490	64,408,761
2044	879,829	237,512	309,850	1,427,190	65,835,951
2045	913,575	217,335	264,749	1,395,659	67,231,610
2046	906,225	204,061	239,074	1,349,360	68,580,970
2047	888,473	201,051	220,553	1,310,076	69,891,046

H-9. Year wise Cost Breakup-Un-Discounted Prices (k$)

FY	Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,751,312	6,708,034	6,708,034
2021	0	1,014,928	5,362,730	6,377,658	13,085,692
2022	0	1,123,447	4,367,826	5,491,273	18,576,965
2023	294,964	1,221,248	3,758,154	5,274,366	23,851,331
2024	779,052	1,336,428	3,218,537	5,334,017	29,185,349
2025	980,638	1,394,959	2,983,526	5,359,123	34,544,472
2026	1,144,901	1,489,142	2,642,328	5,276,371	39,820,843
2027	1,342,384	1,526,466	2,754,077	5,622,927	45,443,770
2028	1,587,690	1,602,373	2,781,793	5,971,855	51,415,626
2029	2,144,703	1,674,408	2,761,195	6,580,306	57,995,931
2030	2,698,629	1,726,911	2,811,770	7,237,310	65,233,241
2031	3,086,208	1,685,872	2,759,702	7,531,782	72,765,023
2032	3,434,624	1,724,368	2,708,698	7,867,690	80,632,714
2033	3,960,781	1,799,035	2,137,306	7,897,123	88,529,836
2034	4,464,825	1,887,400	1,963,966	8,316,190	96,846,026
2035	4,907,644	1,984,659	2,191,158	9,083,461	105,929,487
2036	5,395,903	2,087,224	2,484,166	9,967,294	115,896,781
2037	5,896,452	2,182,142	2,794,329	10,872,923	126,769,704
2038	6,418,673	2,299,128	3,106,280	11,824,081	138,593,785
2039	7,014,824	2,430,394	3,465,524	12,910,742	151,504,526
2040	7,639,928	2,570,208	3,817,757	14,027,892	165,532,419
2041	8,456,073	2,732,045	3,397,834	14,585,951	180,118,370
2042	8,859,085	2,817,258	3,830,620	15,506,963	195,625,333
2043	10,239,041	2,901,922	3,709,992	16,850,955	212,476,289
2044	11,030,059	2,977,590	3,884,462	17,892,111	230,368,399
2045	12,725,694	3,027,376	3,687,833	19,440,903	249,809,302
2046	14,025,896	3,158,310	3,700,221	20,884,427	270,693,729
2047	15,279,046	3,457,463	3,792,849	22,529,358	293,223,087

H-10. Year wise Nominal Capacity Addition (MW)

FY	Capacity Addition Over the Plan Period (2020-47) - MW										
	Local Coal	Hydro	RLNG	Nuclear	Imported Coal	RE	Natural Gas	Furnace Oil	Cross Border	Yearly Addition	Total (MW)
2020	602	9,945	6,677	1,230	3,736	1,846	3,010	6,488	0	33,534	-
2021	2,118	119	0	1,059	0	446	0	0	0	3,742	37,276
2022	607	720	0	1,059	917	1,410	0	-1,336	0	3,377	40,653
2023	0	968	0	0	0	3,000	-260	0	1,000	4,708	45,361
2024	1,514	1,413	0	0	644	2,889	-270	0	0	6,189	51,550
2025	0	3,088	0	0	0	2,422	0	0	0	5,510	57,060
2026	0	37	0	1,059	0	2,173	0	0	0	3,269	60,329
2027	607	700	0	0	0	1,801	-192	-1,200	0	1,716	62,045
2028	0	1,122	1,577	0	0	2,284	0	-824	0	4,159	66,204
2029	0	1,986	1,012	0	0	2,763	-106	0	0	5,656	71,860
2030	607	639	1,616	0	0	3,000	-678	-653	0	4,531	76,391
2031	0	2,154	1,108	0	0	806	0	-310	0	3,757	80,148
2032	0	2,160	1,211	0	0	1,500	-29	-367	0	4,475	84,623
2033	3,056	0	862	0	0	1,500	0	-627	0	4,791	89,414
2034	3,207	0	891	0	0	215	0	-156	0	4,157	93,571
2035	2,131	0	2,698	0	0	466	-212	-409	0	4,674	98,245
2036	2,411	0	2,874	0	0	473	-167	-606	0	4,986	103,231
2037	2,653	0	2,135	0	0	751	0	0	0	5,540	108,771
2038	2,543	0	2,474	0	0	1,165	0	0	0	6,182	114,953
2039	3,016	0	2,759	0	0	1,132	-355	0	0	6,552	121,505
2040	3,355	0	2,749	0	0	193	0	0	0	6,298	127,803
2041	0	4,238	-202	0	0	1,500	0	0	0	5,536	133,339
2042	1,761	44	1,646	0	0	1,500	0	0	0	4,952	138,290
2043	0	7,108	0	0	0	1,500	0	0	0	8,608	146,898
2044	878	3,035	-10	0	0	1,500	0	0	0	5,403	152,301
2045	0	6,460	0	0	0	1,113	-721	0	0	6,852	159,153
2046	0	4,893	-450	0	0	1,500	0	0	0	5,943	165,096
2047	0	5,007	0	0	0	105	0	0	0	5,112	170,207
Total	**31,067**	**55,836**	**31,628**	**4,407**	**5,297**	**40,952**	**20**	**0**	**1,000**	**170,207**	

H-11. IGCEP Generation Mix 2020-2047 (GWh)

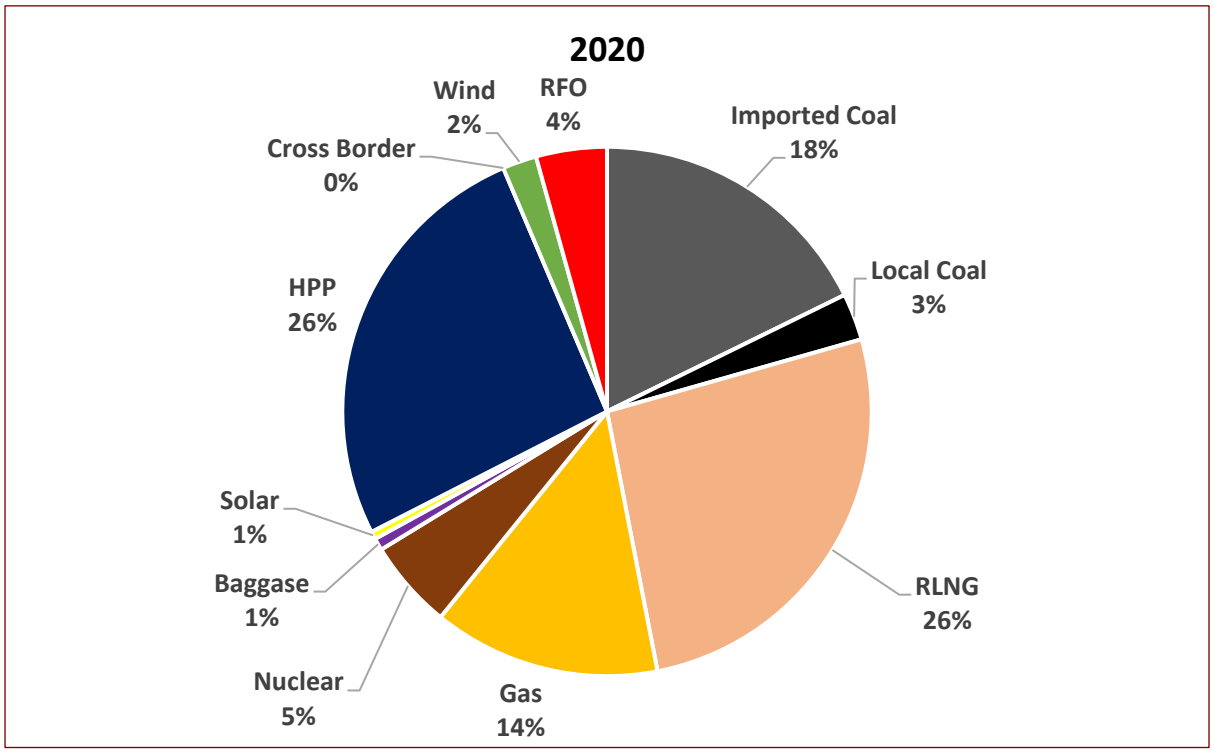


Chart H-1: IGCEP Generation Mix 2020 (GWh)

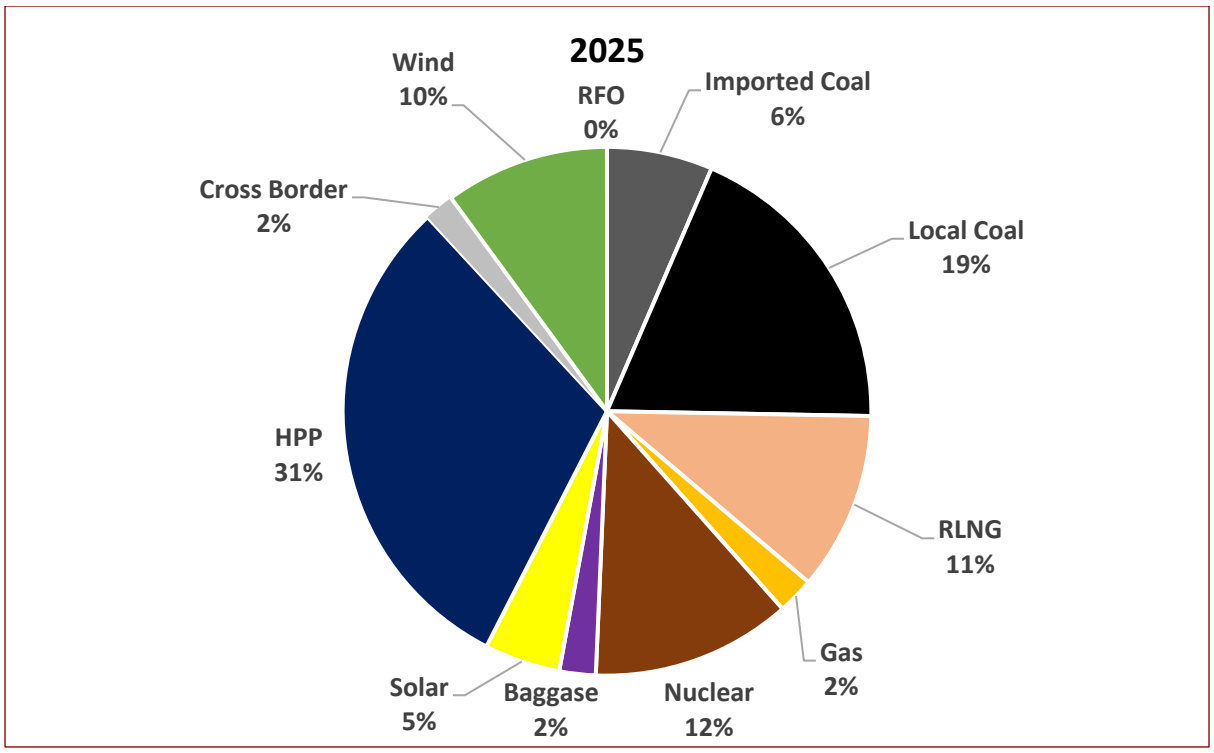


Chart H-2: IGCEP Generation Mix 2025 (GWh)

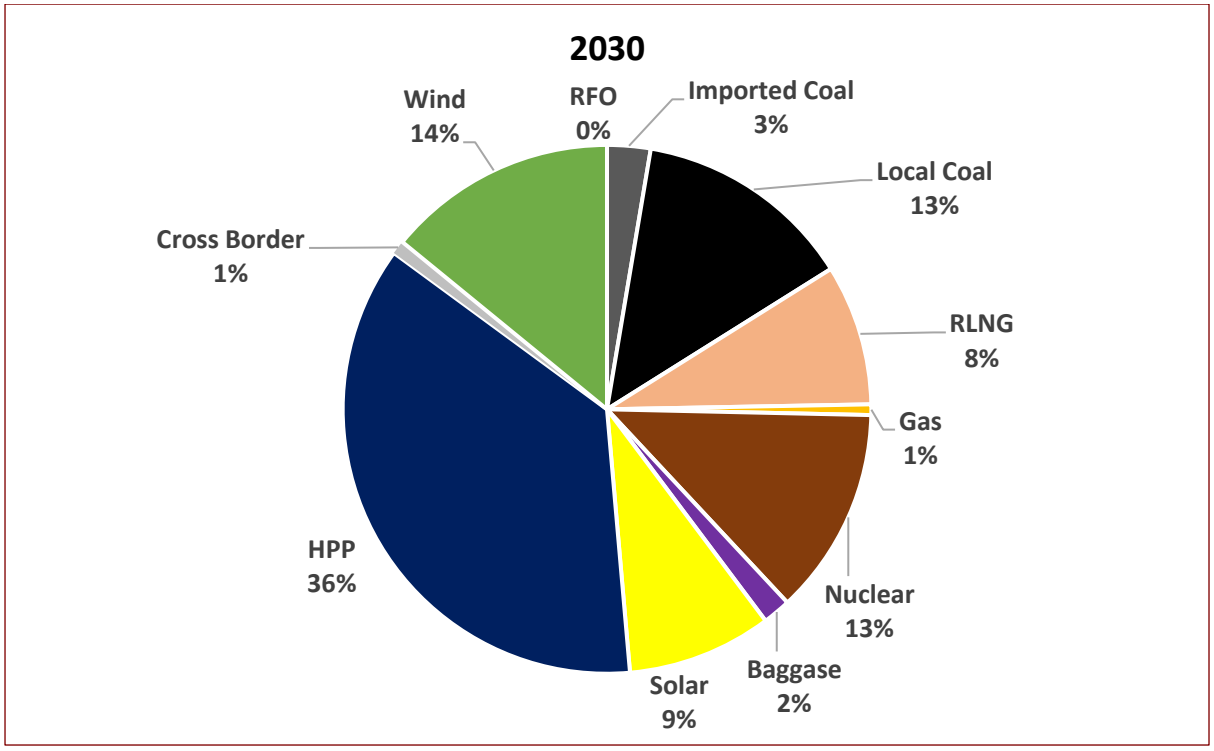


Chart H-3: IGCEP Generation Mix 2030 (GWh)

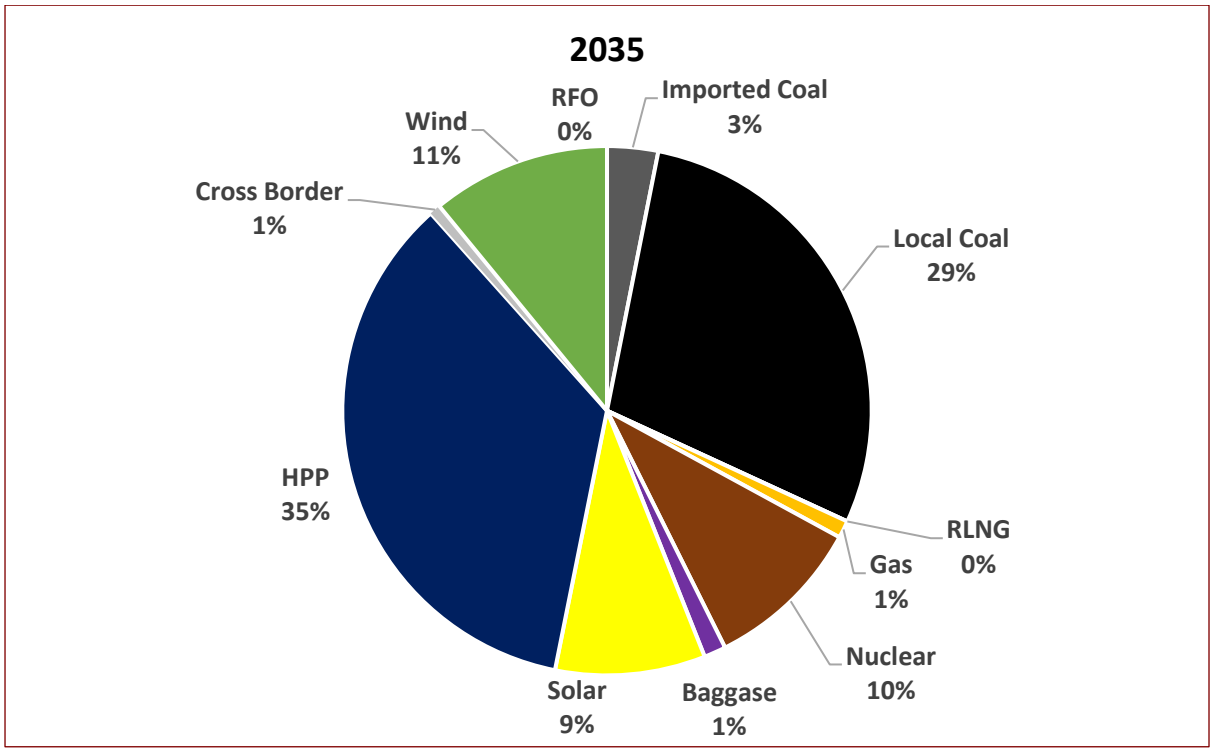


Chart H-4: IGCEP Generation Mix 2035 (GWh)

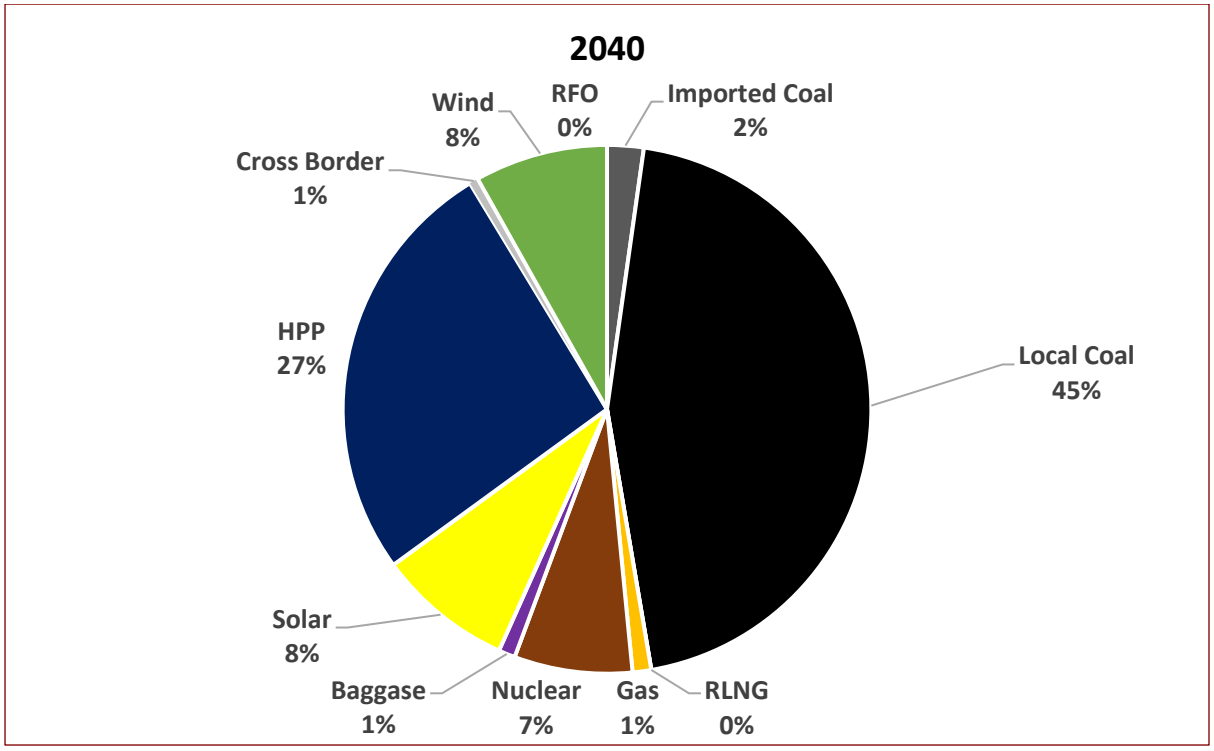


Chart H-5: IGCEP Generation Mix 2040 (GWh)

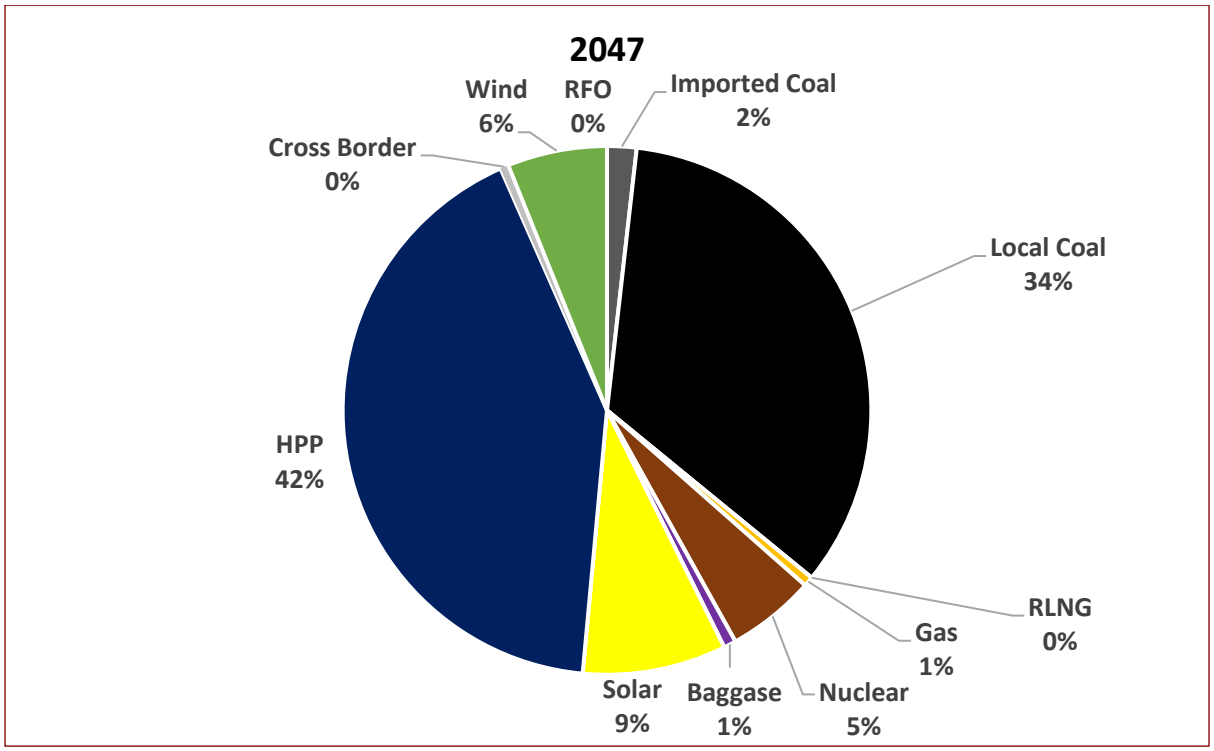


Chart H-6: IGCEP Generation Mix 2047 (GWh)

H-12. IGCEP Generation Mix 2020-47 (MW)

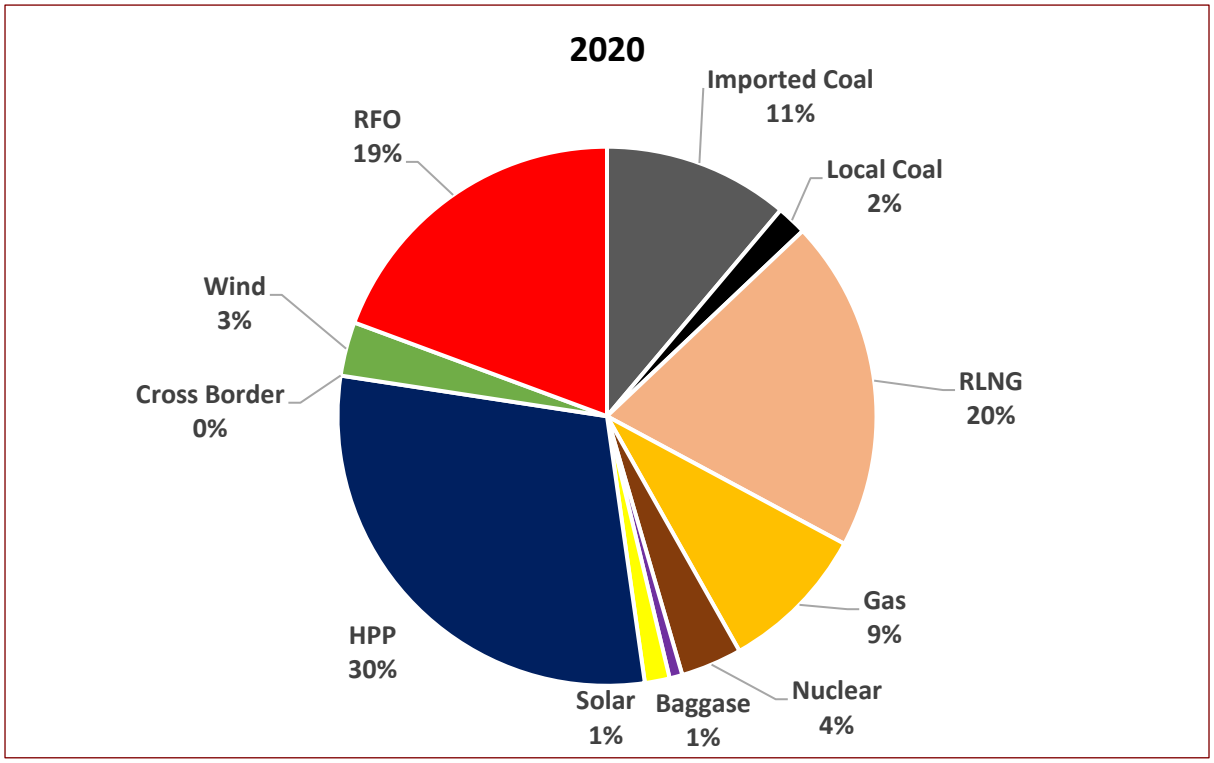


Chart H-7: IGCEP Generation Mix 2020 (MW)

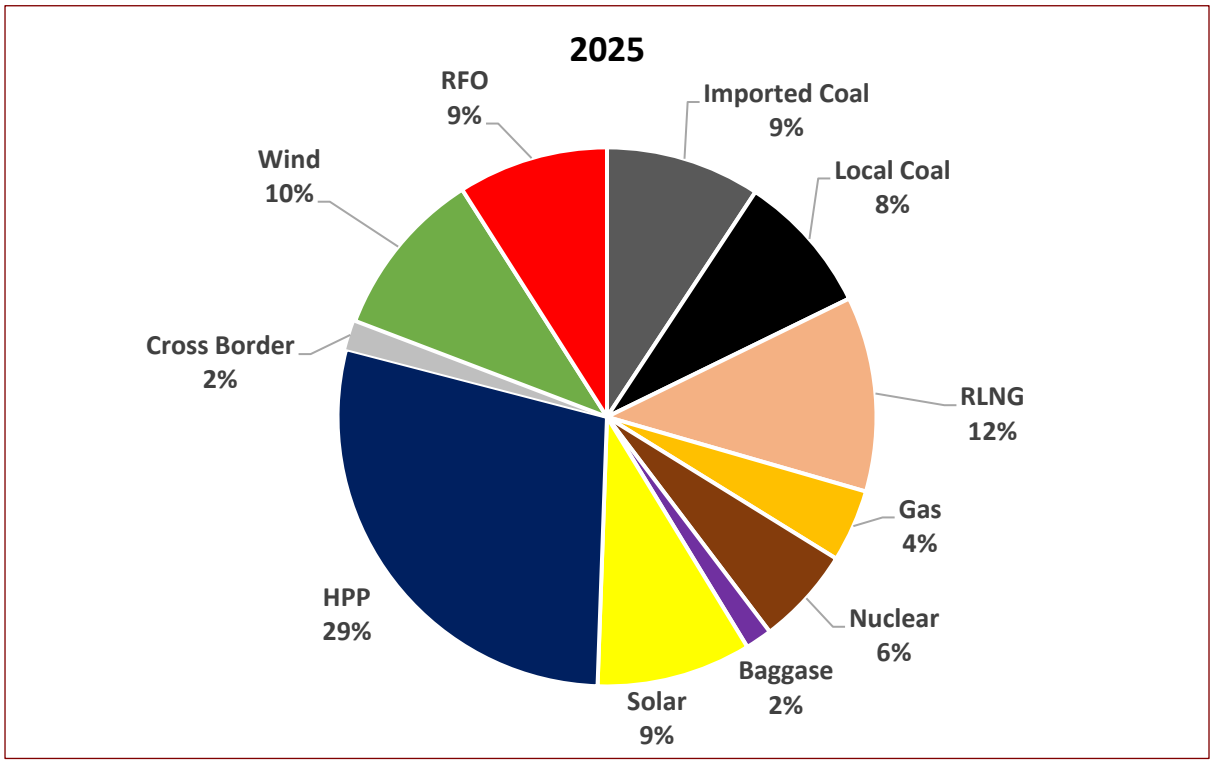


Chart H-8: IGCEP Generation Mix 2025 (MW)

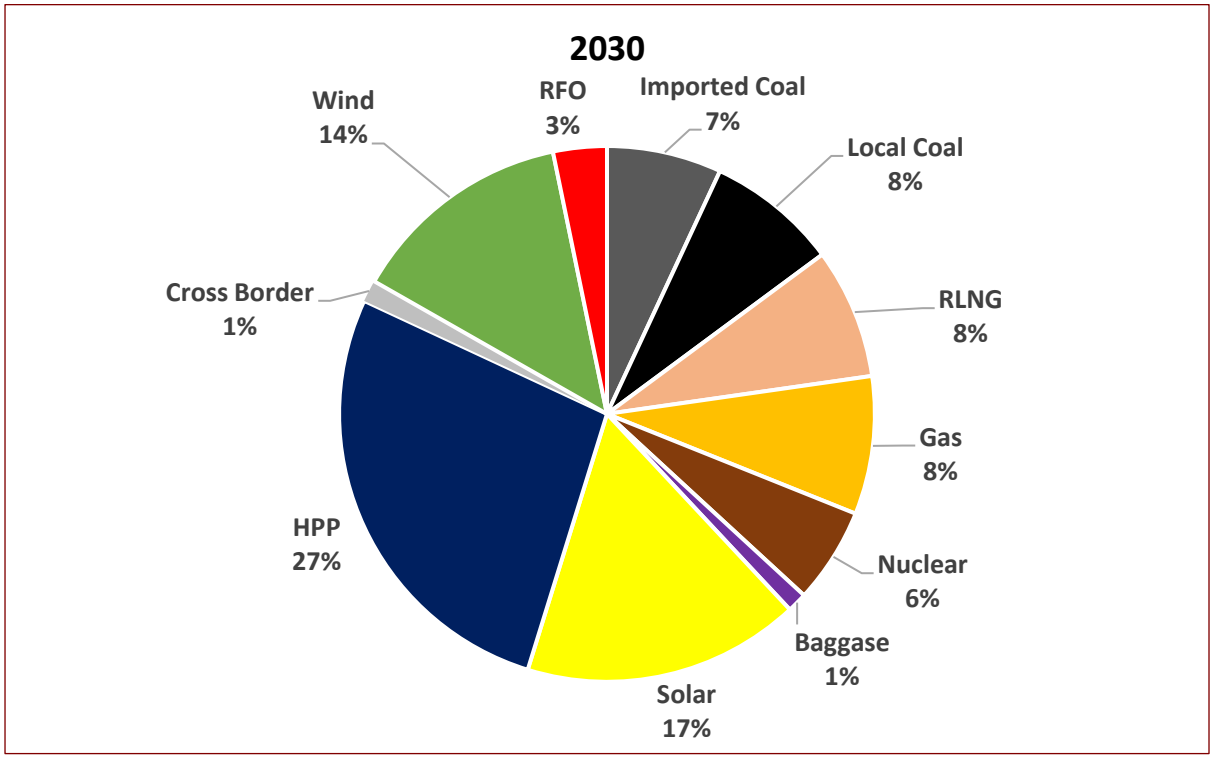


Chart H-9: IGCEP Generation Mix 2030 (MW)

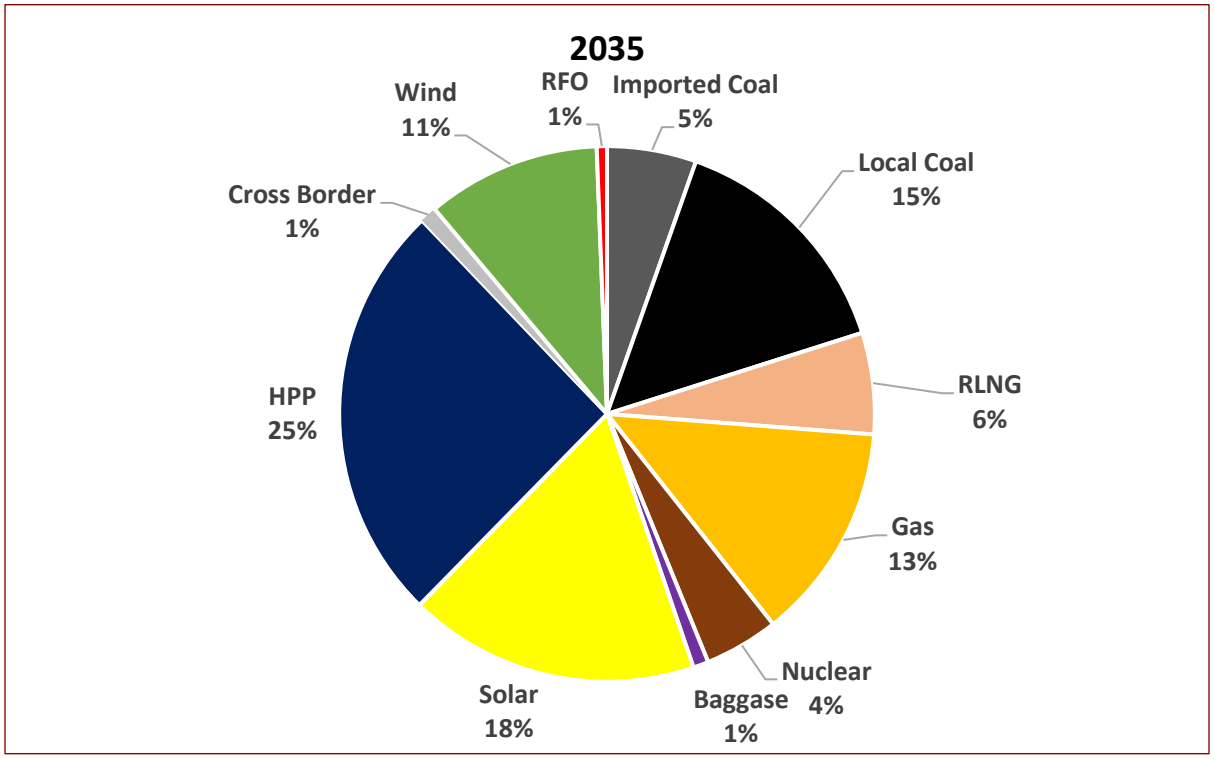


Chart H-10: IGCEP Generation Mix 2035 (MW)

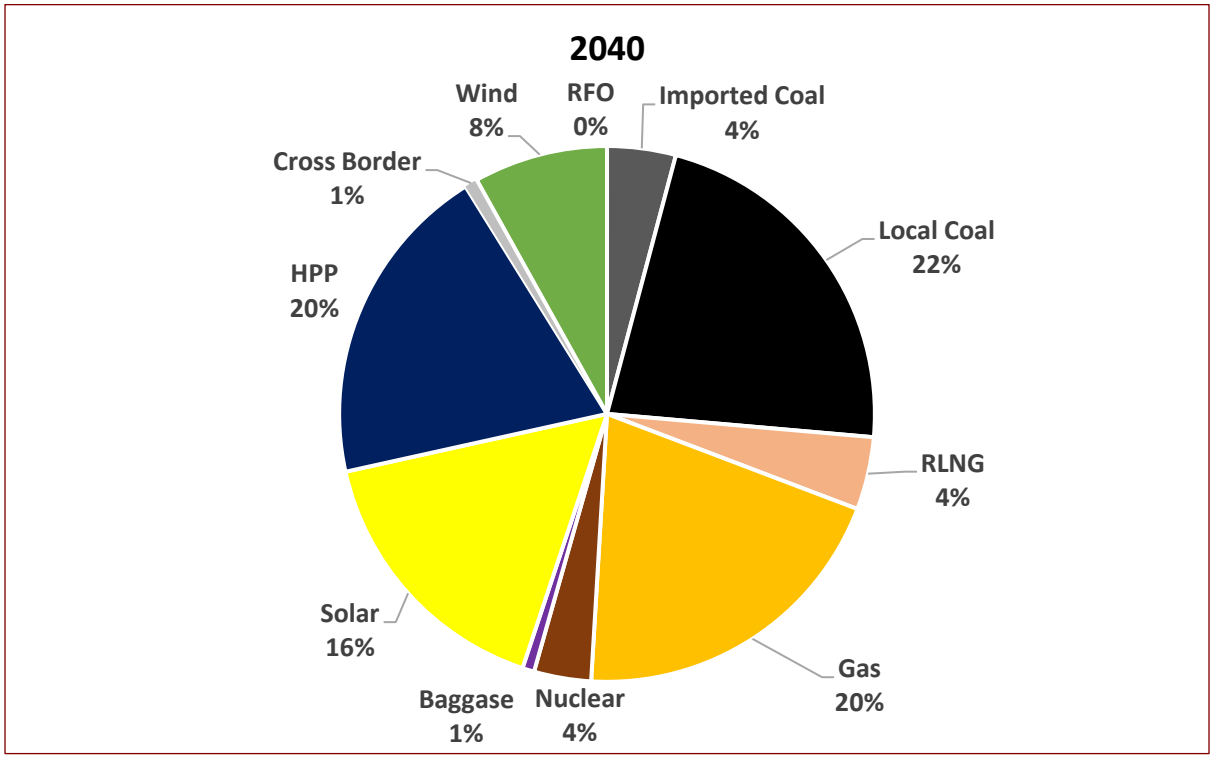


Chart H-11: IGCEP Generation Mix 2040 (MW)

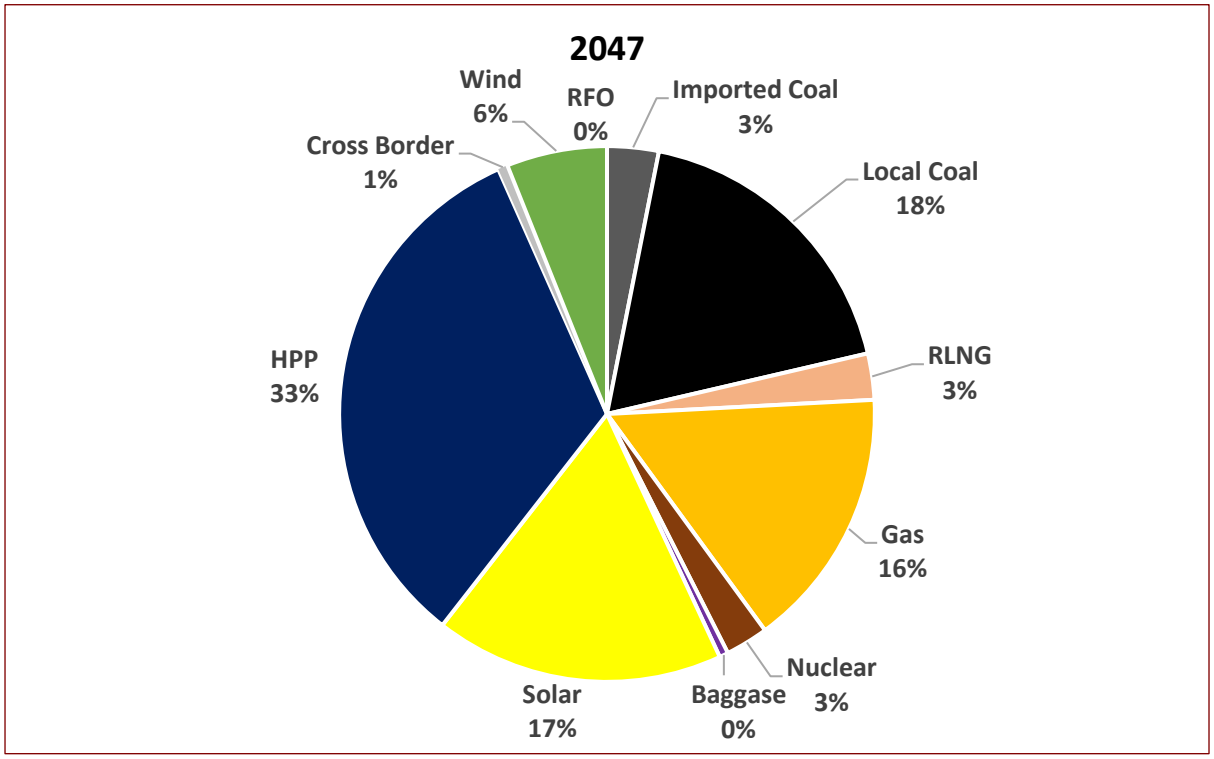


Chart H-12: IGCEP Generation Mix 2047 (MW)

H-13. IGCEP Monthly Generation Mix 2019-47 (GWh)

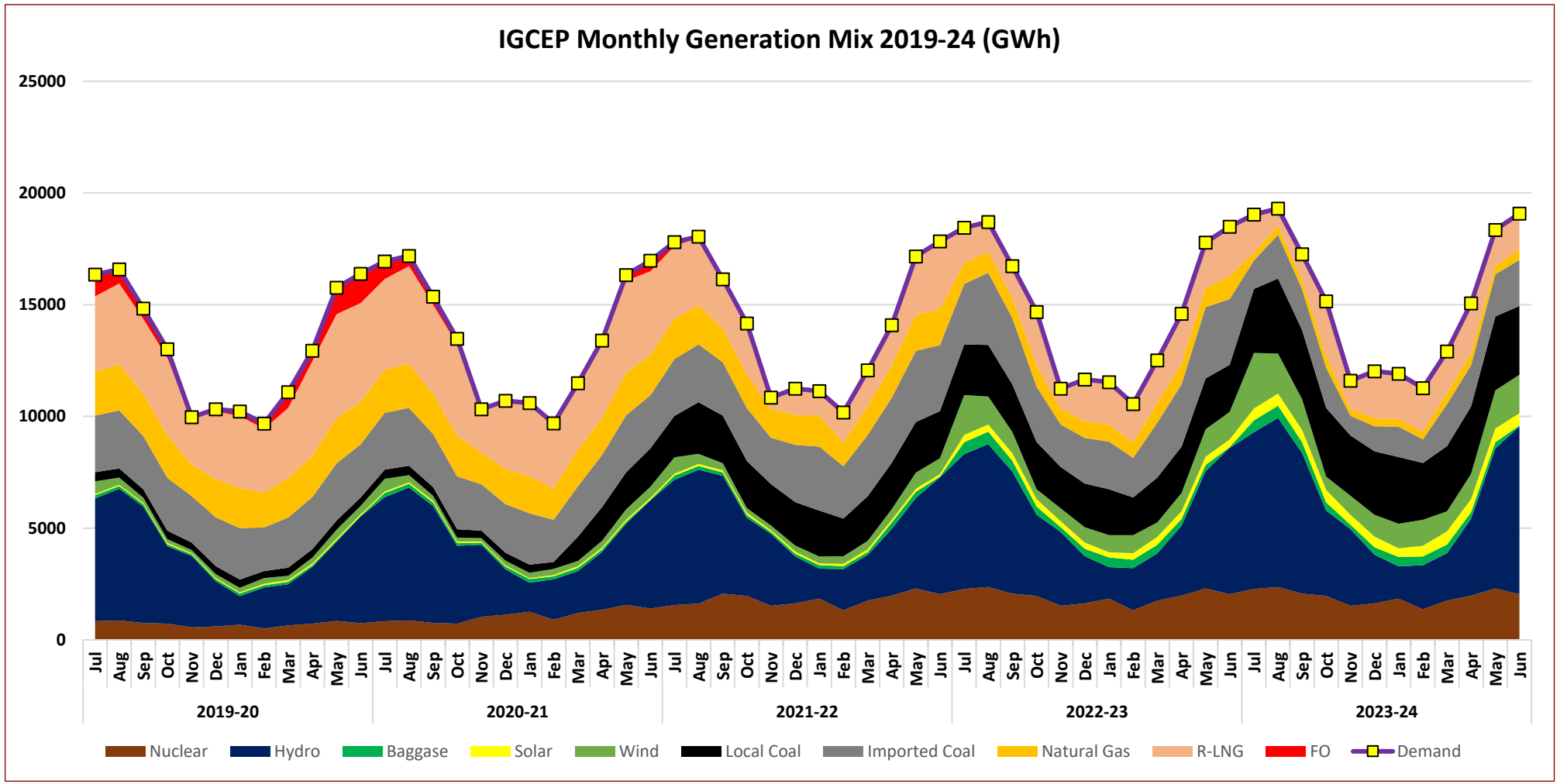


Chart H-13: IGCEP Monthly Generation Mix 2019-24 (GWh)

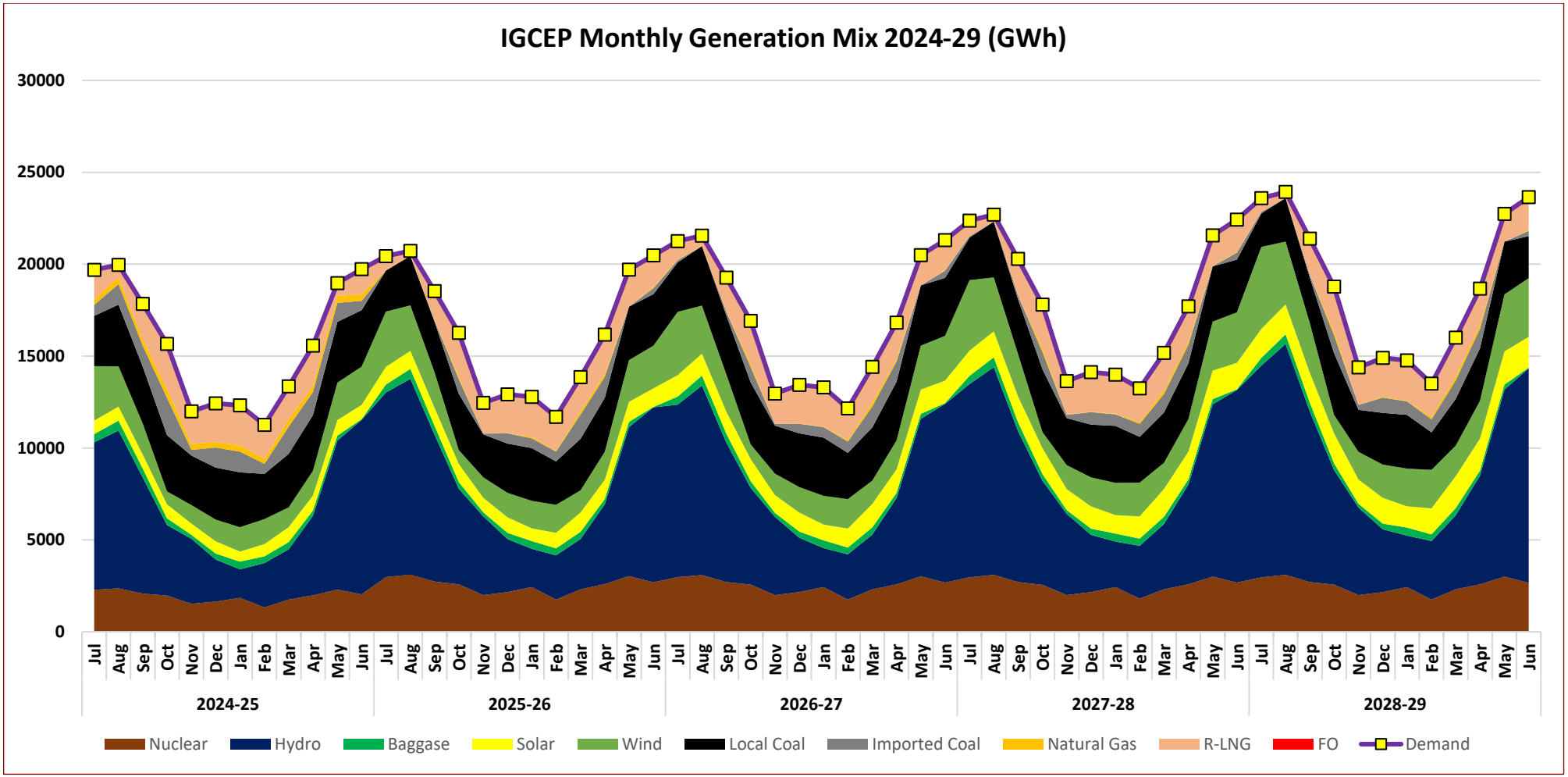


Chart H-14: IGCEP Monthly Generation Mix 2024-29 (GWh)

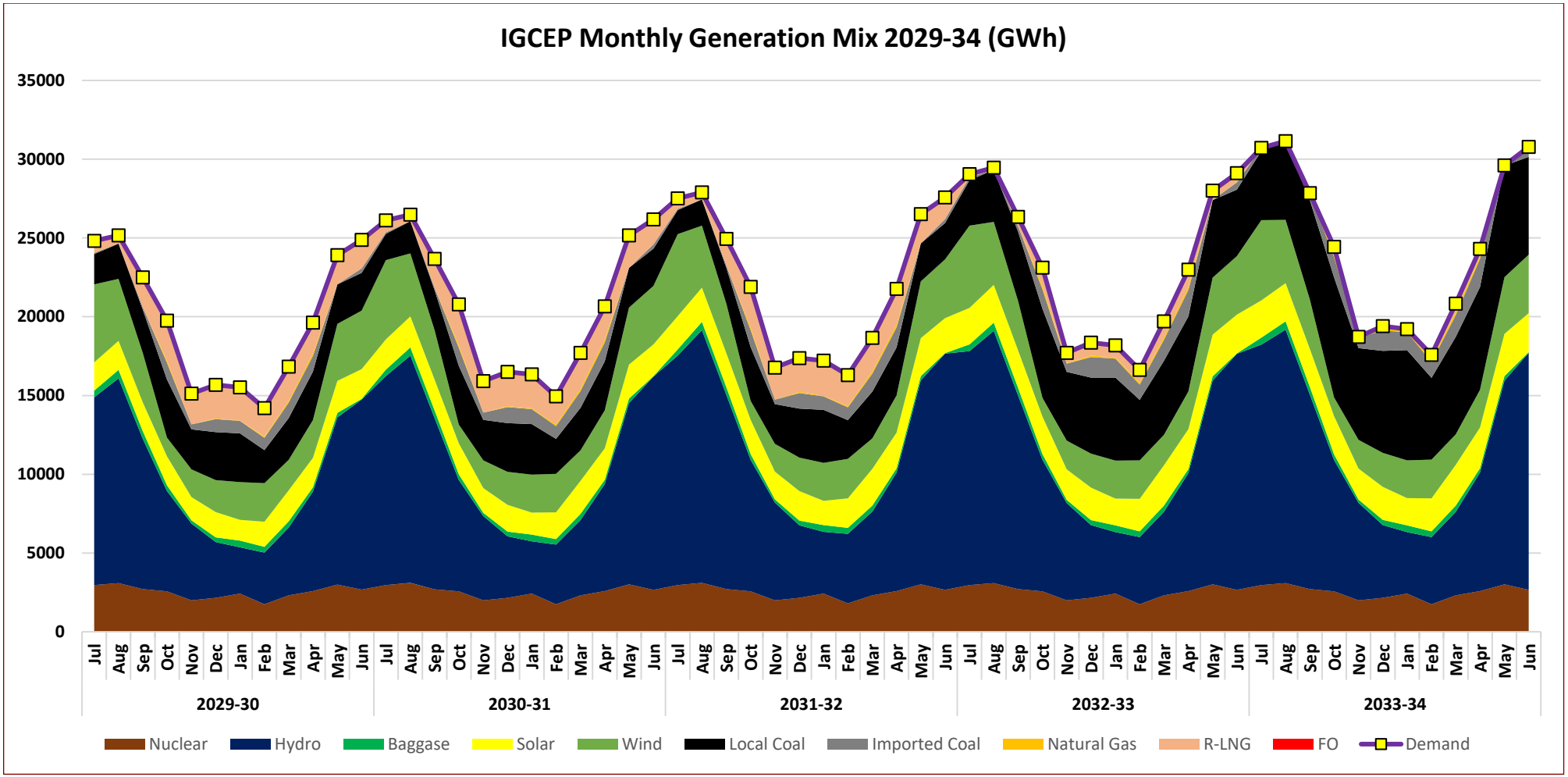


Chart H-15: IGCEP Monthly Generation Mix 2029-34 (GWh)

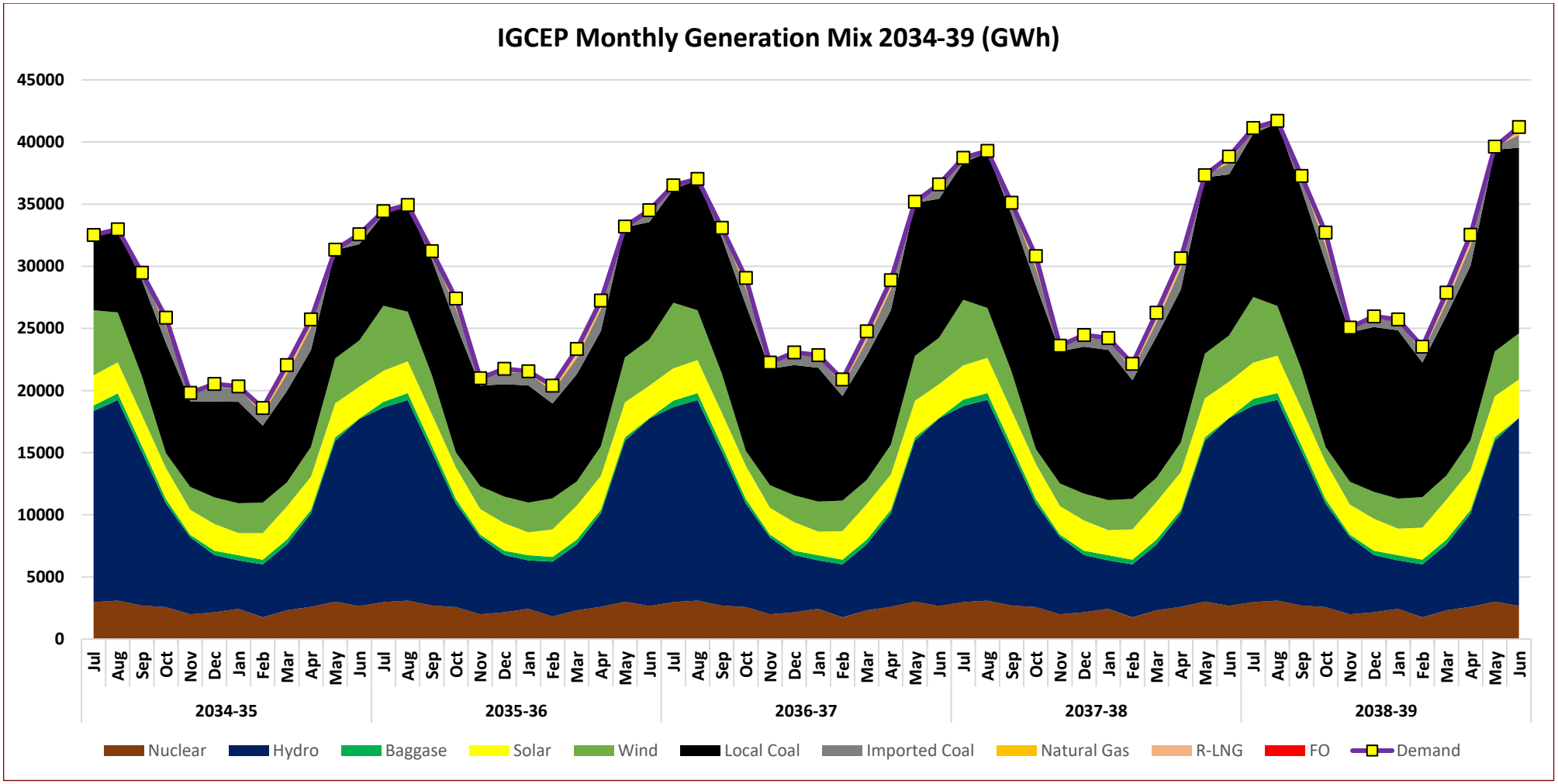


Chart H-16: IGCEP Monthly Generation Mix 2034-39 (GWh)

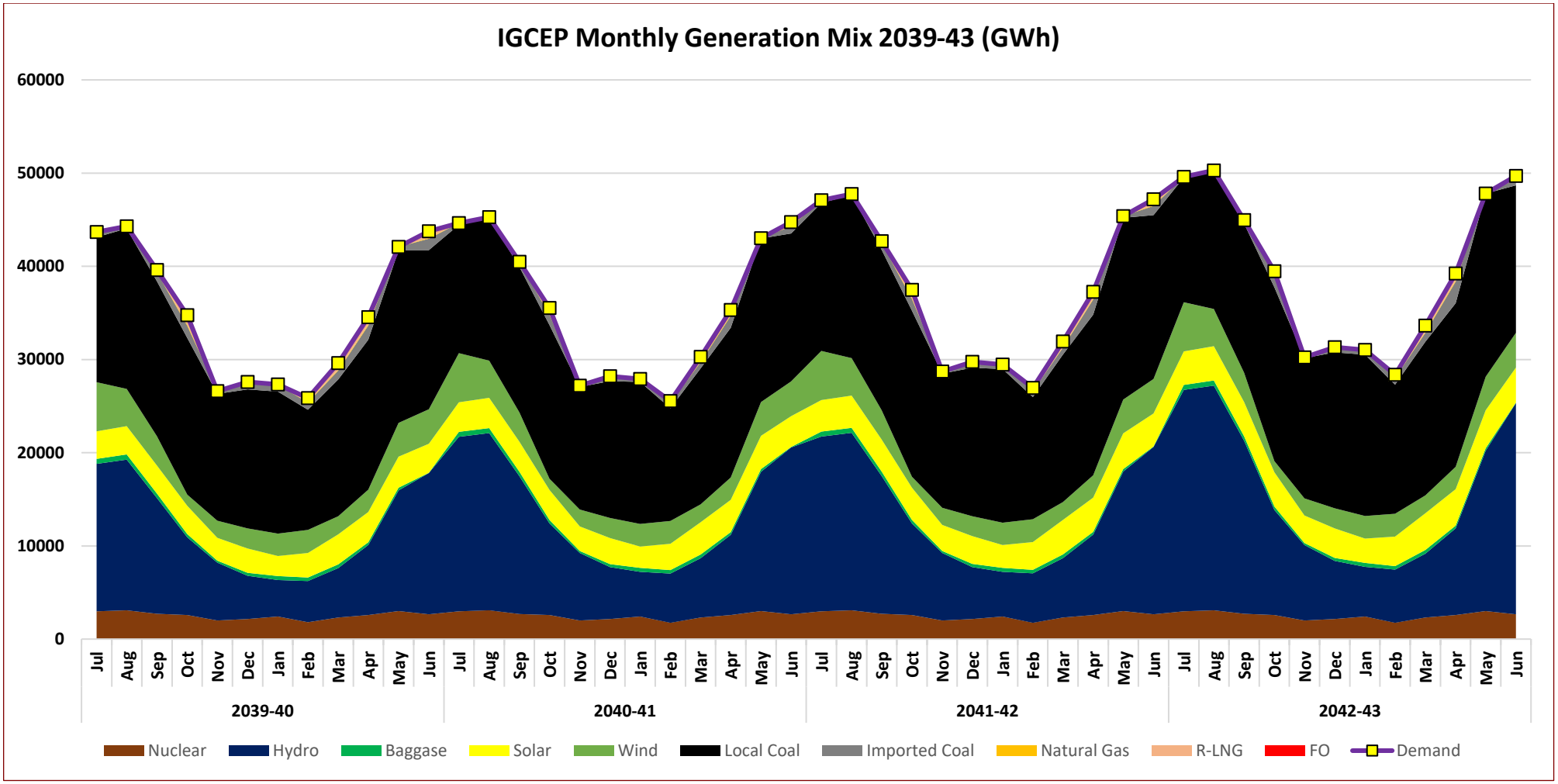


Chart H-17: IGCEP Monthly Generation Mix 2039-43 (GWh)

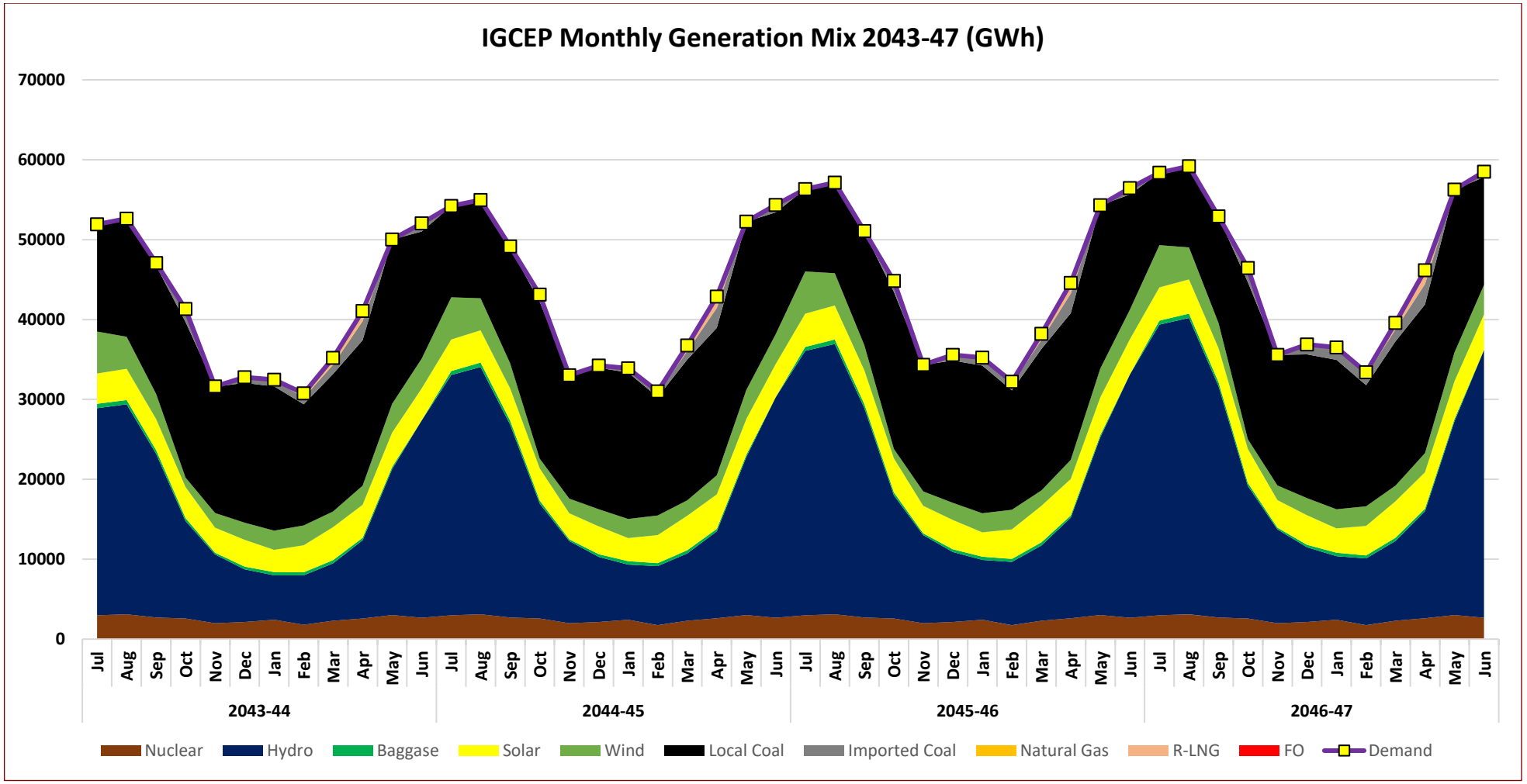


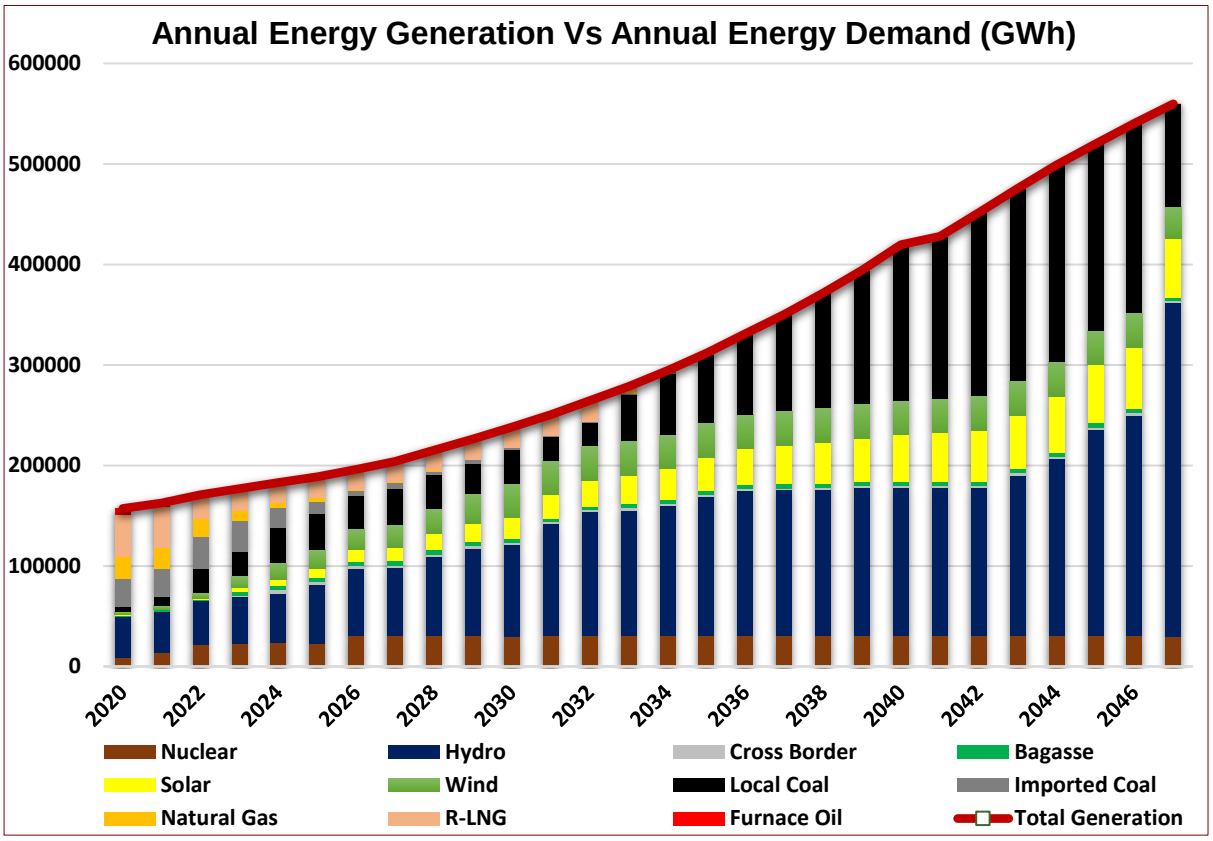
Chart H-18: IGCEP Monthly Generation Mix 2043-47 (GWh)

H-14. Year-wise Present Worth and Un-Discounted Cost

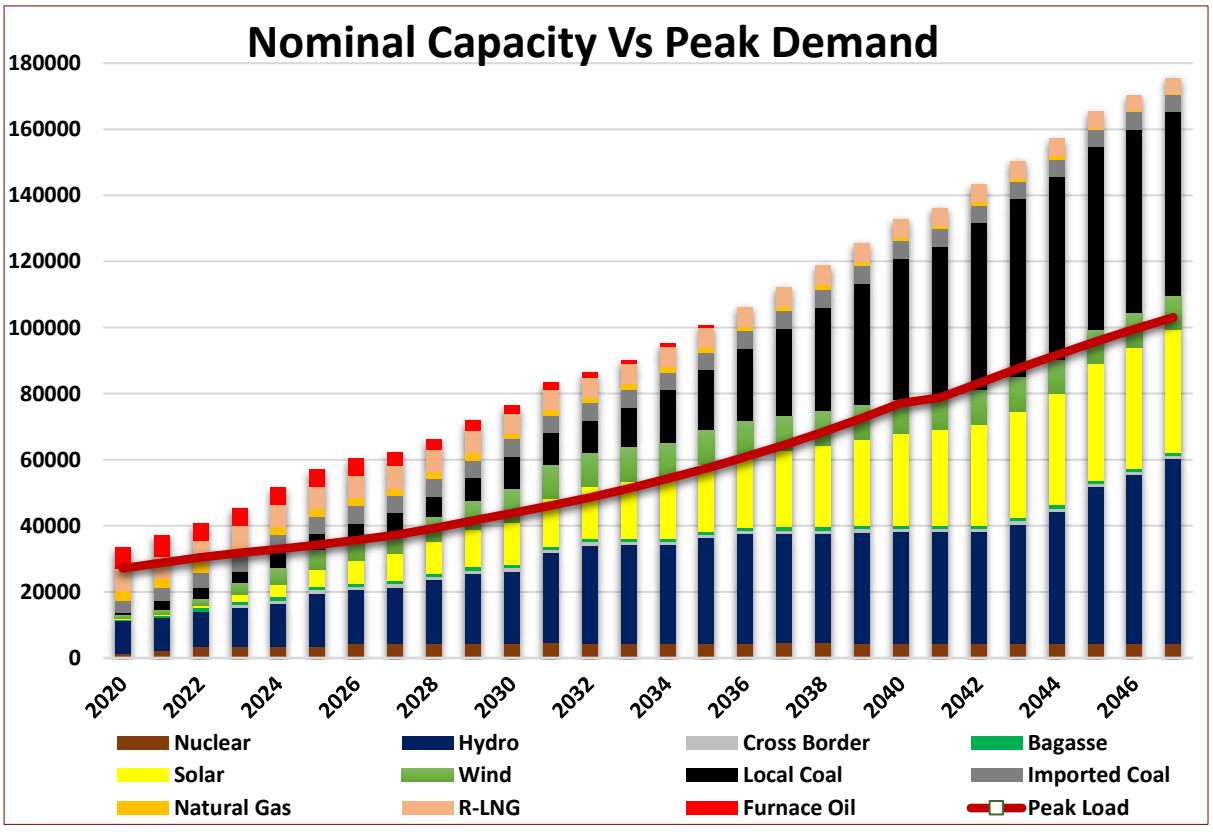
FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,751,312	6,708,034	6,708,034	0	956,722	5,751,312	6,708,034	6,708,034
2021	0	913,435	4,826,457	5,739,893	12,447,927	0	1,014,928	5,362,730	6,377,658	13,085,692
2022	0	909,992	3,537,939	4,447,931	16,895,858	0	1,123,447	4,367,826	5,491,273	18,576,965
2023	215,029	890,290	2,739,694	3,845,013	20,740,870	294,964	1,221,248	3,758,154	5,274,366	23,851,331
2024	511,136	876,831	2,111,682	3,499,649	24,240,519	779,052	1,336,428	3,218,537	5,334,017	29,185,349
2025	579,057	823,709	1,761,742	3,164,509	27,405,028	980,638	1,394,959	2,983,526	5,359,123	34,544,472
2026	608,447	791,391	1,404,241	2,804,080	30,209,108	1,144,901	1,489,142	2,642,328	5,276,371	39,820,843
2027	642,058	730,104	1,317,267	2,689,429	32,898,536	1,342,384	1,526,466	2,754,077	5,622,927	45,443,770
2028	683,448	689,769	1,197,471	2,570,688	35,469,224	1,587,690	1,602,373	2,781,793	5,971,855	51,415,626
2029	830,902	648,700	1,069,744	2,549,345	38,018,570	2,144,703	1,674,408	2,761,195	6,580,306	57,995,931
2030	940,954	602,137	980,404	2,523,494	40,542,064	2,698,629	1,726,911	2,811,770	7,237,310	65,233,241
2031	968,485	529,045	866,024	2,363,553	42,905,617	3,086,208	1,685,872	2,759,702	7,531,782	72,765,023
2032	970,039	487,012	765,016	2,222,068	45,127,685	3,434,624	1,724,368	2,708,698	7,867,690	80,632,714
2033	1,006,777	457,291	543,275	2,007,343	47,135,027	3,960,781	1,799,035	2,137,306	7,897,123	88,529,836
2034	1,021,409	431,776	449,292	1,902,477	49,037,505	4,464,825	1,887,400	1,963,966	8,316,190	96,846,026

FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2035	1,010,440	408,624	451,140	1,870,204	50,907,709	4,907,644	1,984,659	2,191,158	9,083,461	105,929,487
2036	999,872	386,767	460,321	1,846,960	52,754,669	5,395,903	2,087,224	2,484,166	9,967,294	115,896,781
2037	983,362	363,920	466,015	1,813,297	54,567,966	5,896,452	2,182,142	2,794,329	10,872,923	126,769,704
2038	963,408	345,087	466,236	1,774,731	56,342,697	6,418,673	2,299,128	3,106,280	11,824,081	138,593,785
2039	947,599	328,310	468,141	1,744,050	58,086,747	7,014,824	2,430,394	3,465,524	12,910,742	151,504,526
2040	928,837	312,477	464,150	1,705,464	59,792,211	7,639,928	2,570,208	3,817,757	14,027,892	165,532,419
2041	925,255	298,938	371,788	1,595,980	61,388,191	8,456,073	2,732,045	3,397,834	14,585,951	180,118,370
2042	872,417	277,435	377,228	1,527,081	62,915,271	8,859,085	2,817,258	3,830,620	15,506,963	195,625,333
2043	907,480	257,196	328,814	1,493,490	64,408,761	10,239,041	2,901,922	3,709,992	16,850,955	212,476,289
2044	879,829	237,512	309,850	1,427,190	65,835,951	11,030,059	2,977,590	3,884,462	17,892,111	230,368,399
2045	913,575	217,335	264,749	1,395,659	67,231,610	12,725,694	3,027,376	3,687,833	19,440,903	249,809,302
2046	906,225	204,061	239,074	1,349,360	68,580,970	14,025,896	3,158,310	3,700,221	20,884,427	270,693,729
2047	888,473	201,051	220,553	1,310,076	69,891,046	15,279,046	3,457,463	3,792,849	22,529,358	293,223,087

I-1. Annual Energy Generation Vs Annual Energy Demand (GWh)



I-2. Nominal Capacity Vs Peak Demand (MW) 2020-47



I-3. Future Generation Capacity Additions

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South MW	Midland MW	North MW	MW	MW
2020	-	-	-	-	-	-	-	-	-	-	0	0
2021	-	-	-	-	-	-	-	-	-	-	0	0
2022	-	-	-	-	-	-	-	-	-	-	0	0
2023	-	-	-	-	-	-	1,500	1,000	300	200	3,000	3,000
2024	-	1,514	-	-	-	3	1,500	1,000	300	89	4,405	7,405
2025	-	-	-	-	-	-	1,500	922	-	-	2,422	9,828
2026	-	-	-	-	-	3	1,500	673	-	-	2,176	12,004
2027	-	607	20	-	-	-	1,500	301	-	-	2,428	14,432
2028	-	607	-	-	-	1,044	1,500	810	-	-	3,961	18,393
2029	-	790	255	-	-	2,026	1,500	1,000	249	-	5,820	24,212
2030	-	2,766	-	-	-	639	1,500	1,000	300	200	6,405	30,618
2031	-	-	-	-	-	5,704	1,500	-	-	-	7,204	37,822
2032	-	-	-	-	-	2,160	1,500	-	-	-	3,660	41,482
2033	-	2,490	-	-	-	80	1,500	-	-	-	4,070	45,552

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South MW	Midland MW	North MW	MW	MW
2034	-	3,716	-	-	-	-	1,500	-	-	-	5,216	50,768
2035	-	2,317	-	-	-	2,260	1,500	-	-	-	6,077	56,845
2036	-	3,889	-	-	-	1,122	1,500	-	-	-	6,511	63,356
2037	-	4,473	-	-	-	95	1,500	-	-	-	6,068	69,424
2038	-	4,891	-	-	-	28	1,500	-	-	-	6,419	75,843
2039	-	5,317	-	-	-	358	1,500	-	-	-	7,175	83,018
2040	-	6,090	-	-	-	36	1,500	-	-	-	7,626	90,644
2041	-	2,098	-	-	-	-	1,500	-	-	-	3,598	94,242
2042	-	5,683	-	-	-	-	1,500	-	-	-	7,183	101,425
2043	-	3,264	-	-	-	2,400	1,500	-	-	-	7,164	108,589
2044	-	1,436	-	-	-	3,829	1,500	-	-	-	6,765	115,354
2045	-	-	-	-	-	7,465	1,500	-	-	-	8,965	124,319
2046	-	186	-	-	-	3,585	1,500	-	-	-	5,272	129,591
2047	-	-	-	-	-	4,893	470	-	-	-	5,363	134,954
Total	**-**	**52,135**	**275**	**0**	**0**	**37,730**	**36,470**	**6,706**	**1,149**	**489**	**134,954**	

I-4. List of Projects uptill 2047 (Committed + Candidate)

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2020							
1	Zorlu Solar Pakistan Pvt. Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Jan-20
2	Jabori	Hydro	10	10	PEDO	Committed	Mar-20
3	Trimmu	RLNG	1,263	1,243	PPIB	Committed	Apr-20
4	Jhing	Hydro	15	15	AJK	Committed	Jun-20
5	Karora	Hydro	12	12	PEDO	Committed	Jun-20
6	Koto	Hydro	41	41	PEDO	Committed	Jun-20
Generation Additions in 2020 (MW)			1,441	1,421			
Cumulative Addition up till 2020 (MW)			1,441	1,421			
2021							
1	Etihad Power Generation Ltd.	Bagasse	74	74	AEDB	Committed	Jul-20
2	Karachi Nuclear K-2	Nuclear	1,100	1,059	PAEC	Committed	Nov-20
3	Master Green Energy Ltd.	Wind	60	60	AEDB	Committed	Nov-20
4	Shaheen Renewable Energy-1 Pvt. Ltd.	Wind	51	51	AEDB	Committed	Nov-20
5	Lawi	Hydro	69	69	PEDO	Committed	Jan-21
6	Tricorm Wind Power Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-21
7	Western Energy Pvt. Limited	Wind	50	50	AEDB	Committed	Feb-21
8	Lucky	Local Coal	660	607	PPIB	Committed	Mar-21
9	Access Electric Pvt. Ltd.	Solar	10	10	AEDB	Committed	Mar-21
10	Access Solar Pvt. Ltd.	Solar	12	12	AEDB	Committed	Mar-21
11	Thal Nova	Local Coal	330	300	PPIB	Committed	Mar-21
12	Thar TEL	Local Coal	330	300	PPIB	Committed	Mar-21
13	Thar-I (Shanghai Electric) Unit 1	Local Coal	660	607	PPIB	Committed	Mar-21
14	Riali-II	Hydro	7	7	AJK	Committed	Jun-21
15	Hydro China Dawood Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
16	Tenga Generasi Limited	Wind	50	50	AEDB	Committed	Jun-21
17	Zephyr Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
18	Siddiqsons	Local Coal	330	304	PPIB	Committed	Jun-21
Generation Additions in 2021 (MW)			3,943	3,708			
Cumulative Addition uptill 2021 (MW)			5,384	5,129			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2022							
1	HNDS Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
2	Helios Power Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
3	Thar-I (Shanghai Electric) Unit 2	Local Coal	660	607	PPIB	Committed	Aug-21
4	Karachi Nuclear K-3	Nuclear	1,100	1,059	PAEC	Committed	Sep-21
5	Buksh Energy Pvt. Ltd.	Solar	12	12	AEDB	Committed	Sep-21
6	Safe Solar Power Pvt. Ltd.	Solar	10	10	AEDB	Committed	Sep-21
7	Artistic Wind Power Pvt. Limited.	Wind	50	50	AEDB	Committed	Oct-21
8	Meridian Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Nov-21
9	Zhenfa Pakistan New Energy Company (Pvt.) Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Nov-21
10	Karot	Hydro	720	720	PPIB/AJK	Committed	Dec-21
11	Jamshoro CFPP Unit 1	Imp.Coal	660	644	GENCO	Committed	Dec-21
12	Gwadar	Imp.Coal	300	273	PPIB	Committed	Jan-22
13	Gul Ahmed Electric Ltd.	Wind	50	50	AEDB	Committed	Jan-22
14	ACT 2 wind (Pvt.) Ltd.	Wind	50	50	AEDB	Committed	Feb-22
15	Din Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
16	Indus Wind Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
17	Lakeside Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
18	Liberty Wind Power 1 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
19	Liberty Wind Power 2 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
20	Metro Wind Power Ltd.	Wind	50	50	AEDB	Committed	Feb-22
21	NASDA Green Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
22	Trans Atlantic Energy (Pvt.) Limited	Wind	48	48	AEDB	Committed	Feb-22
23	Alliance Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
24	Bahawalpur Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
25	Faran Power Limited	Bagasse	27	27	AEDB	Committed	Mar-22
26	Ghotki Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
27	Hamza Sugar Mills Ltd. (Unit-II)	Bagasse	30	30	AEDB	Committed	Mar-22
28	HSM Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
29	Hunza Power (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
30	Indus Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
31	Ittefaq Power Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
32	Kashmir Power (Pvt.) Ltd.	Bagasse	40	40	AEDB	Committed	Mar-22
33	Mehran Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
34	RYK Energy Ltd.	Bagasse	25	25	AEDB	Committed	Mar-22
35	Sadiqabad Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
36	Shahtaj Sugar Mills Ltd.	Bagasse	32	32	AEDB	Committed	Mar-22
37	Sheikhoo Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
38	TAY Powergen Company (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
39	Two Star Energy (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22
Generation Additions in 2022 (MW)			4,841	4,703			
Cumulative Addition up till 2022 (MW)			10,225	9,832			
2023							
1	Gorkin Matiltan	Hydro	84	84	PEDO	Committed	Nov-22
2	Suki Kinari	Hydro	884	884	PPIB	Committed	Dec-22
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2023
4	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2023
5	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2023
6	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2023
7	CASA	Import	1,000	1,000	GOP	Committed	May-23
Generation Additions in 2023 (MW)			4,968	4,968			
Cumulative Addition up till 2023 (MW)			15,193	14,800			
2024							
1	Tarbela 5th-Extension	Hydro	1,410	1,410	WAPDA	Committed	Sep-23
2	Jamshoro CFPP Unit 2	Imp. Coal	660	644	GENCO	Committed	Dec-23
3	Blue Star	Hydro	3	3	PEDO	Candidate	2024
4	Generic_Candidate Local Coal	Local Coal	1,514	1,514	Yet to be Decided	Candidate	2024
5	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2024
6	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2024
7	Generic_Candidate Wind_North	Wind	89	89	Yet to be Decided	Candidate	2024
8	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2024

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Generation Additions in 2024 (MW)			6,475	6,459			
Cumulative Addition up till 2024 (MW)			21,668	21,260			
2025							
1	Keyal Khwar	Hydro	128	128	WAPDA	Committed	Sep-24
2	Mohmand	Hydro	800	800	WAPDA	Committed	Nov-24
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2025
4	Generic_Candidate Wind_South	Wind	922	922	Yet to be Decided	Candidate	2025
5	Dasu 1	Hydro	2,160	2,160	WAPDA	Committed	Feb-25
Generation Additions in 2025 (MW)			5,510	5,510			
Cumulative Addition up till 2025 (MW)			27,179	26,770			
2026							
1	Chasma Nuclear C-5	Nuclear	1,100	1,059	PAEC	Committed	Jul-25
2	Harpo	Hydro	35	35	WAPDA	Committed	Jul-25
3	Riali-III	Hydro	3	3	AJK	Candidate	2026
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2026
5	Generic_Candidate Wind_South	Wind	673	673	Yet to be Decided	Candidate	2026
Generation Additions in 2026 (MW)			3,311	3,270			
Cumulative Addition up till 2026 (MW)			30,490	30,040			
2027							
1	Azad Pattan	Hydro	700	701	PPIB	Committed	Sep-26
2	Hatim	CCGT_Gas	20	20	PPIB	Candidate	2027
3	Oracle_1	Local Coal	660	607	STDC/ PPIB	Candidate	2027
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2027
5	Generic_Candidate Wind_South	Wind	301	301	Yet to be Decided	Candidate	2027
6	Kohala	Hydro	1,124	1,124	PPIB	Committed	Jun-27
Generation Additions in 2027 (MW)			4,305	4,253			
Cumulative Addition up till 2027 (MW)			34,795	34,292			
2028							
1	Bata Kundi	Hydro	96	96	PEDO	Candidate	2028
2	Kalam Asrit	Hydro	212	212	PPIB	Candidate	2028
3	Lower Palas	Hydro	666	666	WAPDA	Candidate	2028

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
4	Torkhow	Hydro	70	70	PEDO	Candidate	2028
5	Oracle_2	Local Coal	660	607	STDC/ PPIB	Candidate	2028
6	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2028
7	Generic_Candidate Wind_South	Wind	810	810	Yet to be Decided	Candidate	2028
Generation Additions in 2028 (MW)			4,014	3,961			
Cumulative Addition up till 2028 (MW)			38,809	38,253			
2029							
1	Mari Combined Cycle	CCGT_Gas	255	255	PPIB	Candidate	2029
2	Dander	Hydro	56	56	PEDO	Candidate	2029
3	Dowarian	Hydro	40	40	AJK	Candidate	2029
4	Dubair Kalay	Hydro	66	66	PEDO	Candidate	2029
5	Nerai-Dubair	Hydro	46	46	PEDO	Candidate	2029
6	Rajdhani	Hydro	132	132	PPIB	Candidate	2029
7	Thakot-III	Hydro	1,686	1,686	WAPDA	Candidate	2029
8	Generic_Candidate Local Coal	Local Coal	790	790	Yet to be Decided	Candidate	2029
9	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2029
10	Generic_Candidate Wind_Mid	Wind	249	249	Yet to be Decided	Candidate	2029
11	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2029
Generation Additions in 2029 (MW)			5,820	5,820			
Cumulative Addition up till 2029 (MW)			44,628	44,073			
2030							
1	Mahl	Hydro	639	639	PPIB	Candidate	2030
2	Generic_Candidate Local Coal	Local Coal	2,766	2,766	Yet to be Decided	Candidate	2030
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2030
4	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2030
5	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2030
6	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2030
Generation Additions in 2030 (MW)			6,405	6,405			
Cumulative Addition up till 2030 (MW)			51,034	50,478			
2031							
1	Thakot-I	Hydro	2,154	2,154	WAPDA	Candidate	2031

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2	Bunji 1	Hydro	3,550	3,550	WAPDA	Candidate	2031
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2031
Generation Additions in 2031 (MW)			7,204	7,204			
Cumulative Addition up till 2031 (MW)			58,238	57,682			
2032							
1	Dasu_2	Hydro	2,160	2,160	WAPDA	Candidate	2032
2	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2032
Generation Additions in 2032 (MW)			3,660	3,660			
Cumulative Addition up till 2032 (MW)			61,898	61,342			
2033							
1	Phandar	Hydro	80	80	WAPDA	Candidate	2033
2	Generic_Candidate Local Coal	Local Coal	2,490	2,490	Yet to be Decided	Candidate	2033
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2033
Generation Additions in 2033 (MW)			4,070	4,070			
Cumulative Addition up till 2033 (MW)			65,968	65,412			
2034							
1	Generic_Candidate Local Coal	Local Coal	3,716	3,716	Yet to be Decided	Candidate	2034
2	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2034
Generation Additions in 2034 (MW)			5,216	5,216			
Cumulative Addition up till 2034 (MW)			71,184	70,628			
2035							
1	Pashot	Hydro	60	60	PEDO	Candidate	2035
2	Tangus	Hydro	2,200	2,200	WAPDA	Candidate	2035
3	Generic_Candidate Local Coal	Local Coal	2,317	2,317	Yet to be Decided	Candidate	2035
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2035
Generation Additions in 2035 (MW)			6,077	6,077			
Cumulative Addition up till 2035 (MW)			77,261	76,706			
2036							
1	Madian	Hydro	156	156	PEDO	Candidate	2036
2	Thakot-II	Hydro	966	966	WAPDA	Candidate	2036
3	Generic_Candidate Local Coal	Local Coal	3,889	3,889	Yet to be Decided	Candidate	2036

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2036
Generation Additions in 2036 (MW)			6,511	6,511			
Cumulative Addition up till 2036 (MW)			83,772	83,217			
2037							
1	Gabral Kalam	Hydro	87	87	PEDO	Candidate	2037
2	Sakhra-I	Hydro	8	8	PEDO	Candidate	2037
3	Generic_Candidate Local Coal	Local Coal	4,473	4,473	Yet to be Decided	Candidate	2037
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2037
Generation Additions in 2037 (MW)			6,068	6,068			
Cumulative Addition up till 2037 (MW)			89,840	89,285			
2038							
1	Gwaldai	Hydro	20	20	PEDO	Candidate	2038
2	Sakhra-II	Hydro	8	8	PEDO	Candidate	2038
3	Generic_Candidate Local Coal	Local Coal	4,891	4,891	Yet to be Decided	Candidate	2038
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2038
Generation Additions in 2038 (MW)			6,419	6,419			
Cumulative Addition uptill 2038 (MW)			96,259	95,704			
2039							
1	Asrit Kadam	Hydro	216	216	PEDO	Candidate	2039
2	Gabral Utror	Hydro	82	82	PEDO	Candidate	2039
3	Nagdar	Hydro	36	36	AJK	Candidate	2039
4	Tangar	Hydro	24	24	PEDO	Candidate	2039
5	Generic_Candidate Local Coal	Local Coal	5,317	5,317	Yet to be Decided	Candidate	2039
6	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2039
Generation Additions in 2039 (MW)			7,175	7,175			
Cumulative Addition uptill 2039 (MW)			103,434	102,879			
2040							
1	Jagran-III	Hydro	36	36	AJK	Candidate	2040
2	Generic_Candidate Local Coal	Local Coal	6,090	6,090	Yet to be Decided	Candidate	2040
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2040
Generation Additions in 2040 (MW)			7,626	7,626			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition uptill 2040 (MW)			111,060	110,505			
2041							
1	Generic_Candidate Local Coal	Local Coal	2,098	2,098	Yet to be Decided	Candidate	2041
2	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2041
Generation Additions in 2041 (MW)			3,598	3,598			
Cumulative Addition uptill 2041 (MW)			114,658	114,103			
2042							
1	Generic_Candidate Local Coal	Local Coal	5,683	5,683	Yet to be Decided	Candidate	2042
2	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2042
Generation Additions in 2042 (MW)			7,183	7,183			
Cumulative Addition uptill 2042 (MW)			121,841	121,286			
2043							
1	Patan	Hydro	2,400	2,400	WAPDA	Candidate	2043
2	Generic_Candidate Local Coal	Local Coal	3,264	3,264	Yet to be Decided	Candidate	2043
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2043
Generation Additions in 2043 (MW)			7,164	7,164			
Cumulative Addition uptill 2043 (MW)			129,005	128,450			
2044							
1	Arkari Gol	Hydro	99	99	PEDO	Candidate	2044
2	Artistic-II	Hydro	54	54	PEDO	Candidate	2044
3	Basho	Hydro	39	39	WAPDA	Candidate	2044
4	Bhan Khwar	Hydro	36	36	PEDO	Candidate	2044
5	Chota Jabba	Hydro	46	46	PEDO	Candidate	2044
6	CJ	Hydro	24	24	PPDB	Candidate	2044
7	Dhudnial	Hydro	960	960	WAPDA	Candidate	2044
8	Harigehl-Majeedgala	Hydro	40	40	AJK	Candidate	2044
9	Jagran-IV	Hydro	24	24	AJK	Candidate	2044
10	Jamshil	Hydro	612	612	PEDO	Candidate	2044
11	Kathai-II	Hydro	8	8	AJK	Candidate	2044
12	Lower Spat Gah	Hydro	495	495	PEDO	Candidate	2044
13	Mahodand	Hydro	44	44	PEDO	Candidate	2044

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
14	Mastuj	Hydro	48	48	PEDO	Candidate	2044
15	Mujigram	Hydro	63	63	PEDO	Candidate	2044
16	Naran	Hydro	188	188	PEDO	Candidate	2044
17	Nila Da Katha	Hydro	36	36	PEDO	Candidate	2044
18	Serai	Hydro	6	6	PEDO	Candidate	2044
19	Shalfalam	Hydro	60	60	PEDO	Candidate	2044
20	Shogosin	Hydro	138	138	PEDO	Candidate	2044
21	Shounter	Hydro	48	48	AJK	Candidate	2044
22	SHYOK	Hydro	640	640	WAPDA	Candidate	2044
23	Trappi	Hydro	33	33	PEDO	Candidate	2044
24	Wazirabad	Hydro	88	88	WAPDA	Candidate	2044
25	Generic_Candidate Local Coal	Local Coal	1,436	1,436	Yet to be Decided	Candidate	2044
26	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2044
Generation Additions in 2044 (MW)			6,765	6,765			
Cumulative Addition uptill 2044 (MW)			135,770	135,215			
2045							
1	Barum Gol	Hydro	40	40	PEDO	Candidate	2045
2	Bhimbal Katha	Hydro	9	9	PEDO	Candidate	2045
3	Diamer Bhasha Dam	Hydro	4,500	4,500	WAPDA	Candidate	2045
4	Nandihaar-II	Hydro	10	10	PEDO	Candidate	2045
5	Shigo Kas	Hydro	102	102	PEDO	Candidate	2045
6	UCC Bhambhwal	Hydro	4	4	PPDB	Candidate	2045
7	Yulbo	Hydro	2,800	2,800	WAPDA	Candidate	2045
8	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2045
Generation Additions in 2045 (MW)			8,965	8,965			
Cumulative Addition uptill 2045 (MW)			144,735	144,180			
2046							
1	Artistic-I	Hydro	63	63	PEDO	Candidate	2046
2	Ashkot	Hydro	300	300	PPIB	Candidate	2046
3	Balakot	Hydro	300	300	PEDO	Candidate	2046
4	Balakot-II	Hydro	100	100	PEDO	Candidate	2046

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
5	Balkani	Hydro	8	8	PEDO	Candidate	2046
6	Chakoti Hatian	Hydro	501	501	PPIB	Candidate	2046
7	Chapri Charkhel	Hydro	12	12	PEDO	Candidate	2046
8	Chicha Watni	Hydro	2	2	PPDB	Candidate	2046
9	Chiniot_HPP	Hydro	78	78	WAPDA	Candidate	2046
10	Daral Khwar-II	Hydro	10	10	PEDO	Candidate	2046
11	Dhaddar	Hydro	18	18	PEDO	Candidate	2046
12	Garhi Habibullah	Hydro	100	100	PEDO	Candidate	2046
13	Ghorband	Hydro	20	20	PEDO	Candidate	2046
14	Gomat Nar	Hydro	50	50	AJK	Candidate	2046
15	Gugera	Hydro	3	3	PPDB	Candidate	2046
16	Istaro-Booni	Hydro	72	72	PEDO	Candidate	2046
17	Kalkot Barikot	Hydro	48	48	PEDO	Candidate	2046
18	Kari Mushkur	Hydro	496	496	PEDO	Candidate	2046
19	Kasur	Hydro	2	2	PPDB	Candidate	2046
20	Kathai-III	Hydro	1	1	AJK	Candidate	2046
21	Khal	Hydro	66	66	PEDO	Candidate	2046
22	Khanki Barrage	Hydro	16	16	PPDB	Candidate	2046
23	Khokhra	Hydro	2	2	PPDB	Candidate	2046
24	Luat	Hydro	48	48	AJK	Candidate	2046
25	Lucky_HPP	Hydro	20	20	PPDB	Candidate	2046
26	Mehar	Hydro	12	12	PPDB	Candidate	2046
27	Mid Ranjha	Hydro	80	80	WAPDA	Candidate	2046
28	Middle Palas	Hydro	399	399	WAPDA	Candidate	2046
29	Murree	Hydro	12	12	PPDB	Candidate	2046
30	Nandihaar	Hydro	12	12	PEDO	Candidate	2046
31	Okara	Hydro	4	4	PPDB	Candidate	2046
32	Patrak Sheringhal	Hydro	22	22	PEDO	Candidate	2046
33	Punjnad	Hydro	18	18	PPDB	Candidate	2046
34	Qaditrabad	Hydro	24	24	PPDB	Candidate	2046
35	QB Link	Hydro	8	8	PPDB	Candidate	2046
36	Ravi	Hydro	6	6	PPDB	Candidate	2046

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
37	Sahiwal	Hydro	6	6	PPDB	Candidate	2046
38	Shah Jiwana	Hydro	78	78	WAPDA	Candidate	2046
39	Sharmai	Hydro	150	150	PEDO	Candidate	2046
40	Shushghai	Hydro	144	144	PEDO	Candidate	2046
41	Soan	Hydro	24	24	PPDB	Candidate	2046
42	Taunsa	Hydro	135	135	PPDB	Candidate	2046
43	TP	Hydro	9	9	PPDB	Candidate	2046
44	Trident	Hydro	8	8	PPDB	Candidate	2046
45	Trimmu_HPP	Hydro	16	16	PPDB	Candidate	2046
46	Turtonas Uzghor	Hydro	82	82	PPIB	Candidate	2046
47	Generic_Candidate Local Coal	Local Coal	186	186	Yet to be Decided	Candidate	2046
48	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2046
Generation Additions in 2046 (MW)			5,272	5,272			
Cumulative Addition uptill 2046 (MW)			150,007	149,451			
2047							
1	Alka	Hydro	2	2	PPDB	Candidate	2047
2	Athmuqam	Hydro	452	452	PPIB	Candidate	2047
3	BS Link Tail	Hydro	9	9	PPDB	Candidate	2047
4	Bunji 2	Hydro	3,550	3,550	WAPDA	Candidate	2047
5	Chenavan	Hydro	3	3	PPDB	Candidate	2047
6	Engro_HPP	Hydro	5	5	PPDB	Candidate	2047
7	Gahrit	Hydro	376	376	PEDO	Candidate	2047
8	Ghail	Hydro	2	2	AJK	Candidate	2047
9	Ghanool	Hydro	3	3	PEDO	Candidate	2047
10	Jabri Bedar	Hydro	4	4	PEDO	Candidate	2047
11	Jhing-II	Hydro	6	6	AJK	Candidate	2047
12	Khanewal	Hydro	2	2	PPDB	Candidate	2047
13	Luspur Murigram	Hydro	231	231	PEDO	Candidate	2047
14	Machai-III	Hydro	2	2	PEDO	Candidate	2047
15	Mahandri	Hydro	12	12	PEDO	Candidate	2047
16	Mandi	Hydro	4	4	PPDB	Candidate	2047
17	Rasul	Hydro	18	18	PPDB	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
18	Sarral-Dhartian	Hydro	9	9	PEDO	Candidate	2047
19	Upper Palas	Hydro	158	158	WAPDA	Candidate	2047
20	Wari	Hydro	45	45	PEDO	Candidate	2047
21	Generic_Candidate Solar	Solar	470	470	Yet to be Decided	Candidate	2047
Generation Additions in 2047 (MW)			5,363	5,363			
Cumulative Addition up till 2047 (MW)			155,370	154,814			

I-5. Annual Capacity Factors (%age)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	85	85	85	84	55	23	10	13	14	14	14	17	16	21	22	20	20	19	18	18	17	10	16	12	11	10	10	14
2	Gwadar	Imp. Coal	0	0	84	85	84	83	35	30	30	28	26	28	30	33	31	30	30	28	26	27	26	17	22	18	19	17	18	33
3	Jamshoro Coal	Imp. Coal	0	0	83	83	14	10	5	7	8	10	11	12	11	13	16	15	15	15	14	14	13	8	11	11	10	9	9	9
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	85	85	85	84	83	57	24	22	22	23	22	25	25	28	28	27	26	24	22	23	23	14	20	15	15	14	14	25
6	Sahiwal Coal	Imp. Coal	85	85	84	51	6	5	3	4	5	5	7	9	8	10	12	12	12	12	11	11	10	8	8	9	8	8	8	8
7	Engro Thar	Local Coal	85	85	85	85	84	84	76	78	51	39	36	39	37	41	41	38	38	37	33	33	32	22	27	32	41	28	34	35
8	Lucky	Local Coal	0	87	85	85	84	84	38	37	37	33	29	34	32	36	33	32	33	33	30	29	28	19	24	27	23	20	25	34
9	NEW_Local_Coal	Local Coal	0	0	0	0	84	84	84	82	81	79	75	76	75	74	74	76	77	78	78	79	79	76	79	78	74	74	72	72
10	Oracle	Local Coal	0	0	0	0	0	0	0	83	82	81	79	80	81	81	82	83	84	84	84	85	85	85	85	85	85	85	85	84
11	Siddiqsons	Local Coal	0	88	85	85	85	84	84	83	82	80	78	79	78	80	81	82	82	83	83	83	83	83	83	84	84	84	84	84
12	Thal Nova	Local Coal	0	89	85	85	84	84	83	81	79	74	62	65	52	56	57	56	56	55	50	49	46	30	49	43	44	43	44	47
13	Thar TEL	Local Coal	0	89	85	85	84	84	83	81	79	74	61	64	52	57	56	56	57	55	51	48	47	31	48	43	45	43	44	47
14	Thar-I (Shanghai Electric)	Local Coal	0	87	85	85	84	84	82	79	77	57	44	45	46	49	47	48	48	45	41	39	38	25	40	38	42	42	38	37
15	Balloki	RLNG	92	84	67	67	67	67	67	67	67	67	67	67	67	67	3	4	4	4	4	4	5	4	4	4	3	3	3	4
16	Bhikki	RLNG	89	77	67	67	67	67	67	67	67	67	67	67	67	3	2	2	3	4	4	4	4	2	4	3	3	3	3	3
17	FKPCL	RLNG	25	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	27	9	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	75	36	6	1	0	0	0	0	0	0	2	3	2	1	0	0	1	1	2	3	4	1	0	0	0	0	0	0
20	Haveli	RLNG	92	91	67	67	67	67	67	67	67	67	67	67	67	4	4	5	5	6	6	6	8	4	5	5	4	5	4	5
21	Nandipur	RLNG	71	54	10	3	0	0	0	0	0	1	2	3	3	1	1	1	1	3	3	4	4	1	4	3	2	2	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	76	45	8	2	0	0	0	0	0	0	2	3	3	1	0	1	1	2	3	4	4	0	0	0	0	0	0	0
24	Rousch	RLNG	60	18	4	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	74	31	6	1	0	0	0	0	0	0	1	2	2	0	0	0	1	1	2	3	4	0	0	0	0	0	0	0
26	Saphire	RLNG	76	42	7	1	0	0	0	0	0	0	2	3	3	1	0	1	1	1	2	3	4	0	0	0	0	0	0	0
27	Trimmu	RLNG	94	92	20	7	1	0	0	0	1	2	4	5	4	5	6	6	7	7	7	8	8	5	8	5	5	5	5	6
28	Davis	RLNG	1	1	1	0	0	0	0	1	0	0	2	2	1	0	0	0	0	1	1	2	2	0	2	2	0	0	0	0
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	89	89	87	10	4	1	0	1	2	3	4	5	5	6	7	6	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	90	90	88	11	4	1	0	1	2	3	5	6	5	7	8	7	7	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	85	85	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	66	23	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	83	83	83	80	9	2	1	2	3	4	5	6	5	7	9	9	9	10	8	8	8	6	7	6	7	1	0	0
36	Hatim	Gas	0	0	0	0	0	0	0	23	21	20	19	21	15	17	18	17	17	16	16	16	15	10	12	9	10	9	7	6
37	HCPC	Gas	86	86	28	9	3	1	0	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	87	87	26	9	3	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	77	64	11	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	86	86	86	86	84	84	12	8	8	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	88	88	86	14	4	2	1	2	3	4	5	6	5	7	8	8	8	8	8	7	0	0	0	0	0	0	0	0
43	C-1	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
44	C-2	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
45	C-3	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
46	C-4	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
47	C-5	Nuclear	0	0	0	0	0	0	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	74	79	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
50	K-3	Nuclear	0	0	76	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
51	Alliance	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
52	Almoiz	Bagasse	54	54	54	54	54	54	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
53	Bahawalpur	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	54	54	54	54	54	54	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
56	Chiniot	Bagasse	36	36	36	36	36	35	35	35	35	34	34	34	34	34	35	35	35	36	36	36	36	36	36	36	36	36	36	36

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	0	54	54	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
58	Faran	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
59	Ghotki	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
60	Hamza	Bagasse	47	47	47	47	47	46	46	46	46	45	44	45	44	45	46	46	47	47	47	47	47	47	47	47	47	47	47	47
61	Hamza-II	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
62	HSM	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
63	Hunza	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
64	Indus	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
65	Ittefaq	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
66	JDW-II	Bagasse	84	84	84	84	84	83	83	83	82	81	80	81	80	81	82	83	83	83	83	84	84	84	84	84	83	83	83	83
67	JDW-III	Bagasse	78	78	78	78	78	77	77	77	77	75	75	75	75	76	77	77	77	78	78	78	78	78	78	78	78	78	78	78
68	Kashmir	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
69	Mehran	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
70	RYK_Energy	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
71	Ryk_Mills	Bagasse	54	54	54	54	54	54	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
72	Sadiqabad	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
73	Shahtaj	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
74	Sheikhoo	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
75	TAY	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	30	30	30	30	30	30	29	29	29	28	28	28	28	29	29	29	30	30	30	30	30	30	30	30	30	30	30	30
77	Two_Star	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
78	Access_Electric	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
79	Access_Solar	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
81	Best	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
82	Buksh	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
84	Crest	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
85	Helios	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
86	HNDS	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
87	Meridian	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
88	QA_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
89	Safe	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
90	Zhenfa	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
91	Zorlu	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68	68
93	Allai Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	48
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	48	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	40
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	41	42	41	41	42	42
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	38	38
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	60
109	Blue Star	Hydro	0	0	0	0	65	66	66	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	41	41
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	40	39	40	45	44	45	45	45	46	46	46	45	46	47	48	47	48	48	49
121	Daral Khwar	Hydro	47	47	47	47	47	47	47	42	42	42	42	42	44	44	43	44	44	44	44	44	44	45	45	45	45	46	46	46
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
123	Dasu_1	Hydro	0	0	0	0	0	56	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	60	61	64	64	64	64	64	64	64	64	64	64	64	64	64	64
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	44	44	44	45
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45	45	45	45	45	45
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	56	57	58	63	62	63	63	64	63	64	64	63	65	64	64	64	64	64	65
130	Dubair Khwar	Hydro	51	51	51	51	51	51	51	49	50	50	49	50	50	49	50	50	50	50	50	51	50	51	51	50	50	50	50	51
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
138	Ghazi Brotha	Hydro	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68
140	Golen Gol	Hydro	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
142	Gorkin Matiltan	Hydro	0	0	0	32	45	45	45	41	41	41	40	41	41	42	42	42	42	42	42	42	42	43	43	43	43	43	44	44
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
144	Gulpur	Hydro	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	45	45
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	61	61	61
147	Harpo	Hydro	0	0	0	0	0	0	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
149	Jabori	Hydro	91	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
151	Jagran-I	Hydro	31	31	31	31	31	31	31	30	30	30	29	30	30	30	30	30	30	30	31	31	30	31	31	31	31	31	31	31

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44	44
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
155	Jhing	Hydro	95	52	52	52	52	52	52	49	49	49	49	49	49	50	49	50	50	50	50	50	50	50	50	50	51	51	51	51
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
157	Jinnah	Hydro	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	46	46	46
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
161	Karora	Hydro	61	62	62	62	62	62	62	59	59	59	59	59	60	60	59	60	60	60	60	60	60	60	60	61	61	61	61	61
162	Karot	Hydro	0	0	41	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56	56
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	25	32	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	32
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
168	Khan Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
172	Kohala	Hydro	0	0	0	0	0	0	0	0	61	61	61	61	62	62	62	62	62	62	62	62	62	62	62	62	62	63	63	63
173	Koto	Hydro	0	54	58	58	57	58	58	54	54	54	53	54	56	56	55	55	56	56	56	56	56	57	57	57	57	57	57	57
174	Lawi	Hydro	0	43	49	49	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43	43	43	43	43
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
180	Machai	Hydro	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	49	49	49
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	59	59	60	61	62	62	62	62	62	62	62	62	62	63	63	63	63	63
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
186	Malakand-III	Hydro	52	52	52	52	52	52	52	52	52	51	51	51	51	52	51	52	51	52	52	52	52	52	52	52	52	52	52	52
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
188	Mangla	Hydro	57	57	57	57	57	57	57	56	56	56	56	56	56	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	35	41	40	40	40	40	39	39	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	42
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62	63
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
201	Neelum Jehlum	Hydro	58	58	58	58	58	58	58	56	56	56	56	55	56	56	57	56	57	57	57	57	57	57	57	58	57	58	58	58
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	50	49	49	56	55	57	58	58	59	59	59	59	59	60	60	61	62	62	63
203	New Bong	Hydro	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	36
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	49	49
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	58	59	59	59
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
210	Pehur	Hydro	23	24	24	24	23	24	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
216	Ranolia	Hydro	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
219	Riali-II	Hydro	0	87	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
220	Riali-III	Hydro	0	0	0	0	0	0	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	59	59	59
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49	49
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	51
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	66
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
237	Suki Kinari	Hydro	0	0	0	35	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46	46	46	46
240	Tarbela_1-10	Hydro	48	48	48	48	48	48	48	48	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48	48
241	Tarbela_11-14	Hydro	48	48	48	48	48	48	47	48	47	47	47	48	47	48	47	47	47	48	48	48	48	48	48	48	48	48	48	48
242	Tarbela_Ext_4	Hydro	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
243	Tarbela_Ext_5	Hydro	0	0	0	0	19	32	32	32	31	31	31	32	32	32	31	32	32	32	32	32	32	32	32	32	32	32	32	32
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	52	53	53	53	53	53	53	53	53	53	54	54	54	54	54	54	54
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55	55	55	55	55

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	47	48	48	47	48	49	49	49	49	49	49	49	49	49	49	49	49	49	49
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	50	50	50	50
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	53	53
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	37
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	64
258	Warsak	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46
261	CASA	Cross Border	0	0	0	95	39	39	39	23	23	24	23	23	27	26	24	25	25	25	25	26	26	27	26	27	27	28	30	33
262	Act	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
263	Act_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
264	Artistic_wind	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
265	Artistic_Wind_2	Wind	0	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	0	0	0	33	33	33	30	33	33	33	32	33	33	33	32	33	33	33	33	33	33	33	33	33	33	33	33	33
267	Candidate_Wind_North	Wind	0	0	0	33	33	33	30	33	32	32	32	30	33	32	33	32	33	33	33	33	33	33	33	33	33	33	33	33
268	Candidate_Wind_South	Wind	0	0	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
269	Dawood	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
270	Din	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
271	FFC	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
272	FWEL-I	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
273	FWEL-II	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
274	Gul Ahmed	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
275	Gul_Electric	Wind	0	0	38	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
276	Hawa	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
277	Indus_Energy	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
278	Jhimpir	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
279	Lakeside	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
280	Liberty_Wind_1	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
281	Liberty_Wind_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
282	Master	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
283	Master_Green	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
284	Metro_Power	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
286	NASDA	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
287	Sachal	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
288	Sapphire_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
289	Shaheen	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
290	Tenga	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
291	Three_Gorges_I	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
292	Three_Gorges_II	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
293	Three_Gorges_III	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
294	Trans_Atlantic	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
295	Tricon_A	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
296	Tricon_B	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
297	Tricon_C	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
298	Tricorm	Wind	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
299	UEP	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
300	Western	Wind	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
301	Yunus	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
302	Zephyr	Wind	0	56	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
303	Zorlu_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	30	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	35	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	15	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	88	88	14	4	0	0	0	1	2	3	4	5	5	5	6	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	13	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	11	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	56	21	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	16	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	9	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

I-6. Annual Energy Generation 2020-30 (GWh)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
1	China HUBCO	Imp. Coal	9,330	9,308	9,308	9,162	5,992	2,470	1,051	1,394	1,022	824	472
2	Gwadar	Imp. Coal	0	0	1,000	2,033	2,006	1,974	837	707	492	334	192
3	Jamshoro Coal	Imp. Coal	0	0	2,733	4,703	1,234	1,102	534	748	536	493	308
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	9,270	9,248	9,248	9,158	9,079	6,154	2,618	2,344	1,575	1,337	658
6	Sahiwal Coal	Imp. Coal	9,285	9,263	9,202	5,520	627	524	306	430	271	260	170
7	Engro Thar	Local Coal	4,493	4,482	4,482	4,482	4,425	4,412	3,998	4,102	1,847	1,358	691
8	Lucky	Local Coal	0	1,546	4,531	4,531	4,472	4,453	2,028	1,966	1,335	986	532
9	NEW_Local_Coal	Local Coal	0	0	0	0	11,230	11,114	11,084	10,902	10,544	11,802	18,925
10	Oracle	Local Coal	0	0	0	0	0	0	0	4,433	8,722	8,538	8,425
11	Siddiqsons	Local Coal	0	193	2,266	2,266	2,272	2,231	2,231	2,204	2,159	2,050	2,009
12	Thal Nova	Local Coal	0	583	2,234	2,234	2,205	2,199	2,178	2,130	1,910	1,045	668
13	Thar TEL	Local Coal	0	583	2,234	2,234	2,205	2,199	2,180	2,129	1,910	1,045	667
14	Thar-I (Shanghai Electric)	Local Coal	0	1,545	8,643	9,055	8,940	8,914	8,741	8,426	4,617	3,575	1,980
15	Balloki	RLNG	9,492	8,656	6,910	6,906	6,905	6,904	6,905	6,882	6,885	6,884	6,870
16	Bhikki	RLNG	8,919	7,722	6,696	6,693	6,690	6,689	6,689	6,675	6,673	6,678	6,670
17	FKPCL	RLNG	329	98	41	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	274	88	34	4	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
19	Halmore	RLNG	1,301	622	112	18	0	0	0	0	0	0	0
20	Haveli	RLNG	9,599	9,440	6,967	6,964	6,964	6,964	6,964	6,932	6,943	6,940	6,928
21	Nandipur	RLNG	2,821	2,113	390	117	0	2	0	0	0	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	1,363	803	149	44	0	0	0	0	0	0	0
24	Rousch	RLNG	2,090	637	139	19	0	0	0	0	0	0	0
25	Saif	RLNG	1,321	546	99	14	0	0	0	0	0	0	0
26	Saphire	RLNG	1,347	735	131	24	0	0	0	0	0	0	0
27	Trimmu	RLNG	2,543	9,998	2,152	738	155	35	0	13	0	0	0
28	Davis	RLNG	1	1	1	0	0	0	0	1	0	0	0
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	0
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	1,655	1,651	1,617	181	66	17	0	24	1	0	0
32	Foundation	Gas	1,320	1,317	1,294	168	57	14	6	22	12	0	0
33	Guddu-I	Gas	1,950	1,945	1,776	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	1,568	535	121	14	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	5,234	5,221	5,216	5,084	552	108	66	151	93	84	11
36	Hatim	Gas	0	0	0	0	0	0	0	41	31	24	23
37	HCPC	Gas	975	973	317	100	39	8	0	13	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
38	Kotri	Gas	808	806	238	80	29	5	0	8	0	0	0
39	Liberty	Gas	1,433	1,196	213	73	0	5	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	36	27
41	Uch	Gas	4,149	4,139	4,139	4,139	4,074	4,021	592	393	248	205	0
42	Uch-II	Gas	2,737	2,731	2,685	426	133	54	27	51	38	28	0
43	C-1	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
44	C-2	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
45	C-3	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,183	2,175	2,179	2,175	2,180
46	C-4	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,183	2,181	2,185	2,181	2,181
47	C-5	Nuclear	0	0	0	0	0	0	7,284	7,239	7,258	7,238	7,229
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	4,548	7,292	7,292	7,307	7,289	7,285	7,244	7,261	7,244	7,225
50	K-3	Nuclear	0	0	5,823	7,292	7,307	7,290	7,285	7,243	7,260	7,240	7,233
51	Alliance	Bagasse	0	0	19	143	144	140	140	140	138	137	135
52	Almoiz	Bagasse	172	172	172	172	172	169	168	168	167	164	162
53	Bahawalpur	Bagasse	0	0	20	149	149	146	146	146	144	142	140
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	105	105	105	105	105	103	103	103	102	100	99
56	Chiniot	Bagasse	197	196	196	196	197	191	190	190	189	185	183

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
57	Etihad	Bagasse	0	355	355	355	356	348	348	348	344	337	334
58	Faran	Bagasse	0	0	17	126	127	124	124	124	122	120	119
59	Ghotki	Bagasse	0	0	29	215	215	210	210	210	208	204	202
60	Hamza	Bagasse	62	62	62	62	62	61	60	60	60	59	58
61	Hamza-II	Bagasse	0	0	19	143	144	140	140	140	139	135	135
62	HSM	Bagasse	0	0	17	126	127	124	124	124	122	121	119
63	Hunza	Bagasse	0	0	32	238	238	233	233	233	230	227	223
64	Indus	Bagasse	0	0	20	148	148	145	145	145	143	140	139
65	Ittefaq	Bagasse	0	0	20	149	149	146	146	146	144	141	140
66	JDW-II	Bagasse	194	193	193	193	194	191	191	191	190	186	185
67	JDW-III	Bagasse	180	180	180	180	180	179	178	178	177	174	173
68	Kashmir	Bagasse	0	0	26	191	191	187	187	187	186	181	179
69	Mehran	Bagasse	0	0	17	126	127	124	124	124	123	120	119
70	RYK_Energy	Bagasse	0	0	16	119	120	117	117	117	115	113	112
71	Ryk_Mills	Bagasse	144	143	143	143	144	141	140	140	140	137	135
72	Sadiqabad	Bagasse	0	0	29	215	215	210	210	210	207	203	202
73	Shahtaj	Bagasse	0	0	21	153	153	149	149	149	148	146	144
74	Sheikhoo	Bagasse	0	0	19	143	144	140	140	140	139	135	135
75	TAY	Bagasse	0	0	19	143	144	140	140	140	138	135	135

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
76	Thal_Layyah	Bagasse	109	109	109	109	109	107	106	106	105	102	100
77	Two_Star	Bagasse	0	0	32	238	238	233	233	233	231	226	223
78	Access_Electric	Solar	0	5	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	0	5	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	0	0	14	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	2,482	4,965	7,447	9,929	12,412	14,894	17,377	19,735
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	0	0	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	0	0	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	0	0	48	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	0	0	13	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	0	0	97	165	165	165	165	165	165	165	165
91	Zorlu	Solar	84	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0
93	Allai Khwar	Hydro	396	395	395	395	396	395	395	395	396	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	2,181	3,256	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	343	345	336
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
109	Blue Star	Hydro	0	0	0	0	17	17	17	18	18	18	18
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
114	Chashma	Hydro	767	765	765	765	767	765	765	765	767	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	195	190
121	Daral Khwar	Hydro	147	147	147	147	147	147	147	129	134	133	130
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
123	Dasu_1	Hydro	0	0	0	0	0	4,321	11,975	11,975	11,990	11,975	11,975
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	151	151
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	331	335
130	Dubair Khwar	Hydro	581	581	581	581	581	580	580	566	565	562	564
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0
138	Ghazi Brotha	Hydro	6,563	6,551	6,551	6,551	6,563	6,551	6,529	6,492	6,516	6,489	6,505
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0
140	Golen Gol	Hydro	97	97	97	97	97	97	97	96	96	95	95
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0
142	Gorkin Matiltan	Hydro	0	0	0	155	331	331	329	300	299	300	295
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0
144	Gulpur	Hydro	481	480	480	480	481	480	480	480	481	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0
147	Harpo	Hydro	0	0	0	0	0	0	170	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0
149	Jabori	Hydro	27	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0
151	Jagran-I	Hydro	82	82	82	82	82	82	82	78	78	78	77

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0
155	Jhing	Hydro	10	68	68	68	68	68	68	64	65	64	64
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
157	Jinnah	Hydro	195	194	194	194	195	194	194	193	194	192	192
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	839	825	833
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0
161	Karora	Hydro	5	65	65	65	65	65	65	62	62	62	62
162	Karot	Hydro	0	0	1,496	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	232	353	343	344	344	344
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0
168	Khan Khwar	Hydro	235	234	234	234	235	234	234	234	235	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0
172	Kohala	Hydro	0	0	0	0	0	0	0	0	6,022	6,000	5,992
173	Koto	Hydro	0	182	212	212	212	212	212	198	200	199	198
174	Lawi	Hydro	0	130	295	295	295	295	294	291	291	291	290
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	2,461	2,477	2,458
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	3,307
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0
186	Malakand-III	Hydro	367	367	367	367	367	367	367	366	366	364	362
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0
188	Mangla	Hydro	5,016	5,004	5,004	5,004	5,016	5,004	5,004	4,911	4,929	4,880	4,883
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	1,633	2,811	2,799	2,794	2,792	2,778
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0
201	Neelum Jehlum	Hydro	4,944	4,939	4,939	4,939	4,944	4,939	4,935	4,786	4,778	4,757	4,718
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	201	198
203	New Bong	Hydro	471	470	470	470	471	470	470	470	471	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
209	Patrind	Hydro	635	634	634	634	635	634	634	632	633	632	632
210	Pehur	Hydro	37	37	37	37	37	37	37	36	36	36	36
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	668	662
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0
219	Riali-II	Hydro	0	5	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	0	0	0	0	0	0	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	387	386	386	386	387	386	386	379	379	378	378
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0
237	Suki Kinari	Hydro	0	0	0	1,332	2,800	2,797	2,797	2,763	2,765	2,762	2,763
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0
240	Tarbela_1-10	Hydro	7,386	7,377	7,377	7,377	7,386	7,377	7,377	7,320	7,230	7,154	7,221
241	Tarbela_11-14	Hydro	7,294	7,285	7,285	7,285	7,294	7,285	7,177	7,165	7,172	7,173	7,052
242	Tarbela_Ext_4	Hydro	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,807	3,782
243	Tarbela_Ext_5	Hydro	0	0	0	0	1,975	4,005	4,004	3,836	3,851	3,813	3,813
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	6,983	7,011
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	302	302	302
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0
258	Warsak	Hydro	999	997	997	997	999	997	997	997	999	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0
261	CASA	Cross Border	0	0	0	1,387	3,457	3,453	3,434	2,049	2,125	2,122	2,055
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	0	0	58	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	0	0	102	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
266	Candidate_Wind_Mid	Wind	0	0	0	872	1,747	1,744	1,580	1,744	1,708	2,435	3,276
267	Candidate_Wind_North	Wind	0	0	0	581	841	840	757	832	841	802	1,353
268	Candidate_Wind_South	Wind	0	0	0	3,440	6,889	10,051	12,357	13,402	16,210	19,574	22,763
269	Dawood	Wind	0	14	144	144	144	144	144	144	144	144	144
270	Din	Wind	0	0	58	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	151	150	150	150	151	150	150	150	151	150	150
273	FWEL-II	Wind	151	150	150	150	151	150	150	150	151	150	150
274	Gul Ahmed	Wind	146	145	145	145	146	145	145	145	146	145	145
275	Gul_Electric	Wind	0	0	83	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	0	0	58	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	0	0	58	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	0	0	58	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	0	0	58	172	172	172	172	172	172	172	172
282	Master	Wind	154	153	153	153	154	153	153	153	154	153	153
283	Master_Green	Wind	0	102	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	146	145	145	145	146	145	145	145	146	145	145

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
285	Metro_Wind	Wind	0	0	70	206	207	206	206	206	207	206	206
286	NASDA	Wind	0	0	58	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	154	153	153	153	154	153	153	153	154	153	153
289	Shaheen	Wind	0	104	175	175	176	175	175	175	176	175	175
290	Tenga	Wind	0	14	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	157	156	156	156	157	156	156	156	157	156	156
293	Three_Gorges_III	Wind	157	156	156	156	157	156	156	156	157	156	156
294	Trans_Atlantic	Wind	0	0	56	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	0	71	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	0	58	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	146	145	145	145	146	145	145	145	146	145	145
302	Zephyr	Wind	0	20	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
304	KAPCO 1	RFO	909	393	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	2,301	768	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	339	144	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	35	17	13	0	0	0	0	0	0	0	0
308	HUBCO	RFO	124	51	23	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	8	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	49	17	4	0	0	0	0	0	0	0	0
313	Lalpir	RFO	139	30	22	2	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	9	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	3	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	9	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	28	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	26	8	6	0	0	0	0	0	0	0	0
321	AGL	RFO	1,203	1,200	187	49	3	4	0	16	0	0	0
322	ATLAS	RFO	251	96	35	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
323	HuB N	RFO	208	81	24	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	611	228	37	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	272	123	44	0	0	0	0	0	0	0	0
326	Nishat C	RFO	154	45	10	0	0	0	0	0	0	0	0
327	Nishat P	RFO	123	25	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			**157,170**	**162,471**	**170,738**	**176,918**	**182,943**	**188,792**	**196,045**	**203,899**	**215,053**	**226,322**	**237,996**
Energy Demand			**157,170**	**162,472**	**170,738**	**176,918**	**182,943**	**188,792**	**196,044**	**203,899**	**215,053**	**226,322**	**237,996**
Energy Not Served			**0.00**	**0.04**	**-0.01**	**0.04**	**0.00**	**0.03**	**-0.02**	**-0.06**	**0.00**	**0.02**	**-0.02**

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

I-7. Annual Energy Generation 2030-47 (GWh)

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	319	256	518	636	519	315	211	55	0	0	0	0	0	0	0	0	0
2	Gwadar	Imp. Coal	139	110	175	249	148	121	70	58	9	0	0	0	0	0	0	0	0
3	Jamshoro Coal	Imp. Coal	161	153	373	528	354	234	110	0	0	0	0	0	0	0	0	0	0
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	474	408	649	940	621	435	288	167	0	0	0	0	0	0	0	0	0
6	Sahiwal Coal	Imp. Coal	122	76	223	378	248	123	0	0	0	0	0	0	0	0	0	0	0
7	Engro Thar	Local Coal	548	345	856	737	520	310	213	141	75	0	0	0	0	0	0	0	91
8	Lucky	Local Coal	328	298	479	594	420	271	193	134	57	0	0	0	0	0	0	0	0
9	NEW_Local_Coal	Local Coal	14,454	15,156	31,069	46,338	54,135	66,557	83,348	102,034	121,148	143,593	149,858	170,821	179,952	184,543	173,994	177,470	93,634
10	Oracle	Local Coal	5,012	4,830	7,675	8,196	8,218	8,427	8,611	8,828	8,850	9,010	8,988	8,990	9,013	9,035	8,955	8,956	6,248
11	Siddiqsons	Local Coal	1,042	1,125	1,690	1,900	1,876	1,962	1,998	2,030	2,050	2,073	2,053	2,050	2,053	2,129	2,143	2,235	1,495
12	Thal Nova	Local Coal	534	376	708	583	503	327	267	261	224	191	191	189	186	121	87	7	212
13	Thar TEL	Local Coal	537	403	717	613	506	328	265	260	223	197	190	189	186	121	87	7	212
14	Thar-I (Shanghai Electric)	Local Coal	1,496	1,081	2,433	1,862	1,414	815	568	376	227	6	0	0	0	0	0	0	0
15	Balloki	RLNG	6,895	6,888	6,893	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Bhikki	RLNG	6,681	6,670	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	FKPCL	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Haveli	RLNG	6,955	6,933	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Nandipur	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Rousch	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Saphire	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	Trimmu	RLNG	0	0	0	66	17	0	0	0	0	0	0	0	0	0	0	0	0
28	Davis	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	0	0	18	31	16	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	0	0	17	25	14	0	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	0	0	78	114	80	3	0	0	0	0	0	0	0	0	0	0	0
36	Hatim	Gas	19	5	11	17	14	13	11	11	11	11	13	13	12	8	6	1	1
37	HCPC	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	4	0	32	56	36	19	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	0	0	34	51	37	0	0	0	0	0	0	0	0	0	0	0	0
43	C-1	Nuclear	2,077	2,082	2,077	2,077	2,075	2,082	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,077	2,055
44	C-2	Nuclear	2,077	2,082	2,075	2,077	2,075	2,082	2,077	2,075	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,078	2,057
45	C-3	Nuclear	2,180	2,186	2,180	2,175	2,177	2,180	2,181	2,180	2,182	2,186	2,182	2,182	2,182	2,187	2,182	2,183	2,123
46	C-4	Nuclear	2,179	2,186	2,181	2,178	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,182	2,163
47	C-5	Nuclear	7,233	7,266	7,249	7,234	7,241	7,262	7,245	7,247	7,249	7,264	7,246	7,247	7,246	7,264	7,251	7,254	7,143
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	7,237	7,265	7,249	7,228	7,246	7,264	7,249	7,250	7,250	7,264	7,247	7,247	7,247	7,261	7,249	7,253	7,136
50	K-3	Nuclear	7,235	7,259	7,251	7,239	7,251	7,266	7,244	7,247	7,248	7,267	7,246	7,247	7,247	7,263	7,251	7,254	7,141
51	Alliance	Bagasse	112	104	123	130	130	132	137	139	139	143	142	143	143	144	142	142	108
52	Almoiz	Bagasse	138	129	153	157	157	159	165	167	168	171	171	172	172	172	171	171	130
53	Bahawalpur	Bagasse	116	109	127	135	135	137	142	145	145	149	148	149	149	149	147	147	112
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	84	79	93	96	96	97	101	102	103	105	104	105	105	105	104	104	79
56	Chiniot	Bagasse	150	138	169	175	173	178	186	189	190	195	195	196	196	197	195	195	146

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	279	258	305	322	322	327	341	345	345	354	353	355	355	356	351	353	268
58	Faran	Bagasse	99	92	109	115	115	117	120	123	123	126	126	126	126	127	125	125	95
59	Ghotki	Bagasse	169	156	184	195	195	199	205	209	209	214	214	215	215	215	212	212	161
60	Hamza	Bagasse	51	49	55	57	58	58	60	60	60	62	61	62	62	62	61	61	54
61	Hamza-II	Bagasse	112	105	122	130	130	132	137	139	139	143	142	143	143	144	142	142	108
62	HSM	Bagasse	99	92	108	114	115	117	120	123	123	126	126	126	126	127	126	125	95
63	Hunza	Bagasse	187	172	203	217	215	220	228	231	231	237	236	238	238	238	236	235	178
64	Indus	Bagasse	115	107	127	134	134	137	141	144	144	148	147	148	148	148	146	147	112
65	Ittefaq	Bagasse	116	108	127	135	135	138	141	145	145	149	148	149	149	149	147	147	112
66	JDW-II	Bagasse	164	149	176	182	181	183	188	190	191	193	192	193	193	194	192	192	146
67	JDW-III	Bagasse	154	140	166	170	169	172	176	177	178	180	179	180	180	180	179	179	136
68	Kashmir	Bagasse	149	139	164	173	173	177	182	186	186	190	190	191	191	191	190	189	144
69	Mehran	Bagasse	99	92	109	114	115	117	121	123	123	126	126	126	126	127	125	125	95
70	RYK_Energy	Bagasse	94	87	102	109	108	110	114	116	116	119	119	119	119	120	119	118	90
71	Ryk_Mills	Bagasse	115	108	126	131	131	132	137	139	140	143	142	143	143	144	142	142	108
72	Sadiqabad	Bagasse	169	157	187	196	195	199	205	209	209	214	214	215	215	215	214	212	161
73	Shahtaj	Bagasse	119	112	130	138	138	140	145	149	149	152	152	153	153	153	151	151	115
74	Sheikhoo	Bagasse	112	104	123	130	130	132	137	139	139	143	142	143	143	144	142	142	108
75	TAY	Bagasse	112	104	122	129	130	132	136	139	139	143	142	143	143	144	142	142	108

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	94	90	96	99	100	101	104	106	106	108	108	109	109	109	108	108	98
77	Two_Star	Bagasse	188	174	204	215	215	220	225	231	231	237	236	238	238	238	235	235	180
78	Access_Electric	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	22,257	24,608	27,222	29,771	32,268	34,712	37,235	39,682	42,200	44,682	47,165	49,647	52,130	54,612	57,094	59,577	57,135
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
91	Zorlu	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
93	Allai Khwar	Hydro	395	396	395	395	395	396	395	395	395	396	395	395	395	396	395	395	391
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	235	237	248	131

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	281	168
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	191	192	193	102
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,219	910
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	910	916	913	916	917	917	917	917	697
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,461
100	Azad Pattan	Hydro	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	952	690
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	502	281
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	30
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	142	142	104
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	150	149	151	84
106	Bata Kundi	Hydro	343	346	338	348	347	348	348	348	350	349	349	349	351	350	350	352	334
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	119	119	119	76
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	48	29
109	Blue Star	Hydro	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17
111	Bunji	Hydro	11,543	11,245	12,131	16,363	16,363	16,375	16,363	16,363	16,363	16,375	16,363	16,363	16,363	16,375	16,363	16,363	179,994
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,420	1,383
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	48

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	765	767	765	765	765	767	765	765	765	767	765	765	765	767	765	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5	3
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	251	99
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	156	157	162	99
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	71	71	72	42
120	Dander	Hydro	202	220	216	216	222	221	221	222	224	222	218	218	223	227	232	232	197
121	Daral Khwar	Hydro	133	140	139	134	136	137	139	140	140	140	139	139	138	140	141	143	90
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	28
123	Dasu_1	Hydro	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975
124	Dasu_2	Hydro	0	11,650	11,601	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72	39
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	4,742	4,732	4,736	3,013
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17,536	17,536	8,911
128	Dowarian	Hydro	153	155	157	150	151	155	154	156	158	158	157	158	157	158	158	158	86
129	Dubair Kalay	Hydro	335	359	360	370	366	368	368	361	368	367	364	363	364	368	369	373	345
130	Dubair Khwar	Hydro	558	568	569	561	563	567	567	564	571	575	574	575	575	576	572	576	331
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
132	Gabral Kalam	Hydro	0	0	0	0	0	0	285	290	291	293	331	331	331	331	331	331	331

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	310	307	316	316	316	316	316	316	316
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	774
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	503	289
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
138	Ghazi Brotha	Hydro	6,484	6,531	6,519	6,484	6,481	6,502	6,480	6,539	6,501	6,528	6,507	6,515	6,511	6,528	6,525	6,506	6,256
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	117	82
140	Golen Gol	Hydro	96	97	96	95	96	96	96	96	96	97	96	96	97	97	97	96	82
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	210	124
142	Gorkin Matiltan	Hydro	295	308	311	297	302	302	308	311	310	310	310	313	314	316	319	321	182
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	7
144	Gulpur	Hydro	480	481	480	480	480	481	480	480	480	481	480	480	480	481	480	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	75	76	77	76	77	77	77	77	78	58
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	212	212	212	130
147	Harpo	Hydro	169	169	169	169	169	169	169	169	169	169	169	169	169	170	169	169	162
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	258	93
149	Jabori	Hydro	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
151	Jagran-I	Hydro	78	80	80	77	78	79	79	80	80	80	81	80	80	80	80	81	46

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	137	139	139	139	139	139	139	137
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	90	90	90	46
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	2,598	2,601	2,608	1,203
155	Jhing	Hydro	65	66	66	64	64	65	64	65	66	66	66	66	66	66	66	67	41
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
157	Jinnah	Hydro	193	194	194	192	193	194	194	194	194	194	194	194	194	194	194	194	150
158	Kalam Asrit	Hydro	832	840	846	837	839	843	846	842	844	844	846	843	846	846	847	848	636
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	156	74
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,938	814
161	Karora	Hydro	62	63	63	62	62	62	63	63	63	63	63	63	63	63	63	64	51
162	Karot	Hydro	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,736	2,737	2,736
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	39	39	39	25
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	345	351	349	348	349	350	349	350	349	350	349	349	349	350	350	351	330
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	254	140
168	Khan Khwar	Hydro	234	235	234	234	234	235	234	234	234	235	234	234	234	235	234	234	221
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	7

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	2
172	Kohala	Hydro	6,010	6,117	6,099	6,057	6,082	6,073	6,091	6,083	6,088	6,098	6,099	6,111	6,114	6,142	6,149	6,167	5,954
173	Koto	Hydro	201	206	207	201	204	204	203	208	207	207	206	206	207	207	208	209	142
174	Lawi	Hydro	290	291	291	291	290	291	291	291	291	291	292	292	292	292	292	292	276
175	Lower Palas	Hydro	2,473	2,513	2,492	2,505	2,501	2,509	2,509	2,506	2,514	2,513	2,514	2,515	2,517	2,517	2,515	2,516	2,379
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	277	278	286	186
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	199	111
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	77	39
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	279
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	4
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
182	Madian	Hydro	0	0	0	0	0	639	653	658	658	663	660	663	663	664	663	663	484
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25
184	Mahl	Hydro	3,243	3,345	3,333	3,441	3,461	3,473	3,483	3,476	3,478	3,477	3,480	3,483	3,473	3,492	3,503	3,515	3,336
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	179	180	180	88
186	Malakand-III	Hydro	360	360	366	357	357	363	363	364	367	366	366	367	367	367	366	366	222
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
188	Mangla	Hydro	4,812	4,981	4,930	4,846	4,895	4,904	4,959	4,938	4,996	5,004	4,993	4,991	4,992	5,006	4,995	4,992	3,700
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	221	222	222	130

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	25
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	83	42
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,709	984
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	2,748	2,789	2,787	2,741	2,747	2,769	2,811	2,803	2,794	2,827	2,805	2,814	2,819	2,828	2,809	2,814	1,868
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	280	280	282	161
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	22
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	131	131	131	132	132	132	132	133	53
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	71	47
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	40
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	675	673	673	284
201	Neelum Jehlum	Hydro	4,731	4,830	4,759	4,713	4,674	4,764	4,820	4,805	4,858	4,832	4,864	4,863	4,864	4,882	4,879	4,896	3,157
202	Nerai-Dubair	Hydro	210	228	227	236	236	235	237	236	235	235	235	237	238	240	243	247	226
203	New Bong	Hydro	470	471	470	470	470	471	470	470	470	471	470	470	470	471	470	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	125	125	128	84
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	9
206	Pashot	Hydro	0	0	0	0	226	232	230	232	232	235	244	238	241	250	252	254	210
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	12,338	12,363	12,339	12,345	6,837
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70	28

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	632	634	634	633	633	634	633	633	634	634	634	633	634	634	634	634	634
210	Pehur	Hydro	36	37	37	36	36	37	37	37	37	37	37	37	37	37	37	37	24
211	Phandar	Hydro	0	0	311	317	317	318	318	318	318	319	319	319	319	320	319	320	302
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	13
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32	16
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	9
215	Rajdhani	Hydro	670	669	654	669	670	671	670	670	670	671	670	670	670	671	670	670	517
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	14
219	Riali-II	Hydro	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	32
220	Riali-III	Hydro	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18	11
222	Sakhra-I	Hydro	0	0	0	0	0	0	41	41	41	41	41	41	41	42	41	41	40
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	34	34	34	35	35	35	35	35	35	34
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	22	22	22	9
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	305	148
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	280	280	280	167

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	651	393
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	447	450	267
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	533	532	532	230
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	205	205	206	103
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	465	144
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	3,717	3,710	3,714	2,603
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	379	382	381	378	379	380	381	381	381	381	382	382	382	383	383	383	354
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	70	41
237	Suki Kinari	Hydro	2,768	2,775	2,768	2,764	2,769	2,768	2,777	2,772	2,772	2,773	2,781	2,779	2,779	2,781	2,777	2,784	2,452
238	Tangar	Hydro	0	0	0	0	0	0	0	0	79	83	113	113	113	113	113	113	113
239	Tangus	Hydro	0	0	0	0	8,620	8,500	8,555	8,743	8,792	8,812	8,819	8,819	8,817	8,827	8,819	8,820	8,197
240	Tarbela_1-10	Hydro	7,148	7,011	7,221	7,125	7,080	7,291	7,186	7,221	7,297	7,339	7,277	7,289	7,289	7,283	7,305	7,315	4,170
241	Tarbela_11-14	Hydro	7,095	7,078	7,138	7,189	7,082	7,110	7,117	7,159	7,198	7,209	7,242	7,222	7,215	7,283	7,204	7,262	4,111
242	Tarbela_Ext_4	Hydro	3,803	3,771	3,788	3,706	3,669	3,793	3,792	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	1,455
243	Tarbela_Ext_5	Hydro	3,806	3,853	3,734	3,780	3,817	3,773	3,900	3,900	3,939	3,979	3,982	3,982	3,983	3,987	3,983	3,989	1,425
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	428	228
245	Thakot-I	Hydro	9,944	9,881	9,906	10,039	10,025	10,069	10,081	10,070	10,094	10,106	10,094	10,094	10,098	10,131	10,100	10,124	9,322
246	Thakot-II	Hydro	0	0	0	0	0	4,536	4,597	4,610	4,635	4,645	4,658	4,656	4,656	4,668	4,663	4,666	4,293

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	6,681	6,563	6,976	7,159	7,159	7,196	7,203	7,205	7,219	7,232	7,218	7,218	7,218	7,234	7,224	7,227	6,587
248	Torkhow	Hydro	302	300	298	309	308	309	309	309	309	309	309	309	309	310	309	310	301
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	10
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	151	152	152	108
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	14
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27	10
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	350	202
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13	8
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	371
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	180
258	Warsak	Hydro	997	999	997	997	997	999	997	997	997	999	997	997	997	999	997	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	347	347	345	171
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11,247	11,251	5,067
261	CASA	Cross Border	1,975	2,465	2,409	1,929	1,878	2,002	1,973	2,127	2,125	2,147	2,033	2,078	2,111	2,276	2,346	2,525	1,346
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	3,324	3,346	3,211	3,266	3,325	3,196	3,340	3,340	3,340	3,346	3,340	3,340	3,340	3,346	3,340	3,340	2,906
267	Candidate_Wind_North	Wind	1,358	1,424	1,421	1,350	1,302	1,424	1,421	1,421	1,421	1,424	1,421	1,421	1,421	1,424	1,421	1,421	1,241
268	Candidate_Wind_South	Wind	22,808	22,744	23,059	22,621	22,871	23,057	23,055	23,067	23,067	23,099	23,067	23,067	23,067	23,099	23,067	23,067	22,003
269	Dawood	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
270	Din	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
273	FWEL-II	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
274	Gul Ahmed	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
275	Gul_Electric	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
282	Master	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
283	Master_Green	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	206	207	206	206	206	207	206	206	206	207	206	206	206	207	206	206	206
286	NASDA	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
289	Shaheen	Wind	175	176	175	175	175	176	175	175	175	176	175	175	175	176	175	175	175
290	Tenga	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
293	Three_Gorges_III	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
294	Trans_Atlantic	Wind	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
302	Zephyr	Wind	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	0	0	9	22	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			250,462	264,394	278,676	294,572	311,828	330,997	350,196	371,490	394,338	419,677	428,094	451,631	475,646	498,948	519,925	540,294	559,765
Energy Demand			250,462	264,394	278,676	294,572	311,828	330,997	350,196	371,490	394,338	419,677	428,094	451,631	475,646	498,948	519,925	540,294	559,765
Energy Not Served			0.04	0.00	-0.02	0.01	-0.01	0.00	0.03	0.01	-0.03	0.00	0.00	0.01	-0.01	0.00	-0.03	0.03	-0.02

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

I-8. Year wise Cost Breakup-Discounted Prices

FY	Present Worth Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,751,312	6,708,034	6,708,034
2021	0	913,213	4,828,740	5,741,953	12,449,987
2022	0	909,992	3,537,939	4,447,931	16,897,919
2023	215,029	890,290	2,739,694	3,845,013	20,742,931
2024	511,136	876,831	2,111,682	3,499,649	24,242,580
2025	579,057	823,709	1,761,742	3,164,509	27,407,089
2026	608,447	791,391	1,404,241	2,804,080	30,211,169
2027	642,058	730,104	1,317,267	2,689,429	32,900,597
2028	771,606	687,423	1,121,234	2,580,263	35,480,860
2029	943,910	648,574	988,433	2,580,918	38,061,777
2030	1,112,182	609,106	889,959	2,611,247	40,673,025
2031	1,321,938	542,273	708,005	2,572,216	43,245,241
2032	1,272,219	492,886	635,338	2,400,443	45,645,684
2033	1,252,542	455,181	397,009	2,104,732	47,750,417
2034	1,259,442	431,793	295,000	1,986,235	49,736,652
2035	1,304,894	406,334	272,325	1,983,553	51,720,205
2036	1,321,088	385,804	271,705	1,978,597	53,698,801
2037	1,306,039	365,691	286,440	1,958,170	55,656,971
2038	1,287,517	349,366	296,340	1,933,222	57,590,193
2039	1,276,955	334,542	306,865	1,918,363	59,508,556
2040	1,260,525	321,006	312,986	1,894,517	61,403,073
2041	1,173,080	294,040	291,972	1,759,091	63,162,164
2042	1,139,584	279,307	294,206	1,713,097	64,875,261
2043	1,110,368	272,815	277,305	1,660,488	66,535,749
2044	1,097,137	257,566	255,141	1,609,844	68,145,594
2045	1,115,736	248,059	217,920	1,581,715	69,727,308
2046	1,072,913	231,496	199,588	1,503,998	71,231,306
2047	1,030,873	212,685	103,419	1,346,977	72,578,284

I-9. Year wise Cost Breakup-Un-Discounted Prices (k$)

FY	Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,751,312	6,708,034	6,708,034
2021	0	1,014,681	5,365,267	6,379,948	13,087,982
2022	0	1,123,447	4,367,826	5,491,273	18,579,255
2023	294,964	1,221,248	3,758,154	5,274,366	23,853,621
2024	779,052	1,336,428	3,218,537	5,334,017	29,187,639
2025	980,638	1,394,959	2,983,526	5,359,123	34,546,761
2026	1,144,901	1,489,142	2,642,328	5,276,371	39,823,133
2027	1,342,384	1,526,466	2,754,077	5,622,927	45,446,060
2028	1,792,484	1,596,923	2,604,691	5,994,098	51,440,158
2029	2,436,398	1,674,084	2,551,318	6,661,799	58,101,957
2030	3,189,708	1,746,899	2,552,377	7,488,984	65,590,941
2031	4,212,535	1,728,025	2,256,155	8,196,715	73,787,656
2032	4,504,553	1,745,165	2,249,546	8,499,265	82,286,921
2033	4,927,650	1,790,736	1,561,880	8,280,266	90,567,187
2034	5,505,327	1,887,472	1,289,515	8,682,314	99,249,501
2035	6,337,787	1,973,538	1,322,665	9,633,990	108,883,491
2036	7,129,377	2,082,028	1,466,280	10,677,685	119,561,176
2037	7,831,292	2,192,765	1,717,555	11,741,611	131,302,787
2038	8,578,034	2,327,638	1,974,351	12,880,023	144,182,810
2039	9,452,961	2,476,530	2,271,643	14,201,134	158,383,944
2040	10,368,147	2,640,361	2,574,394	15,582,902	173,966,845
2041	10,720,988	2,687,280	2,668,383	16,076,652	190,043,497
2042	11,572,070	2,836,261	2,987,563	17,395,893	207,439,390
2043	12,528,218	3,078,153	3,128,820	18,735,191	226,174,581
2044	13,754,364	3,229,006	3,198,604	20,181,975	246,356,555
2045	15,541,709	3,455,347	3,035,527	22,032,583	268,389,139
2046	16,605,785	3,582,932	3,089,084	23,277,800	291,666,939
2047	17,727,909	3,657,539	1,778,499	23,163,947	314,830,886

I-10. Year wise Nominal Capacity Addition (MW)

FY	Capacity Addition Over the Plan Period (2020-47) - MW										
	Local Coal	Hydro	RLNG	Nuclear	Imported Coal	RE	Natural Gas	Furnace Oil	Cross Border	Yearly Addition	Total (MW)
2020	602	9,945	6,677	1,230	3,736	1,846	3,010	6,488	0	33,534	-
2021	2,118	119	0	1,059	0	446	0	0	0	3,742	37,276
2022	607	720	0	1,059	917	1,410	0	-1,336	0	3,377	40,653
2023	0	968	0	0	0	3,000	-260	0	1,000	4,708	45,361
2024	1,514	1,413	0	0	644	2,889	-270	0	0	6,189	51,550
2025	0	3,088	0	0	0	2,422	0	0	0	5,510	57,060
2026	0	37	0	1,059	0	2,173	0	0	0	3,269	60,329
2027	607	700	0	0	0	1,801	-192	-1,200	0	1,716	62,045
2028	607	2,166	0	0	0	2,310	0	-824	0	4,259	66,304
2029	790	2,026	-117	0	0	2,749	149	0	0	5,597	71,901
2030	2,766	639	-546	0	0	3,000	-678	-653	0	4,528	76,429
2031	0	5,704	0	0	0	1,500	0	-310	0	6,894	83,323
2032	0	2,160	0	0	0	1,500	-29	-367	0	3,264	86,587
2033	2,490	80	0	0	0	1,500	0	-627	0	3,443	90,030
2034	3,716	0	0	0	0	1,500	0	-156	0	5,060	95,090
2035	2,317	2,260	0	0	0	1,500	-212	-409	0	5,456	100,547
2036	3,889	1,122	0	0	0	1,500	-167	-606	0	5,738	106,285
2037	4,473	95	0	0	0	1,500	0	0	0	6,068	112,353
2038	4,891	28	0	0	0	1,500	0	0	0	6,419	118,772
2039	5,317	358	0	0	0	1,500	-355	0	0	6,820	125,592
2040	6,090	36	-406	0	0	1,500	0	0	0	7,220	132,812
2041	2,098	0	-202	0	0	1,500	0	0	0	3,396	136,208
2042	5,683	0	-197	0	0	1,500	0	0	0	6,986	143,194
2043	3,264	2,400	0	0	0	1,500	0	0	0	7,164	150,358
2044	1,436	3,829	-10	0	0	1,500	0	0	0	6,755	157,113
2045	0	7,465	0	0	0	1,500	-721	0	0	8,244	165,357
2046	186	3,585	-450	0	0	1,500	0	0	0	4,822	170,178
2047	0	4,893	0	0	0	470	0	0	0	5,363	175,541
Total	**55,462**	**55,836**	**4,749**	**4,407**	**5,297**	**48,515**	**275**	**0**	**1,000**	**175,541**	

I-11. IGCEP Generation Mix 2020-2047 (GWh)

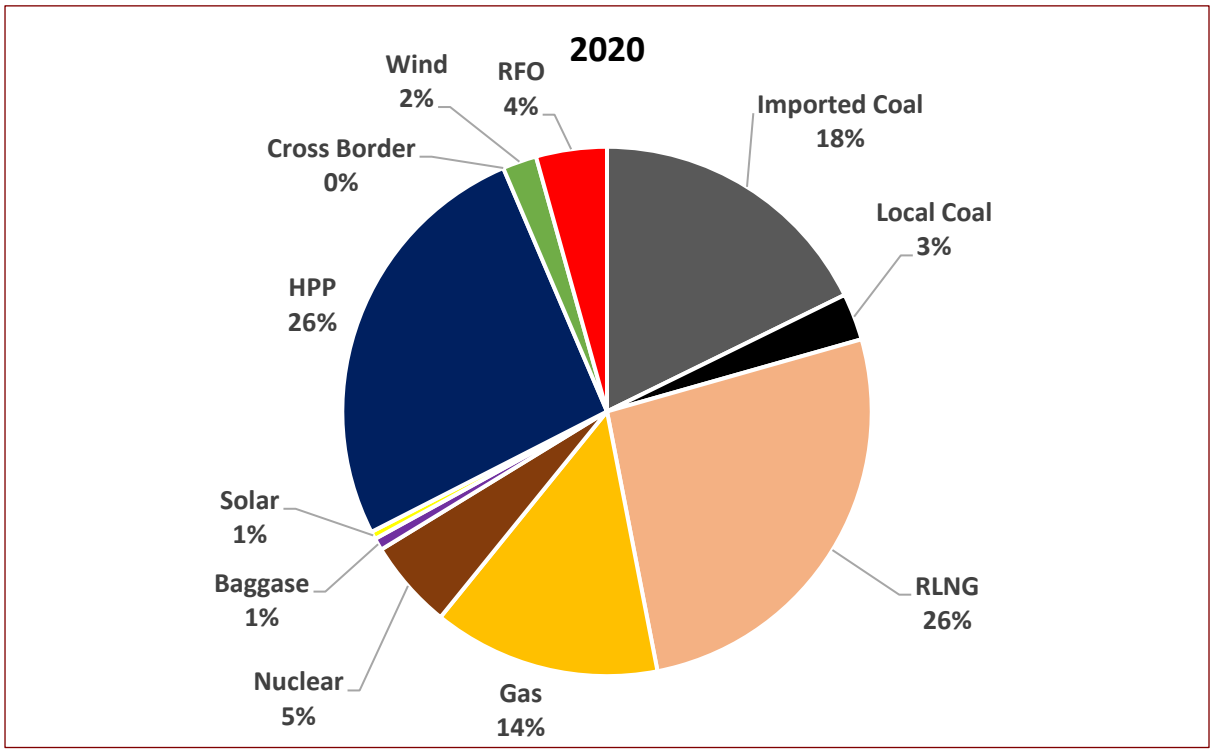


Chart I-1: IGCEP Generation Mix 2020 (GWh)

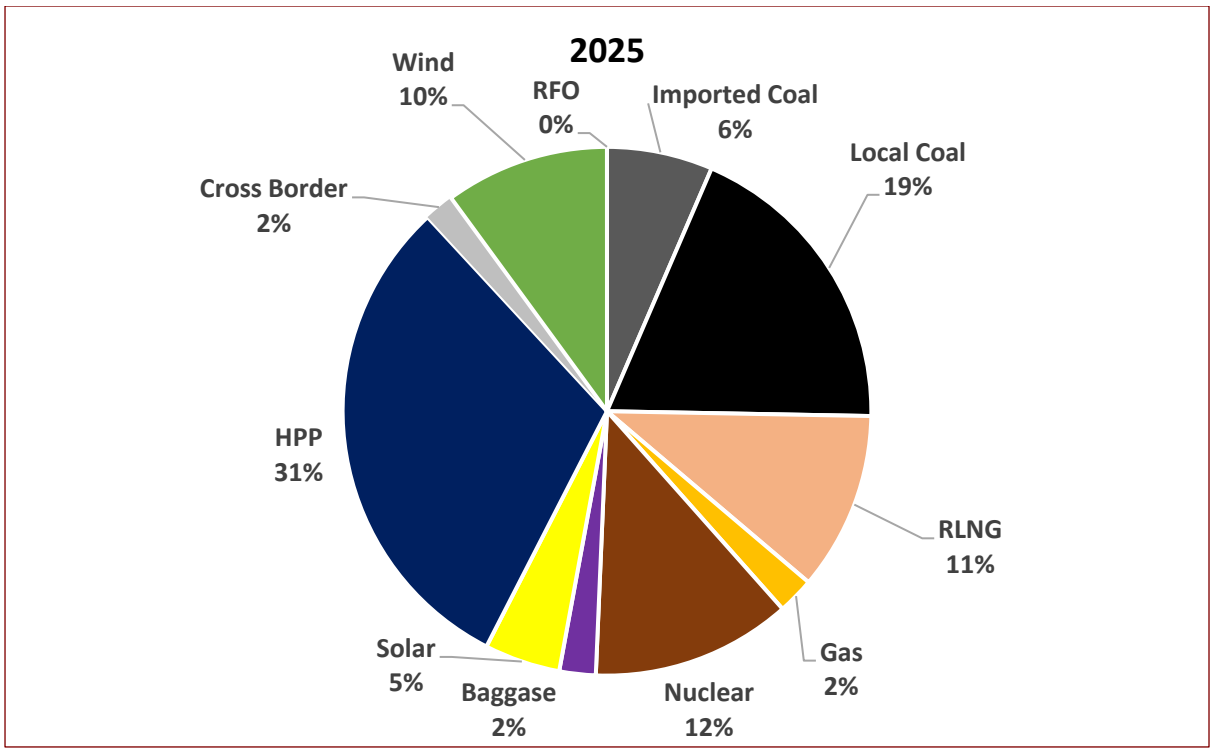


Chart I-2: IGCEP Generation Mix 2025 (GWh)

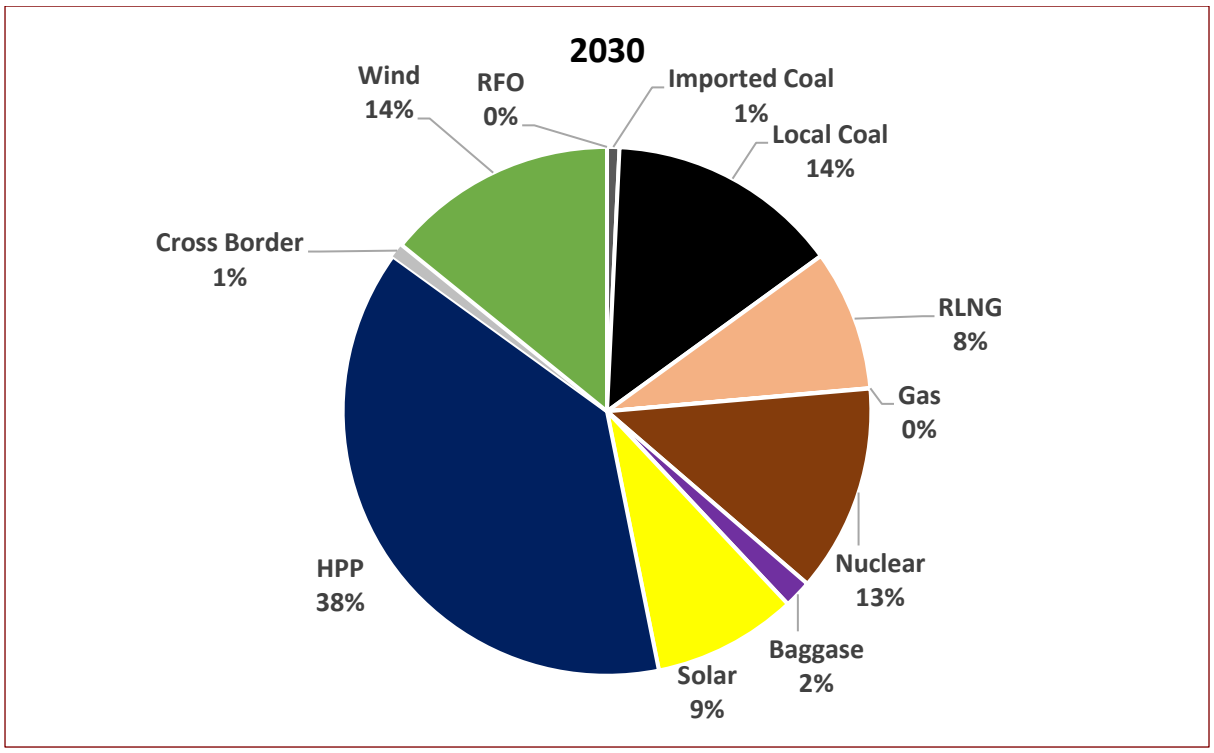


Chart I-3: IGCEP Generation Mix 2030 (GWh)

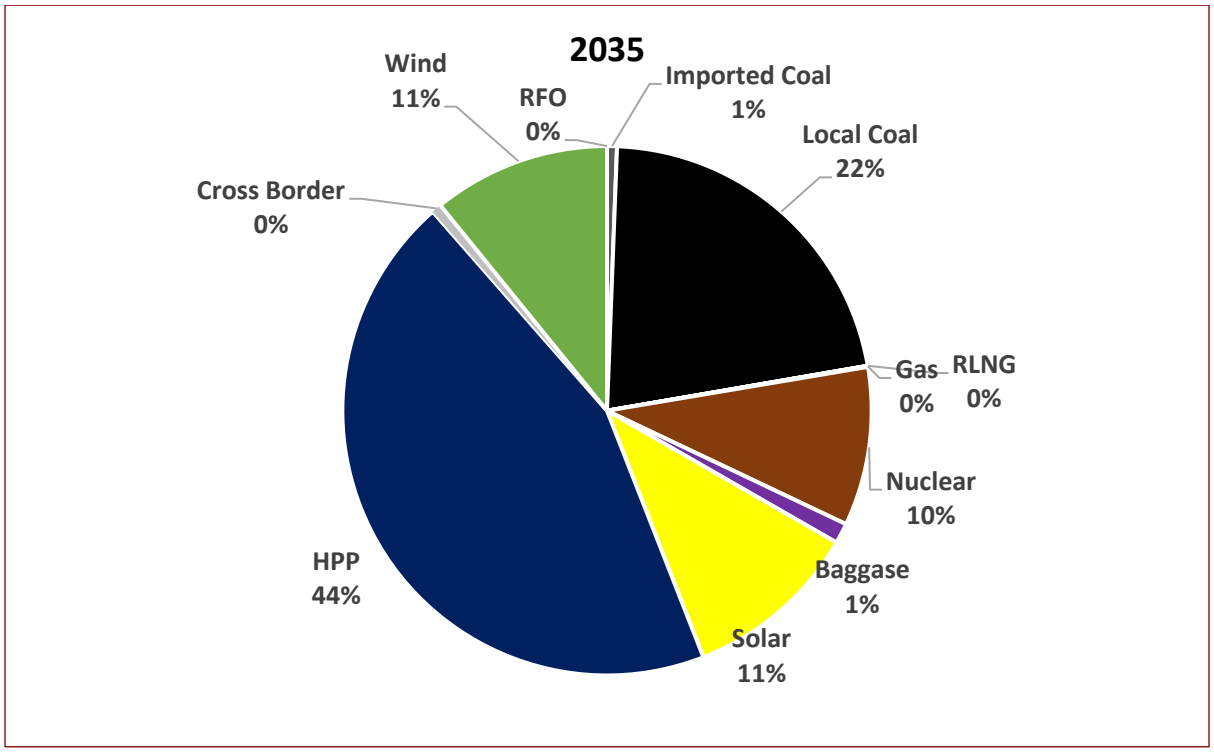


Chart I-4: IGCEP Generation Mix 2035 (GWh)

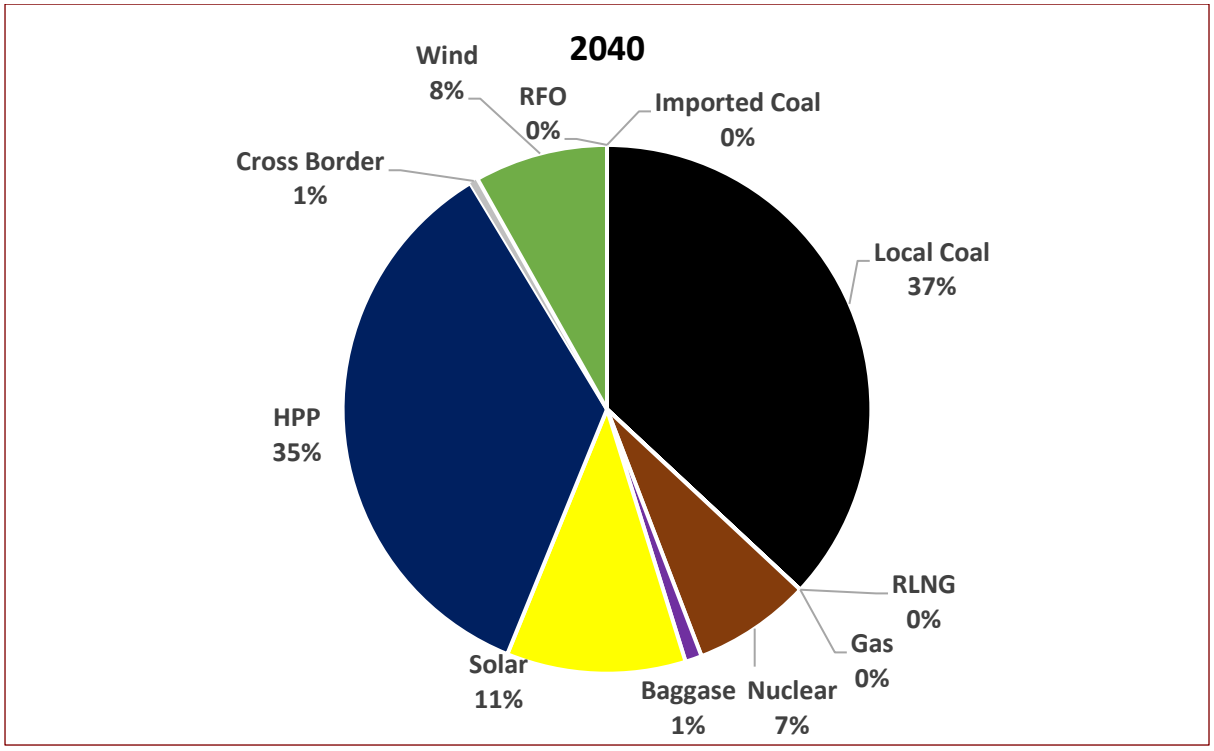


Chart I-5: IGCEP Generation Mix 2040 (GWh)

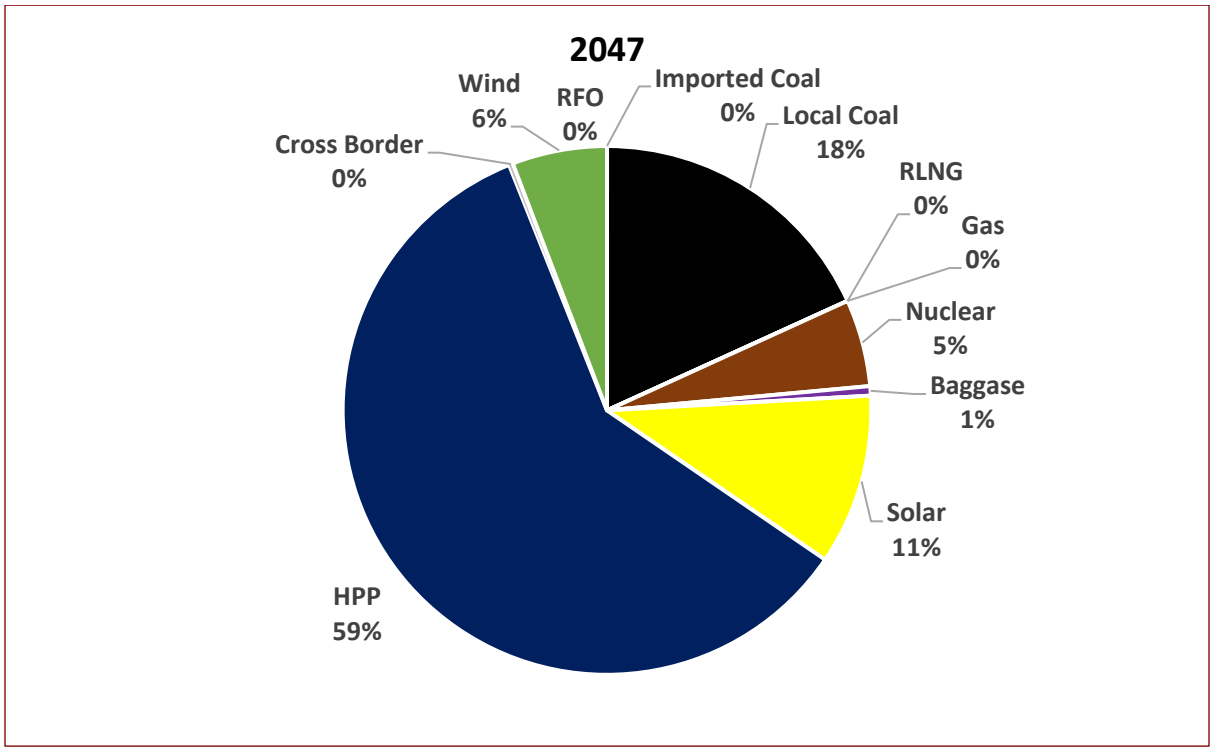


Chart I-6: IGCEP Generation Mix 2047 (GWh)

I-12. IGCEP Generation Mix 2020-47 (MW)

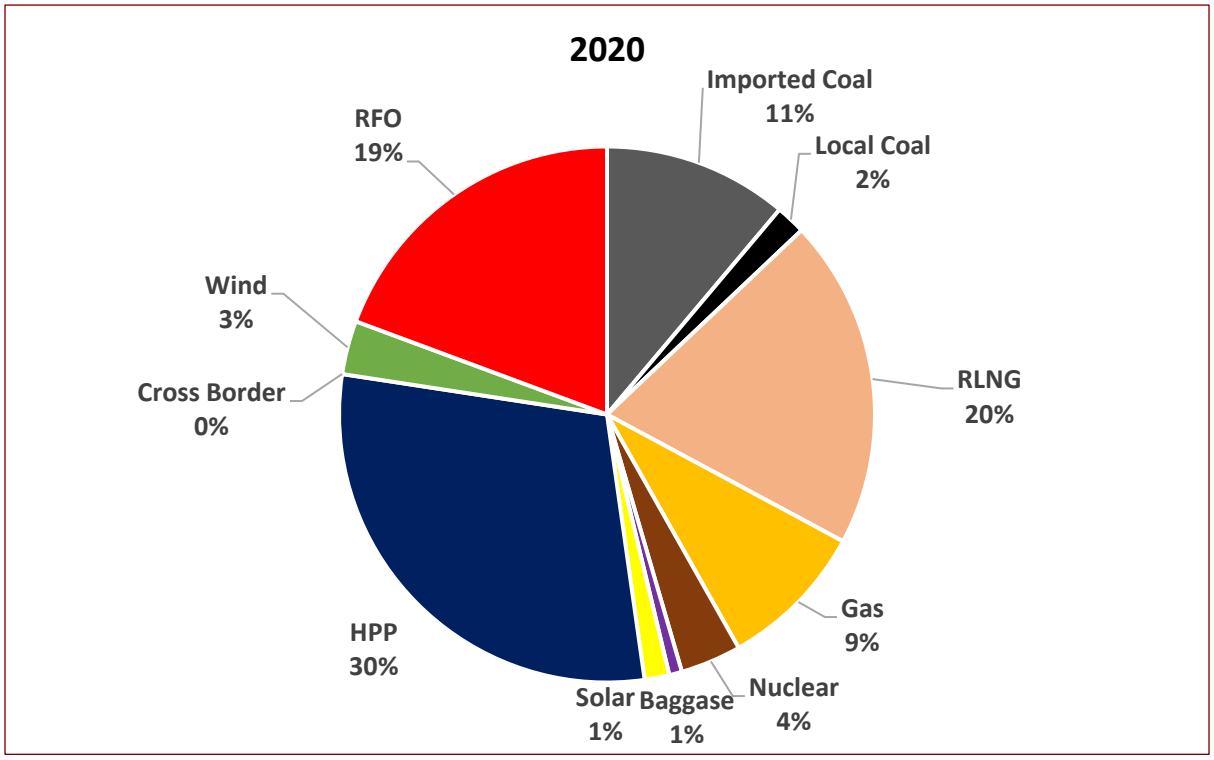


Chart I-7: IGCEP Generation Mix 2020 (MW)

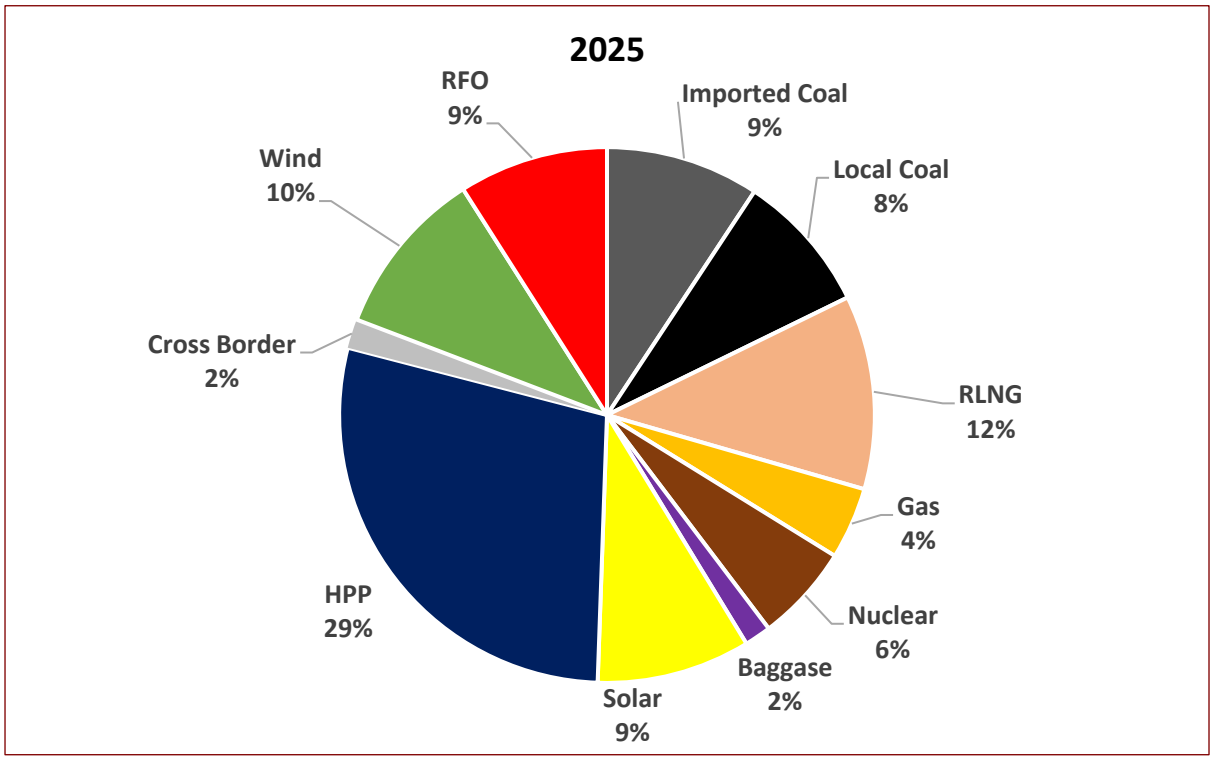


Chart I-8: IGCEP Generation Mix 2025 (MW)

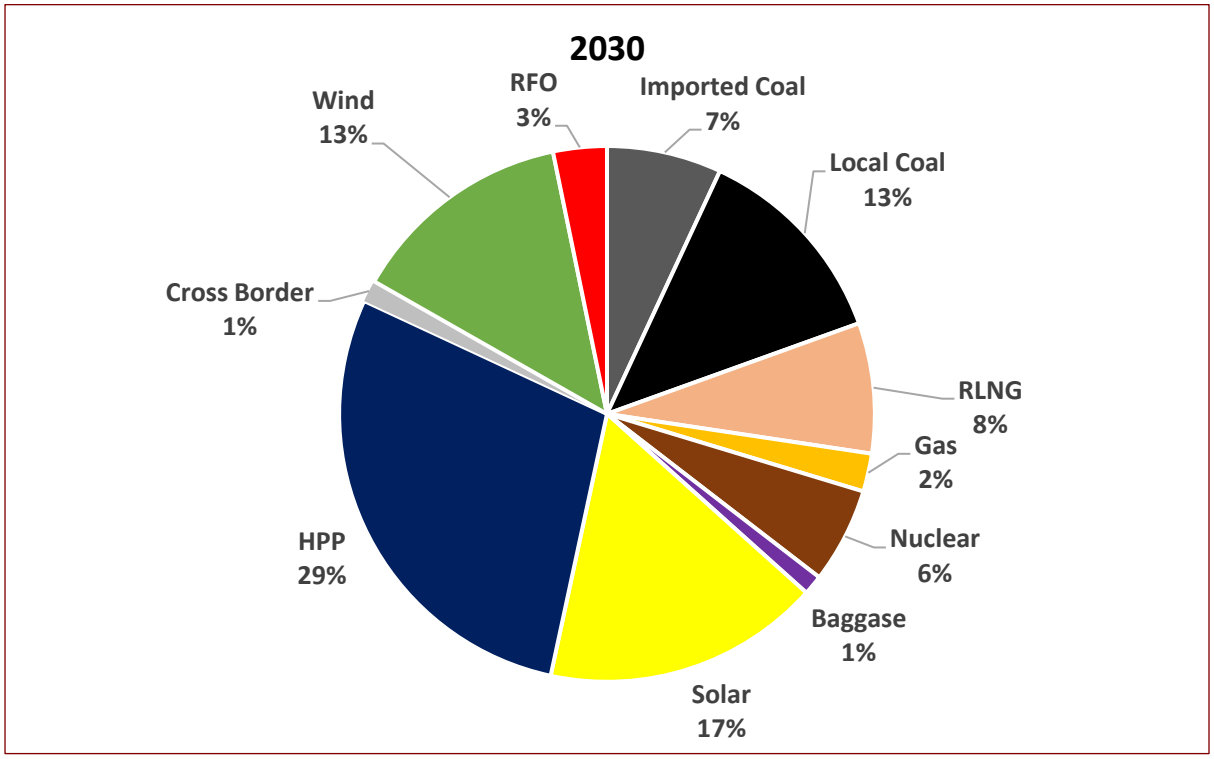


Chart I-9: IGCEP Generation Mix 2030 (MW)

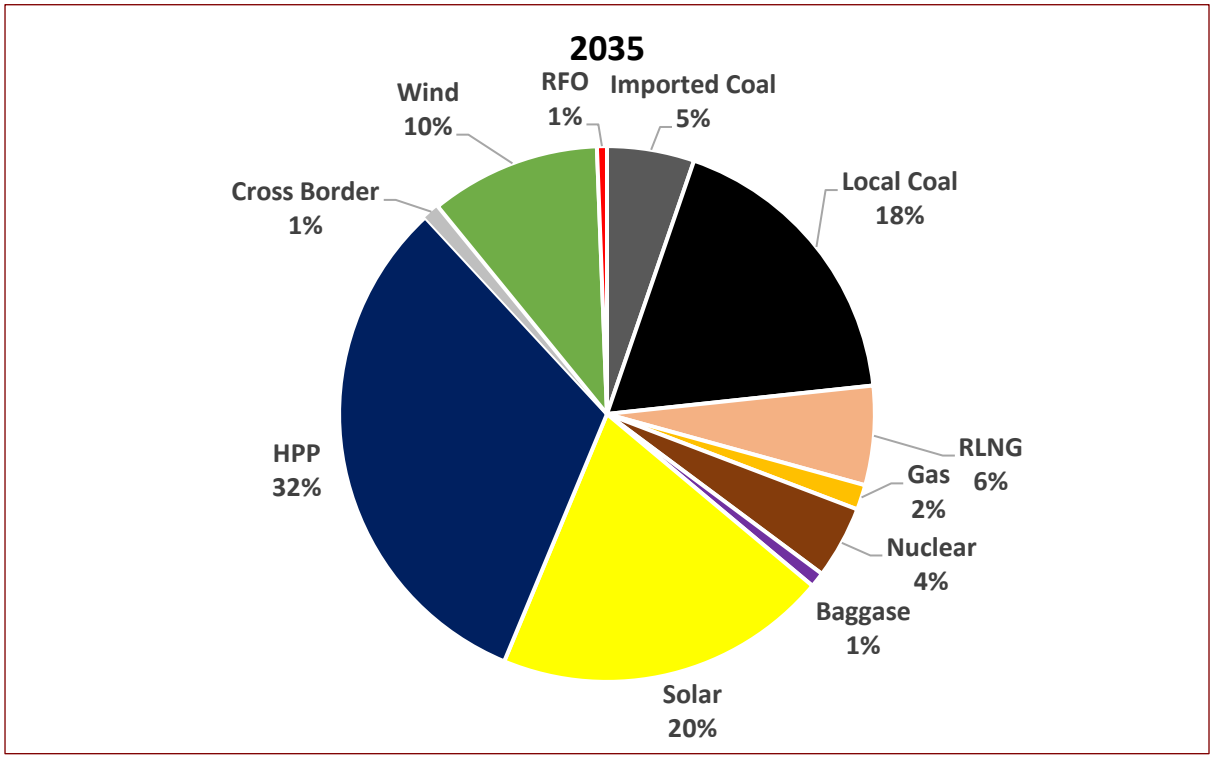


Chart I-10: IGCEP Generation Mix 2035 (MW)

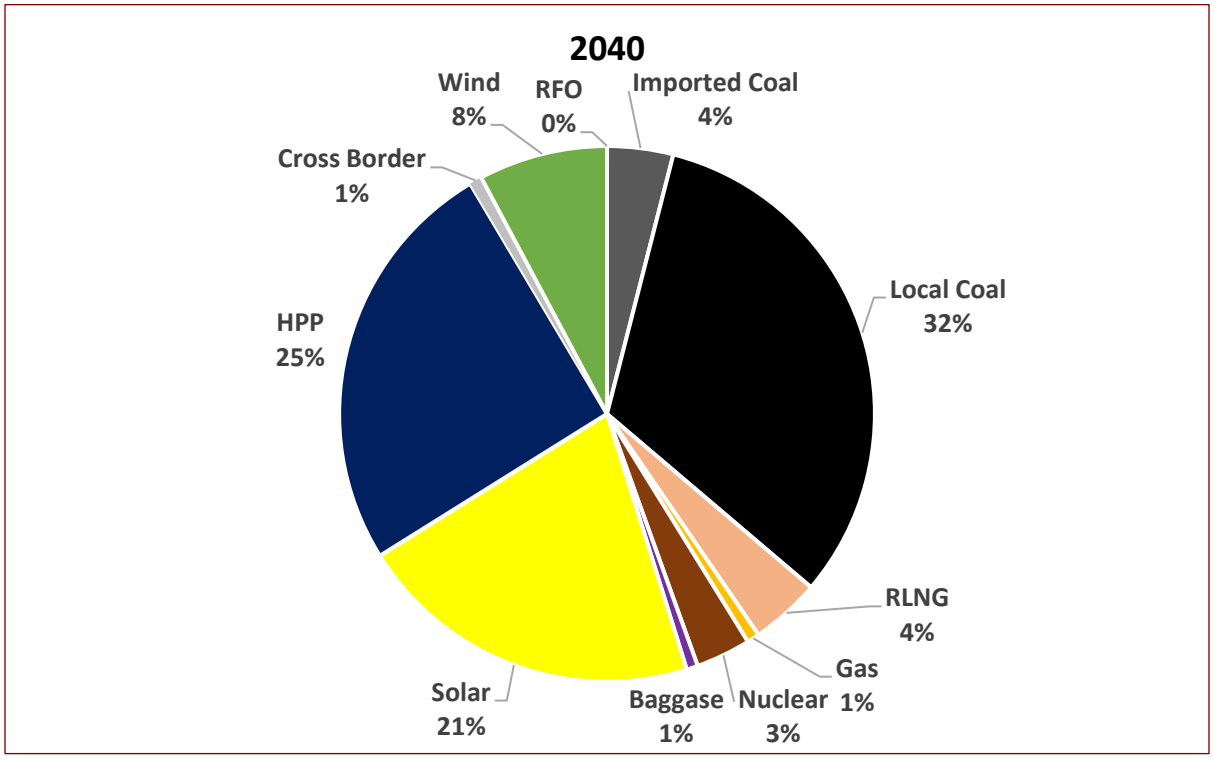


Chart I-11: IGCEP Generation Mix 2040 (MW)

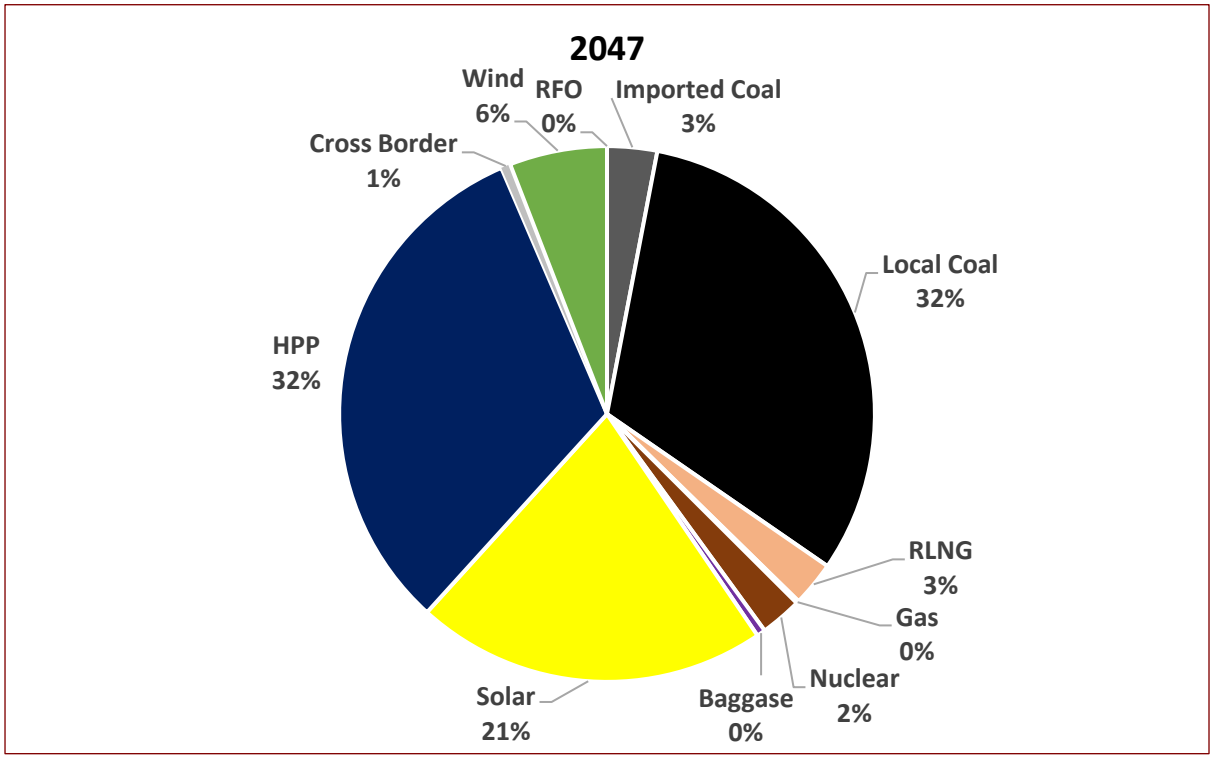


Chart I-12: IGCEP Generation Mix 2047 (MW)

I-13. IGCEP Monthly Generation Mix 2019-47 (GWh)

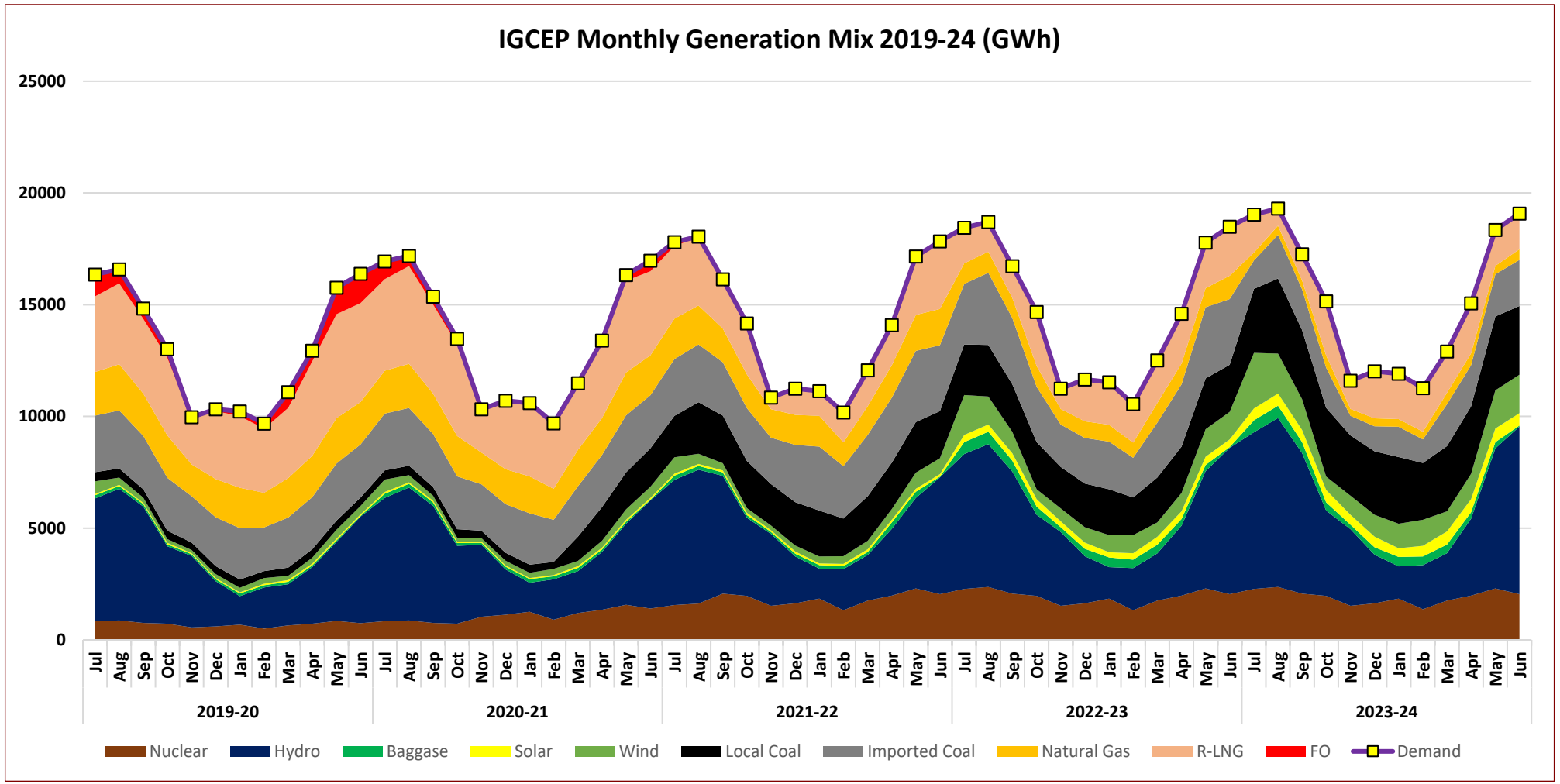


Chart I-13: IGCEP Monthly Generation Mix 2019-24 (GWh)

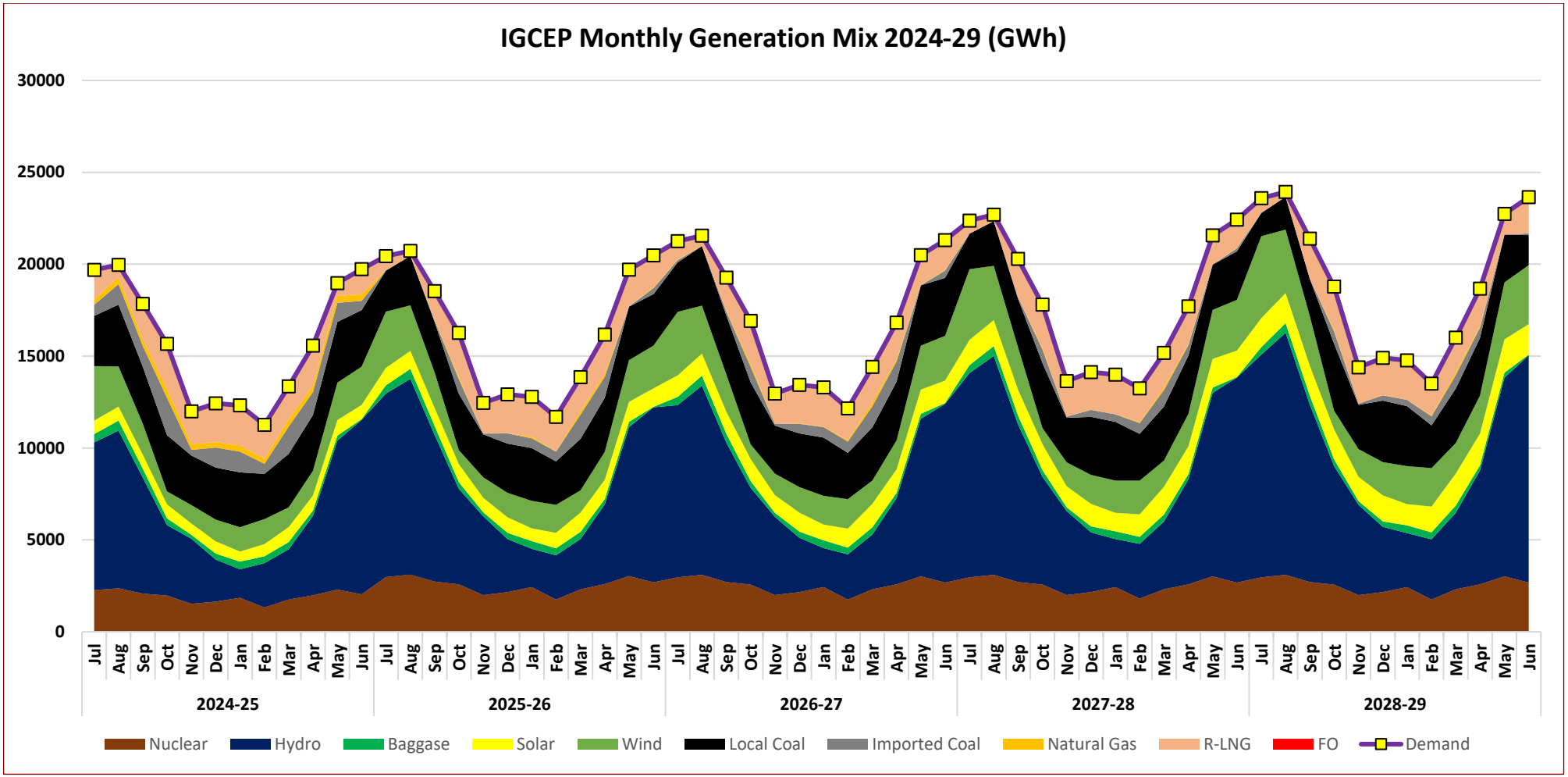


Chart I-14: IGCEP Monthly Generation Mix 2024-29 (GWh)

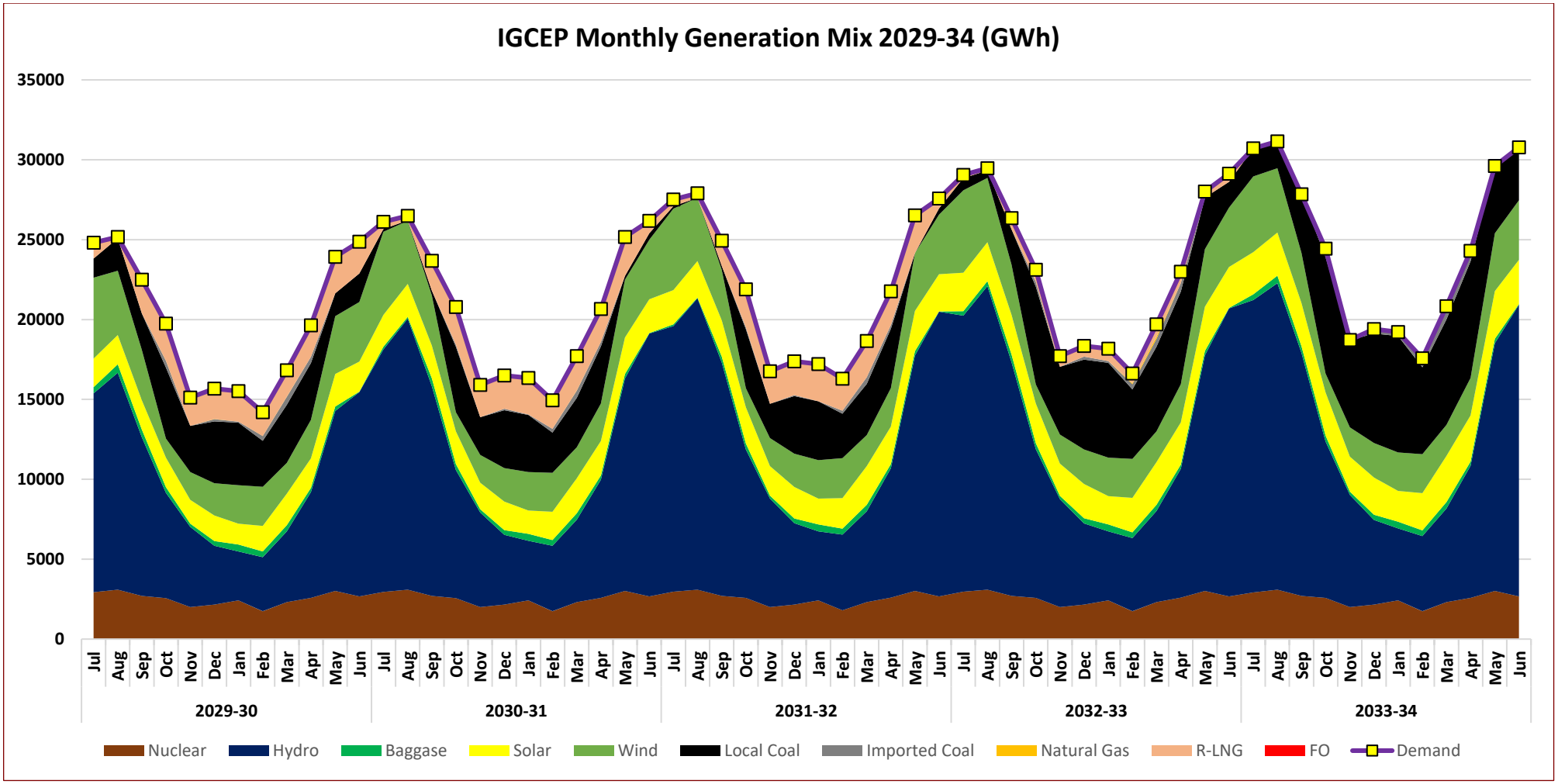


Chart I-15: IGCEP Monthly Generation Mix 2029-34 (GWh)

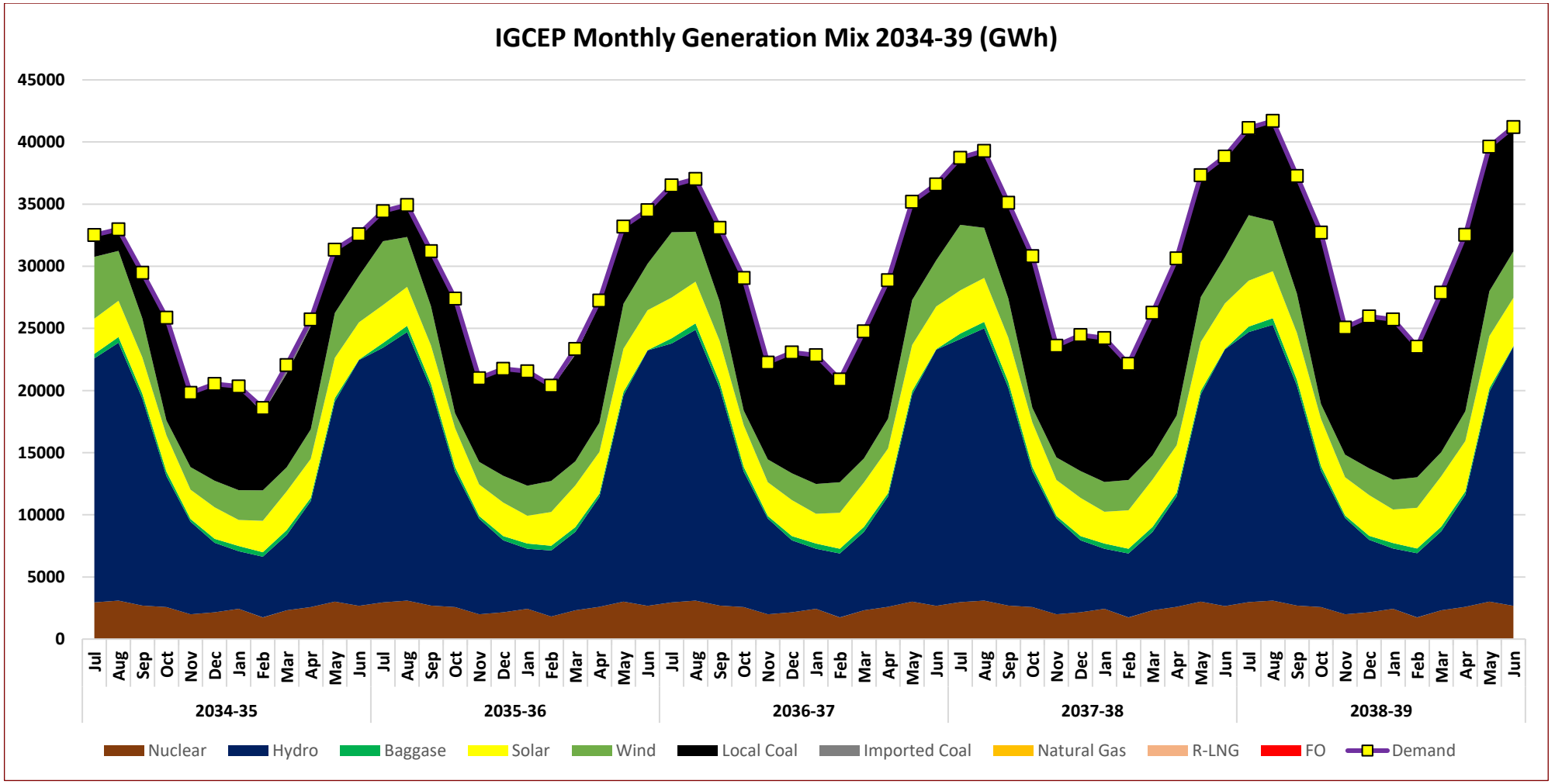


Chart I-16: IGCEP Monthly Generation Mix 2034-39 (GWh)

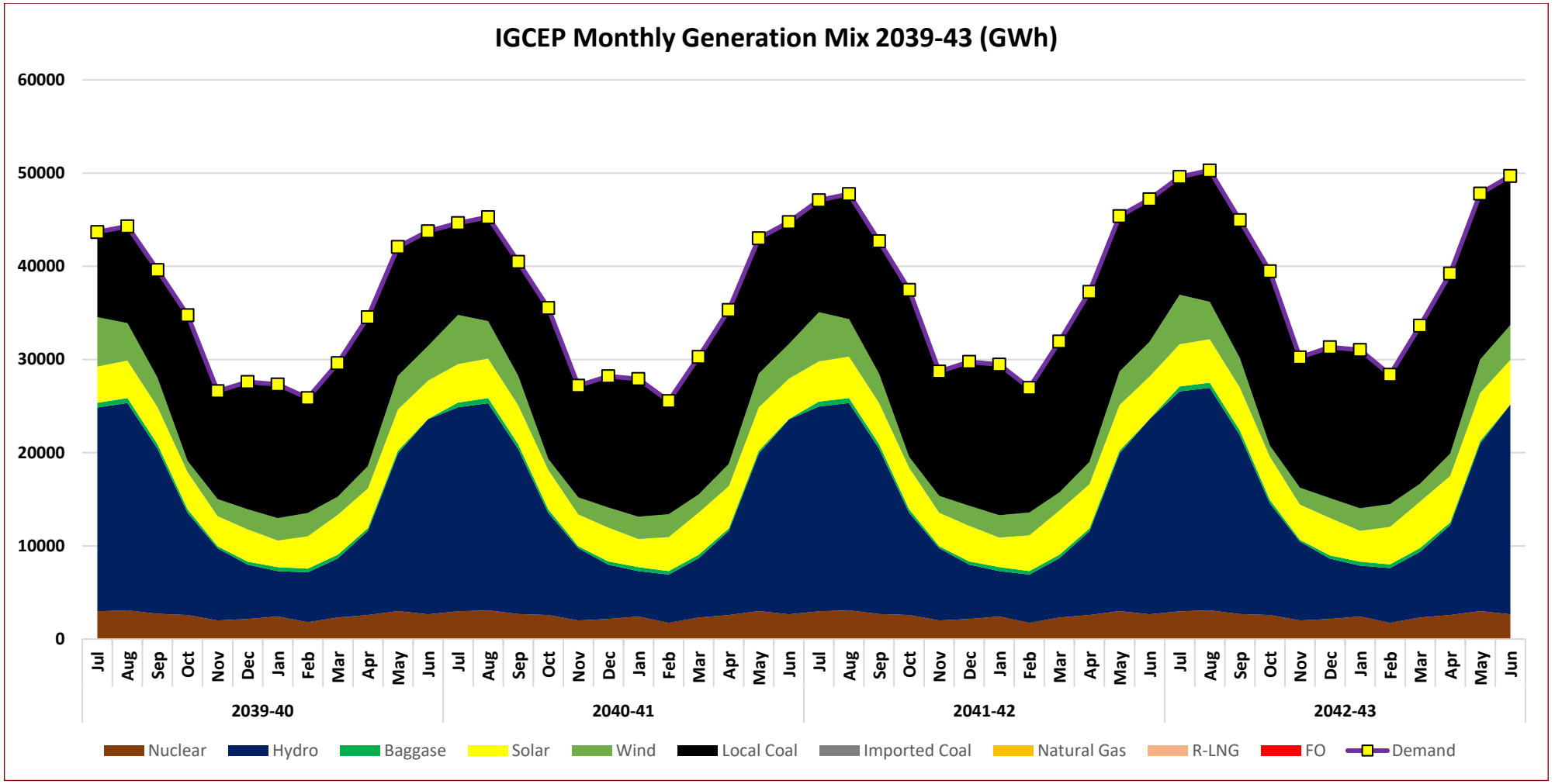


Chart I-17: IGCEP Monthly Generation Mix 2039-43 (GWh)

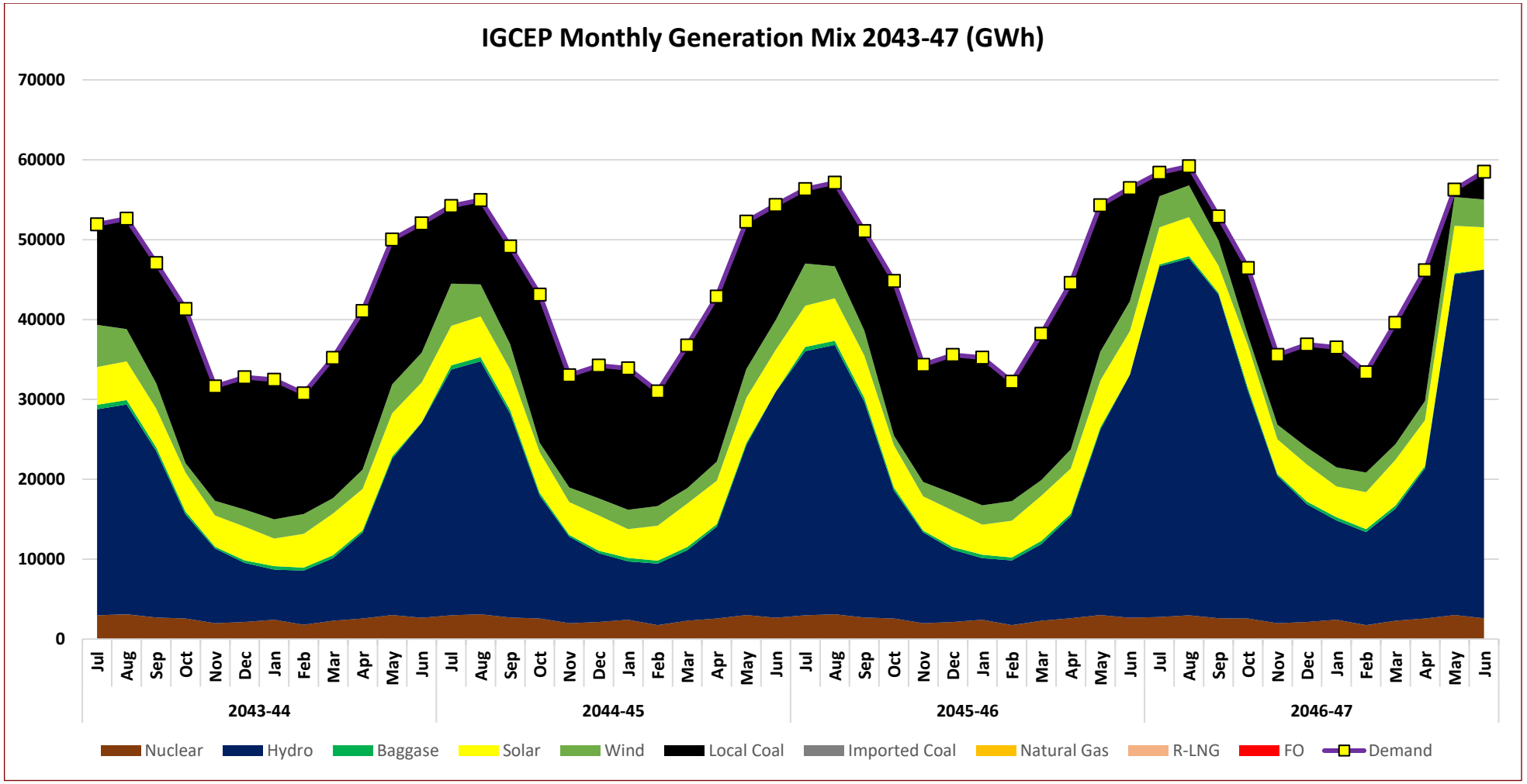


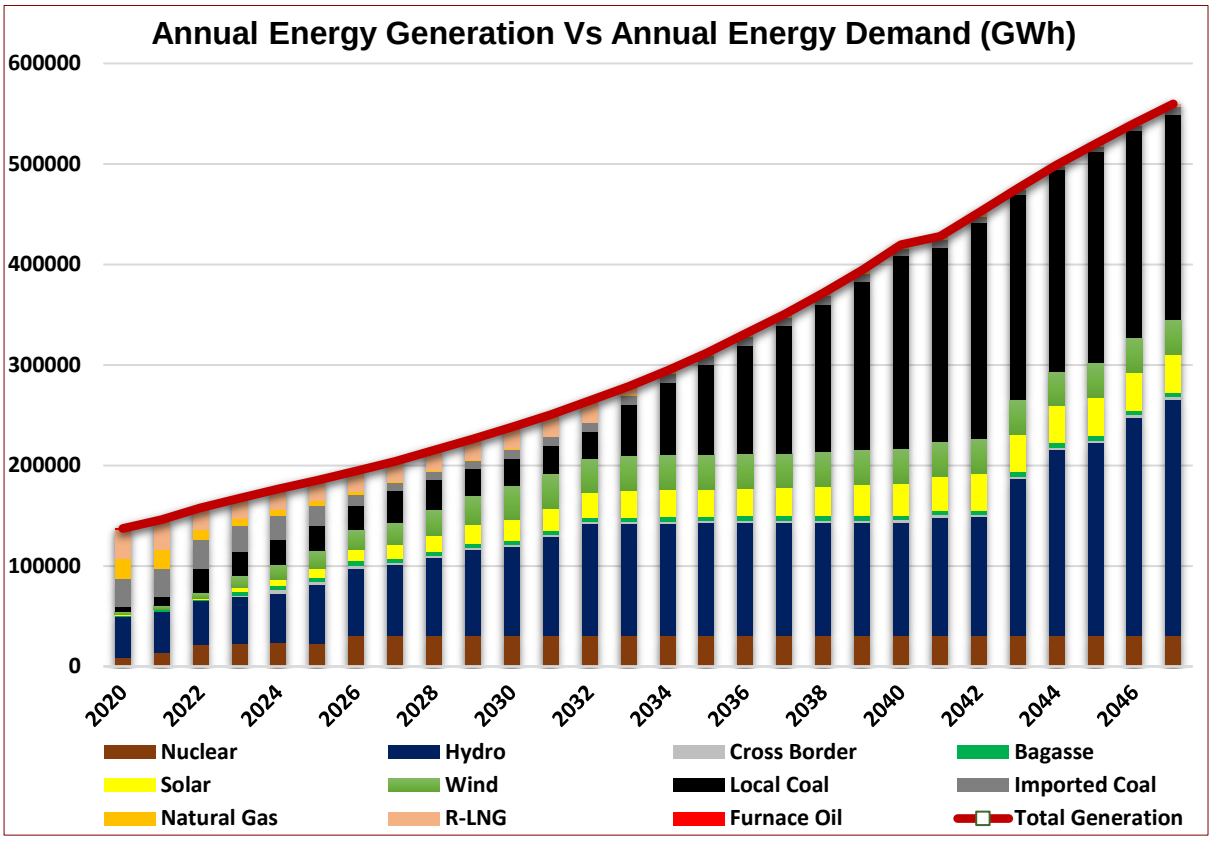
Chart I-18: IGCEP Monthly Generation Mix 2043-47 (GWh)

I-14. Year-wise Present Worth and Un-Discounted Cost

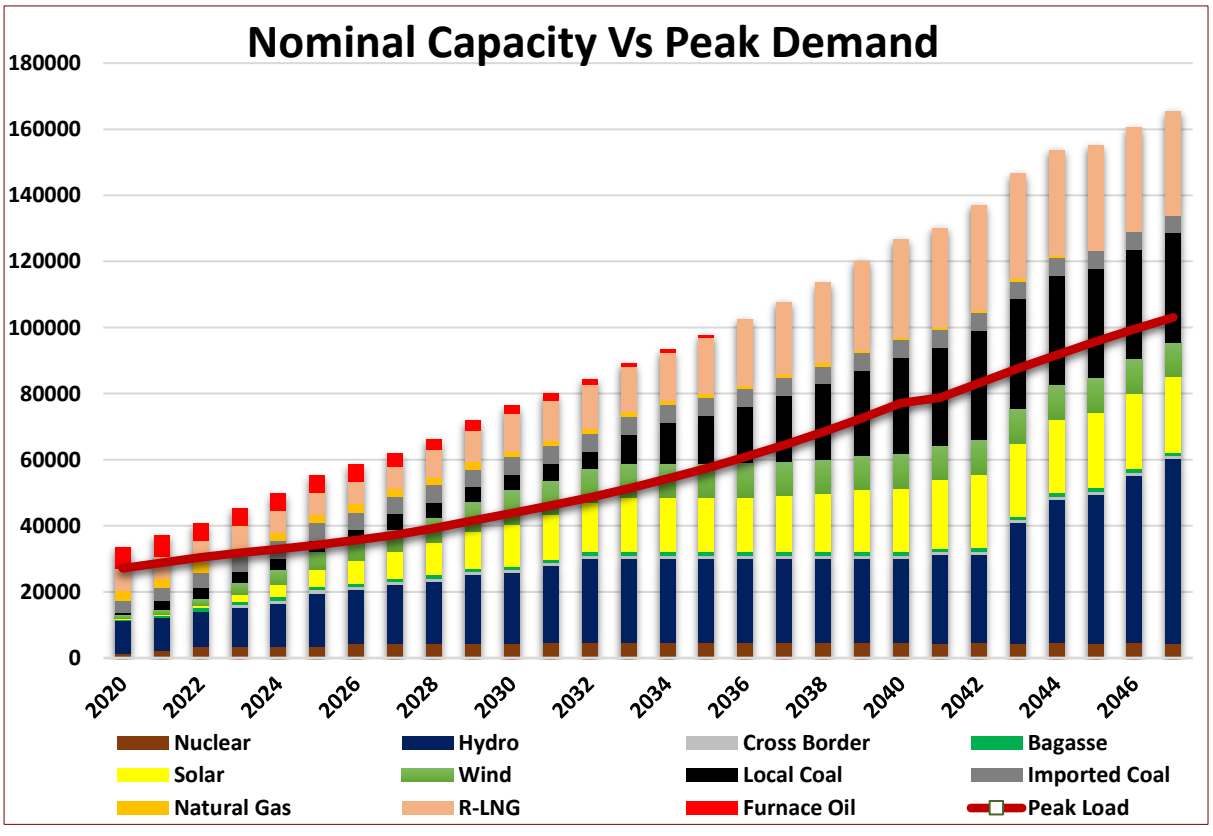
FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,751,312	6,708,034	6,708,034	0	956,722	5,751,312	6,708,034	6,708,034
2021	0	913,213	4,828,740	5,741,953	12,449,987	0	1,014,681	5,365,267	6,379,948	13,087,982
2022	0	909,992	3,537,939	4,447,931	16,897,919	0	1,123,447	4,367,826	5,491,273	18,579,255
2023	215,029	890,290	2,739,694	3,845,013	20,742,931	294,964	1,221,248	3,758,154	5,274,366	23,853,621
2024	511,136	876,831	2,111,682	3,499,649	24,242,580	779,052	1,336,428	3,218,537	5,334,017	29,187,639
2025	579,057	823,709	1,761,742	3,164,509	27,407,089	980,638	1,394,959	2,983,526	5,359,123	34,546,761
2026	608,447	791,391	1,404,241	2,804,080	30,211,169	1,144,901	1,489,142	2,642,328	5,276,371	39,823,133
2027	642,058	730,104	1,317,267	2,689,429	32,900,597	1,342,384	1,526,466	2,754,077	5,622,927	45,446,060
2028	771,606	687,423	1,121,234	2,580,263	35,480,860	1,792,484	1,596,923	2,604,691	5,994,098	51,440,158
2029	943,910	648,574	988,433	2,580,918	38,061,777	2,436,398	1,674,084	2,551,318	6,661,799	58,101,957
2030	1,112,182	609,106	889,959	2,611,247	40,673,025	3,189,708	1,746,899	2,552,377	7,488,984	65,590,941
2031	1,321,938	542,273	708,005	2,572,216	43,245,241	4,212,535	1,728,025	2,256,155	8,196,715	73,787,656
2032	1,272,219	492,886	635,338	2,400,443	45,645,684	4,504,553	1,745,165	2,249,546	8,499,265	82,286,921
2033	1,252,542	455,181	397,009	2,104,732	47,750,417	4,927,650	1,790,736	1,561,880	8,280,266	90,567,187
2034	1,259,442	431,793	295,000	1,986,235	49,736,652	5,505,327	1,887,472	1,289,515	8,682,314	99,249,501

FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2035	1,304,894	406,334	272,325	1,983,553	51,720,205	6,337,787	1,973,538	1,322,665	9,633,990	108,883,491
2036	1,321,088	385,804	271,705	1,978,597	53,698,801	7,129,377	2,082,028	1,466,280	10,677,685	119,561,176
2037	1,306,039	365,691	286,440	1,958,170	55,656,971	7,831,292	2,192,765	1,717,555	11,741,611	131,302,787
2038	1,287,517	349,366	296,340	1,933,222	57,590,193	8,578,034	2,327,638	1,974,351	12,880,023	144,182,810
2039	1,276,955	334,542	306,865	1,918,363	59,508,556	9,452,961	2,476,530	2,271,643	14,201,134	158,383,944
2040	1,260,525	321,006	312,986	1,894,517	61,403,073	10,368,147	2,640,361	2,574,394	15,582,902	173,966,845
2041	1,173,080	294,040	291,972	1,759,091	63,162,164	10,720,988	2,687,280	2,668,383	16,076,652	190,043,497
2042	1,139,584	279,307	294,206	1,713,097	64,875,261	11,572,070	2,836,261	2,987,563	17,395,893	207,439,390
2043	1,110,368	272,815	277,305	1,660,488	66,535,749	12,528,218	3,078,153	3,128,820	18,735,191	226,174,581
2044	1,097,137	257,566	255,141	1,609,844	68,145,594	13,754,364	3,229,006	3,198,604	20,181,975	246,356,555
2045	1,115,736	248,059	217,920	1,581,715	69,727,308	15,541,709	3,455,347	3,035,527	22,032,583	268,389,139
2046	1,072,913	231,496	199,588	1,503,998	71,231,306	16,605,785	3,582,932	3,089,084	23,277,800	291,666,939
2047	1,030,873	212,685	103,419	1,346,977	72,578,284	17,727,909	3,657,539	1,778,499	23,163,947	314,830,886

J-1. Annual Energy Generation Vs Annual Energy Demand (GWh)



J-2. Nominal Capacity Vs Peak Demand (MW) 2020-47



J-3. Future Generation Capacity Additions

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South	Midland	North	MW	MW
								MW	MW	MW		
2020	-	-	-	-	-	-	-	-	-	-	0	0
2021	-	-	-	-	-	-	-	-	-	-	0	0
2022	-	-	-	-	-	-	-	-	-	-	0	0
2023	-	-	-	-	-	-	1,500	1,000	300	200	3,000	3,000
2024	-	33	-	-	-	3	1,500	1,000	86	-	2,621	5,621
2025	-	-	-	-	-	-	1,500	855	-	-	2,355	7,977
2026	-	-	-	-	-	3	1,500	626	-	-	2,129	10,105
2027	-	1,214	20	-	-	666	1,500	653	-	-	4,053	14,158
2028	-	-	-	1,799	-	-	1,500	855	-	-	4,154	18,312
2029	-	-	-	1,130	-	1,986	1,500	1,000	264	-	5,880	24,193
2030	-	-	-	2,768	-	639	1,500	1,000	300	200	6,407	30,599
2031	-	623	-	532	-	2,154	646	-	-	-	3,956	34,555
2032	-	-	-	1,211	-	2,160	1,500	-	-	-	4,871	39,426
2033	-	3,625	-	294	-	-	1,500	-	-	-	5,419	44,845

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South	Midland	North	MW	MW
								MW	MW	MW		
2034	-	3,545	-	616	-	-	-	-	-	-	4,162	49,006
2035	-	2,264	-	2,704	-	-	-	-	-	-	4,967	53,974
2036	-	2,437	-	2,950	-	-	134	-	-	-	5,521	59,494
2037	-	2,779	-	2,067	-	-	558	-	-	-	5,404	64,898
2038	-	2,934	-	2,264	-	-	555	-	-	-	5,754	70,651
2039	-	2,954	-	2,788	-	-	1,240	-	-	-	6,983	77,634
2040	-	3,504	-	2,944	-	-	404	-	-	-	6,852	84,486
2041	-	385	-	639	-	1,102	1,500	-	-	-	3,626	88,112
2042	-	3,568	-	2,045	-	70	1,500	-	-	-	7,183	95,295
2043	-	-	-	-	-	9,508	-	-	-	-	9,508	104,803
2044	-	-	-	-	-	7,156	-	-	-	-	7,156	111,959
2045	-	-	-	-	-	1,560	530	-	-	-	2,090	114,049
2046	-	-	-	-	-	5,702	83	-	-	-	5,785	119,834
2047	-	-	-	-	-	5,021	43	-	-	-	5,065	124,898
Total	**-**	**29,866**	**20**	**26,751**	**0**	**37,730**	**22,193**	**6,989**	**950**	**400**	**124,898**	

J-4. List of Projects uptill 2047 (Committed + Candidate)

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2020							
1	Zorlu Solar Pakistan Pvt. Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Jan-20
2	Jabori	Hydro	10	10	PEDO	Committed	Mar-20
3	Trimmu	RLNG	1,263	1,243	PPIB	Committed	Apr-20
4	Jhing	Hydro	15	15	AJK	Committed	Jun-20
5	Karora	Hydro	12	12	PEDO	Committed	Jun-20
6	Koto	Hydro	41	41	PEDO	Committed	Jun-20
Generation Additions in 2020 (MW)			1,441	1,421			
Cumulative Addition up till 2020 (MW)			1,441	1,421			
2021							
1	Etihad Power Generation Ltd.	Bagasse	74	74	AEDB	Committed	Jul-20
2	Karachi Nuclear K-2	Nuclear	1,100	1,059	PAEC	Committed	Nov-20
3	Master Green Energy Ltd.	Wind	60	60	AEDB	Committed	Nov-20
4	Shaheen Renewable Energy-1 Pvt. Ltd.	Wind	51	51	AEDB	Committed	Nov-20
5	Lawi	Hydro	69	69	PEDO	Committed	Jan-21
6	Tricorm Wind Power Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-21
7	Western Energy Pvt. Limited	Wind	50	50	AEDB	Committed	Feb-21
8	Lucky	Local Coal	660	607	PPIB	Committed	Mar-21
9	Access Electric Pvt. Ltd.	Solar	10	10	AEDB	Committed	Mar-21
10	Access Solar Pvt. Ltd.	Solar	12	12	AEDB	Committed	Mar-21
11	Thal Nova	Local Coal	330	300	PPIB	Committed	Mar-21
12	Thar TEL	Local Coal	330	300	PPIB	Committed	Mar-21
13	Thar-I (Shanghai Electric) Unit 1	Local Coal	660	607	PPIB	Committed	Mar-21
14	Riali-II	Hydro	7	7	AJK	Committed	Jun-21
15	Hydro China Dawood Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
16	Tenga Generasi Limited	Wind	50	50	AEDB	Committed	Jun-21
17	Zephyr Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
18	Siddiqsons	Local Coal	330	304	PPIB	Committed	Jun-21
Generation Additions in 2021 (MW)			3,943	3,708			
Cumulative Addition uptill 2021 (MW)			5,384	5,129			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2022							
1	HNDS Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
2	Helios Power Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
3	Thar-I (Shanghai Electric) Unit 2	Local Coal	660	607	PPIB	Committed	Aug-21
4	Karachi Nuclear K-3	Nuclear	1,100	1,059	PAEC	Committed	Sep-21
5	Buksh Energy Pvt. Ltd.	Solar	12	12	AEDB	Committed	Sep-21
6	Safe Solar Power Pvt. Ltd.	Solar	10	10	AEDB	Committed	Sep-21
7	Artistic Wind Power Pvt. Limited.	Wind	50	50	AEDB	Committed	Oct-21
8	Meridian Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Nov-21
9	Zhenfa Pakistan New Energy Company (Pvt.) Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Nov-21
10	Karot	Hydro	720	720	PPIB/AJK	Committed	Dec-21
11	Jamshoro CFPP Unit 1	Imp.Coal	660	644	GENCO	Committed	Dec-21
12	Gwadar	Imp.Coal	300	273	PPIB	Committed	Jan-22
13	Gul Ahmed Electric Ltd.	Wind	50	50	AEDB	Committed	Jan-22
14	ACT 2 wind (Pvt.) Ltd.	Wind	50	50	AEDB	Committed	Feb-22
15	Din Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
16	Indus Wind Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
17	Lakeside Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
18	Liberty Wind Power 1 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
19	Liberty Wind Power 2 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
20	Metro Wind Power Ltd.	Wind	50	50	AEDB	Committed	Feb-22
21	NASDA Green Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
22	Trans Atlantic Energy (Pvt.) Limited	Wind	48	48	AEDB	Committed	Feb-22
23	Alliance Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
24	Bahawalpur Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
25	Faran Power Limited	Bagasse	27	27	AEDB	Committed	Mar-22
26	Ghotki Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
27	Hamza Sugar Mills Ltd. (Unit-II)	Bagasse	30	30	AEDB	Committed	Mar-22
28	HSM Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
29	Hunza Power (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
30	Indus Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
31	Ittefaq Power Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
32	Kashmir Power (Pvt.) Ltd.	Bagasse	40	40	AEDB	Committed	Mar-22
33	Mehran Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
34	RYK Energy Ltd.	Bagasse	25	25	AEDB	Committed	Mar-22
35	Sadiqabad Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
36	Shahtaj Sugar Mills Ltd.	Bagasse	32	32	AEDB	Committed	Mar-22
37	Sheikhoo Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
38	TAY Powergen Company (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
39	Two Star Energy (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22
Generation Additions in 2022 (MW)			4,841	4,703			
Cumulative Addition up till 2022 (MW)			10,225	9,832			
2023							
1	Gorkin Matiltan	Hydro	84	84	PEDO	Committed	Nov-22
2	Suki Kinari	Hydro	884	884	PPIB	Committed	Dec-22
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2023
4	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2023
5	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2023
6	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2023
7	CASA	Import	1,000	1,000	GOP	Committed	May-23
Generation Additions in 2023 (MW)			4,968	4,968			
Cumulative Addition up till 2023 (MW)			15,193	14,800			
2024							
1	Tarbela 5th-Extension	Hydro	1,410	1,410	WAPDA	Committed	Sep-23
2	Jamshoro CFPP Unit 2	Imp. Coal	660	644	GENCO	Committed	Dec-23
3	Blue Star	Hydro	3	3	PEDO	Candidate	2024
4	Generic_Candidate Local Coal	Local Coal	1,514	1,514	Yet to be Decided	Candidate	2024
5	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2024
6	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2024
7	Generic_Candidate Wind_North	Wind	89	89	Yet to be Decided	Candidate	2024
8	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2024

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Generation Additions in 2024 (MW)			6,475	6,459			
Cumulative Addition up till 2024 (MW)			21,668	21,260			
2025							
1	Keyal Khwar	Hydro	128	128	WAPDA	Committed	Sep-24
2	Mohmand	Hydro	800	800	WAPDA	Committed	Nov-24
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2025
4	Generic_Candidate Wind_South	Wind	922	922	Yet to be Decided	Candidate	2025
5	Dasu 1	Hydro	2,160	2,160	WAPDA	Committed	Feb-25
Generation Additions in 2025 (MW)			5,510	5,510			
Cumulative Addition up till 2025 (MW)			27,179	26,770			
2026							
1	Chasma Nuclear C-5	Nuclear	1,100	1,059	PAEC	Committed	Jul-25
2	Harpo	Hydro	35	35	WAPDA	Committed	Jul-25
3	Riali-III	Hydro	3	3	AJK	Candidate	2026
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2026
5	Generic_Candidate Wind_South	Wind	673	673	Yet to be Decided	Candidate	2026
Generation Additions in 2026 (MW)			3,311	3,270			
Cumulative Addition up till 2026 (MW)			30,490	30,040			
2027							
1	Azad Pattan	Hydro	700	701	PPIB	Committed	Sep-26
2	Hatim	CCGT_Gas	20	20	PPIB	Candidate	2027
3	Oracle_1	Local Coal	660	607	STDC/ PPIB	Candidate	2027
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2027
5	Generic_Candidate Wind_South	Wind	301	301	Yet to be Decided	Candidate	2027
6	Kohala	Hydro	1,124	1,124	PPIB	Committed	Jun-27
Generation Additions in 2027 (MW)			4,305	4,253			
Cumulative Addition up till 2027 (MW)			34,795	34,292			
2028							
1	Bata Kundi	Hydro	96	96	PEDO	Candidate	2028
2	Kalam Asrit	Hydro	212	212	PPIB	Candidate	2028
3	Lower Palas	Hydro	666	666	WAPDA	Candidate	2028

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
4	Torkhow	Hydro	70	70	PEDO	Candidate	2028
5	Oracle_2	Local Coal	660	607	STDC/ PPIB	Candidate	2028
6	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2028
7	Generic_Candidate Wind_South	Wind	810	810	Yet to be Decided	Candidate	2028
Generation Additions in 2028 (MW)			4,014	3,961			
Cumulative Addition up till 2028 (MW)			38,809	38,253			
2029							
1	Mari Combined Cycle	CCGT_Gas	255	255	PPIB	Candidate	2029
2	Dander	Hydro	56	56	PEDO	Candidate	2029
3	Dowarian	Hydro	40	40	AJK	Candidate	2029
4	Dubair Kalay	Hydro	66	66	PEDO	Candidate	2029
5	Nerai-Dubair	Hydro	46	46	PEDO	Candidate	2029
6	Rajdhani	Hydro	132	132	PPIB	Candidate	2029
7	Thakot-III	Hydro	1,686	1,686	WAPDA	Candidate	2029
8	Generic_Candidate Local Coal	Local Coal	790	790	Yet to be Decided	Candidate	2029
9	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2029
10	Generic_Candidate Wind_Mid	Wind	249	249	Yet to be Decided	Candidate	2029
11	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2029
Generation Additions in 2029 (MW)			5,820	5,820			
Cumulative Addition up till 2029 (MW)			44,628	44,073			
2030							
1	Mahl	Hydro	639	639	PPIB	Candidate	2030
2	Generic_Candidate Local Coal	Local Coal	2,766	2,766	Yet to be Decided	Candidate	2030
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2030
4	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2030
5	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2030
6	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2030
Generation Additions in 2030 (MW)			6,405	6,405			
Cumulative Addition up till 2030 (MW)			51,034	50,478			
2031							
1	Thakot-I	Hydro	2,154	2,154	WAPDA	Candidate	2031

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2	Bunji 1	Hydro	3,550	3,550	WAPDA	Candidate	2031
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2031
Generation Additions in 2031 (MW)			7,204	7,204			
Cumulative Addition up till 2031 (MW)			58,238	57,682			
2032							
1	Dasu_2	Hydro	2,160	2,160	WAPDA	Candidate	2032
2	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2032
Generation Additions in 2032 (MW)			3,660	3,660			
Cumulative Addition up till 2032 (MW)			61,898	61,342			
2033							
1	Phandar	Hydro	80	80	WAPDA	Candidate	2033
2	Generic_Candidate Local Coal	Local Coal	2,490	2,490	Yet to be Decided	Candidate	2033
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2033
Generation Additions in 2033 (MW)			4,070	4,070			
Cumulative Addition up till 2033 (MW)			65,968	65,412			
2034							
1	Generic_Candidate Local Coal	Local Coal	3,716	3,716	Yet to be Decided	Candidate	2034
2	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2034
Generation Additions in 2034 (MW)			5,216	5,216			
Cumulative Addition up till 2034 (MW)			71,184	70,628			
2035							
1	Pashot	Hydro	60	60	PEDO	Candidate	2035
2	Tangus	Hydro	2,200	2,200	WAPDA	Candidate	2035
3	Generic_Candidate Local Coal	Local Coal	2,317	2,317	Yet to be Decided	Candidate	2035
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2035
Generation Additions in 2035 (MW)			6,077	6,077			
Cumulative Addition up till 2035 (MW)			77,261	76,706			
2036							
1	Madian	Hydro	156	156	PEDO	Candidate	2036
2	Thakot-II	Hydro	966	966	WAPDA	Candidate	2036
3	Generic_Candidate Local Coal	Local Coal	3,889	3,889	Yet to be Decided	Candidate	2036

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2036
Generation Additions in 2036 (MW)			6,511	6,511			
Cumulative Addition up till 2036 (MW)			83,772	83,217			
2037							
1	Gabral Kalam	Hydro	87	87	PEDO	Candidate	2037
2	Sakhra-I	Hydro	8	8	PEDO	Candidate	2037
3	Generic_Candidate Local Coal	Local Coal	4,473	4,473	Yet to be Decided	Candidate	2037
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2037
Generation Additions in 2037 (MW)			6,068	6,068			
Cumulative Addition up till 2037 (MW)			89,840	89,285			
2038							
1	Gwaldai	Hydro	20	20	PEDO	Candidate	2038
2	Sakhra-II	Hydro	8	8	PEDO	Candidate	2038
3	Generic_Candidate Local Coal	Local Coal	4,891	4,891	Yet to be Decided	Candidate	2038
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2038
Generation Additions in 2038 (MW)			6,419	6,419			
Cumulative Addition uptill 2038 (MW)			96,259	95,704			
2039							
1	Asrit Kadam	Hydro	216	216	PEDO	Candidate	2039
2	Gabral Utror	Hydro	82	82	PEDO	Candidate	2039
3	Nagdar	Hydro	36	36	AJK	Candidate	2039
4	Tangar	Hydro	24	24	PEDO	Candidate	2039
5	Generic_Candidate Local Coal	Local Coal	5,317	5,317	Yet to be Decided	Candidate	2039
6	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2039
Generation Additions in 2039 (MW)			7,175	7,175			
Cumulative Addition uptill 2039 (MW)			103,434	102,879			
2040							
1	Jagran-III	Hydro	36	36	AJK	Candidate	2040
2	Generic_Candidate Local Coal	Local Coal	6,090	6,090	Yet to be Decided	Candidate	2040
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2040
Generation Additions in 2040 (MW)			7,626	7,626			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition uptill 2040 (MW)			111,060	110,505			
2041							
1	Generic_Candidate Local Coal	Local Coal	2,098	2,098	Yet to be Decided	Candidate	2041
2	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2041
Generation Additions in 2041 (MW)			3,598	3,598			
Cumulative Addition uptill 2041 (MW)			114,658	114,103			
2042							
1	Generic_Candidate Local Coal	Local Coal	5,683	5,683	Yet to be Decided	Candidate	2042
2	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2042
Generation Additions in 2042 (MW)			7,183	7,183			
Cumulative Addition uptill 2042 (MW)			121,841	121,286			
2043							
1	Patan	Hydro	2,400	2,400	WAPDA	Candidate	2043
2	Generic_Candidate Local Coal	Local Coal	3,264	3,264	Yet to be Decided	Candidate	2043
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2043
Generation Additions in 2043 (MW)			7,164	7,164			
Cumulative Addition uptill 2043 (MW)			129,005	128,450			
2044							
1	Arkari Gol	Hydro	99	99	PEDO	Candidate	2044
2	Artistic-II	Hydro	54	54	PEDO	Candidate	2044
3	Basho	Hydro	39	39	WAPDA	Candidate	2044
4	Bhan Khwar	Hydro	36	36	PEDO	Candidate	2044
5	Chota Jabba	Hydro	46	46	PEDO	Candidate	2044
6	CJ	Hydro	24	24	PPDB	Candidate	2044
7	Dhudnial	Hydro	960	960	WAPDA	Candidate	2044
8	Harigehl-Majeedgala	Hydro	40	40	AJK	Candidate	2044
9	Jagran-IV	Hydro	24	24	AJK	Candidate	2044
10	Jamshil	Hydro	612	612	PEDO	Candidate	2044
11	Kathai-II	Hydro	8	8	AJK	Candidate	2044
12	Lower Spat Gah	Hydro	495	495	PEDO	Candidate	2044
13	Mahodand	Hydro	44	44	PEDO	Candidate	2044

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
14	Mastuj	Hydro	48	48	PEDO	Candidate	2044
15	Mujigram	Hydro	63	63	PEDO	Candidate	2044
16	Naran	Hydro	188	188	PEDO	Candidate	2044
17	Nila Da Katha	Hydro	36	36	PEDO	Candidate	2044
18	Serai	Hydro	6	6	PEDO	Candidate	2044
19	Shalfalam	Hydro	60	60	PEDO	Candidate	2044
20	Shogosin	Hydro	138	138	PEDO	Candidate	2044
21	Shounter	Hydro	48	48	AJK	Candidate	2044
22	SHYOK	Hydro	640	640	WAPDA	Candidate	2044
23	Trappi	Hydro	33	33	PEDO	Candidate	2044
24	Wazirabad	Hydro	88	88	WAPDA	Candidate	2044
25	Generic_Candidate Local Coal	Local Coal	1,436	1,436	Yet to be Decided	Candidate	2044
26	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2044
Generation Additions in 2044 (MW)			6,765	6,765			
Cumulative Addition uptill 2044 (MW)			135,770	135,215			
2045							
1	Barum Gol	Hydro	40	40	PEDO	Candidate	2045
2	Bhimbal Katha	Hydro	9	9	PEDO	Candidate	2045
3	Diamer Bhasha Dam	Hydro	4,500	4,500	WAPDA	Candidate	2045
4	Nandihaar-II	Hydro	10	10	PEDO	Candidate	2045
5	Shigo Kas	Hydro	102	102	PEDO	Candidate	2045
6	UCC Bhambhwal	Hydro	4	4	PPDB	Candidate	2045
7	Yulbo	Hydro	2,800	2,800	WAPDA	Candidate	2045
8	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2045
Generation Additions in 2045 (MW)			8,965	8,965			
Cumulative Addition uptill 2045 (MW)			144,735	144,180			
2046							
1	Artistic-I	Hydro	63	63	PEDO	Candidate	2046
2	Ashkot	Hydro	300	300	PPIB	Candidate	2046
3	Balakot	Hydro	300	300	PEDO	Candidate	2046
4	Balakot-II	Hydro	100	100	PEDO	Candidate	2046

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
5	Balkani	Hydro	8	8	PEDO	Candidate	2046
6	Chakoti Hatian	Hydro	501	501	PPIB	Candidate	2046
7	Chapri Charkhel	Hydro	12	12	PEDO	Candidate	2046
8	Chicha Watni	Hydro	2	2	PPDB	Candidate	2046
9	Chiniot_HPP	Hydro	78	78	WAPDA	Candidate	2046
10	Daral Khwar-II	Hydro	10	10	PEDO	Candidate	2046
11	Dhaddar	Hydro	18	18	PEDO	Candidate	2046
12	Garhi Habibullah	Hydro	100	100	PEDO	Candidate	2046
13	Ghorband	Hydro	20	20	PEDO	Candidate	2046
14	Gomat Nar	Hydro	50	50	AJK	Candidate	2046
15	Gugera	Hydro	3	3	PPDB	Candidate	2046
16	Istaro-Booni	Hydro	72	72	PEDO	Candidate	2046
17	Kalkot Barikot	Hydro	48	48	PEDO	Candidate	2046
18	Kari Mushkur	Hydro	496	496	PEDO	Candidate	2046
19	Kasur	Hydro	2	2	PPDB	Candidate	2046
20	Kathai-III	Hydro	1	1	AJK	Candidate	2046
21	Khal	Hydro	66	66	PEDO	Candidate	2046
22	Khanki Barrage	Hydro	16	16	PPDB	Candidate	2046
23	Khokhra	Hydro	2	2	PPDB	Candidate	2046
24	Luat	Hydro	48	48	AJK	Candidate	2046
25	Lucky_HPP	Hydro	20	20	PPDB	Candidate	2046
26	Mehar	Hydro	12	12	PPDB	Candidate	2046
27	Mid Ranjha	Hydro	80	80	WAPDA	Candidate	2046
28	Middle Palas	Hydro	399	399	WAPDA	Candidate	2046
29	Murree	Hydro	12	12	PPDB	Candidate	2046
30	Nandihaar	Hydro	12	12	PEDO	Candidate	2046
31	Okara	Hydro	4	4	PPDB	Candidate	2046
32	Patrak Sheringhal	Hydro	22	22	PEDO	Candidate	2046
33	Punjnad	Hydro	18	18	PPDB	Candidate	2046
34	Qaditrabad	Hydro	24	24	PPDB	Candidate	2046
35	QB Link	Hydro	8	8	PPDB	Candidate	2046
36	Ravi	Hydro	6	6	PPDB	Candidate	2046

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
37	Sahiwal	Hydro	6	6	PPDB	Candidate	2046
38	Shah Jiwana	Hydro	78	78	WAPDA	Candidate	2046
39	Sharmai	Hydro	150	150	PEDO	Candidate	2046
40	Shushghai	Hydro	144	144	PEDO	Candidate	2046
41	Soan	Hydro	24	24	PPDB	Candidate	2046
42	Taunsa	Hydro	135	135	PPDB	Candidate	2046
43	TP	Hydro	9	9	PPDB	Candidate	2046
44	Trident	Hydro	8	8	PPDB	Candidate	2046
45	Trimmu_HPP	Hydro	16	16	PPDB	Candidate	2046
46	Turtonas Uzghor	Hydro	82	82	PPIB	Candidate	2046
47	Generic_Candidate Local Coal	Local Coal	186	186	Yet to be Decided	Candidate	2046
48	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2046
Generation Additions in 2046 (MW)			5,272	5,272			
Cumulative Addition uptill 2046 (MW)			150,007	149,451			
2047							
1	Alka	Hydro	2	2	PPDB	Candidate	2047
2	Athmuqam	Hydro	452	452	PPIB	Candidate	2047
3	BS Link Tail	Hydro	9	9	PPDB	Candidate	2047
4	Bunji 2	Hydro	3,550	3,550	WAPDA	Candidate	2047
5	Chenavan	Hydro	3	3	PPDB	Candidate	2047
6	Engro_HPP	Hydro	5	5	PPDB	Candidate	2047
7	Gahrit	Hydro	376	376	PEDO	Candidate	2047
8	Ghail	Hydro	2	2	AJK	Candidate	2047
9	Ghanool	Hydro	3	3	PEDO	Candidate	2047
10	Jabri Bedar	Hydro	4	4	PEDO	Candidate	2047
11	Jhing-II	Hydro	6	6	AJK	Candidate	2047
12	Khanewal	Hydro	2	2	PPDB	Candidate	2047
13	Luspur Murigram	Hydro	231	231	PEDO	Candidate	2047
14	Machai-III	Hydro	2	2	PEDO	Candidate	2047
15	Mahandri	Hydro	12	12	PEDO	Candidate	2047
16	Mandi	Hydro	4	4	PPDB	Candidate	2047
17	Rasul	Hydro	18	18	PPDB	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
18	Sarral-Dhartian	Hydro	9	9	PEDO	Candidate	2047
19	Upper Palas	Hydro	158	158	WAPDA	Candidate	2047
20	Wari	Hydro	45	45	PEDO	Candidate	2047
21	Generic_Candidate Solar	Solar	470	470	Yet to be Decided	Candidate	2047
Generation Additions in 2047 (MW)			5,363	5,363			
Cumulative Addition up till 2047 (MW)			155,370	154,814			

J-5. Annual Capacity Factors (%age)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	85	85	85	83	83	53	23	16	17	18	23	22	20	24	23	21	20	19	18	18	18	18	16	12	9	12	13	15
2	Gwadar	Imp. Coal	0	0	84	84	84	84	81	40	39	35	36	34	33	34	31	31	30	30	28	27	26	26	23	14	13	22	31	36
3	Jamshoro Coal	Imp. Coal	0	0	83	82	32	20	8	8	10	11	13	13	12	14	16	16	16	15	14	14	13	14	13	6	7	10	9	12
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	85	85	85	84	84	83	46	30	31	29	31	28	29	30	28	28	27	24	23	23	23	22	20	14	10	14	16	34
6	Sahiwal Coal	Imp. Coal	85	85	53	9	7	8	5	4	5	6	11	10	8	10	12	12	12	11	11	11	10	10	9	5	6	8	8	8
7	Engro Thar	Local Coal	85	85	85	85	84	84	83	81	73	42	45	40	40	43	41	40	39	37	36	33	32	32	29	18	14	41	36	37
8	Lucky	Local Coal	0	87	85	85	84	84	82	63	42	39	40	37	37	39	34	32	33	32	30	31	28	27	25	15	13	28	35	37
9	NEW_Local_Coal	Local Coal	0	0	0	0	85	84	84	82	80	79	77	75	74	73	73	75	77	78	78	79	79	78	78	75	73	75	73	73
10	Oracle	Local Coal	0	0	0	0	0	0	0	83	82	80	79	80	80	81	82	83	84	84	84	85	85	85	85	85	85	85	85	84
11	Siddiqsons	Local Coal	0	88	85	85	85	84	84	82	81	79	78	78	76	80	80	82	82	83	83	83	83	82	82	84	84	84	84	84
12	Thal Nova	Local Coal	0	89	85	85	85	84	84	82	80	78	76	69	55	56	53	54	56	54	51	50	46	44	40	25	36	45	46	53
13	Thar TEL	Local Coal	0	89	85	85	85	84	84	82	80	78	76	68	55	56	53	56	56	55	51	51	46	44	40	25	37	46	46	53
14	Thar-I (Shanghai Electric)	Local Coal	0	87	85	85	84	84	83	82	79	67	64	48	50	49	46	47	47	44	43	40	38	36	33	22	25	44	43	42
15	Balloki	RLNG	74	67	67	67	67	67	67	67	67	67	67	67	67	67	3	4	4	4	4	4	5	5	5	3	2	4	4	3
16	Bhikki	RLNG	73	67	67	67	67	67	67	67	67	67	67	67	67	3	1	2	3	4	4	4	4	4	4	2	1	3	3	3
17	FKPCL	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	12	6	1	0	0	0	0	0	0	0	2	3	2	0	0	0	1	1	2	3	4	4	0	0	0	0	0	0
20	Haveli	RLNG	91	67	67	67	67	67	67	67	67	67	67	67	67	4	4	5	5	5	5	6	8	8	7	3	3	5	5	5
21	Nandipur	RLNG	27	10	3	0	0	0	0	0	0	1	3	3	3	1	0	1	1	2	3	3	4	4	4	1	0	2	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	20	8	2	0	0	0	0	0	0	1	3	3	3	1	0	0	1	1	2	3	4	0	0	0	0	0	0	0
24	Rousch	RLNG	4	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	9	5	0	0	0	0	0	0	0	0	2	3	2	0	0	0	0	1	2	2	4	0	0	0	0	0	0	0
26	Saphire	RLNG	15	7	1	0	0	0	0	0	0	0	2	3	3	1	0	0	1	1	2	3	4	0	0	0	0	0	0	0
27	Trimmu	RLNG	94	64	6	2	2	1	0	0	1	2	4	5	4	5	6	6	7	7	7	8	8	8	8	4	3	5	6	7
28	Davis	RLNG	0	0	0	0	0	0	0	2	0	1	2	2	1	0	0	0	0	0	1	1	2	2	2	1	0	0	0	0
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	89	89	13	4	4	2	1	1	2	3	5	5	5	6	7	6	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	90	90	15	5	5	2	2	2	2	4	6	6	5	7	7	7	8	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	85	85	11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	6	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	83	83	82	26	11	5	3	3	3	4	7	7	6	7	9	8	9	8	8	8	8	8	8	4	3	1	0	0
36	Hatim	Gas	0	0	0	0	0	0	0	24	23	22	23	22	15	16	17	17	16	16	16	15	15	15	14	7	4	9	6	6
37	HCPC	Gas	86	86	10	4	4	2	1	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	87	86	9	4	4	2	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	38	13	3	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	86	86	86	85	84	84	44	10	10	9	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	88	88	18	7	5	2	3	2	3	4	6	6	5	7	8	8	8	7	8	7	0	0	0	0	0	0	0	0
43	C-1	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
44	C-2	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
45	C-3	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
46	C-4	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
47	C-5	Nuclear	0	0	0	0	0	0	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	74	79	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
50	K-3	Nuclear	0	0	76	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
51	Alliance	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
52	Almoiz	Bagasse	54	54	54	54	54	54	53	53	53	52	52	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
53	Bahawalpur	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	54	54	54	54	54	54	53	53	52	52	52	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
56	Chiniot	Bagasse	36	36	36	36	36	36	35	35	34	34	34	33	33	34	34	35	35	36	36	36	36	36	36	36	36	36	36	36

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	0	54	54	54	54	54	53	53	52	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
58	Faran	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54
59	Ghotki	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54
60	Hamza	Bagasse	47	47	47	47	47	47	46	46	45	45	44	44	44	44	45	46	47	47	47	47	47	47	47	47	47	47	47	47
61	Hamza-II	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
62	HSM	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
63	Hunza	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54
64	Indus	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
65	Ittefaq	Bagasse	0	0	29	54	54	54	53	53	52	52	52	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54
66	JDW-II	Bagasse	84	84	84	84	84	84	83	83	82	81	80	80	80	81	82	83	83	83	83	84	84	84	84	84	83	83	83	83
67	JDW-III	Bagasse	78	78	78	78	78	78	77	77	76	75	75	75	75	75	76	77	77	78	78	78	78	78	78	78	78	78	78	78
68	Kashmir	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
69	Mehran	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54
70	RYK_Energy	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54
71	Ryk_Mills	Bagasse	54	54	54	54	54	54	53	53	53	52	52	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
72	Sadiqabad	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54
73	Shahtaj	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54
74	Sheikhoo	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54
75	TAY	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	30	30	30	30	30	30	29	29	29	28	28	28	28	28	29	29	30	30	30	30	30	30	30	30	30	30	30	30
77	Two_Star	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54
78	Access_Electric	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
79	Access_Solar	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
81	Best	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
82	Buksh	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
84	Crest	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
85	Helios	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
86	HNDS	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
87	Meridian	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
88	QA_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
89	Safe	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
90	Zhenfa	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
91	Zorlu	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68	68
93	Allai Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	48
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	48	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	40
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41	41	42	42	42
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	38	38
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60
109	Blue Star	Hydro	0	0	0	0	65	66	66	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	41	42	42	41
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	40	40	39	45	45	45	45	46	47	46	47	46	46	46	46	46	48	48	49
121	Daral Khwar	Hydro	47	47	47	47	47	47	47	42	42	42	42	43	44	45	44	44	45	45	45	45	45	44	45	45	46	46	46	46
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
123	Dasu_1	Hydro	0	0	0	0	0	56	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	60	61	64	64	64	64	64	64	64	64	64	64	64	64	64	64
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44	44	44
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45	45	45	45	45	45
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	58	58	58	62	63	63	63	63	63	64	63	63	65	64	64	64	64	64	65
130	Dubair Khwar	Hydro	51	51	51	51	51	51	51	50	49	49	49	50	50	50	50	50	50	50	50	51	50	51	50	50	50	51	51	51
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	41

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
138	Ghazi Brotha	Hydro	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	52	52	52
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68
140	Golen Gol	Hydro	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
142	Gorkin Matiltan	Hydro	0	0	0	32	45	45	45	42	41	41	40	40	42	41	41	42	42	42	42	42	42	42	43	42	43	43	43	44
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
144	Gulpur	Hydro	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	61	61	61
147	Harpo	Hydro	0	0	0	0	0	0	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
149	Jabori	Hydro	91	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
151	Jagran-I	Hydro	31	31	31	31	31	31	31	30	30	30	30	30	30	31	30	31	30	31	31	31	31	30	31	31	31	31	31	31

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44	44
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
155	Jhing	Hydro	95	52	52	52	52	52	52	49	49	49	48	49	50	50	49	50	50	50	50	51	51	50	51	51	51	51	51	51
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
157	Jinnah	Hydro	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	46	46	46
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
161	Karora	Hydro	61	62	62	62	62	62	62	59	59	59	59	59	60	60	60	60	60	60	60	60	60	60	60	60	61	61	61	61
162	Karot	Hydro	0	0	41	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56	56	56
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	25	32	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	32	32
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
168	Khan Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
172	Kohala	Hydro	0	0	0	0	0	0	0	0	61	61	61	61	62	62	62	62	62	62	62	62	62	62	62	62	63	63	63	63
173	Koto	Hydro	0	58	58	58	57	58	58	54	54	54	54	54	56	56	55	55	56	56	56	56	56	57	57	57	57	57	57	57
174	Lawi	Hydro	0	43	49	49	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
175	Lower Palas	Hydro	0	0	0	0	0	0	0	43	43	43	42	42	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
180	Machai	Hydro	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	49	49	49
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	59	59	60	61	62	62	62	62	62	62	62	62	62	62	63	63	63	63
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
186	Malakand-III	Hydro	52	52	52	52	52	52	52	52	51	51	51	51	51	52	51	51	51	52	52	52	52	52	52	52	52	52	52	52
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
188	Mangla	Hydro	57	57	57	57	57	57	57	56	56	56	55	56	56	56	56	56	57	57	57	57	57	57	57	57	57	57	57	57
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	35	41	40	40	39	39	40	39	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
201	Neelum Jehlum	Hydro	58	58	58	58	58	58	58	56	57	56	55	55	56	57	57	57	57	57	57	57	57	57	57	57	58	58	58	58
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	49	51	51	58	56	59	58	59	59	59	59	59	59	60	60	61	62	62	64
203	New Bong	Hydro	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	50
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59	59
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
210	Pehur	Hydro	23	24	24	24	23	24	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	46	46	46
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	58	57	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
216	Ranolia	Hydro	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
219	Riali-II	Hydro	0	87	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
220	Riali-III	Hydro	0	0	0	0	0	0	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	51
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	66
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
237	Suki Kinari	Hydro	0	0	0	35	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46	46
240	Tarbela_1-10	Hydro	48	48	48	48	48	48	48	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48	48	48
241	Tarbela_11-14	Hydro	48	48	48	48	48	48	48	47	47	47	47	47	47	47	47	48	47	48	48	48	48	48	48	48	48	48	48	48
242	Tarbela_Ext_4	Hydro	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
243	Tarbela_Ext_5	Hydro	0	0	0	0	19	32	32	32	31	32	31	32	32	31	32	32	32	32	32	32	32	32	32	32	32	32	32	32
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	52	53	53	53	53	53	53	53	54	53	54	54	54	54	54	54	54
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55	55	55	55	55

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	47	47	47	47	48	49	49	49	49	49	49	49	49	49	49	49	49	49	49
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	50	50	50	50
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	53
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	64
258	Warsak	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46
261	CASA	Cross Border	0	0	0	95	39	39	39	24	24	24	23	23	28	27	24	25	25	25	26	26	26	26	27	27	28	29	31	34
262	Act	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
263	Act_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
264	Artistic_wind	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
265	Artistic_Wind_2	Wind	0	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	0	0	0	33	33	33	31	33	33	32	33	32	32	33	32	32	33	33	33	33	33	33	33	33	33	33	33	33
267	Candidate_Wind_North	Wind	0	0	0	33	33	33	29	33	33	33	32	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
268	Candidate_Wind_South	Wind	0	0	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
269	Dawood	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
270	Din	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
271	FFC	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
272	FWEL-I	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
273	FWEL-II	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
274	Gul Ahmed	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
275	Gul_Electric	Wind	0	0	38	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
276	Hawa	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
277	Indus_Energy	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
278	Jhimpir	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
279	Lakeside	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
280	Liberty_Wind_1	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
281	Liberty_Wind_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
282	Master	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
283	Master_Green	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
284	Metro_Power	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
286	NASDA	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
287	Sachal	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
288	Sapphire_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
289	Shaheen	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
290	Tenga	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
291	Three_Gorges_I	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
292	Three_Gorges_II	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
293	Three_Gorges_III	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
294	Trans_Atlantic	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
295	Tricon_A	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
296	Tricon_B	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
297	Tricon_C	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
298	Tricorm	Wind	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
299	UEP	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
300	Western	Wind	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
301	Yunus	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
302	Zephyr	Wind	0	56	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
303	Zorlu_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	88	88	4	1	1	1	1	1	2	3	5	5	5	5	6	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	3	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

J-6. Annual Energy Generation 2020-30 (GWh)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
1	China HUBCO	Imp. Coal	9,330	9,308	9,308	9,138	9,119	5,856	2,502	1,725	1,825	1,985	2,465
2	Gwadar	Imp. Coal	0	0	1,000	2,001	2,006	2,001	1,943	965	929	849	868
3	Jamshoro Coal	Imp. Coal	0	0	2,717	4,650	2,861	2,284	933	925	1,148	1,275	1,507
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	9,270	9,248	9,248	9,103	9,125	9,042	5,056	3,292	3,373	3,106	3,353
6	Sahiwal Coal	Imp. Coal	9,285	9,263	5,813	991	805	894	512	442	539	629	1,147
7	Engro Thar	Local Coal	4,493	4,482	4,482	4,482	4,425	4,412	4,360	4,252	3,875	2,216	2,352
8	Lucky	Local Coal	0	1,546	4,531	4,531	4,472	4,461	4,368	3,369	2,217	2,049	2,122
9	NEW_Local_Coal	Local Coal	0	0	0	0	245	241	241	236	231	226	222
10	Oracle	Local Coal	0	0	0	0	0	0	0	8,833	8,724	8,507	8,413
11	Siddiqsons	Local Coal	0	193	2,266	2,266	2,272	2,234	2,231	2,187	2,161	2,107	2,076
12	Thal Nova	Local Coal	0	583	2,234	2,234	2,239	2,199	2,196	2,155	2,105	2,041	1,988
13	Thar TEL	Local Coal	0	583	2,234	2,234	2,239	2,199	2,199	2,148	2,103	2,053	1,988
14	Thar-I (Shanghai Electric)	Local Coal	0	1,545	8,643	9,055	8,997	8,915	8,872	8,681	8,411	7,105	6,804
15	Balloki	RLNG	7,609	6,908	6,908	6,907	6,906	6,904	6,904	6,889	6,887	6,888	6,888
16	Bhikki	RLNG	7,285	6,696	6,695	6,694	6,691	6,689	6,688	6,682	6,675	6,676	6,676
17	FKPCL	RLNG	4	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	3	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
19	Halmore	RLNG	206	109	21	0	0	4	0	0	0	0	35
20	Haveli	RLNG	9,481	6,965	6,965	6,965	6,964	6,964	6,964	6,945	6,944	6,946	6,945
21	Nandipur	RLNG	1,066	382	100	6	7	11	0	0	0	43	113
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	360	147	33	0	0	6	0	0	0	11	49
24	Rousch	RLNG	145	66	0	0	0	0	0	0	0	0	11
25	Saif	RLNG	161	97	6	0	0	0	0	0	0	0	33
26	Saphire	RLNG	259	121	23	0	0	6	0	0	0	5	42
27	Trimmu	RLNG	2,543	6,946	678	272	268	90	37	27	119	214	487
28	Davis	RLNG	0	0	0	0	0	0	0	2	0	0	2
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	132
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	1,655	1,649	243	83	77	33	22	27	34	61	96
32	Foundation	Gas	1,320	1,317	216	78	66	27	28	24	35	56	81
33	Guddu-I	Gas	1,950	1,938	243	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	152	95	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	5,234	5,221	5,182	1,629	702	286	197	173	214	264	426
36	Hatim	Gas	0	0	0	0	0	0	0	43	41	39	40
37	HCPC	Gas	975	969	114	42	45	20	13	13	18	35	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
38	Kotri	Gas	808	803	81	34	36	16	8	11	15	0	0
39	Liberty	Gas	703	245	63	11	13	5	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	4,149	4,139	4,139	4,081	4,074	4,064	2,094	457	499	454	55
42	Uch-II	Gas	2,737	2,731	560	203	148	78	78	56	98	122	195
43	C-1	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,082	2,077	2,077
44	C-2	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
45	C-3	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,183	2,175	2,185	2,181	2,175
46	C-4	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,182	2,181	2,186	2,181	2,181
47	C-5	Nuclear	0	0	0	0	0	0	7,284	7,241	7,254	7,241	7,236
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	4,548	7,292	7,292	7,307	7,292	7,285	7,244	7,261	7,241	7,234
50	K-3	Nuclear	0	0	5,823	7,292	7,307	7,292	7,285	7,245	7,255	7,240	7,234
51	Alliance	Bagasse	0	0	19	143	144	143	140	140	138	136	135
52	Almoiz	Bagasse	172	172	172	172	172	172	168	168	167	164	162
53	Bahawalpur	Bagasse	0	0	20	149	149	149	146	146	144	141	140
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	105	105	105	105	105	105	103	103	101	100	99
56	Chiniot	Bagasse	197	196	196	196	197	196	190	190	188	185	183

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
57	Etihad	Bagasse	0	355	355	355	356	355	348	348	343	339	334
58	Faran	Bagasse	0	0	17	126	127	126	124	124	122	120	119
59	Ghotki	Bagasse	0	0	29	215	215	215	210	210	207	204	202
60	Hamza	Bagasse	62	62	62	62	62	62	60	60	59	59	58
61	Hamza-II	Bagasse	0	0	19	143	144	143	140	140	138	136	135
62	HSM	Bagasse	0	0	17	126	127	126	124	124	122	120	119
63	Hunza	Bagasse	0	0	32	238	238	238	233	233	230	226	223
64	Indus	Bagasse	0	0	20	148	148	148	145	145	143	140	139
65	Ittefaq	Bagasse	0	0	20	149	149	149	146	146	144	142	141
66	JDW-II	Bagasse	194	193	193	193	194	193	191	191	189	186	185
67	JDW-III	Bagasse	180	180	180	180	180	180	178	178	176	174	173
68	Kashmir	Bagasse	0	0	26	191	191	191	187	187	184	182	179
69	Mehran	Bagasse	0	0	17	126	127	126	124	124	122	120	119
70	RYK_Energy	Bagasse	0	0	16	119	120	119	117	117	115	114	112
71	Ryk_Mills	Bagasse	144	143	143	143	144	143	140	140	139	137	135
72	Sadiqabad	Bagasse	0	0	29	215	215	215	210	210	207	205	202
73	Shahtaj	Bagasse	0	0	21	153	153	153	149	149	148	145	144
74	Sheikhoo	Bagasse	0	0	19	143	144	143	140	140	138	136	135
75	TAY	Bagasse	0	0	19	143	144	143	140	140	138	136	135

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
76	Thal_Layyah	Bagasse	109	109	109	109	109	109	106	106	105	102	100
77	Two_Star	Bagasse	0	0	32	238	238	238	233	233	230	227	223
78	Access_Electric	Solar	0	5	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	0	5	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	0	0	14	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	2,482	4,965	7,447	9,929	12,412	14,894	17,377	19,822
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	0	0	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	0	0	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	0	0	48	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	0	0	13	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	0	0	97	165	165	165	165	165	165	165	165
91	Zorlu	Solar	84	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0
93	Allai Khwar	Hydro	396	395	395	395	396	395	395	395	396	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	2,181	3,256	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
109	Blue Star	Hydro	0	0	0	0	17	17	17	18	18	18	18
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
114	Chashma	Hydro	767	765	765	765	767	765	765	765	767	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	198	197
121	Daral Khwar	Hydro	147	147	147	147	147	147	147	132	134	132	132
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
123	Dasu_1	Hydro	0	0	0	0	0	4,321	11,975	11,975	11,990	11,975	11,975
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	338	335
130	Dubair Khwar	Hydro	581	581	581	581	581	581	579	570	563	564	564
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0
138	Ghazi Brotha	Hydro	6,563	6,551	6,551	6,551	6,563	6,551	6,548	6,507	6,496	6,500	6,493
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0
140	Golen Gol	Hydro	97	97	97	97	97	97	97	96	96	96	96
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0
142	Gorkin Matiltan	Hydro	0	0	0	155	331	331	330	307	303	300	298
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0
144	Gulpur	Hydro	481	480	480	480	481	480	480	480	481	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0
147	Harpo	Hydro	0	0	0	0	0	0	170	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0
149	Jabori	Hydro	27	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0
151	Jagran-I	Hydro	82	82	82	82	82	82	82	79	79	78	78

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0
155	Jhing	Hydro	10	68	68	68	68	68	68	65	64	65	64
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
157	Jinnah	Hydro	195	194	194	194	195	194	194	193	193	191	190
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0
161	Karora	Hydro	5	65	65	65	65	65	65	62	62	62	62
162	Karot	Hydro	0	0	1,496	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	232	353	344	345	345	345
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0
168	Khan Khwar	Hydro	235	234	234	234	235	234	234	234	235	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0
172	Kohala	Hydro	0	0	0	0	0	0	0	0	6,021	6,004	5,984
173	Koto	Hydro	0	212	212	212	212	212	212	200	200	200	197
174	Lawi	Hydro	0	130	295	295	295	295	294	290	291	291	291
175	Lower Palas	Hydro	0	0	0	0	0	0	0	2,492	2,495	2,514	2,441
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	3,324
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0
186	Malakand-III	Hydro	367	367	367	367	367	367	367	366	364	364	362
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0
188	Mangla	Hydro	5,016	5,004	5,004	5,004	5,016	5,004	4,995	4,906	4,932	4,868	4,852
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	1,633	2,840	2,796	2,788	2,768	2,747
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0
201	Neelum Jehlum	Hydro	4,944	4,939	4,939	4,939	4,944	4,939	4,912	4,772	4,816	4,741	4,672
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	198	204
203	New Bong	Hydro	471	470	470	470	471	470	470	470	471	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
209	Patrind	Hydro	635	634	634	634	635	634	634	632	633	632	632
210	Pehur	Hydro	37	37	37	37	37	37	37	36	36	36	36
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	669	658
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0
219	Riali-II	Hydro	0	5	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	0	0	0	0	0	0	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	387	386	386	386	387	386	386	380	379	378	377
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0
237	Suki Kinari	Hydro	0	0	0	1,332	2,800	2,798	2,793	2,763	2,762	2,762	2,764
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0
240	Tarbela_1-10	Hydro	7,386	7,377	7,377	7,377	7,386	7,377	7,359	7,279	7,270	7,232	7,176
241	Tarbela_11-14	Hydro	7,294	7,285	7,285	7,285	7,294	7,285	7,285	7,174	7,183	7,101	7,142
242	Tarbela_Ext_4	Hydro	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,788	3,811
243	Tarbela_Ext_5	Hydro	0	0	0	0	1,975	4,005	4,001	3,941	3,850	3,897	3,846
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	7,015	7,000
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0
258	Warsak	Hydro	999	997	997	997	999	997	997	997	999	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0
261	CASA	Cross Border	0	0	0	1,387	3,457	3,456	3,405	2,088	2,107	2,084	2,009
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	0	0	58	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	0	0	102	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
266	Candidate_Wind_Mid	Wind	0	0	0	872	1,123	1,121	1,031	1,121	1,123	1,805	2,761
267	Candidate_Wind_North	Wind	0	0	0	581	582	581	517	581	582	581	1,111
268	Candidate_Wind_South	Wind	0	0	0	3,440	6,889	9,821	11,944	14,219	17,118	20,489	23,650
269	Dawood	Wind	0	14	144	144	144	144	144	144	144	144	144
270	Din	Wind	0	0	58	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	151	150	150	150	151	150	150	150	151	150	150
273	FWEL-II	Wind	151	150	150	150	151	150	150	150	151	150	150
274	Gul Ahmed	Wind	146	145	145	145	146	145	145	145	146	145	145
275	Gul_Electric	Wind	0	0	83	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	0	0	58	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	0	0	58	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	0	0	58	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	0	0	58	172	172	172	172	172	172	172	172
282	Master	Wind	154	153	153	153	154	153	153	153	154	153	153
283	Master_Green	Wind	0	102	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	146	145	145	145	146	145	145	145	146	145	145

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
285	Metro_Wind	Wind	0	0	70	206	207	206	206	206	207	206	206
286	NASDA	Wind	0	0	58	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	154	153	153	153	154	153	153	153	154	153	153
289	Shaheen	Wind	0	104	175	175	176	175	175	175	176	175	175
290	Tenga	Wind	0	14	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	157	156	156	156	157	156	156	156	157	156	156
293	Three_Gorges_III	Wind	157	156	156	156	157	156	156	156	157	156	156
294	Trans_Atlantic	Wind	0	0	56	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	0	71	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	0	58	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	146	145	145	145	146	145	145	145	146	145	145
302	Zephyr	Wind	0	20	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
304	KAPCO 1	RFO	48	24	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	35	2	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	1,203	1,196	48	8	12	12	16	16	23	39	65
322	ATLAS	RFO	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
323	HuB N	RFO	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	28	33	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			**137,260**	**146,101**	**157,813**	**167,381**	**176,521**	**185,149**	**194,337**	**203,899**	**215,073**	**226,322**	**237,996**
Energy Demand			**137,260**	**146,101**	**157,813**	**167,381**	**176,521**	**185,149**	**194,337**	**203,899**	**215,073**	**226,322**	**237,996**
Energy Not Served			**0.00**	**-0.04**	**0.03**	**0.05**	**0.00**	**-0.07**	**0.03**	**-0.07**	**0.00**	**0.02**	**-0.02**

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

J-7. Annual Energy Generation 2030-47 (GWh)

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	2,375	2,210	2,602	2,476	2,305	2,190	2,073	2,010	1,999	1,958	1,950	1,717	1,304	983	1,337	1,413	1,662
2	Gwadar	Imp. Coal	811	786	806	748	736	721	714	665	635	620	612	556	340	314	517	731	852
3	Jamshoro Coal	Imp. Coal	1,472	1,374	1,564	1,797	1,772	1,772	1,662	1,588	1,564	1,522	1,544	1,442	724	844	1,086	989	1,308
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	3,074	3,117	3,289	3,008	3,050	2,991	2,648	2,516	2,491	2,460	2,409	2,209	1,476	1,118	1,527	1,748	3,673
6	Sahiwal Coal	Imp. Coal	1,141	895	1,132	1,297	1,307	1,318	1,241	1,184	1,180	1,108	1,127	980	572	609	900	844	880
7	Engro Thar	Local Coal	2,105	2,121	2,262	2,147	2,107	2,067	1,949	1,894	1,760	1,697	1,678	1,530	938	734	2,172	1,899	1,966
8	Lucky	Local Coal	1,966	1,953	2,095	1,783	1,716	1,760	1,702	1,611	1,626	1,489	1,451	1,329	790	707	1,484	1,861	1,945
9	NEW_Local_Coal	Local Coal	4,338	4,255	27,450	50,058	66,614	84,721	104,235	125,159	146,027	170,988	172,285	194,624	188,101	182,918	188,878	183,720	182,095
10	Oracle	Local Coal	8,468	8,482	8,596	8,698	8,847	8,905	8,986	8,986	9,021	9,043	9,022	9,023	9,023	9,014	8,994	9,001	8,973
11	Siddiqsons	Local Coal	2,087	2,028	2,128	2,135	2,174	2,202	2,214	2,214	2,210	2,217	2,197	2,180	2,227	2,255	2,250	2,250	2,234
12	Thal Nova	Local Coal	1,814	1,461	1,465	1,399	1,431	1,486	1,413	1,327	1,305	1,212	1,150	1,063	661	953	1,191	1,210	1,383
13	Thar TEL	Local Coal	1,790	1,456	1,469	1,388	1,459	1,480	1,457	1,335	1,328	1,216	1,157	1,060	669	971	1,210	1,210	1,393
14	Thar-I (Shanghai Electric)	Local Coal	5,112	5,322	5,225	4,925	5,003	5,055	4,678	4,531	4,250	4,012	3,841	3,475	2,288	2,695	4,716	4,594	4,452
15	Balloki	RLNG	6,889	6,898	6,896	314	363	405	421	447	452	472	510	524	314	239	392	367	351
16	Bhikki	RLNG	6,680	6,682	267	143	199	284	360	378	427	433	431	436	198	98	294	293	306
17	FKPCL	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	46	41	9	5	5	11	21	26	56	63	69	0	0	0	0	0	0
20	Haveli	RLNG	6,946	6,957	405	436	483	525	564	567	631	793	806	777	355	299	492	509	499
21	Nandipur	RLNG	133	117	52	15	43	50	68	104	136	140	150	150	46	14	85	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	58	55	23	6	8	22	24	42	59	59	0	0	0	0	0	0	0
24	Rousch	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	46	31	6	2	6	6	17	27	42	53	0	0	0	0	0	0	0
26	Saphire	RLNG	54	47	22	6	6	22	22	28	59	66	0	0	0	0	0	0	0
27	Trimmu	RLNG	513	467	546	610	654	717	708	738	883	895	903	880	462	380	593	611	714
28	Davis	RLNG	2	1	0	0	0	0	0	1	1	2	2	2	1	0	0	0	0
29	NEW OCGT (Generic)	RLNG	181	133	18	0	14	33	48	70	155	311	566	644	36	7	285	264	392
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	98	87	107	122	84	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	90	74	97	101	103	95	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	422	356	443	540	522	539	537	527	508	503	501	495	271	206	22	0	0
36	Hatim	Gas	38	26	29	30	29	29	29	28	27	26	26	25	12	7	16	11	11
37	HCPC	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	193	153	205	247	245	241	229	261	168	0	0	0	0	0	0	0	0
43	C-1	Nuclear	2,075	2,082	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,078	2,078
44	C-2	Nuclear	2,077	2,080	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,077	2,077	2,082	2,077	2,077	2,078
45	C-3	Nuclear	2,175	2,185	2,176	2,176	2,181	2,187	2,182	2,183	2,182	2,187	2,183	2,182	2,183	2,187	2,182	2,182	2,182
46	C-4	Nuclear	2,181	2,184	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,182
47	C-5	Nuclear	7,239	7,261	7,243	7,247	7,247	7,266	7,250	7,251	7,252	7,265	7,248	7,251	7,252	7,269	7,255	7,258	7,259
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	7,240	7,264	7,249	7,245	7,249	7,266	7,249	7,250	7,250	7,266	7,247	7,250	7,249	7,271	7,252	7,258	7,260
50	K-3	Nuclear	7,238	7,266	7,249	7,246	7,245	7,265	7,251	7,249	7,252	7,264	7,249	7,251	7,251	7,271	7,254	7,259	7,260
51	Alliance	Bagasse	135	135	136	138	140	142	142	142	143	144	143	143	143	143	142	142	142
52	Almoiz	Bagasse	162	163	164	166	168	170	171	171	172	172	172	172	172	171	171	171	171
53	Bahawalpur	Bagasse	140	140	142	143	146	147	148	148	149	149	149	149	149	149	148	148	148
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	99	99	100	101	103	104	104	104	105	105	105	105	105	105	104	104	104
56	Chiniot	Bagasse	181	182	184	188	190	194	195	195	196	197	196	196	196	195	195	195	195

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	334	335	338	343	348	350	353	353	355	356	355	355	355	354	353	353	353
58	Faran	Bagasse	119	119	120	122	124	125	126	126	126	127	126	126	126	126	126	126	126
59	Ghotki	Bagasse	202	203	204	207	210	213	214	214	215	215	215	215	215	214	214	214	214
60	Hamza	Bagasse	57	58	58	59	60	61	61	61	62	62	62	62	62	62	61	61	61
61	Hamza-II	Bagasse	135	135	136	138	140	141	142	142	143	144	143	143	143	143	142	142	142
62	HSM	Bagasse	119	119	120	122	124	125	126	126	126	127	126	126	126	126	126	126	126
63	Hunza	Bagasse	223	224	225	229	233	235	236	236	238	238	238	238	238	237	236	236	236
64	Indus	Bagasse	139	140	140	143	145	147	147	147	148	148	148	148	148	148	147	147	147
65	Ittefaq	Bagasse	140	140	142	143	146	148	148	148	149	149	149	149	149	149	148	148	148
66	JDW-II	Bagasse	184	186	186	188	191	192	192	192	193	194	193	193	193	193	192	192	192
67	JDW-III	Bagasse	173	174	174	175	178	179	179	179	180	180	180	180	180	180	179	179	179
68	Kashmir	Bagasse	179	180	182	184	187	189	190	190	191	191	191	191	191	190	190	190	190
69	Mehran	Bagasse	119	119	120	122	124	125	126	126	126	127	126	126	126	126	126	126	126
70	RYK_Energy	Bagasse	112	113	114	115	117	118	119	119	119	120	119	119	119	119	119	119	119
71	Ryk_Mills	Bagasse	135	136	136	138	140	142	142	142	143	144	143	143	143	143	142	142	142
72	Sadiqabad	Bagasse	202	203	204	207	210	212	214	214	215	215	215	215	215	214	214	214	214
73	Shahtaj	Bagasse	144	144	145	147	149	152	152	152	153	153	153	153	153	152	152	152	152
74	Sheikhoo	Bagasse	135	136	136	138	140	141	142	142	143	144	143	143	143	143	142	142	142
75	TAY	Bagasse	135	135	136	138	140	141	142	142	143	144	143	143	143	143	142	142	142

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	99	100	101	103	106	108	108	108	109	109	109	109	109	108	108	108	108
77	Two_Star	Bagasse	223	224	226	229	233	236	236	236	238	238	238	238	238	237	236	236	236
78	Access_Electric	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	20,899	23,410	25,869	25,893	25,893	26,114	27,037	27,956	30,008	30,677	33,159	35,641	35,641	35,641	36,518	36,655	36,727
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
91	Zorlu	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
93	Allai Khwar	Hydro	395	396	395	395	395	396	395	395	395	396	395	395	395	396	395	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	264

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	289
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,221
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	917	917	917
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,963
100	Azad Pattan	Hydro	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	994
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	509
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	142	142
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	348	349	349	349	350	349	351
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119	119	119
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48
109	Blue Star	Hydro	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	25,870	25,837	25,858	25,873	25,732
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,420	2,420
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	65

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	765	767	765	765	765	767	765	765	765	767	765	765	765	767	765	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	172
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
120	Dander	Hydro	194	221	219	221	223	227	230	227	229	226	224	225	227	228	234	236	242
121	Daral Khwar	Hydro	134	139	141	139	139	142	140	141	141	141	139	142	142	144	145	144	146
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
123	Dasu_1	Hydro	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975
124	Dasu_2	Hydro	0	11,382	11,579	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,732	4,736	4,736
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	17,562	17,534	17,456	17,539
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	158	158	158	159	159	159	159
129	Dubair Kalay	Hydro	333	360	363	363	366	368	365	370	366	368	377	368	368	371	369	369	377
130	Dubair Khwar	Hydro	571	569	567	565	567	571	574	573	576	576	576	574	574	576	575	575	576
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	309	312

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	310	310
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,638
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	508
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
138	Ghazi Brotha	Hydro	6,518	6,511	6,504	6,515	6,491	6,505	6,512	6,514	6,511	6,520	6,524	6,513	6,513	6,537	6,542	6,551	6,551
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119
140	Golen Gol	Hydro	96	96	97	96	96	97	97	97	97	97	97	97	97	97	97	97	97
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	211
142	Gorkin Matiltan	Hydro	294	312	305	304	309	312	313	312	312	312	312	313	312	315	316	318	322
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
144	Gulpur	Hydro	480	481	480	480	480	481	480	480	480	481	480	480	480	481	480	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79	79
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	213	213	213
147	Harpo	Hydro	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260
149	Jabori	Hydro	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
151	Jagran-I	Hydro	78	79	80	79	80	80	80	81	81	81	80	81	81	81	81	81	82

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	138	138	138
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90	91	91
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,625	2,632
155	Jhing	Hydro	64	66	66	65	66	66	66	66	66	67	66	66	66	67	67	67	68
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
157	Jinnah	Hydro	192	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	847	846	849	849
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	162
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,961
161	Karora	Hydro	62	63	63	63	63	63	63	63	63	63	63	64	64	64	64	64	64
162	Karot	Hydro	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	39	40	39	40	40
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	345	348	349	349	348	348	348	349	349	350	349	349	350	351	352	353	353
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	259
168	Khan Khwar	Hydro	234	235	234	234	234	235	234	234	234	235	234	234	234	235	234	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
172	Kohala	Hydro	6,008	6,113	6,095	6,061	6,084	6,097	6,101	6,101	6,104	6,124	6,092	6,104	6,128	6,161	6,189	6,189	6,197
173	Koto	Hydro	199	205	204	203	203	207	207	206	208	208	208	208	208	209	210	210	210
174	Lawi	Hydro	290	291	291	291	292	292	292	291	292	292	293	291	291	292	291	292	293
175	Lower Palas	Hydro	2,455	2,514	2,513	2,508	2,508	2,514	2,513	2,512	2,511	2,518	2,516	2,510	2,513	2,516	2,515	2,515	2,515
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	309
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	788
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	664	663	664	664
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
184	Mahl	Hydro	3,310	3,390	3,391	3,487	3,474	3,482	3,478	3,471	3,483	3,485	3,489	3,482	3,489	3,522	3,523	3,538	3,550
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	183
186	Malakand-III	Hydro	362	362	366	364	362	366	366	367	366	367	367	367	367	367	367	367	367
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
188	Mangla	Hydro	4,927	4,939	4,924	4,934	4,946	4,979	4,997	4,998	4,994	5,008	4,997	4,996	4,999	5,016	5,004	5,004	5,004
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	225

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,710	1,711
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	2,779	2,772	2,776	2,782	2,784	2,806	2,833	2,818	2,822	2,828	2,802	2,809	2,822	2,826	2,817	2,835	2,828
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	133	134
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	673	674	676
201	Neelum Jehlum	Hydro	4,641	4,768	4,832	4,799	4,843	4,840	4,860	4,854	4,867	4,870	4,859	4,863	4,876	4,897	4,897	4,913	4,915
202	Nerai-Dubair	Hydro	204	235	224	236	235	239	238	239	240	237	238	242	241	247	249	252	258
203	New Bong	Hydro	470	471	470	470	470	471	470	470	470	471	470	470	470	471	470	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	137
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252	251	264
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	12,335	12,359	12,336	12,337	12,335
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	74

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	632	634	633	634	633	634	633	634	633	634	634	634	634	634	634	634	634
210	Pehur	Hydro	36	37	37	36	37	37	37	37	37	37	37	37	37	37	37	37	37
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	319	320	320	321
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
215	Rajdhani	Hydro	670	671	670	670	670	671	670	670	670	671	670	670	670	671	670	670	670
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
219	Riali-II	Hydro	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41	41
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	22
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	307
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	282	282

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	658	655
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	451	451
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	534
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	206	206
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	469
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,725	3,725
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	379	383	380	380	380	381	380	381	381	383	382	381	382	383	383	383	383
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	71
237	Suki Kinari	Hydro	2,760	2,776	2,777	2,766	2,776	2,776	2,769	2,775	2,775	2,780	2,777	2,776	2,773	2,782	2,779	2,780	2,780
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	97
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	8,822	8,817	8,809	8,813
240	Tarbela_1-10	Hydro	7,146	7,244	7,210	7,166	7,266	7,318	7,343	7,355	7,337	7,358	7,326	7,329	7,338	7,339	7,346	7,334	7,357
241	Tarbela_11-14	Hydro	7,132	7,115	7,148	7,092	7,195	7,200	7,195	7,216	7,226	7,256	7,245	7,250	7,241	7,248	7,259	7,274	7,275
242	Tarbela_Ext_4	Hydro	3,789	3,789	3,809	3,785	3,806	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811
243	Tarbela_Ext_5	Hydro	3,894	3,946	3,858	3,973	3,938	3,978	3,940	3,978	3,983	3,988	3,989	3,984	3,984	3,984	3,985	3,989	3,988
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	439
245	Thakot-I	Hydro	9,831	10,032	9,907	10,060	10,082	10,107	10,083	10,092	10,099	10,122	10,107	10,097	10,104	10,135	10,127	10,137	10,141
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	4,659	4,659	4,661	4,677	4,670	4,674	4,674

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	6,996	7,010	7,016	7,205	7,216	7,234	7,221	7,220	7,221	7,234	7,221	7,221	7,223	7,240	7,228	7,228	7,228
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	306	306	306	306	306	306
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	154	154
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	356
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	507
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252	252
258	Warsak	Hydro	997	999	997	997	997	999	997	997	997	999	997	997	997	999	997	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	350
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11,243	11,242
261	CASA	Cross Border	2,058	2,450	2,381	2,087	2,190	2,194	2,202	2,263	2,271	2,293	2,319	2,337	2,347	2,485	2,536	2,710	2,981
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	2,650	2,642	2,761	2,638	2,638	2,766	2,761	2,761	2,761	2,766	2,761	2,761	2,761	2,766	2,761	2,761	2,761
267	Candidate_Wind_North	Wind	1,163	1,165	1,163	1,163	1,163	1,165	1,163	1,163	1,163	1,165	1,163	1,163	1,163	1,165	1,163	1,163	1,163
268	Candidate_Wind_South	Wind	23,767	23,784	23,968	24,038	24,038	24,072	24,038	24,038	24,038	24,072	24,038	24,038	24,038	24,072	24,038	24,038	24,038
269	Dawood	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
270	Din	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
273	FWEL-II	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
274	Gul Ahmed	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
275	Gul_Electric	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
282	Master	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
283	Master_Green	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	206	207	206	206	206	207	206	206	206	207	206	206	206	207	206	206	206
286	NASDA	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
289	Shaheen	Wind	175	176	175	175	175	176	175	175	175	176	175	175	175	176	175	175	175
290	Tenga	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
293	Three_Gorges_III	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
294	Trans_Atlantic	Wind	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
302	Zephyr	Wind	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	67	63	67	58	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			250,462	264,419	278,676	294,572	311,828	331,028	350,196	371,490	394,338	419,717	428,094	451,631	475,646	498,995	519,925	540,294	559,765
Energy Demand			250,462	264,419	278,676	294,572	311,828	331,028	350,196	371,490	394,338	419,717	428,094	451,631	475,646	498,995	519,925	540,294	559,765
Energy Not Served			0.04	0.00	-0.02	0.01	-0.01	0.00	0.03	0.01	-0.03	0.00	0.00	0.01	-0.01	0.00	-0.03	0.03	-0.02

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

J-8. Year wise Cost Breakup-Discounted Prices

FY	Present Worth Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	4,168,442	5,125,164	5,125,164
2021	0	913,435	3,778,830	4,692,266	9,817,430
2022	0	909,992	2,954,239	3,864,231	13,681,661
2023	215,029	890,290	2,406,013	3,511,331	17,192,992
2024	346,961	848,491	2,114,884	3,310,336	20,503,329
2025	425,920	797,423	1,830,385	3,053,728	23,557,056
2026	467,223	767,190	1,485,497	2,719,910	26,276,967
2027	634,683	719,791	1,310,837	2,665,310	28,942,277
2028	685,304	679,083	1,180,737	2,545,124	31,487,400
2029	832,626	637,014	1,054,796	2,524,436	34,011,837
2030	922,927	587,316	993,953	2,504,196	36,516,033
2031	968,987	516,087	871,159	2,356,233	38,872,266
2032	970,491	473,669	771,871	2,216,031	41,088,297
2033	1,020,535	445,968	535,346	2,001,849	43,090,146
2034	1,037,757	421,265	438,294	1,897,317	44,987,463
2035	1,024,672	396,317	442,718	1,863,706	46,851,169
2036	1,011,420	372,821	455,239	1,839,480	48,690,650
2037	994,541	349,771	461,001	1,805,313	50,495,963
2038	975,523	330,788	460,540	1,766,851	52,262,814
2039	957,819	313,625	464,972	1,736,416	53,999,230
2040	939,909	297,721	460,707	1,698,338	55,697,567
2041	881,602	270,651	418,472	1,570,725	57,268,292
2042	858,977	255,778	405,986	1,520,741	58,789,034
2043	929,083	249,603	324,165	1,502,851	60,291,885
2044	968,299	227,458	281,750	1,477,507	61,769,392
2045	900,679	206,955	277,379	1,385,014	63,154,406
2046	896,014	203,191	245,056	1,344,260	64,498,666
2047	887,626	192,975	227,144	1,307,745	65,806,411

J-9. Year wise Cost Breakup-Un-Discounted Prices (k$)

FY	Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	4,168,442	5,125,164	5,125,164
2021	0	1,014,928	4,198,701	5,213,629	10,338,792
2022	0	1,123,447	3,647,209	4,770,656	15,109,448
2023	294,964	1,221,248	3,300,430	4,816,641	19,926,090
2024	528,824	1,293,234	3,223,417	5,045,475	24,971,565
2025	721,300	1,350,442	3,099,773	5,171,515	30,143,080
2026	879,162	1,443,604	2,795,224	5,117,991	35,261,070
2027	1,326,964	1,504,903	2,740,634	5,572,502	40,833,572
2028	1,592,000	1,577,548	2,742,919	5,912,468	46,746,040
2029	2,149,153	1,644,244	2,722,614	6,516,011	53,262,051
2030	2,646,928	1,684,406	2,850,631	7,181,965	60,444,016
2031	3,087,809	1,644,581	2,776,066	7,508,455	67,952,471
2032	3,436,225	1,677,122	2,732,970	7,846,316	75,798,787
2033	4,014,907	1,754,490	2,106,115	7,875,511	83,674,298
2034	4,536,289	1,841,450	1,915,891	8,293,631	91,967,929
2035	4,976,766	1,924,885	2,150,251	9,051,902	101,019,831
2036	5,458,222	2,011,966	2,456,743	9,926,931	110,946,762
2037	5,963,482	2,097,305	2,764,263	10,825,050	121,771,812
2038	6,499,388	2,203,861	3,068,330	11,771,579	133,543,391
2039	7,090,482	2,321,685	3,442,062	12,854,230	146,397,621
2040	7,731,001	2,448,832	3,789,440	13,969,273	160,366,894
2041	8,057,121	2,473,532	3,824,490	14,355,143	174,722,038
2042	8,722,610	2,597,332	4,122,649	15,442,591	190,164,628
2043	10,482,791	2,816,252	3,657,535	16,956,579	207,121,207
2044	12,139,178	2,851,549	3,532,188	18,522,915	225,644,122
2045	12,546,053	2,882,797	3,863,773	19,292,623	244,936,745
2046	13,867,857	3,144,837	3,792,803	20,805,498	265,742,243
2047	15,264,491	3,318,586	3,906,186	22,489,263	288,231,506

J-10. Year wise Nominal Capacity Addition (MW)

FY	Capacity Addition Over the Plan Period (2020-47) - MW										
	Local Coal	Hydro	RLNG	Nuclear	Imported Coal	RE	Natural Gas	Furnace Oil	Cross Border	Yearly Addition	Total (MW)
2020	602	9,945	6,677	1,230	3,736	1,846	3,010	6,488	0	33,534	-
2021	2,118	119	0	1,059	0	446	0	0	0	3,742	37,276
2022	607	720	0	1,059	917	1,410	0	-1,336	0	3,377	40,653
2023	0	968	0	0	0	3,000	-260	0	1,000	4,708	45,361
2024	33	1,413	0	0	644	2,586	-270	0	0	4,405	49,766
2025	0	3,088	0	0	0	2,355	0	0	0	5,443	55,209
2026	0	37	0	1,059	0	2,126	0	0	0	3,222	58,431
2027	1,214	1,366	0	0	0	2,153	-192	-1,200	0	3,341	61,772
2028	0	1,122	1,799	0	0	2,355	0	-824	0	4,452	66,224
2029	0	1,986	1,013	0	0	2,764	-106	0	0	5,657	71,881
2030	0	639	2,222	0	0	3,000	-678	-653	0	4,530	76,411
2031	623	2,154	532	0	0	646	0	-310	0	3,646	80,056
2032	0	2,160	1,211	0	0	1,500	-29	-367	0	4,475	84,531
2033	3,625	0	294	0	0	1,500	0	-627	0	4,792	89,323
2034	3,545	0	616	0	0	0	0	-156	0	4,006	93,329
2035	2,264	0	2,704	0	0	0	-212	-409	0	4,346	97,675
2036	2,437	0	2,950	0	0	134	-167	-606	0	4,748	102,423
2037	2,779	0	2,067	0	0	558	0	0	0	5,404	107,826
2038	2,934	0	2,264	0	0	555	0	0	0	5,754	113,580
2039	2,954	0	2,788	0	0	1,240	-355	0	0	6,628	120,208
2040	3,504	0	2,538	0	0	404	0	0	0	6,446	126,653
2041	385	1,102	437	0	0	1,500	0	0	0	3,424	130,077
2042	3,568	70	1,848	0	0	1,500	0	0	0	6,986	137,064
2043	0	9,508	0	0	0	0	0	0	0	9,508	146,572
2044	0	7,156	-10	0	0	0	0	0	0	7,146	153,717
2045	0	1,560	0	0	0	530	-721	0	0	1,369	155,086
2046	0	5,702	-450	0	0	83	0	0	0	5,335	160,421
2047	0	5,021	0	0	0	43	0	0	0	5,065	165,485
Total	**33,193**	**55,836**	**31,500**	**4,407**	**5,297**	**34,233**	**20**	**0**	**1,000**	**165,485**	

J-11. IGCEP Generation Mix 2020-2047 (GWh)

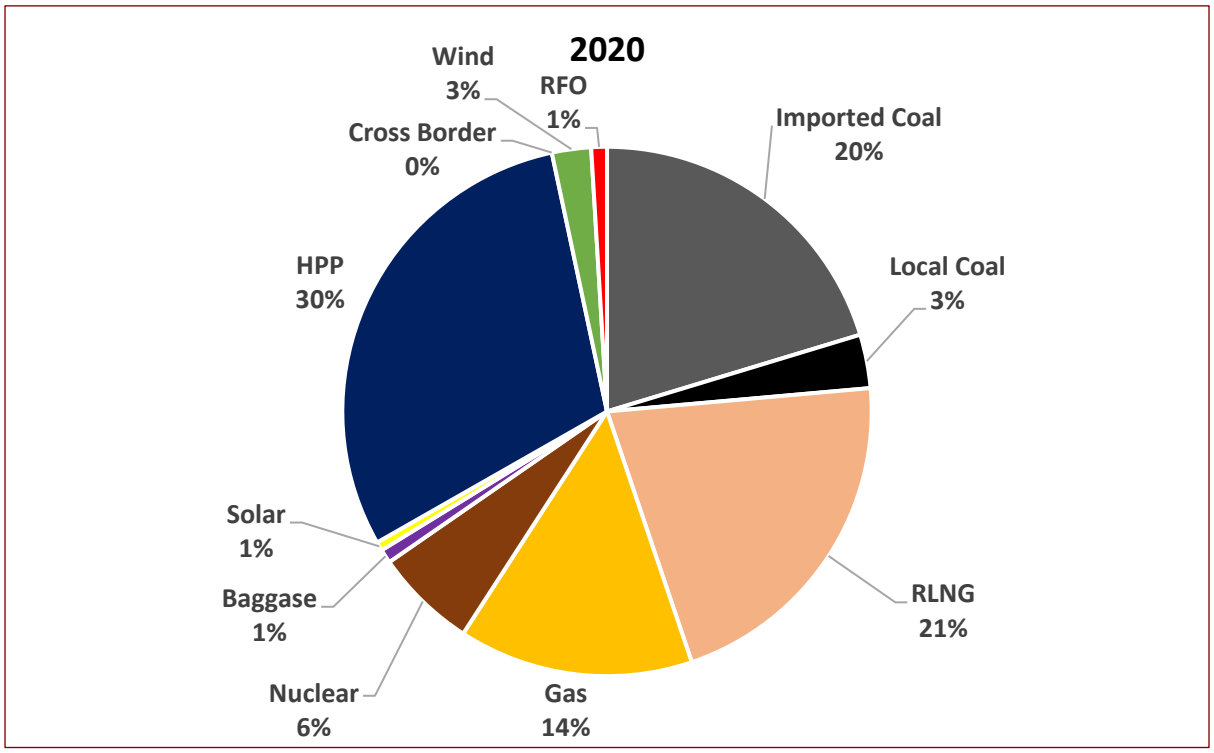


Chart J-1: IGCEP Generation Mix 2020 (GWh)

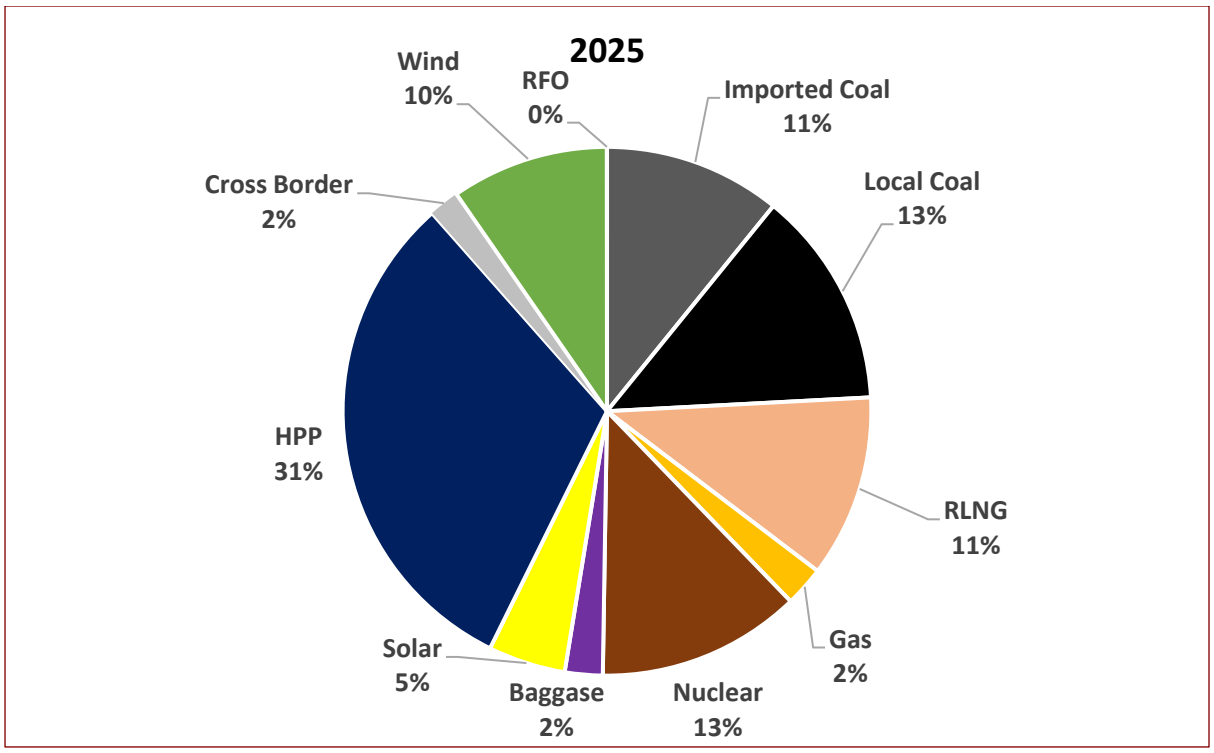


Chart J-2: IGCEP Generation Mix 2025 (GWh)

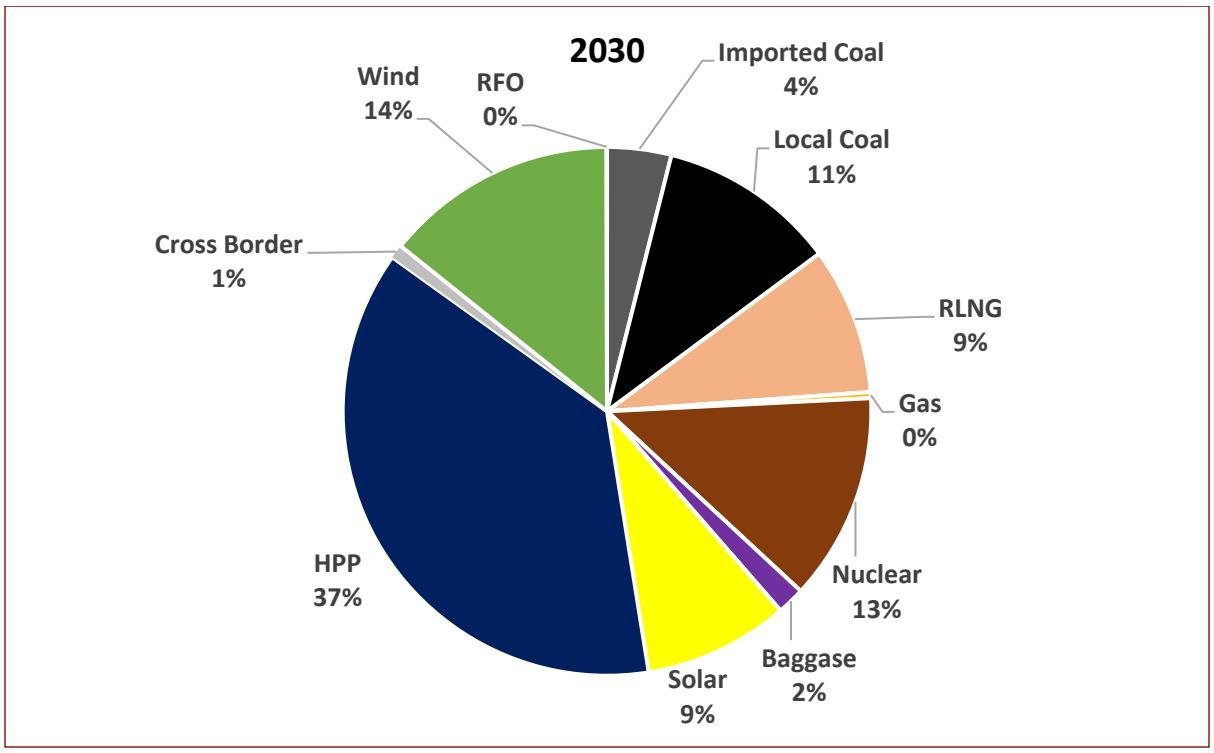


Chart J-3: IGCEP Generation Mix 2030 (GWh)

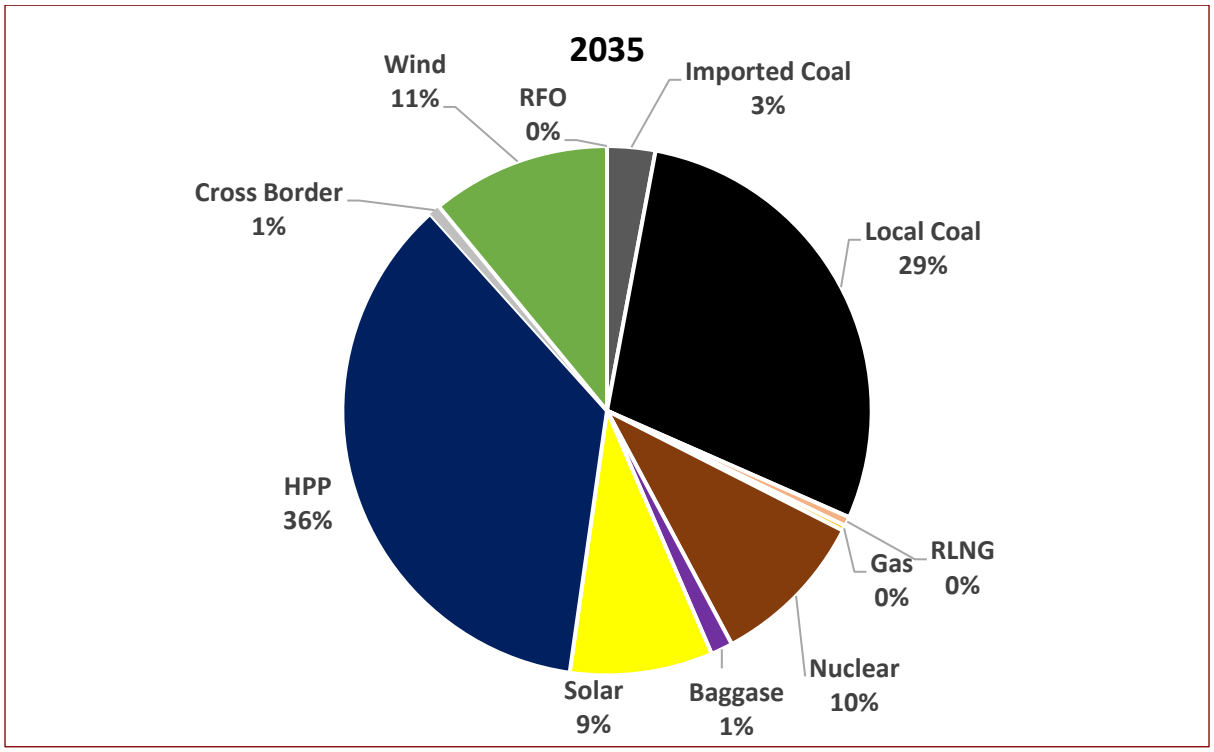


Chart J-4: IGCEP Generation Mix 2035 (GWh)

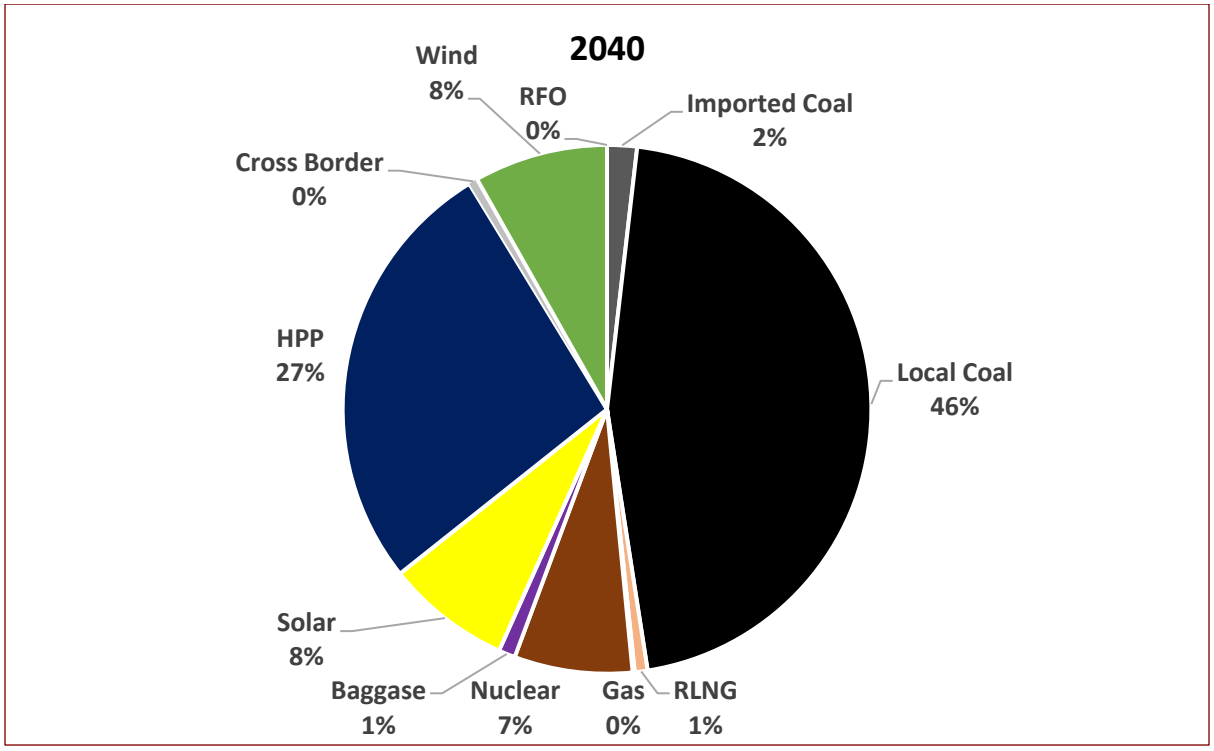


Chart J-5: IGCEP Generation Mix 2040 (GWh)

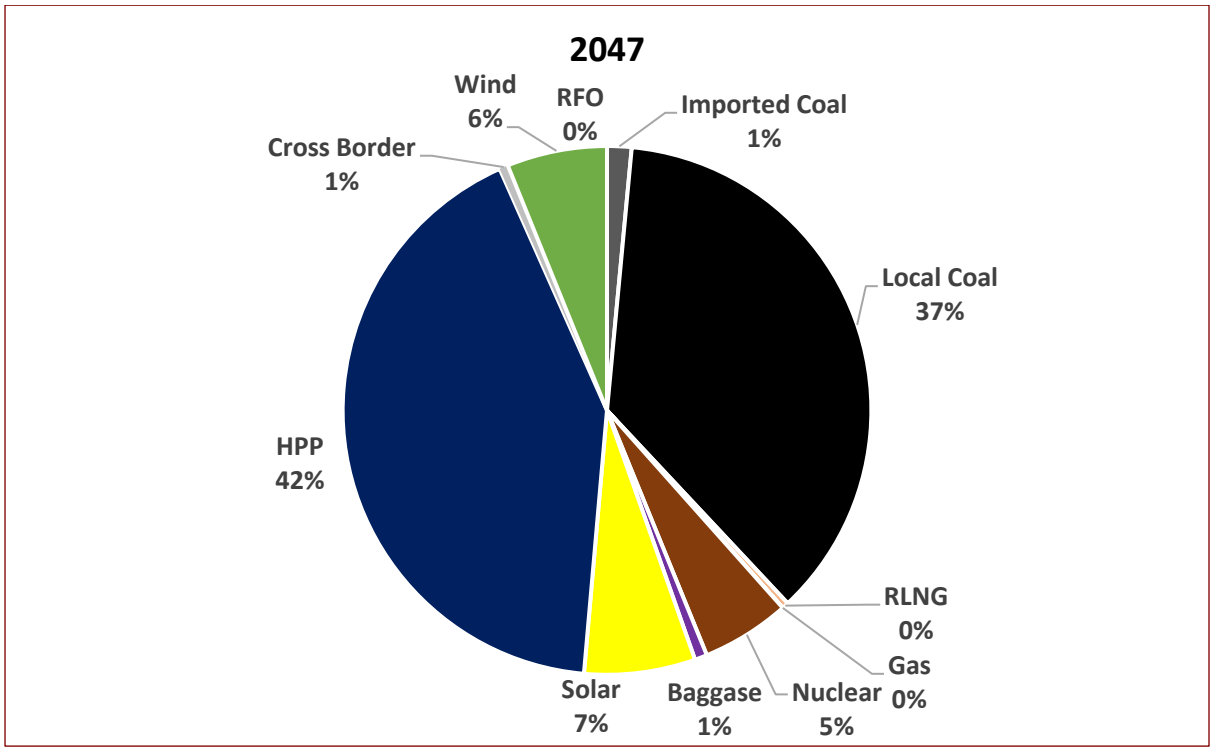


Chart J-6: IGCEP Generation Mix 2047 (GWh)

J-12. IGCEP Generation Mix 2020-47 (MW)

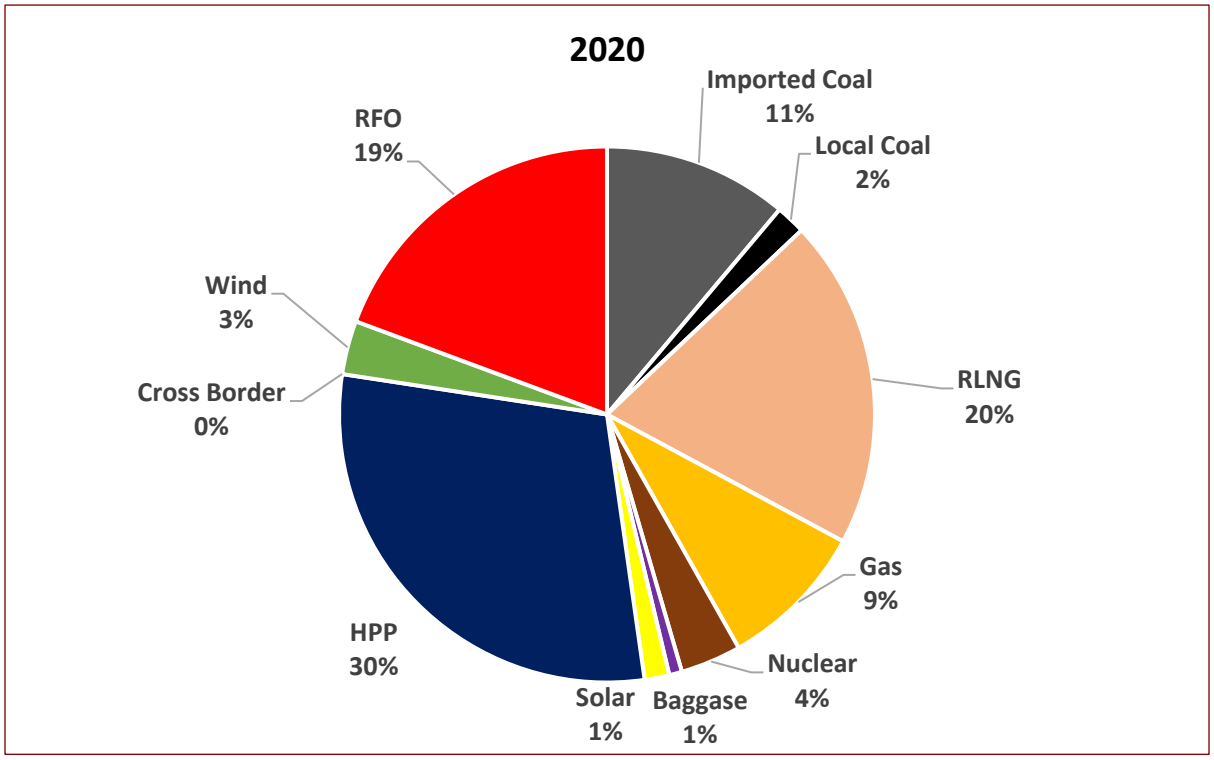


Chart J-7: IGCEP Generation Mix 2020 (MW)

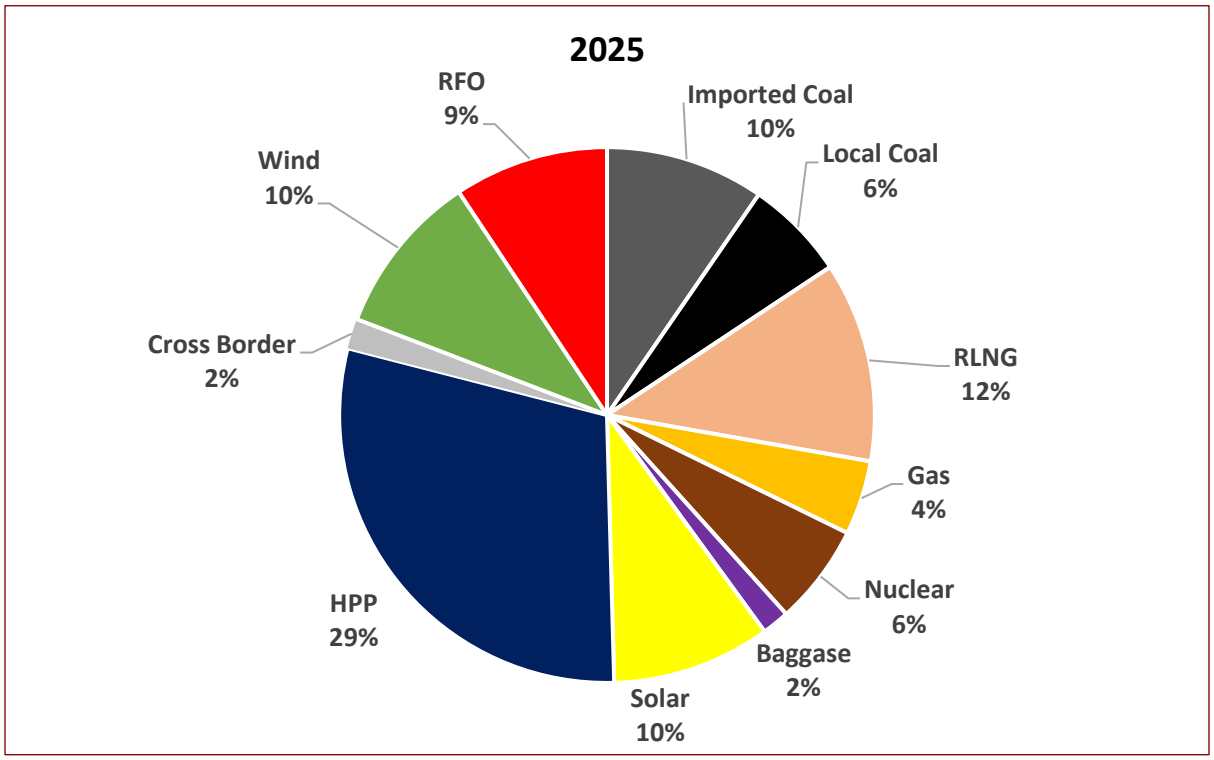


Chart J-8: IGCEP Generation Mix 2025 (MW)

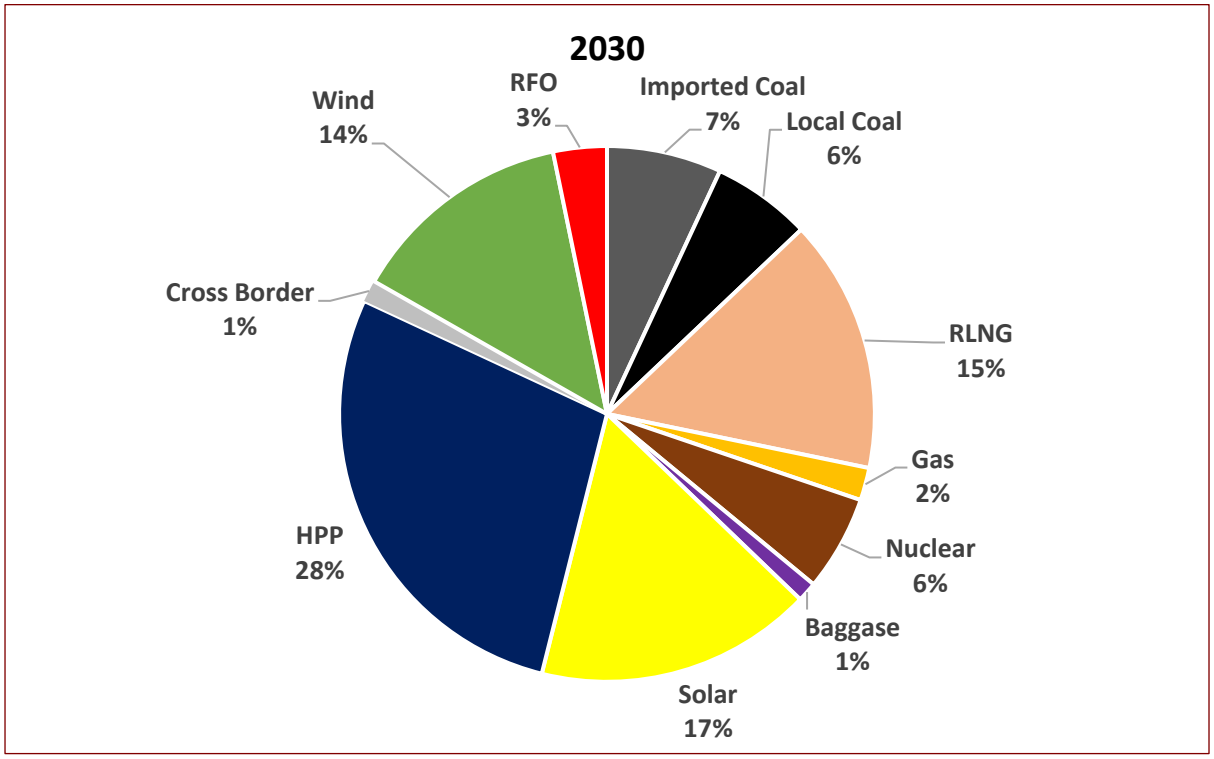


Chart J-9: IGCEP Generation Mix 2030 (MW)

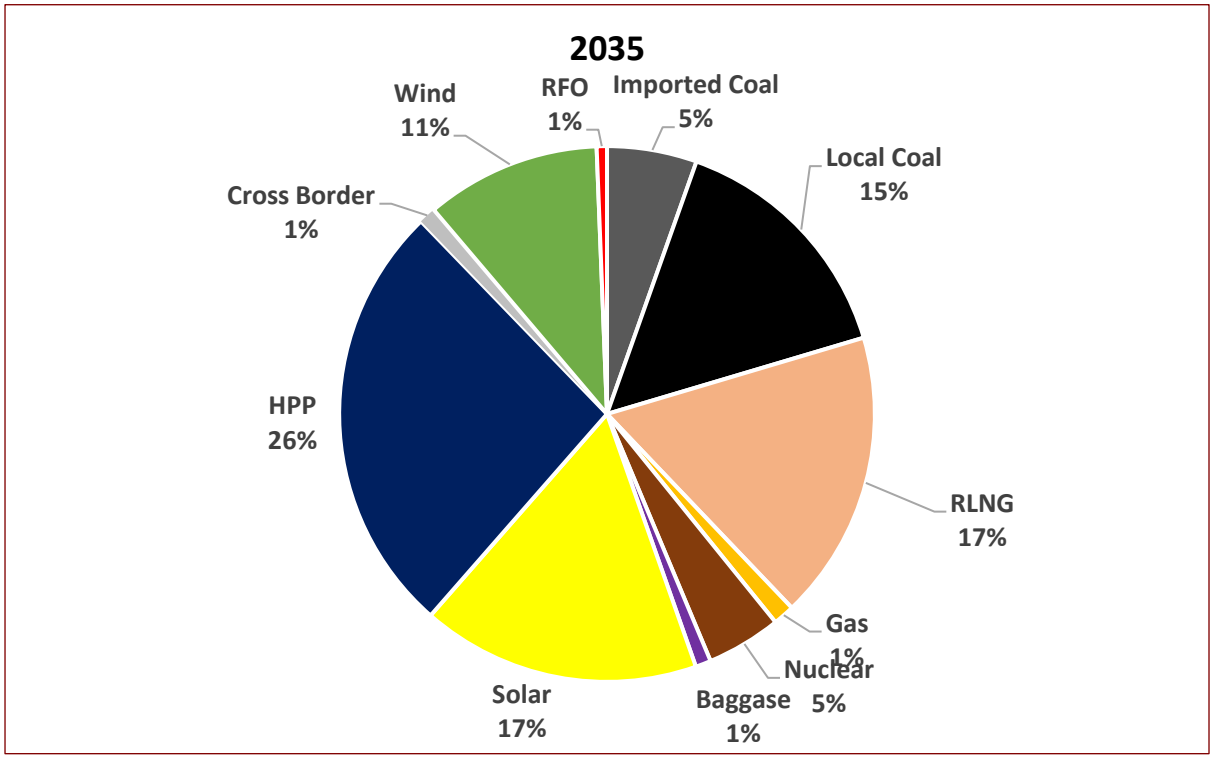


Chart J-10: IGCEP Generation Mix 2035 (MW)

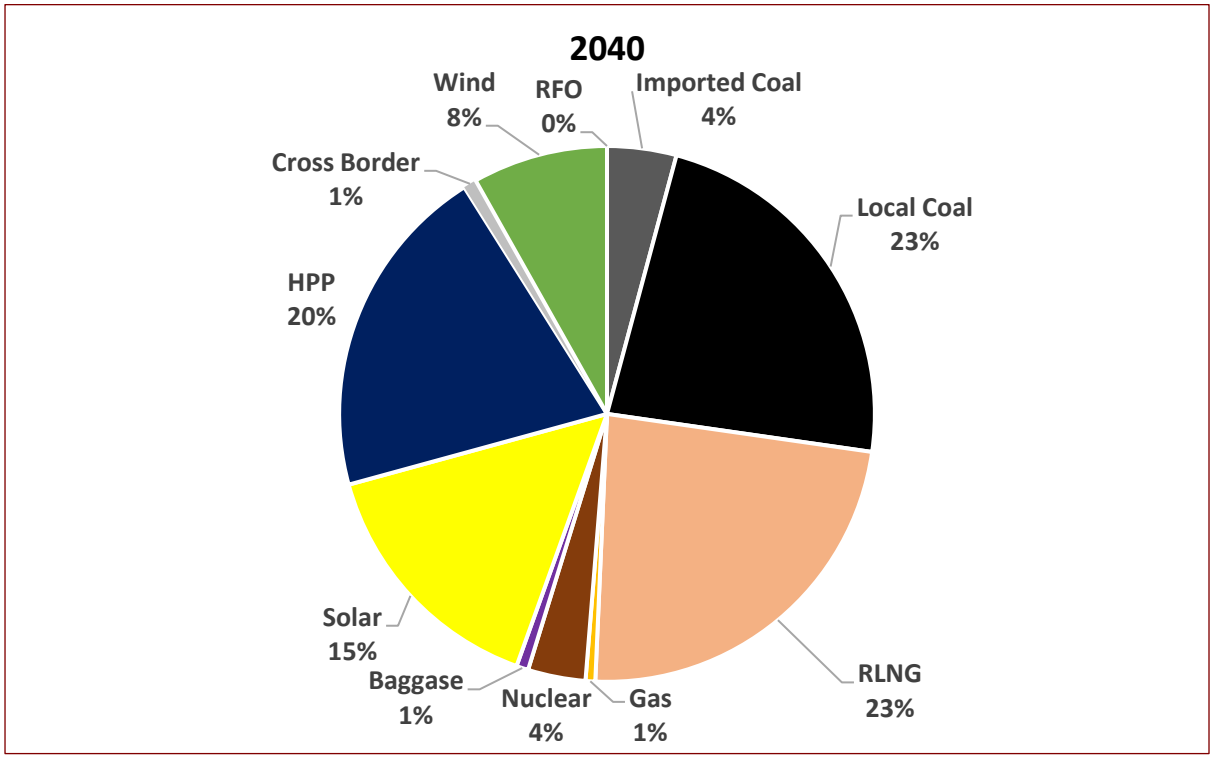


Chart J-11: IGCEP Generation Mix 2040 (MW)

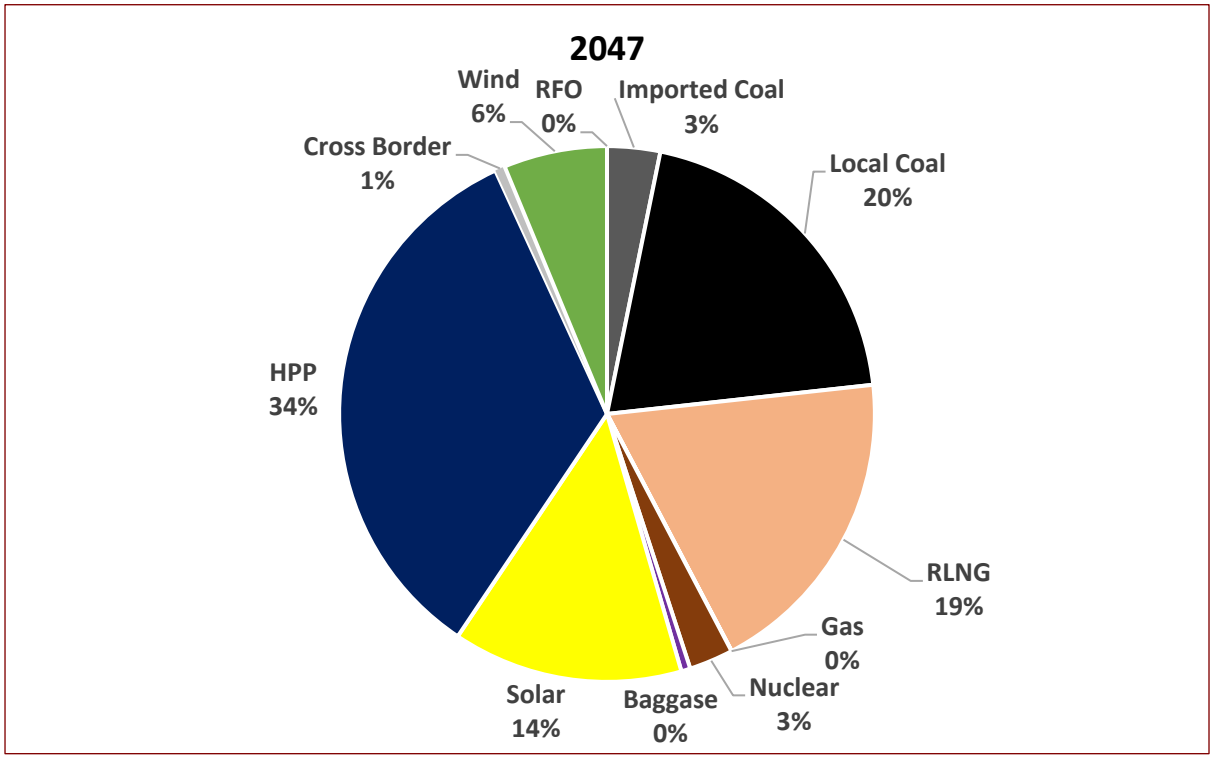


Chart J-12: IGCEP Generation Mix 2047 (MW)

J-13. IGCEP Monthly Generation Mix 2019-47 (GWh)

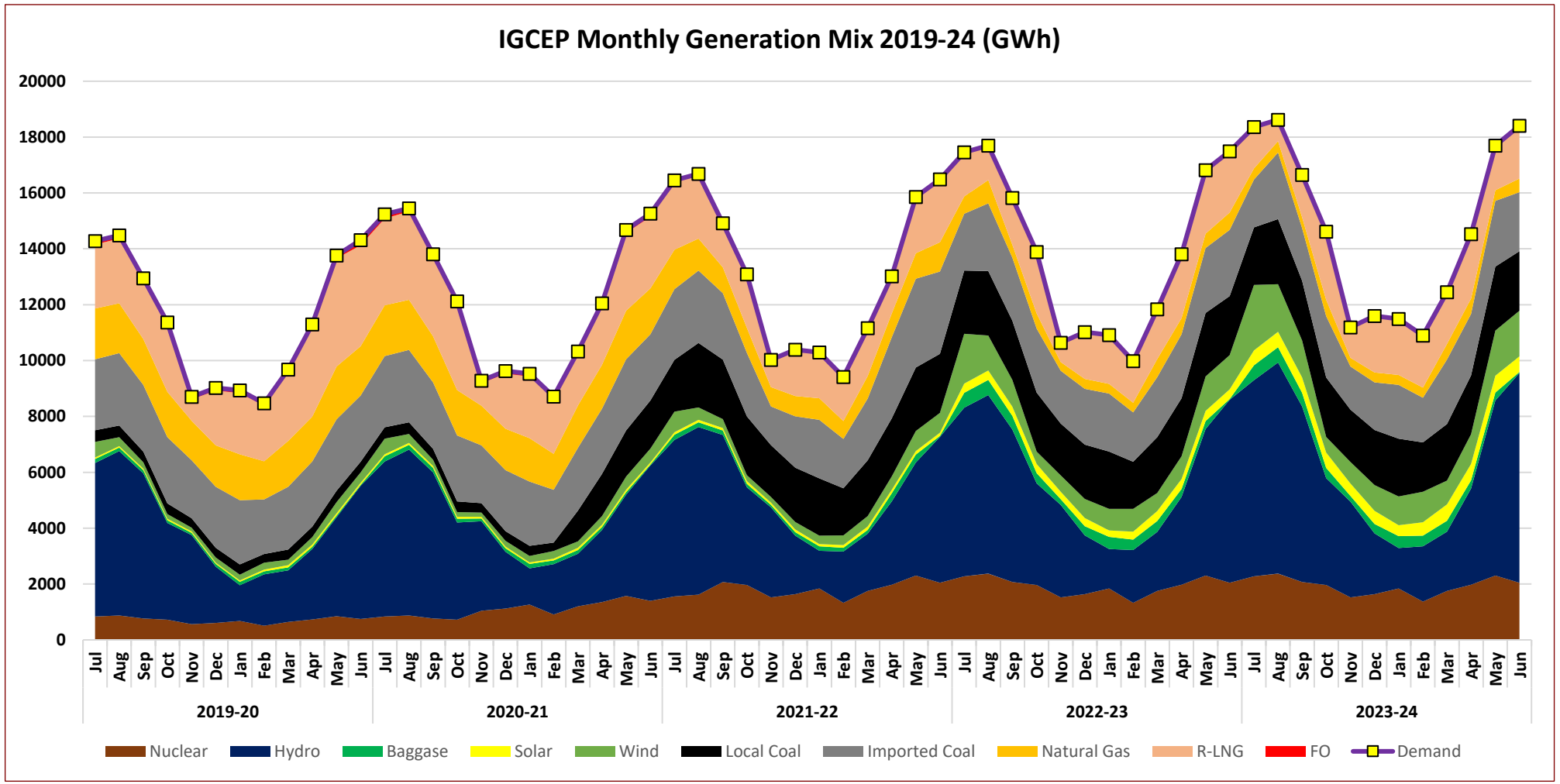


Chart J-13: IGCEP Monthly Generation Mix 2019-24 (GWh)

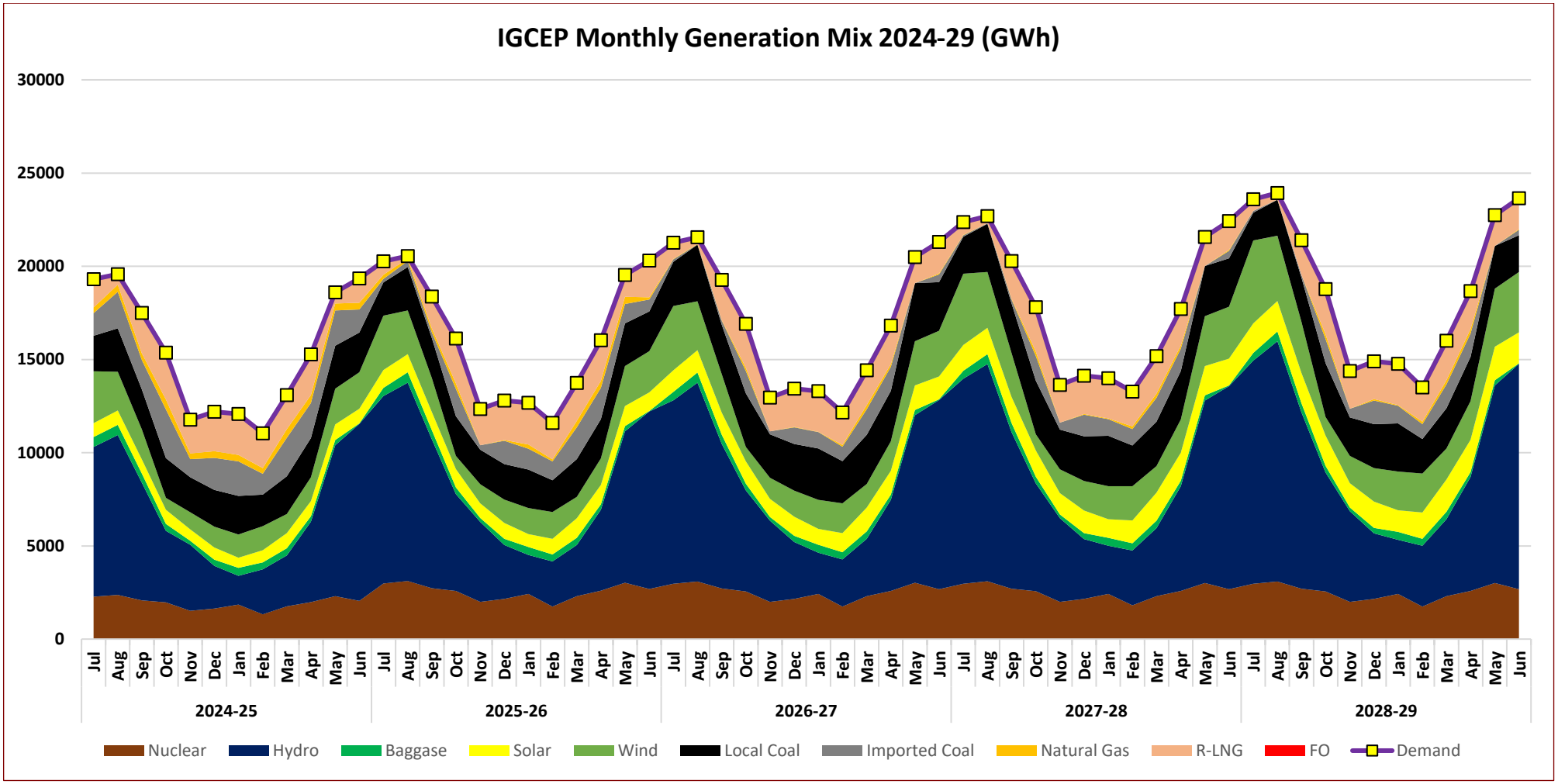


Chart J-14: IGCEP Monthly Generation Mix 2024-29 (GWh)

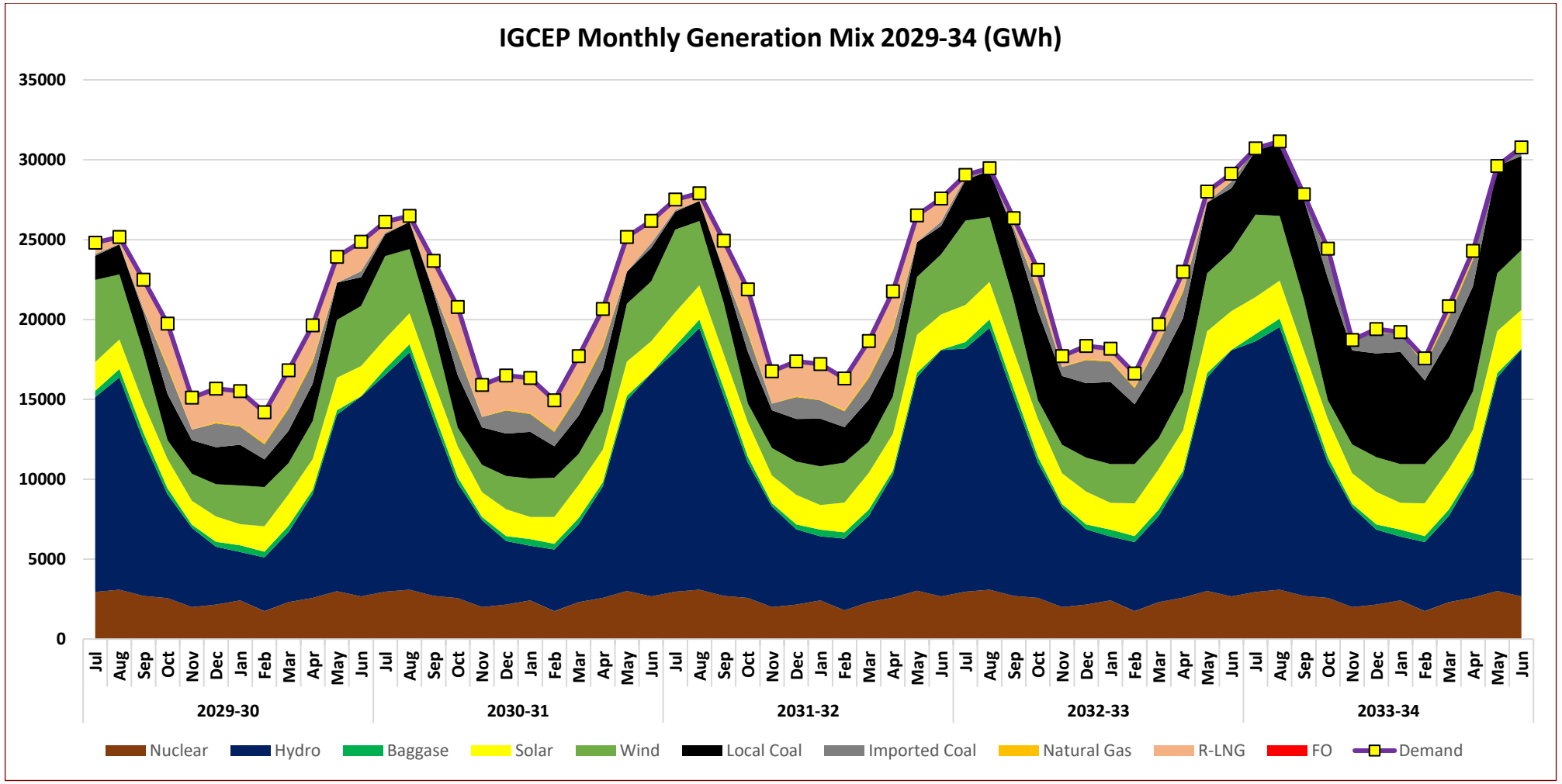


Chart J-15: IGCEP Monthly Generation Mix 2029-34 (GWh)

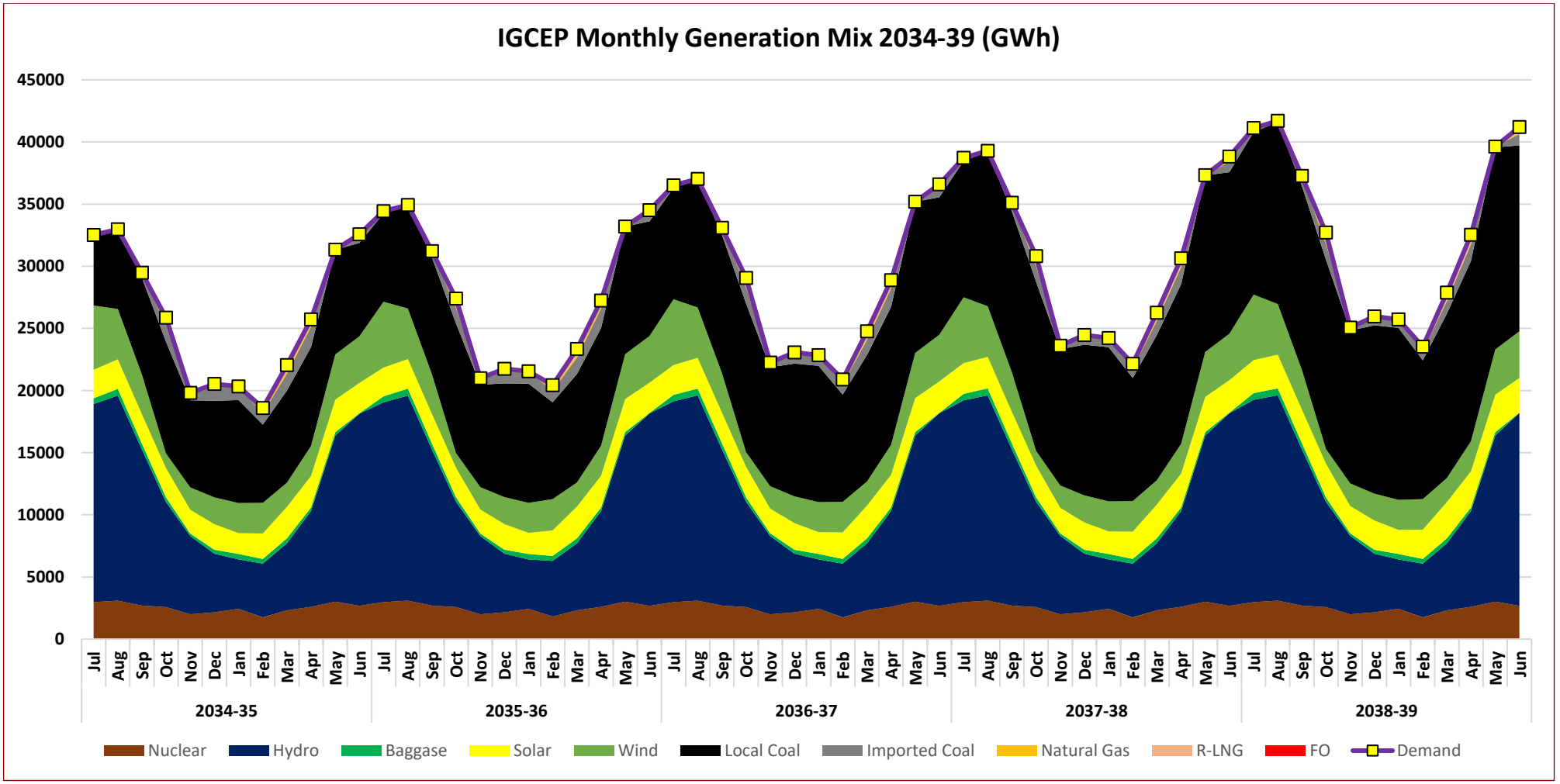


Chart J-16: IGCEP Monthly Generation Mix 2034-39 (GWh)

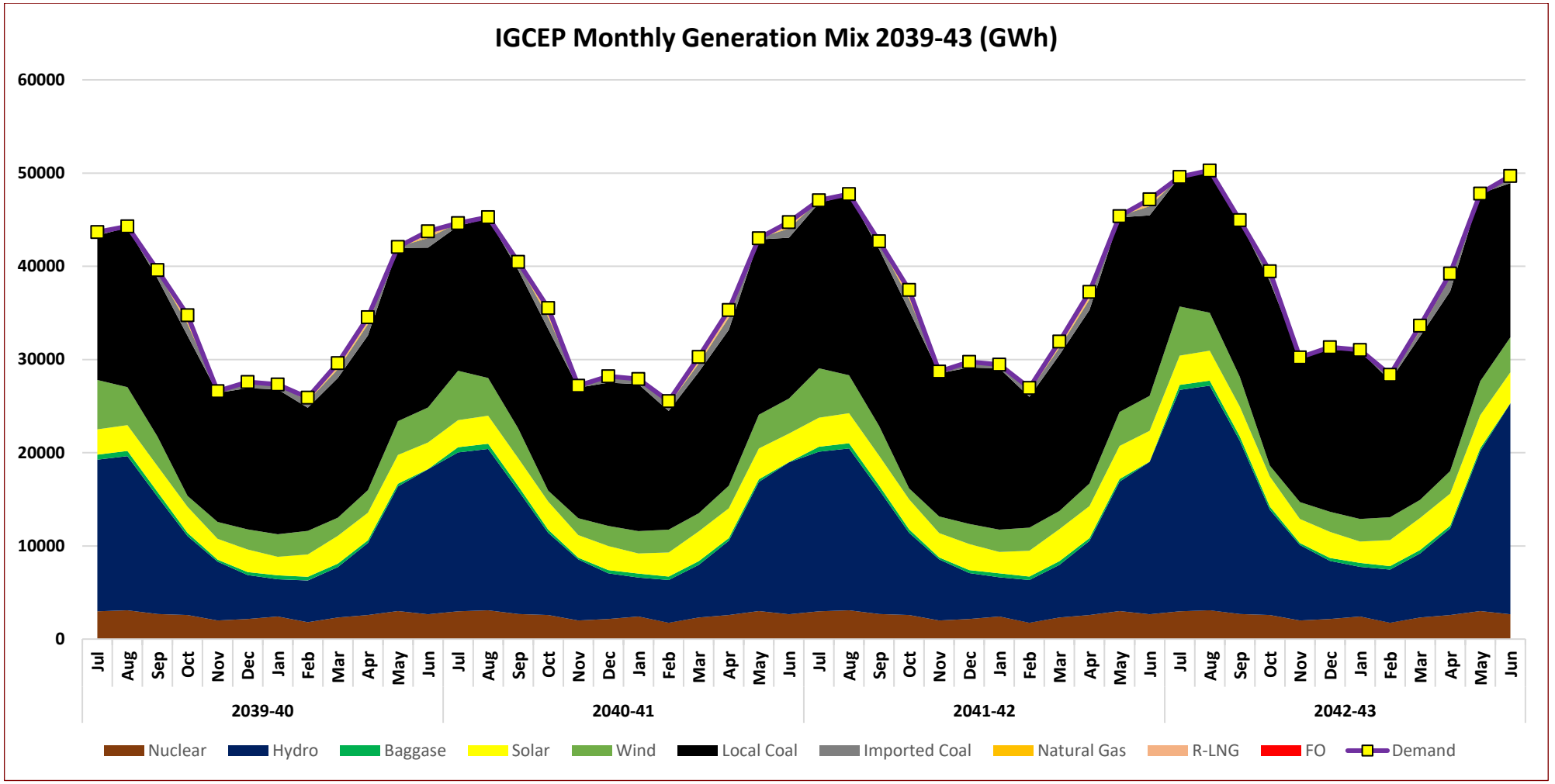


Chart J-17: IGCEP Monthly Generation Mix 2039-43 (GWh)

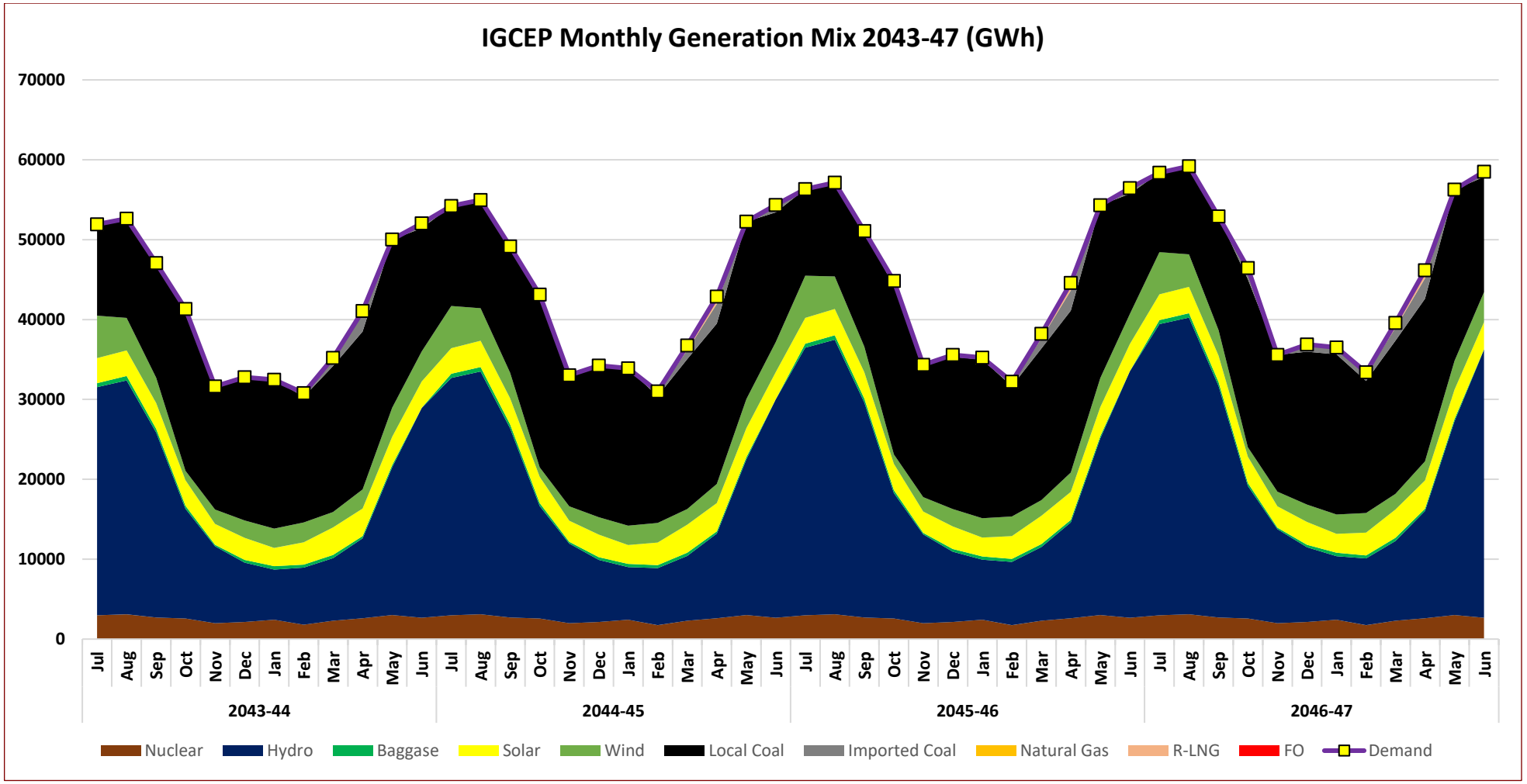


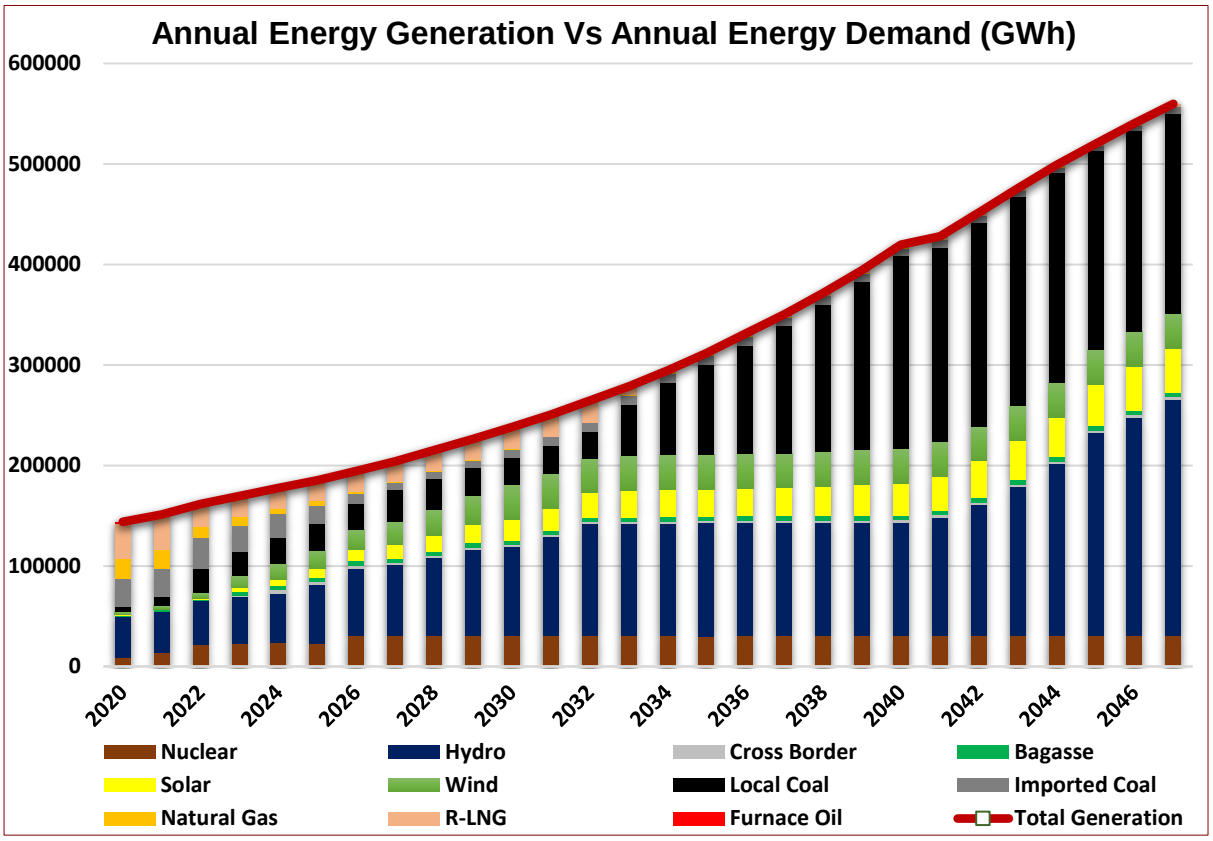
Chart J-18: IGCEP Monthly Generation Mix 2043-47 (GWh)

J-14. Year-wise Present Worth and Un-Discounted Cost

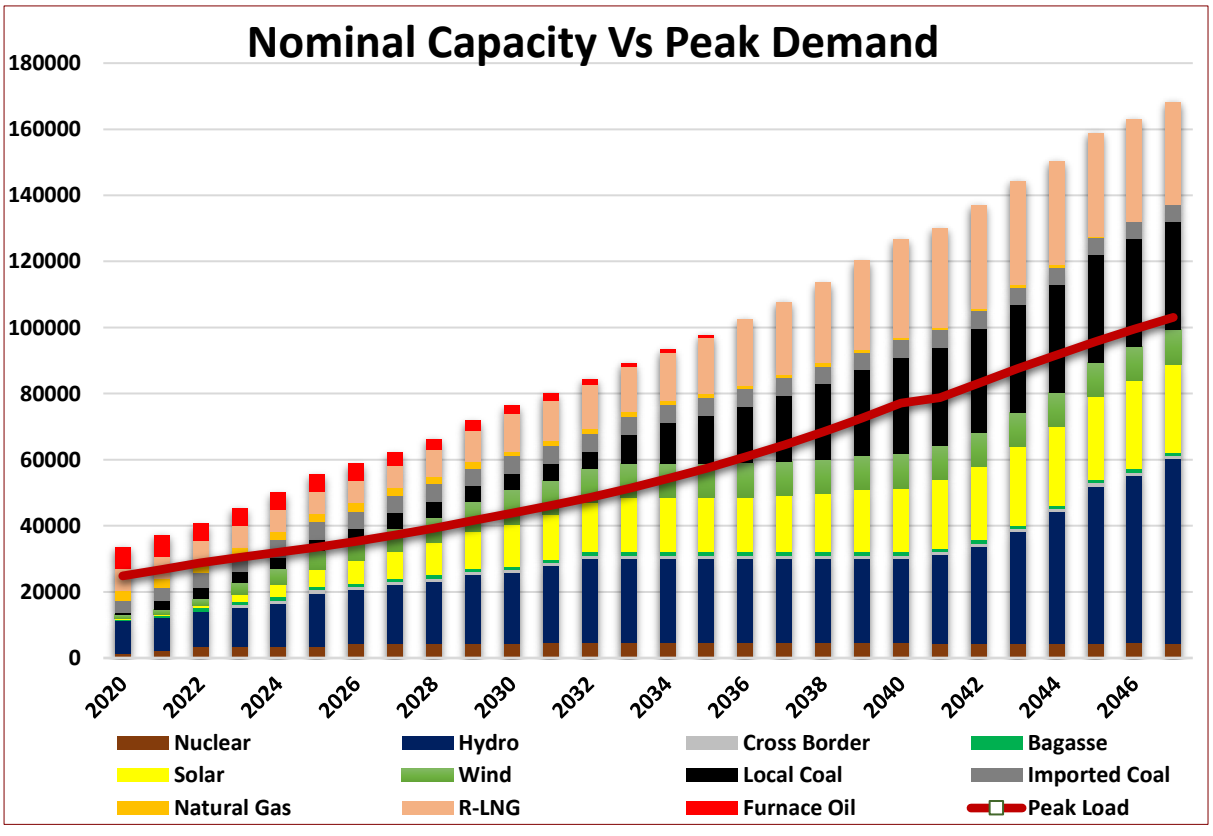
FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	4,168,442	5,125,164	5,125,164	0	956,722	4,168,442	5,125,164	5,125,164
2021	0	913,435	3,778,830	4,692,266	9,817,430	0	913,435	3,778,830	4,692,266	9,817,430
2022	0	909,992	2,954,239	3,864,231	13,681,661	0	909,992	2,954,239	3,864,231	13,681,661
2023	215,029	890,290	2,406,013	3,511,331	17,192,992	215,029	890,290	2,406,013	3,511,331	17,192,992
2024	346,961	848,491	2,114,884	3,310,336	20,503,329	346,961	848,491	2,114,884	3,310,336	20,503,329
2025	425,920	797,423	1,830,385	3,053,728	23,557,056	425,920	797,423	1,830,385	3,053,728	23,557,056
2026	467,223	767,190	1,485,497	2,719,910	26,276,967	467,223	767,190	1,485,497	2,719,910	26,276,967
2027	634,683	719,791	1,310,837	2,665,310	28,942,277	634,683	719,791	1,310,837	2,665,310	28,942,277
2028	685,304	679,083	1,180,737	2,545,124	31,487,400	685,304	679,083	1,180,737	2,545,124	31,487,400
2029	832,626	637,014	1,054,796	2,524,436	34,011,837	832,626	637,014	1,054,796	2,524,436	34,011,837
2030	922,927	587,316	993,953	2,504,196	36,516,033	922,927	587,316	993,953	2,504,196	36,516,033
2031	968,987	516,087	871,159	2,356,233	38,872,266	968,987	516,087	871,159	2,356,233	38,872,266
2032	970,491	473,669	771,871	2,216,031	41,088,297	970,491	473,669	771,871	2,216,031	41,088,297
2033	1,020,535	445,968	535,346	2,001,849	43,090,146	1,020,535	445,968	535,346	2,001,849	43,090,146
2034	1,037,757	421,265	438,294	1,897,317	44,987,463	1,037,757	421,265	438,294	1,897,317	44,987,463

FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2035	1,024,672	396,317	442,718	1,863,706	46,851,169	1,024,672	396,317	442,718	1,863,706	46,851,169
2036	1,011,420	372,821	455,239	1,839,480	48,690,650	1,011,420	372,821	455,239	1,839,480	48,690,650
2037	994,541	349,771	461,001	1,805,313	50,495,963	994,541	349,771	461,001	1,805,313	50,495,963
2038	975,523	330,788	460,540	1,766,851	52,262,814	975,523	330,788	460,540	1,766,851	52,262,814
2039	957,819	313,625	464,972	1,736,416	53,999,230	957,819	313,625	464,972	1,736,416	53,999,230
2040	939,909	297,721	460,707	1,698,338	55,697,567	939,909	297,721	460,707	1,698,338	55,697,567
2041	881,602	270,651	418,472	1,570,725	57,268,292	881,602	270,651	418,472	1,570,725	57,268,292
2042	858,977	255,778	405,986	1,520,741	58,789,034	858,977	255,778	405,986	1,520,741	58,789,034
2043	929,083	249,603	324,165	1,502,851	60,291,885	929,083	249,603	324,165	1,502,851	60,291,885
2044	968,299	227,458	281,750	1,477,507	61,769,392	968,299	227,458	281,750	1,477,507	61,769,392
2045	900,679	206,955	277,379	1,385,014	63,154,406	900,679	206,955	277,379	1,385,014	63,154,406
2046	896,014	203,191	245,056	1,344,260	64,498,666	896,014	203,191	245,056	1,344,260	64,498,666
2047	887,626	192,975	227,144	1,307,745	65,806,411	887,626	192,975	227,144	1,307,745	65,806,411

K-1. Annual Energy Generation Vs Annual Energy Demand (GWh)



K-2. Nominal Capacity Vs Peak Demand (MW) 2020-47



K-3. Future Generation Capacity Additions

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South	Midland	North	MW	MW
								MW	MW	MW		
2020	-	-	-	-	-	-	-	-	-	-	0	0
2021	-	-	-	-	-	-	-	-	-	-	0	0
2022	-	-	-	-	-	-	-	-	-	-	0	0
2023	-	-	-	-	-	-	1,500	1,000	300	200	3,000	3,000
2024	-	285	-	-	-	3	1,500	1,000	137	-	2,926	5,926
2025	-	-	-	-	-	-	1,500	867	-	-	2,367	8,292
2026	-	-	-	-	-	3	1,500	634	-	-	2,137	10,429
2027	-	1,214	20	-	-	666	1,500	661	-	-	4,061	14,491
2028	-	-	-	1,547	-	-	1,500	775	-	-	3,822	18,313
2029	-	-	-	1,130	-	1,986	1,500	1,000	264	-	5,880	24,193
2030	-	-	-	2,768	-	639	1,500	1,000	300	200	6,407	30,599
2031	-	368	-	789	-	2,154	642	-	-	-	3,953	34,552
2032	-	-	-	1,211	-	2,160	1,500	-	-	-	4,871	39,423
2033	-	3,630	-	289	-	-	1,500	-	-	-	5,419	44,842
2034	-	3,538	-	623	-	-	-	-	-	-	4,162	49,004
2035	-	2,271	-	2,696	-	-	-	-	-	-	4,967	53,971
2036	-	2,435	-	2,951	-	-	135	-	-	-	5,521	59,492
2037	-	2,795	-	2,051	-	-	560	-	-	-	5,405	64,898
2038	-	2,905	-	2,281	-	-	599	-	-	-	5,784	70,682

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South	Midland	North	MW	MW
								MW	MW	MW		
2039	-	2,970	-	2,774	-	-	1,237	-	-	-	6,980	77,662
2040	-	3,506	-	2,956	-	-	356	-	-	-	6,818	84,480
2041	-	380	-	644	-	1,102	1,500	-	-	-	3,626	88,107
2042	-	1,746	-	1,526	-	2,470	1,500	-	-	-	7,241	95,348
2043	-	1,205	-	-	-	4,510	1,500	-	-	-	7,215	102,563
2044	-	-	-	-	-	5,978	-	-	-	-	5,978	108,541
2045	-	-	-	-	-	7,783	1,403	-	-	-	9,186	117,727
2046	-	-	-	-	-	3,266	1,500	-	-	-	4,766	122,492
2047	-	-	-	-	-	5,010	77	-	-	-	5,087	127,579
Total	**-**	**29,248**	**20**	**26,234**	**0**	**37,730**	**26,009**	**6,937**	**1,002**	**400**	**127,579**	

K-4. List of Projects uptill 2047 (Committed + Candidate)

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2020							
1	Zorlu Solar Pakistan Pvt. Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Jan-20
2	Jabori	Hydro	10	10	PEDO	Committed	Mar-20
3	Trimmu	RLNG	1,263	1,243	PPIB	Committed	Apr-20
4	Jhing	Hydro	15	15	AJK	Committed	Jun-20
5	Karora	Hydro	12	12	PEDO	Committed	Jun-20
6	Koto	Hydro	41	41	PEDO	Committed	Jun-20
Generation Additions in 2020 (MW)			1,441	1,421			
Cumulative Addition up till 2020 (MW)			1,441	1,421			
2021							
1	Etihad Power Generation Ltd.	Bagasse	74	74	AEDB	Committed	Jul-20
2	Karachi Nuclear K-2	Nuclear	1,100	1,059	PAEC	Committed	Nov-20
3	Master Green Energy Ltd.	Wind	60	60	AEDB	Committed	Nov-20
4	Shaheen Renewable Energy-1 Pvt. Ltd.	Wind	51	51	AEDB	Committed	Nov-20
5	Lawi	Hydro	69	69	PEDO	Committed	Jan-21
6	Tricorm Wind Power Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-21
7	Western Energy Pvt. Limited	Wind	50	50	AEDB	Committed	Feb-21
8	Lucky	Local Coal	660	607	PPIB	Committed	Mar-21
9	Access Electric Pvt. Ltd.	Solar	10	10	AEDB	Committed	Mar-21
10	Access Solar Pvt. Ltd.	Solar	12	12	AEDB	Committed	Mar-21
11	Thal Nova	Local Coal	330	300	PPIB	Committed	Mar-21
12	Thar TEL	Local Coal	330	300	PPIB	Committed	Mar-21
13	Thar-I (Shanghai Electric) Unit 1	Local Coal	660	607	PPIB	Committed	Mar-21
14	Riali-II	Hydro	7	7	AJK	Committed	Jun-21
15	Hydro China Dawood Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
16	Tenga Generasi Limited	Wind	50	50	AEDB	Committed	Jun-21
17	Zephyr Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
18	Siddiqsons	Local Coal	330	304	PPIB	Committed	Jun-21
Generation Additions in 2021 (MW)			3,943	3,708			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition uptill 2021 (MW)			5,384	5,129			
2022							
1	HNDS Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
2	Helios Power Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
3	Thar-I (Shanghai Electric) Unit 2	Local Coal	660	607	PPIB	Committed	Aug-21
4	Karachi Nuclear K-3	Nuclear	1,100	1,059	PAEC	Committed	Sep-21
5	Buksh Energy Pvt. Ltd.	Solar	12	12	AEDB	Committed	Sep-21
6	Safe Solar Power Pvt. Ltd.	Solar	10	10	AEDB	Committed	Sep-21
7	Artistic Wind Power Pvt. Limited.	Wind	50	50	AEDB	Committed	Oct-21
8	Meridian Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Nov-21
9	Zhenfa Pakistan New Energy Company (Pvt.) Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Nov-21
10	Karot	Hydro	720	720	PPIB/AJK	Committed	Dec-21
11	Jamshoro CFPP Unit 1	Imp.Coal	660	644	GENCO	Committed	Dec-21
12	Gwadar	Imp.Coal	300	273	PPIB	Committed	Jan-22
13	Gul Ahmed Electric Ltd.	Wind	50	50	AEDB	Committed	Jan-22
14	ACT 2 wind (Pvt.) Ltd.	Wind	50	50	AEDB	Committed	Feb-22
15	Din Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
16	Indus Wind Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
17	Lakeside Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
18	Liberty Wind Power 1 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
19	Liberty Wind Power 2 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
20	Metro Wind Power Ltd.	Wind	50	50	AEDB	Committed	Feb-22
21	NASDA Green Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
22	Trans Atlantic Energy (Pvt.) Limited	Wind	48	48	AEDB	Committed	Feb-22
23	Alliance Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
24	Bahawalpur Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
25	Faran Power Limited	Bagasse	27	27	AEDB	Committed	Mar-22
26	Ghotki Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
27	Hamza Sugar Mills Ltd. (Unit-II)	Bagasse	30	30	AEDB	Committed	Mar-22

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
28	HSM Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
29	Hunza Power (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22
30	Indus Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
31	Ittefaq Power Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
32	Kashmir Power (Pvt.) Ltd.	Bagasse	40	40	AEDB	Committed	Mar-22
33	Mehran Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
34	RYK Energy Ltd.	Bagasse	25	25	AEDB	Committed	Mar-22
35	Sadiqabad Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
36	Shahtaj Sugar Mills Ltd.	Bagasse	32	32	AEDB	Committed	Mar-22
37	Sheikhoo Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
38	TAY Powergen Company (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
39	Two Star Energy (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22
Generation Additions in 2022 (MW)			4,841	4,703			
Cumulative Addition up till 2022 (MW)			10,225	9,832			
2023							
1	Gorkin Matiltan	Hydro	84	84	PEDO	Committed	Nov-22
2	Suki Kinari	Hydro	884	884	PPIB	Committed	Dec-22
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2023
4	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2023
5	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2023
6	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2023
7	CASA	Import	1,000	1,000	GOP	Committed	May-23
Generation Additions in 2023 (MW)			4,968	4,968			
Cumulative Addition up till 2023 (MW)			15,193	14,800			
2024							
1	Tarbela 5th-Extension	Hydro	1,410	1,410	WAPDA	Committed	Sep-23
2	Jamshoro CFPP Unit 2	Imp. Coal	660	644	GENCO	Committed	Dec-23
3	Blue Star	Hydro	3	3	PEDO	Candidate	2024
4	Generic_Candidate Local Coal	Local Coal	285	285	Yet to be Decided	Candidate	2024
5	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2024
6	Generic_Candidate Wind_Mid	Wind	137	137	Yet to be Decided	Candidate	2024

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
7	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2024
Generation Additions in 2024 (MW)			4,996	4,980			
Cumulative Addition up till 2024 (MW)			20,189	19,780			
2025							
1	Keyal Khwar	Hydro	128	128	WAPDA	Committed	Sep-24
2	Mohmand	Hydro	800	800	WAPDA	Committed	Nov-24
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2025
4	Generic_Candidate Wind_South	Wind	867	867	Yet to be Decided	Candidate	2025
5	Dasu 1	Hydro	2,160	2,160	WAPDA	Committed	Feb-25
Generation Additions in 2025 (MW)			5,455	5,455			
Cumulative Addition up till 2025 (MW)			25,643	25,235			
2026							
1	Chasma Nuclear C-5	Nuclear	1,100	1,059	PAEC	Committed	Jul-25
2	Harpo	Hydro	35	35	WAPDA	Committed	Jul-25
3	Riali-III	Hydro	3	3	AJK	Candidate	2026
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2026
5	Generic_Candidate Wind_South	Wind	634	634	Yet to be Decided	Candidate	2026
Generation Additions in 2026 (MW)			3,272	3,230			
Cumulative Addition up till 2026 (MW)			28,915	28,465			
2027							
1	Azad Pattan	Hydro	700	701	PPIB	Committed	Sep-26
2	Hatim	CCGT_Gas	20	20	PPIB	Candidate	2027
3	Lower Palas	Hydro	666	666	WAPDA	Candidate	2027
4	Oracle	Local Coal	1,320	1,214	STDC/ PPIB	Candidate	2027
5	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2027
6	Generic_Candidate Wind_South	Wind	661	661	Yet to be Decided	Candidate	2027
7	Kohala	Hydro	1,124	1,124	PPIB	Committed	Jun-27
Generation Additions in 2027 (MW)			5,991	5,886			
Cumulative Addition up till 2027 (MW)			34,907	34,351			
2028							
1	Generic_Candidate OCGT_RLNG	RLNG	1,547	1,547	Yet to be Decided	Candidate	2028

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2028
3	Generic_Candidate Wind_South	Wind	775	775	Yet to be Decided	Candidate	2028
Generation Additions in 2028 (MW)			3,822	3,822			
Cumulative Addition up till 2028 (MW)			38,729	38,173			
2029							
1	Dander	Hydro	56	56	PEDO	Candidate	2029
2	Dubair Kalay	Hydro	66	66	PEDO	Candidate	2029
3	Nerai-Dubair	Hydro	46	46	PEDO	Candidate	2029
4	Rajdhani	Hydro	132	132	PPIB	Candidate	2029
5	Thakot-III	Hydro	1,686	1,686	WAPDA	Candidate	2029
6	Generic_Candidate OCGT_RLNG	RLNG	1,130	1,130	Yet to be Decided	Candidate	2029
7	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2029
8	Generic_Candidate Wind_Mid	Wind	264	264	Yet to be Decided	Candidate	2029
9	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2029
Generation Additions in 2029 (MW)			5,880	5,880			
Cumulative Addition up till 2029 (MW)			44,609	44,053			
2030							
1	Mahl	Hydro	639	639	PPIB	Candidate	2030
2	Generic_Candidate OCGT_RLNG	RLNG	2,768	2,768	Yet to be Decided	Candidate	2030
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2030
4	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2030
5	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2030
6	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2030
Generation Additions in 2030 (MW)			6,407	6,407			
Cumulative Addition up till 2030 (MW)			51,015	50,460			
2031							
1	Thakot-I	Hydro	2,154	2,154	WAPDA	Candidate	2031
2	Generic_Candidate Local Coal	Local Coal	368	368	Yet to be Decided	Candidate	2031
3	Generic_Candidate OCGT_RLNG	RLNG	789	789	Yet to be Decided	Candidate	2031
4	Generic_Candidate Solar	Solar	642	642	Yet to be Decided	Candidate	2031
Generation Additions in 2031 (MW)			3,953	3,953			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition up till 2031 (MW)			54,968	54,413			
2032							
1	Dasu_2	Hydro	2,160	2,160	WAPDA	Candidate	2032
2	Generic_Candidate OCGT_RLNG	RLNG	1,211	1,211	Yet to be Decided	Candidate	2032
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2032
Generation Additions in 2032 (MW)			4,871	4,871			
Cumulative Addition up till 2032 (MW)			59,839	59,284			
2033							
1	Generic_Candidate Local Coal	Local Coal	3,630	3,630	Yet to be Decided	Candidate	2033
2	Generic_Candidate OCGT_RLNG	RLNG	289	289	Yet to be Decided	Candidate	2033
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2033
Generation Additions in 2033 (MW)			5,419	5,419			
Cumulative Addition up till 2033 (MW)			65,258	64,702			
2034							
1	Generic_Candidate Local Coal	Local Coal	3,538	3,538	Yet to be Decided	Candidate	2034
2	Generic_Candidate OCGT_RLNG	RLNG	623	623	Yet to be Decided	Candidate	2034
Generation Additions in 2034 (MW)			4,162	4,162			
Cumulative Addition up till 2034 (MW)			69,420	68,864			
2035							
1	Generic_Candidate Local Coal	Local Coal	2,271	2,271	Yet to be Decided	Candidate	2035
2	Generic_Candidate OCGT_RLNG	RLNG	2,696	2,696	Yet to be Decided	Candidate	2035
Generation Additions in 2035 (MW)			4,967	4,967			
Cumulative Addition up till 2035 (MW)			74,387	73,832			
2036							
1	Generic_Candidate Local Coal	Local Coal	2,435	2,435	Yet to be Decided	Candidate	2036
2	Generic_Candidate OCGT_RLNG	RLNG	2,951	2,951	Yet to be Decided	Candidate	2036
3	Generic_Candidate Solar	Solar	135	135	Yet to be Decided	Candidate	2036
Generation Additions in 2036 (MW)			5,521	5,521			
Cumulative Addition up till 2036 (MW)			79,908	79,353			
2037							
1	Generic_Candidate Local Coal	Local Coal	2,795	2,795	Yet to be Decided	Candidate	2037

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2	Generic_Candidate OCGT_RLNG	RLNG	2,051	2,051	Yet to be Decided	Candidate	2037
3	Generic_Candidate Solar	Solar	560	560	Yet to be Decided	Candidate	2037
Generation Additions in 2037 (MW)			5,405	5,405			
Cumulative Addition up till 2037 (MW)			85,314	84,758			
2038							
1	Generic_Candidate Local Coal	Local Coal	2,905	2,905	Yet to be Decided	Candidate	2038
2	Generic_Candidate OCGT_RLNG	RLNG	2,281	2,281	Yet to be Decided	Candidate	2038
3	Generic_Candidate Solar	Solar	599	599	Yet to be Decided	Candidate	2038
Generation Additions in 2038 (MW)			5,784	5,784			
Cumulative Addition uptill 2038 (MW)			91,098	90,542			
2039							
1	Generic_Candidate Local Coal	Local Coal	2,970	2,970	Yet to be Decided	Candidate	2039
2	Generic_Candidate OCGT_RLNG	RLNG	2,774	2,774	Yet to be Decided	Candidate	2039
3	Generic_Candidate Solar	Solar	1,237	1,237	Yet to be Decided	Candidate	2039
Generation Additions in 2039 (MW)			6,980	6,980			
Cumulative Addition uptill 2039 (MW)			98,078	97,523			
2040							
1	Generic_Candidate Local Coal	Local Coal	3,506	3,506	Yet to be Decided	Candidate	2040
2	Generic_Candidate OCGT_RLNG	RLNG	2,956	2,956	Yet to be Decided	Candidate	2040
3	Generic_Candidate Solar	Solar	356	356	Yet to be Decided	Candidate	2040
Generation Additions in 2040 (MW)			6,818	6,818			
Cumulative Addition uptill 2040 (MW)			104,896	104,341			
2041							
1	Bata Kundi	Hydro	96	96	PEDO	Candidate	2041
2	Dowarian	Hydro	40	40	AJK	Candidate	2041
3	Thakot-II	Hydro	966	966	WAPDA	Candidate	2041
4	Generic_Candidate Local Coal	Local Coal	380	380	Yet to be Decided	Candidate	2041
5	Generic_Candidate OCGT_RLNG	RLNG	644	644	Yet to be Decided	Candidate	2041
6	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2041
Generation Additions in 2041 (MW)			3,626	3,626			
Cumulative Addition uptill 2041 (MW)			108,523	107,967			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2042							
1	Patan	Hydro	2,400	2,400	WAPDA	Candidate	2042
2	Torkhow	Hydro	70	70	PEDO	Candidate	2042
3	Generic_Candidate Local Coal	Local Coal	1,746	1,746	Yet to be Decided	Candidate	2042
4	Generic_Candidate OCGT_RLNG	RLNG	1,526	1,526	Yet to be Decided	Candidate	2042
5	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2042
Generation Additions in 2042 (MW)			7,241	7,241			
Cumulative Addition uptill 2042 (MW)			115,764	115,208			
2043							
1	Bunji 1	Hydro	3,550	3,550	WAPDA	Candidate	2043
2	Dhudnial	Hydro	960	960	WAPDA	Candidate	2043
3	Generic_Candidate Local Coal	Local Coal	1,205	1,205	Yet to be Decided	Candidate	2043
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2043
Generation Additions in 2043 (MW)			7,215	7,215			
Cumulative Addition uptill 2043 (MW)			122,979	122,423			
2044							
1	Bunji 2	Hydro	3,550	3,550	WAPDA	Candidate	2044
2	Kalam Asrit	Hydro	212	212	PPIB	Candidate	2044
3	Kathai-II	Hydro	8	8	AJK	Candidate	2044
4	Sakhra-I	Hydro	8	8	PEDO	Candidate	2044
5	Tangus	Hydro	2,200	2,200	WAPDA	Candidate	2044
Generation Additions in 2044 (MW)			5,978	5,978			
Cumulative Addition uptill 2044 (MW)			128,957	128,401			
2045							
1	Asrit Kadam	Hydro	216	216	PEDO	Candidate	2045
2	Bhimbal Katha	Hydro	9	9	PEDO	Candidate	2045
3	Diamer Bhasha Dam	Hydro	4,500	4,500	WAPDA	Candidate	2045
4	Jagran-III	Hydro	36	36	AJK	Candidate	2045
5	Jagran-IV	Hydro	24	24	AJK	Candidate	2045
6	Nandihaar-II	Hydro	10	10	PEDO	Candidate	2045
7	Naran	Hydro	188	188	PEDO	Candidate	2045

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
8	Yulbo	Hydro	2,800	2,800	WAPDA	Candidate	2045
9	Generic_Candidate Solar	Solar	1,403	1,403	Yet to be Decided	Candidate	2045
Generation Additions in 2045 (MW)			9,186	9,186			
Cumulative Addition uptill 2045 (MW)			138,143	137,587			
2046							
1	Alka	Hydro	2	2	PPDB	Candidate	2046
2	Barum Gol	Hydro	40	40	PEDO	Candidate	2046
3	Bhan Khwar	Hydro	36	36	PEDO	Candidate	2046
4	Chakoti Hatian	Hydro	501	501	PPIB	Candidate	2046
5	Chapri Charkhel	Hydro	12	12	PEDO	Candidate	2046
6	Gabral Utror	Hydro	82	82	PEDO	Candidate	2046
7	Gwaldai	Hydro	20	20	PEDO	Candidate	2046
8	Harigehl-Majeedgala	Hydro	40	40	AJK	Candidate	2046
9	Jamshil	Hydro	612	612	PEDO	Candidate	2046
10	Madian	Hydro	156	156	PEDO	Candidate	2046
11	Middle Palas	Hydro	399	399	WAPDA	Candidate	2046
12	Nagdar	Hydro	36	36	AJK	Candidate	2046
13	Okara	Hydro	4	4	PPDB	Candidate	2046
14	Pashot	Hydro	60	60	PEDO	Candidate	2046
15	Phandar	Hydro	80	80	WAPDA	Candidate	2046
16	Sakhra-II	Hydro	8	8	PEDO	Candidate	2046
17	Serai	Hydro	6	6	PEDO	Candidate	2046
18	Shalfalam	Hydro	60	60	PEDO	Candidate	2046
19	Sharmai	Hydro	150	150	PEDO	Candidate	2046
20	Shigo Kas	Hydro	102	102	PEDO	Candidate	2046
21	Shogosin	Hydro	138	138	PEDO	Candidate	2046
22	SHYOK	Hydro	640	640	WAPDA	Candidate	2046
23	Trappi	Hydro	33	33	PEDO	Candidate	2046
24	UCC Bhambhwal	Hydro	4	4	PPDB	Candidate	2046
25	Wari	Hydro	45	45	PEDO	Candidate	2046
26	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2046

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Generation Additions in 2046 (MW)			4,766	4,766			
Cumulative Addition uptill 2046 (MW)			142,908	142,353			
2047							
1	Arkari Gol	Hydro	99	99	PEDO	Candidate	2047
2	Artistic-I	Hydro	63	63	PEDO	Candidate	2047
3	Artistic-II	Hydro	54	54	PEDO	Candidate	2047
4	Ashkot	Hydro	300	300	PPIB	Candidate	2047
5	Athmuqam	Hydro	452	452	PPIB	Candidate	2047
6	Balakot	Hydro	300	300	PEDO	Candidate	2047
7	Balakot-II	Hydro	100	100	PEDO	Candidate	2047
8	Balkani	Hydro	8	8	PEDO	Candidate	2047
9	Basho	Hydro	39	39	WAPDA	Candidate	2047
10	BS Link Tail	Hydro	9	9	PPDB	Candidate	2047
11	Chenavan	Hydro	3	3	PPDB	Candidate	2047
12	Chicha Watni	Hydro	2	2	PPDB	Candidate	2047
13	Chiniot_HPP	Hydro	78	78	WAPDA	Candidate	2047
14	Chota Jabba	Hydro	46	46	PEDO	Candidate	2047
15	CJ	Hydro	24	24	PPDB	Candidate	2047
16	Daral Khwar-II	Hydro	10	10	PEDO	Candidate	2047
17	Dhaddar	Hydro	18	18	PEDO	Candidate	2047
18	Engro_HPP	Hydro	5	5	PPDB	Candidate	2047
19	Gabral Kalam	Hydro	87	87	PEDO	Candidate	2047
20	Gahrit	Hydro	376	376	PEDO	Candidate	2047
21	Garhi Habibullah	Hydro	100	100	PEDO	Candidate	2047
22	Ghail	Hydro	2	2	AJK	Candidate	2047
23	Ghanool	Hydro	3	3	PEDO	Candidate	2047
24	Ghorband	Hydro	20	20	PEDO	Candidate	2047
25	Gomat Nar	Hydro	50	50	AJK	Candidate	2047
26	Gugera	Hydro	3	3	PPDB	Candidate	2047
27	Istaro-Booni	Hydro	72	72	PEDO	Candidate	2047
28	Jabri Bedar	Hydro	4	4	PEDO	Candidate	2047
29	Jhing-II	Hydro	6	6	AJK	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
30	Kalkot Barikot	Hydro	48	48	PEDO	Candidate	2047
31	Kari Mushkur	Hydro	496	496	PEDO	Candidate	2047
32	Kasur	Hydro	2	2	PPDB	Candidate	2047
33	Kathai-III	Hydro	1	1	AJK	Candidate	2047
34	Khal	Hydro	66	66	PEDO	Candidate	2047
35	Khanewal	Hydro	2	2	PPDB	Candidate	2047
36	Khanki Barrage	Hydro	16	16	PPDB	Candidate	2047
37	Khokhra	Hydro	2	2	PPDB	Candidate	2047
38	Lower Spat Gah	Hydro	495	495	PEDO	Candidate	2047
39	Luat	Hydro	48	48	AJK	Candidate	2047
40	Lucky_HPP	Hydro	20	20	PPDB	Candidate	2047
41	Luspur Murigram	Hydro	231	231	PEDO	Candidate	2047
42	Machai-III	Hydro	2	2	PEDO	Candidate	2047
43	Mahandri	Hydro	12	12	PEDO	Candidate	2047
44	Mahodand	Hydro	44	44	PEDO	Candidate	2047
45	Mandi	Hydro	4	4	PPDB	Candidate	2047
46	Mastuj	Hydro	48	48	PEDO	Candidate	2047
47	Mehar	Hydro	12	12	PPDB	Candidate	2047
48	Mid Ranjha	Hydro	80	80	WAPDA	Candidate	2047
49	Mujigram	Hydro	63	63	PEDO	Candidate	2047
50	Murree	Hydro	12	12	PPDB	Candidate	2047
51	Nandihaar	Hydro	12	12	PEDO	Candidate	2047
52	Nila Da Katha	Hydro	36	36	PEDO	Candidate	2047
53	Patrak Sheringhal	Hydro	22	22	PEDO	Candidate	2047
54	Punjnad	Hydro	18	18	PPDB	Candidate	2047
55	Qaditrabad	Hydro	24	24	PPDB	Candidate	2047
56	QB Link	Hydro	8	8	PPDB	Candidate	2047
57	Rasul	Hydro	18	18	PPDB	Candidate	2047
58	Ravi	Hydro	6	6	PPDB	Candidate	2047
59	Sahiwal	Hydro	6	6	PPDB	Candidate	2047
60	Sarral-Dhartian	Hydro	9	9	PEDO	Candidate	2047
61	Shah Jiwana	Hydro	78	78	WAPDA	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
62	Shounter	Hydro	48	48	AJK	Candidate	2047
63	Shushghai	Hydro	144	144	PEDO	Candidate	2047
64	Soan	Hydro	24	24	PPDB	Candidate	2047
65	Tangar	Hydro	24	24	PEDO	Candidate	2047
66	Taunsa	Hydro	135	135	PPDB	Candidate	2047
67	TP	Hydro	9	9	PPDB	Candidate	2047
68	Trident	Hydro	8	8	PPDB	Candidate	2047
69	Trimmu_HPP	Hydro	16	16	PPDB	Candidate	2047
70	Turtonas Uzghor	Hydro	82	82	PPIB	Candidate	2047
71	Upper Palas	Hydro	158	158	WAPDA	Candidate	2047
72	Wazirabad	Hydro	88	88	WAPDA	Candidate	2047
73	Generic_Candidate Solar	Solar	77	77	Yet to be Decided	Candidate	2047
Generation Additions in 2047 (MW)			5,087	5,087			
Cumulative Addition up till 2047 (MW)			147,995	147,440			

K-5. Annual Capacity Factors (%age)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	85	85	85	83	83	41	19	14	15	16	20	22	20	24	23	21	20	19	18	18	18	18	15	13	14	10	11	15
2	Gwadar	Imp. Coal	0	0	84	84	84	84	76	37	38	33	34	34	33	34	31	31	30	30	28	27	26	26	22	18	18	13	23	34
3	Jamshoro Coal	Imp. Coal	0	0	83	83	23	17	7	7	9	11	13	13	12	14	16	16	16	15	14	14	13	14	10	9	10	8	9	10
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	85	85	85	84	84	83	38	27	28	26	29	28	29	30	28	28	27	24	23	23	23	22	19	16	17	13	15	30
6	Sahiwal Coal	Imp. Coal	85	85	77	11	7	7	4	4	4	5	10	10	8	10	12	12	12	11	11	11	10	10	8	8	8	8	8	9
7	Engro Thar	Local Coal	85	85	85	85	84	84	82	80	59	40	43	40	40	43	41	40	39	37	36	33	32	32	26	23	28	31	34	35
8	Lucky	Local Coal	0	87	85	85	84	84	82	44	40	37	38	37	37	39	33	32	33	32	30	30	28	27	24	20	22	19	33	35
9	NEW_Local_Coal	Local Coal	0	0	0	0	85	84	84	82	80	79	77	76	74	73	73	75	77	78	78	79	79	78	78	78	76	73	73	72
10	Oracle	Local Coal	0	0	0	0	0	0	0	83	82	80	79	80	80	81	82	83	84	84	84	85	85	85	85	85	85	85	85	84
11	Siddiqsons	Local Coal	0	88	85	85	85	84	84	82	81	79	78	78	76	80	80	82	82	83	83	83	83	82	83	83	84	84	84	84
12	Thal Nova	Local Coal	0	89	85	85	85	84	83	82	80	77	74	69	55	56	53	55	56	55	50	50	46	44	39	32	45	44	45	52
13	Thar TEL	Local Coal	0	89	85	85	85	84	84	82	79	77	74	68	55	56	53	55	56	54	51	50	46	44	39	32	45	45	45	52
14	Thar-I (Shanghai Electric)	Local Coal	0	87	85	85	84	84	83	81	78	60	59	48	50	49	46	47	47	44	43	40	38	36	32	26	37	39	41	40
15	Balloki	RLNG	86	67	67	67	67	67	67	67	67	67	67	67	67	67	3	4	4	4	4	4	5	5	5	4	3	3	4	4
16	Bhikki	RLNG	80	67	67	67	67	67	67	67	67	67	67	67	67	3	1	2	3	4	4	4	4	4	4	4	3	3	3	3
17	FKPCL	RLNG	2	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	33	11	3	0	0	0	0	0	0	0	2	3	2	0	0	0	1	1	2	3	4	4	0	0	0	0	0	0
20	Haveli	RLNG	92	74	67	67	67	67	67	67	67	67	67	67	67	4	4	5	5	5	5	6	8	8	6	5	4	4	5	5
21	Nandipur	RLNG	53	17	4	1	0	0	0	0	0	1	3	3	3	1	0	1	1	2	3	3	4	4	3	2	3	1	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	47	16	3	0	0	0	0	0	0	0	2	3	3	1	0	0	1	1	2	3	4	0	0	0	0	0	0	0
24	Rousch	RLNG	14	6	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	31	9	2	0	0	0	0	0	0	0	2	3	2	0	0	0	0	1	2	2	4	0	0	0	0	0	0	0
26	Saphire	RLNG	37	13	3	0	0	0	0	0	0	0	2	3	3	1	0	0	1	1	2	3	4	0	0	0	0	0	0	0
27	Trimmu	RLNG	94	91	9	3	2	1	0	0	1	2	4	5	4	5	6	6	7	7	7	8	8	8	8	6	5	6	7	7
28	Davis	RLNG	0	0	0	0	0	0	0	2	0	0	2	2	1	0	0	0	0	0	1	1	2	2	2	2	0	0	0	0
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	89	89	18	6	4	2	1	1	2	3	5	5	5	6	7	6	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	90	90	19	7	4	2	1	1	2	3	5	6	5	7	7	7	8	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	85	85	16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	22	8	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	83	83	82	54	10	3	3	2	3	4	6	7	6	7	9	8	9	8	8	8	8	8	7	6	5	1	0	0
36	Hatim	Gas	0	0	0	0	0	0	0	24	23	21	22	21	15	16	17	17	16	16	16	15	15	15	13	11	8	8	9	7
37	HCPC	Gas	86	86	14	5	4	2	1	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	87	86	13	5	4	2	1	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	65	24	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	86	86	86	86	84	84	37	8	9	8	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	88	88	22	8	5	2	2	2	3	4	5	6	5	7	8	8	8	7	8	7	0	0	0	0	0	0	0	0
43	C-1	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
44	C-2	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
45	C-3	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
46	C-4	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
47	C-5	Nuclear	0	0	0	0	0	0	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	74	79	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
50	K-3	Nuclear	0	0	76	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
51	Alliance	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
52	Almoiz	Bagasse	54	54	54	54	54	54	53	53	53	52	52	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
53	Bahawalpur	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	54	54	54	54	54	54	53	53	53	52	52	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
56	Chiniot	Bagasse	36	36	36	36	36	36	35	35	34	34	34	33	33	34	34	35	35	36	36	36	36	36	36	36	36	36	36	36

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	0	54	54	54	54	54	53	53	52	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
58	Faran	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54
59	Ghotki	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54
60	Hamza	Bagasse	47	47	47	47	47	47	46	46	45	45	44	44	44	44	45	46	47	47	47	47	47	47	47	47	47	47	47	47
61	Hamza-II	Bagasse	0	0	29	54	54	54	53	53	52	52	52	51	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
62	HSM	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
63	Hunza	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54
64	Indus	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
65	Ittefaq	Bagasse	0	0	29	54	54	54	53	53	53	52	52	51	51	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54
66	JDW-II	Bagasse	84	84	84	84	84	84	83	83	82	81	80	80	80	81	82	83	83	83	83	84	84	84	84	84	84	83	83	83
67	JDW-III	Bagasse	78	78	78	78	78	78	77	77	77	75	75	75	75	75	76	77	77	78	78	78	78	78	78	78	78	78	78	78
68	Kashmir	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
69	Mehran	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54
70	RYK_Energy	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54
71	Ryk_Mills	Bagasse	54	54	54	54	54	54	53	53	53	52	52	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
72	Sadiqabad	Bagasse	0	0	29	54	54	54	53	53	52	52	52	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54
73	Shahtaj	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
74	Sheikhoo	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54
75	TAY	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	30	30	30	30	30	30	29	29	29	28	28	28	28	28	29	29	30	30	30	30	30	30	30	30	30	30	30	30
77	Two_Star	Bagasse	0	0	29	54	54	54	53	53	52	52	51	51	51	52	52	53	54	54	54	54	54	54	54	54	54	54	54	54
78	Access_Electric	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
79	Access_Solar	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
81	Best	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
82	Buksh	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
84	Crest	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
85	Helios	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
86	HNDS	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
87	Meridian	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
88	QA_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
89	Safe	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
90	Zhenfa	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
91	Zorlu	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68	68
93	Allai Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	48
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	48	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	40
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	42	41	41	42	42	42
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	38
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	60
109	Blue Star	Hydro	0	0	0	0	65	66	66	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	42	41	42
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	39	40	40	45	45	45	45	46	47	46	47	45	45	46	47	47	47	48	50
121	Daral Khwar	Hydro	47	47	47	47	47	47	47	42	42	42	42	42	45	44	44	44	45	45	45	45	45	44	45	45	45	46	46	46
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
123	Dasu_1	Hydro	0	0	0	0	0	56	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	60	61	64	64	64	64	64	64	64	64	64	64	64	64	64	64
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56	56	56
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44	45
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45	45	45	45	45	45
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	58	58	57	62	63	63	63	63	63	64	63	64	64	63	64	63	64	64	65
130	Dubair Khwar	Hydro	51	51	51	51	51	51	51	50	50	50	49	50	49	50	50	50	50	50	50	50	50	51	50	51	50	50	51	51
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
138	Ghazi Brotha	Hydro	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68
140	Golen Gol	Hydro	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
142	Gorkin Matiltan	Hydro	0	0	0	32	45	45	45	41	41	41	41	41	42	42	41	42	42	42	42	43	42	42	43	43	42	43	43	44
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
144	Gulpur	Hydro	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	61	61
147	Harpo	Hydro	0	0	0	0	0	0	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
149	Jabori	Hydro	91	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
151	Jagran-I	Hydro	31	31	31	31	31	31	31	30	29	30	29	30	30	31	30	31	30	31	31	31	31	31	31	31	31	31	31	31

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44	44
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
155	Jhing	Hydro	95	52	52	52	52	52	52	49	49	49	49	48	50	50	50	50	50	50	50	50	50	50	50	51	51	51	51	51
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
157	Jinnah	Hydro	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	46	46	46
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
161	Karora	Hydro	61	62	62	62	62	62	62	59	59	59	59	59	60	60	60	60	60	60	60	60	60	60	60	60	61	61	61	61
162	Karot	Hydro	0	0	41	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56	56
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	25	32	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	32
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
168	Khan Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
172	Kohala	Hydro	0	0	0	0	0	0	0	0	61	61	61	61	62	62	62	62	62	62	62	62	62	62	62	62	62	63	63	63
173	Koto	Hydro	0	58	58	58	57	58	57	54	55	54	54	54	56	56	55	56	56	56	56	56	56	57	57	57	56	57	57	57
174	Lawi	Hydro	0	43	49	49	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
175	Lower Palas	Hydro	0	0	0	0	0	0	0	43	42	42	42	42	42	42	43	43	43	43	43	43	43	43	43	43	43	43	43	43
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
180	Machai	Hydro	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	58	59	60	61	62	62	62	62	62	62	62	62	62	62	62	63	63	63
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
186	Malakand-III	Hydro	52	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	51	52	52	52	52	52	52	52	52	52	52	52
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
188	Mangla	Hydro	57	57	57	57	57	57	57	56	56	56	56	55	56	56	56	56	57	57	57	57	57	57	57	57	57	57	57	57
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	35	41	40	40	40	39	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62	62
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
201	Neelum Jehlum	Hydro	58	58	58	58	58	58	58	56	56	56	56	55	56	56	56	57	57	57	57	57	57	57	57	57	57	58	58	58
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	50	49	51	57	56	58	59	59	59	59	60	59	59	60	59	60	62	61	62
203	New Bong	Hydro	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	36
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59	59	59
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
210	Pehur	Hydro	23	24	24	24	23	24	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	57	57	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
216	Ranolia	Hydro	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
219	Riali-II	Hydro	0	87	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
220	Riali-III	Hydro	0	0	0	0	0	0	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	51	51
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	66
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
237	Suki Kinari	Hydro	0	0	0	35	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46	46
240	Tarbela_1-10	Hydro	48	48	48	48	48	48	48	48	48	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48	48	48	48
241	Tarbela_11-14	Hydro	48	48	48	48	48	48	48	48	48	48	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48	48	48
242	Tarbela_Ext_4	Hydro	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
243	Tarbela_Ext_5	Hydro	0	0	0	0	19	32	32	32	31	32	31	31	32	31	31	32	32	32	32	32	32	32	32	32	32	32	32	32
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	52	53	53	53	53	53	54	54	53	53	54	54	54	54	54	54	54
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55	55	55	55	55

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	47	48	47	47	48	49	49	49	49	49	49	49	49	49	49	49	49	49	49
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	50	50	50	50
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	53
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	37
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	64
258	Warsak	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46
261	CASA	Cross Border	0	0	0	95	39	39	39	24	24	24	23	24	28	27	24	25	25	25	26	26	26	26	27	27	27	28	30	33
262	Act	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
263	Act_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
264	Artistic_wind	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
265	Artistic_Wind_2	Wind	0	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	0	0	0	33	33	33	30	33	33	33	32	33	32	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
267	Candidate_Wind_North	Wind	0	0	0	33	33	33	30	33	33	32	33	32	33	33	33	32	33	33	33	33	33	33	33	33	33	33	33	33
268	Candidate_Wind_South	Wind	0	0	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
269	Dawood	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
270	Din	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
271	FFC	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
272	FWEL-I	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
273	FWEL-II	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
274	Gul Ahmed	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
275	Gul_Electric	Wind	0	0	38	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
276	Hawa	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
277	Indus_Energy	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
278	Jhimpir	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
279	Lakeside	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
280	Liberty_Wind_1	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
281	Liberty_Wind_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
282	Master	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
283	Master_Green	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
284	Metro_Power	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
286	NASDA	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
287	Sachal	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
288	Sapphire_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
289	Shaheen	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
290	Tenga	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
291	Three_Gorges_I	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
292	Three_Gorges_II	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
293	Three_Gorges_III	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
294	Trans_Atlantic	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
295	Tricon_A	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
296	Tricon_B	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
297	Tricon_C	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
298	Tricorm	Wind	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
299	UEP	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
300	Western	Wind	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
301	Yunus	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
302	Zephyr	Wind	0	56	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
303	Zorlu_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	8	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	4	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	88	88	5	1	1	1	1	1	2	3	5	5	5	5	6	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	11	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

K-6. Annual Energy Generation 2020-30 (GWh)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
1	China HUBCO	Imp. Coal	9,330	9,308	9,308	9,143	9,086	4,504	2,077	1,550	1,617	1,770	2,235
2	Gwadar	Imp. Coal	0	0	1,000	2,001	2,006	2,001	1,821	882	914	801	811
3	Jamshoro Coal	Imp. Coal	0	0	2,725	4,674	2,102	1,863	819	804	1,058	1,199	1,443
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	9,270	9,248	9,248	9,103	9,122	9,002	4,182	2,885	3,034	2,858	3,153
6	Sahiwal Coal	Imp. Coal	9,285	9,263	8,444	1,229	770	815	482	422	489	568	1,061
7	Engro Thar	Local Coal	4,493	4,482	4,482	4,482	4,425	4,412	4,338	4,224	3,138	2,133	2,250
8	Lucky	Local Coal	0	1,546	4,531	4,531	4,472	4,461	4,350	2,360	2,140	1,970	2,016
9	NEW_Local_Coal	Local Coal	0	0	0	0	2,133	2,095	2,095	2,052	2,013	1,968	1,933
10	Oracle	Local Coal	0	0	0	0	0	0	0	8,825	8,724	8,508	8,415
11	Siddiqsons	Local Coal	0	193	2,266	2,266	2,272	2,231	2,231	2,187	2,163	2,103	2,073
12	Thal Nova	Local Coal	0	583	2,234	2,234	2,239	2,199	2,190	2,148	2,101	2,033	1,950
13	Thar TEL	Local Coal	0	583	2,234	2,234	2,239	2,199	2,197	2,148	2,087	2,015	1,934
14	Thar-I (Shanghai Electric)	Local Coal	0	1,545	8,643	9,055	8,960	8,914	8,856	8,655	8,364	6,397	6,238
15	Balloki	RLNG	8,878	6,909	6,909	6,907	6,906	6,905	6,905	6,892	6,887	6,887	6,887
16	Bhikki	RLNG	8,005	6,696	6,695	6,694	6,692	6,690	6,688	6,683	6,674	6,675	6,676
17	FKPCL	RLNG	28	8	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	33	11	1	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
19	Halmore	RLNG	564	194	44	0	0	0	0	0	0	0	31
20	Haveli	RLNG	9,599	7,721	6,966	6,964	6,964	6,964	6,964	6,945	6,944	6,945	6,945
21	Nandipur	RLNG	2,092	686	148	23	3	11	0	0	0	31	102
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	837	281	58	7	0	6	0	0	0	3	41
24	Rousch	RLNG	489	208	27	0	0	0	0	0	0	0	11
25	Saif	RLNG	545	165	36	0	0	0	0	0	0	0	31
26	Saphire	RLNG	650	232	50	1	0	2	0	0	0	0	36
27	Trimmu	RLNG	2,543	9,919	990	371	249	58	18	5	83	183	456
28	Davis	RLNG	0	0	0	0	0	0	0	2	0	0	2
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	100
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	1,655	1,651	332	114	76	33	22	22	32	56	88
32	Foundation	Gas	1,320	1,317	279	103	65	27	18	21	26	48	77
33	Guddu-I	Gas	1,950	1,945	359	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	517	182	29	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	5,234	5,221	5,202	3,416	656	219	166	137	202	251	396
36	Hatim	Gas	0	0	0	0	0	0	0	42	40	38	38
37	HCPC	Gas	975	971	159	54	45	20	11	13	18	31	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
38	Kotri	Gas	808	803	117	43	33	16	8	8	15	0	0
39	Liberty	Gas	1,209	438	98	20	10	5	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	4,149	4,139	4,139	4,120	4,074	4,064	1,763	392	415	407	48
42	Uch-II	Gas	2,737	2,731	680	241	147	60	59	49	78	113	168
43	C-1	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
44	C-2	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
45	C-3	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,183	2,175	2,186	2,175	2,175
46	C-4	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,182	2,181	2,186	2,181	2,181
47	C-5	Nuclear	0	0	0	0	0	0	7,283	7,246	7,263	7,240	7,240
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	4,548	7,292	7,292	7,307	7,292	7,284	7,245	7,260	7,235	7,240
50	K-3	Nuclear	0	0	5,823	7,292	7,307	7,292	7,284	7,245	7,262	7,239	7,236
51	Alliance	Bagasse	0	0	19	143	144	142	140	140	138	136	135
52	Almoiz	Bagasse	172	172	172	172	172	172	168	168	168	164	162
53	Bahawalpur	Bagasse	0	0	20	149	149	147	146	146	144	141	140
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	105	105	105	105	105	105	103	103	102	100	100
56	Chiniot	Bagasse	197	196	196	196	197	196	190	190	188	185	184

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
57	Etihad	Bagasse	0	355	355	355	356	353	348	348	343	339	334
58	Faran	Bagasse	0	0	17	126	127	126	124	124	122	121	119
59	Ghotki	Bagasse	0	0	29	215	215	212	210	210	207	205	202
60	Hamza	Bagasse	62	62	62	62	62	62	60	60	60	59	58
61	Hamza-II	Bagasse	0	0	19	143	144	141	140	140	138	137	135
62	HSM	Bagasse	0	0	17	126	127	125	124	124	122	120	119
63	Hunza	Bagasse	0	0	32	238	238	236	233	233	230	227	223
64	Indus	Bagasse	0	0	20	148	148	146	145	145	143	140	139
65	Ittefaq	Bagasse	0	0	20	149	149	148	146	146	144	142	141
66	JDW-II	Bagasse	194	193	193	193	194	193	191	191	189	186	185
67	JDW-III	Bagasse	180	180	180	180	180	180	178	178	177	174	173
68	Kashmir	Bagasse	0	0	26	191	191	190	187	187	184	182	179
69	Mehran	Bagasse	0	0	17	126	127	126	124	124	122	120	119
70	RYK_Energy	Bagasse	0	0	16	119	120	119	117	117	115	113	112
71	Ryk_Mills	Bagasse	144	143	143	143	144	143	140	140	139	137	135
72	Sadiqabad	Bagasse	0	0	29	215	215	214	210	210	207	205	203
73	Shahtaj	Bagasse	0	0	21	153	153	151	149	149	148	145	144
74	Sheikhoo	Bagasse	0	0	19	143	144	142	140	140	138	137	135
75	TAY	Bagasse	0	0	19	143	144	142	140	140	138	136	135

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
76	Thal_Layyah	Bagasse	109	109	109	109	109	109	106	106	105	102	100
77	Two_Star	Bagasse	0	0	32	238	238	236	233	233	230	227	223
78	Access_Electric	Solar	0	5	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	0	5	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	0	0	14	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	2,482	4,965	7,447	9,929	12,412	14,894	17,377	19,841
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	0	0	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	0	0	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	0	0	48	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	0	0	13	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	0	0	97	165	165	165	165	165	165	165	165
91	Zorlu	Solar	84	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0
93	Allai Khwar	Hydro	396	395	395	395	396	395	395	395	396	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	2,181	3,256	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
109	Blue Star	Hydro	0	0	0	0	17	17	17	18	18	18	18
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
114	Chashma	Hydro	767	765	765	765	767	765	765	765	767	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	192	195
121	Daral Khwar	Hydro	147	147	147	147	147	147	147	132	134	132	131
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
123	Dasu_1	Hydro	0	0	0	0	0	4,321	11,975	11,975	11,990	11,975	11,975
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	334	337
130	Dubair Khwar	Hydro	581	581	581	581	581	581	579	567	568	566	559
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0
138	Ghazi Brotha	Hydro	6,563	6,551	6,551	6,551	6,563	6,551	6,543	6,503	6,507	6,477	6,469
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0
140	Golen Gol	Hydro	97	97	97	97	97	97	97	96	96	96	96
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0
142	Gorkin Matiltan	Hydro	0	0	0	155	331	331	329	301	303	298	300
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0
144	Gulpur	Hydro	481	480	480	480	481	480	480	480	481	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0
147	Harpo	Hydro	0	0	0	0	0	0	170	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0
149	Jabori	Hydro	27	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0
151	Jagran-I	Hydro	82	82	82	82	82	82	82	78	78	78	77

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0
155	Jhing	Hydro	10	68	68	68	68	68	68	64	65	64	64
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
157	Jinnah	Hydro	195	194	194	194	195	194	194	193	192	191	191
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0
161	Karora	Hydro	5	65	65	65	65	65	65	62	62	62	62
162	Karot	Hydro	0	0	1,496	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	232	353	344	345	344	345
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0
168	Khan Khwar	Hydro	235	234	234	234	235	234	234	234	235	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0
172	Kohala	Hydro	0	0	0	0	0	0	0	0	6,034	5,999	6,004
173	Koto	Hydro	0	212	212	212	212	212	211	199	201	199	197
174	Lawi	Hydro	0	130	295	295	295	295	294	290	292	290	290
175	Lower Palas	Hydro	0	0	0	0	0	0	0	2,513	2,479	2,458	2,436
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	3,246
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0
186	Malakand-III	Hydro	367	367	367	367	367	367	367	366	362	364	362
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0
188	Mangla	Hydro	5,016	5,004	5,004	5,004	5,016	5,004	4,992	4,938	4,927	4,875	4,870
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	1,633	2,840	2,790	2,793	2,773	2,733
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0
201	Neelum Jehlum	Hydro	4,944	4,939	4,939	4,939	4,944	4,939	4,912	4,743	4,776	4,723	4,710
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	201	196
203	New Bong	Hydro	471	470	470	470	471	470	470	470	471	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
209	Patrind	Hydro	635	634	634	634	635	634	634	632	632	632	632
210	Pehur	Hydro	37	37	37	37	37	37	37	36	36	36	36
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	664	664
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0
219	Riali-II	Hydro	0	5	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	0	0	0	0	0	0	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	387	386	386	386	387	386	386	379	380	378	378
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0
237	Suki Kinari	Hydro	0	0	0	1,332	2,800	2,798	2,795	2,763	2,766	2,759	2,762
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0
240	Tarbela_1-10	Hydro	7,386	7,377	7,377	7,377	7,386	7,377	7,368	7,298	7,323	7,244	7,219
241	Tarbela_11-14	Hydro	7,294	7,285	7,285	7,285	7,294	7,285	7,285	7,193	7,212	7,212	7,124
242	Tarbela_Ext_4	Hydro	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,806	3,811
243	Tarbela_Ext_5	Hydro	0	0	0	0	1,975	4,005	3,999	3,982	3,833	3,910	3,850
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	6,991	7,025
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0
258	Warsak	Hydro	999	997	997	997	999	997	997	997	999	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0
261	CASA	Cross Border	0	0	0	1,387	3,457	3,456	3,410	2,072	2,066	2,136	2,036
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	0	0	58	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	0	0	102	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
266	Candidate_Wind_Mid	Wind	0	0	0	872	1,273	1,271	1,140	1,271	1,273	2,040	2,781
267	Candidate_Wind_North	Wind	0	0	0	581	582	581	528	581	582	555	1,163
268	Candidate_Wind_South	Wind	0	0	0	3,440	6,889	9,860	12,010	14,207	16,911	20,183	23,485
269	Dawood	Wind	0	14	144	144	144	144	144	144	144	144	144
270	Din	Wind	0	0	58	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	151	150	150	150	151	150	150	150	151	150	150
273	FWEL-II	Wind	151	150	150	150	151	150	150	150	151	150	150
274	Gul Ahmed	Wind	146	145	145	145	146	145	145	145	146	145	145
275	Gul_Electric	Wind	0	0	83	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	0	0	58	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	0	0	58	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	0	0	58	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	0	0	58	172	172	172	172	172	172	172	172
282	Master	Wind	154	153	153	153	154	153	153	153	154	153	153
283	Master_Green	Wind	0	102	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	146	145	145	145	146	145	145	145	146	145	145

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
285	Metro_Wind	Wind	0	0	70	206	207	206	206	206	207	206	206
286	NASDA	Wind	0	0	58	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	154	153	153	153	154	153	153	153	154	153	153
289	Shaheen	Wind	0	104	175	175	176	175	175	175	176	175	175
290	Tenga	Wind	0	14	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	157	156	156	156	157	156	156	156	157	156	156
293	Three_Gorges_III	Wind	157	156	156	156	157	156	156	156	157	156	156
294	Trans_Atlantic	Wind	0	0	56	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	0	71	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	0	58	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	146	145	145	145	146	145	145	145	146	145	145
302	Zephyr	Wind	0	20	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
304	KAPCO 1	RFO	248	116	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	288	117	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	24	7	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	4	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	1	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	1,203	1,196	74	9	12	12	12	15	22	35	63
322	ATLAS	RFO	13	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
323	HuB N	RFO	10	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	120	75	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	27	7	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	5	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	2	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			**143,901**	**151,249**	**161,527**	**169,719**	**177,616**	**185,149**	**194,337**	**203,899**	**215,073**	**226,322**	**237,996**
Energy Demand			**143,901**	**151,249**	**161,527**	**169,719**	**177,616**	**185,149**	**194,337**	**203,899**	**215,073**	**226,322**	**237,996**
Energy Not Served			**0.00**	**-0.02**	**-0.02**	**-0.06**	**0.00**	**-0.07**	**0.03**	**-0.07**	**0.00**	**0.02**	**-0.02**

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

.

K-7. Annual Energy Generation 2030-47 (GWh)

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	2,369	2,210	2,594	2,474	2,296	2,189	2,068	2,010	1,999	1,960	1,954	1,691	1,408	1,562	1,078	1,245	1,683
2	Gwadar	Imp. Coal	813	787	806	750	737	722	707	666	634	620	613	517	432	443	322	551	811
3	Jamshoro Coal	Imp. Coal	1,474	1,378	1,566	1,796	1,771	1,771	1,658	1,594	1,563	1,522	1,545	1,159	1,024	1,169	923	1,025	1,166
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	3,076	3,115	3,288	3,015	3,053	2,986	2,638	2,521	2,484	2,458	2,410	2,041	1,721	1,817	1,424	1,676	3,297
6	Sahiwal Coal	Imp. Coal	1,142	896	1,134	1,300	1,308	1,318	1,237	1,185	1,178	1,107	1,128	895	819	869	828	862	928
7	Engro Thar	Local Coal	2,104	2,122	2,255	2,147	2,098	2,064	1,946	1,897	1,756	1,697	1,680	1,389	1,233	1,503	1,651	1,804	1,867
8	Lucky	Local Coal	1,967	1,950	2,094	1,780	1,718	1,759	1,698	1,609	1,621	1,489	1,451	1,256	1,079	1,185	1,034	1,775	1,849
9	NEW_Local_Coal	Local Coal	4,329	4,245	27,498	50,077	66,674	84,775	104,346	125,089	146,031	171,022	172,298	183,755	190,506	188,311	178,144	178,328	176,664
10	Oracle	Local Coal	8,471	8,489	8,600	8,702	8,851	8,905	8,986	8,986	9,021	9,043	9,022	9,023	9,023	9,039	8,993	8,995	8,962
11	Siddiqsons	Local Coal	2,087	2,032	2,128	2,135	2,178	2,202	2,214	2,210	2,206	2,217	2,197	2,201	2,216	2,242	2,249	2,250	2,230
12	Thal Nova	Local Coal	1,819	1,462	1,464	1,396	1,446	1,488	1,434	1,318	1,315	1,212	1,152	1,024	831	1,182	1,166	1,181	1,355
13	Thar TEL	Local Coal	1,798	1,455	1,471	1,393	1,443	1,481	1,432	1,348	1,310	1,217	1,160	1,021	839	1,186	1,177	1,175	1,364
14	Thar-I (Shanghai Electric)	Local Coal	5,133	5,349	5,226	4,929	5,000	5,054	4,653	4,536	4,240	4,016	3,846	3,404	2,772	3,964	4,129	4,313	4,244
15	Balloki	RLNG	6,889	6,898	6,896	315	363	405	420	448	452	473	511	467	444	348	348	377	406
16	Bhikki	RLNG	6,680	6,682	267	144	199	284	358	379	428	433	431	419	354	316	276	305	313
17	FKPCL	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	46	42	8	5	5	11	21	26	56	63	70	0	0	0	0	0	0
20	Haveli	RLNG	6,946	6,957	405	436	483	525	562	569	632	795	809	632	471	400	419	472	482
21	Nandipur	RLNG	133	118	52	16	43	50	67	105	135	140	150	130	97	106	56	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	58	55	23	6	8	22	23	43	59	59	0	0	0	0	0	0	0
24	Rousch	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	46	31	6	2	6	6	16	27	42	53	0	0	0	0	0	0	0
26	Saphire	RLNG	55	47	22	6	6	22	22	28	59	66	0	0	0	0	0	0	0
27	Trimmu	RLNG	514	467	546	611	654	716	708	745	885	895	903	861	635	560	600	755	793
28	Davis	RLNG	2	1	0	0	0	0	0	1	1	2	2	2	1	0	0	0	0
29	NEW OCGT (Generic)	RLNG	182	133	18	0	13	33	48	71	154	310	566	430	252	268	133	336	483
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	98	87	106	122	84	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	90	74	97	101	103	96	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	422	356	442	542	524	541	534	529	508	503	501	455	387	328	18	0	0
36	Hatim	Gas	38	26	29	30	29	29	28	28	27	26	26	23	20	13	13	15	12
37	HCPC	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	193	153	205	247	245	241	229	261	168	0	0	0	0	0	0	0	0
43	C-1	Nuclear	2,077	2,080	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,077	2,077	2,081	2,077	2,077	2,078
44	C-2	Nuclear	2,077	2,080	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,081	2,077	2,077	2,078
45	C-3	Nuclear	2,175	2,185	2,176	2,181	2,181	2,187	2,182	2,182	2,182	2,187	2,183	2,182	2,182	2,187	2,182	2,183	2,182
46	C-4	Nuclear	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,182
47	C-5	Nuclear	7,227	7,265	7,249	7,250	7,248	7,267	7,251	7,251	7,251	7,265	7,249	7,249	7,248	7,263	7,253	7,255	7,259
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	7,228	7,266	7,249	7,253	7,248	7,265	7,249	7,252	7,250	7,264	7,250	7,250	7,248	7,265	7,252	7,254	7,260
50	K-3	Nuclear	7,229	7,268	7,250	7,252	7,248	7,267	7,251	7,251	7,250	7,264	7,249	7,248	7,248	7,264	7,252	7,256	7,260
51	Alliance	Bagasse	135	135	136	138	140	141	142	142	143	144	143	143	143	144	142	142	142
52	Almoiz	Bagasse	162	163	164	166	168	170	171	171	172	172	172	172	172	172	171	171	171
53	Bahawalpur	Bagasse	140	140	142	143	146	146	148	148	149	149	149	149	149	149	148	148	148
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	99	99	100	101	103	104	104	104	105	105	105	105	105	105	104	104	104
56	Chiniot	Bagasse	181	182	184	188	190	194	195	195	196	197	196	196	196	197	195	195	195

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	334	335	338	343	348	350	353	353	355	356	355	355	355	356	353	353	353
58	Faran	Bagasse	119	119	120	122	124	125	126	126	126	127	126	126	126	127	126	126	126
59	Ghotki	Bagasse	202	203	204	207	210	212	214	214	215	215	215	215	215	215	214	214	214
60	Hamza	Bagasse	57	58	58	59	60	61	61	61	62	62	62	62	62	62	61	61	61
61	Hamza-II	Bagasse	135	135	136	138	140	141	142	142	143	144	143	143	143	144	142	142	142
62	HSM	Bagasse	119	119	120	122	124	125	126	126	126	127	126	126	126	127	126	126	126
63	Hunza	Bagasse	223	224	225	229	233	235	236	236	238	238	238	238	238	238	236	236	236
64	Indus	Bagasse	139	140	140	143	145	146	147	147	148	148	148	148	148	148	147	147	147
65	Ittefaq	Bagasse	140	140	142	143	146	146	148	148	149	149	149	149	149	149	148	148	148
66	JDW-II	Bagasse	184	186	186	188	191	192	192	192	193	194	193	193	193	194	192	192	192
67	JDW-III	Bagasse	173	174	174	175	178	179	179	179	180	180	180	180	180	180	179	179	179
68	Kashmir	Bagasse	179	180	182	184	187	188	190	190	191	191	191	191	191	191	190	190	190
69	Mehran	Bagasse	119	119	120	122	124	124	126	126	126	127	126	126	126	127	126	126	126
70	RYK_Energy	Bagasse	112	113	114	115	117	118	119	119	119	120	119	119	119	120	119	119	119
71	Ryk_Mills	Bagasse	135	136	136	138	140	142	142	142	143	144	143	143	143	144	142	142	142
72	Sadiqabad	Bagasse	202	203	204	207	210	213	214	214	215	215	215	215	215	215	214	214	214
73	Shahtaj	Bagasse	144	144	145	147	149	151	152	152	153	153	153	153	153	153	152	152	152
74	Sheikhoo	Bagasse	135	136	136	138	140	141	142	142	143	144	143	143	143	144	142	142	142
75	TAY	Bagasse	135	135	136	138	140	141	142	142	143	144	143	143	143	144	142	142	142

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	99	100	101	103	106	108	108	108	109	109	109	109	109	109	108	108	108
77	Two_Star	Bagasse	223	224	226	229	233	236	236	236	238	238	238	238	238	238	236	236	236
78	Access_Electric	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	20,922	23,326	25,850	25,886	25,886	26,110	27,037	28,028	30,075	30,664	33,146	35,629	38,111	38,111	40,433	42,915	43,042
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
91	Zorlu	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
93	Allai Khwar	Hydro	395	396	395	395	395	396	395	395	395	396	395	395	395	396	395	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	262

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	289
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	199
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,220
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	917	917	917
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,962
100	Azad Pattan	Hydro	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	983
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	508
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	142	142
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	349	349	349	348	349	350	351
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119	119
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	48
109	Blue Star	Hydro	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	12,988	25,883	25,872	25,783	25,869
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,420	2,420
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	65

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	765	767	765	765	765	767	765	765	765	767	765	765	765	767	765	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	175
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
120	Dander	Hydro	198	222	219	220	222	226	229	227	230	223	219	228	228	230	229	236	244
121	Daral Khwar	Hydro	133	141	139	139	138	141	140	141	141	141	139	142	141	143	145	144	146
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
123	Dasu_1	Hydro	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975
124	Dasu_2	Hydro	0	11,469	11,509	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	4,728	4,738	4,740	4,735	4,737
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	17,533	17,530	17,544
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	158	158	158	158	159	159	159
129	Dubair Kalay	Hydro	332	359	363	362	365	368	365	370	367	371	372	366	369	368	373	373	373
130	Dubair Khwar	Hydro	571	565	571	565	567	571	574	574	575	576	576	575	575	575	571	576	576
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	310

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	311	311
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,635
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	508
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
138	Ghazi Brotha	Hydro	6,494	6,508	6,486	6,510	6,512	6,506	6,520	6,525	6,516	6,533	6,516	6,524	6,517	6,535	6,512	6,526	6,535
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119
140	Golen Gol	Hydro	95	96	96	96	96	97	97	97	97	97	97	97	97	97	97	97	97
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	210
142	Gorkin Matiltan	Hydro	299	312	312	300	308	313	310	310	313	313	311	314	313	312	318	316	320
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
144	Gulpur	Hydro	480	481	480	480	480	481	480	480	480	481	480	480	480	481	480	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78	79
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	213	213
147	Harpo	Hydro	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260
149	Jabori	Hydro	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
151	Jagran-I	Hydro	78	80	80	80	81	80	80	80	80	81	80	81	80	81	81	81	82

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	137	138	138
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	91	91
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,621	2,625
155	Jhing	Hydro	63	65	66	65	65	66	66	66	66	67	66	66	67	67	67	67	67
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
157	Jinnah	Hydro	191	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	846	848	849	849
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	163
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,960
161	Karora	Hydro	62	63	63	63	63	63	63	63	63	64	63	63	63	64	64	64	64
162	Karot	Hydro	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	40	39	39	39
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	345	350	348	348	348	349	350	349	349	350	349	349	350	351	351	351	353
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	258
168	Khan Khwar	Hydro	234	235	234	234	234	235	234	234	234	235	234	234	234	235	234	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
172	Kohala	Hydro	6,001	6,124	6,090	6,064	6,087	6,101	6,109	6,105	6,102	6,121	6,086	6,104	6,116	6,135	6,158	6,189	6,208
173	Koto	Hydro	197	207	205	201	205	207	208	207	207	208	208	208	208	208	210	209	210
174	Lawi	Hydro	291	291	291	290	291	291	292	291	292	292	292	291	292	292	292	291	292
175	Lower Palas	Hydro	2,455	2,479	2,476	2,506	2,508	2,512	2,511	2,512	2,513	2,518	2,517	2,513	2,514	2,512	2,516	2,516	2,511
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	309
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	787
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	664	664
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
184	Mahl	Hydro	3,282	3,388	3,408	3,488	3,466	3,485	3,479	3,475	3,473	3,495	3,488	3,491	3,485	3,506	3,520	3,521	3,537
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	182
186	Malakand-III	Hydro	362	366	364	362	362	366	366	367	367	367	367	367	367	367	366	367	366
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
188	Mangla	Hydro	4,837	4,962	4,914	4,942	4,923	5,003	4,991	4,992	4,995	5,004	4,991	4,993	4,998	5,014	5,002	5,004	5,004
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	225

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,710	1,710
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	2,797	2,786	2,822	2,781	2,795	2,800	2,800	2,799	2,827	2,828	2,817	2,808	2,815	2,820	2,798	2,816	2,834
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	133	134
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	673	674	670
201	Neelum Jehlum	Hydro	4,683	4,781	4,740	4,780	4,839	4,841	4,859	4,867	4,864	4,871	4,858	4,867	4,871	4,879	4,891	4,894	4,891
202	Nerai-Dubair	Hydro	205	229	224	233	237	240	239	239	240	240	239	240	239	244	249	247	251
203	New Bong	Hydro	470	471	470	470	470	471	470	470	470	471	470	470	470	471	470	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	134
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	256	255
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	12,335	12,333	12,358	12,335	12,338	12,339
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	632	634	633	633	634	634	633	634	634	634	634	634	634	634	634	634	634
210	Pehur	Hydro	36	37	37	36	37	37	37	37	37	37	37	37	37	37	37	37	37
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	320	321
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
215	Rajdhani	Hydro	668	670	668	670	670	671	670	670	670	671	670	670	670	671	670	670	670
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
219	Riali-II	Hydro	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41	41
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	22
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	306
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	282	282

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	662	660
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	451	451
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	533	533
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	205
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	468
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,720	3,725
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	379	382	380	380	379	381	381	380	381	383	381	381	381	383	382	383	384
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
237	Suki Kinari	Hydro	2,763	2,779	2,771	2,769	2,772	2,776	2,772	2,773	2,777	2,781	2,771	2,772	2,775	2,778	2,776	2,780	2,778
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	90
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	8,813	8,813	8,811	8,771
240	Tarbela_1-10	Hydro	7,217	7,228	7,252	7,212	7,288	7,365	7,308	7,364	7,332	7,337	7,335	7,329	7,346	7,366	7,337	7,347	7,348
241	Tarbela_11-14	Hydro	7,166	7,071	7,137	7,164	7,149	7,226	7,197	7,221	7,229	7,263	7,264	7,258	7,272	7,286	7,214	7,273	7,256
242	Tarbela_Ext_4	Hydro	3,811	3,815	3,811	3,787	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811
243	Tarbela_Ext_5	Hydro	3,816	3,904	3,878	3,883	3,897	3,936	3,940	3,972	3,983	3,985	3,988	3,984	3,981	3,981	3,981	3,988	3,989
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	441
245	Thakot-I	Hydro	9,760	10,006	10,014	10,061	10,069	10,105	10,099	10,096	10,092	10,118	10,104	10,102	10,101	10,124	10,126	10,131	10,135
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	4,658	4,658	4,660	4,673	4,667	4,671	4,674

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	7,010	7,026	7,043	7,206	7,208	7,233	7,220	7,221	7,221	7,234	7,221	7,221	7,222	7,239	7,227	7,227	7,228
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	306	306	306	306	306	306
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	154	154
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	355
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	507
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252	252
258	Warsak	Hydro	997	999	997	997	997	999	997	997	997	999	997	997	997	999	997	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	350
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11,236	11,247	11,250
261	CASA	Cross Border	2,082	2,431	2,343	2,074	2,161	2,159	2,230	2,237	2,279	2,293	2,317	2,342	2,343	2,410	2,480	2,624	2,900
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	2,895	2,786	2,912	2,912	2,912	2,892	2,912	2,912	2,912	2,917	2,912	2,912	2,912	2,917	2,912	2,912	2,912
267	Candidate_Wind_North	Wind	1,111	1,165	1,163	1,163	1,131	1,165	1,163	1,163	1,163	1,165	1,163	1,163	1,163	1,165	1,163	1,163	1,163
268	Candidate_Wind_South	Wind	23,618	23,678	23,812	23,714	23,861	23,894	23,861	23,861	23,861	23,894	23,861	23,861	23,861	23,894	23,861	23,861	23,861
269	Dawood	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
270	Din	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
273	FWEL-II	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
274	Gul Ahmed	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
275	Gul_Electric	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
282	Master	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
283	Master_Green	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	206	207	206	206	206	207	206	206	206	207	206	206	206	207	206	206	206
286	NASDA	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
289	Shaheen	Wind	175	176	175	175	175	176	175	175	175	176	175	175	175	176	175	175	175
290	Tenga	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
293	Three_Gorges_III	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
294	Trans_Atlantic	Wind	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
302	Zephyr	Wind	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	67	63	67	58	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			250,462	264,419	278,676	294,572	311,828	331,028	350,196	371,490	394,338	419,717	428,094	451,631	475,646	498,995	519,925	540,294	559,765
Energy Demand			250,462	264,419	278,676	294,572	311,828	331,028	350,196	371,490	394,338	419,717	428,094	451,631	475,646	498,995	519,925	540,294	559,765
Energy Not Served			0.04	0.00	-0.02	0.01	-0.01	0.00	0.03	0.01	-0.03	0.00	0.00	0.01	-0.01	0.00	-0.03	0.03	-0.02

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

K-8. Year wise Cost Breakup-Discounted Prices

FY	Present Worth Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	4,655,694	5,612,415	5,612,415
2021	0	913,435	4,089,357	5,002,793	10,615,208
2022	0	909,992	3,106,819	4,016,811	14,632,019
2023	215,029	890,290	2,485,264	3,590,582	18,222,601
2024	374,888	853,324	2,113,675	3,341,887	21,564,488
2025	451,972	801,906	1,803,496	3,057,373	24,621,861
2026	491,249	771,318	1,463,251	2,725,818	27,347,679
2027	656,851	723,593	1,294,912	2,675,356	30,023,035
2028	695,662	680,372	1,172,141	2,548,174	32,571,209
2029	841,949	638,171	1,047,191	2,527,311	35,098,520
2030	931,317	588,357	985,570	2,505,245	37,603,765
2031	969,098	516,071	871,405	2,356,574	39,960,339
2032	970,591	473,654	772,082	2,216,327	42,176,666
2033	1,020,756	445,971	535,423	2,002,150	44,178,816
2034	1,037,809	421,249	438,558	1,897,617	46,076,433
2035	1,024,865	396,321	442,825	1,864,011	47,940,444
2036	1,011,573	372,823	455,361	1,839,757	49,780,202
2037	994,925	349,805	460,823	1,805,553	51,585,754
2038	975,630	330,799	460,645	1,767,074	53,352,828
2039	958,099	313,658	464,858	1,736,615	55,089,442
2040	940,028	297,723	460,786	1,698,538	56,787,980
2041	881,658	270,647	418,603	1,570,908	58,358,888
2042	875,159	265,245	381,447	1,521,851	59,880,740
2043	888,678	248,812	341,146	1,478,636	61,359,376
2044	890,566	229,466	307,065	1,427,096	62,786,472
2045	934,196	222,823	258,884	1,415,903	64,202,375
2046	899,522	204,080	239,690	1,343,293	65,545,667
2047	890,343	193,698	222,192	1,306,233	66,851,900

K-9. Year wise Cost Breakup-Un-Discounted Prices (k$)

FY	Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	4,655,694	5,612,415	5,612,415
2021	0	1,014,928	4,543,730	5,558,658	11,171,074
2022	0	1,123,447	3,835,579	4,959,026	16,130,100
2023	294,964	1,221,248	3,409,141	4,925,352	21,055,452
2024	571,388	1,300,601	3,221,575	5,093,564	26,149,016
2025	765,418	1,358,034	3,054,236	5,177,688	31,326,704
2026	924,372	1,451,370	2,753,365	5,129,108	36,455,811
2027	1,373,312	1,512,853	2,707,340	5,593,505	42,049,316
2028	1,616,062	1,580,543	2,722,950	5,919,554	47,968,870
2029	2,173,217	1,647,231	2,702,984	6,523,432	54,492,302
2030	2,670,991	1,687,392	2,826,588	7,184,971	61,677,273
2031	3,088,163	1,644,529	2,776,851	7,509,543	69,186,817
2032	3,436,579	1,677,070	2,733,716	7,847,364	77,034,181
2033	4,015,775	1,754,503	2,106,416	7,876,694	84,910,875
2034	4,536,515	1,841,382	1,917,045	8,294,942	93,205,818
2035	4,977,703	1,924,908	2,150,772	9,053,382	102,259,200
2036	5,459,049	2,011,976	2,457,401	9,928,426	112,187,626
2037	5,965,784	2,097,509	2,763,192	10,826,485	123,014,111
2038	6,500,097	2,203,935	3,069,032	11,773,064	134,787,174
2039	7,092,554	2,321,928	3,441,219	12,855,701	147,642,876
2040	7,731,979	2,448,853	3,790,090	13,970,922	161,613,798
2041	8,057,631	2,473,493	3,825,689	14,356,813	175,970,611
2042	8,886,930	2,693,467	3,873,464	15,453,861	191,424,473
2043	10,026,898	2,807,333	3,849,131	16,683,361	208,107,834
2044	11,164,669	2,876,721	3,849,547	17,890,937	225,998,771
2045	13,012,935	3,103,825	3,606,133	19,722,893	245,721,664
2046	13,922,156	3,158,609	3,709,757	20,790,522	266,512,186
2047	15,311,207	3,331,023	3,821,036	22,463,266	288,975,452

K-10. Year wise Nominal Capacity Addition (MW)

FY	Capacity Addition Over the Plan Period (2020-47) - MW										
	Local Coal	Hydro	RLNG	Nuclear	Imported Coal	RE	Natural Gas	Furnace Oil	Cross Border	Yearly Addition	Total (MW)
2020	602	9,945	6,677	1,230	3,736	1,846	3,010	6,488	0	33,534	-
2021	2,118	119	0	1,059	0	446	0	0	0	3,742	37,276
2022	607	720	0	1,059	917	1,410	0	-1,336	0	3,377	40,653
2023	0	968	0	0	0	3,000	-260	0	1,000	4,708	45,361
2024	285	1,413	0	0	644	2,637	-270	0	0	4,710	50,070
2025	0	3,088	0	0	0	2,367	0	0	0	5,455	55,525
2026	0	37	0	1,059	0	2,134	0	0	0	3,230	58,755
2027	1,214	1,366	0	0	0	2,161	-192	-1,200	0	3,349	62,104
2028	0	1,122	1,547	0	0	2,275	0	-824	0	4,120	66,224
2029	0	1,986	1,013	0	0	2,764	-106	0	0	5,657	71,881
2030	0	639	2,222	0	0	3,000	-678	-653	0	4,530	76,411
2031	368	2,154	789	0	0	642	0	-310	0	3,643	80,054
2032	0	2,160	1,211	0	0	1,500	-29	-367	0	4,475	84,529
2033	3,630	0	289	0	0	1,500	0	-627	0	4,792	89,320
2034	3,538	0	623	0	0	0	0	-156	0	4,006	93,326
2035	2,271	0	2,696	0	0	0	-212	-409	0	4,346	97,672
2036	2,435	0	2,951	0	0	135	-167	-606	0	4,748	102,421
2037	2,795	0	2,051	0	0	560	0	0	0	5,405	107,826
2038	2,905	0	2,281	0	0	599	0	0	0	5,784	113,610
2039	2,970	0	2,774	0	0	1,237	-355	0	0	6,625	120,236
2040	3,506	0	2,550	0	0	356	0	0	0	6,412	126,648
2041	380	1,102	442	0	0	1,500	0	0	0	3,424	130,072
2042	1,746	2,470	1,329	0	0	1,500	0	0	0	7,044	137,116
2043	1,205	4,510	0	0	0	1,500	0	0	0	7,215	144,331
2044	0	5,978	-10	0	0	0	0	0	0	5,968	150,299
2045	0	7,783	0	0	0	1,403	-721	0	0	8,465	158,764
2046	0	3,266	-450	0	0	1,500	0	0	0	4,316	163,080
2047	0	5,010	0	0	0	77	0	0	0	5,087	168,166
Total	32,575	55,836	30,983	4,407	5,297	38,048	20	0	1,000	168,166	

K-11. IGCEP Generation Mix 2020-2047 (GWh)

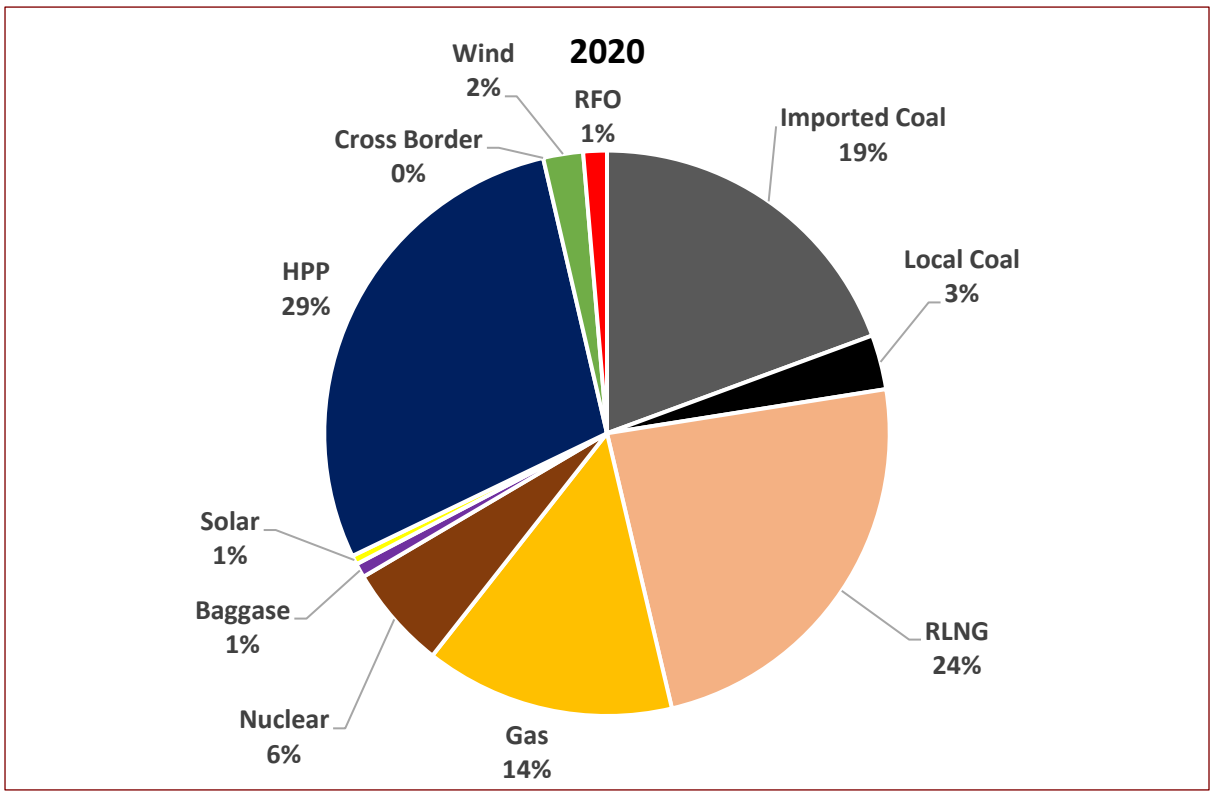


Chart K-1: IGCEP Generation Mix 2020 (GWh)

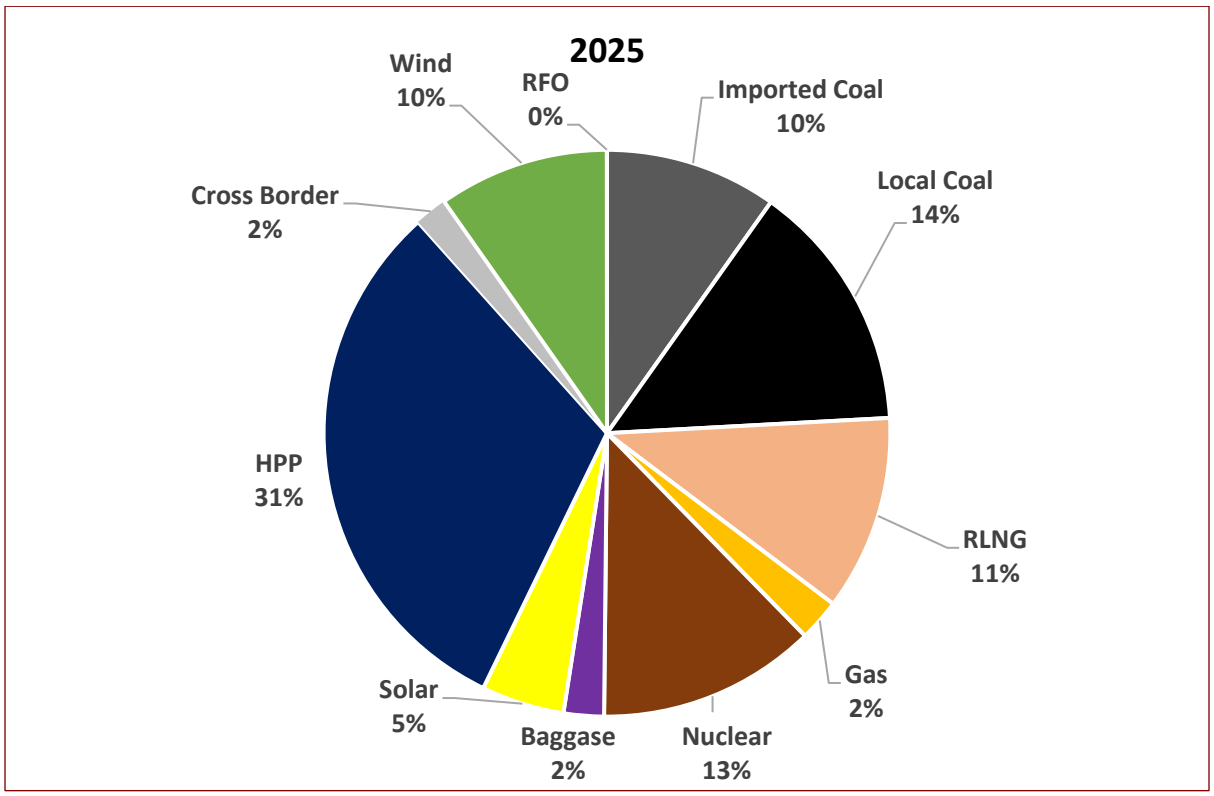


Chart K-2: IGCEP Generation Mix 2025 (GWh)

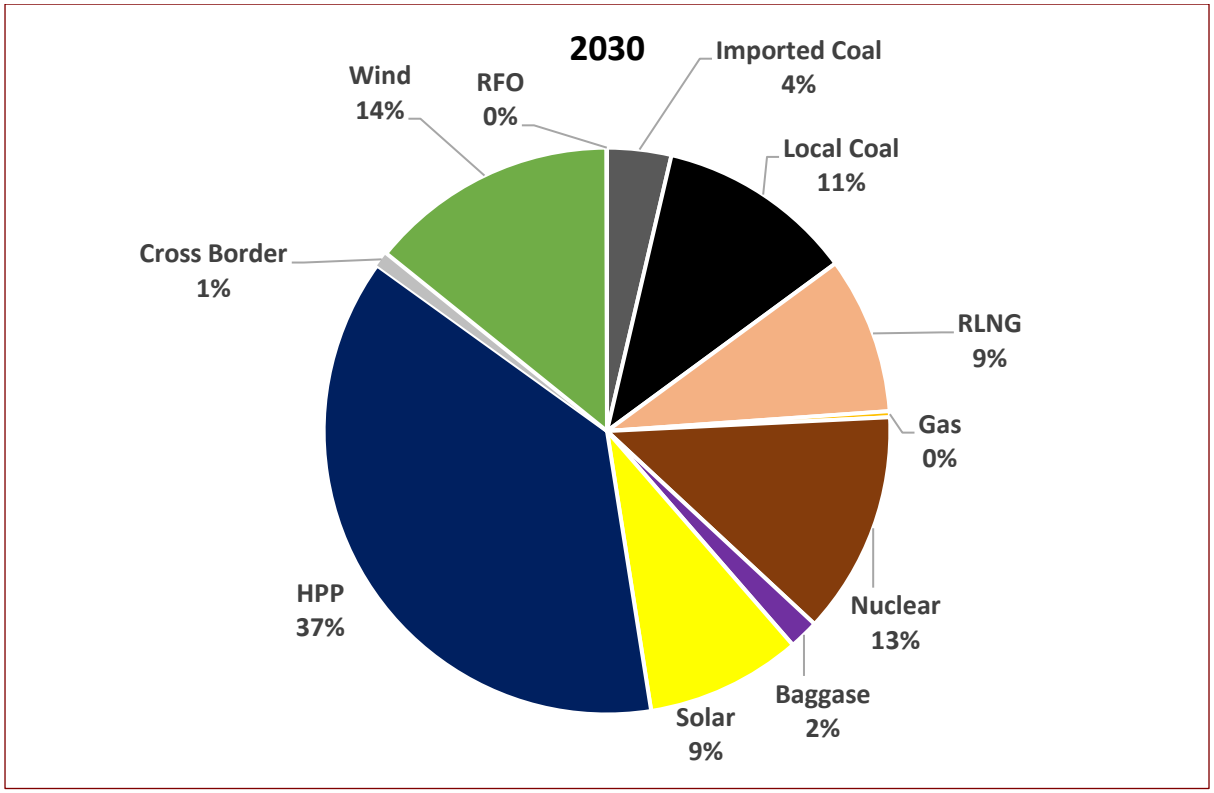


Chart K-3: IGCEP Generation Mix 2030 (GWh)

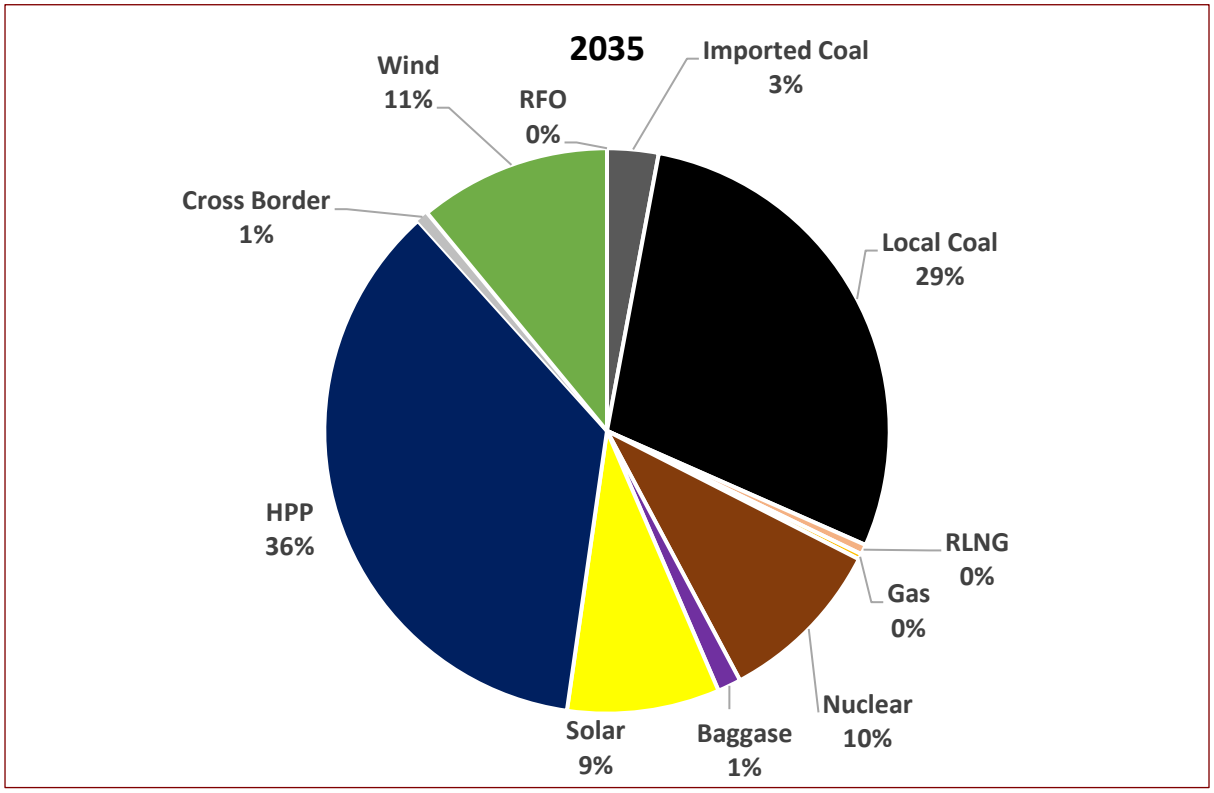


Chart K-4: IGCEP Generation Mix 2035 (GWh)

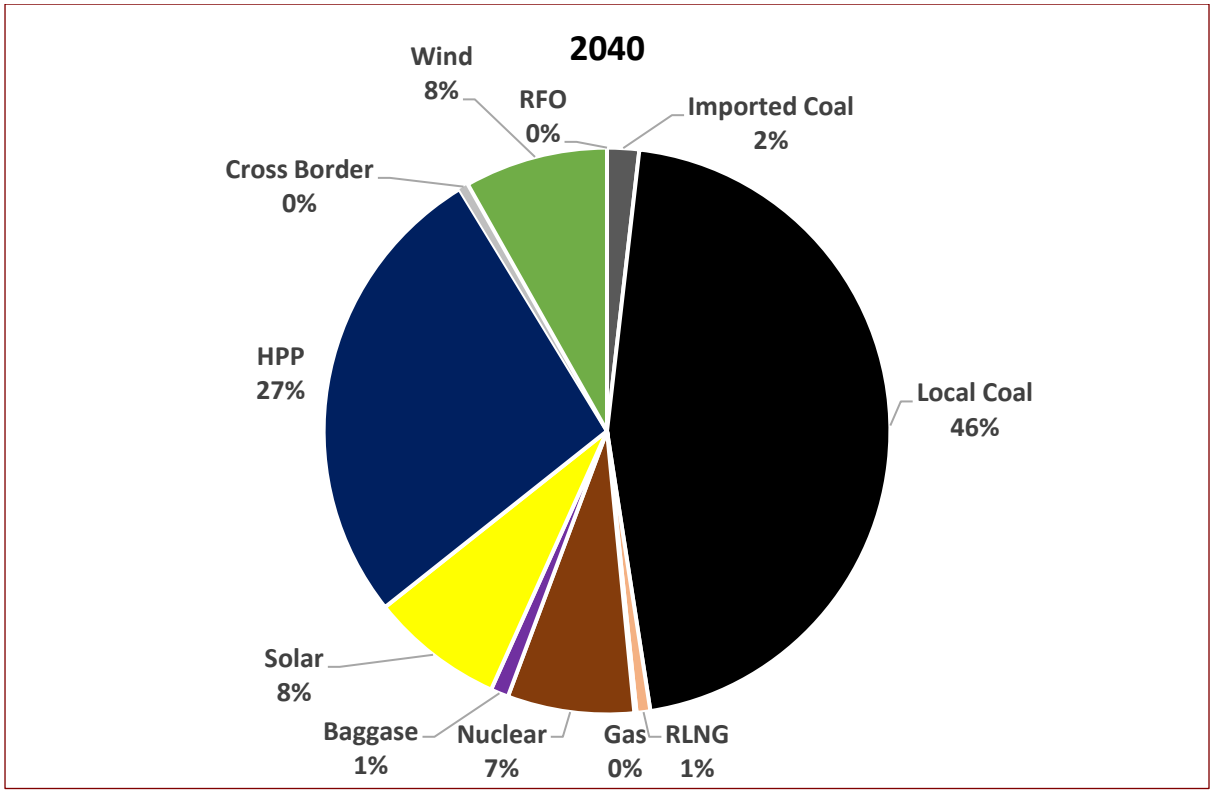


Chart K-5: IGCEP Generation Mix 2040 (GWh)

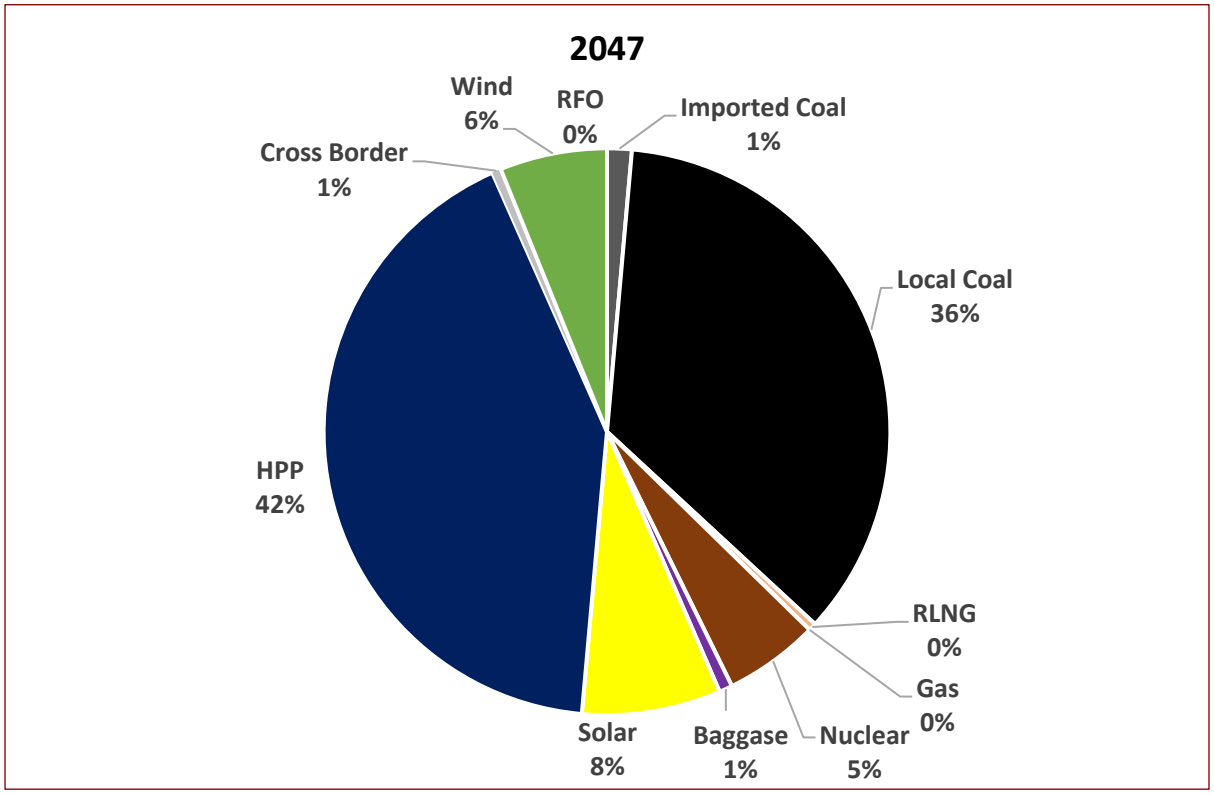


Chart K-6: IGCEP Generation Mix 2047 (GWh)

K-12. IGCEP Generation Mix 2020-47 (MW)

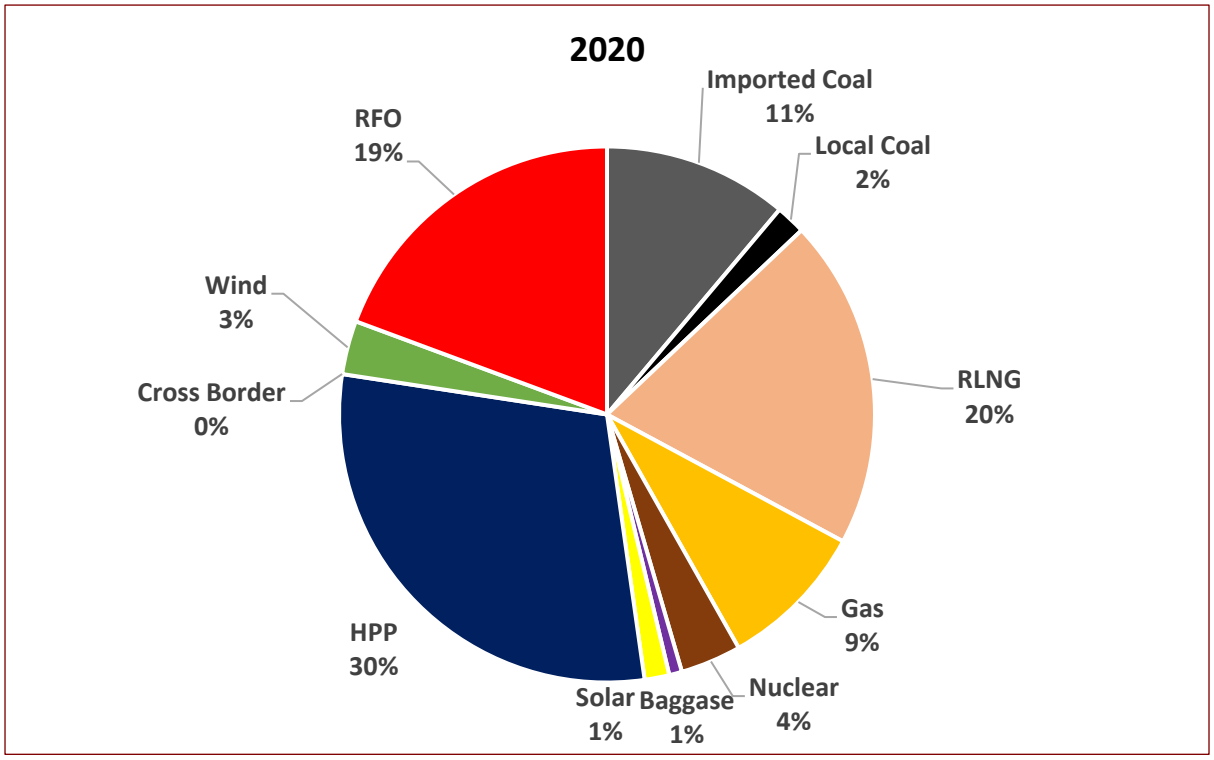


Chart K-7: IGCEP Generation Mix 2020 (MW)

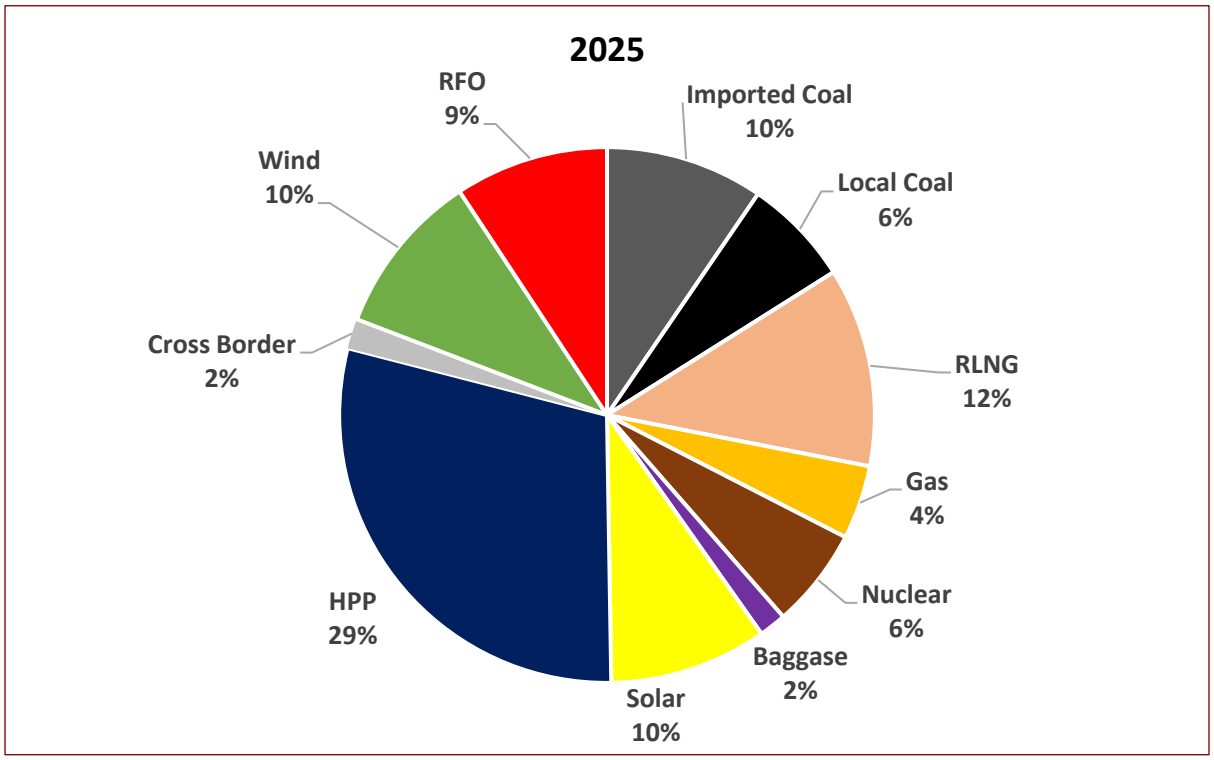


Chart K-8: IGCEP Generation Mix 2025 (MW)

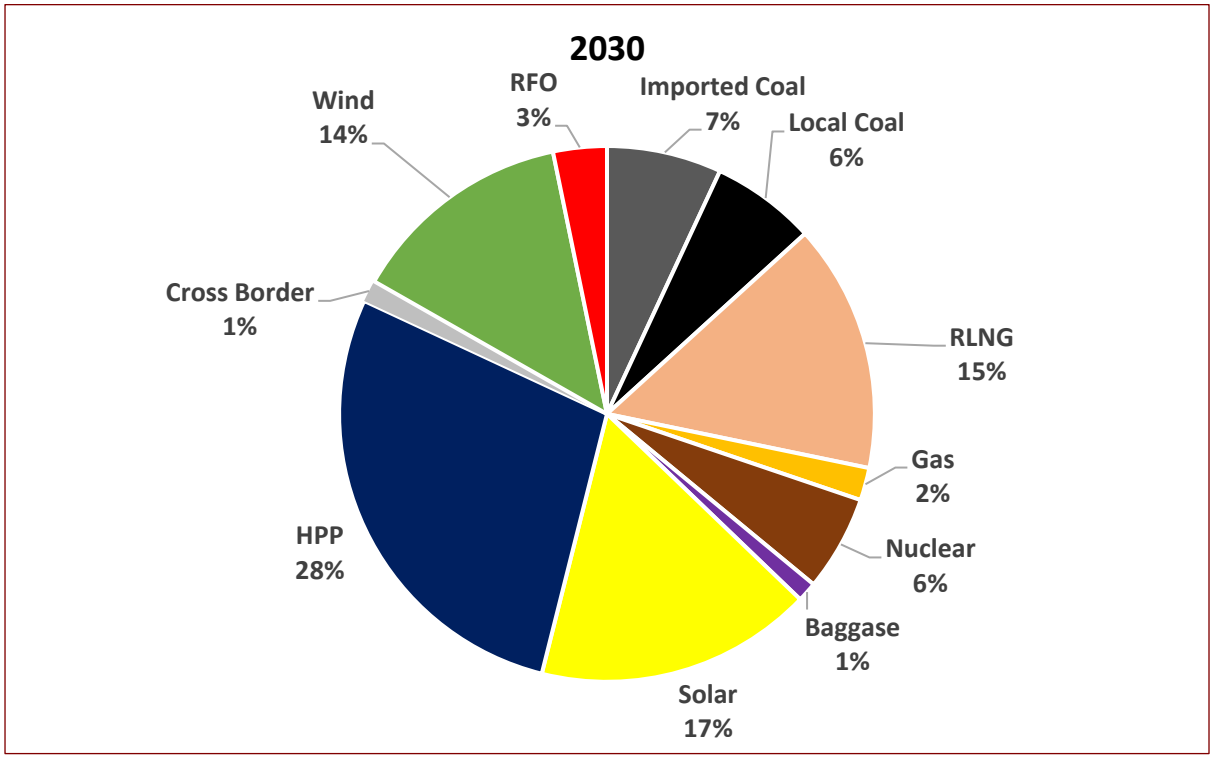


Chart K-9: IGCEP Generation Mix 2030 (MW)

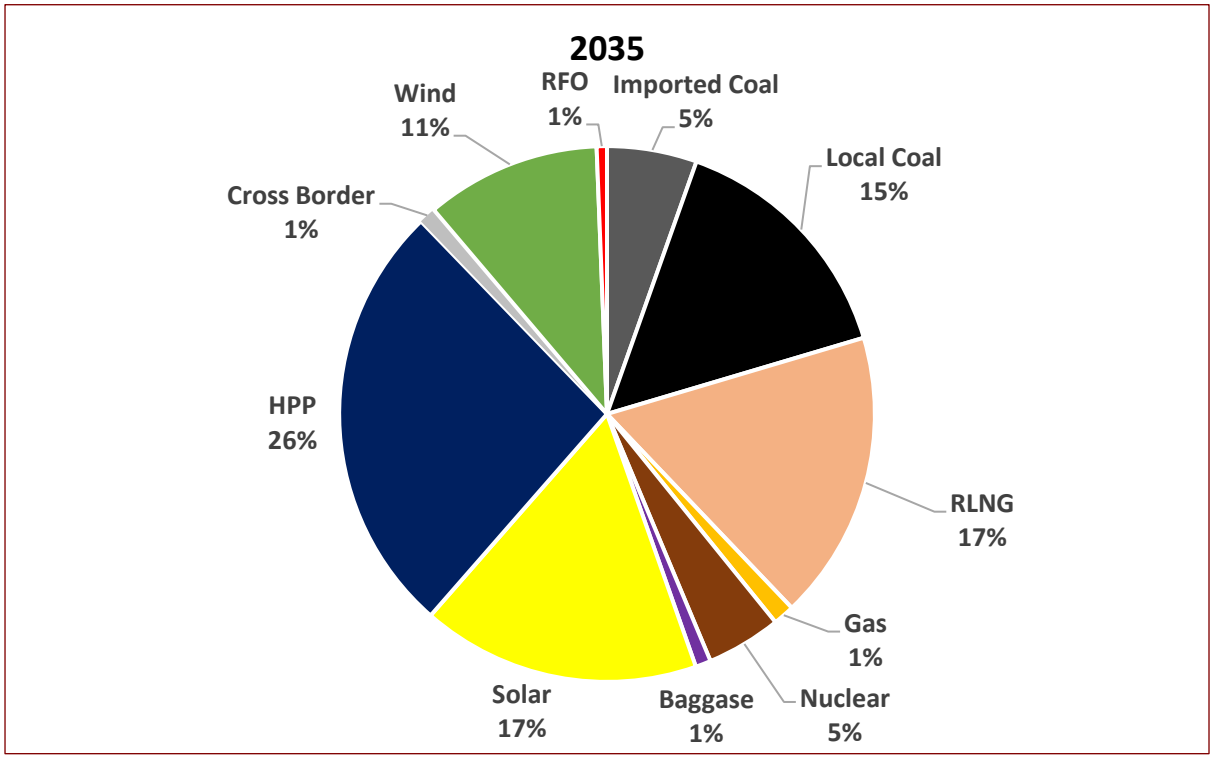


Chart K-10: IGCEP Generation Mix 2035 (MW)

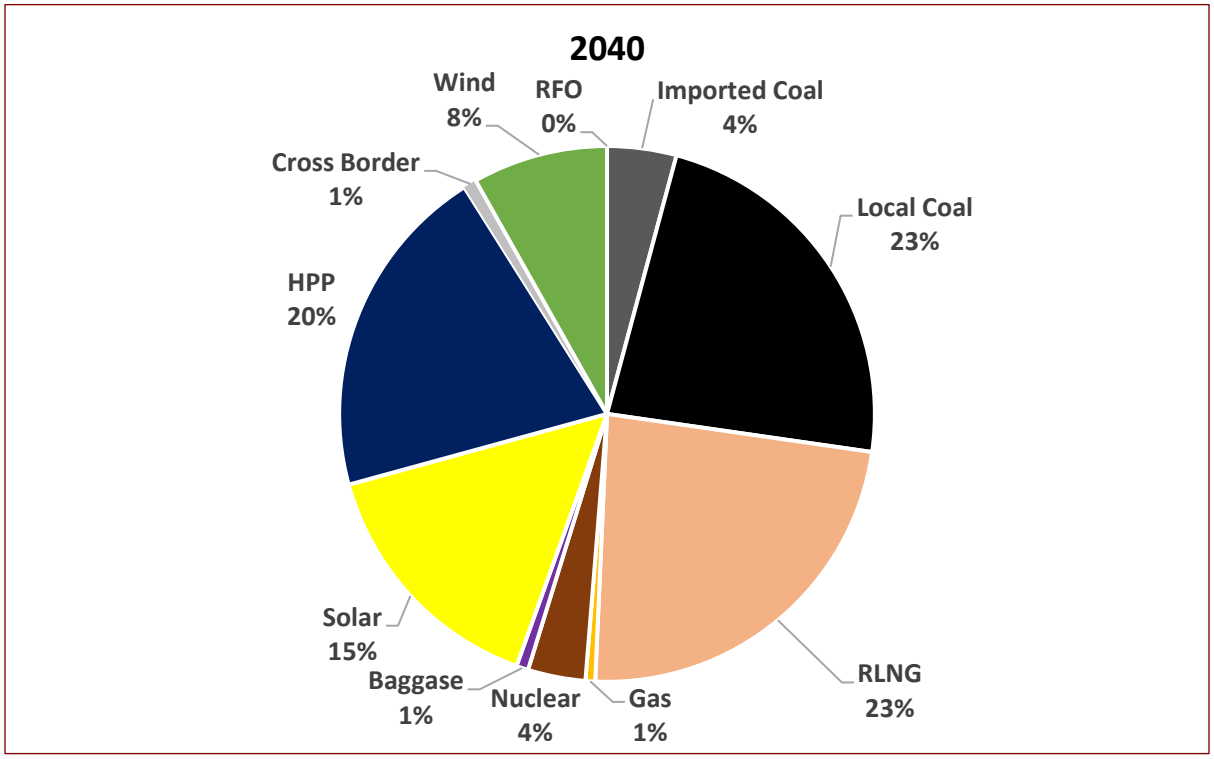


Chart K-11: IGCEP Generation Mix 2040 (MW)

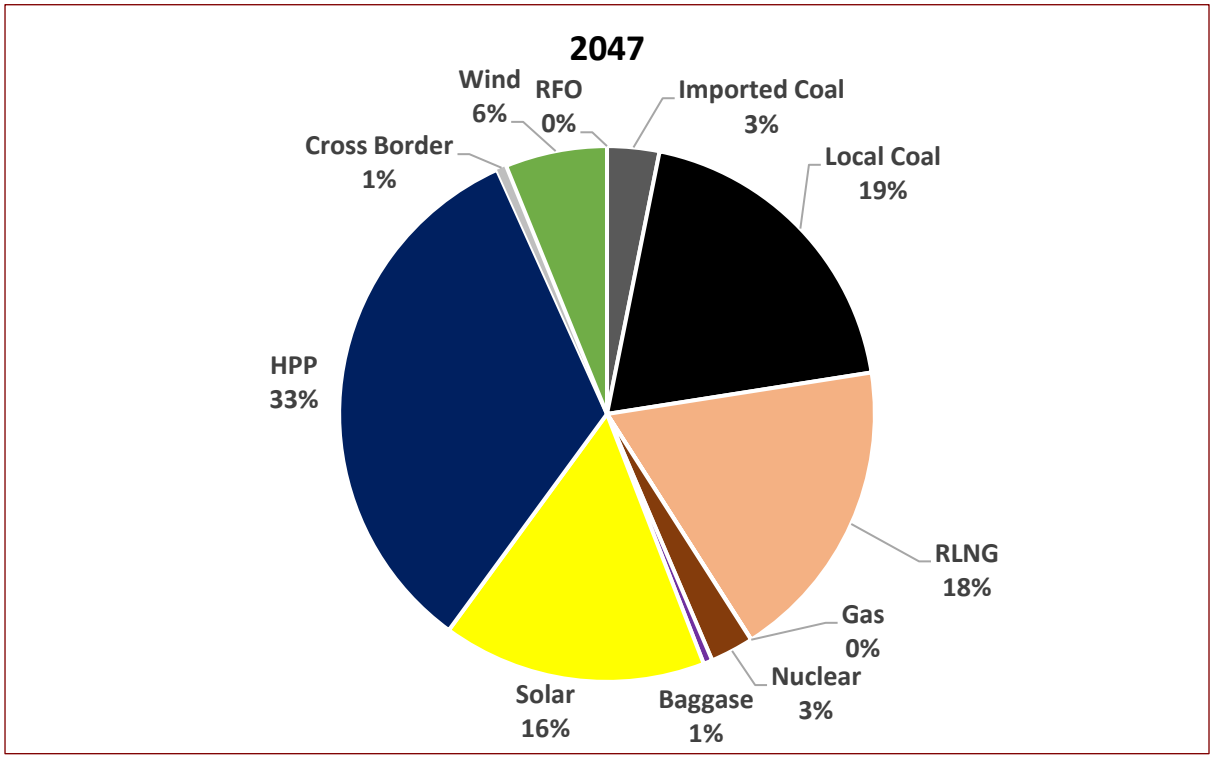


Chart K-12: IGCEP Generation Mix 2047 (MW)

K-13. IGCEP Monthly Generation Mix 2019-47 (GWh)

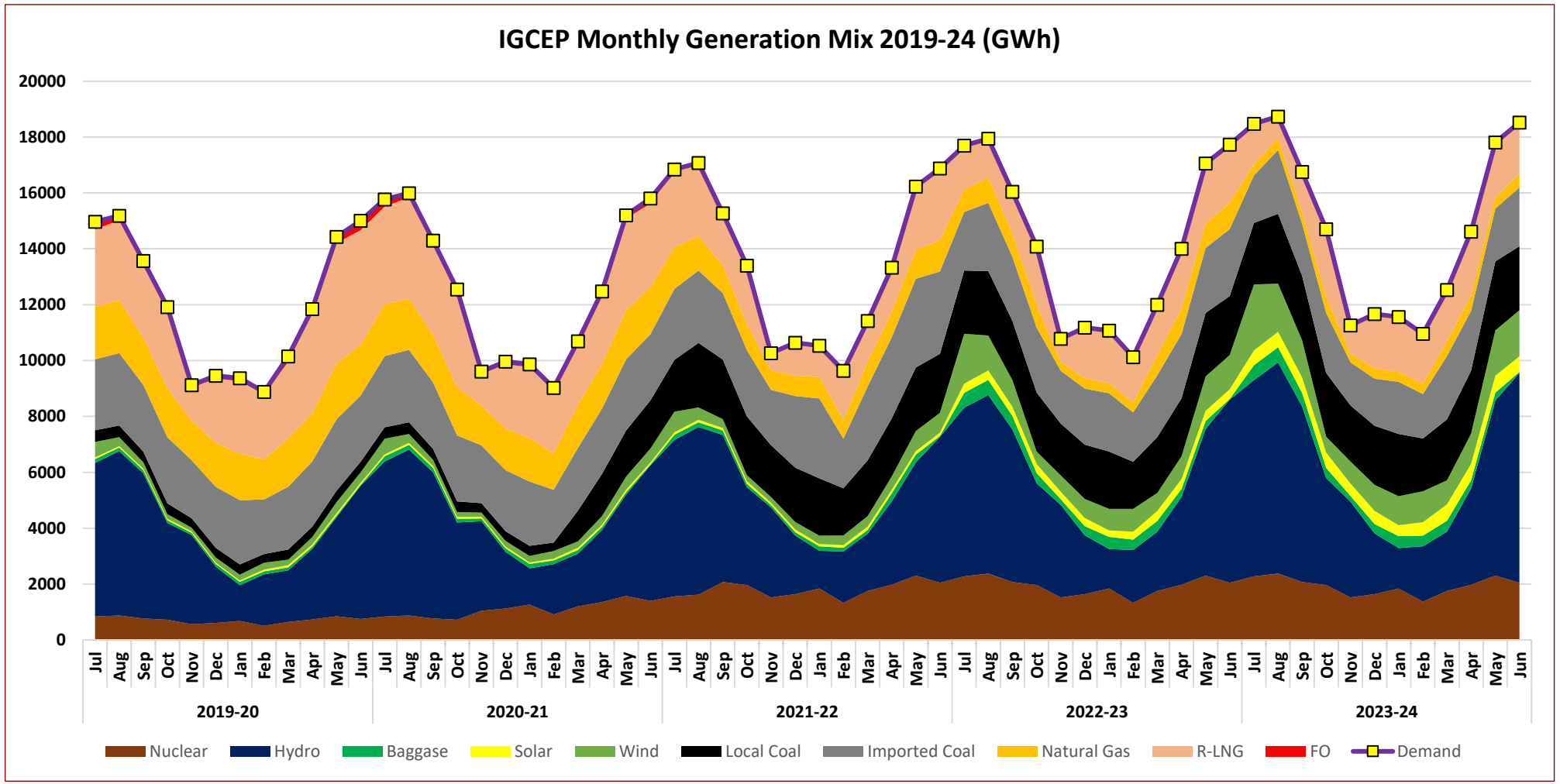


Chart K-13: IGCEP Monthly Generation Mix 2019-24 (GWh)

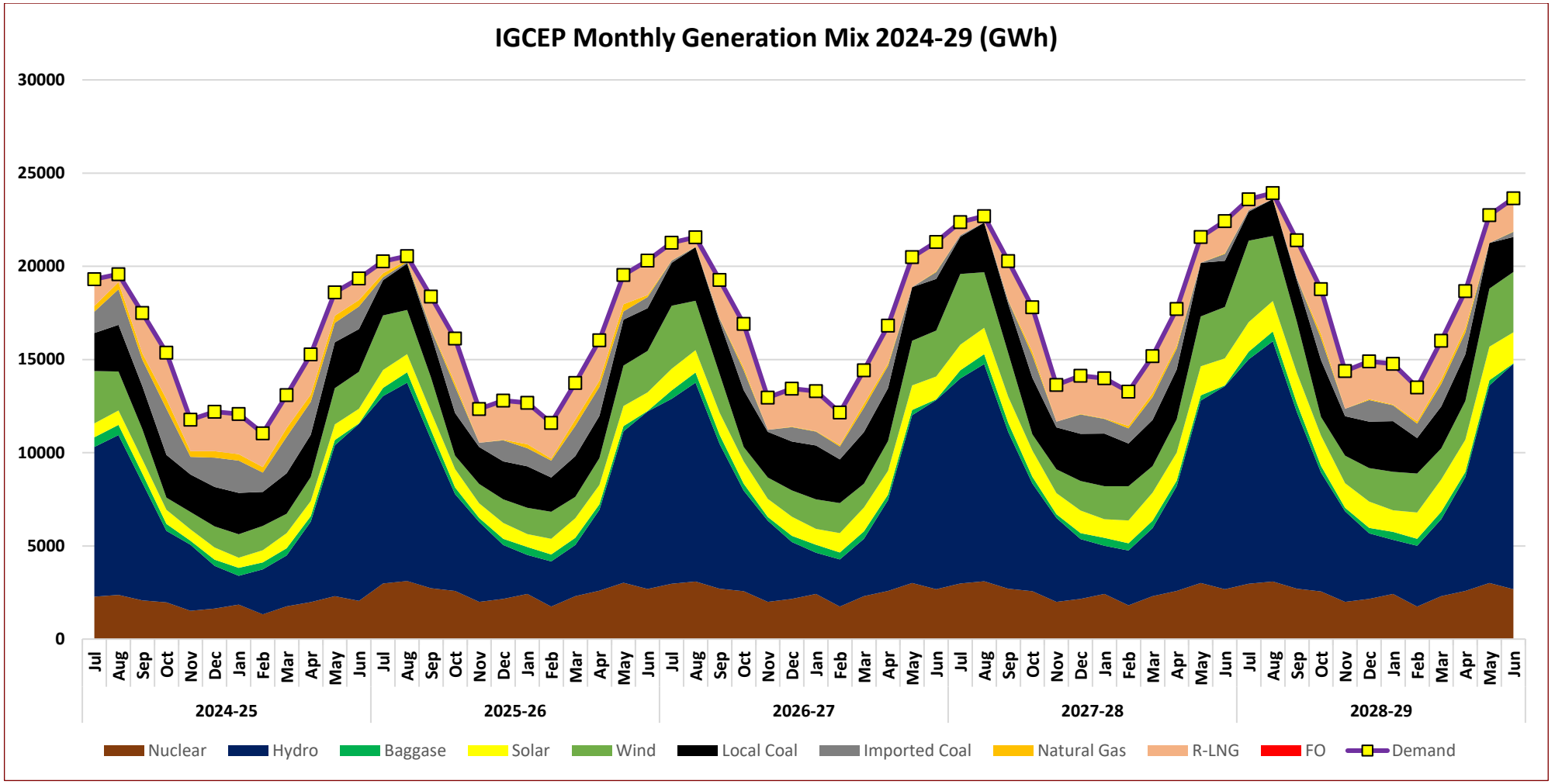


Chart K-14: IGCEP Monthly Generation Mix 2024-29 (GWh)

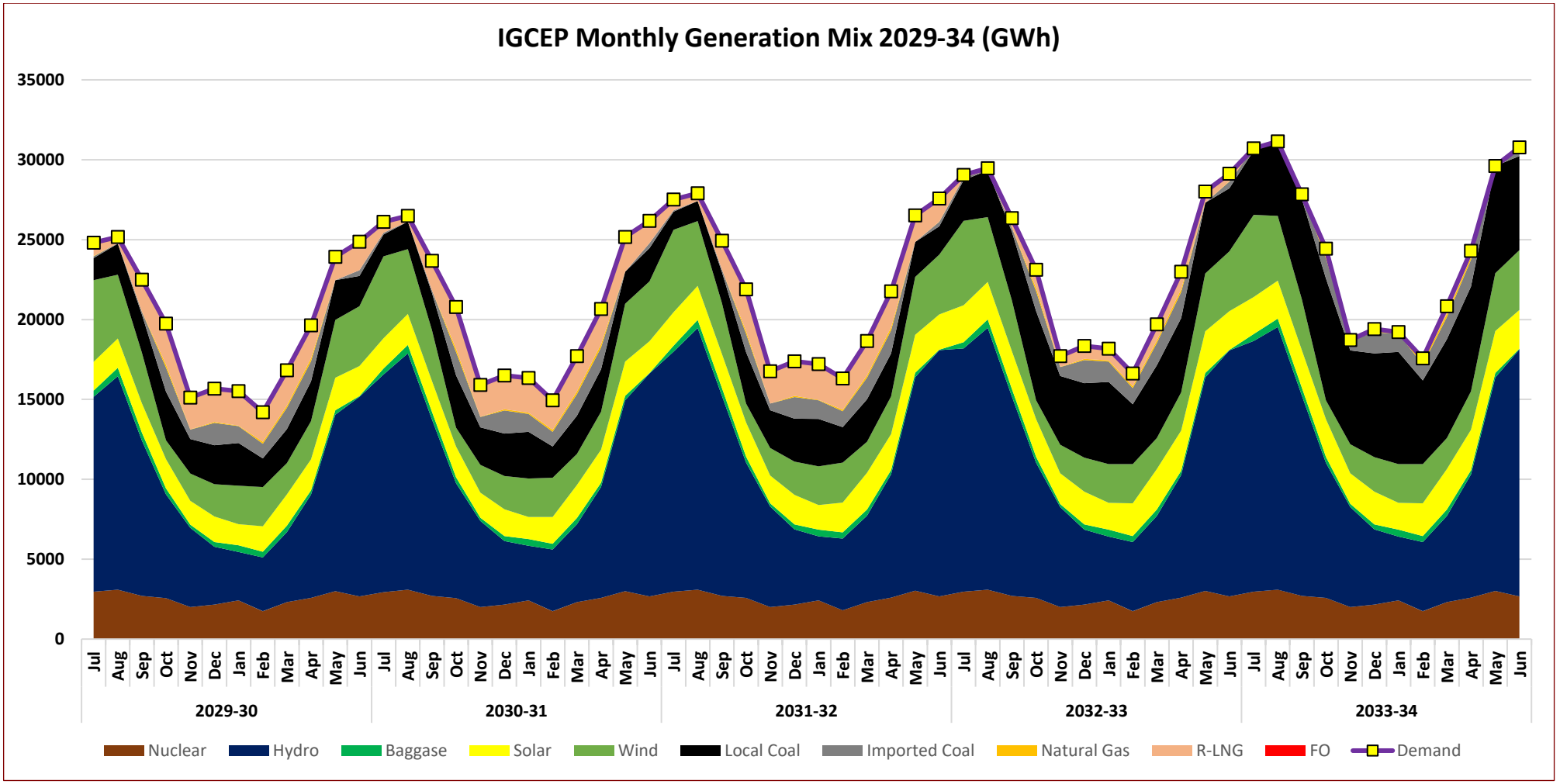


Chart K-15: IGCEP Monthly Generation Mix 2029-34 (GWh)

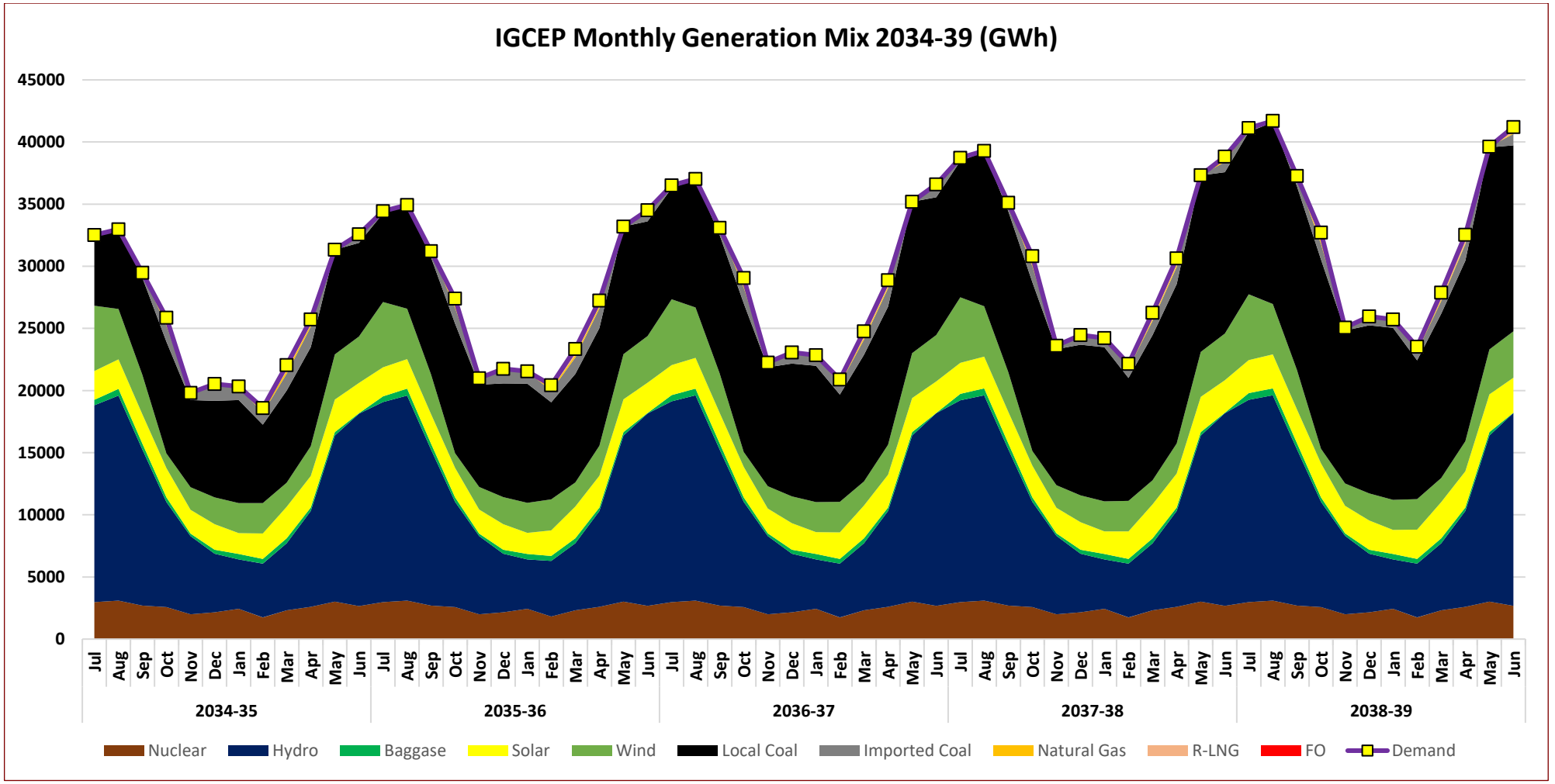


Chart K-16: IGCEP Monthly Generation Mix 2034-39 (GWh)

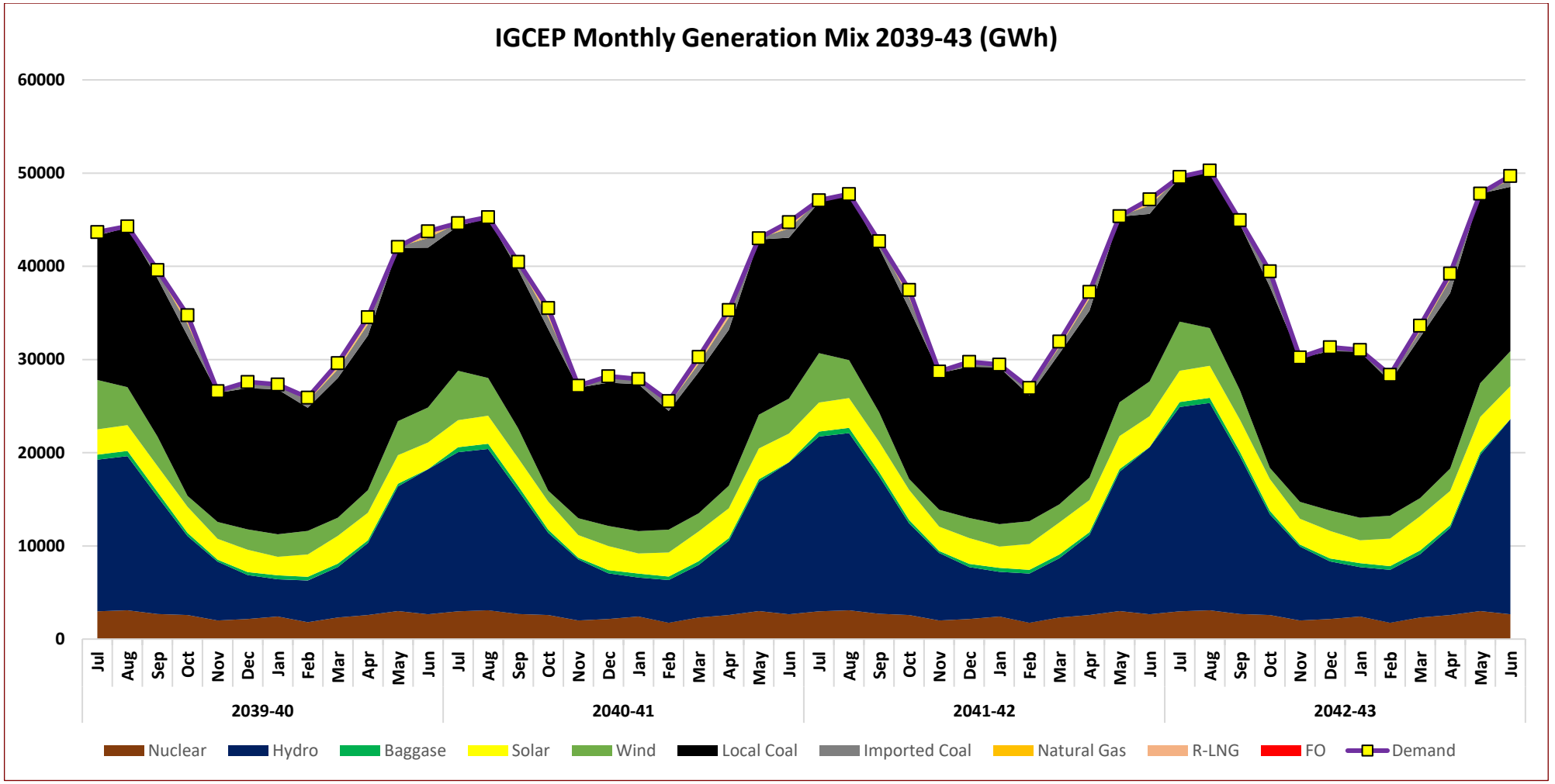


Chart K-17: IGCEP Monthly Generation Mix 2039-43 (GWh)

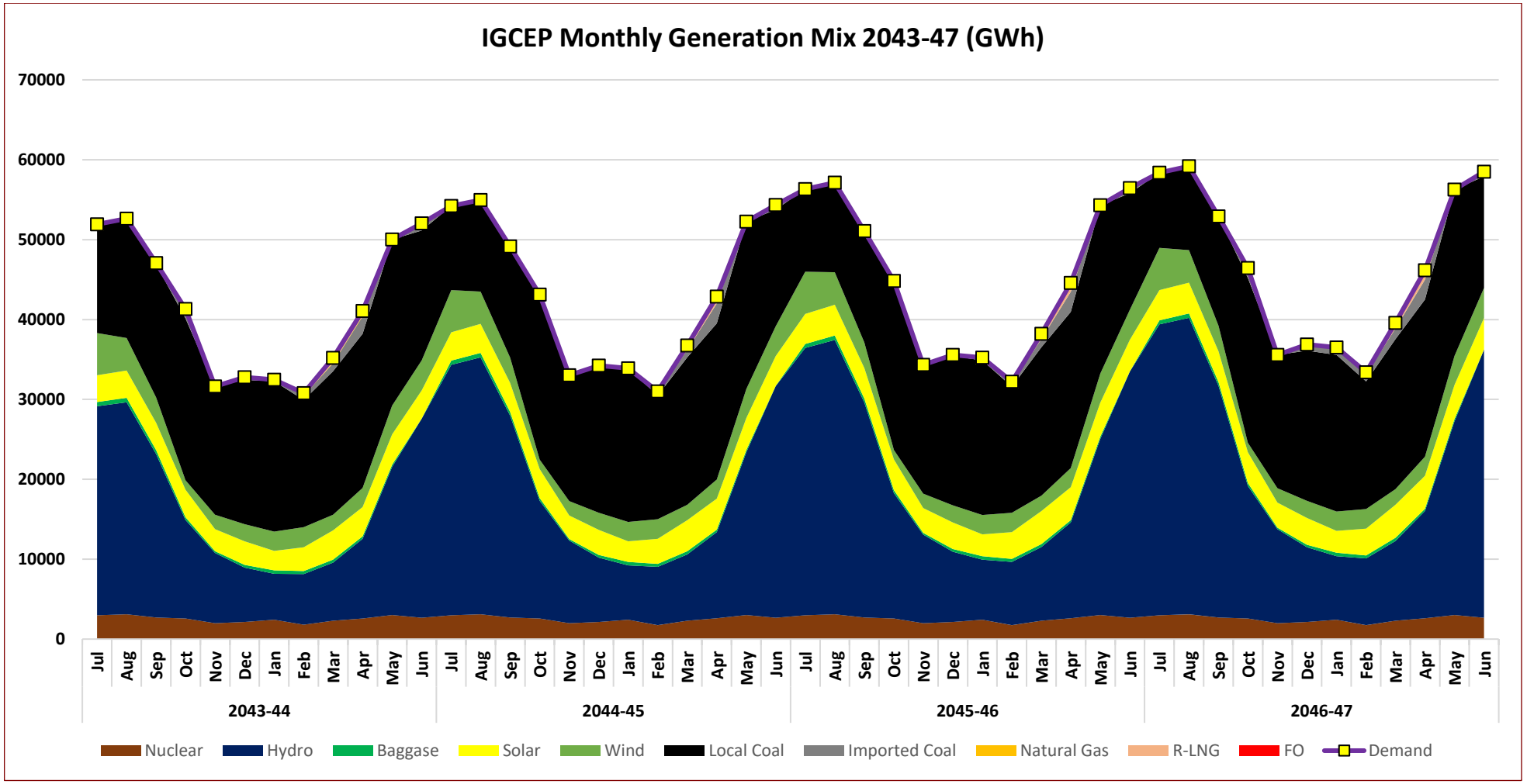


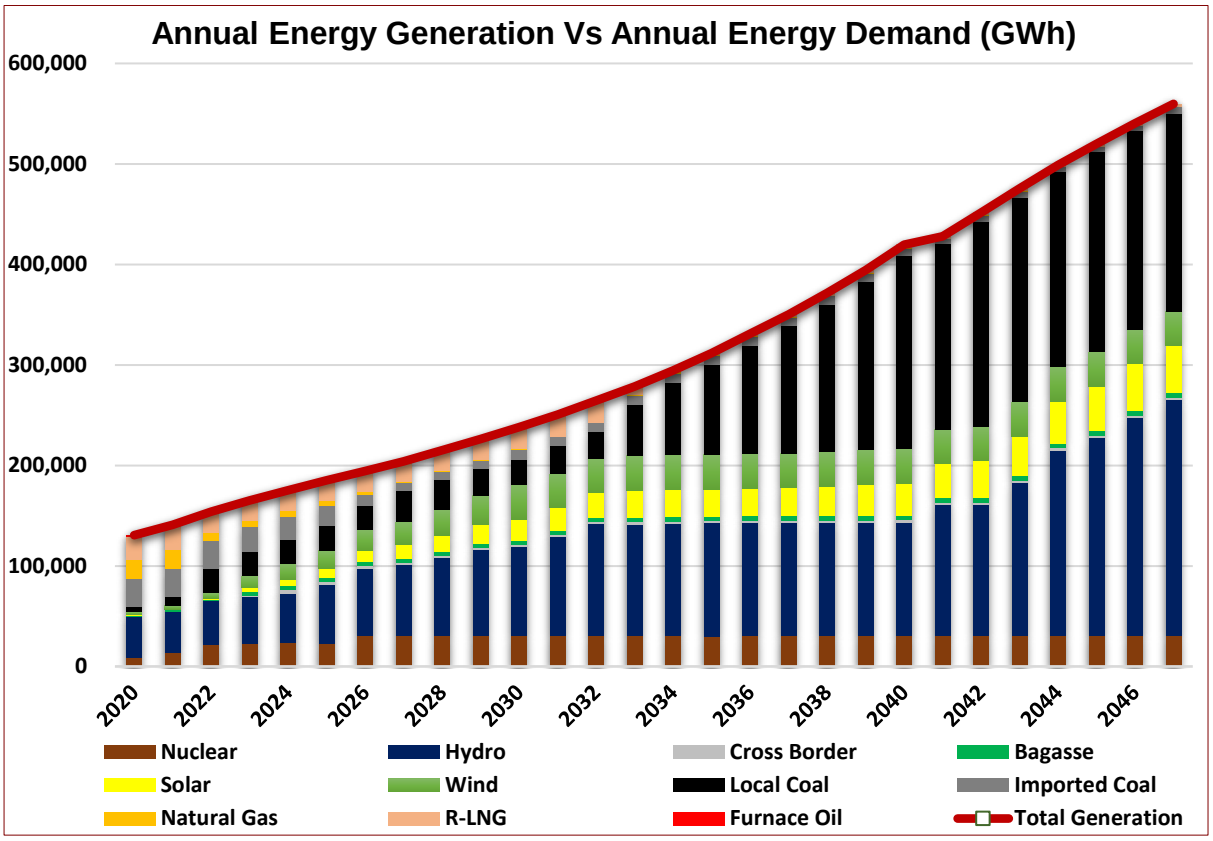
Chart K-18: IGCEP Monthly Generation Mix 2043-47 (GWh)

K-14. Year-wise Present Worth and Un-Discounted Cost

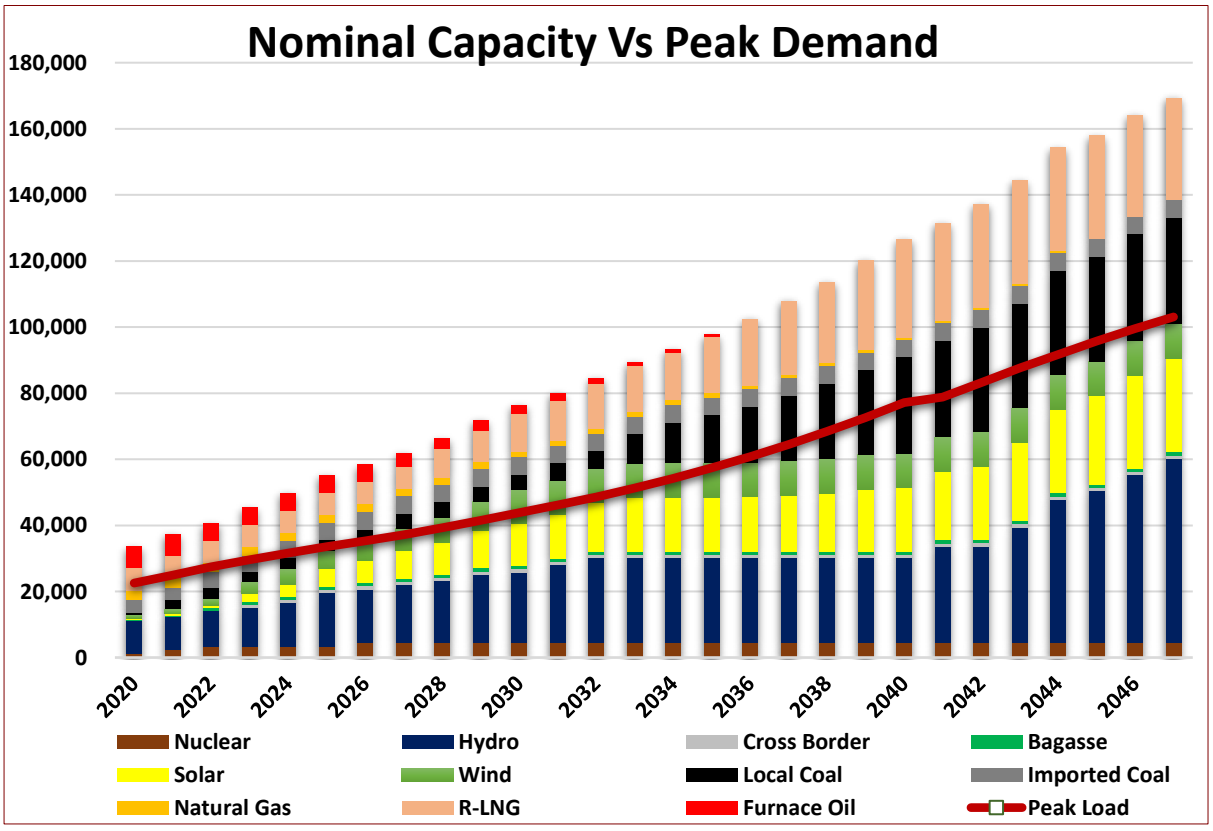
FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	4,655,694	5,612,415	5,612,415	0	956,722	4,655,694	5,612,415	5,612,415
2021	0	913,435	4,089,357	5,002,793	10,615,208	0	1,014,928	4,543,730	5,558,658	11,171,074
2022	0	909,992	3,106,819	4,016,811	14,632,019	0	1,123,447	3,835,579	4,959,026	16,130,100
2023	215,029	890,290	2,485,264	3,590,582	18,222,601	294,964	1,221,248	3,409,141	4,925,352	21,055,452
2024	374,888	853,324	2,113,675	3,341,887	21,564,488	571,388	1,300,601	3,221,575	5,093,564	26,149,016
2025	451,972	801,906	1,803,496	3,057,373	24,621,861	765,418	1,358,034	3,054,236	5,177,688	31,326,704
2026	491,249	771,318	1,463,251	2,725,818	27,347,679	924,372	1,451,370	2,753,365	5,129,108	36,455,811
2027	656,851	723,593	1,294,912	2,675,356	30,023,035	1,373,312	1,512,853	2,707,340	5,593,505	42,049,316
2028	695,662	680,372	1,172,141	2,548,174	32,571,209	1,616,062	1,580,543	2,722,950	5,919,554	47,968,870
2029	841,949	638,171	1,047,191	2,527,311	35,098,520	2,173,217	1,647,231	2,702,984	6,523,432	54,492,302
2030	931,317	588,357	985,570	2,505,245	37,603,765	2,670,991	1,687,392	2,826,588	7,184,971	61,677,273
2031	969,098	516,071	871,405	2,356,574	39,960,339	3,088,163	1,644,529	2,776,851	7,509,543	69,186,817
2032	970,591	473,654	772,082	2,216,327	42,176,666	3,436,579	1,677,070	2,733,716	7,847,364	77,034,181
2033	1,020,756	445,971	535,423	2,002,150	44,178,816	4,015,775	1,754,503	2,106,416	7,876,694	84,910,875
2034	1,037,809	421,249	438,558	1,897,617	46,076,433	4,536,515	1,841,382	1,917,045	8,294,942	93,205,818

FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2035	1,024,865	396,321	442,825	1,864,011	47,940,444	4,977,703	1,924,908	2,150,772	9,053,382	102,259,200
2036	1,011,573	372,823	455,361	1,839,757	49,780,202	5,459,049	2,011,976	2,457,401	9,928,426	112,187,626
2037	994,925	349,805	460,823	1,805,553	51,585,754	5,965,784	2,097,509	2,763,192	10,826,485	123,014,111
2038	975,630	330,799	460,645	1,767,074	53,352,828	6,500,097	2,203,935	3,069,032	11,773,064	134,787,174
2039	958,099	313,658	464,858	1,736,615	55,089,442	7,092,554	2,321,928	3,441,219	12,855,701	147,642,876
2040	940,028	297,723	460,786	1,698,538	56,787,980	7,731,979	2,448,853	3,790,090	13,970,922	161,613,798
2041	881,658	270,647	418,603	1,570,908	58,358,888	8,057,631	2,473,493	3,825,689	14,356,813	175,970,611
2042	875,159	265,245	381,447	1,521,851	59,880,740	8,886,930	2,693,467	3,873,464	15,453,861	191,424,473
2043	888,678	248,812	341,146	1,478,636	61,359,376	10,026,898	2,807,333	3,849,131	16,683,361	208,107,834
2044	890,566	229,466	307,065	1,427,096	62,786,472	11,164,669	2,876,721	3,849,547	17,890,937	225,998,771
2045	934,196	222,823	258,884	1,415,903	64,202,375	13,012,935	3,103,825	3,606,133	19,722,893	245,721,664
2046	899,522	204,080	239,690	1,343,293	65,545,667	13,922,156	3,158,609	3,709,757	20,790,522	266,512,186
2047	890,343	193,698	222,192	1,306,233	66,851,900	15,311,207	3,331,023	3,821,036	22,463,266	288,975,452

L-1. Annual Energy Generation Vs Annual Energy Demand (GWh)



L-2. Nominal Capacity Vs Peak Demand (MW) 2020-47



L-3. Future Generation Capacity Additions

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South	Midland	North	MW	MW
								MW	MW	MW		
2020	-	-	-	-	-	-	-	-	-	-	0	0
2021	-	-	-	-	-	-	-	-	-	-	0	0
2022	-	-	-	-	-	-	-	-	-	-	0	0
2023	-	-	-	-	-	-	1,500	1,000	300	200	3,000	3,000
2024	-	-	-	-	-	-	1,500	1,000	78	-	2,578	5,578
2025	-	-	-	-	-	-	1,500	854	-	-	2,354	7,932
2026	-	-	-	-	-	3	1,500	625	-	-	2,128	10,059
2027	-	1,214	20	16	-	669	1,500	658	-	-	4,077	14,136
2028	-	-	-	1,816	-	-	1,500	860	-	-	4,176	18,312
2029	-	-	-	1,130	-	1,986	1,500	1,000	264	-	5,880	24,192
2030	-	-	-	2,768	-	639	1,500	1,000	300	200	6,407	30,599
2031	-	655	-	498	-	2,154	653	-	-	-	3,960	34,560
2032	-	-	-	1,211	-	2,160	1,500	-	-	-	4,871	39,431
2033	-	3,623	-	296	-	-	1,500	-	-	-	5,419	44,849

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South	Midland	North	MW	MW
								MW	MW	MW		
2034	-	3,542	-	619	-	-	-	-	-	-	4,162	49,011
2035	-	2,270	-	2,698	-	-	-	-	-	-	4,967	53,978
2036	-	2,434	-	2,955	-	-	127	-	-	-	5,515	59,494
2037	-	2,776	-	2,070	-	-	560	-	-	-	5,406	64,899
2038	-	2,939	-	2,260	-	-	553	-	-	-	5,752	70,651
2039	-	2,955	-	2,787	-	-	1,240	-	-	-	6,983	77,634
2040	-	3,504	-	2,944	-	-	405	-	-	-	6,852	84,486
2041	-	-	-	-	-	3,502	1,500	-	-	-	5,002	89,488
2042	-	2,380	-	1,916	-	70	1,500	-	-	-	5,866	95,354
2043	-	-	-	-	-	5,750	1,481	-	-	-	7,231	102,585
2044	-	-	-	-	-	8,434	1,500	-	-	-	9,934	112,519
2045	-	252	-	-	-	2,575	1,500	-	-	-	4,327	116,846
2046	-	495	-	-	-	4,762	1,500	-	-	-	6,757	123,603
2047	-	-	-	-	-	5,026	37	-	-	-	5,063	128,666
Total	**-**	**29,038**	**20**	**25,984**	**0**	**37,730**	**27,556**	**6,996**	**943**	**400**	**128,666**	

L-4. List of Projects uptill 2047 (Committed + Candidate)

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2020							
1	Zorlu Solar Pakistan Pvt. Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Jan-20
2	Jabori	Hydro	10	10	PEDO	Committed	Mar-20
3	Trimmu	RLNG	1,263	1,243	PPIB	Committed	Apr-20
4	Jhing	Hydro	15	15	AJK	Committed	Jun-20
5	Karora	Hydro	12	12	PEDO	Committed	Jun-20
6	Koto	Hydro	41	41	PEDO	Committed	Jun-20
Generation Additions in 2020 (MW)			1,441	1,421			
Cumulative Addition up till 2020 (MW)			1,441	1,421			
2021							
1	Etihad Power Generation Ltd.	Bagasse	74	74	AEDB	Committed	Jul-20
2	Karachi Nuclear K-2	Nuclear	1,100	1,059	PAEC	Committed	Nov-20
3	Master Green Energy Ltd.	Wind	60	60	AEDB	Committed	Nov-20
4	Shaheen Renewable Energy-1 Pvt. Ltd.	Wind	51	51	AEDB	Committed	Nov-20
5	Lawi	Hydro	69	69	PEDO	Committed	Jan-21
6	Tricorm Wind Power Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-21
7	Western Energy Pvt. Limited	Wind	50	50	AEDB	Committed	Feb-21
8	Lucky	Local Coal	660	607	PPIB	Committed	Mar-21
9	Access Electric Pvt. Ltd.	Solar	10	10	AEDB	Committed	Mar-21
10	Access Solar Pvt. Ltd.	Solar	12	12	AEDB	Committed	Mar-21
11	Thal Nova	Local Coal	330	300	PPIB	Committed	Mar-21
12	Thar TEL	Local Coal	330	300	PPIB	Committed	Mar-21
13	Thar-I (Shanghai Electric) Unit 1	Local Coal	660	607	PPIB	Committed	Mar-21
14	Riali-II	Hydro	7	7	AJK	Committed	Jun-21
15	Hydro China Dawood Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
16	Tenga Generasi Limited	Wind	50	50	AEDB	Committed	Jun-21
17	Zephyr Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
18	Siddiqsons	Local Coal	330	304	PPIB	Committed	Jun-21
Generation Additions in 2021 (MW)			3,943	3,708			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition uptill 2021 (MW)			5,384	5,129			
2022							
1	HNDS Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
2	Helios Power Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
3	Thar-I (Shanghai Electric) Unit 2	Local Coal	660	607	PPIB	Committed	Aug-21
4	Karachi Nuclear K-3	Nuclear	1,100	1,059	PAEC	Committed	Sep-21
5	Buksh Energy Pvt. Ltd.	Solar	12	12	AEDB	Committed	Sep-21
6	Safe Solar Power Pvt. Ltd.	Solar	10	10	AEDB	Committed	Sep-21
7	Artistic Wind Power Pvt. Limited.	Wind	50	50	AEDB	Committed	Oct-21
8	Meridian Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Nov-21
9	Zhenfa Pakistan New Energy Company (Pvt.) Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Nov-21
10	Karot	Hydro	720	720	PPIB/AJK	Committed	Dec-21
11	Jamshoro CFPP Unit 1	Imp.Coal	660	640	GENCO	Committed	Dec-21
12	Gwadar	Imp.Coal	300	273	PPIB	Committed	Jan-22
13	Gul Ahmed Electric Ltd.	Wind	50	50	AEDB	Committed	Jan-22
14	ACT 2 wind (Pvt.) Ltd.	Wind	50	50	AEDB	Committed	Feb-22
15	Din Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
16	Indus Wind Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
17	Lakeside Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
18	Liberty Wind Power 1 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
19	Liberty Wind Power 2 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
20	Metro Wind Power Ltd.	Wind	50	50	AEDB	Committed	Feb-22
21	NASDA Green Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
22	Trans Atlantic Energy (Pvt.) Limited	Wind	48	48	AEDB	Committed	Feb-22
23	Alliance Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
24	Bahawalpur Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
25	Faran Power Limited	Bagasse	27	27	AEDB	Committed	Mar-22
26	Ghotki Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
27	Hamza Sugar Mills Ltd. (Unit-II)	Bagasse	30	30	AEDB	Committed	Mar-22

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
28	HSM Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
29	Hunza Power (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22
30	Indus Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
31	Ittefaq Power Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
32	Kashmir Power (Pvt.) Ltd.	Bagasse	40	40	AEDB	Committed	Mar-22
33	Mehran Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
34	RYK Energy Ltd.	Bagasse	25	25	AEDB	Committed	Mar-22
35	Sadiqabad Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
36	Shahtaj Sugar Mills Ltd.	Bagasse	32	32	AEDB	Committed	Mar-22
37	Sheikhoo Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
38	TAY Powergen Company (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
39	Two Star Energy (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22
Generation Additions in 2022 (MW)			4,841	4,699			
Cumulative Addition up till 2022 (MW)			10,225	9,828			
2023							
1	Gorkin Matiltan	Hydro	84	84	PEDO	Committed	Nov-22
2	Suki Kinari	Hydro	884	884	PPIB	Committed	Dec-22
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2023
4	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2023
5	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2023
6	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2023
7	CASA	Import	1,000	1,000	GOP	Committed	May-23
Generation Additions in 2023 (MW)			4,968	4,968			
Cumulative Addition up till 2023 (MW)			15,193	14,796			
2024							
1	Tarbela 5th-Extension	Hydro	1,410	1,410	WAPDA	Committed	Sep-23
2	Jamshoro CFPP Unit 2	Imp. Coal	660	644	GENCO	Committed	Dec-23
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2024
4	Generic_Candidate Wind_Mid	Wind	78	78	Yet to be Decided	Candidate	2024
5	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2024
Generation Additions in 2024 (MW)			4,648	4,632			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition up till 2024 (MW)			19,841	19,429			
2025							
1	Keyal Khwar	Hydro	128	128	WAPDA	Committed	Sep-24
2	Mohmand	Hydro	800	800	WAPDA	Committed	Nov-24
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2025
4	Generic_Candidate Wind_South	Wind	854	854	Yet to be Decided	Candidate	2025
5	Dasu 1	Hydro	2,160	2,160	WAPDA	Committed	Feb-25
Generation Additions in 2025 (MW)			5,442	5,442			
Cumulative Addition up till 2025 (MW)			25,283	24,870			
2026							
1	Chasma Nuclear C-5	Nuclear	1,100	1,059	PAEC	Committed	Jul-25
2	Harpo	Hydro	35	35	WAPDA	Committed	Jul-25
3	Riali-III	Hydro	3	3	AJK	Candidate	2026
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2026
5	Generic_Candidate Wind_South	Wind	625	625	Yet to be Decided	Candidate	2026
Generation Additions in 2026 (MW)			3,263	3,221			
Cumulative Addition up till 2026 (MW)			28,545	28,091			
2027							
1	Azad Pattan	Hydro	700	701	PPIB	Committed	Sep-26
2	Hatim	CCGT_Gas	20	20	PPIB	Candidate	2027
3	Blue Star	Hydro	3	3	PEDO	Candidate	2027
4	Lower Palas	Hydro	666	666	WAPDA	Candidate	2027
5	Oracle	Local Coal	1,320	1,214	STDC/ PPIB	Candidate	2027
6	Generic_Candidate OCGT_RLNG	RLNG	16	16	Yet to be Decided	Candidate	2027
7	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2027
8	Generic_Candidate Wind_South	Wind	658	658	Yet to be Decided	Candidate	2027
9	Kohala	Hydro	1,124	1,124	PPIB	Committed	Jun-27
Generation Additions in 2027 (MW)			6,007	5,902			
Cumulative Addition up till 2027 (MW)			34,552	33,993			
2028							
1	Generic_Candidate OCGT_RLNG	RLNG	1,816	1,816	Yet to be Decided	Candidate	2028

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2028
3	Generic_Candidate Wind_South	Wind	860	860	Yet to be Decided	Candidate	2028
Generation Additions in 2028 (MW)			4,176	4,176			
Cumulative Addition up till 2028 (MW)			38,728	38,169			
2029							
1	Dander	Hydro	56	56	PEDO	Candidate	2029
2	Dubair Kalay	Hydro	66	66	PEDO	Candidate	2029
3	Nerai-Dubair	Hydro	46	46	PEDO	Candidate	2029
4	Rajdhani	Hydro	132	132	PPIB	Candidate	2029
5	Thakot-III	Hydro	1,686	1,686	WAPDA	Candidate	2029
6	Generic_Candidate OCGT_RLNG	RLNG	1,130	1,130	Yet to be Decided	Candidate	2029
7	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2029
8	Generic_Candidate Wind_Mid	Wind	264	264	Yet to be Decided	Candidate	2029
9	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2029
Generation Additions in 2029 (MW)			5,880	5,880			
Cumulative Addition up till 2029 (MW)			44,608	44,049			
2030							
1	Mahl	Hydro	639	639	PPIB	Candidate	2030
2	Generic_Candidate OCGT_RLNG	RLNG	2,768	2,768	Yet to be Decided	Candidate	2030
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2030
4	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2030
5	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2030
6	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2030
Generation Additions in 2030 (MW)			6,407	6,407			
Cumulative Addition up till 2030 (MW)			51,015	50,456			
2031							
1	Thakot-I	Hydro	2,154	2,154	WAPDA	Candidate	2031
2	Generic_Candidate Local Coal	Local Coal	655	655	Yet to be Decided	Candidate	2031
3	Generic_Candidate OCGT_RLNG	RLNG	498	498	Yet to be Decided	Candidate	2031
4	Generic_Candidate Solar	Solar	653	653	Yet to be Decided	Candidate	2031
Generation Additions in 2031 (MW)			3,960	3,960			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition up till 2031 (MW)			54,976	54,416			
2032							
1	Dasu_2	Hydro	2,160	2,160	WAPDA	Candidate	2032
2	Generic_Candidate OCGT_RLNG	RLNG	1,211	1,211	Yet to be Decided	Candidate	2032
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2032
Generation Additions in 2032 (MW)			4,871	4,871			
Cumulative Addition up till 2032 (MW)			59,847	59,287			
2033							
1	Generic_Candidate Local Coal	Local Coal	3,623	3,623	Yet to be Decided	Candidate	2033
2	Generic_Candidate OCGT_RLNG	RLNG	296	296	Yet to be Decided	Candidate	2033
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2033
Generation Additions in 2033 (MW)			5,419	5,419			
Cumulative Addition up till 2033 (MW)			65,265	64,706			
2034							
1	Generic_Candidate Local Coal	Local Coal	3,542	3,542	Yet to be Decided	Candidate	2034
2	Generic_Candidate OCGT_RLNG	RLNG	619	619	Yet to be Decided	Candidate	2034
Generation Additions in 2034 (MW)			4,162	4,162			
Cumulative Addition up till 2034 (MW)			69,427	68,867			
2035							
1	Generic_Candidate Local Coal	Local Coal	2,270	2,270	Yet to be Decided	Candidate	2035
2	Generic_Candidate OCGT_RLNG	RLNG	2,698	2,698	Yet to be Decided	Candidate	2035
Generation Additions in 2035 (MW)			4,967	4,967			
Cumulative Addition up till 2035 (MW)			74,394	73,835			
2036							
1	Generic_Candidate Local Coal	Local Coal	2,434	2,434	Yet to be Decided	Candidate	2036
2	Generic_Candidate OCGT_RLNG	RLNG	2,955	2,955	Yet to be Decided	Candidate	2036
3	Generic_Candidate Solar	Solar	127	127	Yet to be Decided	Candidate	2036
Generation Additions in 2036 (MW)			5,515	5,515			
Cumulative Addition up till 2036 (MW)			79,910	79,350			
2037							
1	Generic_Candidate Local Coal	Local Coal	2,776	2,776	Yet to be Decided	Candidate	2037

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2	Generic_Candidate OCGT_RLNG	RLNG	2,070	2,070	Yet to be Decided	Candidate	2037
3	Generic_Candidate Solar	Solar	560	560	Yet to be Decided	Candidate	2037
Generation Additions in 2037 (MW)			5,406	5,406			
Cumulative Addition up till 2037 (MW)			85,315	84,756			
2038							
1	Generic_Candidate Local Coal	Local Coal	2,939	2,939	Yet to be Decided	Candidate	2038
2	Generic_Candidate OCGT_RLNG	RLNG	2,260	2,260	Yet to be Decided	Candidate	2038
3	Generic_Candidate Solar	Solar	553	553	Yet to be Decided	Candidate	2038
Generation Additions in 2038 (MW)			5,752	5,752			
Cumulative Addition uptill 2038 (MW)			91,067	90,508			
2039							
1	Generic_Candidate Local Coal	Local Coal	2,955	2,955	Yet to be Decided	Candidate	2039
2	Generic_Candidate OCGT_RLNG	RLNG	2,787	2,787	Yet to be Decided	Candidate	2039
3	Generic_Candidate Solar	Solar	1,240	1,240	Yet to be Decided	Candidate	2039
Generation Additions in 2039 (MW)			6,983	6,983			
Cumulative Addition uptill 2039 (MW)			98,050	97,491			
2040							
1	Generic_Candidate Local Coal	Local Coal	3,504	3,504	Yet to be Decided	Candidate	2040
2	Generic_Candidate OCGT_RLNG	RLNG	2,944	2,944	Yet to be Decided	Candidate	2040
3	Generic_Candidate Solar	Solar	405	405	Yet to be Decided	Candidate	2040
Generation Additions in 2040 (MW)			6,852	6,852			
Cumulative Addition uptill 2040 (MW)			104,902	104,343			
2041							
1	Bata Kundi	Hydro	96	96	PEDO	Candidate	2041
2	Dowarian	Hydro	40	40	AJK	Candidate	2041
3	Patan	Hydro	2,400	2,400	WAPDA	Candidate	2041
4	Thakot-II	Hydro	966	966	WAPDA	Candidate	2041
5	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2041
Generation Additions in 2041 (MW)			5,002	5,002			
Cumulative Addition uptill 2041 (MW)			109,904	109,345			
2042							

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
1	Torkhow	Hydro	70	70	PEDO	Candidate	2042
2	Generic_Candidate Local Coal	Local Coal	2,380	2,380	Yet to be Decided	Candidate	2042
3	Generic_Candidate OCGT_RLNG	RLNG	1,916	1,916	Yet to be Decided	Candidate	2042
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2042
Generation Additions in 2042 (MW)			5,866	5,866			
Cumulative Addition uptill 2042 (MW)			115,770	115,211			
2043							
1	Bunji 1	Hydro	3,550	3,550	WAPDA	Candidate	2043
2	Tangus	Hydro	2,200	2,200	WAPDA	Candidate	2043
3	Generic_Candidate Solar	Solar	1,481	1,481	Yet to be Decided	Candidate	2043
Generation Additions in 2043 (MW)			7,231	7,231			
Cumulative Addition uptill 2043 (MW)			123,001	122,442			
2044							
1	Bunji 2	Hydro	3,550	3,550	WAPDA	Candidate	2044
2	Diamer Bhasha Dam	Hydro	4,500	4,500	WAPDA	Candidate	2044
3	Kalam Asrit	Hydro	212	212	PPIB	Candidate	2044
4	Kathai-II	Hydro	8	8	AJK	Candidate	2044
5	Madian	Hydro	156	156	PEDO	Candidate	2044
6	Sakhra-I	Hydro	8	8	PEDO	Candidate	2044
7	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2044
Generation Additions in 2044 (MW)			9,934	9,934			
Cumulative Addition uptill 2044 (MW)			132,935	132,376			
2045							
1	Asrit Kadam	Hydro	216	216	PEDO	Candidate	2045
2	Bhan Khwar	Hydro	36	36	PEDO	Candidate	2045
3	Bhimbal Katha	Hydro	9	9	PEDO	Candidate	2045
4	CJ	Hydro	24	24	PPDB	Candidate	2045
5	Dhudnial	Hydro	960	960	WAPDA	Candidate	2045
6	Gabral Kalam	Hydro	87	87	PEDO	Candidate	2045
7	Gabral Utror	Hydro	82	82	PEDO	Candidate	2045
8	Gwaldai	Hydro	20	20	PEDO	Candidate	2045

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
9	Harigehl-Majeedgala	Hydro	40	40	AJK	Candidate	2045
10	Jagran-III	Hydro	36	36	AJK	Candidate	2045
11	Jagran-IV	Hydro	24	24	AJK	Candidate	2045
12	Nagdar	Hydro	36	36	AJK	Candidate	2045
13	Nandihaar-II	Hydro	10	10	PEDO	Candidate	2045
14	Naran	Hydro	188	188	PEDO	Candidate	2045
15	Pashot	Hydro	60	60	PEDO	Candidate	2045
16	Sakhra-II	Hydro	8	8	PEDO	Candidate	2045
17	Serai	Hydro	6	6	PEDO	Candidate	2045
18	Shounter	Hydro	48	48	AJK	Candidate	2045
19	SHYOK	Hydro	640	640	WAPDA	Candidate	2045
20	Wari	Hydro	45	45	PEDO	Candidate	2045
21	Generic_Candidate Local Coal	Local Coal	252	252	Yet to be Decided	Candidate	2045
22	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2045
Generation Additions in 2045 (MW)			4,327	4,327			
Cumulative Addition uptill 2045 (MW)			137,262	136,702			
2046							
1	Alka	Hydro	2	2	PPDB	Candidate	2046
2	Barum Gol	Hydro	40	40	PEDO	Candidate	2046
3	Chakoti Hatian	Hydro	501	501	PPIB	Candidate	2046
4	Chapri Charkhel	Hydro	12	12	PEDO	Candidate	2046
5	Jamshil	Hydro	612	612	PEDO	Candidate	2046
6	Middle Palas	Hydro	399	399	WAPDA	Candidate	2046
7	Okara	Hydro	4	4	PPDB	Candidate	2046
8	Phandar	Hydro	80	80	WAPDA	Candidate	2046
9	Shalfalam	Hydro	60	60	PEDO	Candidate	2046
10	Sharmai	Hydro	150	150	PEDO	Candidate	2046
11	Shigo Kas	Hydro	102	102	PEDO	Candidate	2046
12	Yulbo	Hydro	2,800	2,800	WAPDA	Candidate	2046
13	Generic_Candidate Local Coal	Local Coal	495	495	Yet to be Decided	Candidate	2046
14	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2046

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Generation Additions in 2046 (MW)			6,757	6,757			
Cumulative Addition uptill 2046 (MW)			144,019	143,460			
2047							
1	Arkari Gol	Hydro	99	99	PEDO	Candidate	2047
2	Artistic-I	Hydro	63	63	PEDO	Candidate	2047
3	Artistic-II	Hydro	54	54	PEDO	Candidate	2047
4	Ashkot	Hydro	300	300	PPIB	Candidate	2047
5	Athmuqam	Hydro	452	452	PPIB	Candidate	2047
6	Balakot	Hydro	300	300	PEDO	Candidate	2047
7	Balakot-II	Hydro	100	100	PEDO	Candidate	2047
8	Balkani	Hydro	8	8	PEDO	Candidate	2047
9	Basho	Hydro	39	39	WAPDA	Candidate	2047
10	BS Link Tail	Hydro	9	9	PPDB	Candidate	2047
11	Chenavan	Hydro	3	3	PPDB	Candidate	2047
12	Chicha Watni	Hydro	2	2	PPDB	Candidate	2047
13	Chiniot_HPP	Hydro	78	78	WAPDA	Candidate	2047
14	Chota Jabba	Hydro	46	46	PEDO	Candidate	2047
15	Daral Khwar-II	Hydro	10	10	PEDO	Candidate	2047
16	Dhaddar	Hydro	18	18	PEDO	Candidate	2047
17	Engro_HPP	Hydro	5	5	PPDB	Candidate	2047
18	Gahrit	Hydro	376	376	PEDO	Candidate	2047
19	Garhi Habibullah	Hydro	100	100	PEDO	Candidate	2047
20	Ghail	Hydro	2	2	AJK	Candidate	2047
21	Ghanool	Hydro	3	3	PEDO	Candidate	2047
22	Ghorband	Hydro	20	20	PEDO	Candidate	2047
23	Gomat Nar	Hydro	50	50	AJK	Candidate	2047
24	Gugera	Hydro	3	3	PPDB	Candidate	2047
25	Istaro-Booni	Hydro	72	72	PEDO	Candidate	2047
26	Jabri Bedar	Hydro	4	4	PEDO	Candidate	2047
27	Jhing-II	Hydro	6	6	AJK	Candidate	2047
28	Kalkot Barikot	Hydro	48	48	PEDO	Candidate	2047
29	Kari Mushkur	Hydro	496	496	PEDO	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
30	Kasur	Hydro	2	2	PPDB	Candidate	2047
31	Kathai-III	Hydro	1	1	AJK	Candidate	2047
32	Khal	Hydro	66	66	PEDO	Candidate	2047
33	Khanewal	Hydro	2	2	PPDB	Candidate	2047
34	Khanki Barrage	Hydro	16	16	PPDB	Candidate	2047
35	Khokhra	Hydro	2	2	PPDB	Candidate	2047
36	Lower Spat Gah	Hydro	495	495	PEDO	Candidate	2047
37	Luat	Hydro	48	48	AJK	Candidate	2047
38	Lucky_HPP	Hydro	20	20	PPDB	Candidate	2047
39	Luspur Murigram	Hydro	231	231	PEDO	Candidate	2047
40	Machai-III	Hydro	2	2	PEDO	Candidate	2047
41	Mahandri	Hydro	12	12	PEDO	Candidate	2047
42	Mahodand	Hydro	44	44	PEDO	Candidate	2047
43	Mandi	Hydro	4	4	PPDB	Candidate	2047
44	Mastuj	Hydro	48	48	PEDO	Candidate	2047
45	Mehar	Hydro	12	12	PPDB	Candidate	2047
46	Mid Ranjha	Hydro	80	80	WAPDA	Candidate	2047
47	Mujigram	Hydro	63	63	PEDO	Candidate	2047
48	Murree	Hydro	12	12	PPDB	Candidate	2047
49	Nandihaar	Hydro	12	12	PEDO	Candidate	2047
50	Nila Da Katha	Hydro	36	36	PEDO	Candidate	2047
51	Patrak Sheringhal	Hydro	22	22	PEDO	Candidate	2047
52	Punjnad	Hydro	18	18	PPDB	Candidate	2047
53	Qaditrabad	Hydro	24	24	PPDB	Candidate	2047
54	QB Link	Hydro	8	8	PPDB	Candidate	2047
55	Rasul	Hydro	18	18	PPDB	Candidate	2047
56	Ravi	Hydro	6	6	PPDB	Candidate	2047
57	Sahiwal	Hydro	6	6	PPDB	Candidate	2047
58	Sarral-Dhartian	Hydro	9	9	PEDO	Candidate	2047
59	Shah Jiwana	Hydro	78	78	WAPDA	Candidate	2047
60	Shogosin	Hydro	138	138	PEDO	Candidate	2047
61	Shushghai	Hydro	144	144	PEDO	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
62	Soan	Hydro	24	24	PPDB	Candidate	2047
63	Tangar	Hydro	24	24	PEDO	Candidate	2047
64	Taunsa	Hydro	135	135	PPDB	Candidate	2047
65	TP	Hydro	9	9	PPDB	Candidate	2047
66	Trappi	Hydro	33	33	PEDO	Candidate	2047
67	Trident	Hydro	8	8	PPDB	Candidate	2047
68	Trimmu_HPP	Hydro	16	16	PPDB	Candidate	2047
69	Turtonas Uzghor	Hydro	82	82	PPIB	Candidate	2047
70	UCC Bhambhwal	Hydro	4	4	PPDB	Candidate	2047
71	Upper Palas	Hydro	158	158	WAPDA	Candidate	2047
72	Wazirabad	Hydro	88	88	WAPDA	Candidate	2047
73	Generic_Candidate Solar	Solar	37	37	Yet to be Decided	Candidate	2047
Generation Additions in 2047 (MW)			5,063	5,063			
Cumulative Addition up till 2047 (MW)			149,082	148,522			

L-5. Annual Capacity Factors (%age)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	85	85	85	84	55	23	10	13	14	14	14	17	16	21	22	20	20	19	18	18	17	10	16	12	11	10	10	14
2	Gwadar	Imp. Coal	0	0	84	85	84	83	35	30	30	28	26	28	30	33	31	30	30	28	26	27	26	17	22	18	19	17	18	33
3	Jamshoro Coal	Imp. Coal	0	0	83	83	14	10	5	7	8	10	11	12	11	13	16	15	15	15	14	14	13	8	11	11	10	9	9	9
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	85	85	85	84	83	57	24	22	22	23	22	25	25	28	28	27	26	24	22	23	23	14	20	15	15	14	14	25
6	Sahiwal Coal	Imp. Coal	85	85	84	51	6	5	3	4	5	5	7	9	8	10	12	12	12	12	11	11	10	8	8	9	8	8	8	8
7	Engro Thar	Local Coal	85	85	85	85	84	84	76	78	51	39	36	39	37	41	41	38	38	37	33	33	32	22	27	32	41	28	34	35
8	Lucky	Local Coal	0	87	85	85	84	84	38	37	37	33	29	34	32	36	33	32	33	33	30	29	28	19	24	27	23	20	25	34
9	NEW_Local_Coal	Local Coal	0	0	0	0	84	84	84	82	81	79	75	76	75	74	74	76	77	78	78	79	79	76	79	78	74	74	72	72
10	Oracle	Local Coal	0	0	0	0	0	0	0	83	82	81	79	80	81	81	82	83	84	84	84	85	85	85	85	85	85	85	85	84
11	Siddiqsons	Local Coal	0	88	85	85	85	84	84	83	82	80	78	79	78	80	81	82	82	83	83	83	83	83	83	84	84	84	84	84
12	Thal Nova	Local Coal	0	89	85	85	84	84	83	81	79	74	62	65	52	56	57	56	56	55	50	49	46	30	49	43	44	43	44	47
13	Thar TEL	Local Coal	0	89	85	85	84	84	83	81	79	74	61	64	52	57	56	56	57	55	51	48	47	31	48	43	45	43	44	47
14	Thar-I (Shanghai Electric)	Local Coal	0	87	85	85	84	84	82	79	77	57	44	45	46	49	47	48	48	45	41	39	38	25	40	38	42	42	38	37
15	Balloki	RLNG	92	84	67	67	67	67	67	67	67	67	67	67	67	67	3	4	4	4	4	4	5	4	4	4	3	3	3	4
16	Bhikki	RLNG	89	77	67	67	67	67	67	67	67	67	67	67	67	3	2	2	3	4	4	4	4	2	4	3	3	3	3	3
17	FKPCL	RLNG	25	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	27	9	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	75	36	6	1	0	0	0	0	0	0	2	3	2	1	0	0	1	1	2	3	4	1	0	0	0	0	0	0
20	Haveli	RLNG	92	91	67	67	67	67	67	67	67	67	67	67	67	4	4	5	5	6	6	6	8	4	5	5	4	5	4	5
21	Nandipur	RLNG	71	54	10	3	0	0	0	0	0	1	2	3	3	1	1	1	1	3	3	4	4	1	4	3	2	2	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	76	45	8	2	0	0	0	0	0	0	2	3	3	1	0	1	1	2	3	4	4	0	0	0	0	0	0	0
24	Rousch	RLNG	60	18	4	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	74	31	6	1	0	0	0	0	0	0	1	2	2	0	0	0	1	1	2	3	4	0	0	0	0	0	0	0
26	Saphire	RLNG	76	42	7	1	0	0	0	0	0	0	2	3	3	1	0	1	1	1	2	3	4	0	0	0	0	0	0	0
27	Trimmu	RLNG	94	92	20	7	1	0	0	0	1	2	4	5	4	5	6	6	7	7	7	8	8	5	8	5	5	5	5	6
28	Davis	RLNG	1	1	1	0	0	0	0	1	0	0	2	2	1	0	0	0	0	1	1	2	2	0	2	2	0	0	0	0
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	89	89	87	10	4	1	0	1	2	3	4	5	5	6	7	6	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	90	90	88	11	4	1	0	1	2	3	5	6	5	7	8	7	7	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	85	85	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	66	23	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	83	83	83	80	9	2	1	2	3	4	5	6	5	7	9	9	9	10	8	8	8	6	7	6	7	1	0	0
36	Hatim	Gas	0	0	0	0	0	0	0	23	21	20	19	21	15	17	18	17	17	16	16	16	15	10	12	9	10	9	7	6
37	HCPC	Gas	86	86	28	9	3	1	0	1	2	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	87	87	26	9	3	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	77	64	11	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	86	86	86	86	84	84	12	8	8	8	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	88	88	86	14	4	2	1	2	3	4	5	6	5	7	8	8	8	8	8	7	0	0	0	0	0	0	0	0
43	C-1	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
44	C-2	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
45	C-3	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
46	C-4	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
47	C-5	Nuclear	0	0	0	0	0	0	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	74	79	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
50	K-3	Nuclear	0	0	76	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
51	Alliance	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
52	Almoiz	Bagasse	54	54	54	54	54	54	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
53	Bahawalpur	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	54	54	54	54	54	54	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
56	Chiniot	Bagasse	36	36	36	36	36	35	35	35	35	34	34	34	34	34	35	35	35	36	36	36	36	36	36	36	36	36	36	36

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	0	54	54	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
58	Faran	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
59	Ghotki	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
60	Hamza	Bagasse	47	47	47	47	47	46	46	46	46	45	44	45	44	45	46	46	47	47	47	47	47	47	47	47	47	47	47	47
61	Hamza-II	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
62	HSM	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
63	Hunza	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
64	Indus	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
65	Ittefaq	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
66	JDW-II	Bagasse	84	84	84	84	84	83	83	83	82	81	80	81	80	81	82	83	83	83	83	84	84	84	84	84	83	83	83	83
67	JDW-III	Bagasse	78	78	78	78	78	77	77	77	77	75	75	75	75	76	77	77	77	78	78	78	78	78	78	78	78	78	78	78
68	Kashmir	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
69	Mehran	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
70	RYK_Energy	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
71	Ryk_Mills	Bagasse	54	54	54	54	54	54	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
72	Sadiqabad	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
73	Shahtaj	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
74	Sheikhoo	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
75	TAY	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	30	30	30	30	30	30	29	29	29	28	28	28	28	29	29	29	30	30	30	30	30	30	30	30	30	30	30	30
77	Two_Star	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
78	Access_Electric	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
79	Access_Solar	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
81	Best	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
82	Buksh	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
84	Crest	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
85	Helios	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
86	HNDS	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
87	Meridian	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
88	QA_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
89	Safe	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
90	Zhenfa	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
91	Zorlu	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68	68
93	Allai Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	48
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	48	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	40
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	41	42	41	41	42	42
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	38	38
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	60
109	Blue Star	Hydro	0	0	0	0	65	66	66	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	41	41
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	40	39	40	45	44	45	45	45	46	46	46	45	46	47	48	47	48	48	49
121	Daral Khwar	Hydro	47	47	47	47	47	47	47	42	42	42	42	42	44	44	43	44	44	44	44	44	44	45	45	45	45	46	46	46
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
123	Dasu_1	Hydro	0	0	0	0	0	56	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	60	61	64	64	64	64	64	64	64	64	64	64	64	64	64	64
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	44	44	44	45
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45	45	45	45	45	45
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	56	57	58	63	62	63	63	64	63	64	64	63	65	64	64	64	64	64	65
130	Dubair Khwar	Hydro	51	51	51	51	51	51	51	49	50	50	49	50	50	49	50	50	50	50	50	51	50	51	51	50	50	50	50	51
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30
138	Ghazi Brotha	Hydro	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68
140	Golen Gol	Hydro	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
142	Gorkin Matiltan	Hydro	0	0	0	32	45	45	45	41	41	41	40	41	41	42	42	42	42	42	42	42	42	43	43	43	43	43	44	44
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
144	Gulpur	Hydro	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	45	45
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	61	61	61
147	Harpo	Hydro	0	0	0	0	0	0	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
149	Jabori	Hydro	91	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
151	Jagran-I	Hydro	31	31	31	31	31	31	31	30	30	30	29	30	30	30	30	30	30	30	31	31	30	31	31	31	31	31	31	31

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44	44
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
155	Jhing	Hydro	95	52	52	52	52	52	52	49	49	49	49	49	49	50	49	50	50	50	50	50	50	50	50	50	51	51	51	51
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
157	Jinnah	Hydro	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	46	46	46
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
161	Karora	Hydro	61	62	62	62	62	62	62	59	59	59	59	59	60	60	59	60	60	60	60	60	60	60	60	61	61	61	61	61
162	Karot	Hydro	0	0	41	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56	56
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	25	32	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	32
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
168	Khan Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
172	Kohala	Hydro	0	0	0	0	0	0	0	0	61	61	61	61	62	62	62	62	62	62	62	62	62	62	62	62	62	63	63	63
173	Koto	Hydro	0	54	58	58	57	58	58	54	54	54	53	54	56	56	55	55	56	56	56	56	56	57	57	57	57	57	57	57
174	Lawi	Hydro	0	43	49	49	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43	43	43	43	43
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
180	Machai	Hydro	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	49	49	49
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	59	59	60	61	62	62	62	62	62	62	62	62	62	63	63	63	63	63
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
186	Malakand-III	Hydro	52	52	52	52	52	52	52	52	52	51	51	51	51	52	51	52	51	52	52	52	52	52	52	52	52	52	52	52
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
188	Mangla	Hydro	57	57	57	57	57	57	57	56	56	56	56	56	56	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	35	41	40	40	40	40	39	39	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	42
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62	63
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
201	Neelum Jehlum	Hydro	58	58	58	58	58	58	58	56	56	56	56	55	56	56	57	56	57	57	57	57	57	57	57	58	57	58	58	58
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	50	49	49	56	55	57	58	58	59	59	59	59	59	60	60	61	62	62	63
203	New Bong	Hydro	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	36
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	49	49
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	58	59	59	59
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
210	Pehur	Hydro	23	24	24	24	23	24	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
216	Ranolia	Hydro	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
219	Riali-II	Hydro	0	87	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
220	Riali-III	Hydro	0	0	0	0	0	0	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58	59	59	59
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49	49
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	51
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	66
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
237	Suki Kinari	Hydro	0	0	0	35	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46	46	46	46
240	Tarbela_1-10	Hydro	48	48	48	48	48	48	48	48	47	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48	48
241	Tarbela_11-14	Hydro	48	48	48	48	48	48	47	48	47	47	47	48	47	48	47	47	47	48	48	48	48	48	48	48	48	48	48	48
242	Tarbela_Ext_4	Hydro	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
243	Tarbela_Ext_5	Hydro	0	0	0	0	19	32	32	32	31	31	31	32	32	32	31	32	32	32	32	32	32	32	32	32	32	32	32	32
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	52	53	53	53	53	53	53	53	53	53	54	54	54	54	54	54	54
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55	55	55	55	55

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	47	48	48	47	48	49	49	49	49	49	49	49	49	49	49	49	49	49	49
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	50	50	50	50
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	53	53
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	37
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	64
258	Warsak	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46
261	CASA	Cross Border	0	0	0	95	39	39	39	23	23	24	23	23	27	26	24	25	25	25	25	26	26	27	26	27	27	28	30	33
262	Act	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
263	Act_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
264	Artistic_wind	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
265	Artistic_Wind_2	Wind	0	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	0	0	0	33	33	33	30	33	33	33	32	33	33	33	32	33	33	33	33	33	33	33	33	33	33	33	33	33
267	Candidate_Wind_North	Wind	0	0	0	33	33	33	30	33	32	32	32	30	33	32	33	32	33	33	33	33	33	33	33	33	33	33	33	33
268	Candidate_Wind_South	Wind	0	0	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
269	Dawood	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
270	Din	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
271	FFC	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
272	FWEL-I	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
273	FWEL-II	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
274	Gul Ahmed	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
275	Gul_Electric	Wind	0	0	38	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
276	Hawa	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
277	Indus_Energy	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
278	Jhimpir	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
279	Lakeside	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
280	Liberty_Wind_1	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
281	Liberty_Wind_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
282	Master	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
283	Master_Green	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
284	Metro_Power	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
286	NASDA	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
287	Sachal	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
288	Sapphire_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
289	Shaheen	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
290	Tenga	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
291	Three_Gorges_I	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
292	Three_Gorges_II	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
293	Three_Gorges_III	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
294	Trans_Atlantic	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
295	Tricon_A	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
296	Tricon_B	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
297	Tricon_C	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
298	Tricorm	Wind	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
299	UEP	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
300	Western	Wind	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
301	Yunus	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
302	Zephyr	Wind	0	56	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
303	Zorlu_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	30	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	35	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	15	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	88	88	14	4	0	0	0	1	2	3	4	5	5	5	6	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	13	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	11	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	56	21	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	16	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	9	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

L-6. Annual Energy Generation 2020-30 (GWh)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
1	China HUBCO	Imp. Coal	9,330	9,308	9,301	9,126	9,104	6,022	2,559	1,748	1,855	2,012	2,486
2	Gwadar	Imp. Coal	0	0	1,000	2,001	2,006	2,001	1,957	970	932	852	877
3	Jamshoro Coal	Imp. Coal	0	0	2,716	3,565	2,237	2,359	949	941	1,158	1,285	1,525
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	9,270	9,248	9,248	9,103	9,125	9,047	5,087	3,350	3,415	3,142	3,378
6	Sahiwal Coal	Imp. Coal	9,285	9,263	5,536	834	750	909	516	446	548	637	1,159
7	Engro Thar	Local Coal	4,493	4,482	4,482	4,482	4,425	4,412	4,363	4,254	3,973	2,228	2,363
8	Lucky	Local Coal	0	1,546	4,531	4,496	4,472	4,461	4,369	3,488	2,225	2,058	2,138
9	NEW_Local_Coal	Local Coal	0	0	0	0	0	0	0	0	0	0	0
10	Oracle	Local Coal	0	0	0	0	0	0	0	8,833	8,724	8,507	8,413
11	Siddiqsons	Local Coal	0	193	2,266	2,266	2,272	2,237	2,231	2,187	2,160	2,107	2,076
12	Thal Nova	Local Coal	0	583	2,234	2,234	2,239	2,199	2,198	2,149	2,102	2,040	1,999
13	Thar TEL	Local Coal	0	583	2,234	2,234	2,239	2,199	2,199	2,155	2,108	2,058	1,986
14	Thar-I (Shanghai Electric)	Local Coal	0	1,545	8,643	9,055	8,987	8,916	8,873	8,684	8,415	7,198	6,877
15	Balloki	RLNG	6,908	6,908	6,907	6,907	6,906	6,904	6,904	6,889	6,887	6,888	6,888
16	Bhikki	RLNG	6,695	6,695	6,694	6,694	6,691	6,689	6,688	6,682	6,675	6,676	6,676
17	FKPCL	RLNG	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
19	Halmore	RLNG	48	32	0	0	0	5	0	0	0	0	35
20	Haveli	RLNG	6,965	6,965	6,964	6,964	6,964	6,964	6,964	6,945	6,944	6,946	6,946
21	Nandipur	RLNG	296	215	43	0	2	11	0	0	0	44	114
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	80	71	2	0	0	6	0	0	0	14	49
24	Rousch	RLNG	12	0	0	0	0	0	0	0	0	0	11
25	Saif	RLNG	28	21	0	0	0	0	0	0	0	0	34
26	Saphire	RLNG	60	50	0	0	0	6	0	0	0	6	44
27	Trimmu	RLNG	2,131	2,624	449	174	235	95	39	30	124	218	491
28	Davis	RLNG	0	0	0	0	0	0	0	2	0	0	2
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	136
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	1,655	1,646	169	71	76	33	23	27	35	61	97
32	Foundation	Gas	1,320	1,312	155	58	64	28	31	25	39	57	81
33	Guddu-I	Gas	1,950	1,938	167	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	19	13	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	5,234	5,221	2,611	795	650	297	201	177	216	265	432
36	Hatim	Gas	0	0	0	0	0	0	0	43	41	39	40
37	HCPC	Gas	975	963	76	40	44	20	13	14	18	35	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
38	Kotri	Gas	796	795	55	30	32	16	9	11	15	0	0
39	Liberty	Gas	239	127	33	3	9	5	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	4,149	4,139	4,139	4,076	4,074	4,064	2,236	464	509	461	56
42	Uch-II	Gas	2,737	2,727	392	155	143	82	79	58	98	123	198
43	C-1	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
44	C-2	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
45	C-3	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,176	2,175	2,185	2,175	2,181
46	C-4	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,183	2,181	2,185	2,181	2,181
47	C-5	Nuclear	0	0	0	0	0	0	7,285	7,244	7,260	7,243	7,234
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	4,548	7,292	7,292	7,307	7,292	7,285	7,245	7,255	7,242	7,240
50	K-3	Nuclear	0	0	5,823	7,292	7,307	7,292	7,284	7,247	7,262	7,244	7,240
51	Alliance	Bagasse	0	0	19	143	144	143	140	140	138	136	135
52	Almoiz	Bagasse	172	172	172	172	172	172	168	168	168	164	162
53	Bahawalpur	Bagasse	0	0	20	149	149	149	146	146	144	141	140
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	105	105	105	105	105	105	103	103	101	100	99
56	Chiniot	Bagasse	197	196	196	196	197	196	190	190	187	185	183

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
57	Etihad	Bagasse	0	355	355	355	356	355	348	348	343	339	334
58	Faran	Bagasse	0	0	17	126	127	126	124	124	122	120	119
59	Ghotki	Bagasse	0	0	29	215	215	215	210	210	207	204	202
60	Hamza	Bagasse	62	62	62	62	62	62	60	60	60	59	58
61	Hamza-II	Bagasse	0	0	19	143	144	143	140	140	138	136	135
62	HSM	Bagasse	0	0	17	126	127	126	124	124	122	120	119
63	Hunza	Bagasse	0	0	32	238	238	238	233	233	230	226	223
64	Indus	Bagasse	0	0	20	148	148	148	145	145	143	140	139
65	Ittefaq	Bagasse	0	0	20	149	149	149	146	146	144	142	140
66	JDW-II	Bagasse	194	193	193	193	194	193	191	191	189	186	185
67	JDW-III	Bagasse	180	180	180	180	180	180	178	178	176	174	173
68	Kashmir	Bagasse	0	0	26	191	191	191	187	187	184	182	179
69	Mehran	Bagasse	0	0	17	126	127	126	124	124	122	120	119
70	RYK_Energy	Bagasse	0	0	16	119	120	119	117	117	115	114	112
71	Ryk_Mills	Bagasse	144	143	143	143	144	143	140	140	139	137	135
72	Sadiqabad	Bagasse	0	0	29	215	215	215	210	210	207	205	202
73	Shahtaj	Bagasse	0	0	21	153	153	153	149	149	148	145	144
74	Sheikhoo	Bagasse	0	0	19	143	144	143	140	140	138	136	135
75	TAY	Bagasse	0	0	19	143	144	143	140	140	138	136	135

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
76	Thal_Layyah	Bagasse	109	109	109	109	109	109	106	106	105	102	100
77	Two_Star	Bagasse	0	0	32	238	238	238	233	233	230	227	223
78	Access_Electric	Solar	0	5	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	0	5	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	0	0	14	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	2,482	4,965	7,447	9,929	12,412	14,894	17,377	19,815
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	0	0	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	0	0	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	0	0	48	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	0	0	13	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	0	0	97	165	165	165	165	165	165	165	165
91	Zorlu	Solar	84	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0
93	Allai Khwar	Hydro	396	395	395	395	396	395	395	395	396	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	2,181	3,256	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
109	Blue Star	Hydro	0	0	0	0	0	0	0	17	17	17	17
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
114	Chashma	Hydro	767	765	765	765	767	765	765	765	767	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	198	196
121	Daral Khwar	Hydro	147	147	147	147	147	147	147	132	135	132	133
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
123	Dasu_1	Hydro	0	0	0	0	0	4,321	11,975	11,975	11,990	11,975	11,975
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	333	332
130	Dubair Khwar	Hydro	581	581	581	581	581	581	569	572	568	560	559
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0
138	Ghazi Brotha	Hydro	6,563	6,551	6,551	6,551	6,563	6,551	6,551	6,508	6,508	6,480	6,501
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0
140	Golen Gol	Hydro	97	97	97	97	97	97	97	95	96	95	95
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0
142	Gorkin Matiltan	Hydro	0	0	0	155	331	331	327	301	301	297	301
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0
144	Gulpur	Hydro	481	480	480	480	481	480	480	480	481	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0
147	Harpo	Hydro	0	0	0	0	0	0	170	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0
149	Jabori	Hydro	27	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0
151	Jagran-I	Hydro	82	82	82	82	82	82	82	78	78	77	78

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0
155	Jhing	Hydro	10	68	68	68	68	68	68	64	64	64	64
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
157	Jinnah	Hydro	195	194	194	194	195	194	194	193	192	191	191
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0
161	Karora	Hydro	5	65	65	65	65	65	65	62	63	62	62
162	Karot	Hydro	0	0	1,496	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	232	353	343	345	345	345
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0
168	Khan Khwar	Hydro	235	234	234	234	235	234	234	234	235	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0
172	Kohala	Hydro	0	0	0	0	0	0	0	0	6,014	6,002	6,014
173	Koto	Hydro	0	212	212	212	212	212	209	200	202	198	200
174	Lawi	Hydro	0	130	295	295	295	295	294	291	291	290	291
175	Lower Palas	Hydro	0	0	0	0	0	0	0	2,475	2,495	2,453	2,457
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	3,290
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0
186	Malakand-III	Hydro	367	367	367	367	367	367	365	364	366	362	362
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0
188	Mangla	Hydro	5,016	5,004	5,004	5,004	5,016	5,004	5,004	4,923	4,952	4,931	4,867
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	1,633	2,814	2,800	2,811	2,781	2,781
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0
201	Neelum Jehlum	Hydro	4,944	4,939	4,939	4,939	4,944	4,939	4,864	4,813	4,772	4,754	4,729
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	199	205
203	New Bong	Hydro	471	470	470	470	471	470	470	470	471	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
209	Patrind	Hydro	635	634	634	634	635	634	634	632	633	632	632
210	Pehur	Hydro	37	37	37	37	37	37	37	36	36	36	36
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	668	668
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0
219	Riali-II	Hydro	0	5	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	0	0	0	0	0	0	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	387	386	386	386	387	386	385	379	381	378	378
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0
237	Suki Kinari	Hydro	0	0	0	1,332	2,800	2,798	2,789	2,763	2,763	2,762	2,759
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0
240	Tarbela_1-10	Hydro	7,386	7,377	7,377	7,377	7,386	7,377	7,377	7,251	7,240	7,232	7,133
241	Tarbela_11-14	Hydro	7,294	7,285	7,285	7,285	7,294	7,285	7,227	7,207	7,174	7,180	7,124
242	Tarbela_Ext_4	Hydro	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,786	3,810
243	Tarbela_Ext_5	Hydro	0	0	0	0	1,975	4,005	3,959	3,941	3,850	3,825	3,805
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	6,991	7,025
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0
258	Warsak	Hydro	999	997	997	997	999	997	997	997	999	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0
261	CASA	Cross Border	0	0	0	1,387	3,457	3,456	3,400	2,097	2,097	2,065	2,004
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	0	0	58	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	0	0	102	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
266	Candidate_Wind_Mid	Wind	0	0	0	872	1,101	1,100	1,100	1,100	1,101	1,835	2,660
267	Candidate_Wind_North	Wind	0	0	0	581	582	581	581	581	556	581	1,111
268	Candidate_Wind_South	Wind	0	0	0	3,440	6,889	9,816	11,964	14,174	17,201	20,513	23,700
269	Dawood	Wind	0	14	144	144	144	144	144	144	144	144	144
270	Din	Wind	0	0	58	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	151	150	150	150	151	150	150	150	151	150	150
273	FWEL-II	Wind	151	150	150	150	151	150	150	150	151	150	150
274	Gul Ahmed	Wind	146	145	145	145	146	145	145	145	146	145	145
275	Gul_Electric	Wind	0	0	83	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	0	0	58	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	0	0	58	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	0	0	58	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	0	0	58	172	172	172	172	172	172	172	172
282	Master	Wind	154	153	153	153	154	153	153	153	154	153	153
283	Master_Green	Wind	0	102	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	146	145	145	145	146	145	145	145	146	145	145

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
285	Metro_Wind	Wind	0	0	70	206	207	206	206	206	207	206	206
286	NASDA	Wind	0	0	58	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	154	153	153	153	154	153	153	153	154	153	153
289	Shaheen	Wind	0	104	175	175	176	175	175	175	176	175	175
290	Tenga	Wind	0	14	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	157	156	156	156	157	156	156	156	157	156	156
293	Three_Gorges_III	Wind	157	156	156	156	157	156	156	156	157	156	156
294	Trans_Atlantic	Wind	0	0	56	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	0	71	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	0	58	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	146	145	145	145	146	145	145	145	146	145	145
302	Zephyr	Wind	0	20	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
304	KAPCO 1	RFO	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	1,185	1,188	34	0	11	12	16	16	23	40	66
322	ATLAS	RFO	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
323	HuB N	RFO	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	0	1	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			130,621	140,955	154,100	165,045	175,426	185,149	194,337	203,899	215,073	226,322	237,996
Energy Demand			130,621	140,955	154,100	165,045	175,426	185,149	194,337	203,899	215,073	226,322	237,996
Energy Not Served			0.00	0.02	0.03	-0.03	0.00	-0.07	0.03	-0.07	0.00	0.02	-0.02

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

L-7. Annual Energy Generation 2030-47 (GWh)

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	2,377	2,211	2,605	2,480	2,304	2,191	2,075	2,011	1,998	1,958	1,273	1,586	1,514	1,105	1,146	1,165	1,717
2	Gwadar	Imp. Coal	811	786	806	748	736	721	716	665	635	620	437	477	494	351	495	458	806
3	Jamshoro Coal	Imp. Coal	1,471	1,373	1,565	1,799	1,772	1,772	1,664	1,588	1,564	1,522	949	1,075	1,390	1,033	1,105	1,054	1,093
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	3,073	3,117	3,289	3,009	3,049	2,993	2,651	2,516	2,491	2,460	1,783	1,971	1,850	1,288	1,680	1,711	3,139
6	Sahiwal Coal	Imp. Coal	1,140	895	1,132	1,298	1,307	1,319	1,243	1,185	1,181	1,108	836	878	899	851	954	874	940
7	Engro Thar	Local Coal	2,105	2,121	2,263	2,148	2,106	2,069	1,950	1,895	1,760	1,697	1,223	1,353	1,289	1,185	1,978	1,804	1,830
8	Lucky	Local Coal	1,966	1,953	2,096	1,785	1,715	1,761	1,703	1,612	1,626	1,489	1,081	1,199	1,154	962	1,342	1,749	1,817
9	NEW_Local_Coal	Local Coal	4,331	4,248	27,430	50,023	66,607	84,704	104,201	125,149	146,022	170,983	166,088	184,595	183,716	174,501	177,895	176,176	174,537
10	Oracle	Local Coal	8,468	8,480	8,596	8,697	8,846	8,905	8,986	8,986	9,021	9,043	9,023	9,023	9,023	9,012	8,991	8,993	8,969
11	Siddiqsons	Local Coal	2,087	2,028	2,128	2,135	2,174	2,202	2,214	2,214	2,211	2,217	2,216	2,201	2,216	2,234	2,249	2,250	2,233
12	Thal Nova	Local Coal	1,810	1,454	1,464	1,396	1,436	1,495	1,447	1,320	1,299	1,206	867	942	1,176	1,131	1,148	1,152	1,288
13	Thar TEL	Local Coal	1,793	1,462	1,471	1,391	1,453	1,472	1,426	1,343	1,334	1,222	852	934	1,168	1,127	1,159	1,148	1,281
14	Thar-I (Shanghai Electric)	Local Coal	5,108	5,319	5,225	4,928	5,001	5,058	4,686	4,532	4,250	4,011	2,902	3,263	3,795	4,221	4,516	4,097	4,162
15	Balloki	RLNG	6,889	6,898	6,896	314	363	405	421	447	452	472	432	458	444	317	436	390	410
16	Bhikki	RLNG	6,680	6,682	267	144	199	284	360	379	427	433	321	408	348	243	315	306	319
17	FKPCL	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	46	41	9	5	5	11	21	26	56	63	16	0	0	0	0	0	0
20	Haveli	RLNG	6,946	6,957	405	436	483	525	564	567	631	792	450	574	491	354	500	457	473
21	Nandipur	RLNG	133	117	52	16	43	50	69	104	136	140	57	130	105	54	99	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	58	55	23	6	8	22	24	42	59	59	0	0	0	0	0	0	0
24	Rousch	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	46	31	6	2	6	6	17	27	42	53	0	0	0	0	0	0	0
26	Saphire	RLNG	54	47	22	6	6	22	22	28	59	66	0	0	0	0	0	0	0
27	Trimmu	RLNG	513	467	546	611	654	717	708	738	883	895	635	847	648	434	703	796	831
28	Davis	RLNG	2	1	0	0	0	0	0	1	1	2	0	2	2	0	0	0	0
29	NEW OCGT (Generic)	RLNG	181	133	19	0	14	33	48	70	155	311	118	362	385	89	384	378	512
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	98	87	107	122	84	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	90	74	97	101	103	95	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	422	356	443	540	522	539	538	528	508	503	441	454	377	428	43	0	0
36	Hatim	Gas	38	26	29	30	29	29	29	28	27	26	20	22	19	16	16	17	13
37	HCPC	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	193	153	205	248	245	241	229	261	168	0	0	0	0	0	0	0	0
43	C-1	Nuclear	2,077	2,082	2,075	2,077	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,077	2,077	2,082	2,077	2,077	2,078
44	C-2	Nuclear	2,077	2,082	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,077	2,078
45	C-3	Nuclear	2,174	2,185	2,175	2,176	2,181	2,187	2,183	2,182	2,182	2,187	2,183	2,182	2,182	2,187	2,182	2,182	2,183
46	C-4	Nuclear	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,182
47	C-5	Nuclear	7,232	7,267	7,248	7,252	7,248	7,265	7,250	7,249	7,249	7,266	7,252	7,249	7,251	7,266	7,252	7,253	7,260
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	7,241	7,266	7,248	7,246	7,250	7,265	7,250	7,252	7,250	7,266	7,249	7,249	7,251	7,266	7,254	7,255	7,260
50	K-3	Nuclear	7,240	7,265	7,247	7,252	7,244	7,266	7,250	7,248	7,251	7,265	7,250	7,248	7,250	7,266	7,253	7,254	7,258
51	Alliance	Bagasse	135	135	136	138	140	142	142	142	143	144	143	143	143	143	142	142	142
52	Almoiz	Bagasse	162	163	164	166	168	170	171	171	172	172	172	172	172	171	171	171	171
53	Bahawalpur	Bagasse	140	140	142	144	146	147	148	148	149	149	149	149	149	149	148	148	148
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	99	99	100	102	103	104	104	104	105	105	105	105	105	105	104	104	104
56	Chiniot	Bagasse	181	182	184	188	190	194	195	195	196	197	196	196	196	195	195	195	195

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	334	335	338	342	348	352	353	353	355	356	355	355	355	354	353	353	353
58	Faran	Bagasse	119	119	120	122	124	125	126	126	126	127	126	126	126	126	126	126	126
59	Ghotki	Bagasse	202	203	204	207	210	213	214	214	215	215	215	215	215	214	214	214	214
60	Hamza	Bagasse	57	58	58	59	60	61	61	61	62	62	62	62	62	62	61	61	61
61	Hamza-II	Bagasse	135	135	136	138	140	141	142	142	143	144	143	143	143	143	142	142	142
62	HSM	Bagasse	119	119	120	122	124	125	126	126	126	127	126	126	126	126	126	126	126
63	Hunza	Bagasse	223	224	225	229	233	235	236	236	238	238	238	238	238	237	236	236	236
64	Indus	Bagasse	139	140	140	143	145	147	147	147	148	148	148	148	148	148	147	147	147
65	Ittefaq	Bagasse	140	140	142	143	146	148	148	148	149	149	149	149	149	149	148	148	148
66	JDW-II	Bagasse	184	186	186	188	191	192	192	192	193	194	193	193	193	193	192	192	192
67	JDW-III	Bagasse	173	174	174	175	178	179	179	179	180	180	180	180	180	180	179	179	179
68	Kashmir	Bagasse	179	180	182	184	187	189	190	190	191	191	191	191	191	190	190	190	190
69	Mehran	Bagasse	119	119	120	122	124	125	126	126	126	127	126	126	126	126	126	126	126
70	RYK_Energy	Bagasse	112	113	114	115	117	118	119	119	119	120	119	119	119	119	119	119	119
71	Ryk_Mills	Bagasse	135	136	136	138	140	142	142	142	143	144	143	143	143	143	142	142	142
72	Sadiqabad	Bagasse	202	203	204	207	210	213	214	214	215	215	215	215	215	214	214	214	214
73	Shahtaj	Bagasse	144	144	145	147	149	152	152	152	153	153	153	153	153	152	152	152	152
74	Sheikhoo	Bagasse	135	136	136	138	140	141	142	142	143	144	143	143	143	143	142	142	142
75	TAY	Bagasse	135	135	136	138	140	141	142	142	143	144	143	143	143	143	142	142	142

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	99	100	101	103	106	108	108	108	109	109	109	109	109	108	108	108	108
77	Two_Star	Bagasse	223	224	226	229	233	236	236	236	238	238	238	238	238	237	236	236	236
78	Access_Electric	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	20,877	23,421	25,877	25,904	25,904	26,113	27,041	27,956	30,008	30,678	33,161	35,643	38,094	40,577	43,059	45,541	45,602
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
91	Zorlu	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
93	Allai Khwar	Hydro	395	396	395	395	395	396	395	395	395	396	395	395	395	396	395	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	261

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	290
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	199
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,221
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	916	917	918
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,965
100	Azad Pattan	Hydro	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	983
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	508
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	142	142
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	349	349	349	350	349	349	351
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119	119	119
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	48	48
109	Blue Star	Hydro	17	17	17	18	18	18	18	18	18	18	18	18	18	18	18	18	18
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	12,986	25,887	25,848	25,785	25,736
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,420	2,420
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	65

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	765	767	765	765	765	767	765	765	765	767	765	765	765	767	765	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	173
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72	72	72
120	Dander	Hydro	202	223	214	219	225	227	227	224	227	224	224	224	228	233	230	232	244
121	Daral Khwar	Hydro	134	141	141	138	140	141	140	141	140	140	141	141	141	143	143	144	146
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
123	Dasu_1	Hydro	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975
124	Dasu_2	Hydro	0	11,449	11,474	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	74
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,731	4,736	4,737
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	17,560	17,536	17,532	17,545
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	158	158	158	157	159	159	159
129	Dubair Kalay	Hydro	344	366	361	361	365	368	366	370	369	369	375	368	372	370	371	372	373
130	Dubair Khwar	Hydro	562	573	568	562	566	571	571	574	574	576	577	574	574	574	575	575	576
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	302	305	315

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	310	310	311
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,636
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	507
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
138	Ghazi Brotha	Hydro	6,483	6,540	6,496	6,527	6,518	6,517	6,503	6,522	6,516	6,521	6,546	6,521	6,519	6,537	6,520	6,520	6,544
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119
140	Golen Gol	Hydro	96	97	96	96	96	97	97	97	97	97	97	97	97	97	97	97	97
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	210
142	Gorkin Matiltan	Hydro	307	312	306	305	308	310	313	312	313	313	310	317	313	316	315	317	319
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
144	Gulpur	Hydro	480	481	480	480	480	481	480	480	480	481	480	480	480	481	480	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78	78	79
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	212	212	213
147	Harpo	Hydro	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260
149	Jabori	Hydro	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
151	Jagran-I	Hydro	78	80	80	78	80	80	80	80	81	81	80	81	80	81	81	81	82

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	137	138	138
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	91	91
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,618	2,627
155	Jhing	Hydro	64	66	66	65	66	66	66	66	66	66	66	66	66	67	67	67	67
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
157	Jinnah	Hydro	192	194	194	193	194	194	194	194	194	194	194	194	194	194	194	194	194
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	846	848	848	849
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	162
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,961
161	Karora	Hydro	62	63	63	63	63	63	63	63	63	63	63	64	64	64	64	64	64
162	Karot	Hydro	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	39	39	39	39
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	346	349	349	349	348	349	348	349	349	350	349	350	349	350	350	352	353
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	261
168	Khan Khwar	Hydro	234	235	234	234	234	235	234	234	234	235	234	234	234	235	234	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
172	Kohala	Hydro	5,991	6,126	6,077	6,070	6,091	6,105	6,101	6,106	6,101	6,124	6,102	6,106	6,125	6,145	6,148	6,168	6,199
173	Koto	Hydro	197	206	205	201	203	206	206	208	208	208	209	208	208	208	210	209	211
174	Lawi	Hydro	291	291	291	291	291	291	292	291	292	291	292	292	291	291	291	291	292
175	Lower Palas	Hydro	2,478	2,442	2,478	2,509	2,507	2,512	2,513	2,511	2,512	2,517	2,519	2,513	2,515	2,515	2,513	2,515	2,514
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	310
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	787
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	663	663	664	664
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
184	Mahl	Hydro	3,319	3,363	3,389	3,485	3,471	3,481	3,477	3,481	3,485	3,482	3,500	3,482	3,491	3,506	3,505	3,525	3,542
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	182
186	Malakand-III	Hydro	364	367	362	364	364	366	366	367	366	367	367	367	367	367	366	367	367
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
188	Mangla	Hydro	4,899	4,900	4,964	4,885	4,921	5,003	4,986	4,993	4,995	5,012	5,003	4,997	5,000	5,012	5,004	5,004	5,004
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	225

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,708	1,711
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	2,772	2,800	2,792	2,775	2,804	2,806	2,829	2,821	2,819	2,827	2,815	2,819	2,817	2,815	2,821	2,817	2,838
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	286
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	133	133	134
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	674	675	675
201	Neelum Jehlum	Hydro	4,723	4,778	4,764	4,802	4,835	4,863	4,837	4,854	4,862	4,873	4,859	4,859	4,870	4,875	4,878	4,893	4,917
202	Nerai-Dubair	Hydro	207	232	228	234	236	236	237	239	239	241	241	242	238	244	248	248	253
203	New Bong	Hydro	470	471	470	470	470	471	470	470	470	471	470	470	470	471	470	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	136
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	253	255	260
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	12,334	12,338	12,338	12,356	12,333	12,331	12,342
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	632	634	634	633	633	634	633	634	634	634	633	634	634	634	634	634	634
210	Pehur	Hydro	36	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	319	321
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
215	Rajdhani	Hydro	669	671	670	670	670	671	670	670	670	671	670	670	670	671	670	670	670
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
219	Riali-II	Hydro	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41	41
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34	34
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	22	22
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	307
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	282	282

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	659	668
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	451	451
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	533
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	206	206	207
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	469
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,714	3,721	3,724
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	379	383	381	380	380	382	381	381	381	382	382	381	382	382	383	382	383
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
237	Suki Kinari	Hydro	2,759	2,774	2,774	2,765	2,772	2,778	2,771	2,772	2,775	2,778	2,777	2,776	2,781	2,777	2,778	2,778	2,783
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	100
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	8,813	8,821	8,814	8,814	8,820
240	Tarbela_1-10	Hydro	7,316	7,332	7,219	7,178	7,239	7,291	7,302	7,364	7,324	7,345	7,335	7,335	7,329	7,331	7,343	7,368	7,356
241	Tarbela_11-14	Hydro	7,130	7,067	7,089	7,136	7,167	7,200	7,244	7,208	7,238	7,264	7,231	7,260	7,237	7,242	7,280	7,257	7,285
242	Tarbela_Ext_4	Hydro	3,811	3,815	3,811	3,760	3,807	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811
243	Tarbela_Ext_5	Hydro	3,872	3,900	3,859	3,975	3,937	3,937	3,984	3,981	3,982	3,987	3,985	3,984	3,982	3,981	3,984	3,985	3,988
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	439
245	Thakot-I	Hydro	9,780	9,969	10,018	10,048	10,067	10,114	10,093	10,095	10,096	10,116	10,101	10,097	10,100	10,127	10,112	10,126	10,138
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	4,658	4,659	4,659	4,671	4,667	4,668	4,674

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	7,020	7,010	7,042	7,206	7,216	7,234	7,221	7,221	7,221	7,234	7,222	7,221	7,222	7,238	7,226	7,228	7,228
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	306	306	304	306	306	307
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	155
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	355
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	507
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252	252	252
258	Warsak	Hydro	997	999	997	997	997	999	997	997	997	999	997	997	997	999	997	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	350
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11,239	11,245
261	CASA	Cross Border	2,024	2,422	2,462	2,111	2,197	2,203	2,189	2,240	2,278	2,299	2,288	2,327	2,320	2,381	2,495	2,608	2,805
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	2,740	2,745	2,740	2,654	2,740	2,739	2,740	2,740	2,740	2,745	2,740	2,740	2,740	2,745	2,740	2,740	2,740
267	Candidate_Wind_North	Wind	1,163	1,165	1,163	1,111	1,163	1,165	1,163	1,163	1,163	1,165	1,163	1,163	1,163	1,165	1,163	1,163	1,163
268	Candidate_Wind_South	Wind	23,550	23,720	24,007	24,064	23,986	24,097	24,064	24,064	24,064	24,097	24,064	24,064	24,064	24,097	24,064	24,064	24,064
269	Dawood	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
270	Din	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
273	FWEL-II	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
274	Gul Ahmed	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
275	Gul_Electric	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
282	Master	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
283	Master_Green	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	206	207	206	206	206	207	206	206	206	207	206	206	206	207	206	206	206
286	NASDA	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
289	Shaheen	Wind	175	176	175	175	175	176	175	175	175	176	175	175	175	176	175	175	175
290	Tenga	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
293	Three_Gorges_III	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
294	Trans_Atlantic	Wind	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
302	Zephyr	Wind	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	67	63	67	58	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
323	HuB N	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
325	Liberty Tech	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			250,462	264,419	278,676	294,572	311,828	331,028	350,196	371,490	394,338	419,717	428,094	451,631	475,646	498,995	519,925	540,294	559,765
Energy Demand			250,462	264,419	278,676	294,572	311,828	331,028	350,196	371,490	394,338	419,717	428,094	451,631	475,646	498,995	519,925	540,294	559,765
Energy Not Served			0.04	0.00	-0.02	0.01	-0.01	0.00	0.03	0.01	-0.03	0.00	0.00	0.01	-0.01	0.00	-0.03	0.03	-0.02

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

L-8. Year wise Cost Breakup-Discounted Prices

FY	Present Worth Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	3,720,444	4,677,165	4,677,165
2021	0	913,435	3,478,042	4,391,477	9,068,642
2022	0	909,992	2,807,645	3,717,637	12,786,279
2023	215,029	890,290	2,330,852	3,436,170	16,222,449
2024	342,831	847,836	2,088,847	3,279,513	19,501,962
2025	422,073	796,814	1,834,430	3,053,316	22,555,279
2026	463,678	766,629	1,488,806	2,719,113	25,274,392
2027	632,487	719,449	1,312,722	2,664,658	27,939,050
2028	683,960	678,916	1,181,881	2,544,757	30,483,807
2029	831,417	636,864	1,055,804	2,524,084	33,007,891
2030	921,838	587,181	995,086	2,504,105	35,511,997
2031	968,993	516,095	871,094	2,356,182	37,868,178
2032	970,497	473,676	771,816	2,215,989	40,084,167
2033	1,020,503	445,970	535,333	2,001,806	42,085,972
2034	1,037,666	421,258	438,349	1,897,273	43,983,245
2035	1,024,701	396,325	442,635	1,863,662	45,846,907
2036	1,011,362	372,816	455,265	1,839,443	47,686,350
2037	994,444	349,762	461,075	1,805,280	49,491,631
2038	975,491	330,785	460,542	1,766,818	51,258,449
2039	957,801	313,625	464,961	1,736,387	52,994,836
2040	939,893	297,720	460,697	1,698,310	54,693,146
2041	920,757	284,887	377,364	1,583,008	56,276,154
2042	877,358	265,538	379,144	1,522,039	57,798,193
2043	891,911	245,261	339,018	1,476,191	59,274,384
2044	956,452	225,693	282,044	1,464,189	60,738,573
2045	914,614	208,162	267,005	1,389,781	62,128,354
2046	900,206	204,428	237,645	1,342,279	63,470,633
2047	891,598	194,019	220,052	1,305,669	64,776,302

L-9. Year wise Cost Breakup-Un-Discounted Prices (k$)

FY	Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	3,720,444	4,677,165	4,677,165
2021	0	1,014,928	3,864,491	4,879,419	9,556,584
2022	0	1,123,447	3,466,229	4,589,675	14,146,260
2023	294,964	1,221,248	3,197,327	4,713,539	18,859,798
2024	522,528	1,292,235	3,183,732	4,998,496	23,858,294
2025	714,784	1,349,411	3,106,623	5,170,818	29,029,112
2026	872,492	1,442,549	2,801,451	5,116,492	34,145,604
2027	1,322,374	1,504,189	2,744,575	5,571,138	39,716,742
2028	1,588,879	1,577,160	2,745,578	5,911,617	45,628,359
2029	2,146,032	1,643,857	2,725,214	6,515,102	52,143,461
2030	2,643,807	1,684,018	2,853,878	7,181,703	59,325,164
2031	3,087,828	1,644,607	2,775,858	7,508,292	66,833,456
2032	3,436,244	1,677,148	2,732,773	7,846,165	74,679,621
2033	4,014,779	1,754,497	2,106,063	7,875,339	82,554,960
2034	4,535,888	1,841,422	1,916,130	8,293,440	90,848,400
2035	4,976,908	1,924,927	2,149,852	9,051,686	99,900,086
2036	5,457,912	2,011,937	2,456,882	9,926,731	109,826,816
2037	5,962,902	2,097,246	2,764,703	10,824,851	120,651,668
2038	6,499,172	2,203,845	3,068,345	11,771,363	132,423,031
2039	7,090,350	2,321,680	3,441,983	12,854,013	145,277,044
2040	7,730,865	2,448,828	3,789,356	13,969,049	159,246,093
2041	8,414,965	2,603,637	3,448,794	14,467,396	173,713,489
2042	8,909,257	2,696,440	3,850,074	15,455,771	189,169,260
2043	10,063,378	2,767,271	3,825,125	16,655,774	205,825,034
2044	11,990,661	2,829,419	3,535,875	18,355,955	224,180,989
2045	12,740,164	2,899,601	3,719,263	19,359,028	243,540,017
2046	13,932,744	3,163,992	3,678,098	20,774,834	264,314,851
2047	15,332,802	3,336,543	3,784,226	22,453,572	286,768,423

L-10. Year wise Nominal Capacity Addition (MW)

FY	Capacity Addition Over the Plan Period (2020-47) - MW										
	Local Coal	Hydro	RLNG	Nuclear	Imported Coal	RE	Natural Gas	Furnace Oil	Cross Border	Yearly Addition	Total (MW)
2020	602	9,945	6,677	1,230	3,736	1,846	3,010	6,488	0	33,534	-
2021	2,118	119	0	1,059	0	446	0	0	0	3,742	37,276
2022	607	720	0	1,059	917	1,410	0	-1,336	0	3,377	40,653
2023	0	968	0	0	0	3,000	-260	0	1,000	4,708	45,361
2024	0	1,410	0	0	644	2,578	-270	0	0	4,362	49,723
2025	0	3,088	0	0	0	2,354	0	0	0	5,442	55,164
2026	0	37	0	1,059	0	2,125	0	0	0	3,221	58,385
2027	1,214	1,369	16	0	0	2,158	-192	-1,200	0	3,365	61,750
2028	0	1,122	1,816	0	0	2,360	0	-824	0	4,474	66,224
2029	0	1,986	1,013	0	0	2,764	-106	0	0	5,657	71,881
2030	0	639	2,222	0	0	3,000	-678	-653	0	4,530	76,411
2031	655	2,154	498	0	0	653	0	-310	0	3,650	80,061
2032	0	2,160	1,211	0	0	1,500	-29	-367	0	4,475	84,536
2033	3,623	0	296	0	0	1,500	0	-627	0	4,792	89,328
2034	3,542	0	619	0	0	0	0	-156	0	4,006	93,333
2035	2,270	0	2,698	0	0	0	-212	-409	0	4,346	97,680
2036	2,434	0	2,955	0	0	127	-167	-606	0	4,742	102,422
2037	2,776	0	2,070	0	0	560	0	0	0	5,406	107,828
2038	2,939	0	2,260	0	0	553	0	0	0	5,752	113,580
2039	2,955	0	2,787	0	0	1,240	-355	0	0	6,628	120,208
2040	3,504	0	2,538	0	0	405	0	0	0	6,446	126,654
2041	0	3,502	-202	0	0	1,500	0	0	0	4,800	131,454
2042	2,380	70	1,719	0	0	1,500	0	0	0	5,669	137,123
2043	0	5,750	0	0	0	1,481	0	0	0	7,231	144,354
2044	0	8,434	-10	0	0	1,500	0	0	0	9,924	154,278
2045	252	2,575	0	0	0	1,500	-721	0	0	3,606	157,883
2046	495	4,762	-450	0	0	1,500	0	0	0	6,307	164,190
2047	0	5,026	0	0	0	37	0	0	0	5,063	169,253
Total	**32,365**	**55,836**	**30,733**	**4,407**	**5,297**	**39,595**	**20**	**0**	**1,000**	**169,253**	

L-11. IGCEP Generation Mix 2020-2047 (GWh)

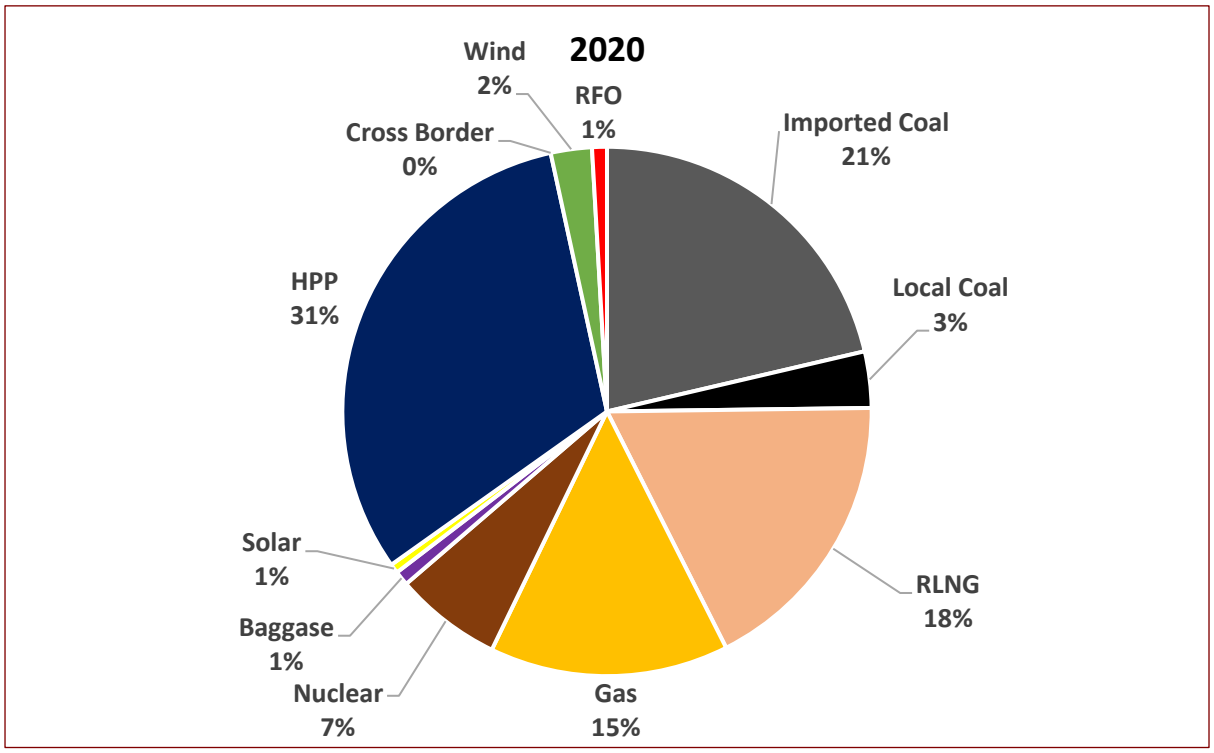


Chart L-1: IGCEP Generation Mix 2020 (GWh)

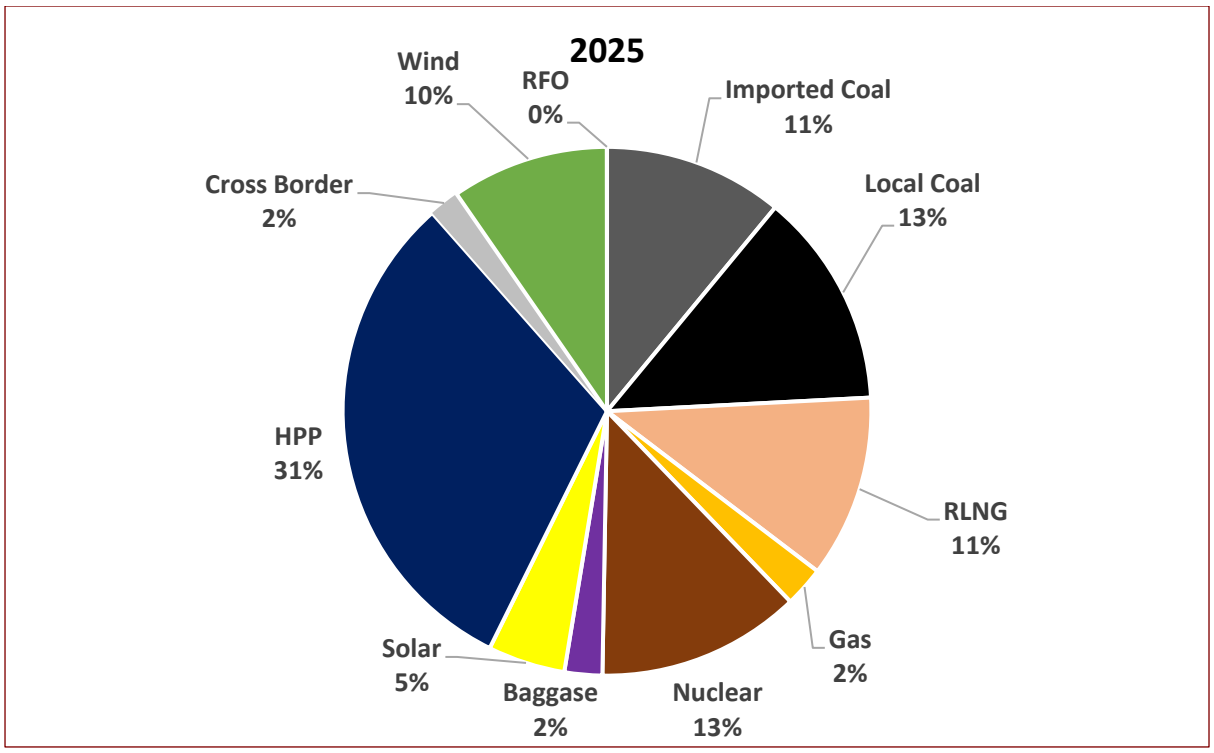


Chart L-2: IGCEP Generation Mix 2025 (GWh)

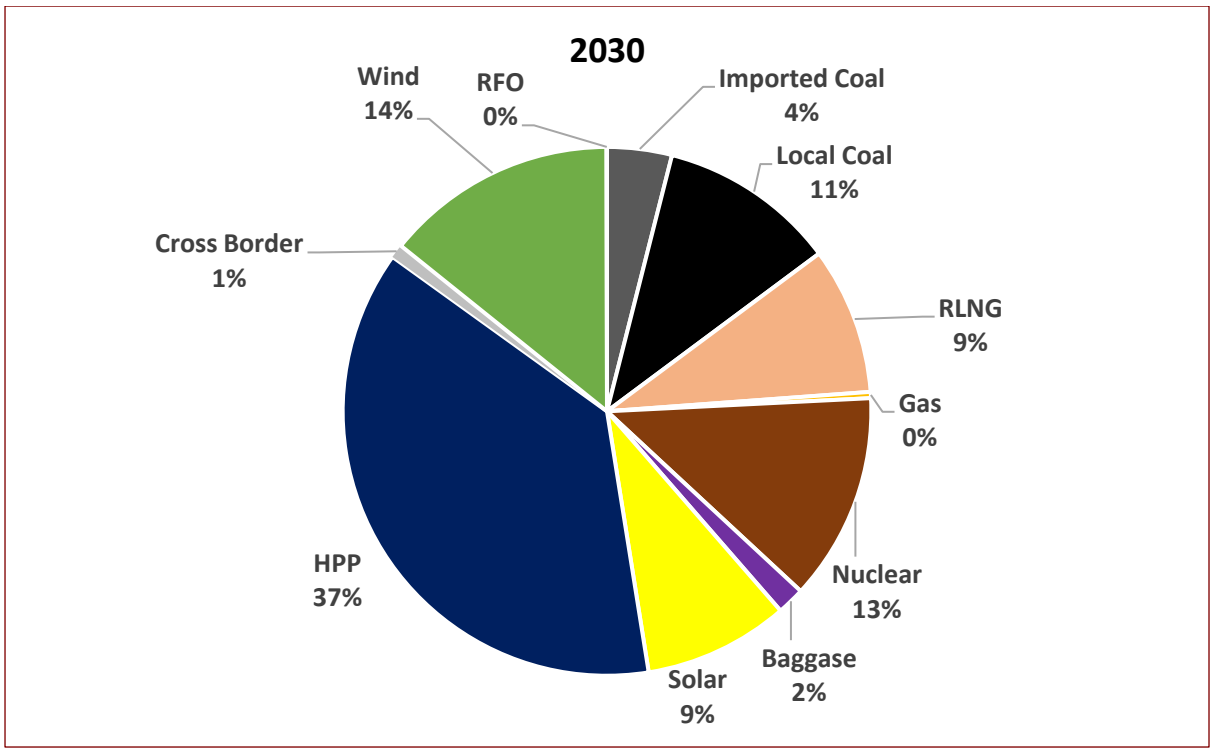


Chart L-3: IGCEP Generation Mix 2030 (GWh)

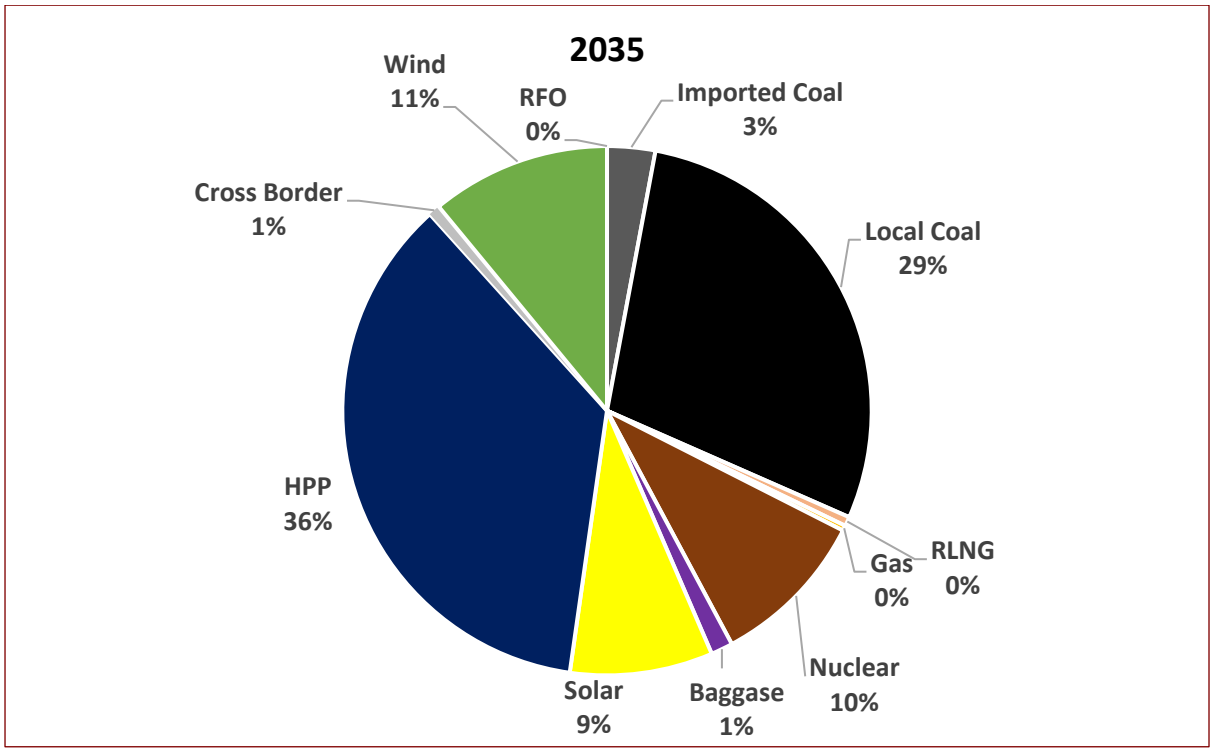


Chart L-4: IGCEP Generation Mix 2035 (GWh)

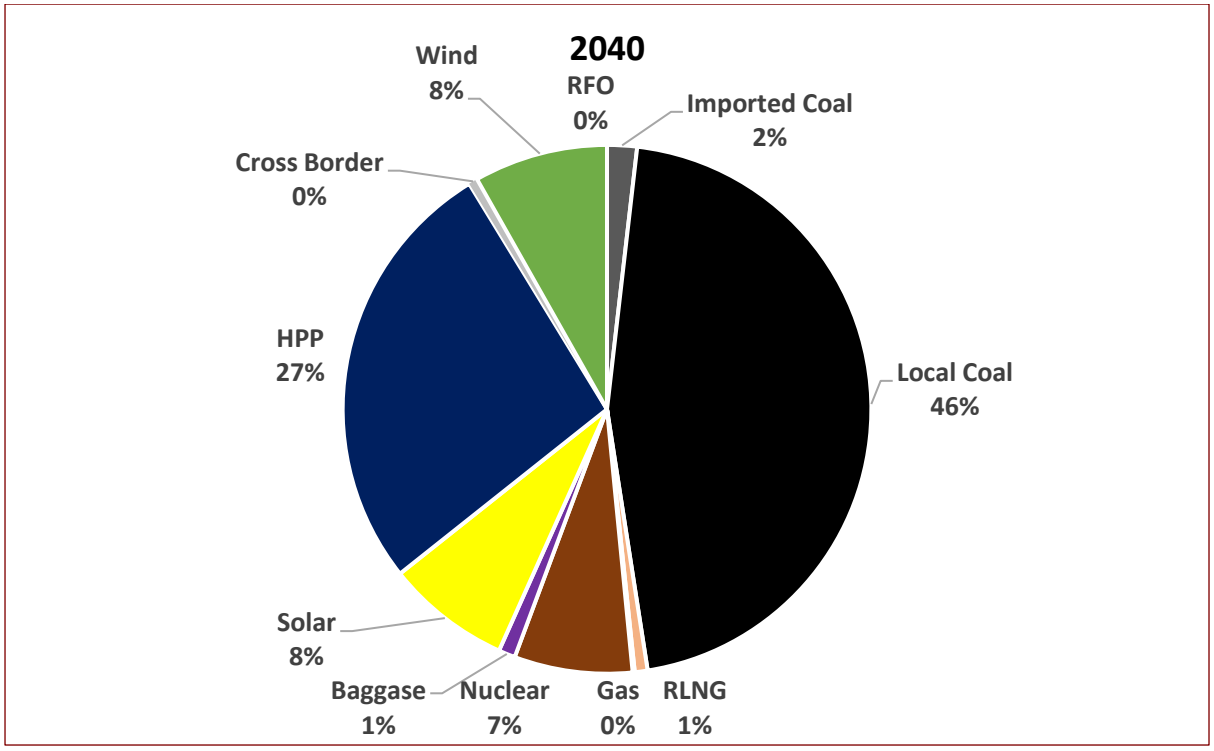


Chart L-5: IGCEP Generation Mix 2040 (GWh)

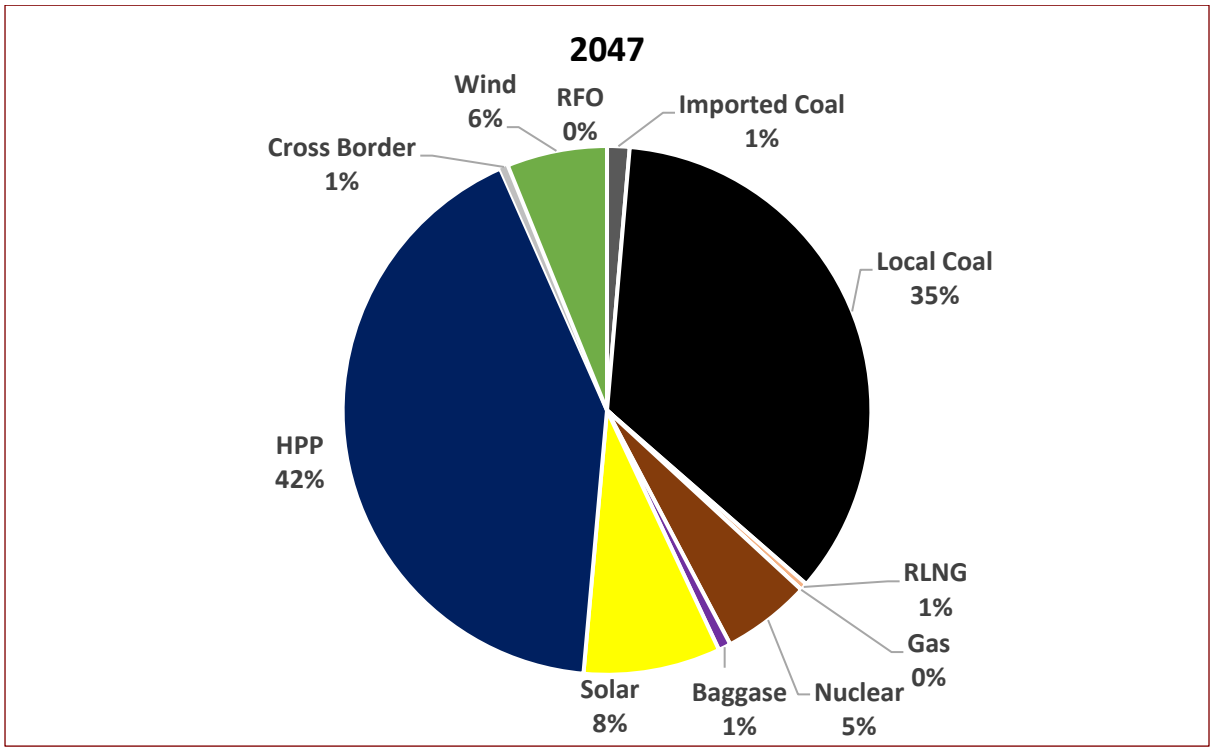


Chart L-6: IGCEP Generation Mix 2047 (GWh)

L-12. IGCEP Generation Mix 2020-47 (MW)

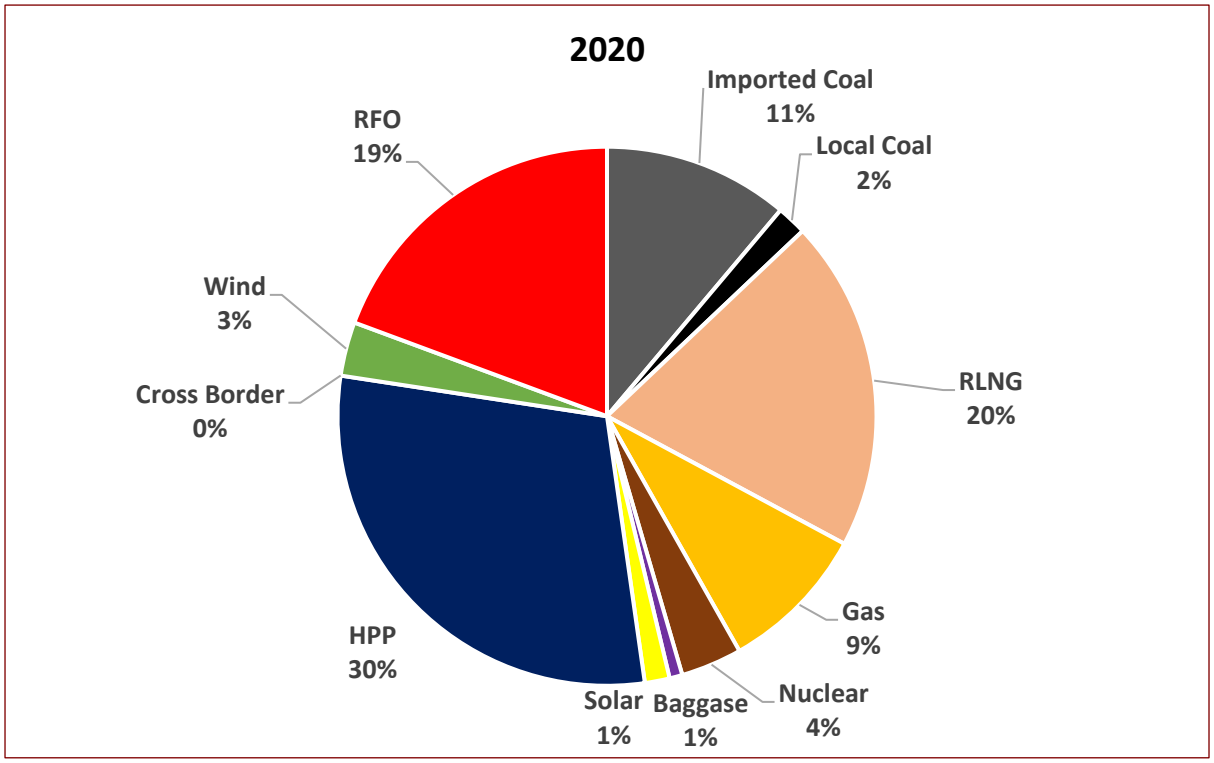


Chart L-7: IGCEP Generation Mix 2020 (MW)

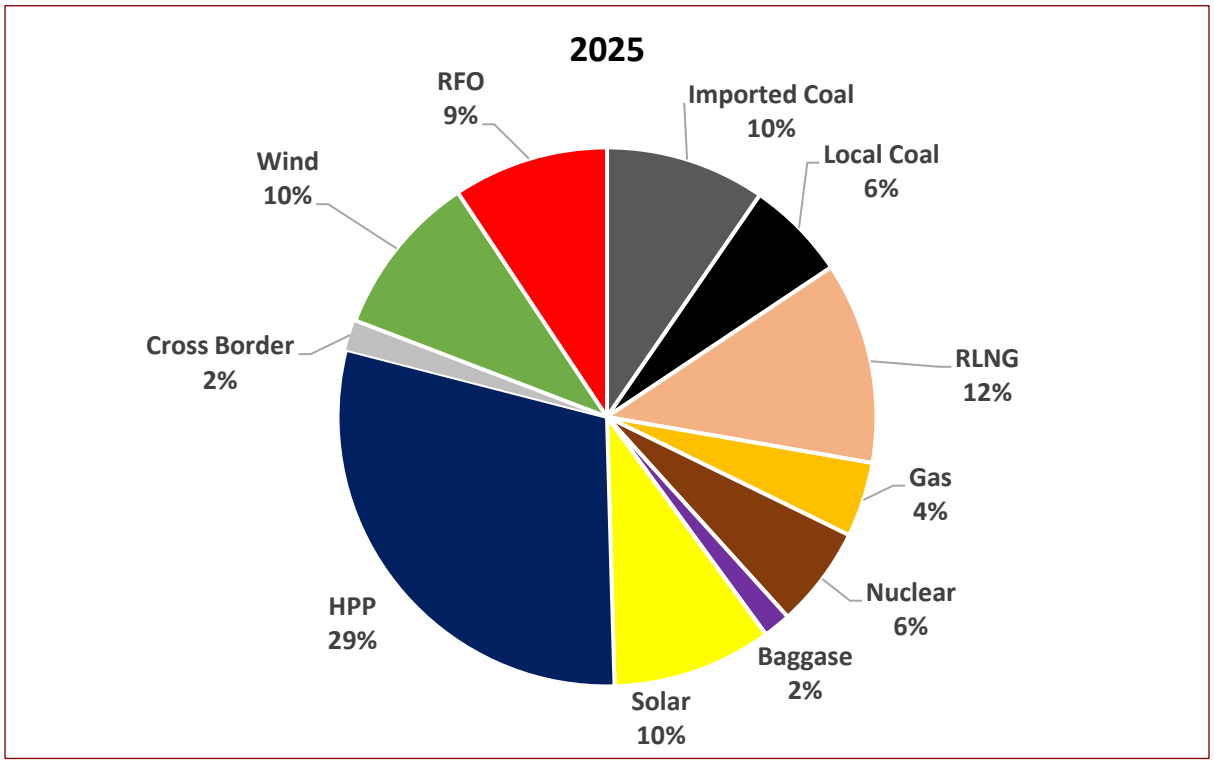


Chart L-8: IGCEP Generation Mix 2025 (MW)

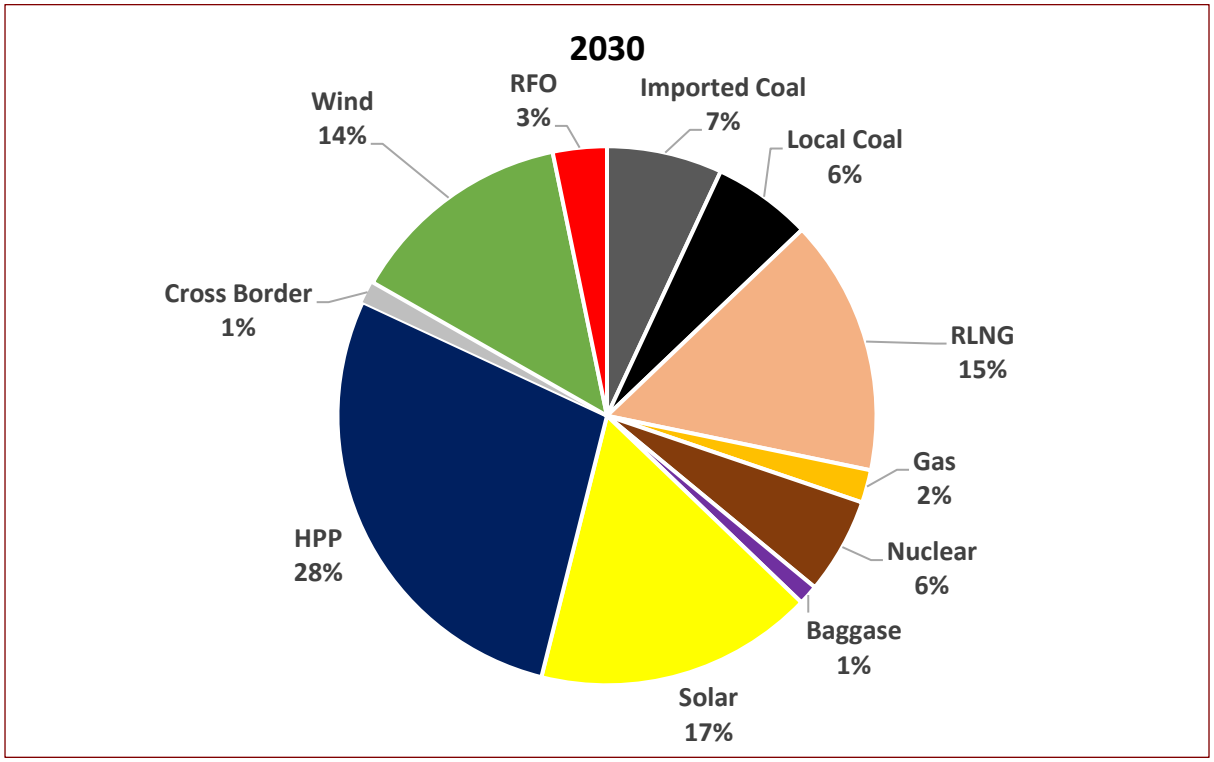


Chart L-9: IGCEP Generation Mix 2030 (MW)

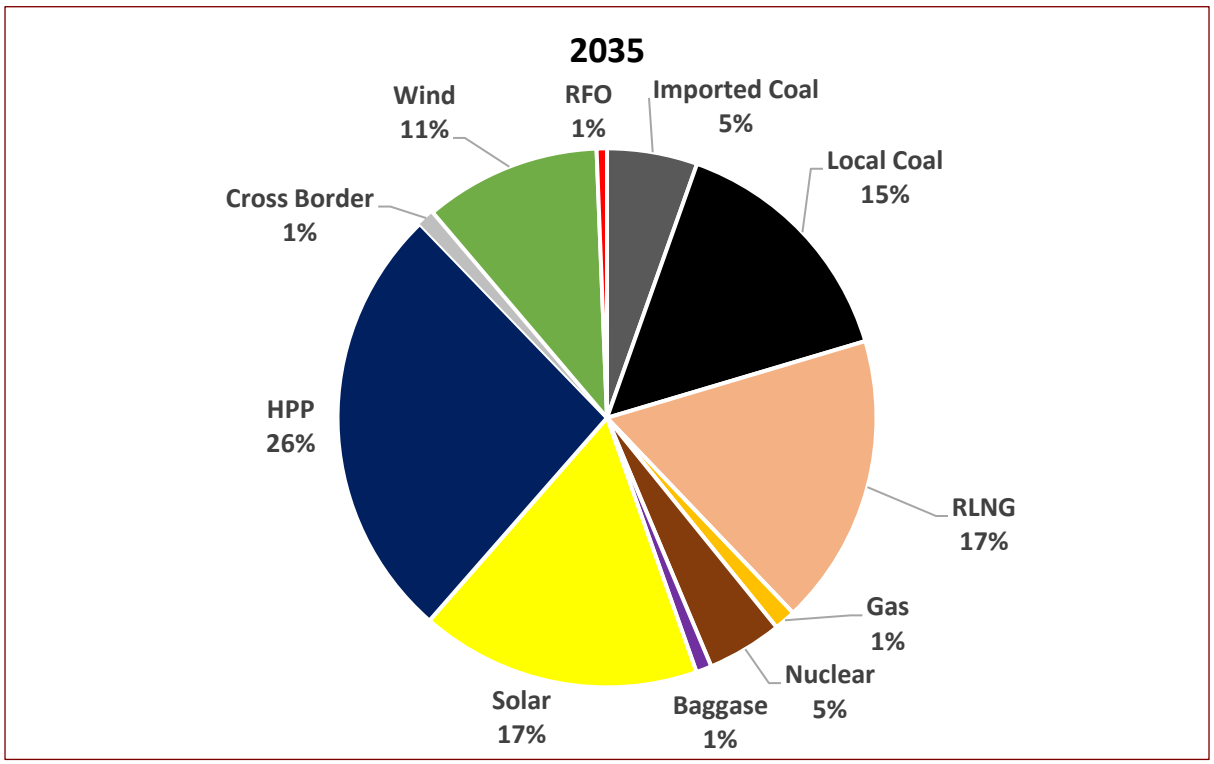


Chart L-10: IGCEP Generation Mix 2035 (MW)

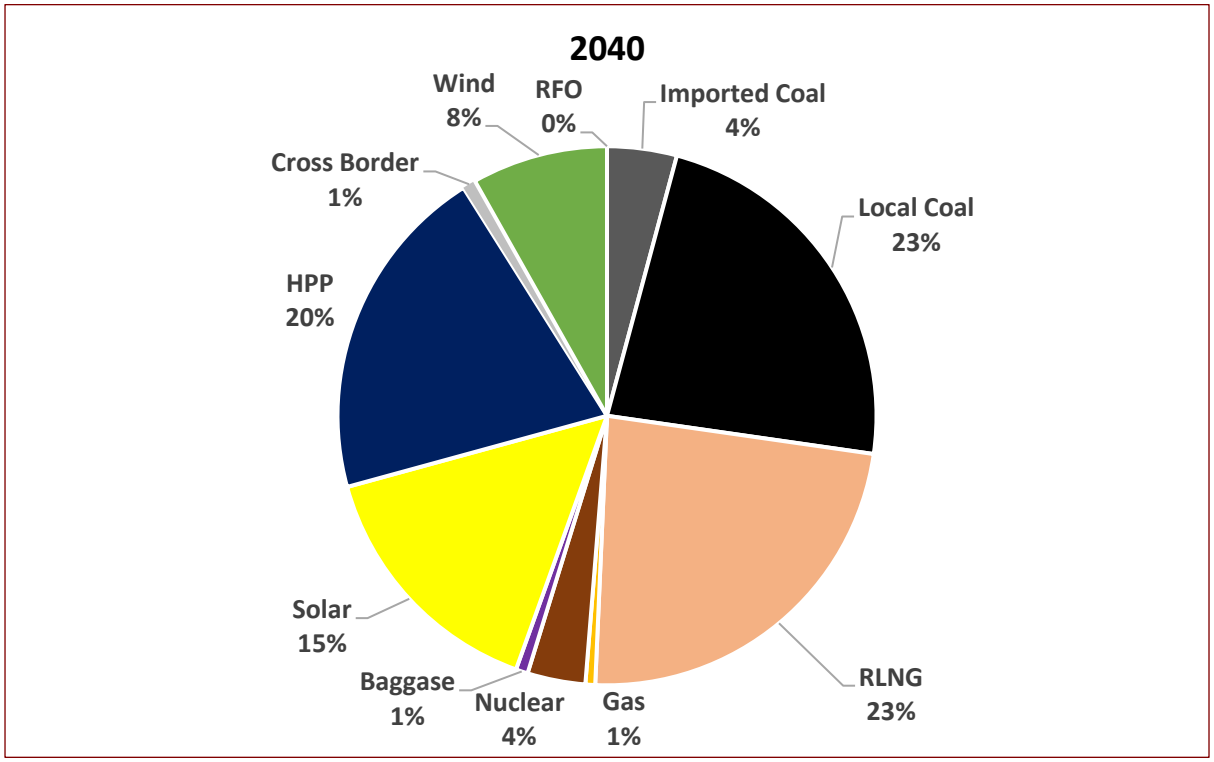


Chart L-11: IGCEP Generation Mix 2040 (MW)

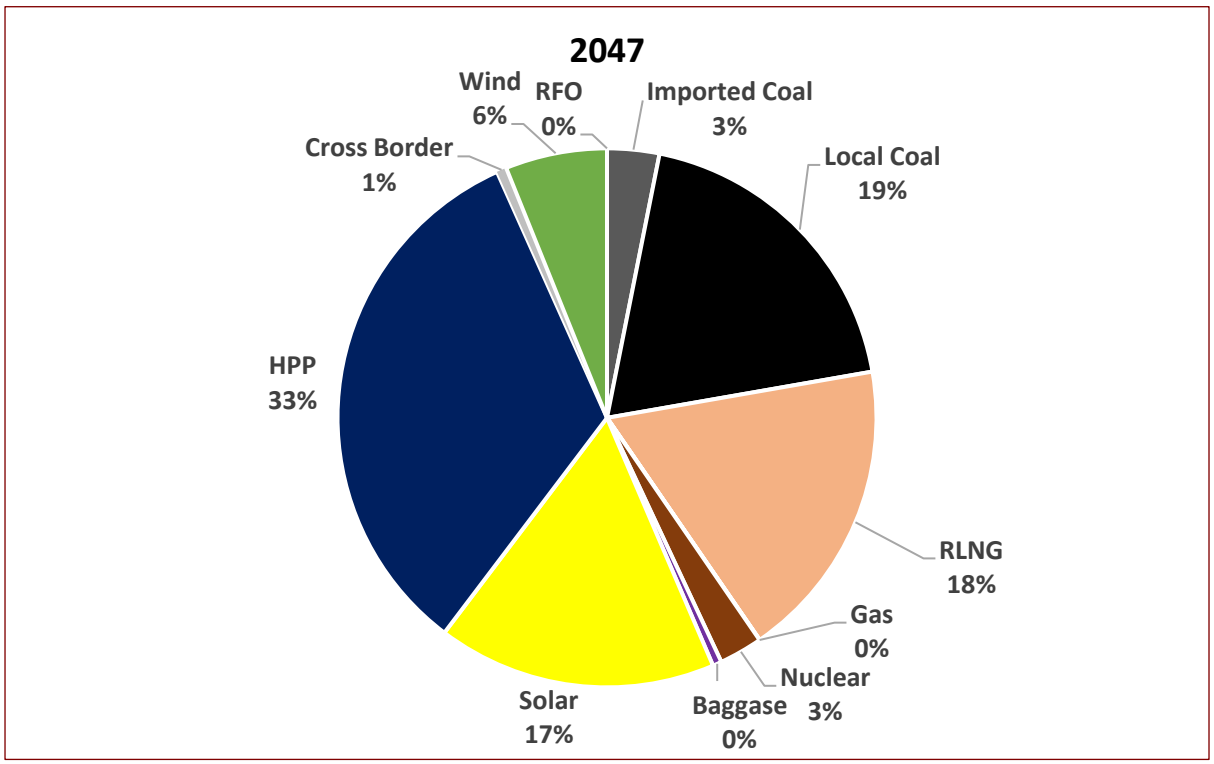


Chart L-12: IGCEP Generation Mix 2047 (MW)

L-13. IGCEP Monthly Generation Mix 2019-47 (GWh)

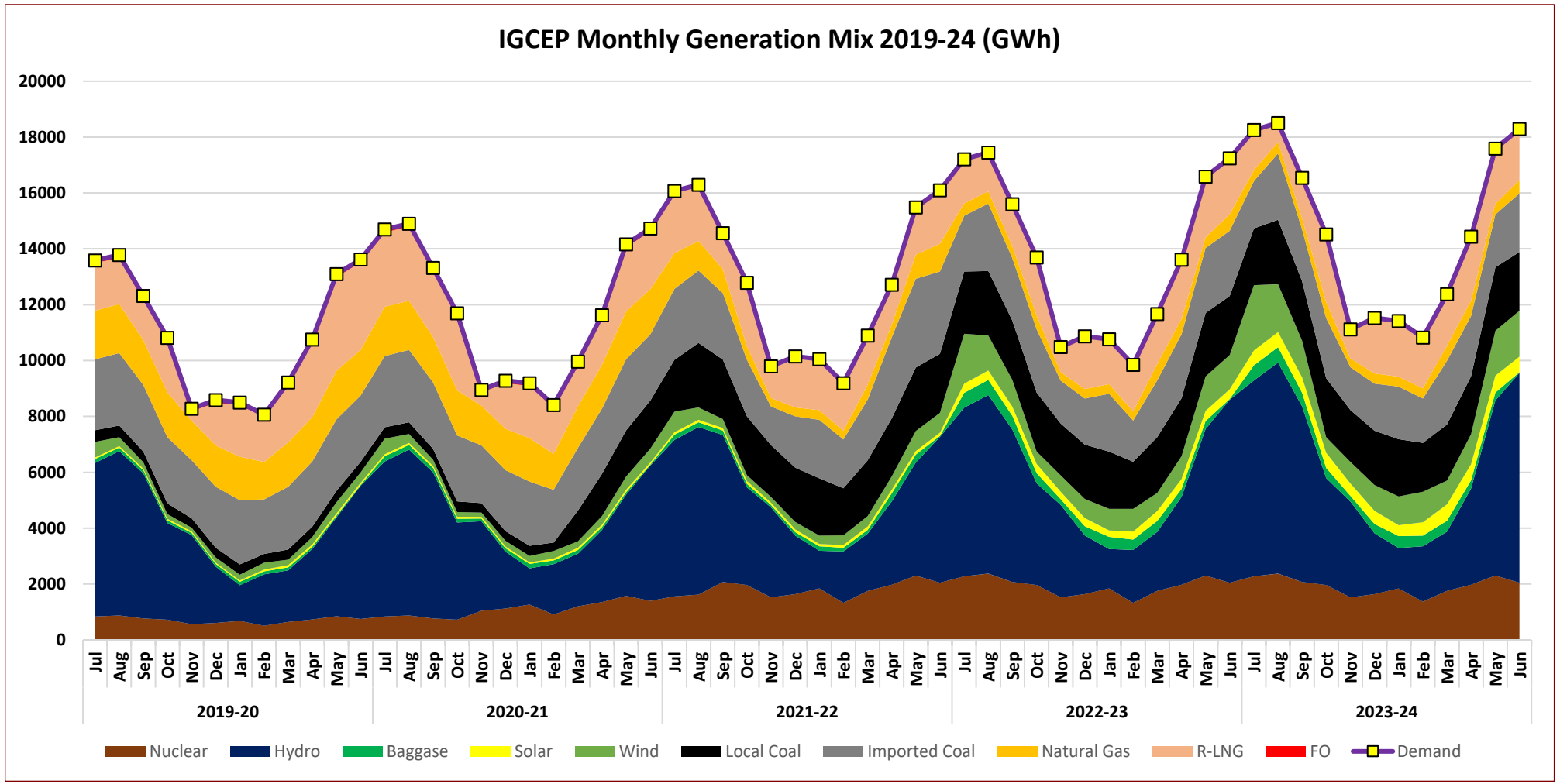


Chart L-13: IGCEP Monthly Generation Mix 2019-24 (GWh)

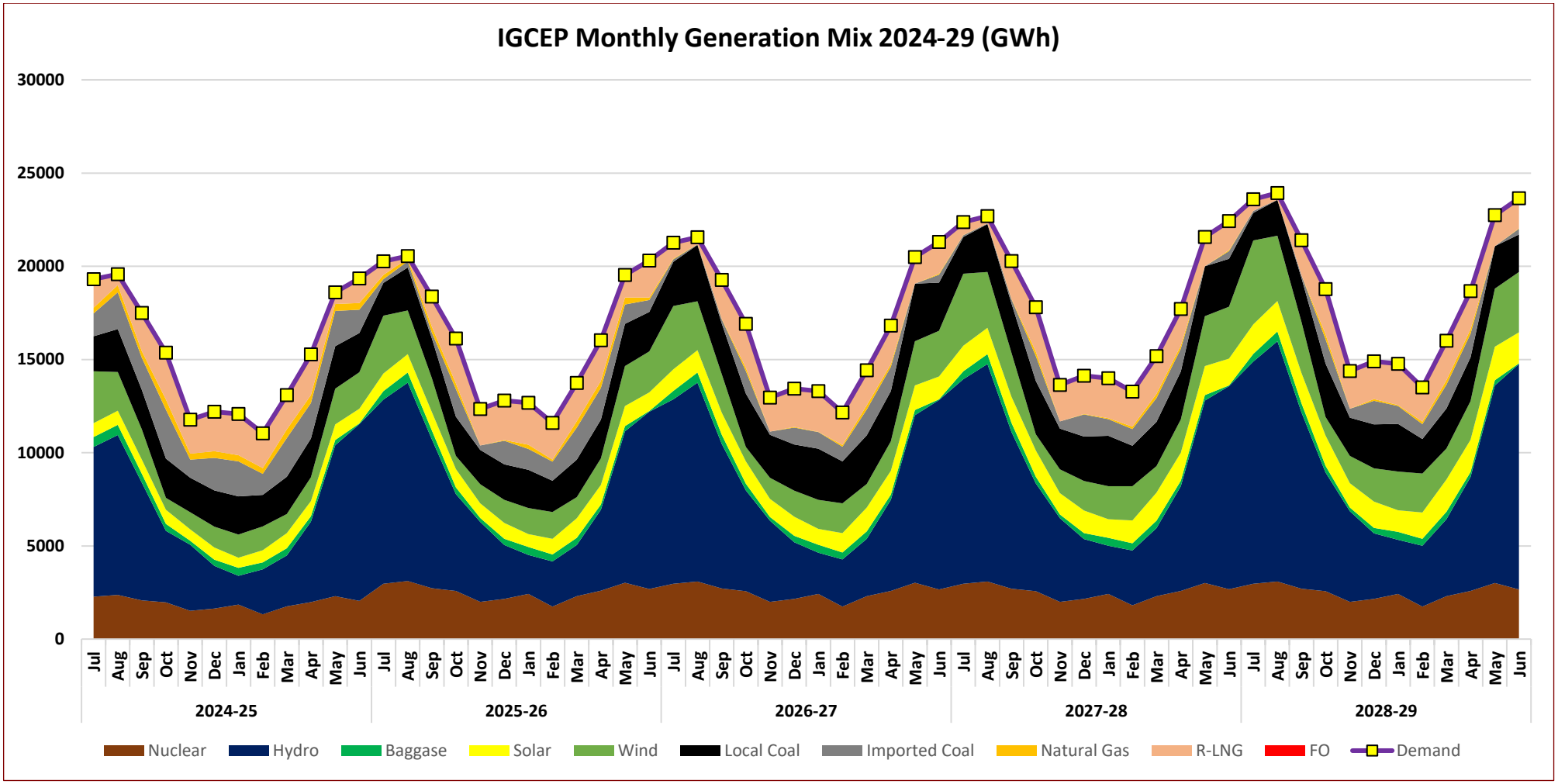


Chart L-14: IGCEP Monthly Generation Mix 2024-29 (GWh)

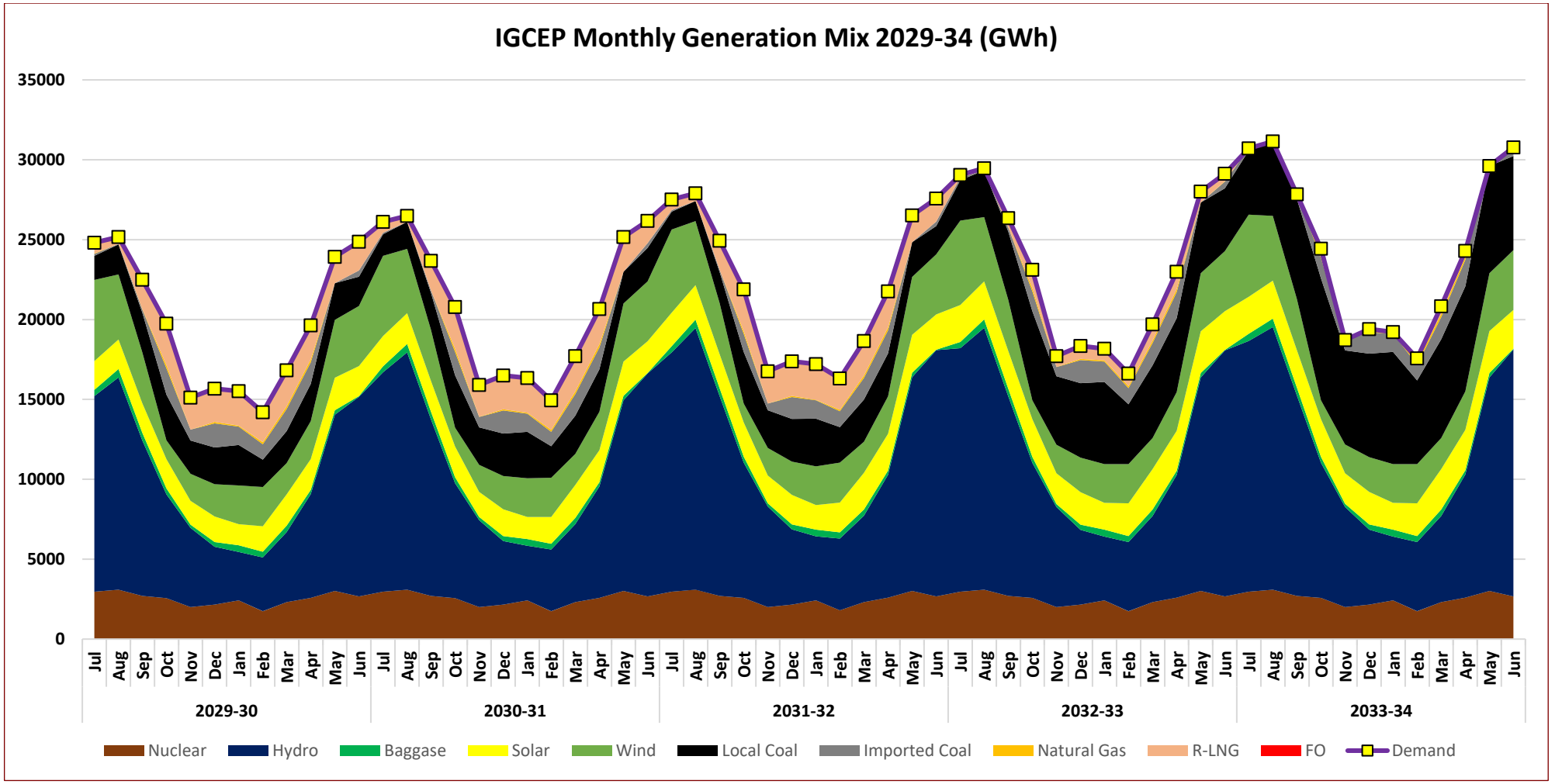


Chart L-15: IGCEP Monthly Generation Mix 2029-34 (GWh)

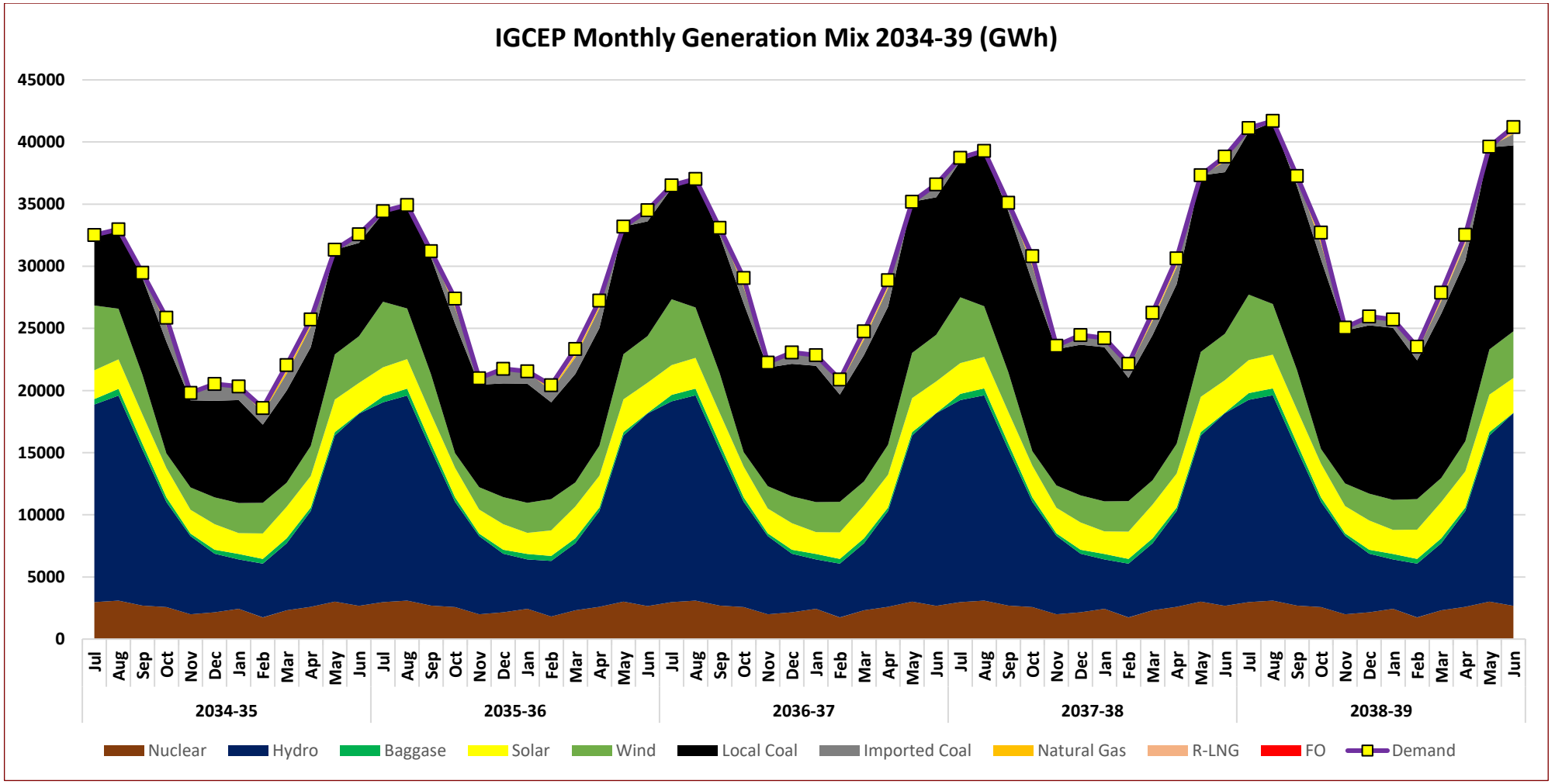


Chart L-16: IGCEP Monthly Generation Mix 2034-39 (GWh)

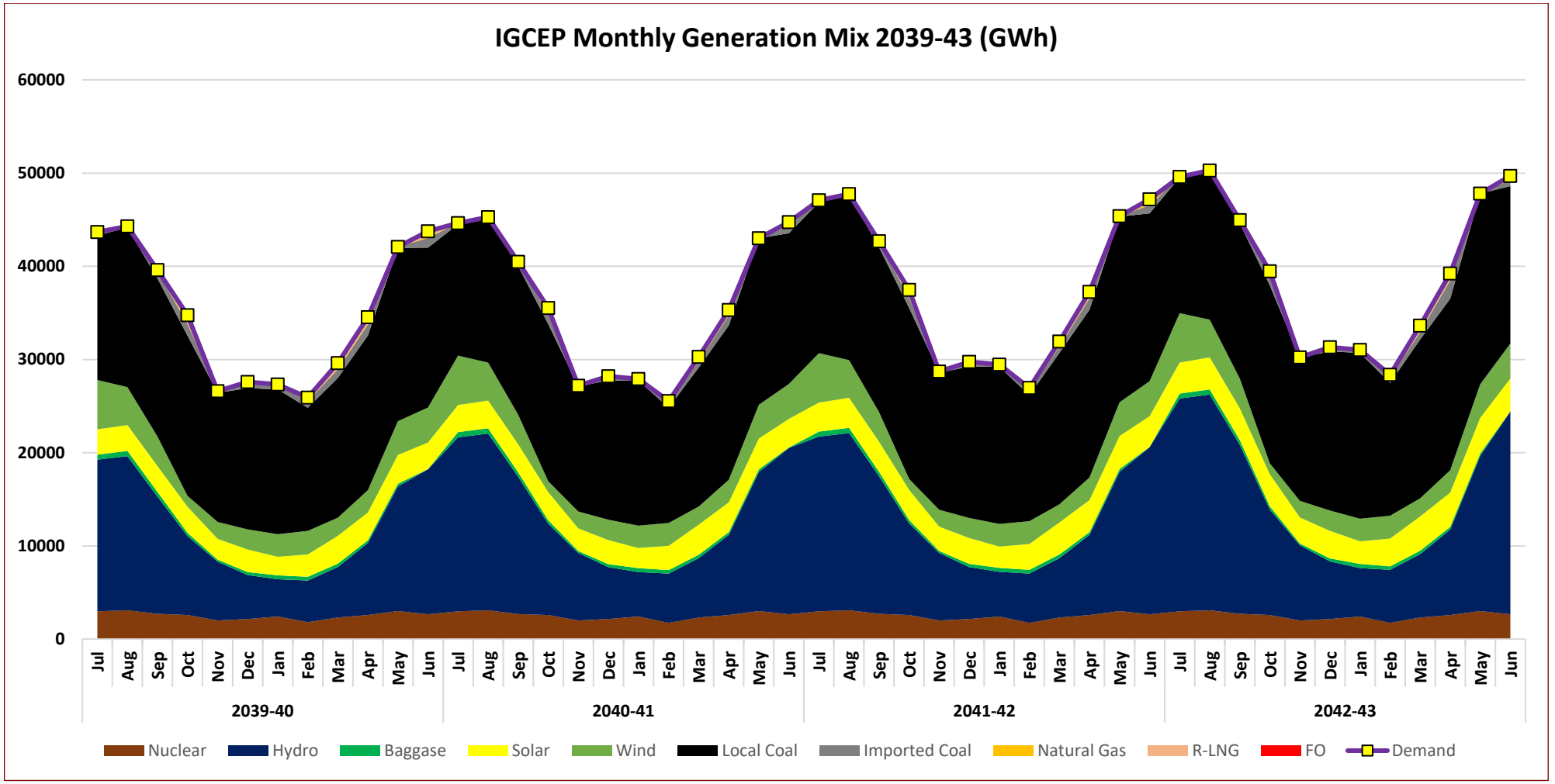


Chart L-17: IGCEP Monthly Generation Mix 2039-43 (GWh)

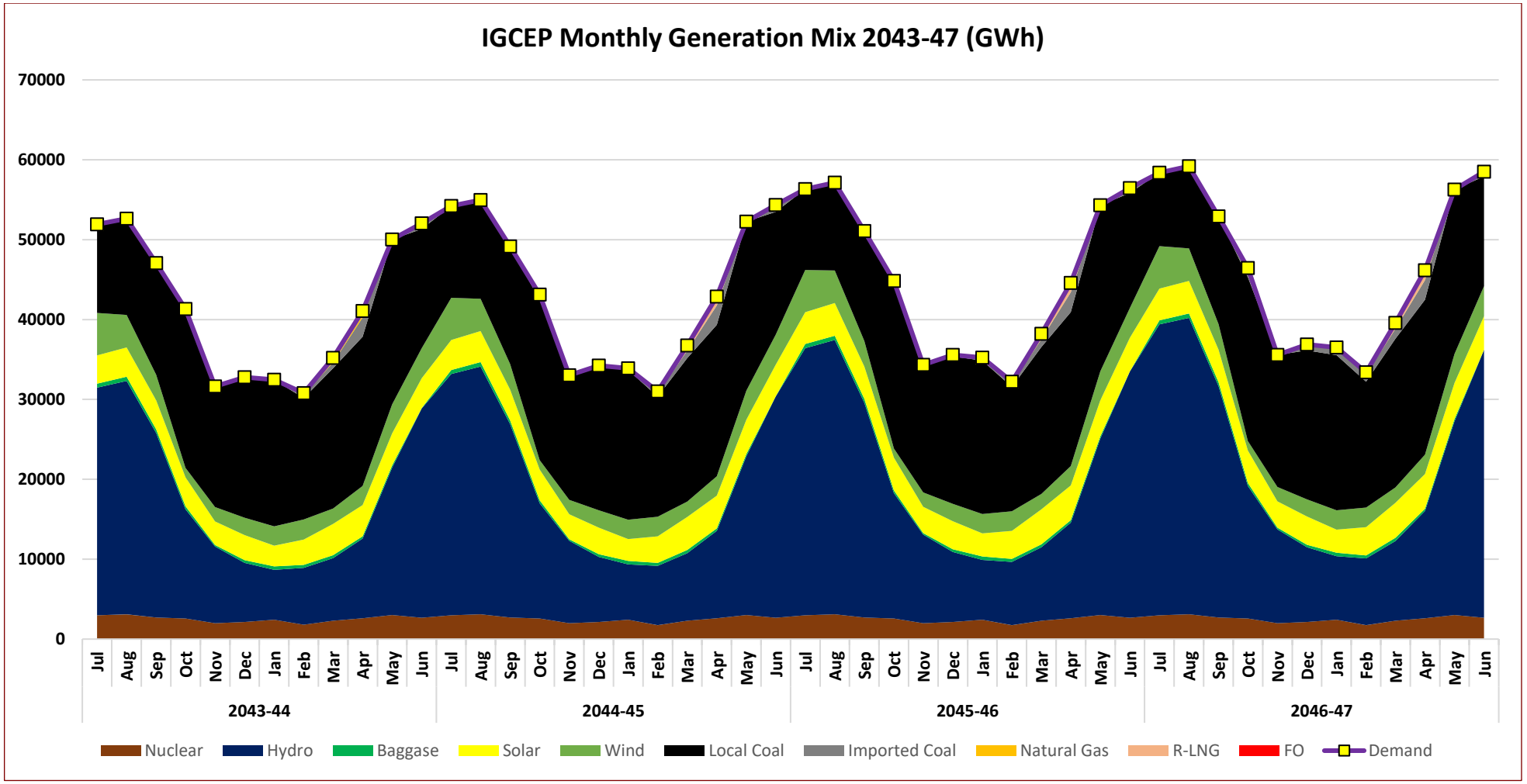


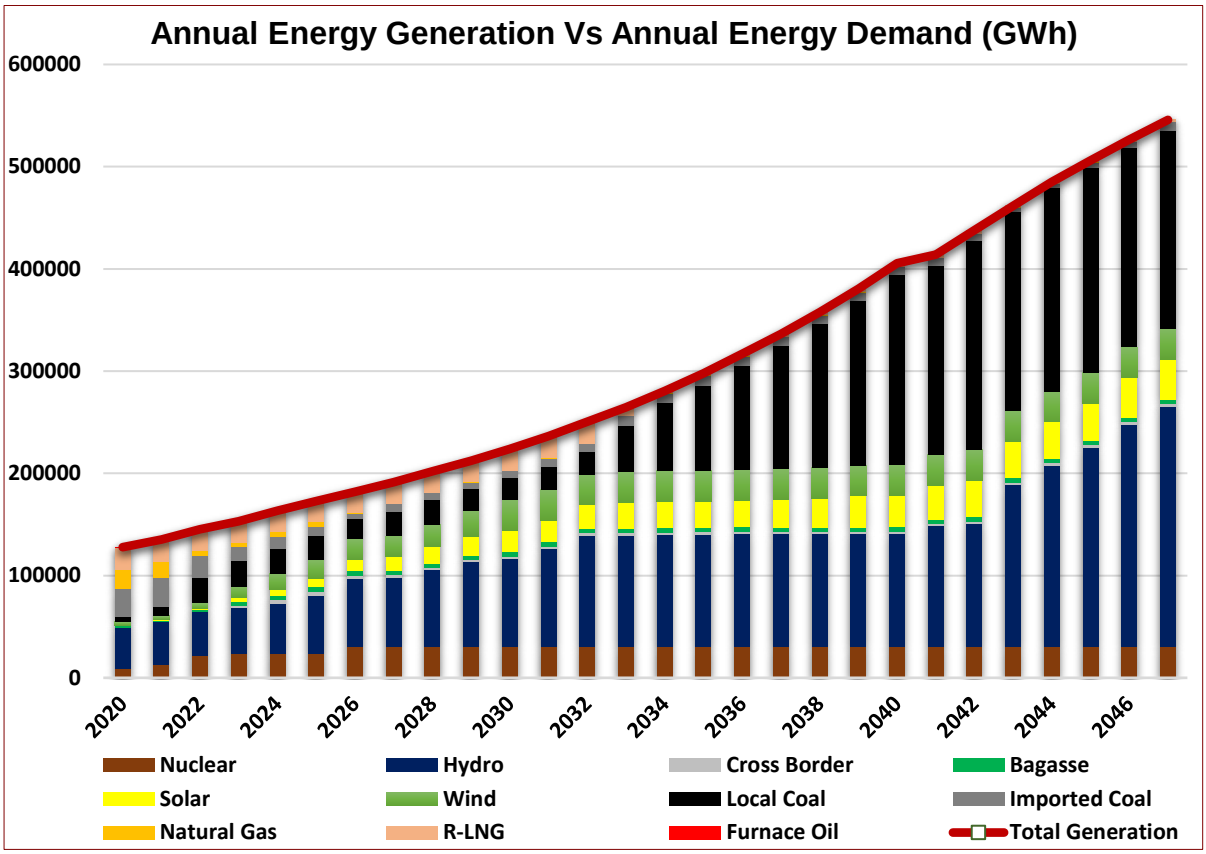
Chart L-18: IGCEP Monthly Generation Mix 2043-47 (GWh)

L-14. Year-wise Present Worth and Un-Discounted Cost

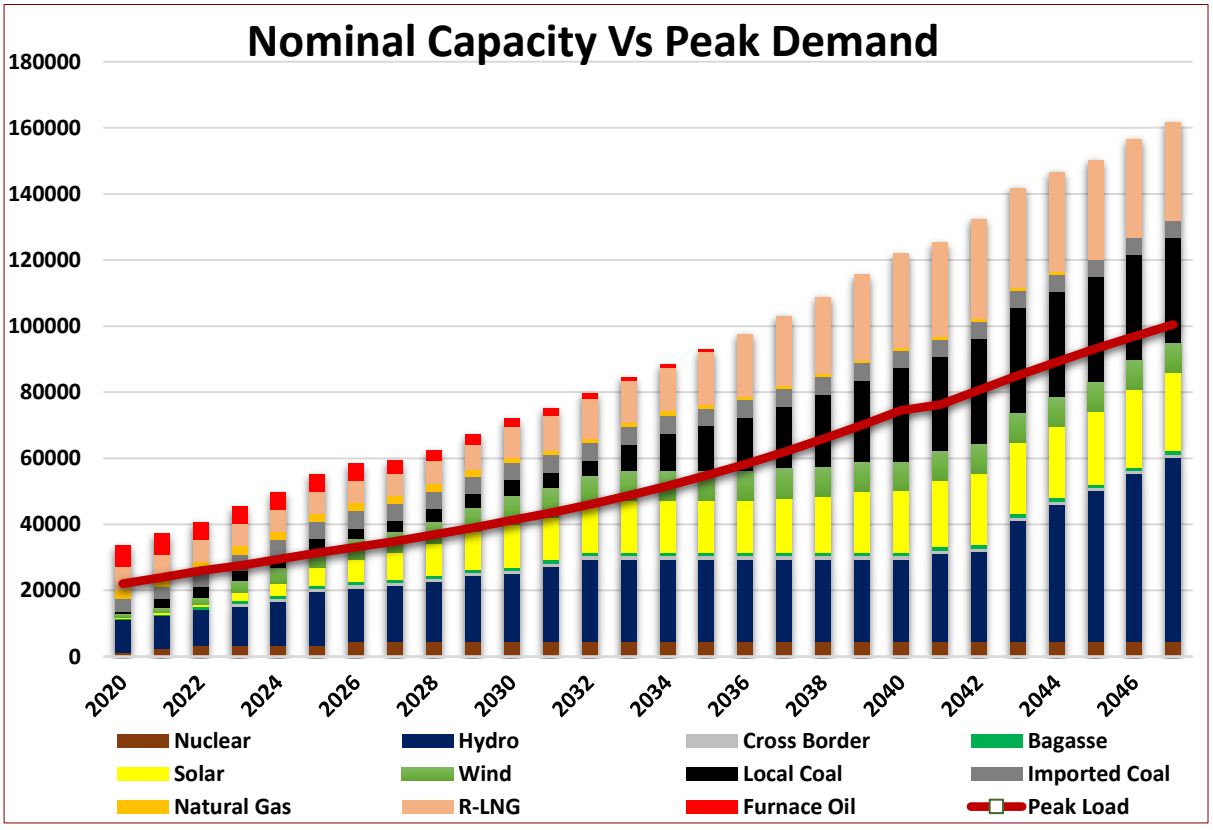
FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	3,720,444	4,677,165	4,677,165	0	956,722	3,720,444	4,677,165	4,677,165
2021	0	913,435	3,478,042	4,391,477	9,068,642	0	1,014,928	3,864,491	4,879,419	9,556,584
2022	0	909,992	2,807,645	3,717,637	12,786,279	0	1,123,447	3,466,229	4,589,675	14,146,260
2023	215,029	890,290	2,330,852	3,436,170	16,222,449	294,964	1,221,248	3,197,327	4,713,539	18,859,798
2024	342,831	847,836	2,088,847	3,279,513	19,501,962	522,528	1,292,235	3,183,732	4,998,496	23,858,294
2025	422,073	796,814	1,834,430	3,053,316	22,555,279	714,784	1,349,411	3,106,623	5,170,818	29,029,112
2026	463,678	766,629	1,488,806	2,719,113	25,274,392	872,492	1,442,549	2,801,451	5,116,492	34,145,604
2027	632,487	719,449	1,312,722	2,664,658	27,939,050	1,322,374	1,504,189	2,744,575	5,571,138	39,716,742
2028	683,960	678,916	1,181,881	2,544,757	30,483,807	1,588,879	1,577,160	2,745,578	5,911,617	45,628,359
2029	831,417	636,864	1,055,804	2,524,084	33,007,891	2,146,032	1,643,857	2,725,214	6,515,102	52,143,461
2030	921,838	587,181	995,086	2,504,105	35,511,997	2,643,807	1,684,018	2,853,878	7,181,703	59,325,164
2031	968,993	516,095	871,094	2,356,182	37,868,178	3,087,828	1,644,607	2,775,858	7,508,292	66,833,456
2032	970,497	473,676	771,816	2,215,989	40,084,167	3,436,244	1,677,148	2,732,773	7,846,165	74,679,621
2033	1,020,503	445,970	535,333	2,001,806	42,085,972	4,014,779	1,754,497	2,106,063	7,875,339	82,554,960
2034	1,037,666	421,258	438,349	1,897,273	43,983,245	4,535,888	1,841,422	1,916,130	8,293,440	90,848,400

FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2035	1,024,701	396,325	442,635	1,863,662	45,846,907	4,976,908	1,924,927	2,149,852	9,051,686	99,900,086
2036	1,011,362	372,816	455,265	1,839,443	47,686,350	5,457,912	2,011,937	2,456,882	9,926,731	109,826,816
2037	994,444	349,762	461,075	1,805,280	49,491,631	5,962,902	2,097,246	2,764,703	10,824,851	120,651,668
2038	975,491	330,785	460,542	1,766,818	51,258,449	6,499,172	2,203,845	3,068,345	11,771,363	132,423,031
2039	957,801	313,625	464,961	1,736,387	52,994,836	7,090,350	2,321,680	3,441,983	12,854,013	145,277,044
2040	939,893	297,720	460,697	1,698,310	54,693,146	7,730,865	2,448,828	3,789,356	13,969,049	159,246,093
2041	920,757	284,887	377,364	1,583,008	56,276,154	8,414,965	2,603,637	3,448,794	14,467,396	173,713,489
2042	877,358	265,538	379,144	1,522,039	57,798,193	8,909,257	2,696,440	3,850,074	15,455,771	189,169,260
2043	891,911	245,261	339,018	1,476,191	59,274,384	10,063,378	2,767,271	3,825,125	16,655,774	205,825,034
2044	956,452	225,693	282,044	1,464,189	60,738,573	11,990,661	2,829,419	3,535,875	18,355,955	224,180,989
2045	914,614	208,162	267,005	1,389,781	62,128,354	12,740,164	2,899,601	3,719,263	19,359,028	243,540,017
2046	900,206	204,428	237,645	1,342,279	63,470,633	13,932,744	3,163,992	3,678,098	20,774,834	264,314,851
2047	891,598	194,019	220,052	1,305,669	64,776,302	15,332,802	3,336,543	3,784,226	22,453,572	286,768,423

M-1. Annual Energy Generation Vs Annual Energy Demand (GWh)



M-2. Nominal Capacity Vs Peak Demand (MW) 2020-47



M-3. Future Generation Capacity Additions

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South	Midland	North	MW	MW
								MW	MW	MW		
2020	-	-	-	-	-	-	-	-	-	-	0	0
2021	-	-	-	-	-	-	-	-	-	-	0	0
2022	-	-	-	-	-	-	-	-	-	-	0	0
2023	-	-	-	-	-	-	1,500	1,000	300	200	3,000	3,000
2024	-	-	-	-	-	-	1,500	1,000	78	-	2,578	5,578
2025	-	-	-	-	-	-	1,500	854	-	-	2,354	7,932
2026	-	-	-	-	-	3	1,500	625	-	-	2,128	10,059
2027	-	-	20	-	-	-	1,500	58	-	-	1,578	11,638
2028	-	607	-	173	-	-	1,500	428	-	-	2,708	14,346
2029	-	-	-	674	-	1,986	1,500	977	-	-	5,137	19,483
2030	-	607	-	2,475	-	639	1,500	1,000	300	200	6,721	26,204
2031	-	-	-	1,347	-	2,154	-	-	-	-	3,501	29,705
2032	-	-	-	1,211	-	2,160	1,500	-	-	-	4,871	34,576
2033	-	3,385	-	535	-	-	1,500	-	-	-	5,420	39,996

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South	Midland	North	MW	MW
								MW	MW	MW		
2034	-	3,352	-	809	-	-	-	-	-	-	4,161	44,157
2035	-	2,257	-	2,710	-	-	-	-	-	-	4,967	49,125
2036	-	2,512	-	2,869	-	-	159	-	-	-	5,540	54,664
2037	-	2,667	-	2,162	-	-	610	-	-	-	5,439	60,103
2038	-	2,906	-	2,267	-	-	646	-	-	-	5,818	65,921
2039	-	2,900	-	2,791	-	-	1,417	-	-	-	7,108	73,029
2040	-	3,643	-	2,883	-	-	144	-	-	-	6,669	79,699
2041	-	-	-	372	-	1,771	1,500	-	-	-	3,643	83,342
2042	-	3,485	-	1,726	-	482	1,500	-	-	-	7,193	90,535
2043	-	-	-	-	-	9,500	-	-	-	-	9,500	100,035
2044	-	-	-	-	-	4,720	-	-	-	-	4,720	104,755
2045	-	-	-	-	-	4,120	440	-	-	-	4,560	109,315
2046	-	-	-	-	-	5,176	1,500	-	-	-	6,676	115,991
2047	-	-	-	-	-	5,019	78	-	-	-	5,097	121,088
Total	**-**	**28,321**	**20**	**25,005**	**0**	**37,730**	**22,993**	**5,942**	**678**	**400**	**121,088**	

M-4. List of Projects uptill 2047 (Committed + Candidate)

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2020							
1	Zorlu Solar Pakistan Pvt. Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Jan-20
2	Jabori	Hydro	10	10	PEDO	Committed	Mar-20
3	Trimmu	RLNG	1,263	1,243	PPIB	Committed	Apr-20
4	Jhing	Hydro	15	15	AJK	Committed	Jun-20
5	Karora	Hydro	12	12	PEDO	Committed	Jun-20
6	Koto	Hydro	41	41	PEDO	Committed	Jun-20
Generation Additions in 2020 (MW)			1,441	1,421			
Cumulative Addition up till 2020 (MW)			1,441	1,421			
2021							
1	Etihad Power Generation Ltd.	Bagasse	74	74	AEDB	Committed	Jul-20
2	Karachi Nuclear K-2	Nuclear	1,100	1,059	PAEC	Committed	Nov-20
3	Master Green Energy Ltd.	Wind	60	60	AEDB	Committed	Nov-20
4	Shaheen Renewable Energy-1 Pvt. Ltd.	Wind	51	51	AEDB	Committed	Nov-20
5	Lawi	Hydro	69	69	PEDO	Committed	Jan-21
6	Tricorm Wind Power Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-21
7	Western Energy Pvt. Limited	Wind	50	50	AEDB	Committed	Feb-21
8	Lucky	Local Coal	660	607	PPIB	Committed	Mar-21
9	Access Electric Pvt. Ltd.	Solar	10	10	AEDB	Committed	Mar-21
10	Access Solar Pvt. Ltd.	Solar	12	12	AEDB	Committed	Mar-21
11	Thal Nova	Local Coal	330	300	PPIB	Committed	Mar-21
12	Thar TEL	Local Coal	330	300	PPIB	Committed	Mar-21
13	Thar-I (Shanghai Electric) Unit 1	Local Coal	660	607	PPIB	Committed	Mar-21
14	Riali-II	Hydro	7	7	AJK	Committed	Jun-21
15	Hydro China Dawood Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
16	Tenga Generasi Limited	Wind	50	50	AEDB	Committed	Jun-21
17	Zephyr Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
18	Siddiqsons	Local Coal	330	304	PPIB	Committed	Jun-21
Generation Additions in 2021 (MW)			3,943	3,708			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition uptill 2021 (MW)			5,384	5,129			
2022							
1	HNDS Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
2	Helios Power Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
3	Thar-I (Shanghai Electric) Unit 2	Local Coal	660	607	PPIB	Committed	Aug-21
4	Karachi Nuclear K-3	Nuclear	1,100	1,059	PAEC	Committed	Sep-21
5	Buksh Energy Pvt. Ltd.	Solar	12	12	AEDB	Committed	Sep-21
6	Safe Solar Power Pvt. Ltd.	Solar	10	10	AEDB	Committed	Sep-21
7	Artistic Wind Power Pvt. Limited.	Wind	50	50	AEDB	Committed	Oct-21
8	Meridian Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Nov-21
9	Zhenfa Pakistan New Energy Company (Pvt.) Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Nov-21
10	Karot	Hydro	720	720	PPIB/AJK	Committed	Dec-21
11	Jamshoro CFPP Unit 1	Imp.Coal	660	644	GENCO	Committed	Dec-21
12	Gwadar	Imp.Coal	300	273	PPIB	Committed	Jan-22
13	Gul Ahmed Electric Ltd.	Wind	50	50	AEDB	Committed	Jan-22
14	ACT 2 wind (Pvt.) Ltd.	Wind	50	50	AEDB	Committed	Feb-22
15	Din Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
16	Indus Wind Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
17	Lakeside Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
18	Liberty Wind Power 1 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
19	Liberty Wind Power 2 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
20	Metro Wind Power Ltd.	Wind	50	50	AEDB	Committed	Feb-22
21	NASDA Green Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
22	Trans Atlantic Energy (Pvt.) Limited	Wind	48	48	AEDB	Committed	Feb-22
23	Alliance Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
24	Bahawalpur Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
25	Faran Power Limited	Bagasse	27	27	AEDB	Committed	Mar-22
26	Ghotki Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
27	Hamza Sugar Mills Ltd. (Unit-II)	Bagasse	30	30	AEDB	Committed	Mar-22

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
28	HSM Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
29	Hunza Power (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22
30	Indus Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
31	Ittefaq Power Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
32	Kashmir Power (Pvt.) Ltd.	Bagasse	40	40	AEDB	Committed	Mar-22
33	Mehran Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
34	RYK Energy Ltd.	Bagasse	25	25	AEDB	Committed	Mar-22
35	Sadiqabad Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
36	Shahtaj Sugar Mills Ltd.	Bagasse	32	32	AEDB	Committed	Mar-22
37	Sheikhoo Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
38	TAY Powergen Company (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
39	Two Star Energy (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22
Generation Additions in 2022 (MW)			4,841	4,703			
Cumulative Addition up till 2022 (MW)			10,225	9,832			
2023							
1	Gorkin Matiltan	Hydro	84	84	PEDO	Committed	Nov-22
2	Suki Kinari	Hydro	884	884	PPIB	Committed	Dec-22
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2023
4	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2023
5	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2023
6	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2023
7	CASA	Import	1,000	1,000	GOP	Committed	May-23
Generation Additions in 2023 (MW)			4,968	4,968			
Cumulative Addition up till 2023 (MW)			15,193	14,800			
2024							
1	Tarbela 5th-Extension	Hydro	1,410	1,410	WAPDA	Committed	Sep-23
2	Jamshoro CFPP Unit 2	Imp.Coal	660	644	GENCO	Committed	Dec-23
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2024
4	Generic_Candidate Wind_Mid	Wind	78	78	Yet to be Decided	Candidate	2024
5	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2024
Generation Additions in 2024 (MW)			4,648	4,632			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition up till 2024 (MW)			19,841	19,433			
2025							
1	Keyal Khwar	Hydro	128	128	WAPDA	Committed	Sep-24
2	Mohmand	Hydro	800	800	WAPDA	Committed	Nov-24
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2025
4	Generic_Candidate Wind_South	Wind	854	854	Yet to be Decided	Candidate	2025
5	Dasu 1	Hydro	2,160	2,160	WAPDA	Committed	Feb-25
Generation Additions in 2025 (MW)			5,442	5,442			
Cumulative Addition up till 2025 (MW)			25,283	24,874			
2026							
1	Chasma Nuclear C-5	Nuclear	1,100	1,059	PAEC	Committed	Jul-25
2	Harpo	Hydro	35	35	WAPDA	Committed	Jul-25
3	Riali-III	Hydro	3	3	AJK	Candidate	2026
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2026
5	Generic_Candidate Wind_South	Wind	625	625	Yet to be Decided	Candidate	2026
Generation Additions in 2026 (MW)			3,263	3,221			
Cumulative Addition up till 2026 (MW)			28,545	28,095			
2027							
1	Azad Pattan	Hydro	700	701	PPIB	Committed	Sep-26
2	Hatim	CCGT_Gas	20	20	PPIB	Candidate	2027
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2027
4	Generic_Candidate Wind_South	Wind	58	58	Yet to be Decided	Candidate	2027
5	Kohala	Hydro	1,124	1,124	PPIB	Committed	Jun-27
Generation Additions in 2027 (MW)			3,402	3,403			
Cumulative Addition up till 2027 (MW)			31,947	31,498			
2028							
1	Oracle_1	Local Coal	660	607	STDC/ PPIB	Candidate	2028
2	Generic_Candidate OCGT_RLNG	RLNG	173	173	Yet to be Decided	Candidate	2028
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2028
4	Generic_Candidate Wind_South	Wind	428	428	Yet to be Decided	Candidate	2028
Generation Additions in 2028 (MW)			2,761	2,708			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition up till 2028 (MW)			34,709	34,206			
2029							
1	Dander	Hydro	56	56	PEDO	Candidate	2029
2	Dubair Kalay	Hydro	66	66	PEDO	Candidate	2029
3	Nerai-Dubair	Hydro	46	46	PEDO	Candidate	2029
4	Rajdhani	Hydro	132	132	PPIB	Candidate	2029
5	Thakot-III	Hydro	1,686	1,686	WAPDA	Candidate	2029
6	Generic_Candidate OCGT_RLNG	RLNG	674	674	Yet to be Decided	Candidate	2029
7	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2029
8	Generic_Candidate Wind_South	Wind	977	977	Yet to be Decided	Candidate	2029
Generation Additions in 2029 (MW)			5,137	5,137			
Cumulative Addition up till 2029 (MW)			39,846	39,343			
2030							
1	Mahl	Hydro	639	639	PPIB	Candidate	2030
2	Oracle_2	Local Coal	660	607	STDC/ PPIB	Candidate	2030
3	Generic_Candidate OCGT_RLNG	RLNG	2,475	2,475	Yet to be Decided	Candidate	2030
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2030
5	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2030
6	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2030
7	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2030
Generation Additions in 2030 (MW)			6,774	6,721			
Cumulative Addition up till 2030 (MW)			46,619	46,064			
2031							
1	Thakot-I	Hydro	2,154	2,154	WAPDA	Candidate	2031
2	Generic_Candidate OCGT_RLNG	RLNG	1,347	1,347	Yet to be Decided	Candidate	2031
Generation Additions in 2031 (MW)			3,501	3,501			
Cumulative Addition up till 2031 (MW)			50,121	49,565			
2032							
1	Dasu_2	Hydro	2,160	2,160	WAPDA	Candidate	2032
2	Generic_Candidate OCGT_RLNG	RLNG	1,211	1,211	Yet to be Decided	Candidate	2032
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2032

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Generation Additions in 2032 (MW)			4,871	4,871			
Cumulative Addition up till 2032 (MW)			54,992	54,436			
2033							
1	Generic_Candidate Local Coal	Local Coal	3,385	3,385	Yet to be Decided	Candidate	2033
2	Generic_Candidate OCGT_RLNG	RLNG	535	535	Yet to be Decided	Candidate	2033
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2033
Generation Additions in 2033 (MW)			5,420	5,420			
Cumulative Addition up till 2033 (MW)			60,411	59,856			
2034							
1	Generic_Candidate Local Coal	Local Coal	3,352	3,352	Yet to be Decided	Candidate	2034
2	Generic_Candidate OCGT_RLNG	RLNG	809	809	Yet to be Decided	Candidate	2034
Generation Additions in 2034 (MW)			4,161	4,161			
Cumulative Addition up till 2034 (MW)			64,573	64,017			
2035							
1	Generic_Candidate Local Coal	Local Coal	2,257	2,257	Yet to be Decided	Candidate	2035
2	Generic_Candidate OCGT_RLNG	RLNG	2,710	2,710	Yet to be Decided	Candidate	2035
Generation Additions in 2035 (MW)			4,967	4,967			
Cumulative Addition up till 2035 (MW)			69,540	68,985			
2036							
1	Generic_Candidate Local Coal	Local Coal	2,512	2,512	Yet to be Decided	Candidate	2036
2	Generic_Candidate OCGT_RLNG	RLNG	2,869	2,869	Yet to be Decided	Candidate	2036
3	Generic_Candidate Solar	Solar	159	159	Yet to be Decided	Candidate	2036
Generation Additions in 2036 (MW)			5,540	5,540			
Cumulative Addition up till 2036 (MW)			75,080	74,524			
2037							
1	Generic_Candidate Local Coal	Local Coal	2,667	2,667	Yet to be Decided	Candidate	2037
2	Generic_Candidate OCGT_RLNG	RLNG	2,162	2,162	Yet to be Decided	Candidate	2037
3	Generic_Candidate Solar	Solar	610	610	Yet to be Decided	Candidate	2037
Generation Additions in 2037 (MW)			5,439	5,439			
Cumulative Addition up till 2037 (MW)			80,518	79,963			
2038							

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
1	Generic_Candidate Local Coal	Local Coal	2,906	2,906	Yet to be Decided	Candidate	2038
2	Generic_Candidate OCGT_RLNG	RLNG	2,267	2,267	Yet to be Decided	Candidate	2038
3	Generic_Candidate Solar	Solar	646	646	Yet to be Decided	Candidate	2038
Generation Additions in 2038 (MW)			5,818	5,818			
Cumulative Addition uptill 2038 (MW)			86,337	85,781			
2039							
1	Generic_Candidate Local Coal	Local Coal	2,900	2,900	Yet to be Decided	Candidate	2039
2	Generic_Candidate OCGT_RLNG	RLNG	2,791	2,791	Yet to be Decided	Candidate	2039
3	Generic_Candidate Solar	Solar	1,417	1,417	Yet to be Decided	Candidate	2039
Generation Additions in 2039 (MW)			7,108	7,108			
Cumulative Addition uptill 2039 (MW)			93,445	92,890			
2040							
1	Generic_Candidate Local Coal	Local Coal	3,643	3,643	Yet to be Decided	Candidate	2040
2	Generic_Candidate OCGT_RLNG	RLNG	2,883	2,883	Yet to be Decided	Candidate	2040
3	Generic_Candidate Solar	Solar	144	144	Yet to be Decided	Candidate	2040
Generation Additions in 2040 (MW)			6,669	6,669			
Cumulative Addition uptill 2040 (MW)			100,114	99,559			
2041							
1	Bata Kundi	Hydro	96	96	PEDO	Candidate	2041
2	Blue Star	Hydro	3	3	PEDO	Candidate	2041
3	Dowarian	Hydro	40	40	AJK	Candidate	2041
4	Lower Palas	Hydro	666	666	WAPDA	Candidate	2041
5	Thakot-II	Hydro	966	966	WAPDA	Candidate	2041
6	Generic_Candidate OCGT_RLNG	RLNG	372	372	Yet to be Decided	Candidate	2041
7	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2041
Generation Additions in 2041 (MW)			3,643	3,643			
Cumulative Addition uptill 2041 (MW)			103,758	103,202			
2042							
1	Asrit Kadam	Hydro	216	216	PEDO	Candidate	2042
2	Harigehl-Majeedgala	Hydro	40	40	AJK	Candidate	2042
3	Kathai-II	Hydro	8	8	AJK	Candidate	2042

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
4	Pashot	Hydro	60	60	PEDO	Candidate	2042
5	Phandar	Hydro	80	80	WAPDA	Candidate	2042
6	Sakhra-II	Hydro	8	8	PEDO	Candidate	2042
7	Torkhow	Hydro	70	70	PEDO	Candidate	2042
8	Generic_Candidate Local Coal	Local Coal	3,485	3,485	Yet to be Decided	Candidate	2042
9	Generic_Candidate OCGT_RLNG	RLNG	1,726	1,726	Yet to be Decided	Candidate	2042
10	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2042
Generation Additions in 2042 (MW)			7,193	7,193			
Cumulative Addition uptill 2042 (MW)			110,951	110,395			
2043							
1	Bunji	Hydro	7,100	7,100	WAPDA	Candidate	2043
2	Patan	Hydro	2,400	2,400	WAPDA	Candidate	2043
Generation Additions in 2043 (MW)			9,500	9,500			
Cumulative Addition uptill 2043 (MW)			120,451	119,895			
2044							
1	Diamer Bhasha Dam	Hydro	4,500	4,500	WAPDA	Candidate	2044
2	Kalam Asrit	Hydro	212	212	PPIB	Candidate	2044
3	Sakhra-I	Hydro	8	8	PEDO	Candidate	2044
Generation Additions in 2044 (MW)			4,720	4,720			
Cumulative Addition uptill 2044 (MW)			125,171	124,615			
2045							
1	Bhan Khwar	Hydro	36	36	PEDO	Candidate	2045
2	Bhimbal Katha	Hydro	9	9	PEDO	Candidate	2045
3	Chakoti Hatian	Hydro	501	501	PPIB	Candidate	2045
4	Dhudnial	Hydro	960	960	WAPDA	Candidate	2045
5	Jagran-III	Hydro	36	36	AJK	Candidate	2045
6	Jagran-IV	Hydro	24	24	AJK	Candidate	2045
7	Madian	Hydro	156	156	PEDO	Candidate	2045
8	Naran	Hydro	188	188	PEDO	Candidate	2045
9	Okara	Hydro	4	4	PPDB	Candidate	2045
10	Serai	Hydro	6	6	PEDO	Candidate	2045

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
11	Tangus	Hydro	2,200	2,200	WAPDA	Candidate	2045
12	Generic_Candidate Solar	Solar	440	440	Yet to be Decided	Candidate	2045
Generation Additions in 2045 (MW)			4,560	4,560			
Cumulative Addition uptill 2045 (MW)			129,731	129,175			
2046							
1	Alka	Hydro	2	2	PPDB	Candidate	2046
2	Arkari Gol	Hydro	99	99	PEDO	Candidate	2046
3	Barum Gol	Hydro	40	40	PEDO	Candidate	2046
4	Basho	Hydro	39	39	WAPDA	Candidate	2046
5	Chapri Charkhel	Hydro	12	12	PEDO	Candidate	2046
6	CJ	Hydro	24	24	PPDB	Candidate	2046
7	Gabral Kalam	Hydro	87	87	PEDO	Candidate	2046
8	Gabral Utror	Hydro	82	82	PEDO	Candidate	2046
9	Ghanool	Hydro	3	3	PEDO	Candidate	2046
10	Gwaldai	Hydro	20	20	PEDO	Candidate	2046
11	Mahodand	Hydro	44	44	PEDO	Candidate	2046
12	Mastuj	Hydro	48	48	PEDO	Candidate	2046
13	Middle Palas	Hydro	399	399	WAPDA	Candidate	2046
14	Mujigram	Hydro	63	63	PEDO	Candidate	2046
15	Nagdar	Hydro	36	36	AJK	Candidate	2046
16	Nandihaar-II	Hydro	10	10	PEDO	Candidate	2046
17	Nila Da Katha	Hydro	36	36	PEDO	Candidate	2046
18	Shalfalam	Hydro	60	60	PEDO	Candidate	2046
19	Sharmai	Hydro	150	150	PEDO	Candidate	2046
20	Shigo Kas	Hydro	102	102	PEDO	Candidate	2046
21	Shogosin	Hydro	138	138	PEDO	Candidate	2046
22	Shounter	Hydro	48	48	AJK	Candidate	2046
23	SHYOK	Hydro	640	640	WAPDA	Candidate	2046
24	Tangar	Hydro	24	24	PEDO	Candidate	2046
25	Trappi	Hydro	33	33	PEDO	Candidate	2046
26	UCC Bhambhwal	Hydro	4	4	PPDB	Candidate	2046
27	Wari	Hydro	45	45	PEDO	Candidate	2046

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
28	Wazirabad	Hydro	88	88	WAPDA	Candidate	2046
29	Yulbo	Hydro	2,800	2,800	WAPDA	Candidate	2046
30	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2046
Generation Additions in 2046 (MW)			6,676	6,676			
Cumulative Addition uptill 2046 (MW)			136,407	135,851			
2047							
1	Artistic-I	Hydro	63	63	PEDO	Candidate	2047
2	Artistic-II	Hydro	54	54	PEDO	Candidate	2047
3	Ashkot	Hydro	300	300	PPIB	Candidate	2047
4	Athmuqam	Hydro	452	452	PPIB	Candidate	2047
5	Balakot	Hydro	300	300	PEDO	Candidate	2047
6	Balakot-II	Hydro	100	100	PEDO	Candidate	2047
7	Balkani	Hydro	8	8	PEDO	Candidate	2047
8	BS Link Tail	Hydro	9	9	PPDB	Candidate	2047
9	Chenavan	Hydro	3	3	PPDB	Candidate	2047
10	Chicha Watni	Hydro	2	2	PPDB	Candidate	2047
11	Chiniot_HPP	Hydro	78	78	WAPDA	Candidate	2047
12	Chota Jabba	Hydro	46	46	PEDO	Candidate	2047
13	Daral Khwar-II	Hydro	10	10	PEDO	Candidate	2047
14	Dhaddar	Hydro	18	18	PEDO	Candidate	2047
15	Engro_HPP	Hydro	5	5	PPDB	Candidate	2047
16	Gahrit	Hydro	376	376	PEDO	Candidate	2047
17	Garhi Habibullah	Hydro	100	100	PEDO	Candidate	2047
18	Ghail	Hydro	2	2	AJK	Candidate	2047
19	Ghorband	Hydro	20	20	PEDO	Candidate	2047
20	Gomat Nar	Hydro	50	50	AJK	Candidate	2047
21	Gugera	Hydro	3	3	PPDB	Candidate	2047
22	Istaro-Booni	Hydro	72	72	PEDO	Candidate	2047
23	Jabri Bedar	Hydro	4	4	PEDO	Candidate	2047
24	Jamshil	Hydro	612	612	PEDO	Candidate	2047
25	Jhing-II	Hydro	6	6	AJK	Candidate	2047
26	Kalkot Barikot	Hydro	48	48	PEDO	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
27	Kari Mushkur	Hydro	496	496	PEDO	Candidate	2047
28	Kasur	Hydro	2	2	PPDB	Candidate	2047
29	Kathai-III	Hydro	1	1	AJK	Candidate	2047
30	Khal	Hydro	66	66	PEDO	Candidate	2047
31	Khanewal	Hydro	2	2	PPDB	Candidate	2047
32	Khanki Barrage	Hydro	16	16	PPDB	Candidate	2047
33	Khokhra	Hydro	2	2	PPDB	Candidate	2047
34	Lower Spat Gah	Hydro	495	495	PEDO	Candidate	2047
35	Luat	Hydro	48	48	AJK	Candidate	2047
36	Lucky_HPP	Hydro	20	20	PPDB	Candidate	2047
37	Luspur Murigram	Hydro	231	231	PEDO	Candidate	2047
38	Machai-III	Hydro	2	2	PEDO	Candidate	2047
39	Mahandri	Hydro	12	12	PEDO	Candidate	2047
40	Mandi	Hydro	4	4	PPDB	Candidate	2047
41	Mehar	Hydro	12	12	PPDB	Candidate	2047
42	Mid Ranjha	Hydro	80	80	WAPDA	Candidate	2047
43	Murree	Hydro	12	12	PPDB	Candidate	2047
44	Nandihaar	Hydro	12	12	PEDO	Candidate	2047
45	Patrak Sheringhal	Hydro	22	22	PEDO	Candidate	2047
46	Punjnad	Hydro	18	18	PPDB	Candidate	2047
47	Qaditrabad	Hydro	24	24	PPDB	Candidate	2047
48	QB Link	Hydro	8	8	PPDB	Candidate	2047
49	Rasul	Hydro	18	18	PPDB	Candidate	2047
50	Ravi	Hydro	6	6	PPDB	Candidate	2047
51	Sahiwal	Hydro	6	6	PPDB	Candidate	2047
52	Sarral-Dhartian	Hydro	9	9	PEDO	Candidate	2047
53	Shah Jiwana	Hydro	78	78	WAPDA	Candidate	2047
54	Shushghai	Hydro	144	144	PEDO	Candidate	2047
55	Soan	Hydro	24	24	PPDB	Candidate	2047
56	Taunsa	Hydro	135	135	PPDB	Candidate	2047
57	TP	Hydro	9	9	PPDB	Candidate	2047
58	Trident	Hydro	8	8	PPDB	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
59	Trimmu_HPP	Hydro	16	16	PPDB	Candidate	2047
60	Turtonas Uzghor	Hydro	82	82	PPIB	Candidate	2047
61	Upper Palas	Hydro	158	158	WAPDA	Candidate	2047
62	Generic_Candidate Solar	Solar	78	78	Yet to be Decided	Candidate	2047
Generation Additions in 2047 (MW)			5,097	5,097			
Cumulative Addition up till 2047 (MW)			141,504	140,948			

M-5. Annual Capacity Factors (%age)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	85	85	59	51	50	17	9	16	14	14	14	18	16	22	22	21	20	19	18	19	17	18	15	10	10	11	12	17
2	Gwadar	Imp. Coal	0	0	84	84	84	83	34	42	33	30	26	30	32	34	32	32	30	29	29	27	26	25	22	14	14	23	34	36
3	Jamshoro Coal	Imp. Coal	0	0	5	7	7	7	4	8	8	9	10	11	10	13	15	15	15	14	14	14	14	13	12	6	9	9	8	10
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	85	85	85	53	35	38	23	30	24	23	23	25	26	30	29	28	26	24	23	23	23	22	20	13	12	15	17	34
6	Sahiwal Coal	Imp. Coal	85	85	51	2	3	2	2	4	4	5	7	9	7	10	11	11	11	11	11	11	10	9	8	5	7	8	8	8
7	Engro Thar	Local Coal	85	85	85	84	84	84	63	81	60	40	38	40	38	43	41	41	39	37	36	35	33	33	28	18	20	40	36	38
8	Lucky	Local Coal	0	87	85	84	84	84	37	79	40	35	31	36	34	37	34	34	34	33	31	31	29	27	24	15	16	32	36	37
9	NEW_Local_Coal	Local Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	73	74	76	78	79	79	79	79	79	78	75	75	75	73	72
10	Oracle	Local Coal	0	0	0	0	0	0	0	0	82	80	78	79	77	81	82	83	84	84	85	85	85	85	85	85	85	85	85	84
11	Siddiqsons	Local Coal	0	88	85	85	84	84	83	83	81	80	75	75	74	79	81	82	82	83	83	83	83	83	83	84	84	84	85	84
12	Thal Nova	Local Coal	0	89	85	85	84	84	83	83	80	76	68	70	54	58	57	59	58	56	53	51	47	48	40	27	44	46	47	53
13	Thar TEL	Local Coal	0	89	85	85	84	84	83	83	81	77	69	69	55	58	57	59	57	56	53	52	47	49	40	27	44	46	46	53
14	Thar-I (Shanghai Electric)	Local Coal	0	87	85	84	84	84	81	82	79	61	44	46	49	50	48	49	50	48	46	44	40	37	32	22	40	45	44	44
15	Balloki	RLNG	67	67	67	67	67	67	67	67	67	67	67	67	67	67	3	3	4	4	4	4	5	5	5	2	3	3	3	3
16	Bhikki	RLNG	67	67	67	67	67	67	67	67	67	67	67	67	67	2	1	2	2	3	4	4	4	4	4	1	2	3	3	3
17	FKPCL	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	1	0	0	0	0	0	0	0	0	0	1	2	1	0	0	0	0	1	2	3	4	4	0	0	0	0	0	0
20	Haveli	RLNG	67	67	67	67	67	67	67	67	67	67	67	67	67	4	4	4	5	5	5	6	7	7	7	3	4	4	4	5
21	Nandipur	RLNG	3	1	0	0	0	0	0	0	0	0	2	3	2	1	0	1	1	1	2	3	4	4	3	0	1	2	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	3	0	0	0	0	0	0	0	0	0	2	2	2	1	0	0	1	1	2	3	3	0	0	0	0	0	0	0
24	Rousch	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	0	0	0	0	0	0	0	0	0	0	1	2	1	0	0	0	0	0	1	2	3	0	0	0	0	0	0	0
26	Saphire	RLNG	1	0	0	0	0	0	0	0	0	0	1	2	2	0	0	0	0	1	2	3	4	0	0	0	0	0	0	0
27	Trimmu	RLNG	42	6	1	0	0	0	0	0	0	1	3	4	4	5	5	6	6	7	7	8	8	8	8	4	4	5	5	6
28	Davis	RLNG	0	0	0	0	0	0	0	3	0	0	1	1	1	0	0	0	0	0	1	1	2	2	2	0	0	0	0	0
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	89	88	3	0	1	0	0	2	2	2	4	5	4	5	6	6	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	90	90	4	0	1	0	0	2	2	3	4	5	5	6	7	7	7	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	85	50	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	83	83	7	4	4	1	1	3	3	4	5	6	5	7	8	8	9	9	8	8	8	8	7	4	3	1	0	0
36	Hatim	Gas	0	0	0	0	0	0	0	25	23	20	20	21	14	16	16	16	16	15	15	15	14	14	13	5	5	8	6	6
37	HCPC	Gas	85	15	2	0	0	0	0	1	2	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	25	11	2	0	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	6	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	86	86	86	85	84	84	10	10	8	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	88	88	5	0	1	0	0	2	2	3	4	5	5	6	8	8	7	7	8	7	0	0	0	0	0	0	0	0
43	C-1	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
44	C-2	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
45	C-3	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
46	C-4	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
47	C-5	Nuclear	0	0	0	0	0	0	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	74	79	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
50	K-3	Nuclear	0	0	76	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
51	Alliance	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
52	Almoiz	Bagasse	54	54	54	54	54	53	53	53	53	52	52	51	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
53	Bahawalpur	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	54	54	54	54	54	53	53	53	53	52	52	51	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
56	Chiniot	Bagasse	36	36	36	36	36	35	34	35	35	34	33	33	33	34	35	35	36	36	36	36	36	36	36	36	36	36	36	36

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	0	54	54	54	54	53	53	53	53	51	51	51	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
58	Faran	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
59	Ghotki	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
60	Hamza	Bagasse	47	47	47	47	47	46	46	46	46	44	44	44	44	45	46	46	47	47	47	47	47	47	47	47	47	47	47	47
61	Hamza-II	Bagasse	0	0	29	54	54	53	53	53	53	52	52	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
62	HSM	Bagasse	0	0	29	54	54	53	53	53	53	51	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
63	Hunza	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
64	Indus	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
65	Ittefaq	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
66	JDW-II	Bagasse	84	84	84	84	84	83	82	83	82	81	80	80	80	81	82	83	83	83	84	84	84	84	84	84	84	84	83	83
67	JDW-III	Bagasse	78	78	78	78	78	77	77	77	77	75	75	75	75	76	77	77	78	78	78	78	78	78	78	78	78	78	78	78
68	Kashmir	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
69	Mehran	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
70	RYK_Energy	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
71	Ryk_Mills	Bagasse	54	54	54	54	54	53	53	53	53	52	52	51	52	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
72	Sadiqabad	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
73	Shahtaj	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
74	Sheikhoo	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
75	TAY	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	30	30	30	30	30	29	29	29	29	28	28	28	28	28	29	29	30	30	30	30	30	30	30	30	30	30	30	30
77	Two_Star	Bagasse	0	0	29	54	54	53	53	53	53	52	51	51	51	52	53	53	54	54	54	54	54	54	54	54	54	54	54	54
78	Access_Electric	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
79	Access_Solar	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
81	Best	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
82	Buksh	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
84	Crest	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
85	Helios	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
86	HNDS	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
87	Meridian	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
88	QA_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
89	Safe	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
90	Zhenfa	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
91	Zorlu	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68	68
93	Allai Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	31	31

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	48	48	48	48
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	48	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	40
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	42	41	42	42	42
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	38	38
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	60
109	Blue Star	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	66	66	65	66	66	66
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	41	42	42	41
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	40	40	40	44	45	46	46	46	44	45	47	46	46	46	47	47	48	48	49
121	Daral Khwar	Hydro	47	47	47	47	47	47	47	42	42	41	42	42	45	44	44	45	45	45	45	45	45	45	45	45	46	46	47	47
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
123	Dasu_1	Hydro	0	0	0	0	0	56	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	61	61	64	64	64	64	64	64	64	64	64	64	64	64	64	64
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44	45	45
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45	45	45	45	45	46
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	57	58	58	63	63	63	63	64	63	63	64	64	65	64	64	64	64	64	65
130	Dubair Khwar	Hydro	51	51	51	51	51	51	50	50	50	50	49	49	50	50	50	50	50	50	50	50	50	51	50	51	50	51	51	51
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	30
138	Ghazi Brotha	Hydro	52	52	52	52	52	52	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	52	51
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68
140	Golen Gol	Hydro	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
142	Gorkin Matiltan	Hydro	0	0	0	32	45	45	44	41	41	41	41	41	41	42	43	41	42	42	42	43	43	42	43	43	43	43	44	43
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
144	Gulpur	Hydro	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	60	61	61	61
147	Harpo	Hydro	0	0	0	0	0	0	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
149	Jabori	Hydro	91	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
151	Jagran-I	Hydro	31	31	31	31	31	31	31	30	30	30	29	29	31	30	30	30	30	31	31	31	30	31	31	31	31	31	31	31

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44	44
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
155	Jhing	Hydro	95	52	52	52	52	52	52	49	49	49	48	48	49	51	50	50	50	50	50	50	50	50	50	51	51	51	51	51
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
157	Jinnah	Hydro	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46	46
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
161	Karora	Hydro	61	62	62	62	62	62	62	59	59	59	59	59	60	60	60	60	60	60	60	60	60	60	60	61	61	61	61	61
162	Karot	Hydro	0	0	41	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56	56	56	56
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	25	32	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	32	32
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
168	Khan Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
172	Kohala	Hydro	0	0	0	0	0	0	0	0	61	61	61	61	62	62	62	62	62	62	62	62	62	62	62	62	63	63	63	63
173	Koto	Hydro	0	58	58	58	57	58	58	54	54	55	54	54	55	56	56	56	56	56	56	56	56	57	57	57	57	57	57	57
174	Lawi	Hydro	0	43	49	49	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43	43	43	43	43
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
180	Machai	Hydro	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49	49
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	59	59	61	61	62	62	62	62	62	62	62	62	62	62	63	63	63	63
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	47
186	Malakand-III	Hydro	52	52	52	52	52	52	51	52	52	51	51	51	51	51	51	52	52	52	52	52	52	52	52	52	52	52	52	52
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
188	Mangla	Hydro	57	57	57	57	57	57	57	56	56	56	56	56	57	57	56	57	57	57	57	57	57	57	57	57	57	57	57	57
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	35	41	40	39	39	39	39	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40	40
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	52
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	69
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
201	Neelum Jehlum	Hydro	58	58	58	58	58	58	57	56	56	56	56	55	56	57	57	57	57	57	57	57	57	57	57	58	58	58	58	58
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	50	50	50	56	58	59	59	59	59	59	59	59	59	60	60	61	62	63	64
203	New Bong	Hydro	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	36	36
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	47	48	48	49	50
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59	59
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
210	Pehur	Hydro	23	24	24	24	23	24	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45	45	46	46	46
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
216	Ranolia	Hydro	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
219	Riali-II	Hydro	0	87	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
220	Riali-III	Hydro	0	0	0	0	0	0	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49	49	49	49	49
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	51
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	66
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
237	Suki Kinari	Hydro	0	0	0	35	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	45
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46
240	Tarbela_1-10	Hydro	48	48	48	48	48	48	47	47	47	47	46	47	47	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
241	Tarbela_11-14	Hydro	48	48	48	48	48	48	47	48	47	47	47	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48	48	48
242	Tarbela_Ext_4	Hydro	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
243	Tarbela_Ext_5	Hydro	0	0	0	0	19	32	32	32	31	32	30	31	31	31	32	32	32	32	32	32	32	32	32	32	32	32	32	32
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	52	53	53	54	53	53	54	54	54	53	54	54	54	54	54	54	54
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55	55	55	55	55

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	47	47	47	47	48	49	49	49	49	49	49	49	49	49	49	49	49	49	49
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	50	50	50	50
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	53
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	33
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	37
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	64
258	Warsak	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46
261	CASA	Cross Border	0	0	0	95	39	39	39	24	24	24	23	23	28	26	23	25	25	26	27	26	26	27	27	28	29	30	31	33
262	Act	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
263	Act_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
264	Artistic_wind	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
265	Artistic_Wind_2	Wind	0	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	0	0	0	33	33	33	33	32	33	33	32	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
267	Candidate_Wind_North	Wind	0	0	0	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
268	Candidate_Wind_South	Wind	0	0	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
269	Dawood	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
270	Din	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
271	FFC	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
272	FWEL-I	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
273	FWEL-II	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
274	Gul Ahmed	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
275	Gul_Electric	Wind	0	0	38	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
276	Hawa	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
277	Indus_Energy	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
278	Jhimpir	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
279	Lakeside	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
280	Liberty_Wind_1	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
281	Liberty_Wind_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
282	Master	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
283	Master_Green	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
284	Metro_Power	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
286	NASDA	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
287	Sachal	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
288	Sapphire_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
289	Shaheen	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
290	Tenga	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
291	Three_Gorges_I	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
292	Three_Gorges_II	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
293	Three_Gorges_III	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
294	Trans_Atlantic	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
295	Tricon_A	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
296	Tricon_B	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
297	Tricon_C	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
298	Tricorm	Wind	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
299	UEP	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
300	Western	Wind	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
301	Yunus	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
302	Zephyr	Wind	0	56	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
303	Zorlu_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	29	11	0	0	0	0	0	1	1	2	4	5	4	5	5	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

M-6. Annual Energy Generation 2020-30 (GWh)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
1	China HUBCO	Imp. Coal	9,330	9,308	6,427	5,544	5,533	1,849	939	1,781	1,488	1,508	1,510
2	Gwadar	Imp. Coal	0	0	1,000	2,001	2,006	1,979	819	993	800	707	618
3	Jamshoro Coal	Imp. Coal	0	0	152	374	624	748	430	959	898	1,018	1,161
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	9,270	9,248	9,248	5,714	3,813	4,107	2,556	3,305	2,597	2,556	2,463
6	Sahiwal Coal	Imp. Coal	9,285	9,257	5,532	263	305	251	197	448	453	513	750
7	Engro Thar	Local Coal	4,493	4,482	4,482	4,414	4,423	4,412	3,303	4,271	3,195	2,111	2,006
8	Lucky	Local Coal	0	1,546	4,531	4,461	4,472	4,450	1,956	4,174	2,154	1,885	1,648
9	NEW_Local_Coal	Local Coal	0	0	0	0	0	0	0	0	0	0	0
10	Oracle	Local Coal	0	0	0	0	0	0	0	0	4,368	4,266	8,332
11	Siddiqsons	Local Coal	0	193	2,266	2,266	2,236	2,231	2,222	2,210	2,170	2,121	1,991
12	Thal Nova	Local Coal	0	583	2,234	2,234	2,204	2,199	2,179	2,178	2,112	2,005	1,797
13	Thar TEL	Local Coal	0	583	2,234	2,234	2,204	2,199	2,176	2,178	2,132	2,017	1,823
14	Thar-I (Shanghai Electric)	Local Coal	0	1,545	8,643	8,970	8,936	8,914	8,577	8,751	8,442	6,455	4,659
15	Balloki	RLNG	6,908	6,908	6,906	6,904	6,904	6,904	6,904	6,889	6,886	6,889	6,885
16	Bhikki	RLNG	6,695	6,695	6,692	6,690	6,689	6,690	6,687	6,680	6,675	6,677	6,676
17	FKPCL	RLNG	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
19	Halmore	RLNG	14	0	0	0	0	0	0	0	0	0	22
20	Haveli	RLNG	6,965	6,965	6,964	6,963	6,963	6,964	6,964	6,942	6,941	6,945	6,944
21	Nandipur	RLNG	132	32	0	0	0	0	0	0	0	0	61
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	47	4	0	0	0	0	0	0	0	0	28
24	Rousch	RLNG	0	0	0	0	0	0	0	0	0	0	8
25	Saif	RLNG	8	0	0	0	0	0	0	0	0	0	10
26	Saphire	RLNG	24	0	0	0	0	0	0	0	0	0	26
27	Trimmu	RLNG	1,137	689	55	0	0	16	0	34	41	147	296
28	Davis	RLNG	0	0	0	0	0	0	0	3	0	0	1
29	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	0
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	1,655	1,634	59	0	16	6	0	29	32	34	80
32	Foundation	Gas	1,320	1,312	59	0	13	5	0	25	26	43	66
33	Guddu-I	Gas	1,931	1,137	59	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	5,234	5,221	420	264	260	71	45	190	180	231	291
36	Hatim	Gas	0	0	0	0	0	0	0	44	40	35	35
37	HCPC	Gas	960	165	25	0	4	3	0	15	18	18	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
38	Kotri	Gas	232	98	19	0	0	3	0	11	13	0	0
39	Liberty	Gas	113	41	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	4,149	4,139	4,139	4,076	4,074	4,023	462	473	373	364	0
42	Uch-II	Gas	2,737	2,722	145	3	37	10	0	61	52	99	133
43	C-1	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
44	C-2	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
45	C-3	Nuclear	2,187	2,183	2,183	2,183	2,187	2,181	2,181	2,175	2,179	2,174	2,180
46	C-4	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,183	2,181	2,186	2,181	2,181
47	C-5	Nuclear	0	0	0	0	0	0	7,280	7,244	7,262	7,244	7,244
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	0	4,548	7,292	7,292	7,307	7,288	7,284	7,241	7,263	7,240	7,237
50	K-3	Nuclear	0	0	5,823	7,292	7,307	7,288	7,285	7,240	7,263	7,246	7,233
51	Alliance	Bagasse	0	0	19	143	142	140	139	140	140	136	135
52	Almoiz	Bagasse	172	172	172	172	172	168	167	168	168	164	162
53	Bahawalpur	Bagasse	0	0	20	149	148	146	145	146	145	141	140
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	105	105	105	105	105	103	102	103	102	100	99
56	Chiniot	Bagasse	197	196	196	196	197	190	188	190	189	184	183

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
57	Etihad	Bagasse	0	355	355	355	352	348	346	345	347	335	334
58	Faran	Bagasse	0	0	17	126	125	124	123	123	123	120	119
59	Ghotki	Bagasse	0	0	29	215	213	210	209	209	209	204	202
60	Hamza	Bagasse	62	62	62	62	62	60	60	60	60	58	58
61	Hamza-II	Bagasse	0	0	19	143	142	140	139	140	140	136	135
62	HSM	Bagasse	0	0	17	126	125	124	123	124	123	119	119
63	Hunza	Bagasse	0	0	32	238	237	233	231	233	232	226	224
64	Indus	Bagasse	0	0	20	148	147	145	144	145	144	141	139
65	Ittefaq	Bagasse	0	0	20	149	148	146	145	146	145	142	140
66	JDW-II	Bagasse	194	193	193	193	194	191	190	191	190	186	185
67	JDW-III	Bagasse	180	180	180	180	180	178	178	178	178	174	173
68	Kashmir	Bagasse	0	0	26	191	189	187	186	186	186	181	179
69	Mehran	Bagasse	0	0	17	126	125	124	123	124	123	120	119
70	RYK_Energy	Bagasse	0	0	16	119	118	117	116	116	116	113	112
71	Ryk_Mills	Bagasse	144	143	143	143	144	140	139	140	140	136	135
72	Sadiqabad	Bagasse	0	0	29	215	213	210	209	210	210	203	202
73	Shahtaj	Bagasse	0	0	21	153	152	149	149	149	148	145	144
74	Sheikhoo	Bagasse	0	0	19	143	142	140	139	140	139	136	135
75	TAY	Bagasse	0	0	19	143	142	140	139	140	140	136	135

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
76	Thal_Layyah	Bagasse	109	109	109	109	109	106	105	106	106	101	100
77	Two_Star	Bagasse	0	0	32	238	236	233	231	233	232	226	223
78	Access_Electric	Solar	0	5	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	0	5	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	0	0	14	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	0	0	0	2,482	4,965	7,447	9,929	12,412	14,894	17,353	19,785
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	0	0	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	0	0	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	0	0	48	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	0	0	13	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	0	0	97	165	165	165	165	165	165	165	165
91	Zorlu	Solar	84	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0
93	Allai Khwar	Hydro	396	395	395	395	396	395	395	395	396	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0
100	Azad Pattan	Hydro	0	0	0	0	0	0	0	2,181	3,256	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
109	Blue Star	Hydro	0	0	0	0	0	0	0	0	0	0	0
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
114	Chashma	Hydro	767	765	765	765	767	765	765	765	767	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0
120	Dander	Hydro	0	0	0	0	0	0	0	0	0	197	194
121	Daral Khwar	Hydro	147	147	147	147	147	147	147	131	134	130	131
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
123	Dasu_1	Hydro	0	0	0	0	0	4,321	11,975	11,975	11,990	11,975	11,975
124	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0
129	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	332	335
130	Dubair Khwar	Hydro	581	581	581	581	581	580	568	570	568	564	563
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0
138	Ghazi Brotha	Hydro	6,563	6,551	6,551	6,551	6,563	6,551	6,524	6,506	6,518	6,506	6,484
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0
140	Golen Gol	Hydro	97	97	97	97	97	97	97	95	96	95	95
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0
142	Gorkin Matiltan	Hydro	0	0	0	155	331	330	327	301	302	301	301
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0
144	Gulpur	Hydro	481	480	480	480	481	480	480	480	481	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0
147	Harpo	Hydro	0	0	0	0	0	0	170	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0
149	Jabori	Hydro	27	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0
151	Jagran-I	Hydro	82	82	82	82	82	82	82	78	79	78	77

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0
155	Jhing	Hydro	10	68	68	68	68	68	68	65	65	64	64
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
157	Jinnah	Hydro	195	194	194	194	195	194	194	193	194	192	191
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0
161	Karora	Hydro	5	65	65	65	65	65	65	62	62	62	62
162	Karot	Hydro	0	0	1,496	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	0	0	0	0	0	232	353	343	345	344	345
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0
168	Khan Khwar	Hydro	235	234	234	234	235	234	234	234	235	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0
172	Kohala	Hydro	0	0	0	0	0	0	0	0	6,032	5,997	5,986
173	Koto	Hydro	0	212	212	212	212	212	212	198	201	201	198
174	Lawi	Hydro	0	130	295	295	295	295	294	291	292	290	290
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0
184	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	3,310
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0
186	Malakand-III	Hydro	367	367	367	367	367	367	362	366	367	364	360
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0
188	Mangla	Hydro	5,016	5,004	5,004	5,004	5,016	5,004	5,004	4,882	4,901	4,884	4,927
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	0	0	0	0	0	1,633	2,841	2,795	2,774	2,761	2,741
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0
201	Neelum Jehlum	Hydro	4,944	4,939	4,939	4,939	4,944	4,923	4,864	4,777	4,773	4,734	4,725
202	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	201	202
203	New Bong	Hydro	471	470	470	470	471	470	470	470	471	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
209	Patrind	Hydro	635	634	634	634	635	634	634	632	633	632	632
210	Pehur	Hydro	37	37	37	37	37	37	37	36	36	36	36
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0
215	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	670	670
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0
219	Riali-II	Hydro	0	5	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	0	0	0	0	0	0	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	387	386	386	386	387	386	385	380	379	377	379
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0
237	Suki Kinari	Hydro	0	0	0	1,332	2,800	2,796	2,794	2,767	2,766	2,762	2,760
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0
240	Tarbela_1-10	Hydro	7,386	7,377	7,377	7,377	7,386	7,377	7,256	7,259	7,253	7,234	7,126
241	Tarbela_11-14	Hydro	7,294	7,285	7,285	7,285	7,294	7,285	7,166	7,227	7,144	7,158	7,139
242	Tarbela_Ext_4	Hydro	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,807	3,811
243	Tarbela_Ext_5	Hydro	0	0	0	0	1,975	3,975	3,965	3,912	3,898	3,894	3,766
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0
245	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
247	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	7,006	6,962
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0
258	Warsak	Hydro	999	997	997	997	999	997	997	997	999	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0
261	CASA	Cross Border	0	0	0	1,387	3,457	3,417	3,377	2,063	2,097	2,101	2,016
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	0	0	58	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	0	0	102	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
266	Candidate_Wind_Mid	Wind	0	0	0	872	1,101	1,100	1,084	1,050	1,101	1,100	1,888
267	Candidate_Wind_North	Wind	0	0	0	581	582	581	581	581	582	581	1,153
268	Candidate_Wind_South	Wind	0	0	0	3,440	6,889	9,816	11,964	12,163	13,650	16,987	20,311
269	Dawood	Wind	0	14	144	144	144	144	144	144	144	144	144
270	Din	Wind	0	0	58	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	151	150	150	150	151	150	150	150	151	150	150
273	FWEL-II	Wind	151	150	150	150	151	150	150	150	151	150	150
274	Gul Ahmed	Wind	146	145	145	145	146	145	145	145	146	145	145
275	Gul_Electric	Wind	0	0	83	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	0	0	58	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	0	0	58	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	0	0	58	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	0	0	58	172	172	172	172	172	172	172	172
282	Master	Wind	154	153	153	153	154	153	153	153	154	153	153
283	Master_Green	Wind	0	102	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	146	145	145	145	146	145	145	145	146	145	145

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
285	Metro_Wind	Wind	0	0	70	206	207	206	206	206	207	206	206
286	NASDA	Wind	0	0	58	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	154	153	153	153	154	153	153	153	154	153	153
289	Shaheen	Wind	0	104	175	175	176	175	175	175	176	175	175
290	Tenga	Wind	0	14	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	157	156	156	156	157	156	156	156	157	156	156
293	Three_Gorges_III	Wind	157	156	156	156	157	156	156	156	157	156	156
294	Trans_Atlantic	Wind	0	0	56	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	0	71	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	0	58	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	146	145	145	145	146	145	145	145	146	145	145
302	Zephyr	Wind	0	20	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
304	KAPCO 1	RFO	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	401	157	0	0	0	4	0	16	19	22	53
322	ATLAS	RFO	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
323	HuB N	RFO	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			**127,800**	**135,218**	**145,309**	**153,055**	**163,353**	**173,003**	**182,020**	**191,286**	**201,917**	**212,300**	**223,977**
Energy Demand			**127,800**	**135,218**	**145,309**	**153,055**	**163,353**	**173,003**	**182,020**	**191,286**	**201,917**	**212,300**	**223,977**
Energy Not Served			**0.00**	**0.01**	**-0.01**	**0.00**	**0.00**	**-0.02**	**-0.03**	**0.01**	**0.00**	**-0.04**	**0.02**

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

M-7. Annual Energy Generation 2030-47 (GWh)

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	1,949	1,796	2,431	2,407	2,251	2,171	2,079	2,017	2,061	1,917	1,954	1,647	1,149	1,105	1,221	1,279	1,824
2	Gwadar	Imp. Coal	726	760	818	755	760	731	697	696	645	623	600	527	331	341	540	813	867
3	Jamshoro Coal	Imp. Coal	1,295	1,152	1,432	1,746	1,732	1,688	1,613	1,577	1,595	1,553	1,504	1,307	652	988	1,032	945	1,164
4	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	Port Qasim	Imp. Coal	2,739	2,873	3,298	3,103	3,082	2,881	2,655	2,534	2,536	2,484	2,413	2,143	1,464	1,276	1,615	1,897	3,685
6	Sahiwal Coal	Imp. Coal	974	758	1,037	1,245	1,250	1,249	1,218	1,165	1,155	1,074	1,032	925	539	785	851	852	872
7	Engro Thar	Local Coal	2,089	2,006	2,249	2,179	2,158	2,049	1,961	1,897	1,835	1,729	1,718	1,476	939	1,064	2,123	1,920	1,983
8	Lucky	Local Coal	1,900	1,796	1,968	1,826	1,793	1,819	1,776	1,634	1,646	1,533	1,458	1,262	791	877	1,688	1,891	1,989
9	NEW_Local_Coal	Local Coal	0	0	21,685	43,452	60,034	78,553	97,573	118,291	138,678	164,494	163,509	184,986	177,950	178,818	177,940	173,086	171,004
10	Oracle	Local Coal	8,374	8,213	8,595	8,764	8,853	8,944	8,986	8,993	9,021	9,044	9,023	9,023	9,024	9,037	8,996	9,003	8,979
11	Siddiqsons	Local Coal	2,008	1,967	2,097	2,148	2,188	2,202	2,215	2,215	2,212	2,221	2,211	2,198	2,245	2,255	2,250	2,250	2,234
12	Thal Nova	Local Coal	1,841	1,413	1,519	1,488	1,543	1,522	1,474	1,392	1,348	1,231	1,270	1,042	710	1,159	1,220	1,224	1,390
13	Thar TEL	Local Coal	1,824	1,437	1,536	1,507	1,538	1,499	1,482	1,382	1,367	1,241	1,277	1,041	707	1,156	1,222	1,222	1,396
14	Thar-I (Shanghai Electric)	Local Coal	4,839	5,237	5,334	5,094	5,242	5,298	5,054	4,885	4,675	4,267	3,974	3,449	2,323	4,218	4,809	4,633	4,634
15	Balloki	RLNG	6,891	6,899	6,896	280	358	393	409	441	452	489	480	492	257	264	289	330	323
16	Bhikki	RLNG	6,679	6,683	202	121	159	234	337	369	425	427	430	423	138	151	277	267	302
17	FKPCL	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	GTPS Block 4	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	Halmore	RLNG	30	26	5	0	5	5	19	26	48	61	63	0	0	0	0	0	0
20	Haveli	RLNG	6,946	6,958	385	429	468	496	547	548	665	780	744	680	327	372	433	465	481
21	Nandipur	RLNG	107	80	44	11	29	43	53	88	125	140	139	134	15	30	68	0	0
22	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	Orient	RLNG	37	31	9	6	6	21	22	32	59	56	0	0	0	0	0	0	0
24	Rousch	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	Saif	RLNG	30	26	6	0	6	6	6	21	33	39	0	0	0	0	0	0	0
26	Saphire	RLNG	31	29	6	2	6	6	22	27	59	65	0	0	0	0	0	0	0
27	Trimmu	RLNG	461	411	518	594	639	704	729	799	895	889	875	857	407	402	513	587	679
28	Davis	RLNG	1	1	0	0	0	0	0	1	1	1	2	2	0	0	0	0	0
29	NEW OCGT (Generic)	RLNG	92	53	4	0	4	21	39	53	136	249	395	429	7	24	127	162	282
30	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Engro	Gas	86	81	93	117	83	0	0	0	0	0	0	0	0	0	0	0	0
32	Foundation	Gas	70	69	86	102	102	89	0	0	0	0	0	0	0	0	0	0	0
33	Guddu-I	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-II	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-V (747)	Gas	373	308	417	520	524	539	545	515	511	492	494	467	252	210	18	0	0
36	Hatim	Gas	37	25	29	28	27	28	27	27	26	25	24	23	9	8	14	11	11
37	HCPC	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	Kotri	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Liberty	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Uch	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch-II	Gas	169	143	198	236	235	218	223	246	159	0	0	0	0	0	0	0	0
43	C-1	Nuclear	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,078	2,078
44	C-2	Nuclear	2,077	2,082	2,077	2,077	2,077	2,082	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,078	2,078
45	C-3	Nuclear	2,175	2,180	2,182	2,180	2,181	2,187	2,182	2,182	2,182	2,187	2,182	2,183	2,182	2,187	2,182	2,182	2,183
46	C-4	Nuclear	2,179	2,184	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,182	2,182
47	C-5	Nuclear	7,241	7,262	7,253	7,253	7,253	7,260	7,249	7,250	7,250	7,264	7,251	7,248	7,252	7,268	7,255	7,258	7,262
48	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	K-2	Nuclear	7,237	7,262	7,256	7,255	7,252	7,265	7,250	7,250	7,249	7,263	7,250	7,250	7,251	7,269	7,255	7,259	7,261
50	K-3	Nuclear	7,244	7,262	7,255	7,249	7,247	7,265	7,250	7,249	7,250	7,263	7,248	7,250	7,250	7,268	7,257	7,260	7,260
51	Alliance	Bagasse	135	135	137	139	140	143	142	143	143	144	143	143	143	144	142	142	142
52	Almoiz	Bagasse	162	163	164	167	168	171	171	172	172	172	172	172	172	172	172	171	171
53	Bahawalpur	Bagasse	140	141	142	145	146	149	148	149	149	149	149	149	149	149	148	148	148
54	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
55	Chanar	Bagasse	99	100	100	102	103	105	104	105	105	105	105	105	105	105	105	104	104
56	Chiniot	Bagasse	182	183	185	189	190	195	195	196	196	197	196	196	196	197	196	195	195

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Etihad	Bagasse	335	337	340	344	348	354	353	355	355	356	355	355	355	356	353	353	353
58	Faran	Bagasse	119	119	121	123	124	126	126	126	126	127	126	126	126	127	126	126	126
59	Ghotki	Bagasse	202	202	206	209	210	214	214	215	215	215	215	215	215	215	214	214	214
60	Hamza	Bagasse	58	58	59	60	60	62	61	62	62	62	62	62	62	62	62	61	61
61	Hamza-II	Bagasse	135	134	137	139	140	143	142	143	143	144	143	143	143	144	142	142	142
62	HSM	Bagasse	119	119	121	123	124	126	126	126	126	127	126	126	126	127	126	126	126
63	Hunza	Bagasse	223	224	227	231	233	237	236	238	238	238	238	238	238	238	238	236	236
64	Indus	Bagasse	139	140	142	144	145	148	147	148	148	148	148	148	148	148	148	147	147
65	Ittefaq	Bagasse	140	141	143	145	146	149	148	149	149	149	149	149	149	149	149	148	148
66	JDW-II	Bagasse	185	186	187	190	191	193	192	193	193	194	193	193	193	194	193	192	192
67	JDW-III	Bagasse	173	174	176	177	178	180	179	180	180	180	180	180	180	180	180	179	179
68	Kashmir	Bagasse	179	179	182	186	187	190	190	191	191	191	191	191	191	191	190	190	190
69	Mehran	Bagasse	119	119	121	123	124	126	126	126	126	127	126	126	126	127	126	126	126
70	RYK_Energy	Bagasse	112	112	114	116	117	119	119	119	119	120	119	119	119	120	119	119	119
71	Ryk_Mills	Bagasse	135	136	137	139	140	143	142	143	143	144	143	143	143	144	143	142	142
72	Sadiqabad	Bagasse	203	202	205	208	210	214	214	215	215	215	215	215	215	215	214	214	214
73	Shahtaj	Bagasse	144	143	146	148	149	152	152	153	153	153	153	153	153	153	152	152	152
74	Sheikhoo	Bagasse	135	135	137	139	140	143	142	143	143	144	143	143	143	144	142	142	142
75	TAY	Bagasse	135	134	137	139	140	143	142	143	143	144	143	143	143	144	143	142	142

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	Thal_Layyah	Bagasse	100	101	102	106	106	108	108	109	109	109	109	109	109	109	109	108	108
77	Two_Star	Bagasse	223	222	227	231	233	237	236	238	238	238	238	238	238	238	236	236	236
78	Access_Electric	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
79	Access_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
81	Best	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
82	Buksh	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Candidate_Solar	Solar	19,859	22,248	24,824	24,824	24,824	25,087	26,096	27,164	29,509	29,747	32,229	34,711	34,711	34,711	35,440	37,922	38,051
84	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
85	Helios	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
86	HNDS	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
87	Meridian	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
88	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
89	Safe	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
90	Zhenfa	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
91	Zorlu	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
92	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
93	Allai Khwar	Hydro	395	396	395	395	395	396	395	395	395	396	395	395	395	396	395	395	395
94	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	265	265

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	291
96	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200
97	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,223
98	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	916	917	917	917	917	918
99	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,963
100	Azad Pattan	Hydro	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253
101	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	984
102	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	508
103	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
104	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	142	142
105	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152	152
106	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	349	350	349	348	350	350	350
107	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119	119	119
108	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	48
109	Blue Star	Hydro	0	0	0	0	0	0	0	0	0	0	17	17	17	17	17	17	17
110	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
111	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	25,868	25,881	25,870	25,818	25,770
112	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,420	2,420	2,420
113	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	65

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chashma	Hydro	765	767	765	765	765	767	765	765	765	767	765	765	765	767	765	765	765
115	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
116	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
117	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252
118	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	178
119	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72	72
120	Dander	Hydro	197	219	219	223	224	226	218	222	228	227	224	225	230	231	235	236	240
121	Daral Khwar	Hydro	132	143	139	139	141	141	141	141	142	141	141	141	143	145	145	147	147
122	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
123	Dasu_1	Hydro	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975
124	Dasu_2	Hydro	0	11,519	11,555	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153
125	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	74
126	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,732	4,738	4,742
127	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	17,560	17,534	17,547	17,542
128	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	158	158	158	159	159	159	160
129	Dubair Kalay	Hydro	336	362	366	367	366	370	367	367	368	373	374	368	372	369	370	372	377
130	Dubair Khwar	Hydro	562	572	572	569	566	570	570	574	575	576	576	575	576	575	575	576	577
131	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
132	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	313	316

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	310	311
134	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,635
135	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	509
136	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
137	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
138	Ghazi Brotha	Hydro	6,478	6,526	6,509	6,468	6,513	6,518	6,528	6,533	6,527	6,541	6,540	6,519	6,529	6,541	6,515	6,546	6,533
139	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	120
140	Golen Gol	Hydro	96	97	96	96	96	96	97	97	96	97	97	97	97	97	97	97	97
141	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	211
142	Gorkin Matiltan	Hydro	299	304	312	313	305	310	311	310	314	314	311	315	316	319	315	320	320
143	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
144	Gulpur	Hydro	480	481	480	480	480	481	480	480	480	481	480	480	480	481	480	480	480
145	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	79	79
146	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	212	212	213	213	213	213
147	Harpo	Hydro	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169
148	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260
149	Jabori	Hydro	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
150	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
151	Jagran-I	Hydro	77	81	80	80	80	80	81	80	80	80	80	80	81	81	81	82	82

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	138	138	138
153	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	91	91
154	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,630
155	Jhing	Hydro	63	65	66	65	66	66	66	66	66	66	66	66	67	67	67	67	68
156	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
157	Jinnah	Hydro	191	194	194	194	194	194	194	194	194	194	194	194	194	195	194	194	194
158	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	848	847	849	850
159	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	166
160	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,964
161	Karora	Hydro	62	64	63	63	63	63	63	63	64	64	63	63	64	64	64	64	64
162	Karot	Hydro	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737
163	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
164	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	39	39	39	39	39	40
165	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
166	Keyal Khwar	Hydro	345	350	348	347	348	348	349	350	350	351	349	349	350	352	352	353	353
167	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	261
168	Khan Khwar	Hydro	234	235	234	234	234	235	234	234	234	235	234	234	234	235	234	234	234
169	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
170	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
172	Kohala	Hydro	6,022	6,107	6,111	6,087	6,091	6,119	6,097	6,105	6,114	6,135	6,115	6,127	6,142	6,169	6,173	6,203	6,204
173	Koto	Hydro	200	204	207	205	205	205	207	207	208	208	208	208	209	210	210	210	211
174	Lawi	Hydro	290	291	291	291	291	291	291	291	291	292	292	292	292	292	292	292	293
175	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	2,518	2,512	2,514	2,515	2,516	2,516	2,521
176	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	313
177	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200
178	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78
179	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	788
180	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
181	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
182	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	663	664	664
183	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
184	Mahl	Hydro	3,302	3,402	3,393	3,480	3,484	3,488	3,486	3,478	3,481	3,488	3,487	3,491	3,490	3,527	3,528	3,546	3,545
185	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	183	183
186	Malakand-III	Hydro	362	362	364	362	366	367	366	367	367	367	367	367	367	367	367	367	367
187	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
188	Mangla	Hydro	4,911	4,982	4,989	4,930	4,985	5,004	4,996	4,996	4,994	5,004	4,995	4,994	5,004	5,016	5,004	5,004	5,004
189	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	224	226

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
191	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84
192	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,709	1,711
193	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
194	Mohmand	Hydro	2,750	2,784	2,807	2,796	2,805	2,809	2,813	2,808	2,812	2,834	2,809	2,837	2,815	2,824	2,822	2,817	2,838
195	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285	286
196	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
197	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	133	134
198	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
199	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55
200	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	672	676	676
201	Neelum Jehlum	Hydro	4,699	4,784	4,817	4,828	4,813	4,867	4,856	4,865	4,863	4,866	4,866	4,868	4,882	4,901	4,903	4,908	4,919
202	Nerai-Dubair	Hydro	202	228	233	238	238	238	239	238	239	238	238	240	242	248	248	253	256
203	New Bong	Hydro	470	471	470	470	470	471	470	470	470	471	470	470	470	471	470	470	470
204	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	136	136
205	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13	13
206	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	245	248	252	253	258	263
207	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	12,335	12,361	12,334	12,338	12,342
208	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrind	Hydro	632	634	634	633	633	634	634	634	634	634	634	634	634	635	634	634	634
210	Pehur	Hydro	36	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
211	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	318	319	319	320	320	321
212	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
213	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
214	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
215	Rajdhani	Hydro	668	670	667	669	670	671	670	670	670	671	670	670	670	671	670	670	670
216	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
217	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59
218	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
219	Riali-II	Hydro	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
220	Riali-III	Hydro	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
221	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
222	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41	41
223	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	34	34	34	34	34	34
224	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
225	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	22	22
226	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	307
227	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	282	283

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	658	663
229	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	451	452
230	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	533	533
231	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	206	207
232	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	470
233	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,725	3,725
234	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
235	Smal Hydel	Hydro	379	382	381	380	380	382	381	381	381	382	381	382	382	384	383	383	384
236	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
237	Suki Kinari	Hydro	2,764	2,775	2,776	2,773	2,767	2,775	2,775	2,773	2,777	2,778	2,776	2,780	2,777	2,780	2,781	2,776	2,784
238	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	97	95
239	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8,812	8,813	8,816
240	Tarbela_1-10	Hydro	7,248	7,210	7,288	7,343	7,309	7,308	7,317	7,299	7,339	7,357	7,321	7,342	7,328	7,351	7,377	7,377	7,377
241	Tarbela_11-14	Hydro	7,139	7,149	7,115	7,090	7,184	7,258	7,235	7,265	7,232	7,262	7,247	7,237	7,239	7,245	7,260	7,261	7,285
242	Tarbela_Ext_4	Hydro	3,774	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811
243	Tarbela_Ext_5	Hydro	3,813	3,813	3,874	3,906	3,928	3,978	3,979	3,978	3,980	3,984	3,988	3,984	3,987	3,982	3,987	3,983	3,992
244	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	442
245	Thakot-I	Hydro	9,805	10,025	10,002	10,096	10,076	10,104	10,097	10,098	10,097	10,117	10,110	10,107	10,109	10,140	10,130	10,135	10,138
246	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	4,662	4,660	4,664	4,676	4,673	4,674	4,674

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-III	Hydro	6,944	7,024	7,076	7,216	7,208	7,233	7,222	7,222	7,221	7,235	7,223	7,223	7,226	7,240	7,227	7,228	7,228
248	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	306	306	306	306	306	306
249	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
250	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	154	154
251	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
252	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27
253	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	356
254	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13
255	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	507
256	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
257	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252	252
258	Warsak	Hydro	997	999	997	997	997	999	997	997	997	999	997	997	997	999	997	997	997
259	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	350	350
260	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11,244	11,249
261	CASA	Cross Border	2,034	2,452	2,264	2,012	2,191	2,189	2,264	2,332	2,307	2,327	2,381	2,396	2,455	2,587	2,628	2,746	2,918
262	Act	Wind	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
263	Act_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
264	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156
265	Artistic_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Candidate_Wind_Mid	Wind	1,972	1,975	1,972	1,972	1,972	1,975	1,972	1,972	1,972	1,975	1,972	1,972	1,972	1,975	1,972	1,972	1,972
267	Candidate_Wind_North	Wind	1,143	1,165	1,163	1,163	1,163	1,165	1,163	1,163	1,163	1,165	1,163	1,163	1,163	1,165	1,163	1,163	1,163
268	Candidate_Wind_South	Wind	20,404	20,348	20,377	20,357	20,410	20,465	20,437	20,437	20,437	20,465	20,437	20,437	20,437	20,465	20,437	20,437	20,437
269	Dawood	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
270	Din	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
271	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149
272	FWEL-I	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
273	FWEL-II	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
274	Gul Ahmed	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
275	Gul_Electric	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
276	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
277	Indus_Energy	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
278	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
279	Lakeside	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
280	Liberty_Wind_1	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
281	Liberty_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
282	Master	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
283	Master_Green	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
284	Metro_Power	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Wind	Wind	206	207	206	206	206	207	206	206	206	207	206	206	206	207	206	206	206
286	NASDA	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
287	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
288	Sapphire_Wind	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
289	Shaheen	Wind	175	176	175	175	175	176	175	175	175	176	175	175	175	176	175	175	175
290	Tenga	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
291	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_II	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
293	Three_Gorges_III	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
294	Trans_Atlantic	Wind	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166
295	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
296	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
298	Tricorm	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
299	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288
300	Western	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
301	Yunus	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
302	Zephyr	Wind	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158
303	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	KAPCO 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
305	KAPCO 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Lalpir	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Saba	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	AGL	RFO	63	58	67	56	0	0	0	0	0	0	0	0	0	0	0	0	0
322	ATLAS	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	HuB N	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	Kohinoor	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Liberty Tech	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Nishat C	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat P	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			236,444	250,372	264,662	280,559	297,817	316,988	336,188	357,484	380,334	405,683	414,093	437,632	461,648	484,969	505,931	526,302	545,775
Energy Demand			236,444	250,372	264,662	280,559	297,817	316,988	336,188	357,484	380,334	405,683	414,093	437,632	461,648	484,969	505,931	526,302	545,775
Energy Not Served			0.01	0.00	0.02	0.01	0.01	0.00	0.02	0.01	-0.04	0.00	-0.04	0.01	0.05	0.00	0.01	0.02	-0.02

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

M-8. Year wise Cost Breakup-Discounted Prices

FY	Present Worth Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	3,540,273	4,496,995	4,496,995
2021	0	913,435	3,159,050	4,072,485	8,569,480
2022	0	909,992	2,501,104	3,411,096	11,980,575
2023	215,029	890,290	1,979,046	3,084,365	15,064,940
2024	342,831	847,836	1,770,841	2,961,507	18,026,447
2025	422,073	796,814	1,553,259	2,772,146	20,798,593
2026	463,678	766,629	1,264,657	2,494,964	23,293,557
2027	455,912	700,661	1,256,644	2,413,217	25,706,774
2028	503,859	653,025	1,108,828	2,265,713	27,972,486
2029	645,866	608,956	986,065	2,240,887	30,213,373
2030	779,496	564,144	907,121	2,250,760	32,464,134
2031	816,338	491,871	822,935	2,131,144	34,595,278
2032	833,108	451,815	730,222	2,015,144	36,610,422
2033	891,286	425,639	504,178	1,821,103	38,431,525
2034	917,345	402,446	413,686	1,733,477	40,165,002
2035	916,173	379,363	421,197	1,716,734	41,881,736
2036	915,197	357,714	434,101	1,707,012	43,588,748
2037	906,438	336,033	443,570	1,686,040	45,274,789
2038	896,204	318,445	445,207	1,659,856	46,934,644
2039	886,407	302,556	451,211	1,640,173	48,574,818
2040	876,343	287,767	447,905	1,612,015	50,186,833
2041	830,266	261,033	400,093	1,491,393	51,678,225
2042	818,959	246,885	385,277	1,451,122	53,129,347
2043	892,890	241,592	307,357	1,441,840	54,571,186
2044	897,222	218,344	283,510	1,399,076	55,970,262
2045	875,367	200,583	262,149	1,338,100	57,308,362
2046	866,819	198,383	233,183	1,298,384	58,606,746
2047	862,043	188,218	216,308	1,266,569	59,873,315

M-9. Year wise Cost Breakup-Un-Discounted Prices (k$)

FY	Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	3,540,273	4,496,995	4,496,995
2021	0	1,014,928	3,510,055	4,524,983	9,021,978
2022	0	1,123,447	3,087,782	4,211,229	13,233,207
2023	294,964	1,221,248	2,714,741	4,230,953	17,464,160
2024	522,528	1,292,235	2,699,041	4,513,805	21,977,965
2025	714,784	1,349,411	2,630,458	4,694,653	26,672,618
2026	872,492	1,442,549	2,379,675	4,694,715	31,367,333
2027	953,198	1,464,907	2,627,331	5,045,436	36,412,770
2028	1,170,494	1,517,014	2,575,872	5,263,380	41,676,150
2029	1,667,092	1,571,823	2,545,205	5,784,121	47,460,270
2030	2,235,572	1,617,949	2,601,596	6,455,118	53,915,388
2031	2,601,373	1,567,414	2,622,393	6,791,179	60,706,568
2032	2,949,789	1,599,743	2,585,501	7,135,034	67,841,601
2033	3,506,424	1,674,513	1,983,498	7,164,435	75,006,036
2034	4,009,936	1,759,188	1,808,323	7,577,447	82,583,483
2035	4,449,795	1,842,544	2,045,728	8,338,068	90,921,551
2036	4,938,950	1,930,438	2,342,665	9,212,053	100,133,605
2037	5,435,197	2,014,928	2,659,739	10,109,863	110,243,468
2038	5,970,927	2,121,625	2,966,176	11,058,729	121,302,197
2039	6,561,835	2,239,739	3,340,197	12,141,772	133,443,969
2040	7,208,149	2,366,957	3,684,140	13,259,246	146,703,215
2041	7,587,956	2,385,630	3,656,521	13,630,107	160,333,322
2042	8,316,240	2,507,030	3,912,356	14,735,626	175,068,947
2043	10,074,427	2,725,870	3,467,892	16,268,189	191,337,136
2044	11,248,112	2,737,297	3,554,248	17,539,657	208,876,793
2045	12,193,480	2,794,037	3,651,617	18,639,134	227,515,927
2046	13,416,004	3,070,424	3,609,035	20,095,463	247,611,390
2047	14,824,545	3,236,779	3,719,840	21,781,164	269,392,553

M-10. Year wise Nominal Capacity Addition (MW)

FY	Capacity Addition Over the Plan Period (2020-47) - MW										
	Local Coal	Hydro	RLNG	Nuclear	Imported Coal	RE	Natural Gas	Furnace Oil	Cross Border	Yearly Addition	Total (MW)
2020	602	9,945	6,677	1,230	3,736	1,846	3,010	6,488	0	33,534	-
2021	2,118	119	0	1,059	0	446	0	0	0	3,742	37,276
2022	607	720	0	1,059	917	1,410	0	-1,336	0	3,377	40,653
2023	0	968	0	0	0	3,000	-260	0	1,000	4,708	45,361
2024	0	1,410	0	0	644	2,578	-270	0	0	4,362	49,723
2025	0	3,088	0	0	0	2,354	0	0	0	5,442	55,164
2026	0	37	0	1,059	0	2,125	0	0	0	3,221	58,385
2027	0	700	0	0	0	1,558	-192	-1,200	0	866	59,251
2028	607	1,122	173	0	0	1,928	0	-824	0	3,006	62,257
2029	0	1,986	557	0	0	2,477	-106	0	0	4,914	67,172
2030	607	639	1,929	0	0	3,000	-678	-653	0	4,844	72,015
2031	0	2,154	1,347	0	0	0	0	-310	0	3,191	75,206
2032	0	2,160	1,211	0	0	1,500	-29	-367	0	4,475	79,681
2033	3,385	0	535	0	0	1,500	0	-627	0	4,793	84,474
2034	3,352	0	809	0	0	0	0	-156	0	4,005	88,480
2035	2,257	0	2,710	0	0	0	-212	-409	0	4,346	92,826
2036	2,512	0	2,869	0	0	159	-167	-606	0	4,767	97,593
2037	2,667	0	2,162	0	0	610	0	0	0	5,439	103,031
2038	2,906	0	2,267	0	0	646	0	0	0	5,818	108,850
2039	2,900	0	2,791	0	0	1,417	-355	0	0	6,753	115,603
2040	3,643	0	2,477	0	0	144	0	0	0	6,263	121,866
2041	0	1,771	170	0	0	1,500	0	0	0	3,441	125,307
2042	3,485	482	1,529	0	0	1,500	0	0	0	6,996	132,303
2043	0	9,500	0	0	0	0	0	0	0	9,500	141,803
2044	0	4,720	-10	0	0	0	0	0	0	4,710	146,513
2045	0	4,120	0	0	0	440	-721	0	0	3,839	150,352
2046	0	5,176	-450	0	0	1,500	0	0	0	6,226	156,578
2047	0	5,019	0	0	0	78	0	0	0	5,097	161,675
Total	31,648	55,836	29,754	4,407	5,297	33,714	20	0	1,000	161,675	

M-11. IGCEP Generation Mix 2020-2047 (GWh)

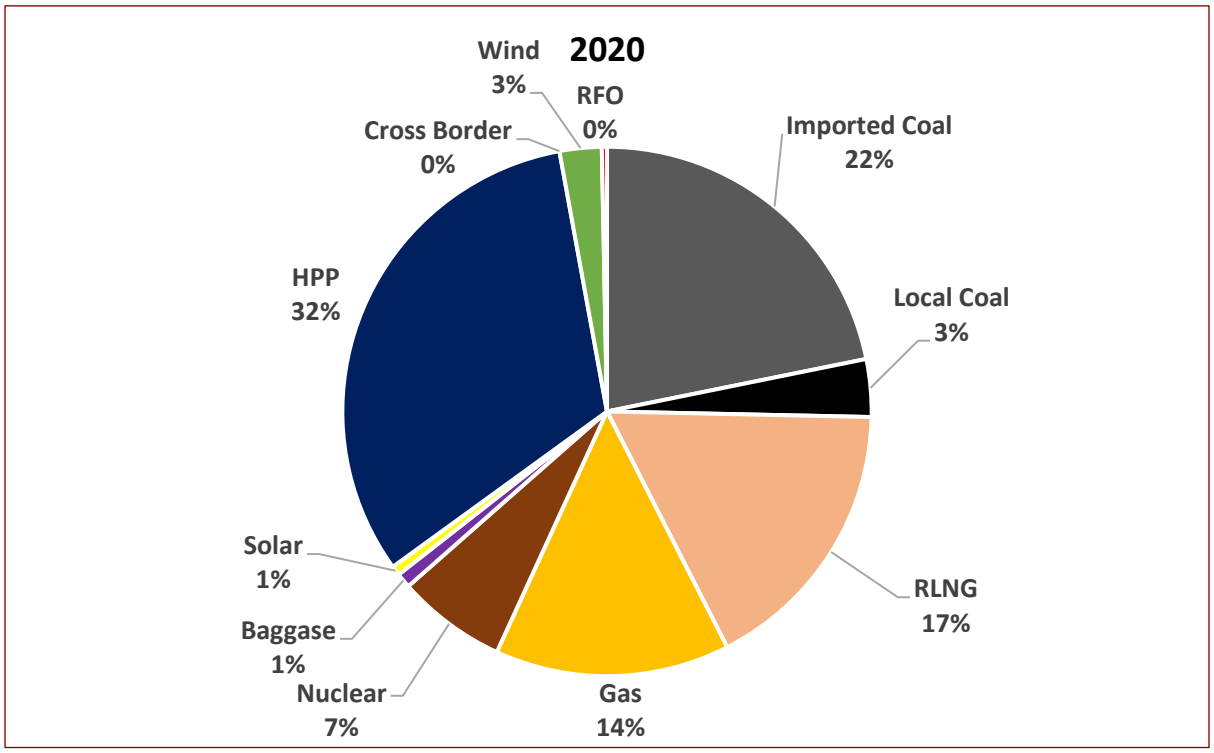


Chart M-1: IGCEP Generation Mix 2020 (GWh)

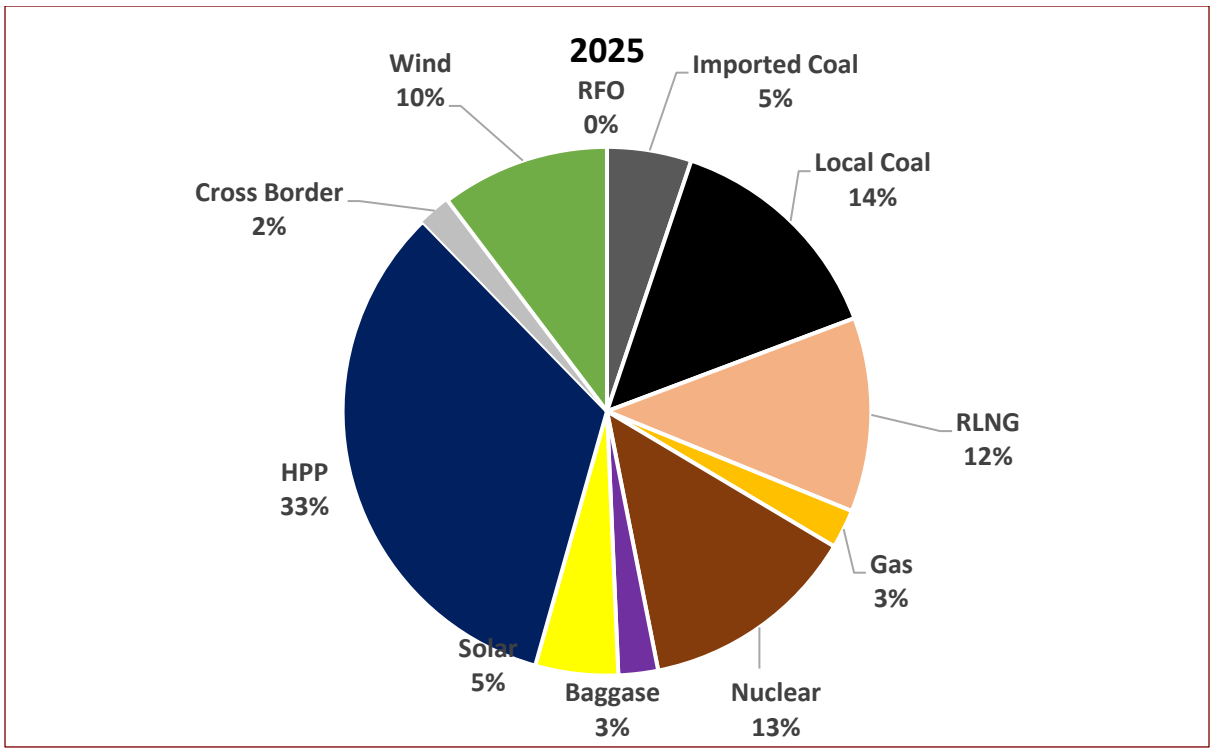


Chart M-2: IGCEP Generation Mix 2025 (GWh)

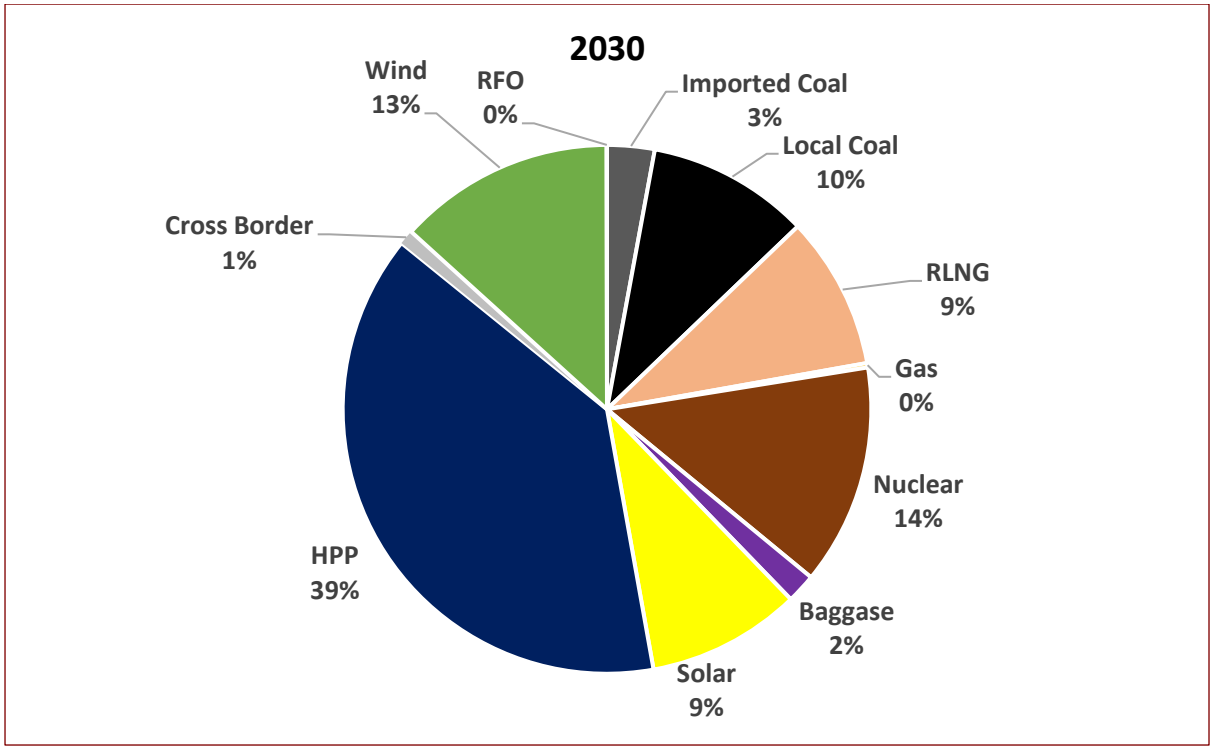


Chart M-3: IGCEP Generation Mix 2030 (GWh)

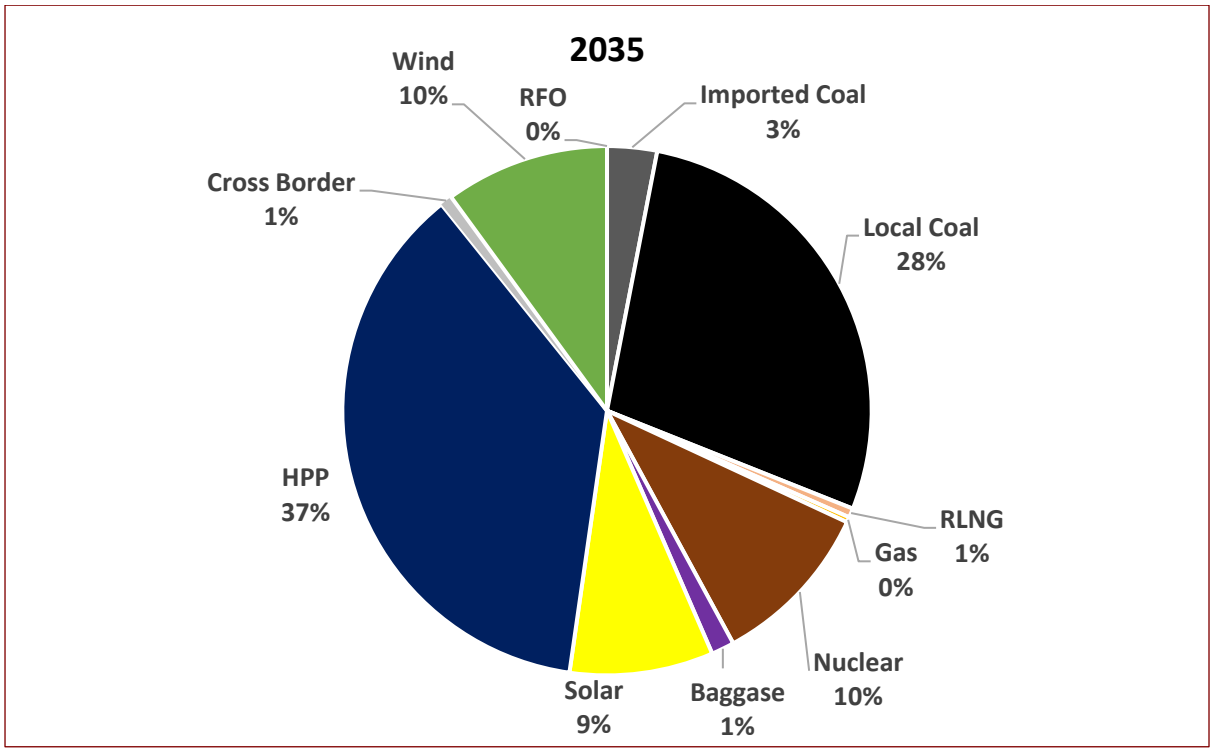


Chart M-4: IGCEP Generation Mix 2035 (GWh)

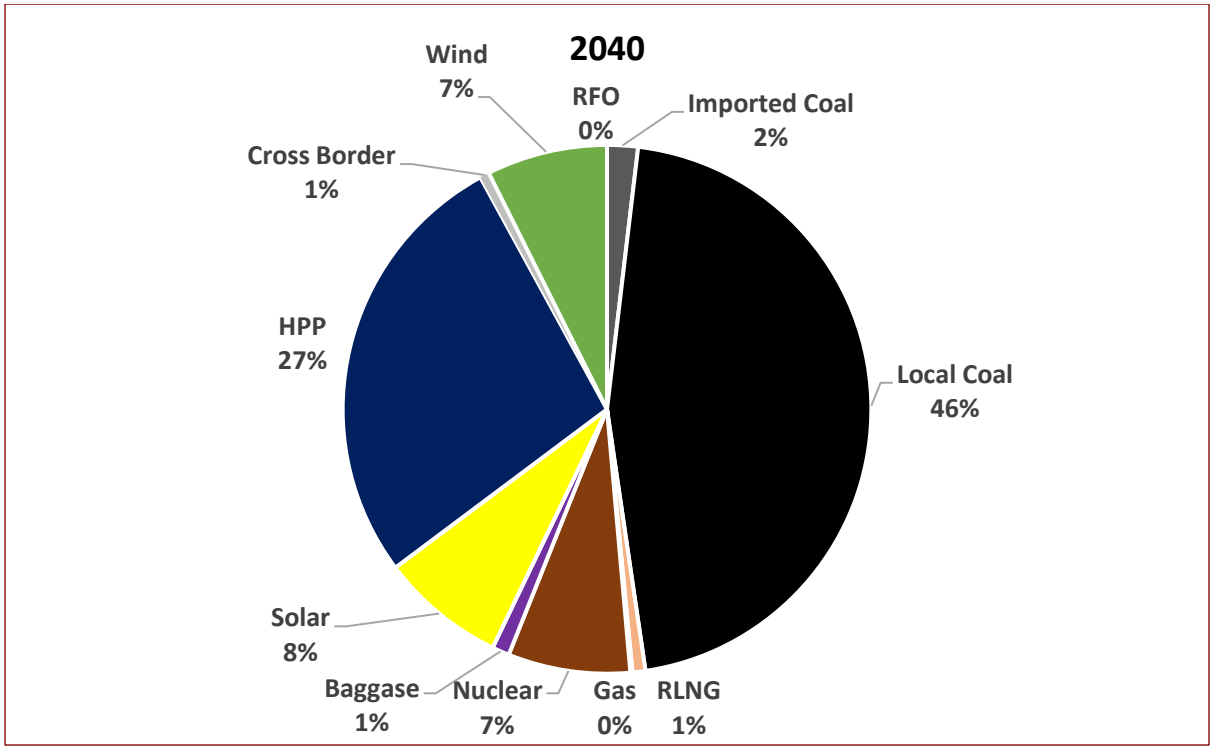


Chart M-5: IGCEP Generation Mix 2040 (GWh)

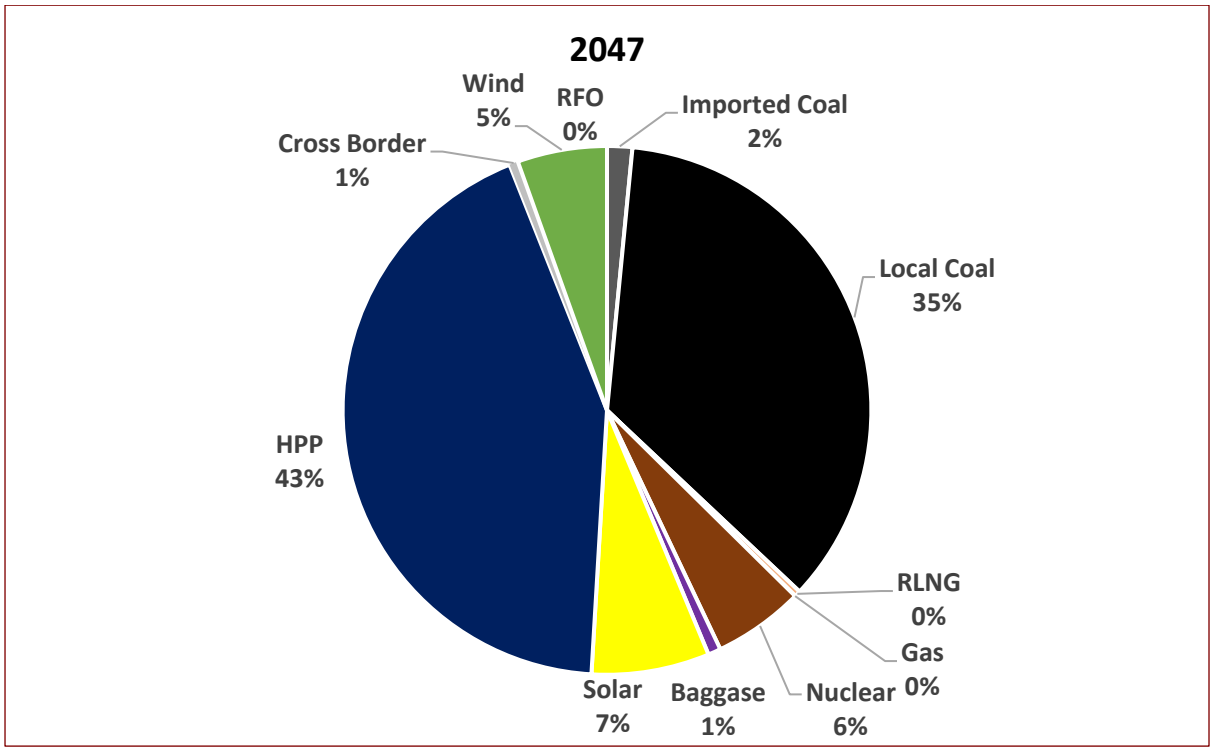


Chart M-6: IGCEP Generation Mix 2047 (GWh)

M-12. IGCEP Generation Mix 2020-47 (MW)

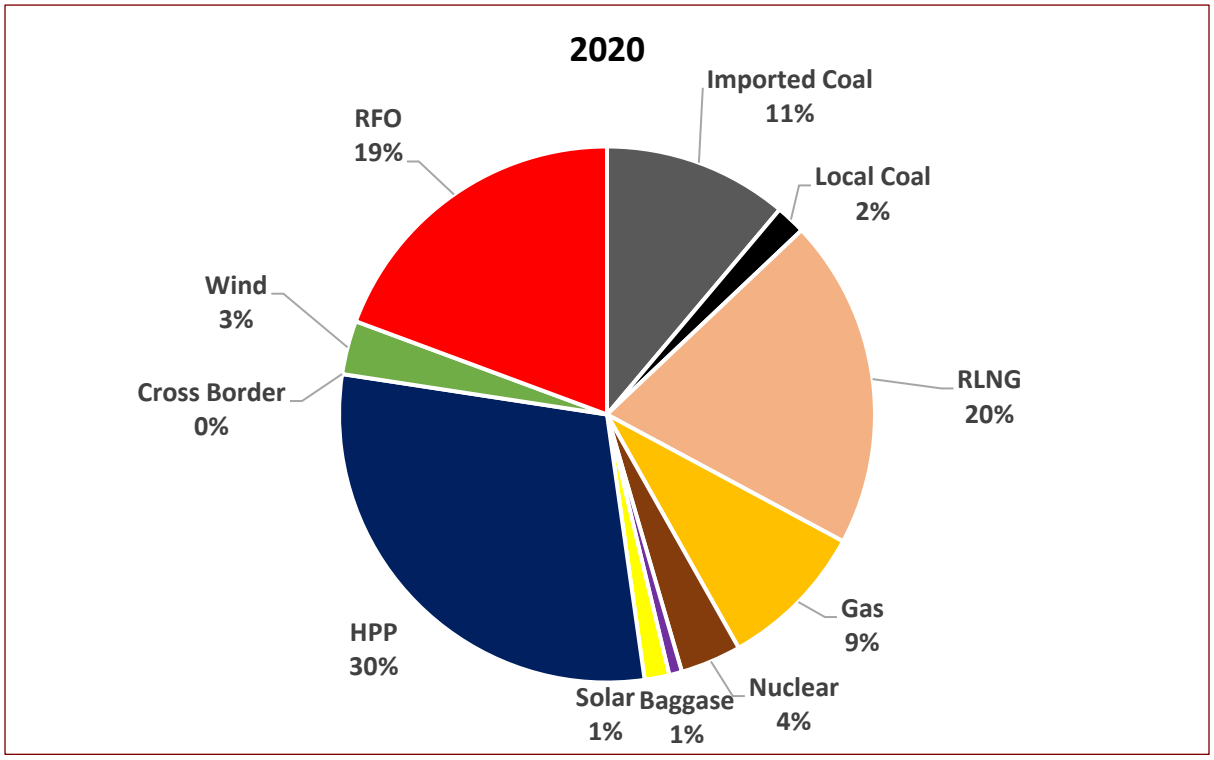


Chart M-7: IGCEP Generation Mix 2020 (MW)

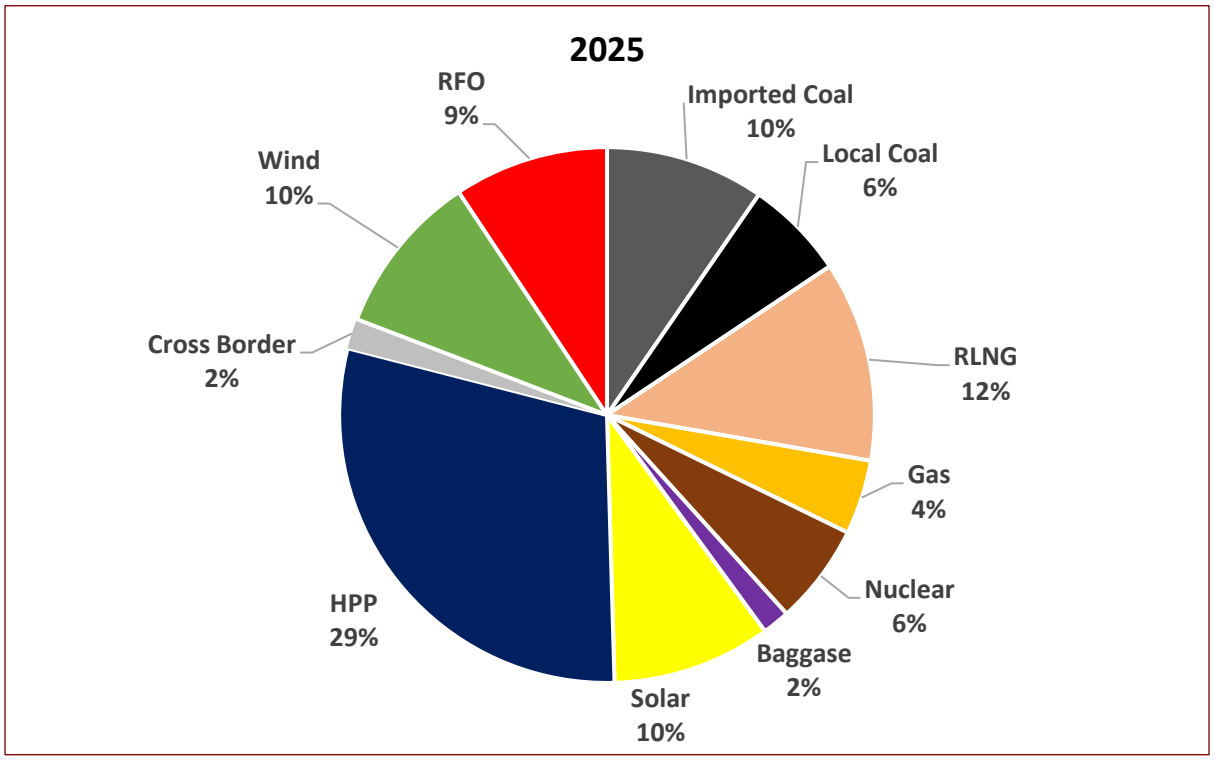


Chart M-8: IGCEP Generation Mix 2025 (MW)

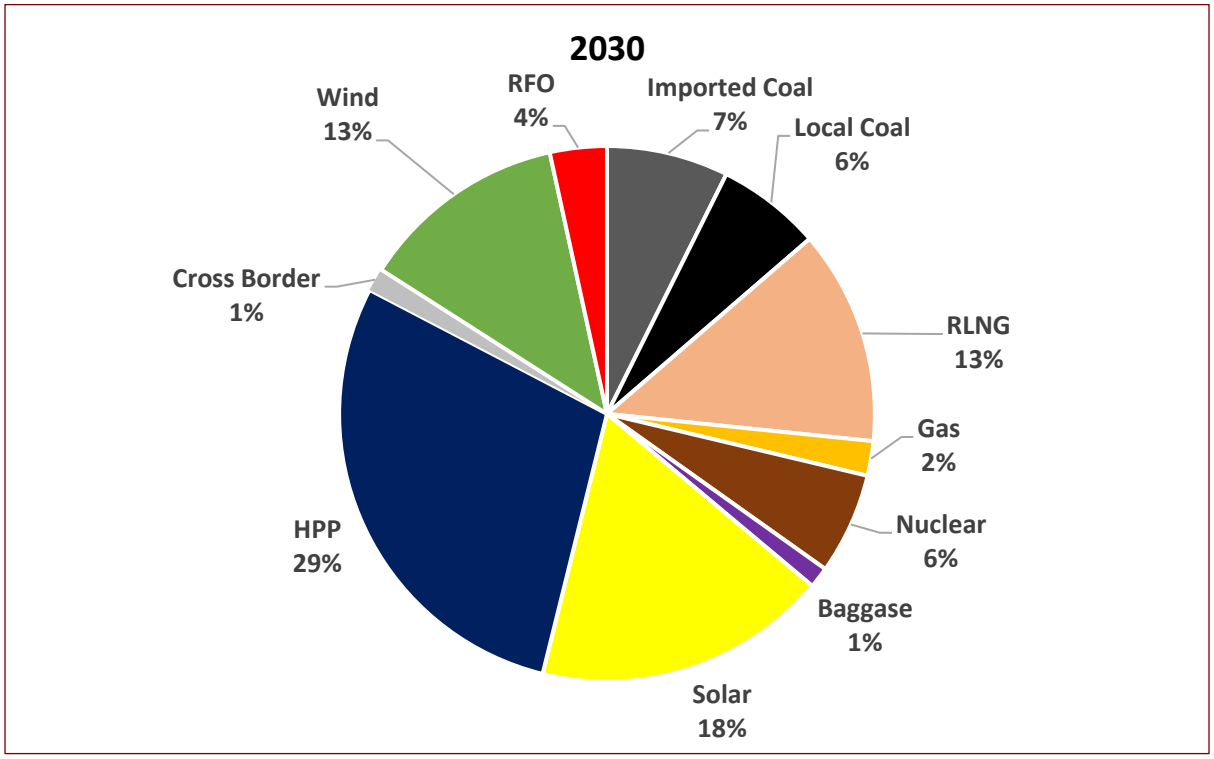


Chart M-9: IGCEP Generation Mix 2030 (MW)

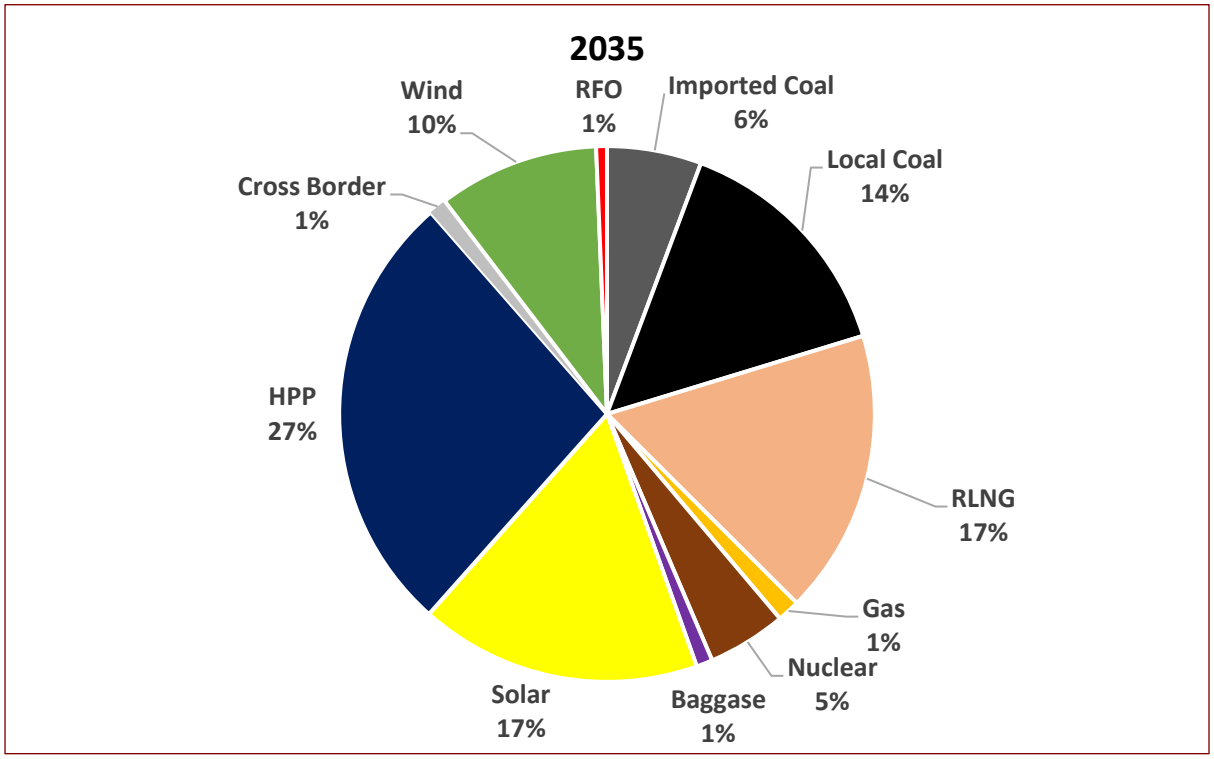


Chart M-10: IGCEP Generation Mix 2035 (MW)

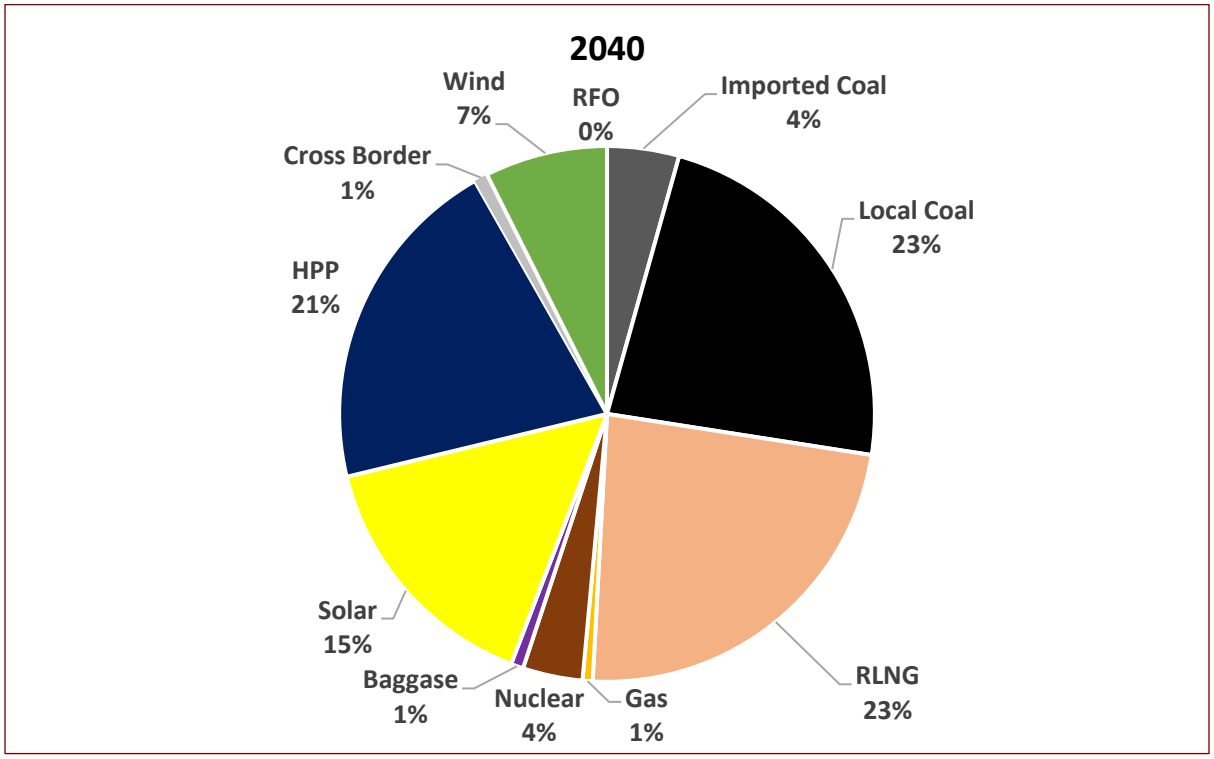


Chart M-11: IGCEP Generation Mix 2040 (MW)

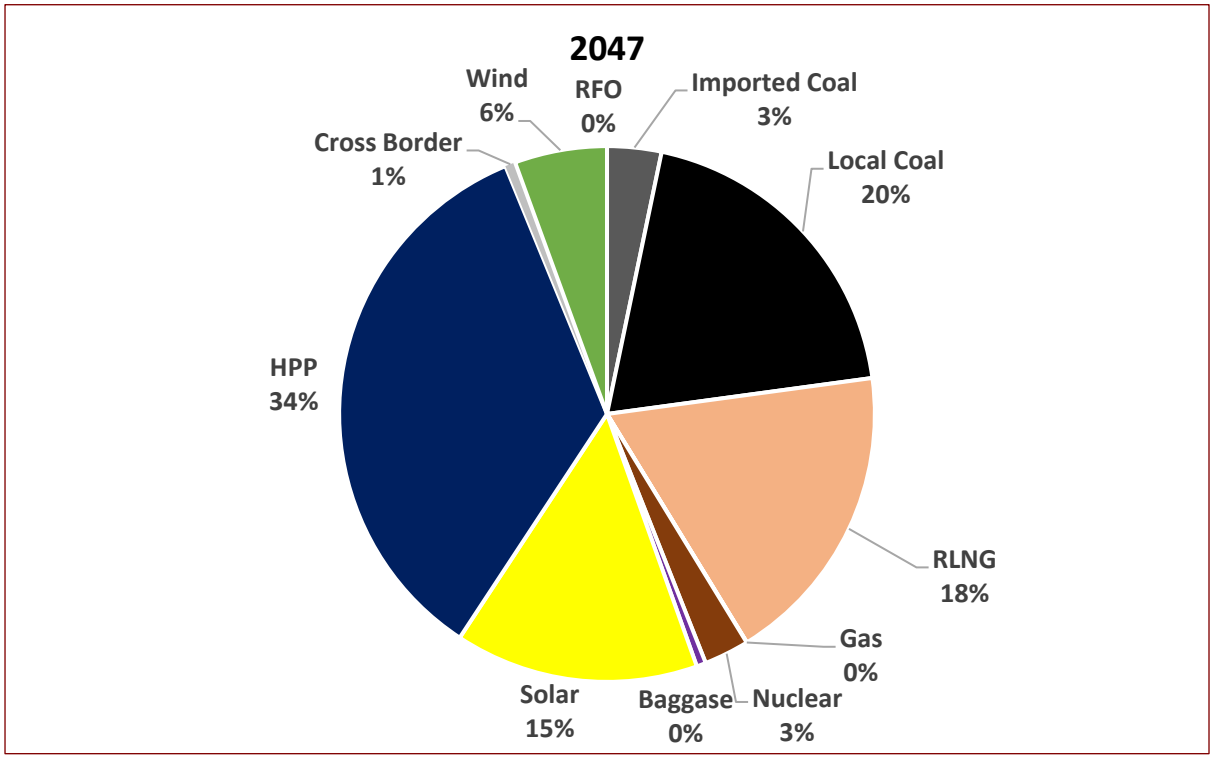


Chart M-12: IGCEP Generation Mix 2047 (MW)

M-13. IGCEP Monthly Generation Mix 2019-47 (GWh)

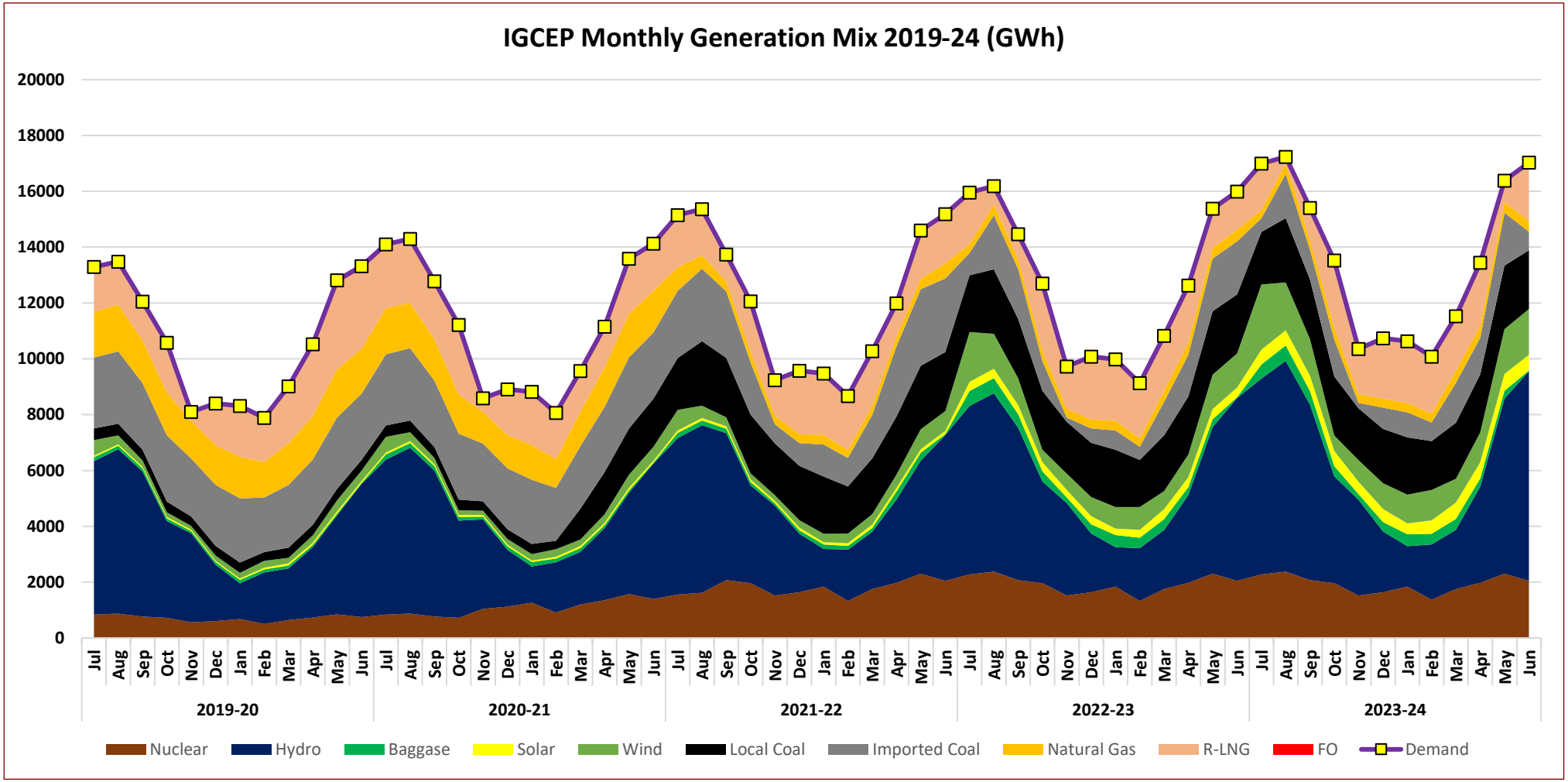


Chart M-13: IGCEP Monthly Generation Mix 2019-24 (GWh)

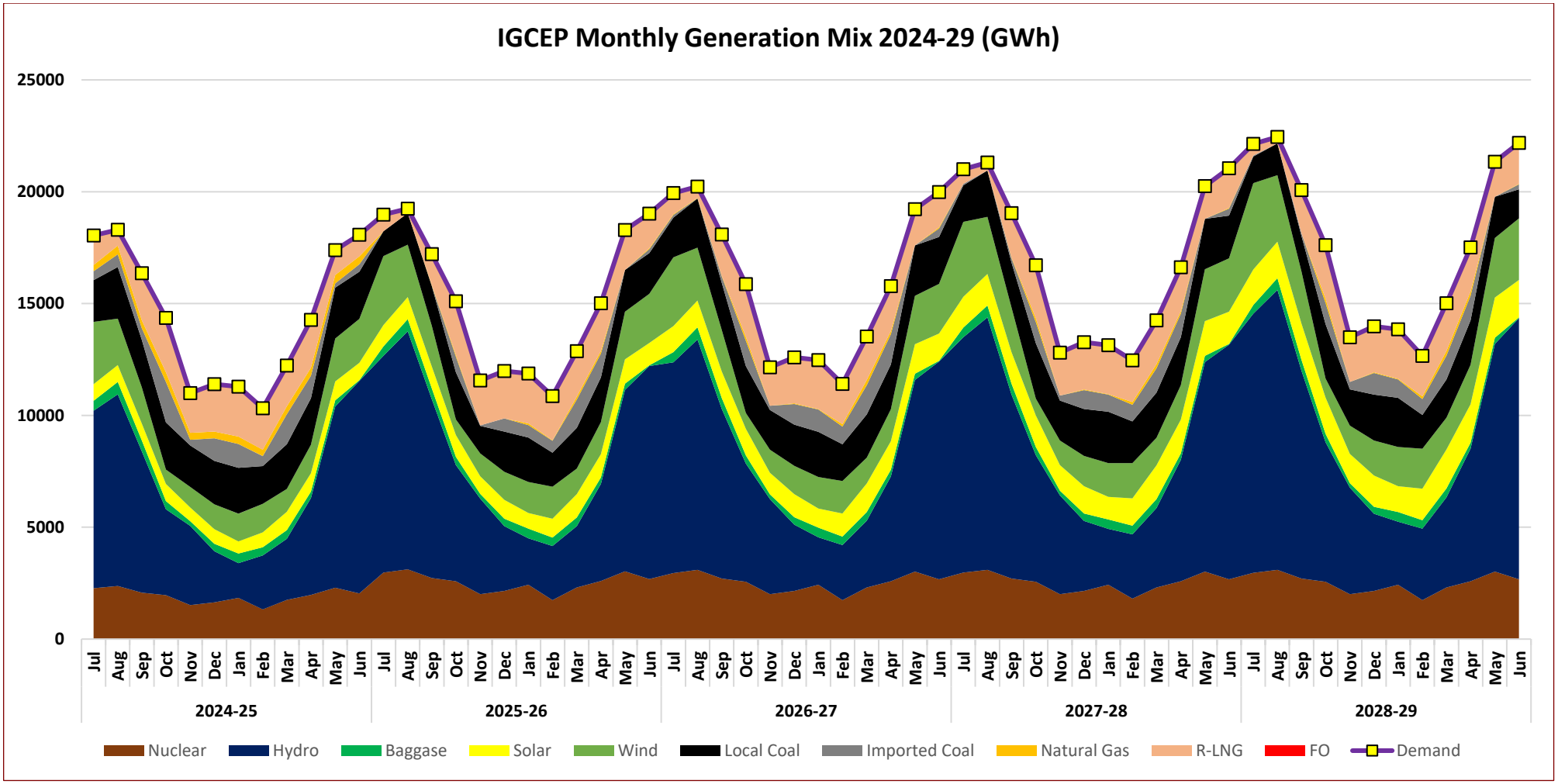


Chart M-14: IGCEP Monthly Generation Mix 2024-29 (GWh)

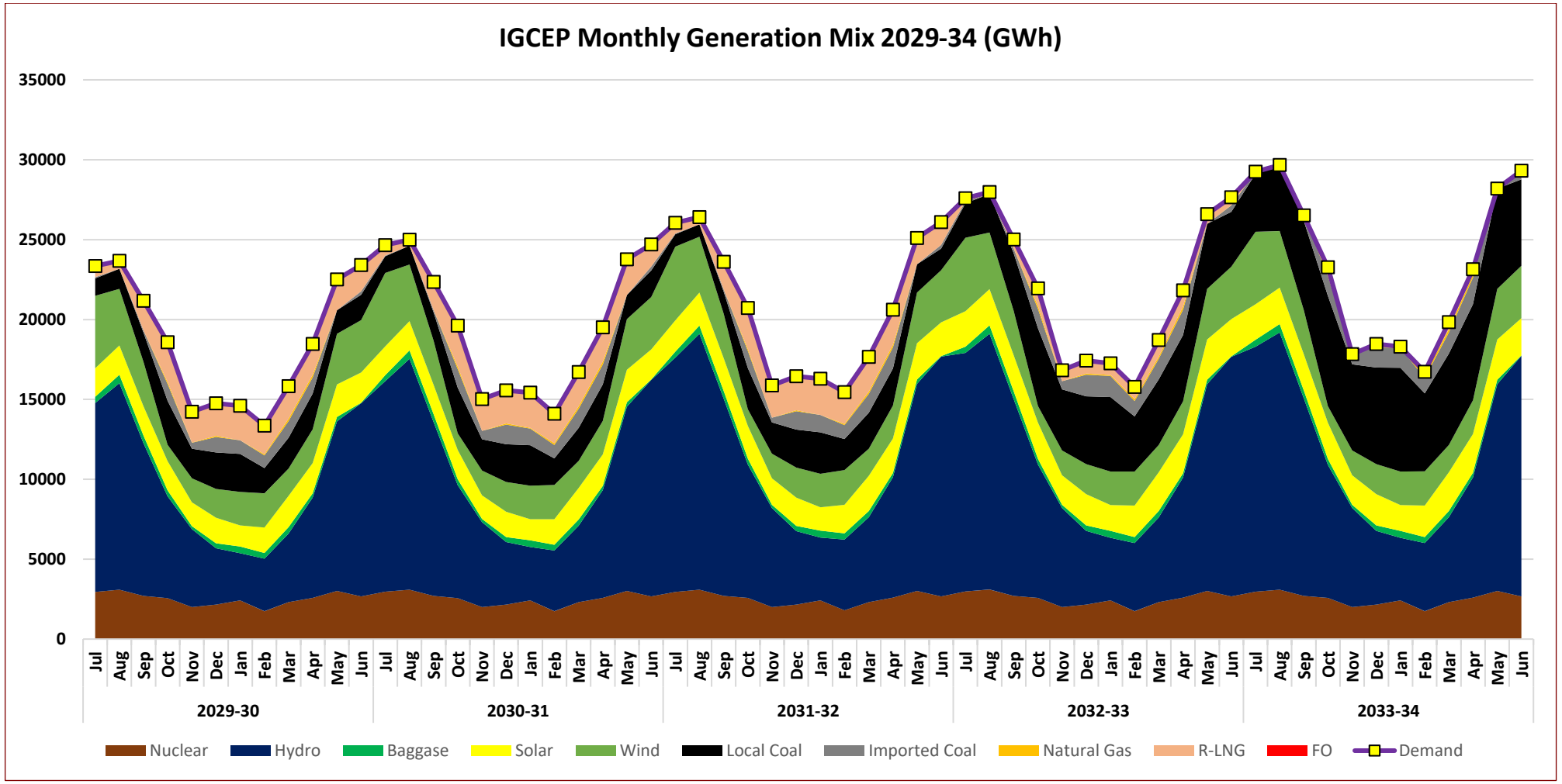


Chart M-15: IGCEP Monthly Generation Mix 2029-34 (GWh)

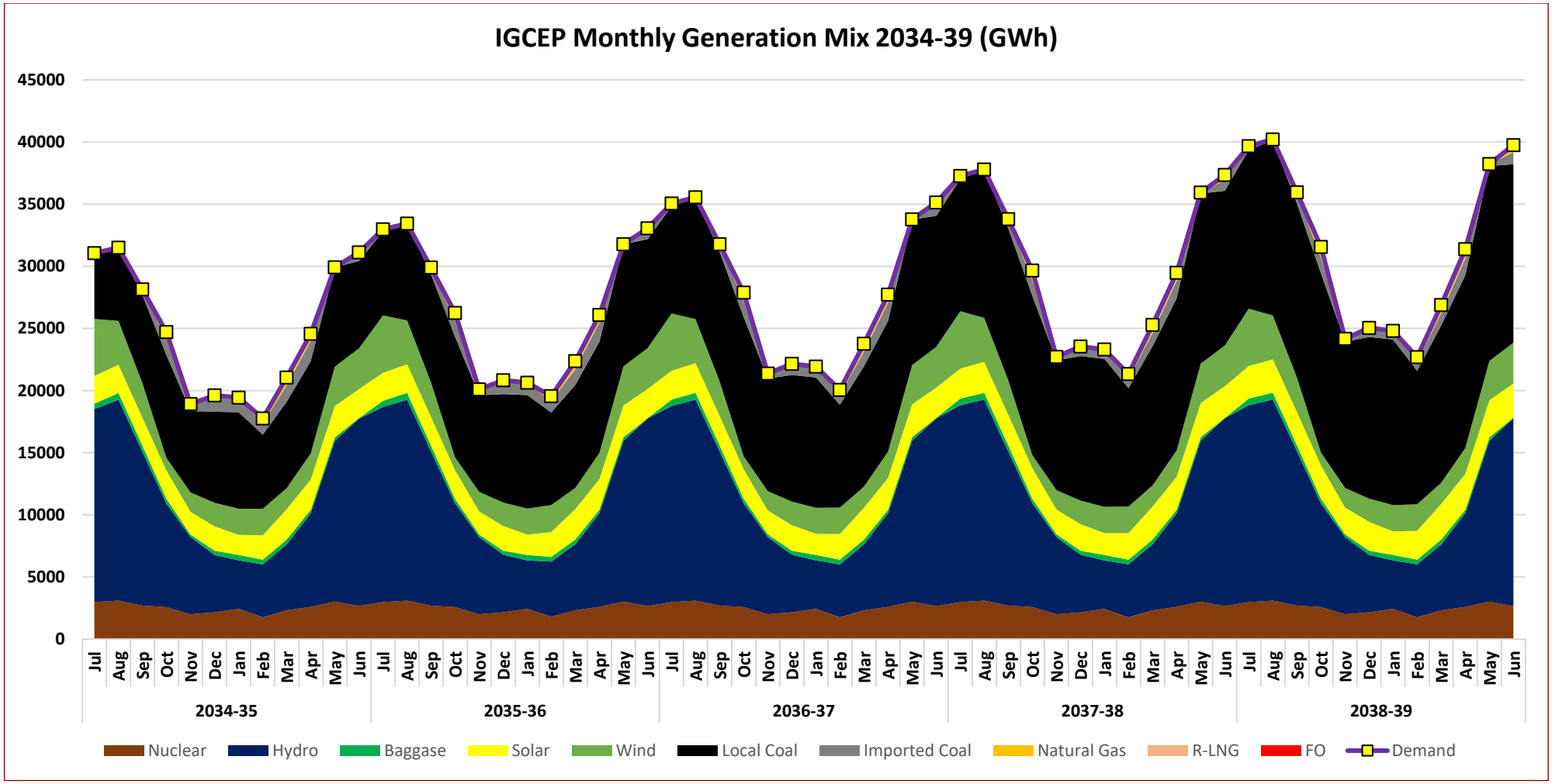


Chart M-16: IGCEP Monthly Generation Mix 2034-39 (GWh)

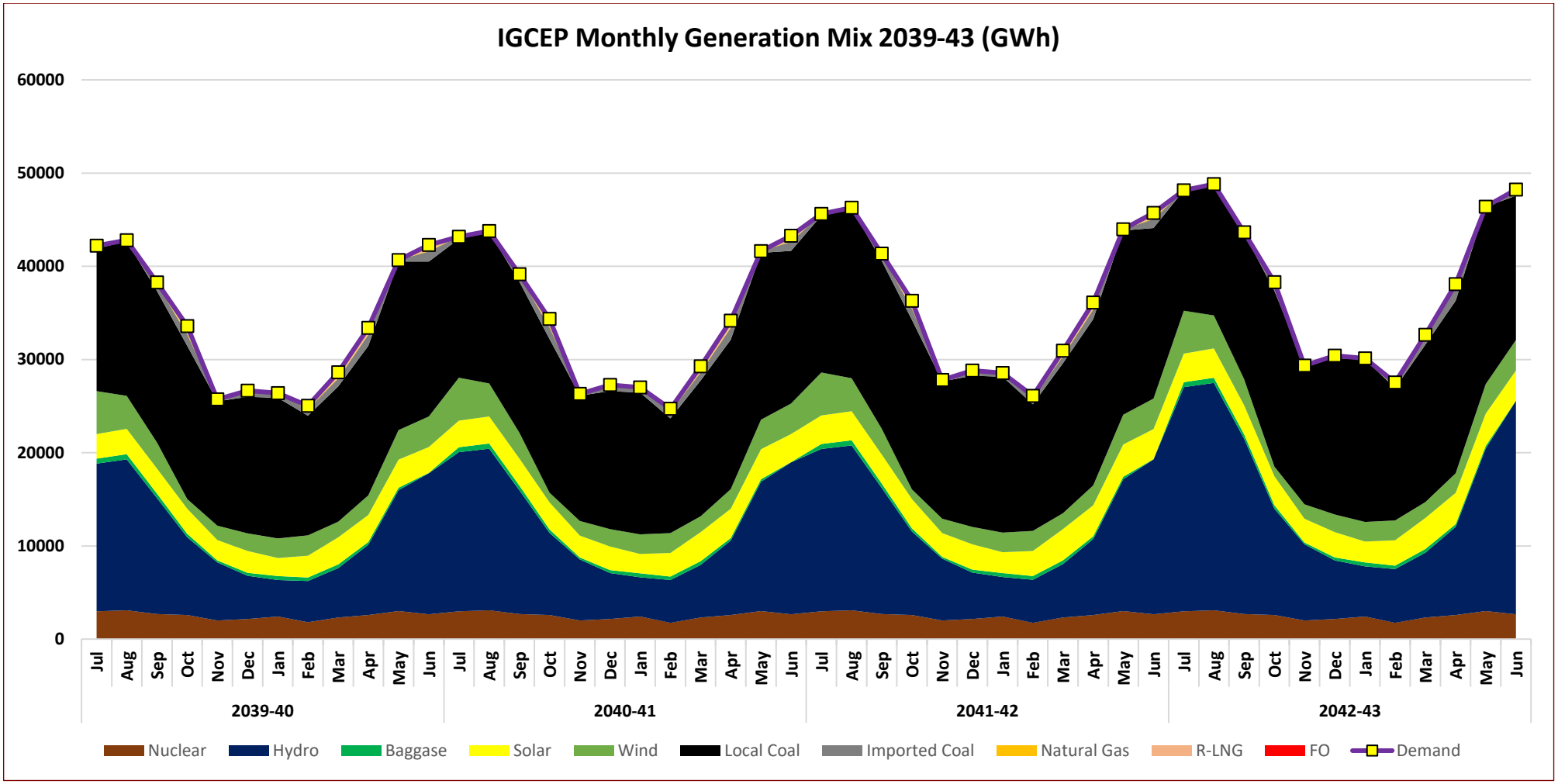


Chart M-17: IGCEP Monthly Generation Mix 2039-43 (GWh)

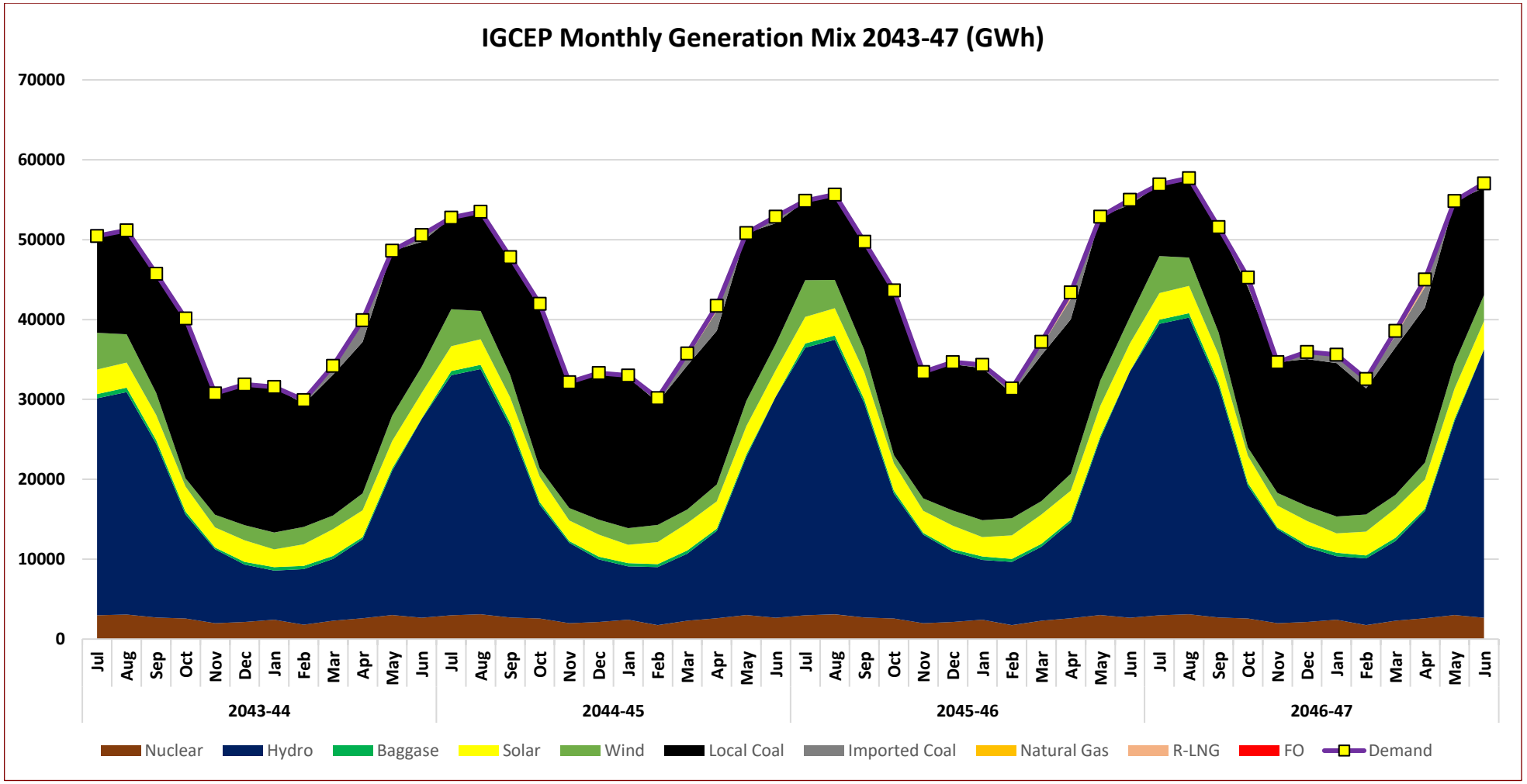


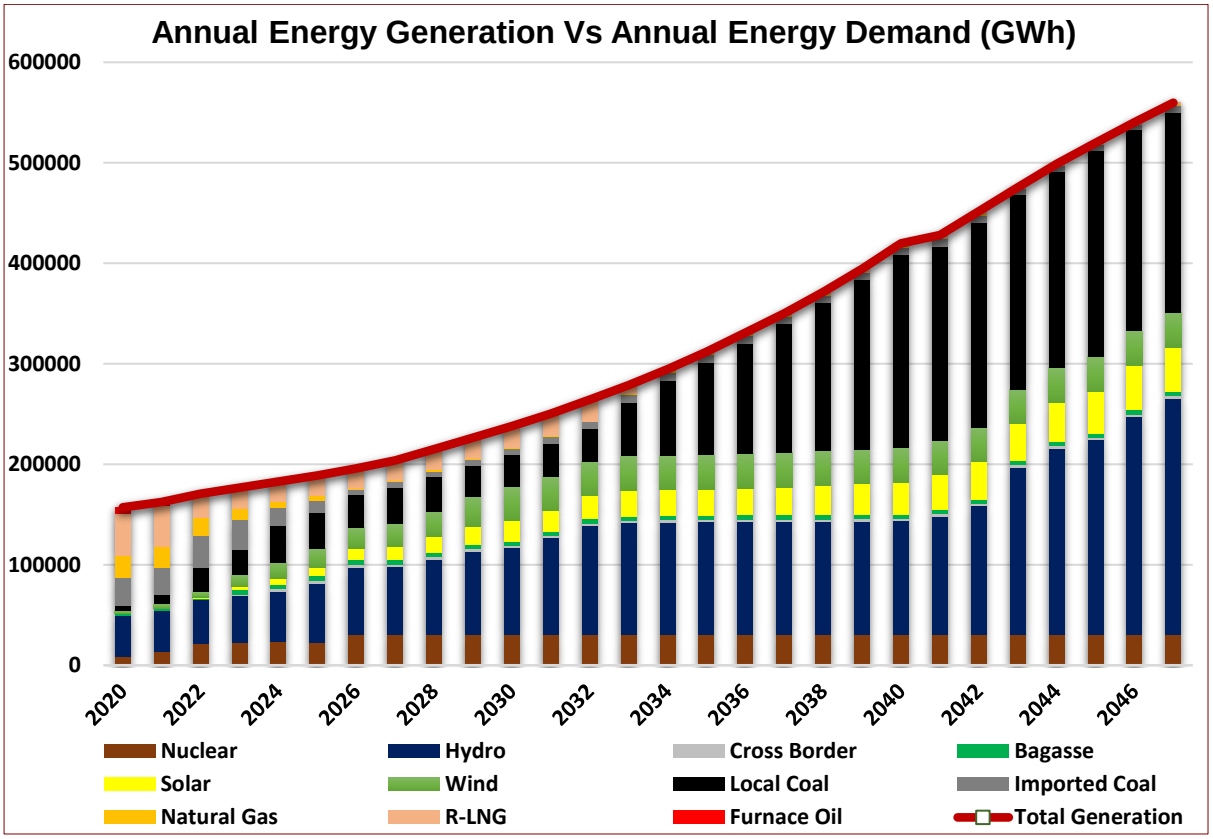
Chart M-18: IGCEP Monthly Generation Mix 2043-47 (GWh)

M-14. Year-wise Present Worth and Un-Discounted Cost

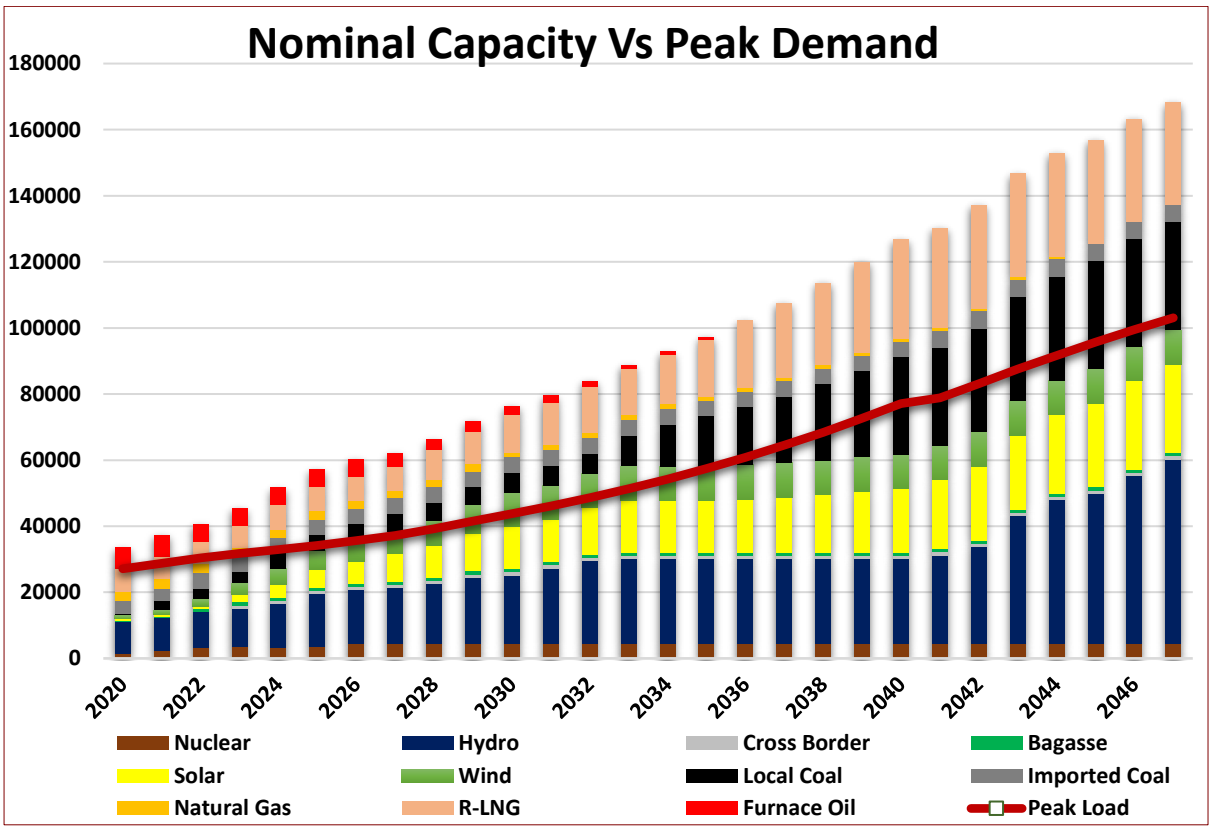
FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	3,540,273	4,496,995	4,496,995	0	956,722	3,540,273	4,496,995	4,496,995
2021	0	913,435	3,159,050	4,072,485	8,569,480	0	1,014,928	3,510,055	4,524,983	9,021,978
2022	0	909,992	2,501,104	3,411,096	11,980,575	0	1,123,447	3,087,782	4,211,229	13,233,207
2023	215,029	890,290	1,979,046	3,084,365	15,064,940	294,964	1,221,248	2,714,741	4,230,953	17,464,160
2024	342,831	847,836	1,770,841	2,961,507	18,026,447	522,528	1,292,235	2,699,041	4,513,805	21,977,965
2025	422,073	796,814	1,553,259	2,772,146	20,798,593	714,784	1,349,411	2,630,458	4,694,653	26,672,618
2026	463,678	766,629	1,264,657	2,494,964	23,293,557	872,492	1,442,549	2,379,675	4,694,715	31,367,333
2027	455,912	700,661	1,256,644	2,413,217	25,706,774	953,198	1,464,907	2,627,331	5,045,436	36,412,770
2028	503,859	653,025	1,108,828	2,265,713	27,972,486	1,170,494	1,517,014	2,575,872	5,263,380	41,676,150
2029	645,866	608,956	986,065	2,240,887	30,213,373	1,667,092	1,571,823	2,545,205	5,784,121	47,460,270
2030	779,496	564,144	907,121	2,250,760	32,464,134	2,235,572	1,617,949	2,601,596	6,455,118	53,915,388
2031	816,338	491,871	822,935	2,131,144	34,595,278	2,601,373	1,567,414	2,622,393	6,791,179	60,706,568
2032	833,108	451,815	730,222	2,015,144	36,610,422	2,949,789	1,599,743	2,585,501	7,135,034	67,841,601
2033	891,286	425,639	504,178	1,821,103	38,431,525	3,506,424	1,674,513	1,983,498	7,164,435	75,006,036
2034	917,345	402,446	413,686	1,733,477	40,165,002	4,009,936	1,759,188	1,808,323	7,577,447	82,583,483

FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2035	916,173	379,363	421,197	1,716,734	41,881,736	4,449,795	1,842,544	2,045,728	8,338,068	90,921,551
2036	915,197	357,714	434,101	1,707,012	43,588,748	4,938,950	1,930,438	2,342,665	9,212,053	100,133,605
2037	906,438	336,033	443,570	1,686,040	45,274,789	5,435,197	2,014,928	2,659,739	10,109,863	110,243,468
2038	896,204	318,445	445,207	1,659,856	46,934,644	5,970,927	2,121,625	2,966,176	11,058,729	121,302,197
2039	886,407	302,556	451,211	1,640,173	48,574,818	6,561,835	2,239,739	3,340,197	12,141,772	133,443,969
2040	876,343	287,767	447,905	1,612,015	50,186,833	7,208,149	2,366,957	3,684,140	13,259,246	146,703,215
2041	830,266	261,033	400,093	1,491,393	51,678,225	7,587,956	2,385,630	3,656,521	13,630,107	160,333,322
2042	818,959	246,885	385,277	1,451,122	53,129,347	8,316,240	2,507,030	3,912,356	14,735,626	175,068,947
2043	892,890	241,592	307,357	1,441,840	54,571,186	10,074,427	2,725,870	3,467,892	16,268,189	191,337,136
2044	897,222	218,344	283,510	1,399,076	55,970,262	11,248,112	2,737,297	3,554,248	17,539,657	208,876,793
2045	875,367	200,583	262,149	1,338,100	57,308,362	12,193,480	2,794,037	3,651,617	18,639,134	227,515,927
2046	866,819	198,383	233,183	1,298,384	58,606,746	13,416,004	3,070,424	3,609,035	20,095,463	247,611,390
2047	862,043	188,218	216,308	1,266,569	59,873,315	14,824,545	3,236,779	3,719,840	21,781,164	269,392,553

N-1: Annual Energy Generation Vs Annual Energy Demand (GWh)



N-2: Nominal Capacity Vs Peak Demand (MW) 2020-47



N-3: Future Generation Capacity Additions

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South	Midland	North	MW	MW
								MW	MW	MW		
2020	-	-	-	-	-	-	-	-	-	-	0	0
2021	-	-	-	-	-	-	-	-	-	-	0	0
2022	-	-	-	-	-	-	-	-	-	-	0	0
2023	-	-	-	-	-	-	1,500	1,000	300	200	3,000	3,000
2024	-	1,529	-	610	-	3	1,500	1,000	300	140	5,082	8,082
2025	-	-	-	-	-	-	1,500	866	-	-	2,366	10,448
2026	-	-	-	-	-	3	1,500	673	-	-	2,176	12,623
2027	-	607	20	-	-	-	1,500	300	-	-	2,427	15,051
2028	-	-	-	1,595	-	-	1,500	790	-	-	3,885	18,936
2029	-	-	-	1,129	-	1,986	1,500	1,000	263	-	5,879	24,814
2030	-	607	-	2,162	-	639	1,500	1,000	300	200	6,408	31,222
2031	-	-	-	1,347	-	2,154	-	-	-	-	3,501	34,724
2032	-	-	-	1,211	-	2,160	1,500	-	-	-	4,871	39,595
2033	-	3,217	-	53	-	666	1,500	-	-	-	5,436	45,030

FY	Coal Fired Steam Imported Coal	Coal Fired Steam Local Coal	Combined Cycle on RLNG/Gas	Combustion Turbine on RLNG	Nuclear	HPP	Solar	Wind			Per Year Capacity Addition	Cummulative Capacity Addition
	MW	MW	MW	MW	MW	MW	MW	South	Midland	North	MW	MW
								MW	MW	MW		
2034	-	3,424	-	737	-	-	-	-	-	-	4,162	49,192
2035	-	2,431	-	2,537	-	-	-	-	-	-	4,968	54,159
2036	-	2,355	-	2,951	-	-	404	-	-	-	5,710	59,870
2037	-	2,652	-	2,181	-	-	601	-	-	-	5,434	65,304
2038	-	2,930	-	2,197	-	-	798	-	-	-	5,924	71,228
2039	-	3,008	-	2,808	-	-	995	-	-	-	6,811	78,039
2040	-	3,363	-	2,967	-	-	802	-	-	-	7,132	85,171
2041	644	185	-	196	-	1,102	1,500	-	-	-	3,627	88,797
2042	-	1,764	-	1,437	-	2,542	1,500	-	-	-	7,243	96,040
2043	-	-	-	-	-	9,500	-	-	-	-	9,500	105,540
2044	-	-	-	-	-	4,720	1,500	-	-	-	6,220	111,760
2045	-	1,264	-	-	-	1,953	1,500	-	-	-	4,717	116,477
2046	-	5	-	-	-	5,262	1,500	-	-	-	6,767	123,244
2047	-	-	-	-	-	5,040	1	-	-	-	5,041	128,285
Total	**-**	**29,339**	**20**	**26,117**	**0**	**37,730**	**26,102**	**6,629**	**1,163**	**540**	**128,285**	

N-4: List of Projects uptill 2047 (Committed + Candidate)

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2020							
1	Zorlu Solar Pakistan Pvt. Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Jan-20
2	Jabori	Hydro	10	10	PEDO	Committed	Mar-20
3	Trimmu	RLNG	1,263	1,243	PPIB	Committed	Apr-20
4	Jhing	Hydro	15	15	AJK	Committed	Jun-20
5	Karora	Hydro	12	12	PEDO	Committed	Jun-20
6	Koto	Hydro	41	41	PEDO	Committed	Jun-20
Generation Additions in 2020 (MW)			1,441	1,421			
Cumulative Addition up till 2020 (MW)			1,441	1,421			
2021							
1	Etihad Power Generation Ltd.	Bagasse	74	74	AEDB	Committed	Jul-20
2	Karachi Nuclear K-2	Nuclear	1,100	1,059	PAEC	Committed	Nov-20
3	Master Green Energy Ltd.	Wind	60	60	AEDB	Committed	Nov-20
4	Shaheen Renewable Energy-1 Pvt. Ltd.	Wind	51	51	AEDB	Committed	Nov-20
5	Lawi	Hydro	69	69	PEDO	Committed	Jan-21
6	Tricorm Wind Power Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-21
7	Western Energy Pvt. Limited	Wind	50	50	AEDB	Committed	Feb-21
8	Lucky	Local Coal	660	607	PPIB	Committed	Mar-21
9	Access Electric Pvt. Ltd.	Solar	10	10	AEDB	Committed	Mar-21
10	Access Solar Pvt. Ltd.	Solar	12	12	AEDB	Committed	Mar-21
11	Thal Nova	Local Coal	330	300	PPIB	Committed	Mar-21
12	Thar TEL	Local Coal	330	300	PPIB	Committed	Mar-21
13	Thar-I (Shanghai Electric) Unit 1	Local Coal	660	607	PPIB	Committed	Mar-21
14	Riali-II	Hydro	7	7	AJK	Committed	Jun-21
15	Hydro China Dawood Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
16	Tenga Generasi Limited	Wind	50	50	AEDB	Committed	Jun-21
17	Zephyr Power Pvt. Limited	Wind	50	50	AEDB	Committed	Jun-21
18	Siddiqsons	Local Coal	330	304	PPIB	Committed	Jun-21
Generation Additions in 2021 (MW)			3,943	3,708			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition uptill 2021 (MW)			5,384	5,129			
2022							
1	HNDS Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
2	Helios Power Pvt. Ltd.	Solar	50	50	AEDB	Committed	Jul-21
3	Thar-I (Shanghai Electric) Unit 2	Local Coal	660	607	PPIB	Committed	Aug-21
4	Karachi Nuclear K-3	Nuclear	1,100	1,059	PAEC	Committed	Sep-21
5	Buksh Energy Pvt. Ltd.	Solar	12	12	AEDB	Committed	Sep-21
6	Safe Solar Power Pvt. Ltd.	Solar	10	10	AEDB	Committed	Sep-21
7	Artistic Wind Power Pvt. Limited.	Wind	50	50	AEDB	Committed	Oct-21
8	Meridian Energy Pvt. Ltd.	Solar	50	50	AEDB	Committed	Nov-21
9	Zhenfa Pakistan New Energy Company (Pvt.) Ltd.	Solar	100	100	PPDB/ AEDB	Committed	Nov-21
10	Karot	Hydro	720	720	PPIB/AJK	Committed	Dec-21
11	Jamshoro CFPP Unit 1	Imp.Coal	660	644	GENCO	Committed	Dec-21
12	Gwadar	Imp.Coal	300	273	PPIB	Committed	Jan-22
13	Gul Ahmed Electric Ltd.	Wind	50	50	AEDB	Committed	Jan-22
14	ACT 2 wind (Pvt.) Ltd.	Wind	50	50	AEDB	Committed	Feb-22
15	Din Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
16	Indus Wind Energy Ltd.	Wind	50	50	AEDB	Committed	Feb-22
17	Lakeside Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
18	Liberty Wind Power 1 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
19	Liberty Wind Power 2 Pvt. Ltd.	Wind	50	50	AEDB	Committed	Feb-22
20	Metro Wind Power Ltd.	Wind	50	50	AEDB	Committed	Feb-22
21	NASDA Green Energy Pvt. Ltd	Wind	50	50	AEDB	Committed	Feb-22
22	Trans Atlantic Energy (Pvt.) Limited	Wind	48	48	AEDB	Committed	Feb-22
23	Alliance Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
24	Bahawalpur Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
25	Faran Power Limited	Bagasse	27	27	AEDB	Committed	Mar-22
26	Ghotki Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
27	Hamza Sugar Mills Ltd. (Unit-II)	Bagasse	30	30	AEDB	Committed	Mar-22

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
28	HSM Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
29	Hunza Power (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22
30	Indus Energy Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
31	Ittefaq Power Ltd.	Bagasse	31	31	AEDB	Committed	Mar-22
32	Kashmir Power (Pvt.) Ltd.	Bagasse	40	40	AEDB	Committed	Mar-22
33	Mehran Energy Ltd.	Bagasse	27	27	AEDB	Committed	Mar-22
34	RYK Energy Ltd.	Bagasse	25	25	AEDB	Committed	Mar-22
35	Sadiqabad Power (Pvt.) Ltd.	Bagasse	45	45	AEDB	Committed	Mar-22
36	Shahtaj Sugar Mills Ltd.	Bagasse	32	32	AEDB	Committed	Mar-22
37	Sheikhoo Power (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
38	TAY Powergen Company (Pvt.) Ltd.	Bagasse	30	30	AEDB	Committed	Mar-22
39	Two Star Energy (Pvt.) Ltd.	Bagasse	50	50	AEDB	Committed	Mar-22
Generation Additions in 2022 (MW)			4,841	4,703			
Cumulative Addition up till 2022 (MW)			10,225	9,832			
2023							
1	Gorkin Matiltan	Hydro	84	84	PEDO	Committed	Nov-22
2	Suki Kinari	Hydro	884	884	PPIB	Committed	Dec-22
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2023
4	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2023
5	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2023
6	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2023
7	CASA	Import	1,000	1,000	GOP	Committed	May-23
Generation Additions in 2023 (MW)			4,968	4,968			
Cumulative Addition up till 2023 (MW)			15,193	14,800			
2024							
1	Tarbela 5th-Extension	Hydro	1,410	1,410	WAPDA	Committed	Sep-23
2	Blue Star	Hydro	3	3	PEDO	Candidate	2024
3	Generic_Candidate Local Coal	Local Coal	1,529	1,529	Yet to be Decided	Candidate	2024
4	Generic_Candidate OCGT_RLNG	RLNG	610	610	Yet to be Decided	Candidate	2024
5	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2024
6	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2024

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
7	Generic_Candidate Wind_North	Wind	140	140	Yet to be Decided	Candidate	2024
8	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2024
Generation Additions in 2024 (MW)			6,492	6,492			
Cumulative Addition up till 2024 (MW)			21,685	21,292			
2025							
1	Keyal Khwar	Hydro	128	128	WAPDA	Committed	Sep-24
2	Mohmand	Hydro	800	800	WAPDA	Committed	Nov-24
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2025
4	Generic_Candidate Wind_South	Wind	866	866	Yet to be Decided	Candidate	2025
5	Dasu 1	Hydro	2,160	2,160	WAPDA	Committed	Feb-25
Generation Additions in 2025 (MW)			5,454	5,454			
Cumulative Addition up till 2025 (MW)			27,139	26,746			
2026							
1	Chasma Nuclear C-5	Nuclear	1,100	1,059	PAEC	Committed	Jul-25
2	Harpo	Hydro	35	35	WAPDA	Committed	Jul-25
3	Riali-III	Hydro	3	3	AJK	Candidate	2026
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2026
5	Generic_Candidate Wind_South	Wind	673	673	Yet to be Decided	Candidate	2026
Generation Additions in 2026 (MW)			3,311	3,269			
Cumulative Addition up till 2026 (MW)			30,449	30,015			
2027							
1	Azad Pattan	Hydro	700	701	PPIB	Committed	Sep-26
2	Hatim	CCGT_Gas	20	20	PPIB	Candidate	2027
3	Oracle_1	Local Coal	660	607	STDC/ PPIB	Candidate	2027
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2027
5	Generic_Candidate Wind_South	Wind	300	300	Yet to be Decided	Candidate	2027
6	Kohala	Hydro	1,124	1,124	PPIB	Committed	Jun-27
Generation Additions in 2027 (MW)			4,304	4,252			
Cumulative Addition up till 2027 (MW)			34,754	34,267			
2028							
1	Generic_Candidate OCGT_RLNG	RLNG	1,595	1,595	Yet to be Decided	Candidate	2028

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2028
3	Generic_Candidate Wind_South	Wind	790	790	Yet to be Decided	Candidate	2028
Generation Additions in 2028 (MW)			3,885	3,885			
Cumulative Addition up till 2028 (MW)			38,639	38,152			
2029							
1	Dander	Hydro	56	56	PEDO	Candidate	2029
2	Dubair Kalay	Hydro	66	66	PEDO	Candidate	2029
3	Nerai-Dubair	Hydro	46	46	PEDO	Candidate	2029
4	Rajdhani	Hydro	132	132	PPIB	Candidate	2029
5	Thakot-III	Hydro	1,686	1,686	WAPDA	Candidate	2029
6	Generic_Candidate OCGT_RLNG	RLNG	1,129	1,129	Yet to be Decided	Candidate	2029
7	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2029
8	Generic_Candidate Wind_Mid	Wind	263	263	Yet to be Decided	Candidate	2029
9	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2029
Generation Additions in 2029 (MW)			5,879	5,879			
Cumulative Addition up till 2029 (MW)			44,517	44,031			
2030							
1	Mahl	Hydro	639	639	PPIB	Candidate	2030
2	Oracle_2	Local Coal	660	607	STDC/ PPIB	Candidate	2030
3	Generic_Candidate OCGT_RLNG	RLNG	2,162	2,162	Yet to be Decided	Candidate	2030
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2030
5	Generic_Candidate Wind_Mid	Wind	300	300	Yet to be Decided	Candidate	2030
6	Generic_Candidate Wind_North	Wind	200	200	Yet to be Decided	Candidate	2030
7	Generic_Candidate Wind_South	Wind	1,000	1,000	Yet to be Decided	Candidate	2030
Generation Additions in 2030 (MW)			6,461	6,408			
Cumulative Addition up till 2030 (MW)			50,978	50,439			
2031							
1	Thakot-I	Hydro	2,154	2,154	WAPDA	Candidate	2031
2	Generic_Candidate OCGT_RLNG	RLNG	1,347	1,347	Yet to be Decided	Candidate	2031
Generation Additions in 2031 (MW)			3,501	3,501			
Cumulative Addition up till 2031 (MW)			54,480	53,940			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2032							
1	Dasu_2	Hydro	2,160	2,160	WAPDA	Candidate	2032
2	Generic_Candidate OCGT_RLNG	RLNG	1,211	1,211	Yet to be Decided	Candidate	2032
3	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2032
Generation Additions in 2032 (MW)			4,871	4,871			
Cumulative Addition up till 2032 (MW)			59,351	58,811			
2033							
1	Lower Palas	Hydro	666	666	WAPDA	Candidate	2033
2	Generic_Candidate Local Coal	Local Coal	3,217	3,217	Yet to be Decided	Candidate	2033
3	Generic_Candidate OCGT_RLNG	RLNG	53	53	Yet to be Decided	Candidate	2033
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2033
Generation Additions in 2033 (MW)			5,436	5,436			
Cumulative Addition up till 2033 (MW)			64,786	64,247			
2034							
1	Generic_Candidate Local Coal	Local Coal	3,424	3,424	Yet to be Decided	Candidate	2034
2	Generic_Candidate OCGT_RLNG	RLNG	737	737	Yet to be Decided	Candidate	2034
Generation Additions in 2034 (MW)			4,162	4,162			
Cumulative Addition up till 2034 (MW)			68,948	68,408			
2035							
1	Generic_Candidate Local Coal	Local Coal	2,431	2,431	Yet to be Decided	Candidate	2035
2	Generic_Candidate OCGT_RLNG	RLNG	2,537	2,537	Yet to be Decided	Candidate	2035
Generation Additions in 2035 (MW)			4,968	4,968			
Cumulative Addition up till 2035 (MW)			73,915	73,376			
2036							
1	Generic_Candidate Local Coal	Local Coal	2,355	2,355	Yet to be Decided	Candidate	2036
2	Generic_Candidate OCGT_RLNG	RLNG	2,951	2,951	Yet to be Decided	Candidate	2036
3	Generic_Candidate Solar	Solar	404	404	Yet to be Decided	Candidate	2036
Generation Additions in 2036 (MW)			5,710	5,710			
Cumulative Addition up till 2036 (MW)			79,626	79,086			
2037							
1	Generic_Candidate Local Coal	Local Coal	2,652	2,652	Yet to be Decided	Candidate	2037

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
2	Generic_Candidate OCGT_RLNG	RLNG	2,181	2,181	Yet to be Decided	Candidate	2037
3	Generic_Candidate Solar	Solar	601	601	Yet to be Decided	Candidate	2037
Generation Additions in 2037 (MW)			5,434	5,434			
Cumulative Addition up till 2037 (MW)			85,060	84,520			
2038							
1	Generic_Candidate Local Coal	Local Coal	2,930	2,930	Yet to be Decided	Candidate	2038
2	Generic_Candidate OCGT_RLNG	RLNG	2,197	2,197	Yet to be Decided	Candidate	2038
3	Generic_Candidate Solar	Solar	798	798	Yet to be Decided	Candidate	2038
Generation Additions in 2038 (MW)			5,924	5,924			
Cumulative Addition uptill 2038 (MW)			90,984	90,444			
2039							
1	Generic_Candidate Local Coal	Local Coal	3,008	3,008	Yet to be Decided	Candidate	2039
2	Generic_Candidate OCGT_RLNG	RLNG	2,808	2,808	Yet to be Decided	Candidate	2039
3	Generic_Candidate Solar	Solar	995	995	Yet to be Decided	Candidate	2039
Generation Additions in 2039 (MW)			6,811	6,811			
Cumulative Addition uptill 2039 (MW)			97,795	97,255			
2040							
1	Generic_Candidate Local Coal	Local Coal	3,363	3,363	Yet to be Decided	Candidate	2040
2	Generic_Candidate OCGT_RLNG	RLNG	2,967	2,967	Yet to be Decided	Candidate	2040
3	Generic_Candidate Solar	Solar	802	802	Yet to be Decided	Candidate	2040
Generation Additions in 2040 (MW)			7,132	7,132			
Cumulative Addition uptill 2040 (MW)			104,927	104,387			
2041							
1	Bata Kundi	Hydro	96	96	PEDO	Candidate	2041
2	Dowarian	Hydro	40	40	AJK	Candidate	2041
3	Thakot-II	Hydro	966	966	WAPDA	Candidate	2041
4	Jamshoro CFPP Unit 2	Imp.Coal	660	644	GENCO	Candidate	2041
5	Generic_Candidate Local Coal	Local Coal	185	185	Yet to be Decided	Candidate	2041
6	Generic_Candidate OCGT_RLNG	RLNG	196	196	Yet to be Decided	Candidate	2041
7	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2041
Generation Additions in 2041 (MW)			3,643	3,627			

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
Cumulative Addition uptill 2041 (MW)			108,569	108,014			
2042							
1	Asrit Kadam	Hydro	216	216	PEDO	Candidate	2042
2	Harigehl-Majeedgala	Hydro	40	40	AJK	Candidate	2042
3	Kathai-II	Hydro	8	8	AJK	Candidate	2042
4	Sakhra-II	Hydro	8	8	PEDO	Candidate	2042
5	Tangus	Hydro	2,200	2,200	WAPDA	Candidate	2042
6	Torkhow	Hydro	70	70	PEDO	Candidate	2042
7	Generic_Candidate Local Coal	Local Coal	1,764	1,764	Yet to be Decided	Candidate	2042
8	Generic_Candidate OCGT_RLNG	RLNG	1,437	1,437	Yet to be Decided	Candidate	2042
9	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2042
Generation Additions in 2042 (MW)			7,243	7,243			
Cumulative Addition uptill 2042 (MW)			115,812	115,257			
2043							
1	Bunji	Hydro	7,100	7,100	WAPDA	Candidate	2043
2	Patan	Hydro	2,400	2,400	WAPDA	Candidate	2043
Generation Additions in 2043 (MW)			9,500	9,500			
Cumulative Addition uptill 2043 (MW)			125,312	124,757			
2044							
1	Diamer Bhasha Dam	Hydro	4,500	4,500	WAPDA	Candidate	2044
2	Kalam Asrit	Hydro	212	212	PPIB	Candidate	2044
3	Sakhra-I	Hydro	8	8	PEDO	Candidate	2044
4	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2044
Generation Additions in 2044 (MW)			6,220	6,220			
Cumulative Addition uptill 2044 (MW)			131,532	130,977			
2045							
1	Arkari Gol	Hydro	99	99	PEDO	Candidate	2045
2	Bhan Khwar	Hydro	36	36	PEDO	Candidate	2045
3	Bhimbal Katha	Hydro	9	9	PEDO	Candidate	2045
4	Chenavan	Hydro	3	3	PPDB	Candidate	2045
5	CJ	Hydro	24	24	PPDB	Candidate	2045

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
6	Dhudnial	Hydro	960	960	WAPDA	Candidate	2045
7	Gabral Kalam	Hydro	87	87	PEDO	Candidate	2045
8	Gabral Utror	Hydro	82	82	PEDO	Candidate	2045
9	Gwaldai	Hydro	20	20	PEDO	Candidate	2045
10	Jagran-III	Hydro	36	36	AJK	Candidate	2045
11	Jagran-IV	Hydro	24	24	AJK	Candidate	2045
12	Madian	Hydro	156	156	PEDO	Candidate	2045
13	Nagdar	Hydro	36	36	AJK	Candidate	2045
14	Nandihaar-II	Hydro	10	10	PEDO	Candidate	2045
15	Naran	Hydro	188	188	PEDO	Candidate	2045
16	Okara	Hydro	4	4	PPDB	Candidate	2045
17	Pashot	Hydro	60	60	PEDO	Candidate	2045
18	Phandar	Hydro	80	80	WAPDA	Candidate	2045
19	Serai	Hydro	6	6	PEDO	Candidate	2045
20	Trappi	Hydro	33	33	PEDO	Candidate	2045
21	Generic_Candidate Local Coal	Local Coal	1,264	1,264	Yet to be Decided	Candidate	2045
22	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2045
Generation Additions in 2045 (MW)			4,717	4,717			
Cumulative Addition uptill 2045 (MW)			136,249	135,693			
2046							
1	Alka	Hydro	2	2	PPDB	Candidate	2046
2	Barum Gol	Hydro	40	40	PEDO	Candidate	2046
3	Basho	Hydro	39	39	WAPDA	Candidate	2046
4	Chakoti Hatian	Hydro	501	501	PPIB	Candidate	2046
5	Chapri Charkhel	Hydro	12	12	PEDO	Candidate	2046
6	Ghanool	Hydro	3	3	PEDO	Candidate	2046
7	Mahodand	Hydro	44	44	PEDO	Candidate	2046
8	Mastuj	Hydro	48	48	PEDO	Candidate	2046
9	Middle Palas	Hydro	399	399	WAPDA	Candidate	2046
10	Mujigram	Hydro	63	63	PEDO	Candidate	2046
11	Nila Da Katha	Hydro	36	36	PEDO	Candidate	2046
12	Shalfalam	Hydro	60	60	PEDO	Candidate	2046

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
13	Sharmai	Hydro	150	150	PEDO	Candidate	2046
14	Shigo Kas	Hydro	102	102	PEDO	Candidate	2046
15	Shogosin	Hydro	138	138	PEDO	Candidate	2046
16	Shounter	Hydro	48	48	AJK	Candidate	2046
17	SHYOK	Hydro	640	640	WAPDA	Candidate	2046
18	UCC Bhambhwal	Hydro	4	4	PPDB	Candidate	2046
19	Wari	Hydro	45	45	PEDO	Candidate	2046
20	Wazirabad	Hydro	88	88	WAPDA	Candidate	2046
21	Yulbo	Hydro	2,800	2,800	WAPDA	Candidate	2046
22	Generic_Candidate Local Coal	Local Coal	5	5	Yet to be Decided	Candidate	2046
23	Generic_Candidate Solar	Solar	1,500	1,500	Yet to be Decided	Candidate	2046
Generation Additions in 2046 (MW)			6,767	6,767			
Cumulative Addition uptill 2046 (MW)			143,016	142,460			
2047							
1	Artistic-I	Hydro	63	63	PEDO	Candidate	2047
2	Artistic-II	Hydro	54	54	PEDO	Candidate	2047
3	Ashkot	Hydro	300	300	PPIB	Candidate	2047
4	Athmuqam	Hydro	452	452	PPIB	Candidate	2047
5	Balakot	Hydro	300	300	PEDO	Candidate	2047
6	Balakot-II	Hydro	100	100	PEDO	Candidate	2047
7	Balkani	Hydro	8	8	PEDO	Candidate	2047
8	BS Link Tail	Hydro	9	9	PPDB	Candidate	2047
9	Chicha Watni	Hydro	2	2	PPDB	Candidate	2047
10	Chiniot_HPP	Hydro	78	78	WAPDA	Candidate	2047
11	Chota Jabba	Hydro	46	46	PEDO	Candidate	2047
12	Daral Khwar-II	Hydro	10	10	PEDO	Candidate	2047
13	Dhaddar	Hydro	18	18	PEDO	Candidate	2047
14	Engro_HPP	Hydro	5	5	PPDB	Candidate	2047
15	Gahrit	Hydro	376	376	PEDO	Candidate	2047
16	Garhi Habibullah	Hydro	100	100	PEDO	Candidate	2047
17	Ghail	Hydro	2	2	AJK	Candidate	2047
18	Ghorband	Hydro	20	20	PEDO	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
19	Gomat Nar	Hydro	50	50	AJK	Candidate	2047
20	Gugera	Hydro	3	3	PPDB	Candidate	2047
21	Istaro-Booni	Hydro	72	72	PEDO	Candidate	2047
22	Jabri Bedar	Hydro	4	4	PEDO	Candidate	2047
23	Jamshil	Hydro	612	612	PEDO	Candidate	2047
24	Jhing-II	Hydro	6	6	AJK	Candidate	2047
25	Kalkot Barikot	Hydro	48	48	PEDO	Candidate	2047
26	Kari Mushkur	Hydro	496	496	PEDO	Candidate	2047
27	Kasur	Hydro	2	2	PPDB	Candidate	2047
28	Kathai-III	Hydro	1	1	AJK	Candidate	2047
29	Khal	Hydro	66	66	PEDO	Candidate	2047
30	Khanewal	Hydro	2	2	PPDB	Candidate	2047
31	Khanki Barrage	Hydro	16	16	PPDB	Candidate	2047
32	Khokhra	Hydro	2	2	PPDB	Candidate	2047
33	Lower Spat Gah	Hydro	495	495	PEDO	Candidate	2047
34	Luat	Hydro	48	48	AJK	Candidate	2047
35	Lucky_HPP	Hydro	20	20	PPDB	Candidate	2047
36	Luspur Murigram	Hydro	231	231	PEDO	Candidate	2047
37	Machai-III	Hydro	2	2	PEDO	Candidate	2047
38	Mahandri	Hydro	12	12	PEDO	Candidate	2047
39	Mandi	Hydro	4	4	PPDB	Candidate	2047
40	Mehar	Hydro	12	12	PPDB	Candidate	2047
41	Mid Ranjha	Hydro	80	80	WAPDA	Candidate	2047
42	Murree	Hydro	12	12	PPDB	Candidate	2047
43	Nandihaar	Hydro	12	12	PEDO	Candidate	2047
44	Patrak Sheringhal	Hydro	22	22	PEDO	Candidate	2047
45	Punjnad	Hydro	18	18	PPDB	Candidate	2047
46	Qaditrabad	Hydro	24	24	PPDB	Candidate	2047
47	QB Link	Hydro	8	8	PPDB	Candidate	2047
48	Rasul	Hydro	18	18	PPDB	Candidate	2047
49	Ravi	Hydro	6	6	PPDB	Candidate	2047
50	Sahiwal	Hydro	6	6	PPDB	Candidate	2047

#	Name of Project	Fuel Type	Installed Capacity	Nominal Capacity	Agency	Status	Schedule of Commissioning
51	Sarral-Dhartian	Hydro	9	9	PEDO	Candidate	2047
52	Shah Jiwana	Hydro	78	78	WAPDA	Candidate	2047
53	Shushghai	Hydro	144	144	PEDO	Candidate	2047
54	Soan	Hydro	24	24	PPDB	Candidate	2047
55	Tangar	Hydro	24	24	PEDO	Candidate	2047
56	Taunsa	Hydro	135	135	PPDB	Candidate	2047
57	TP	Hydro	9	9	PPDB	Candidate	2047
58	Trident	Hydro	8	8	PPDB	Candidate	2047
59	Trimmu_HPP	Hydro	16	16	PPDB	Candidate	2047
60	Turtonas Uzghor	Hydro	82	82	PPIB	Candidate	2047
61	Upper Palas	Hydro	158	158	WAPDA	Candidate	2047
62	Generic_Candidate Solar	Solar	1	1	Yet to be Decided	Candidate	2047
Generation Additions in 2047 (MW)			5,041	5,041			
Cumulative Addition up till 2047 (MW)			148,057	147,501			

N-5: Annual Capacity Factors (%age)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	85	85	85	84	53	22	10	13	14	14	14	17	16	21	21	19	19	18	18	17	17	18	17	12	10	11	11	15
2	Gwadar	Imp. Coal	0	0	84	85	84	83	35	30	30	28	26	28	30	32	30	30	29	27	26	25	25	25	23	17	18	20	21	34
3	Jamshoro Coal	Imp. Coal	0	0	83	83	15	11	5	7	9	11	11	13	11	14	16	15	15	15	15	14	14	14	12	9	9	9	9	10
4	Jamshoro Coal Unit 2		0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13	9	9	10	9	10
5	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Port Qasim	Imp. Coal	85	85	85	84	83	56	24	21	22	23	22	25	25	28	27	26	25	23	22	22	22	22	21	15	14	15	15	29
7	Sahiwal Coal	Imp. Coal	85	85	84	51	6	7	4	5	6	7	9	11	9	11	13	13	13	12	11	12	12	10	9	6	8	9	8	8
8	Engro Thar	Local Coal	85	85	85	85	84	84	76	78	50	39	36	39	37	41	39	36	36	36	33	32	31	32	28	21	34	36	34	35
9	Lucky	Local Coal	0	87	85	85	84	84	38	37	37	33	29	34	32	37	33	31	31	31	29	28	27	27	25	18	21	25	32	35
10	NEW_Local_Coal	Local Coal	0	0	0	0	84	84	84	82	81	79	75	76	75	73	73	75	77	78	78	78	79	78	78	75	74	75	73	72
11	Oracle	Local Coal	0	0	0	0	0	0	0	83	82	81	79	80	81	81	82	83	84	84	84	85	85	85	85	85	85	85	85	84
12	Siddiqsons	Local Coal	0	88	85	85	85	84	84	83	82	81	78	79	78	80	81	82	82	83	83	83	83	82	83	84	84	84	84	84
13	Thal Nova	Local Coal	0	89	85	85	84	84	83	81	79	74	62	65	52	55	51	51	53	52	48	46	44	44	45	36	44	44	44	50
14	Thar TEL	Local Coal	0	89	85	85	84	84	83	81	79	74	61	64	52	55	51	50	52	52	48	47	44	44	45	36	44	45	44	50
15	Thar-I (Shanghai Electric)	Local Coal	0	87	85	85	84	84	82	79	77	56	44	45	46	46	45	44	44	42	40	38	37	36	37	29	42	43	39	39
16	Balloki	RLNG	92	84	67	67	67	67	67	67	67	67	67	67	67	67	3	4	4	4	4	5	6	5	5	3	3	4	4	4
17	Bhikki	RLNG	89	77	67	67	67	67	67	67	67	67	67	67	67	3	2	2	3	4	4	4	4	4	4	2	3	3	3	3
18	FKPCL	RLNG	25	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	GTPS Block 4	RLNG	27	8	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Halmore	RLNG	75	36	6	1	0	0	0	0	0	1	2	3	3	1	0	0	1	1	2	3	4	4	0	0	0	0	0	0
21	Haveli	RLNG	92	91	67	67	67	67	67	67	67	67	67	67	67	4	4	5	5	6	6	7	8	8	7	3	3	5	5	5
22	Nandipur	RLNG	71	54	10	3	0	0	0	0	0	1	3	4	3	1	1	1	1	3	3	4	4	4	4	1	2	2	0	0
23	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Orient	RLNG	76	45	8	2	0	0	0	0	0	1	3	4	3	1	0	1	1	2	3	4	4	0	0	0	0	0	0	0
25	Rousch	RLNG	60	18	4	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Saif	RLNG	74	31	6	1	0	0	0	0	0	0	2	3	3	0	0	0	1	1	2	3	4	0	0	0	0	0	0	0
27	Saphire	RLNG	76	42	7	1	0	0	0	0	0	1	2	4	3	1	0	0	1	1	3	4	4	0	0	0	0	0	0	0
28	Trimmu	RLNG	94	92	20	7	3	0	0	1	2	3	4	5	5	5	6	6	7	7	8	8	8	8	8	4	5	6	7	7
29	Davis	RLNG	1	1	1	0	0	0	0	1	0	1	2	3	2	0	0	0	0	1	1	2	2	2	2	1	0	0	0	0
30	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Engro	Gas	89	89	87	10	4	2	1	2	3	4	5	6	5	6	7	7	0	0	0	0	0	0	0	0	0	0	0	0
33	Foundation	Gas	90	90	88	11	5	2	1	3	3	4	5	7	5	7	9	8	9	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-I	Gas	85	85	78	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-II	Gas	66	23	5	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	Guddu-V (747)	Gas	83	83	83	80	10	3	2	4	4	4	6	8	6	7	10	9	9	10	9	9	8	8	8	5	7	1	0	0
37	Hatim	Gas	0	0	0	0	0	0	0	23	21	20	20	20	15	16	17	16	16	15	15	15	15	15	14	7	9	9	8	7

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	HCPC	Gas	86	86	28	9	4	2	1	2	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Kotri	Gas	87	87	26	9	3	1	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Liberty	Gas	77	64	11	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch	Gas	86	86	86	86	84	84	12	9	10	10	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	Uch-II	Gas	88	88	86	14	5	2	1	3	4	4	6	7	6	7	8	9	9	8	9	7	0	0	0	0	0	0	0	0
44	C-1	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
45	C-2	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
46	C-3	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
47	C-4	Nuclear	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79	79
48	C-5	Nuclear	0	0	0	0	0	0	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
49	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	K-2	Nuclear	0	74	79	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
51	K-3	Nuclear	0	0	76	79	79	79	79	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
52	Alliance	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
53	Almoiz	Bagasse	54	54	54	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
54	Bahawalpur	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
55	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	Chanar	Bagasse	54	54	54	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Chiniot	Bagasse	36	36	36	36	36	35	35	35	35	34	34	34	34	34	35	35	35	36	36	36	36	36	36	36	36	36	36	36
58	Etihad	Bagasse	0	54	54	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
59	Faran	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
60	Ghotki	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
61	Hamza	Bagasse	47	47	47	47	47	46	46	46	46	45	44	45	44	45	46	46	46	47	47	47	47	47	47	47	47	47	47	47
62	Hamza-II	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
63	HSM	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
64	Hunza	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
65	Indus	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
66	Ittefaq	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
67	JDW-II	Bagasse	84	84	84	84	84	83	83	83	83	81	80	81	80	81	82	83	83	83	83	84	84	84	84	83	83	83	83	83
68	JDW-III	Bagasse	78	78	78	78	78	77	77	77	77	75	75	75	75	76	77	77	77	78	78	78	78	78	78	78	78	78	78	78
69	Kashmir	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
70	Mehran	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
71	RYK_Energy	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
72	Ryk_Mills	Bagasse	54	54	54	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
73	Sadiqabad	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
74	Shahtaj	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
75	Sheikhoo	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	TAY	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	51	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
77	Thal_Layyah	Bagasse	30	30	30	30	30	29	29	29	29	28	28	28	28	28	29	29	29	30	30	30	30	30	30	30	30	30	30	30
78	Two_Star	Bagasse	0	0	29	54	54	53	53	53	53	52	52	52	52	52	53	53	53	54	54	54	54	54	54	54	54	54	54	54
79	Access_Electric	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
80	Access_Solar	Solar	0	21	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
81	Appolo	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
82	Best	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
83	Buksh	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
84	Candidate_Solar	Solar	0	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
85	Crest	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
86	Helios	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
87	HNDS	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
88	Meridian	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
89	QA_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
90	Safe	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
91	Zhenfa	Solar	0	0	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
92	Zorlu	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
93	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68	68
94	Allai Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29	30	30
96	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
97	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
98	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
99	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	48	48	48	49
100	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
101	Azad Pattan	Hydro	0	0	0	0	0	0	0	48	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53	53
102	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
103	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
104	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
105	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	40
106	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44
107	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	42	41	42	42	42
108	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38	38	38
109	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	60
110	Blue Star	Hydro	0	0	0	0	65	66	66	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70	70
111	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36
112	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	41	42	41	41
113	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62
115	Chashma	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
116	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35	35	35
117	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
118	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
119	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43
120	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34	34	34
121	Dander	Hydro	0	0	0	0	0	0	0	0	0	39	41	40	44	45	45	46	46	46	46	47	45	45	46	47	47	48	48	48
122	Daral Khwar	Hydro	47	47	47	47	47	47	47	41	42	42	41	42	44	44	44	44	44	44	45	45	45	44	45	45	45	46	46	46
123	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
124	Dasu_1	Hydro	0	0	0	0	0	56	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63	63
125	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	61	61	64	64	64	64	64	64	64	64	64	64	64	64	64	64
126	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46
127	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56
128	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44	45	45
129	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45	45	45	45	45	45
130	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	57	57	58	63	62	63	63	63	63	64	63	63	64	64	64	64	64	64	65
131	Dubair Khwar	Hydro	51	51	51	51	51	51	51	50	50	50	50	49	50	49	49	51	50	50	50	50	50	51	51	50	50	50	51	51
132	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40	41	41
134	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43
135	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50
136	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58
137	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
138	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	30
139	Ghazi Brotha	Hydro	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	51	52
140	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68
141	Golen Gol	Hydro	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
142	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48
143	Gorkin Matiltan	Hydro	0	0	0	32	45	45	45	41	41	41	40	41	42	42	41	42	43	42	42	43	42	42	42	43	42	43	43	43
144	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	29
145	Gulpur	Hydro	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54	54
146	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45	45
147	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	60	60	60	61	61	61
148	Harpo	Hydro	0	0	0	0	0	0	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57	57
149	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
150	Jabori	Hydro	91	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77	78	77	77	77
151	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	58

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-I	Hydro	31	31	31	31	31	31	31	29	30	30	30	29	30	31	30	31	30	31	31	31	30	30	31	31	31	31	31	31
153	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44	44
154	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	43	43	43
155	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
156	Jhing	Hydro	95	52	52	52	52	52	52	49	48	49	48	49	50	50	49	50	50	50	50	50	50	50	50	51	51	51	51	51
157	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
158	Jinnah	Hydro	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
159	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	46	46	46
160	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	38
161	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
162	Karora	Hydro	61	62	62	62	62	62	62	59	59	59	59	59	60	60	60	60	60	60	60	60	60	60	60	61	61	61	61	61
163	Karot	Hydro	0	0	41	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43	43
164	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
165	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	56	56	56	56	56	56
166	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
167	Keyal Khwar	Hydro	0	0	0	0	0	25	32	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	32
168	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
169	Khan Khwar	Hydro	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
170	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
172	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
173	Kohala	Hydro	0	0	0	0	0	0	0	0	61	61	61	61	62	62	62	62	62	62	62	62	62	62	62	62	62	63	63	63
174	Koto	Hydro	0	58	58	58	57	58	58	54	54	54	54	54	56	55	55	56	56	56	56	56	56	57	56	57	57	57	57	57
175	Lawi	Hydro	0	43	49	49	49	49	49	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
176	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	42	43	43	43	43	43	43	43	43	43	43	43	43	43	43
177	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
178	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47
179	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44
180	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
181	Machai	Hydro	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22	22
182	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55
183	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49	49
184	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
185	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	59	59	61	60	62	62	62	62	62	62	62	62	62	63	62	63	63	63
186	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	47	47
187	Malakand-III	Hydro	52	52	52	52	52	52	52	52	51	51	51	51	51	51	51	51	51	52	52	52	52	52	52	52	52	52	52	52
188	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
189	Mangla	Hydro	57	57	57	57	57	57	57	57	56	56	56	56	57	56	56	56	57	57	57	57	57	57	57	57	57	57	57	57

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	53
191	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
192	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
193	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
194	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
195	Mohmand	Hydro	0	0	0	0	0	35	41	40	40	40	39	40	40	40	39	40	40	40	40	40	40	40	40	40	40	40	40	40
196	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	52	52
197	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	35
198	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	42	42
199	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	68
200	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	62	62	62
201	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
202	Neelum Jehlum	Hydro	58	58	58	58	58	58	58	56	56	56	55	56	56	56	56	57	57	57	57	57	57	57	57	58	57	58	58	58
203	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	50	49	50	56	56	58	59	60	59	60	60	59	59	60	60	61	61	62	62
204	New Bong	Hydro	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64	64
205	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	43
206	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	36	36	36
207	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	49	49
208	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59	59

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
210	Patrind	Hydro	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48
211	Pehur	Hydro	23	24	24	24	23	24	24	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
212	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46
213	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20
214	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	15
215	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
216	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	58	58	57	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58	58
217	Ranolia	Hydro	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55	55
218	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
219	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
220	Riali-II	Hydro	0	87	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
221	Riali-III	Hydro	0	0	0	0	0	0	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78	78
222	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
223	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59	59	59	59
224	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	48	49	49	49	49
225	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53
226	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41
227	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	54	54
229	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50
230	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50
231	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	44	44
232	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49	49
233	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
234	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	66	66
235	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
236	Smal Hydel	Hydro	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
237	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	34
238	Suki Kinari	Hydro	0	0	0	35	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
239	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45
240	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46	46	46	46	46
241	Tarbela_1-10	Hydro	48	48	48	48	48	48	48	47	47	47	48	47	47	47	47	47	48	48	48	48	48	48	48	48	48	48	48	48
242	Tarbela_11-14	Hydro	48	48	48	48	48	48	48	47	47	47	47	47	47	47	48	47	47	48	48	48	48	48	48	48	48	48	48	48
243	Tarbela_Ext_4	Hydro	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
244	Tarbela_Ext_5	Hydro	0	0	0	0	19	32	32	32	31	32	32	31	31	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32
245	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
246	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	52	52	53	53	53	53	53	53	53	53	54	54	54	54	54	54	54

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55	55	55	55	55
248	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	47	48	48	47	48	49	49	49	49	49	49	49	49	49	49	49	49	49	49
249	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	50	50	50	50	50	50
250	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
251	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	53	53	53
252	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
253	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19
254	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	49
255	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37	37
256	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
257	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
258	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	64	64
259	Warsak	Hydro	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47	47
260	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	45	45
261	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	46	46
262	CASA	Cross Border	0	0	0	95	39	39	39	23	24	23	22	23	27	27	24	25	25	25	26	26	26	27	26	27	28	28	30	33
263	Act	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
264	Act_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
265	Artistic_wind	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Artistic_Wind_2	Wind	0	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
267	Candidate_Wind_Mid	Wind	0	0	0	33	33	33	30	32	32	33	32	32	32	33	32	33	33	33	33	33	33	33	33	33	33	33	33	33
268	Candidate_Wind_North	Wind	0	0	0	33	33	33	28	33	33	32	31	33	33	33	33	32	33	33	33	33	33	33	33	33	33	33	33	33
269	Candidate_Wind_South	Wind	0	0	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
270	Dawood	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
271	Din	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
272	FFC	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
273	FWEL-I	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
274	FWEL-II	Wind	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34
275	Gul Ahmed	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
276	Gul_Electric	Wind	0	0	38	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
277	Hawa	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
278	Indus_Energy	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
279	Jhimpir	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
280	Lakeside	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
281	Liberty_Wind_1	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
282	Liberty_Wind_2	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
283	Master	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
284	Master_Green	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Power	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
286	Metro_Wind	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
287	NASDA	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
288	Sachal	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
289	Sapphire_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
290	Shaheen	Wind	0	35	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
291	Tenga	Wind	0	39	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
292	Three_Gorges_I	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
293	Three_Gorges_II	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
294	Three_Gorges_III	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
295	Trans_Atlantic	Wind	0	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
296	Tricon_A	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
297	Tricon_B	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
298	Tricon_C	Wind	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
299	Tricorm	Wind	0	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
300	UEP	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
301	Western	Wind	0	40	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
302	Yunus	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
303	Zephyr	Wind	0	56	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	Zorlu_Wind	Wind	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
305	KAPCO 1	RFO	30	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 2	RFO	35	12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	KAPCO 3	RFO	15	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	AES Pakgen	RFO	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	HUBCO	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 3	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Jamshoro-II Unit 4	RFO	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Lalpir	RFO	5	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 1 B-I	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 3 B-I	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 4 B-II	RFO	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	Saba	RFO	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
322	AGL	RFO	88	88	14	4	1	1	1	2	2	4	5	6	5	6	7	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	ATLAS	RFO	13	5	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	HuB N	RFO	11	4	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Kohinoor	RFO	56	21	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Liberty Tech	RFO	16	7	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat C	RFO	9	3	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Nishat P	RFO	7	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
329	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

N -6: Annual Energy Generation 2020-30 (GWh)

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
1	China HUBCO	Imp. Coal	9,330	9,308	9,308	9,162	5,795	2,448	1,048	1,389	1,493	1,517	1,524
2	Gwadar	Imp. Coal	0	0	1,000	2,033	2,005	1,977	836	706	720	661	611
3	Jamshoro Coal	Imp. Coal	0	0	2,733	4,703	854	629	285	421	518	594	635
4	Jamshoro Coal Unit 2		0	0	0	0	0	0	0	0	0	0	0
5	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0
6	Port Qasim	Imp. Coal	9,270	9,248	9,248	9,158	9,074	6,134	2,593	2,330	2,413	2,463	2,374
7	Sahiwal Coal	Imp. Coal	9,285	9,263	9,202	5,520	706	788	419	504	628	718	1,010
8	Engro Thar	Local Coal	4,493	4,482	4,482	4,482	4,425	4,412	3,998	4,104	2,656	2,063	1,915
9	Lucky	Local Coal	0	1,546	4,531	4,531	4,472	4,456	2,007	1,951	1,981	1,748	1,555
10	NEW_Local_Coal	Local Coal	0	0	0	0	11,317	11,225	11,202	11,017	10,854	10,559	10,108
11	Oracle	Local Coal	0	0	0	0	0	0	0	4,433	4,383	4,310	8,446
12	Siddiqsons	Local Coal	0	193	2,266	2,266	2,272	2,231	2,231	2,204	2,187	2,146	2,083
13	Thal Nova	Local Coal	0	583	2,234	2,234	2,205	2,199	2,183	2,121	2,094	1,940	1,628
14	Thar TEL	Local Coal	0	583	2,234	2,234	2,205	2,199	2,179	2,131	2,073	1,938	1,612
15	Thar-I (Shanghai Electric)	Local Coal	0	1,545	8,643	9,055	8,940	8,914	8,746	8,429	8,256	6,006	4,657
16	Balloki	RLNG	9,492	8,649	6,910	6,906	6,905	6,904	6,905	6,881	6,884	6,886	6,883
17	Bhikki	RLNG	8,919	7,722	6,696	6,693	6,690	6,689	6,689	6,675	6,673	6,674	6,672
18	FKPCL	RLNG	329	97	41	0	0	0	0	0	0	0	0
19	GTPS Block 4	RLNG	274	86	34	4	0	0	0	0	0	0	0
20	Halmore	RLNG	1,301	622	112	18	0	0	0	0	0	15	32
21	Haveli	RLNG	9,599	9,440	6,967	6,964	6,964	6,964	6,964	6,932	6,940	6,943	6,942
22	Nandipur	RLNG	2,821	2,112	390	117	5	11	0	0	11	54	111

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
23	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0
24	Orient	RLNG	1,363	803	149	44	0	6	0	0	0	24	46
25	Rousch	RLNG	2,090	635	139	19	0	0	0	0	0	0	11
26	Saif	RLNG	1,321	545	99	14	0	0	0	0	0	4	31
27	Saphire	RLNG	1,347	735	131	24	0	1	0	0	0	22	36
28	Trimmu	RLNG	2,543	9,998	2,152	738	287	54	0	75	172	281	471
29	Davis	RLNG	1	1	1	0	0	0	0	1	0	1	2
30	NEW OCGT (Generic)	RLNG	0	0	0	0	0	0	0	0	0	0	115
31	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0
32	Engro	Gas	1,655	1,651	1,617	181	77	33	16	31	60	76	93
33	Foundation	Gas	1,320	1,317	1,294	168	69	27	15	39	48	62	78
34	Guddu-I	Gas	1,950	1,945	1,776	0	0	0	0	0	0	0	0
35	Guddu-II	Gas	1,568	533	121	14	0	0	0	0	0	0	0
36	Guddu-V (747)	Gas	5,234	5,221	5,216	5,084	621	204	133	221	248	280	397
37	Hatim	Gas	0	0	0	0	0	0	0	41	37	35	34
38	HCPC	Gas	975	973	317	100	42	20	9	18	35	41	0
39	Kotri	Gas	808	806	238	80	32	12	1	13	20	0	0
40	Liberty	Gas	1,433	1,195	213	73	10	5	0	0	0	0	0
41	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0
42	Uch	Gas	4,149	4,139	4,139	4,139	4,074	4,023	587	430	468	476	26
43	Uch-II	Gas	2,737	2,731	2,685	426	150	58	36	82	114	136	176
44	C-1	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,075
45	C-2	Nuclear	2,083	2,079	2,079	2,079	2,083	2,079	2,079	2,077	2,081	2,077	2,077
46	C-3	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,183	2,175	2,187	2,180	2,180

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
47	C-4	Nuclear	2,187	2,183	2,183	2,183	2,187	2,183	2,182	2,181	2,185	2,179	2,181
48	C-5	Nuclear	0	0	0	0	0	0	7,279	7,242	7,253	7,237	7,241
49	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0
50	K-2	Nuclear	0	4,548	7,292	7,292	7,307	7,288	7,284	7,244	7,260	7,243	7,237
51	K-3	Nuclear	0	0	5,823	7,292	7,307	7,289	7,283	7,242	7,260	7,242	7,240
52	Alliance	Bagasse	0	0	19	143	144	140	140	140	140	137	136
53	Almoiz	Bagasse	172	172	172	172	172	168	168	168	169	164	163
54	Bahawalpur	Bagasse	0	0	20	149	149	146	146	146	145	142	142
55	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0
56	Chanar	Bagasse	105	105	105	105	105	103	103	103	103	100	100
57	Chiniot	Bagasse	197	196	196	196	197	190	190	190	190	185	184
58	Etihad	Bagasse	0	355	355	355	356	348	348	348	347	339	338
59	Faran	Bagasse	0	0	17	126	127	124	124	124	124	121	120
60	Ghotki	Bagasse	0	0	29	215	215	210	210	210	209	205	204
61	Hamza	Bagasse	62	62	62	62	62	60	60	60	61	59	58
62	Hamza-II	Bagasse	0	0	19	143	144	140	140	140	140	137	136
63	HSM	Bagasse	0	0	17	126	127	124	124	124	124	121	120
64	Hunza	Bagasse	0	0	32	238	238	233	233	233	232	227	226
65	Indus	Bagasse	0	0	20	148	148	145	145	145	144	141	141
66	Ittefaq	Bagasse	0	0	20	149	149	146	146	146	145	142	142
67	JDW-II	Bagasse	194	193	193	193	194	191	191	191	191	186	186
68	JDW-III	Bagasse	180	180	180	180	180	178	178	178	179	174	173
69	Kashmir	Bagasse	0	0	26	191	191	187	187	187	186	182	181
70	Mehran	Bagasse	0	0	17	126	127	124	124	124	123	121	120

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
71	RYK_Energy	Bagasse	0	0	16	119	120	117	117	117	116	114	113
72	Ryk_Mills	Bagasse	144	143	143	143	144	140	140	140	141	137	136
73	Sadiqabad	Bagasse	0	0	29	215	215	210	210	210	209	205	204
74	Shahtaj	Bagasse	0	0	21	153	153	149	149	149	149	146	145
75	Sheikhoo	Bagasse	0	0	19	143	144	140	140	140	140	137	136
76	TAY	Bagasse	0	0	19	143	144	140	140	140	140	137	136
77	Thal_Layyah	Bagasse	109	109	109	109	109	106	106	106	106	102	101
78	Two_Star	Bagasse	0	0	32	238	238	233	233	233	232	227	226
79	Access_Electric	Solar	0	5	17	17	17	17	17	17	17	17	17
80	Access_Solar	Solar	0	5	19	19	19	19	19	19	19	19	19
81	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165
82	Best	Solar	165	165	165	165	165	165	165	165	165	165	165
83	Buksh	Solar	0	0	14	19	19	19	19	19	19	19	19
84	Candidate_Solar	Solar	0	0	0	2,482	4,965	7,447	9,929	12,412	14,894	17,377	19,817
85	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165
86	Helios	Solar	0	0	83	83	83	83	83	83	83	83	83
87	HNDS	Solar	0	0	83	83	83	83	83	83	83	83	83
88	Meridian	Solar	0	0	48	83	83	83	83	83	83	83	83
89	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165
90	Safe	Solar	0	0	13	17	17	17	17	17	17	17	17
91	Zhenfa	Solar	0	0	97	165	165	165	165	165	165	165	165
92	Zorlu	Solar	84	165	165	165	165	165	165	165	165	165	165
93	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0
94	Allai Khwar	Hydro	396	395	395	395	396	395	395	395	396	395	394

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
95	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0
96	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
97	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
98	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0
99	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0
100	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0
101	Azad Pattan	Hydro	0	0	0	0	0	0	0	2,181	3,256	3,253	3,253
102	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0
103	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
104	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0
105	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0
106	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0
107	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	0
108	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0
109	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
110	Blue Star	Hydro	0	0	0	0	17	17	17	18	18	18	18
111	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0
112	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0
113	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0
114	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0
115	Chashma	Hydro	767	765	765	765	767	765	765	765	767	765	765
116	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0
117	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0
118	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
119	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0
120	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0
121	Dander	Hydro	0	0	0	0	0	0	0	0	0	191	200
122	Daral Khwar	Hydro	147	147	147	147	147	147	147	131	132	133	131
123	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
124	Dasu_1	Hydro	0	0	0	0	0	4,321	11,975	11,975	11,990	11,975	11,975
125	Dasu_2	Hydro	0	0	0	0	0	0	0	0	0	0	0
126	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0
127	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0
128	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0
129	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	0
130	Dubair Kalay	Hydro	0	0	0	0	0	0	0	0	0	330	332
131	Dubair Khwar	Hydro	581	581	581	581	581	581	579	566	571	566	566
132	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
133	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0
134	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0
135	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
136	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0
137	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0
138	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0
139	Ghazi Brotha	Hydro	6,563	6,551	6,551	6,551	6,563	6,551	6,548	6,508	6,494	6,487	6,478
140	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0
141	Golen Gol	Hydro	97	97	97	97	97	97	97	96	96	95	95
142	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
143	Gorkin Matiltan	Hydro	0	0	0	155	331	331	329	302	306	302	298
144	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0
145	Gulpur	Hydro	481	480	480	480	481	480	480	480	481	480	480
146	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0
147	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0
148	Harpo	Hydro	0	0	0	0	0	0	170	169	169	169	169
149	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0
150	Jabori	Hydro	27	68	68	68	68	68	68	68	68	68	68
151	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0
152	Jagran-I	Hydro	82	82	82	82	82	82	82	78	78	78	78
153	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
154	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0
155	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0
156	Jhing	Hydro	10	68	68	68	68	68	68	64	63	64	63
157	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
158	Jinnah	Hydro	195	194	194	194	195	194	194	193	194	192	191
159	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0
160	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0
161	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0
162	Karora	Hydro	5	65	65	65	65	65	65	62	62	62	62
163	Karot	Hydro	0	0	1,496	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737
164	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0
165	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
166	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
167	Keyal Khwar	Hydro	0	0	0	0	0	232	353	343	344	345	344
168	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0
169	Khan Khwar	Hydro	235	234	234	234	235	234	234	234	235	234	234
170	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0
171	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0
172	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0
173	Kohala	Hydro	0	0	0	0	0	0	0	0	5,994	5,989	5,978
174	Koto	Hydro	0	212	212	212	212	212	212	200	201	198	199
175	Lawi	Hydro	0	130	295	295	295	295	294	291	291	290	291
176	Lower Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
177	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
178	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0
179	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
180	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
181	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6
182	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0
183	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0
184	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0
185	Mahl	Hydro	0	0	0	0	0	0	0	0	0	0	3,299
186	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0
187	Malakand-III	Hydro	367	367	367	367	367	367	367	367	362	362	364
188	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0
189	Mangla	Hydro	5,016	5,004	5,004	5,004	5,016	5,004	4,999	4,952	4,958	4,935	4,891
190	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
191	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0
192	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0
193	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
194	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
195	Mohmand	Hydro	0	0	0	0	0	1,633	2,838	2,787	2,819	2,776	2,763
196	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0
197	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0
198	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0
199	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0
200	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
201	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0
202	Neelum Jehlum	Hydro	4,944	4,939	4,939	4,939	4,944	4,938	4,913	4,737	4,737	4,710	4,699
203	Nerai-Dubair	Hydro	0	0	0	0	0	0	0	0	0	201	199
204	New Bong	Hydro	471	470	470	470	471	470	470	470	471	470	470
205	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0
206	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0
207	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0
208	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0
209	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0
210	Patrind	Hydro	635	634	634	634	635	634	634	632	633	632	632
211	Pehur	Hydro	37	37	37	37	37	37	37	36	36	36	36
212	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0
213	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0
214	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
215	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0
216	Rajdhani	Hydro	0	0	0	0	0	0	0	0	0	668	669
217	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87
218	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0
219	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0
220	Riali-II	Hydro	0	5	33	33	33	33	33	33	33	33	33
221	Riali-III	Hydro	0	0	0	0	0	0	20	20	20	20	20
222	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
223	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
224	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
225	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0
226	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0
227	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0
228	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0
229	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0
230	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0
231	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0
232	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0
233	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0
234	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0
235	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0
236	Smal Hydel	Hydro	387	386	386	386	387	386	386	379	378	378	378
237	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0
238	Suki Kinari	Hydro	0	0	0	1,332	2,800	2,797	2,791	2,764	2,765	2,760	2,760

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
239	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0
240	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0
241	Tarbela_1-10	Hydro	7,386	7,377	7,377	7,377	7,386	7,377	7,360	7,245	7,269	7,193	7,284
242	Tarbela_11-14	Hydro	7,294	7,285	7,285	7,285	7,294	7,285	7,281	7,165	7,143	7,141	7,083
243	Tarbela_Ext_4	Hydro	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,770	3,785
244	Tarbela_Ext_5	Hydro	0	0	0	0	1,975	4,004	4,000	3,925	3,822	3,894	3,894
245	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0
246	Thakot-I	Hydro	0	0	0	0	0	0	0	0	0	0	0
247	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0
248	Thakot-III	Hydro	0	0	0	0	0	0	0	0	0	7,000	7,024
249	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0
250	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0
251	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0
252	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0
253	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0
254	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0
255	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0
256	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0
257	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0
258	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0
259	Warsak	Hydro	999	997	997	997	999	997	997	997	999	997	997
260	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0
261	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0
262	CASA	Cross Border	0	0	0	1,387	3,457	3,448	3,410	2,055	2,084	2,026	1,885

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
263	Act	Wind	87	87	87	87	87	87	87	87	87	87	87
264	Act_2	Wind	0	0	58	172	172	172	172	172	172	172	172
265	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156
266	Artistic_Wind_2	Wind	0	0	102	172	172	172	172	172	172	172	172
267	Candidate_Wind_Mid	Wind	0	0	0	872	1,747	1,744	1,578	1,698	1,710	2,510	3,231
268	Candidate_Wind_North	Wind	0	0	0	581	990	989	831	989	990	945	1,476
269	Candidate_Wind_South	Wind	0	0	0	3,440	6,889	9,859	12,161	13,205	15,943	19,301	22,494
270	Dawood	Wind	0	14	144	144	144	144	144	144	144	144	144
271	Din	Wind	0	0	58	172	172	172	172	172	172	172	172
272	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149
273	FWEL-I	Wind	151	150	150	150	151	150	150	150	151	150	150
274	FWEL-II	Wind	151	150	150	150	151	150	150	150	151	150	150
275	Gul Ahmed	Wind	146	145	145	145	146	145	145	145	146	145	145
276	Gul_Electric	Wind	0	0	83	172	172	172	172	172	172	172	172
277	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157
278	Indus_Energy	Wind	0	0	58	172	172	172	172	172	172	172	172
279	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157
280	Lakeside	Wind	0	0	58	172	172	172	172	172	172	172	172
281	Liberty_Wind_1	Wind	0	0	58	172	172	172	172	172	172	172	172
282	Liberty_Wind_2	Wind	0	0	58	172	172	172	172	172	172	172	172
283	Master	Wind	154	153	153	153	154	153	153	153	154	153	153
284	Master_Green	Wind	0	102	172	172	172	172	172	172	172	172	172
285	Metro_Power	Wind	146	145	145	145	146	145	145	145	146	145	145
286	Metro_Wind	Wind	0	0	70	206	207	206	206	206	207	206	206

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
287	NASDA	Wind	0	0	58	172	172	172	172	172	172	172	172
288	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144
289	Sapphire_Wind	Wind	154	153	153	153	154	153	153	153	154	153	153
290	Shaheen	Wind	0	104	175	175	176	175	175	175	176	175	175
291	Tenga	Wind	0	14	144	144	144	144	144	144	144	144	144
292	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144
293	Three_Gorges_II	Wind	157	156	156	156	157	156	156	156	157	156	156
294	Three_Gorges_III	Wind	157	156	156	156	157	156	156	156	157	156	156
295	Trans_Atlantic	Wind	0	0	56	166	166	166	166	166	166	166	166
296	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157
298	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157
299	Tricorm	Wind	0	71	172	172	172	172	172	172	172	172	172
300	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288
301	Western	Wind	0	58	172	172	172	172	172	172	172	172	172
302	Yunus	Wind	146	145	145	145	146	145	145	145	146	145	145
303	Zephyr	Wind	0	20	158	158	158	158	158	158	158	158	158
304	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164
305	KAPCO 1	RFO	909	392	0	0	0	0	0	0	0	0	0
306	KAPCO 2	RFO	2,301	765	0	0	0	0	0	0	0	0	0
307	KAPCO 3	RFO	339	144	0	0	0	0	0	0	0	0	0
308	AES Pakgen	RFO	35	17	13	0	0	0	0	0	0	0	0
309	HUBCO	RFO	124	50	23	0	0	0	0	0	0	0	0
310	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	20	21	22	23	24	25	26	27	28	29	30
311	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 3	RFO	8	0	0	0	0	0	0	0	0	0	0
313	Jamshoro-II Unit 4	RFO	49	16	4	0	0	0	0	0	0	0	0
314	Lalpir	RFO	139	29	22	2	0	0	0	0	0	0	0
315	Muzaffargarh Unit 1 B-I	RFO	9	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 2 B-1	RFO	3	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 3 B-I	RFO	9	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 4 B-II	RFO	28	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
320	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0
321	Saba	RFO	26	8	6	0	0	0	0	0	0	0	0
322	AGL	RFO	1,203	1,200	187	49	10	12	12	21	23	49	63
323	ATLAS	RFO	251	95	35	0	0	0	0	0	0	0	0
324	HuB N	RFO	208	80	24	0	0	0	0	0	0	0	0
325	Kohinoor	RFO	611	228	37	0	0	0	0	0	0	0	0
326	Liberty Tech	RFO	272	122	44	0	0	0	0	0	0	0	0
327	Nishat C	RFO	154	43	10	0	0	0	0	0	0	0	0
328	Nishat P	RFO	123	25	0	0	0	0	0	0	0	0	0
329	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			**157,170**	**162,471**	**170,738**	**176,918**	**182,943**	**188,792**	**196,045**	**203,899**	**215,053**	**226,322**	**237,996**
Energy Demand			**157,170**	**162,472**	**170,738**	**176,918**	**182,943**	**188,792**	**196,044**	**203,899**	**215,053**	**226,322**	**237,996**
Energy Not Served			**0.00**	**0.04**	**-0.01**	**0.04**	**0.00**	**0.03**	**-0.02**	**-0.06**	**0.00**	**0.02**	**-0.02**

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

N-7: Annual Energy Generation 2030-47 (GWh)

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
1	China HUBCO	Imp. Coal	1,846	1,706	2,265	2,262	2,098	2,051	1,981	1,932	1,905	1,853	1,970	1,914	1,290	1,135	1,212	1,197	1,658
2	Gwadar	Imp. Coal	676	715	772	723	716	701	645	611	593	591	608	544	401	422	466	511	804
3	Jamshoro Coal	Imp. Coal	718	637	768	906	859	861	867	825	792	778	790	669	514	528	535	504	575
4	Jamshoro Coal Unit 2	Imp. Coal	0	0	0	0	0	0	0	0	0	0	756	728	512	531	554	518	558
5	NEW_Imported_Coal	Imp. Coal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	Port Qasim	Imp. Coal	2,728	2,710	3,093	2,951	2,793	2,704	2,509	2,372	2,381	2,393	2,410	2,300	1,641	1,505	1,641	1,665	3,101
7	Sahiwal Coal	Imp. Coal	1,164	1,009	1,233	1,425	1,384	1,436	1,325	1,238	1,258	1,274	1,128	1,011	619	878	931	862	918
8	Engro Thar	Local Coal	2,055	1,944	2,144	2,058	1,902	1,883	1,882	1,753	1,701	1,614	1,692	1,462	1,100	1,807	1,908	1,807	1,870
9	Lucky	Local Coal	1,799	1,715	1,945	1,733	1,660	1,669	1,625	1,525	1,498	1,458	1,446	1,307	974	1,097	1,354	1,707	1,841
10	NEW_Local_Coal	Local Coal	10,145	10,057	30,339	52,393	69,884	87,441	106,168	126,827	148,078	171,822	172,291	183,880	175,930	174,818	184,064	179,048	177,299
11	Oracle	Local Coal	8,488	8,591	8,620	8,750	8,866	8,905	8,976	8,986	9,000	9,043	9,022	9,023	8,990	9,013	8,992	8,995	8,911
12	Siddiqsons	Local Coal	2,101	2,085	2,133	2,153	2,188	2,202	2,205	2,214	2,204	2,215	2,197	2,201	2,225	2,249	2,249	2,245	2,224
13	Thal Nova	Local Coal	1,702	1,363	1,445	1,353	1,329	1,400	1,374	1,249	1,217	1,168	1,166	1,172	947	1,160	1,169	1,159	1,307
14	Thar TEL	Local Coal	1,686	1,375	1,455	1,341	1,322	1,367	1,371	1,270	1,226	1,158	1,164	1,180	947	1,151	1,172	1,163	1,307
15	Thar-I (Shanghai Electric)	Local Coal	4,736	4,875	4,941	4,769	4,714	4,729	4,452	4,258	3,996	3,906	3,859	3,901	3,088	4,492	4,527	4,171	4,166
16	Balloki	RLNG	6,887	6,898	6,895	358	372	422	449	455	466	574	525	495	325	296	418	373	406
17	Bhikki	RLNG	6,675	6,682	297	165	224	325	378	400	431	433	431	431	224	278	303	304	310
18	FKPCL	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
19	GTPS Block 4	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	Halmore	RLNG	57	57	21	5	5	21	21	37	58	66	70	0	0	0	0	0	0
21	Haveli	RLNG	6,943	6,957	421	462	500	568	606	611	728	860	818	740	349	360	490	470	481
22	Nandipur	RLNG	157	134	52	38	43	51	113	127	144	151	150	150	41	75	87	0	0
23	NEW_CCGT	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	Orient	RLNG	69	61	26	6	18	22	37	53	69	60	0	0	0	0	0	0	0
25	Rousch	RLNG	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	Saif	RLNG	58	51	7	6	6	12	22	27	59	54	0	0	0	0	0	0	0
27	Saphire	RLNG	67	58	22	6	6	22	26	45	64	69	0	0	0	0	0	0	0
28	Trimmu	RLNG	559	511	559	661	685	733	772	847	918	913	901	879	432	528	640	710	766
29	Davis	RLNG	2	1	0	0	0	0	1	1	2	2	2	2	1	0	0	0	0
30	NEW OCGT (Generic)	RLNG	277	203	21	2	16	37	73	109	215	426	565	686	103	105	332	316	467
31	Altern	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	Engro	Gas	117	92	119	136	91	0	0	0	0	0	0	0	0	0	0	0	0
33	Foundation	Gas	96	77	100	126	113	109	0	0	0	0	0	0	0	0	0	0	0
34	Guddu-I	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Guddu-II	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	Guddu-V (747)	Gas	523	398	469	625	556	572	621	584	545	512	501	484	292	442	35	0	0
37	Hatim	Gas	35	27	28	29	28	28	27	26	26	26	26	24	13	16	16	14	11

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
38	HCPC	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	Kotri	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	Liberty	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
41	Mari Combined Cycle	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	Uch	Gas	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	Uch-II	Gas	211	191	209	262	268	269	261	265	168	0	0	0	0	0	0	0	0
44	C-1	Nuclear	2,077	2,080	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,077	2,077	2,082	2,077	2,078	2,078
45	C-2	Nuclear	2,077	2,082	2,077	2,077	2,077	2,081	2,077	2,077	2,077	2,082	2,077	2,077	2,077	2,082	2,077	2,078	2,078
46	C-3	Nuclear	2,175	2,180	2,179	2,181	2,176	2,187	2,182	2,183	2,182	2,187	2,182	2,182	2,182	2,187	2,182	2,182	2,183
47	C-4	Nuclear	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181	2,186	2,181	2,181	2,181
48	C-5	Nuclear	7,238	7,266	7,245	7,252	7,251	7,266	7,250	7,251	7,250	7,265	7,247	7,250	7,251	7,268	7,255	7,258	7,259
49	Candidate_Nuclear	Nuclear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	K-2	Nuclear	7,238	7,268	7,251	7,247	7,253	7,263	7,250	7,249	7,251	7,265	7,247	7,251	7,252	7,267	7,254	7,257	7,258
51	K-3	Nuclear	7,233	7,267	7,247	7,252	7,245	7,264	7,252	7,249	7,252	7,266	7,249	7,250	7,254	7,267	7,254	7,258	7,258
52	Alliance	Bagasse	137	136	137	139	140	141	142	142	143	144	143	143	142	143	142	142	142
53	Almoiz	Bagasse	164	164	164	167	168	169	171	171	172	172	172	172	171	171	171	171	171
54	Bahawalpur	Bagasse	142	141	143	145	146	146	148	148	149	149	149	149	148	149	148	148	147
55	Candidate_Bagasse	Bagasse	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
56	Chanar	Bagasse	100	100	101	102	103	103	104	104	105	105	105	105	104	105	104	104	104

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
57	Chiniot	Bagasse	185	184	187	189	190	190	195	195	196	197	196	196	195	195	195	195	195
58	Etihad	Bagasse	339	338	340	345	348	349	353	353	355	356	355	355	353	354	353	353	351
59	Faran	Bagasse	120	120	121	123	124	124	126	126	126	127	126	126	126	126	126	126	125
60	Ghotki	Bagasse	205	204	204	209	210	211	214	214	215	215	215	215	214	214	214	214	212
61	Hamza	Bagasse	59	58	59	60	60	61	61	61	62	62	62	62	61	62	61	61	61
62	Hamza-II	Bagasse	137	136	136	139	140	141	142	142	143	144	143	143	142	143	142	142	142
63	HSM	Bagasse	121	120	121	123	124	124	126	126	126	127	126	126	126	126	126	126	125
64	Hunza	Bagasse	226	226	228	231	233	233	236	236	238	238	238	238	236	237	236	236	235
65	Indus	Bagasse	141	141	141	144	145	145	147	147	148	148	148	148	147	148	147	147	146
66	Ittefaq	Bagasse	142	142	143	145	146	146	148	148	149	149	149	149	148	149	148	148	147
67	JDW-II	Bagasse	186	186	187	190	191	191	192	192	193	194	193	193	192	193	192	192	192
68	JDW-III	Bagasse	174	174	175	177	178	179	179	179	180	180	180	180	179	180	179	179	179
69	Kashmir	Bagasse	182	182	183	186	187	187	190	190	191	191	191	191	190	190	190	190	189
70	Mehran	Bagasse	121	120	121	123	124	124	126	126	126	127	126	126	126	126	126	126	125
71	RYK_Energy	Bagasse	114	114	114	116	117	117	119	119	119	120	119	119	119	119	119	119	118
72	Ryk_Mills	Bagasse	137	136	137	139	140	141	142	142	143	144	143	143	142	143	142	142	142
73	Sadiqabad	Bagasse	205	204	206	209	210	211	214	214	215	215	215	215	214	214	214	214	212
74	Shahtaj	Bagasse	146	145	146	149	149	150	152	152	153	153	153	153	152	152	152	152	151
75	Sheikhoo	Bagasse	136	136	137	139	140	141	142	142	143	144	143	143	142	143	142	142	142

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
76	TAY	Bagasse	137	136	137	139	140	141	142	142	143	144	143	143	142	143	142	142	142
77	Thal_Layyah	Bagasse	102	101	102	106	106	106	108	108	109	109	109	109	108	108	108	108	108
78	Two_Star	Bagasse	227	226	228	231	233	233	236	236	238	238	238	238	236	237	236	236	234
79	Access_Electric	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
80	Access_Solar	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
81	Appolo	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
82	Best	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
83	Buksh	Solar	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19	19
84	Candidate_Solar	Solar	19,771	22,319	24,824	24,824	24,824	25,492	26,487	27,808	29,455	30,783	33,266	35,748	35,748	38,230	40,713	43,195	43,197
85	Crest	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
86	Helios	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
87	HNDS	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
88	Meridian	Solar	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83	83
89	QA_Solar	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
90	Safe	Solar	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17	17
91	Zhenfa	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
92	Zorlu	Solar	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165	165
93	Alka	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	11
94	Allai Khwar	Hydro	395	396	395	395	395	396	395	395	395	396	395	395	395	396	395	395	395

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
95	Arkari Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	255	262	260
96	Artistic-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	291
97	Artistic-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	197
98	Ashkot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,222
99	Asrit Kadam	Hydro	0	0	0	0	0	0	0	0	0	0	0	916	916	917	917	917	918
100	Athmuqam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,962
101	Azad Pattan	Hydro	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253	3,256	3,253	3,253	3,253
102	Balakot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	989
103	Balakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	505
104	Balkani	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	39
105	Barum Gol	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	142	142
106	Basho	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	152	152
107	Bata Kundi	Hydro	0	0	0	0	0	0	0	0	0	0	350	350	349	349	349	350	349
108	Bhan Khwar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119	119	119
109	Bhimbal Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	48	48	48
110	Blue Star	Hydro	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18	18
111	BS Link Tail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
112	Bunji	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	25,869	25,811	25,870	25,760	25,737
113	Chakoti Hatian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,420	2,420

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
114	Chapri Charkhel	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	65	65
115	Chashma	Hydro	765	767	765	765	765	767	765	765	765	767	765	765	765	767	765	765	765
116	Chenavan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9	9	9
117	Chicha Watni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
118	Chiniot_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252
119	Chota Jabba	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	173
120	CJ	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72	72	72
121	Dander	Hydro	199	215	219	220	223	226	226	225	228	223	222	226	232	230	233	236	235
122	Daral Khwar	Hydro	131	139	139	137	139	140	140	141	141	141	140	141	142	144	144	146	146
123	Daral Khwar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	40
124	Dasu_1	Hydro	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975	11,990	11,975	11,975	11,975
125	Dasu_2	Hydro	0	11,499	11,631	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153	12,167	12,153	12,153	12,153
126	Dhaddar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	73
127	Dhudnial	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4,736	4,735	4,740
128	Diamer Bhasha Dam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	17,562	17,540	17,545	17,542
129	Dowarian	Hydro	0	0	0	0	0	0	0	0	0	0	158	158	158	158	159	159	159
130	Dubair Kalay	Hydro	334	367	358	364	362	367	367	368	366	367	371	371	370	373	370	371	373
131	Dubair Khwar	Hydro	563	568	562	559	575	570	574	574	574	575	575	576	574	576	575	577	576
132	Engro_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
133	Gabral Kalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	308	311	312
134	Gabral Utror	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	310	310	310
135	Gahrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,636
136	Garhi Habibullah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	507
137	Ghail	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
138	Ghanool	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8	8
139	Ghazi Brotha	Hydro	6,492	6,503	6,535	6,509	6,505	6,540	6,524	6,524	6,521	6,529	6,526	6,518	6,521	6,530	6,523	6,515	6,551
140	Ghorband	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	119
141	Golen Gol	Hydro	96	96	96	96	96	97	97	96	97	97	97	97	97	97	97	97	97
142	Gomat Nar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	210
143	Gorkin Matiltan	Hydro	301	312	308	304	312	314	311	312	314	311	310	312	316	313	316	318	319
144	Gugera	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
145	Gulpur	Hydro	480	481	480	480	480	481	480	480	480	481	480	480	480	481	480	480	480
146	Gwaldai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	78	78	79
147	Harigehl-Majeedgala	Hydro	0	0	0	0	0	0	0	0	0	0	0	212	212	212	213	213	213
148	Harpo	Hydro	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169	169
149	Istaro-Booni	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	260
150	Jabori	Hydro	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68	68
151	Jabri Bedar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
152	Jagran-I	Hydro	77	79	80	78	80	80	80	80	80	80	80	81	81	81	81	81	81
153	Jagran-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	137	138	138
154	Jagran-IV	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	91	91	91
155	Jamshil	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2,626
156	Jhing	Hydro	64	66	65	65	66	66	66	66	66	66	66	66	67	67	67	67	67
157	Jhing-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	28
158	Jinnah	Hydro	192	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194	194
159	Kalam Asrit	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	847	849	845	849
160	Kalkot Barikot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	158
161	Kari Mushkur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,959
162	Karora	Hydro	62	64	63	63	63	64	63	63	63	63	63	63	64	64	64	64	64
163	Karot	Hydro	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737	2,738	2,737	2,737	2,737
164	Kasur	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
165	Kathai-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	39	39	40	39	39	39
166	Kathai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
167	Keyal Khwar	Hydro	343	349	348	349	349	349	348	348	350	350	349	350	351	351	351	353	353
168	Khal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	259
169	Khan Khwar	Hydro	234	235	234	234	234	235	234	234	234	235	234	234	234	235	234	234	234
170	Khanewal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
171	Khanki Barrage	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
172	Khokhra	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
173	Kohala	Hydro	5,999	6,108	6,111	6,077	6,067	6,095	6,101	6,101	6,118	6,120	6,106	6,105	6,120	6,154	6,172	6,189	6,212
174	Koto	Hydro	199	206	203	202	206	207	207	207	208	208	208	208	209	209	209	210	210
175	Lawi	Hydro	290	292	291	291	291	291	291	291	291	291	293	292	292	291	292	292	292
176	Lower Palas	Hydro	0	0	2,450	2,505	2,508	2,506	2,511	2,510	2,511	2,514	2,517	2,511	2,512	2,516	2,513	2,515	2,517
177	Lower Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	309
178	Luat	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	200
179	Lucky_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	77
180	Luspur Murigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	787
181	Machai	Hydro	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
182	Machai-III	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
183	Madian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	663	664	664
184	Mahandri	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
185	Mahl	Hydro	3,320	3,409	3,370	3,483	3,472	3,495	3,481	3,482	3,482	3,492	3,490	3,485	3,504	3,501	3,504	3,533	3,542
186	Mahodand	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	182	182
187	Malakand-III	Hydro	360	366	362	360	364	366	367	367	366	367	367	367	366	367	367	367	367
188	Mandi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
189	Mangla	Hydro	4,887	4,986	4,900	4,920	4,944	4,974	4,965	4,984	4,997	5,006	4,994	4,997	4,980	5,012	5,004	5,004	5,004

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
190	Mastuj	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	224	224
191	Mehar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42
192	Mid Ranjha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	84
193	Middle Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1,710	1,710
194	Middle Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
195	Mohmand	Hydro	2,776	2,817	2,790	2,754	2,788	2,792	2,792	2,826	2,817	2,817	2,811	2,819	2,819	2,820	2,823	2,835	2,837
196	Mujigram	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	285	285
197	Murree	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	37
198	Nagdar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	133	133	133
199	Nandihaar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
200	Nandihaar-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	55	55	55
201	Naran	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	674	674	676
202	Neelum Jehlum	Hydro	4,730	4,779	4,783	4,746	4,802	4,837	4,864	4,865	4,864	4,865	4,861	4,868	4,880	4,880	4,890	4,902	4,913
203	Nerai-Dubair	Hydro	201	228	227	234	236	241	239	241	240	239	236	242	243	245	245	250	252
204	New Bong	Hydro	470	471	470	470	470	471	470	470	470	471	470	470	470	471	470	470	470
205	Nila Da Katha	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	132	135
206	Okara	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13	13
207	Pashot	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	251	257	258
208	Patan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	12,339	12,362	12,335	12,336	12,336

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
209	Patrak Sheringhal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	71
210	Patrind	Hydro	632	634	633	633	633	634	633	634	633	634	634	634	634	634	634	634	634
211	Pehur	Hydro	36	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37	37
212	Phandar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	319	320	320
213	Punjnad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
214	Qaditrabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	32
215	QB Link	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
216	Rajdhani	Hydro	665	671	669	669	670	671	670	670	670	671	670	670	670	671	670	670	670
217	Ranolia	Hydro	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
218	Rasul	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	59
219	Ravi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21
220	Riali-II	Hydro	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
221	Riali-III	Hydro	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20
222	Sahiwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
223	Sakhra-I	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	41	41	41	41
224	Sakhra-II	Hydro	0	0	0	0	0	0	0	0	0	0	0	34	34	34	34	34	34
225	Sarral-Dhartian	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	41
226	Serai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	22	22
227	Shah Jiwana	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	307

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
228	Shalfalam	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	282	283
229	Sharmai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	653	657
230	Shigo Kas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	451	448
231	Shogosin	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	533	533
232	Shounter	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	206	206
233	Shushghai	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	468
234	SHYOK	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3,722	3,725
235	Skardu	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
236	Smal Hydel	Hydro	378	382	380	380	380	381	381	380	381	383	382	381	381	383	383	383	383
237	Soan	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	72
238	Suki Kinari	Hydro	2,758	2,776	2,767	2,767	2,770	2,775	2,776	2,773	2,773	2,774	2,776	2,776	2,773	2,777	2,778	2,780	2,783
239	Tangar	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	95
240	Tangus	Hydro	0	0	0	0	0	0	0	0	0	0	0	8,816	8,816	8,817	8,779	8,812	8,812
241	Tarbela_1-10	Hydro	7,159	7,255	7,220	7,194	7,189	7,313	7,343	7,351	7,332	7,375	7,304	7,347	7,331	7,361	7,339	7,343	7,334
242	Tarbela_11-14	Hydro	7,092	7,180	7,096	7,195	7,159	7,197	7,200	7,196	7,254	7,253	7,248	7,261	7,242	7,250	7,269	7,272	7,263
243	Tarbela_Ext_4	Hydro	3,811	3,792	3,811	3,807	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811	3,815	3,811	3,811	3,811
244	Tarbela_Ext_5	Hydro	3,845	3,863	3,897	3,915	3,978	3,932	3,936	3,977	3,988	3,983	3,989	3,983	3,984	3,986	3,984	3,987	3,985
245	Taunsa	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	439
246	Thakot-I	Hydro	9,817	9,875	9,970	10,057	10,077	10,097	10,087	10,092	10,090	10,115	10,100	10,100	10,111	10,131	10,126	10,133	10,141

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
247	Thakot-II	Hydro	0	0	0	0	0	0	0	0	0	0	4,658	4,660	4,662	4,674	4,669	4,671	4,674
248	Thakot-III	Hydro	7,042	7,026	7,051	7,208	7,209	7,221	7,221	7,221	7,221	7,234	7,221	7,221	7,224	7,240	7,227	7,228	7,228
249	Torkhow	Hydro	0	0	0	0	0	0	0	0	0	0	0	306	306	306	306	306	306
250	TP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22
251	Trappi	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	154	154	154
252	Trident	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	23
253	Trimmu_HPP	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	27
254	Turtonas Uzghor	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	354
255	UCC Bhambhwal	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13	13
256	Upper Palas	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	507
257	Upper Spat Gah	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
258	Wari	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	252	252
259	Warsak	Hydro	997	999	997	997	997	999	997	997	997	999	997	997	997	999	997	997	997
260	Wazirabad	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	349	350
261	Yulbo	Hydro	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11,239	11,243
262	CASA	Cross Border	2,013	2,346	2,356	2,097	2,194	2,203	2,231	2,249	2,256	2,310	2,332	2,292	2,322	2,445	2,485	2,641	2,931
263	Act	Wind	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87	87
264	Act_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
265	Artistic_wind	Wind	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156	156

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
266	Artistic_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
267	Candidate_Wind_Mid	Wind	3,283	3,242	3,359	3,231	3,382	3,388	3,382	3,382	3,382	3,388	3,382	3,382	3,382	3,388	3,382	3,382	3,382
268	Candidate_Wind_North	Wind	1,570	1,573	1,570	1,540	1,500	1,573	1,570	1,570	1,570	1,573	1,570	1,570	1,570	1,573	1,570	1,570	1,570
269	Candidate_Wind_South	Wind	22,666	22,749	22,765	22,800	22,776	22,832	22,800	22,800	22,800	22,832	22,800	22,800	22,800	22,832	22,800	22,800	22,800
270	Dawood	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
271	Din	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
272	FFC	Wind	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149	149
273	FWEL-I	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
274	FWEL-II	Wind	150	151	150	150	150	151	150	150	150	151	150	150	150	151	150	150	150
275	Gul Ahmed	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
276	Gul_Electric	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
277	Hawa	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
278	Indus_Energy	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
279	Jhimpir	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
280	Lakeside	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
281	Liberty_Wind_1	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
282	Liberty_Wind_2	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
283	Master	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
284	Master_Green	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
285	Metro_Power	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
286	Metro_Wind	Wind	206	207	206	206	206	207	206	206	206	207	206	206	206	207	206	206	206
287	NASDA	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
288	Sachal	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
289	Sapphire_Wind	Wind	153	154	153	153	153	154	153	153	153	154	153	153	153	154	153	153	153
290	Shaheen	Wind	175	176	175	175	175	176	175	175	175	176	175	175	175	176	175	175	175
291	Tenga	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
292	Three_Gorges_I	Wind	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144	144
293	Three_Gorges_II	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
294	Three_Gorges_III	Wind	156	157	156	156	156	157	156	156	156	157	156	156	156	157	156	156	156
295	Trans_Atlantic	Wind	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166	166
296	Tricon_A	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
297	Tricon_B	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
298	Tricon_C	Wind	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157	157
299	Tricorm	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
300	UEP	Wind	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288	288
301	Western	Wind	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172	172
302	Yunus	Wind	145	146	145	145	145	146	145	145	145	146	145	145	145	146	145	145	145
303	Zephyr	Wind	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158	158

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
304	Zorlu_Wind	Wind	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164	164
305	KAPCO 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
306	KAPCO 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
307	KAPCO 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
308	AES Pakgen	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
309	HUBCO	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
310	Jamshoro-I Unit 1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
311	Jamshoro-II Unit 2	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
312	Jamshoro-II Unit 3	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
313	Jamshoro-II Unit 4	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
314	Lalpir	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
315	Muzaffargarh Unit 1 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
316	Muzaffargarh Unit 2 B-1	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
317	Muzaffargarh Unit 3 B-I	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
318	Muzaffargarh Unit 4 B-II	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
319	Muzaffargarh Unit 5 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
320	Muzaffargarh Unit 6 B-III	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
321	Saba	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
322	AGL	RFO	82	67	80	68	0	0	0	0	0	0	0	0	0	0	0	0	0

#	Plant Name	Fuel	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47
323	ATLAS	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
324	HuB N	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
325	Kohinoor	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
326	Liberty Tech	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
327	Nishat C	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
328	Nishat P	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
329	Reshma	RFO	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Energy Generated			236,444	250,372	264,662	280,559	297,817	316,988	336,188	357,484	380,334	405,683	414,093	437,632	461,648	484,969	505,931	526,302	545,775
Energy Demand			236,444	250,372	264,662	280,559	297,817	316,988	336,188	357,484	380,334	405,683	414,093	437,632	461,648	484,969	505,931	526,302	545,775
Energy Not Served			0.01	0.00	0.02	0.01	0.01	0.00	0.02	0.01	-0.04	0.00	-0.04	0.01	0.05	0.00	0.01	0.02	-0.02

(All numbers in red color, in this table, represent retirement of the corresponding plant.)

N-8: Year wise Cost Breakup-Discounted Prices

FY	Present Worth Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,751,312	6,708,034	6,708,034
2021	0	913,435	4,826,457	5,739,893	12,447,927
2022	0	909,992	3,537,939	4,447,931	16,895,858
2023	215,029	890,290	2,739,694	3,845,013	20,740,870
2024	536,256	881,359	2,110,171	3,527,786	24,268,657
2025	597,163	826,026	1,764,662	3,187,850	27,456,506
2026	624,699	793,469	1,405,832	2,824,000	30,280,507
2027	656,644	731,967	1,319,878	2,708,489	32,988,996
2028	697,272	688,333	1,194,583	2,580,188	35,569,184
2029	843,340	645,306	1,069,619	2,558,265	38,127,449
2030	952,149	595,456	985,313	2,532,918	40,660,367
2031	971,727	520,052	883,336	2,375,115	43,035,482
2032	972,957	477,247	781,714	2,231,918	45,267,400
2033	1,035,738	447,526	534,216	2,017,480	47,284,880
2034	1,048,874	422,339	441,188	1,912,402	49,197,282
2035	1,037,856	397,690	442,110	1,877,657	51,074,939
2036	1,023,243	374,141	454,477	1,851,861	52,926,800
2037	1,003,413	350,742	462,827	1,816,982	54,743,782
2038	984,424	331,841	461,354	1,777,619	56,521,401
2039	965,602	314,488	466,297	1,746,387	58,267,788
2040	946,637	298,547	461,930	1,707,115	59,974,903
2041	955,987	270,687	418,899	1,645,573	61,620,476
2042	880,887	253,116	391,680	1,525,683	63,146,159
2043	948,625	247,200	313,033	1,508,858	64,655,017
2044	952,274	224,485	286,235	1,462,994	66,118,011
2045	907,376	207,801	272,324	1,387,500	67,505,511
2046	899,070	204,537	239,397	1,343,004	68,848,515
2047	891,190	193,783	221,609	1,306,582	70,155,097

N-9: Year wise Cost Breakup-Un-Discounted Prices (k$)

FY	Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,751,312	6,708,034	6,708,034
2021	0	1,014,928	5,362,730	6,377,658	13,085,692
2022	0	1,123,447	4,367,826	5,491,273	18,576,965
2023	294,964	1,221,248	3,758,154	5,274,366	23,851,331
2024	817,339	1,343,331	3,216,234	5,376,903	29,228,234
2025	1,011,300	1,398,882	2,988,470	5,398,652	34,626,886
2026	1,175,481	1,493,052	2,645,321	5,313,855	39,940,741
2027	1,372,879	1,530,362	2,759,537	5,662,778	45,603,519
2028	1,619,803	1,599,036	2,775,085	5,993,925	51,597,444
2029	2,176,809	1,665,647	2,760,874	6,603,330	58,200,774
2030	2,730,737	1,707,752	2,825,849	7,264,338	65,465,112
2031	3,096,538	1,657,216	2,814,870	7,568,625	73,033,736
2032	3,444,954	1,689,792	2,767,821	7,902,567	80,936,303
2033	4,074,717	1,760,619	2,101,668	7,937,003	88,873,307
2034	4,584,884	1,846,145	1,928,541	8,359,571	97,232,877
2035	5,040,802	1,931,555	2,147,302	9,119,659	106,352,537
2036	5,522,028	2,019,090	2,452,628	9,993,745	116,346,282
2037	6,016,680	2,103,128	2,775,213	10,895,021	127,241,303
2038	6,558,687	2,210,880	3,073,755	11,843,322	139,084,625
2039	7,148,100	2,328,070	3,451,871	12,928,041	152,012,666
2040	7,786,343	2,455,629	3,799,496	14,041,467	166,054,133
2041	8,736,939	2,473,857	3,828,395	15,039,192	181,093,325
2042	8,945,096	2,570,302	3,977,377	15,492,775	196,586,100
2043	10,703,283	2,789,142	3,531,928	17,024,353	213,610,453
2044	11,938,277	2,814,280	3,588,413	18,340,970	231,951,423
2045	12,639,341	2,894,576	3,793,345	19,327,262	251,278,685
2046	13,915,154	3,165,684	3,705,220	20,786,059	272,064,744
2047	15,325,774	3,332,477	3,811,010	22,469,261	294,534,005

N-10: Year wise Nominal Capacity Addition (MW)

FY	Capacity Addition Over the Plan Period (2020-47) - MW										
	Local Coal	Hydro	RLNG	Nuclear	Imported Coal	RE	Natural Gas	Furnace Oil	Cross Border	Yearly Addition	Total (MW)
2020	602	9,945	6,677	1,230	3,736	1,846	3,010	6,488	0	33,534	-
2021	2,118	119	0	1,059	0	446	0	0	0	3,742	37,276
2022	607	720	0	1,059	917	1,410	0	-1,336	0	3,377	40,653
2023	0	968	0	0	0	3,000	-260	0	1,000	4,708	45,361
2024	1,529	1,413	610	0	0	2,940	-270	0	0	6,222	51,582
2025	0	3,088	0	0	0	2,366	0	0	0	5,454	57,036
2026	0	37	0	1,059	0	2,173	0	0	0	3,269	60,305
2027	607	700	0	0	0	1,800	-192	-1,200	0	1,715	62,020
2028	0	1,122	1,595	0	0	2,290	0	-824	0	4,183	66,203
2029	0	1,986	1,012	0	0	2,763	-106	0	0	5,656	71,859
2030	607	639	1,616	0	0	3,000	-678	-653	0	4,531	76,390
2031	0	2,154	1,347	0	0	0	0	-310	0	3,191	79,581
2032	0	2,160	1,211	0	0	1,500	-29	-367	0	4,475	84,056
2033	3,217	666	53	0	0	1,500	0	-627	0	4,809	88,865
2034	3,424	0	737	0	0	0	0	-156	0	4,006	92,870
2035	2,431	0	2,537	0	0	0	-212	-409	0	4,347	97,217
2036	2,355	0	2,951	0	0	404	-167	-606	0	4,937	102,154
2037	2,652	0	2,181	0	0	601	0	0	0	5,434	107,588
2038	2,930	0	2,197	0	0	798	0	0	0	5,924	113,512
2039	3,008	0	2,808	0	0	995	-355	0	0	6,456	119,968
2040	3,363	0	2,561	0	0	802	0	0	0	6,726	126,694
2041	185	1,102	-6	0	644	1,500	0	0	0	3,425	130,119
2042	1,764	2,542	1,240	0	0	1,500	0	0	0	7,046	137,165
2043	0	9,500	0	0	0	0	0	0	0	9,500	146,665
2044	0	4,720	-10	0	0	1,500	0	0	0	6,210	152,874
2045	1,264	1,953	0	0	0	1,500	-721	0	0	3,996	156,870
2046	5	5,262	-450	0	0	1,500	0	0	0	6,317	163,187
2047	0	5,040	0	0	0	1	0	0	0	5,041	168,228
Total	**32,666**	**55,836**	**30,866**	**4,407**	**5,297**	**38,136**	**20**	**0**	**1,000**	**168,228**	

N-11: IGCEP Generation Mix 2020-2047 (GWh)

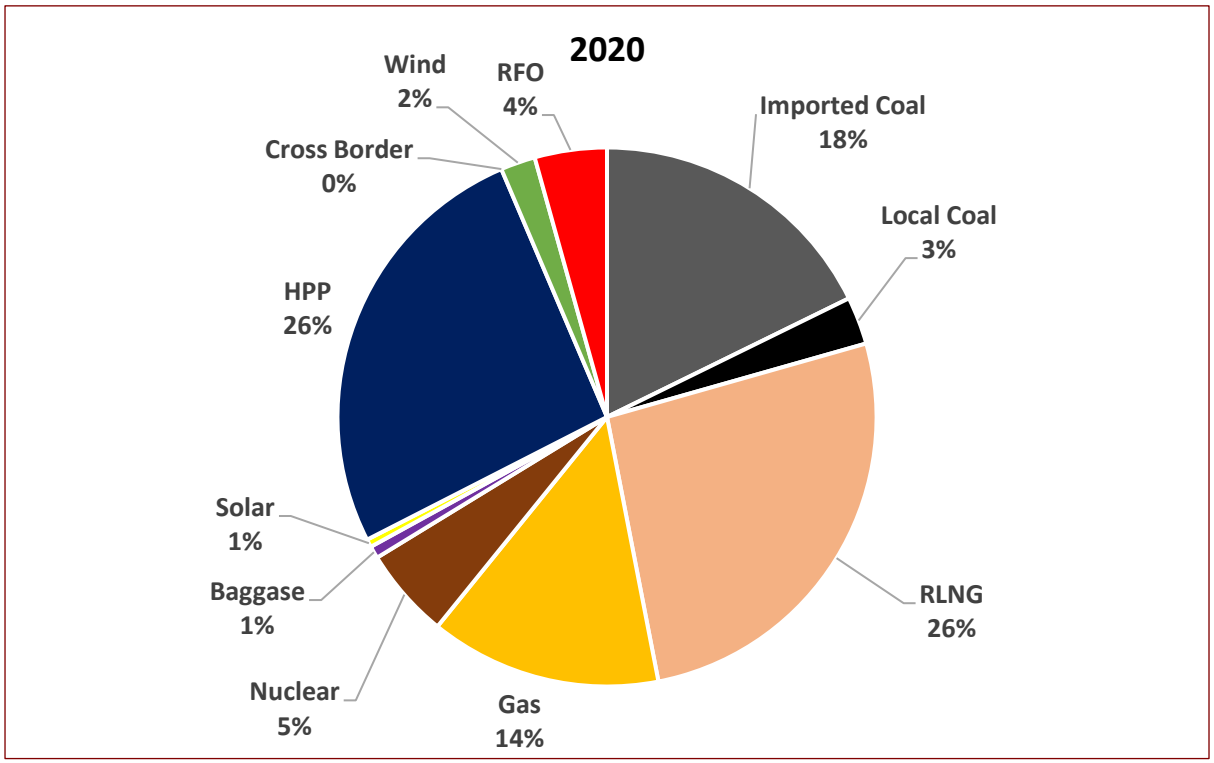


Chart N-1: IGCEP Generation Mix 2020 (GWh)

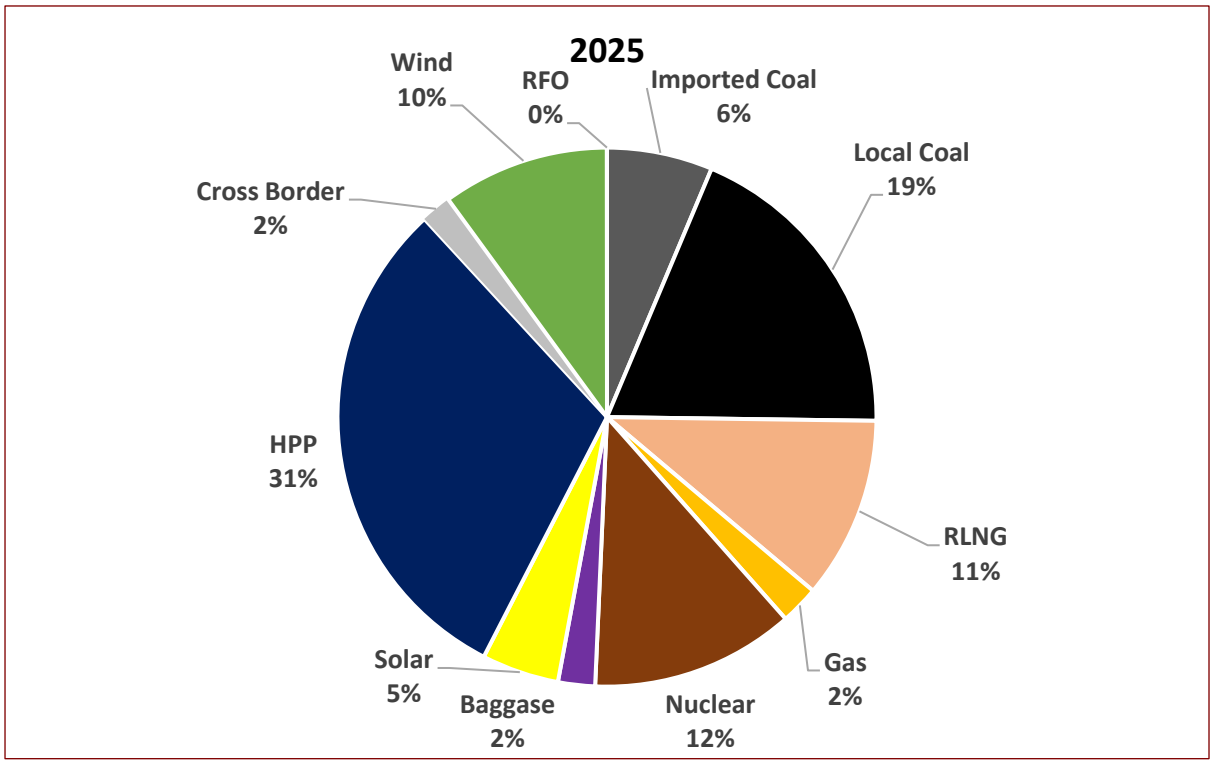


Chart N-2: IGCEP Generation Mix 2025 (GWh)

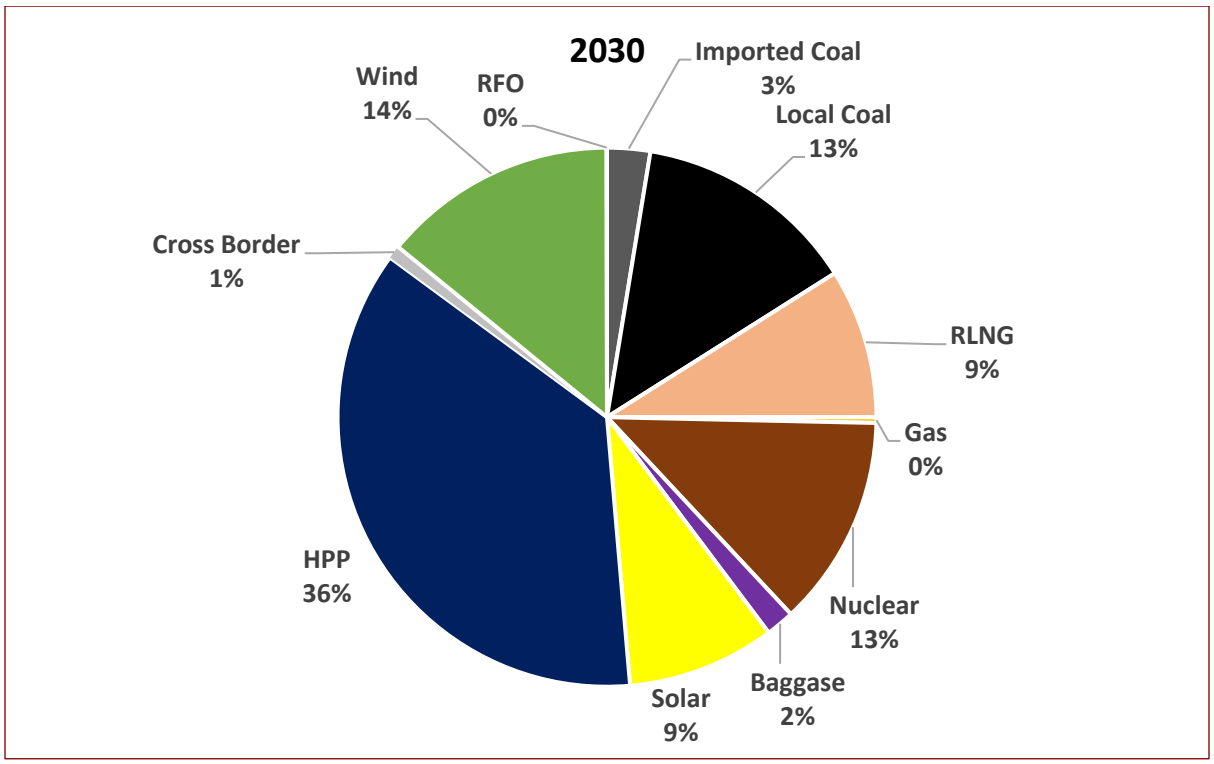


Chart N-3: IGCEP Generation Mix 2030 (GWh)

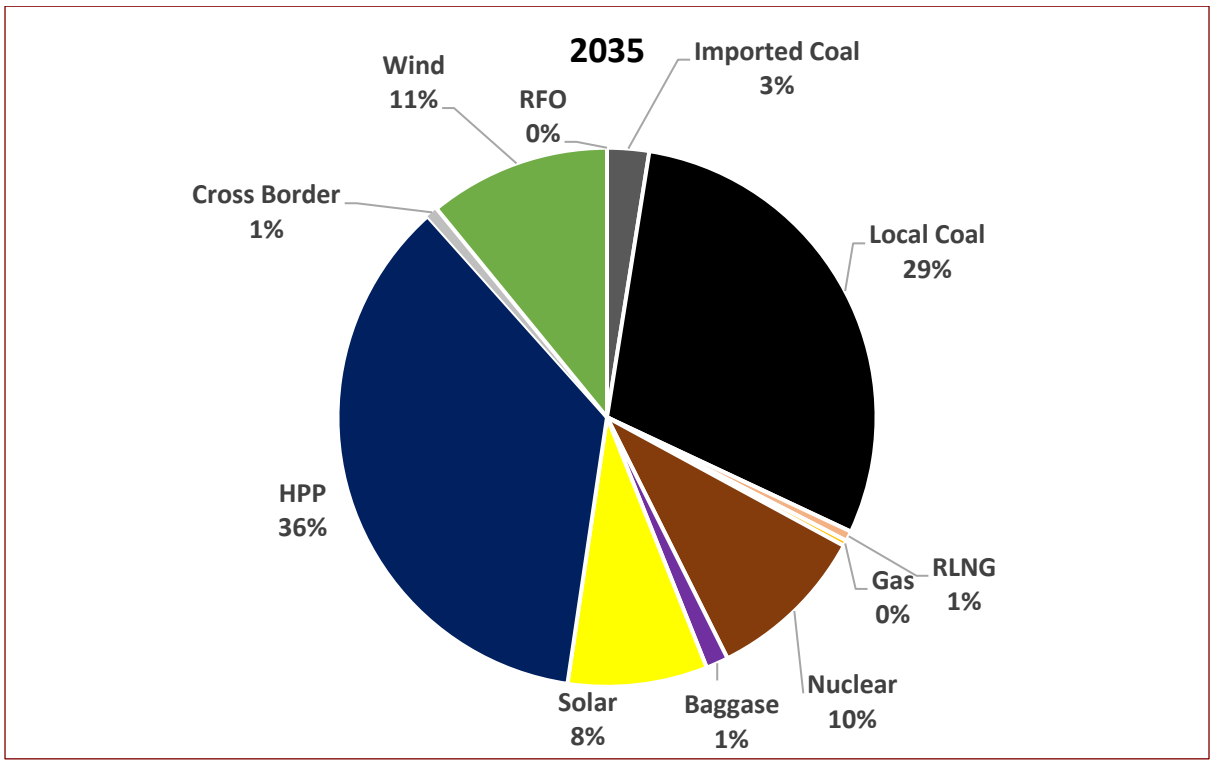


Chart N-4: IGCEP Generation Mix 2035 (GWh)

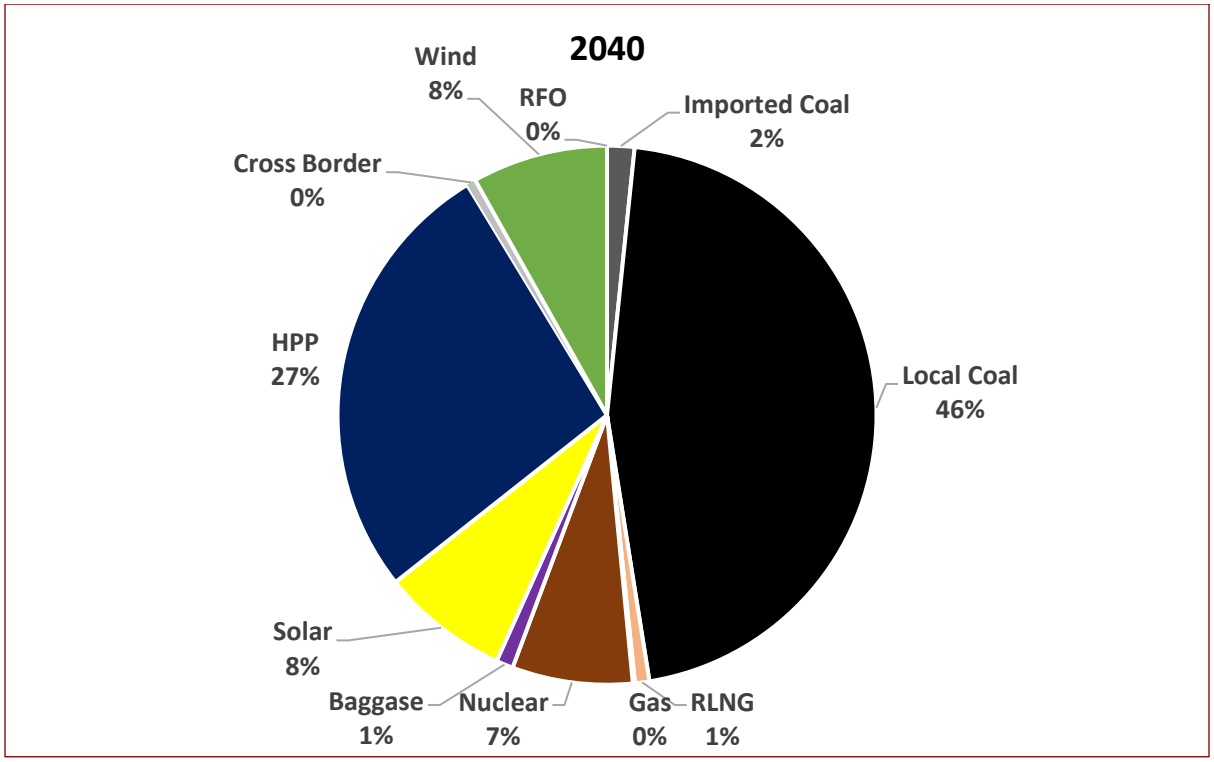


Chart N-5: IGCEP Generation Mix 2040 (GWh)

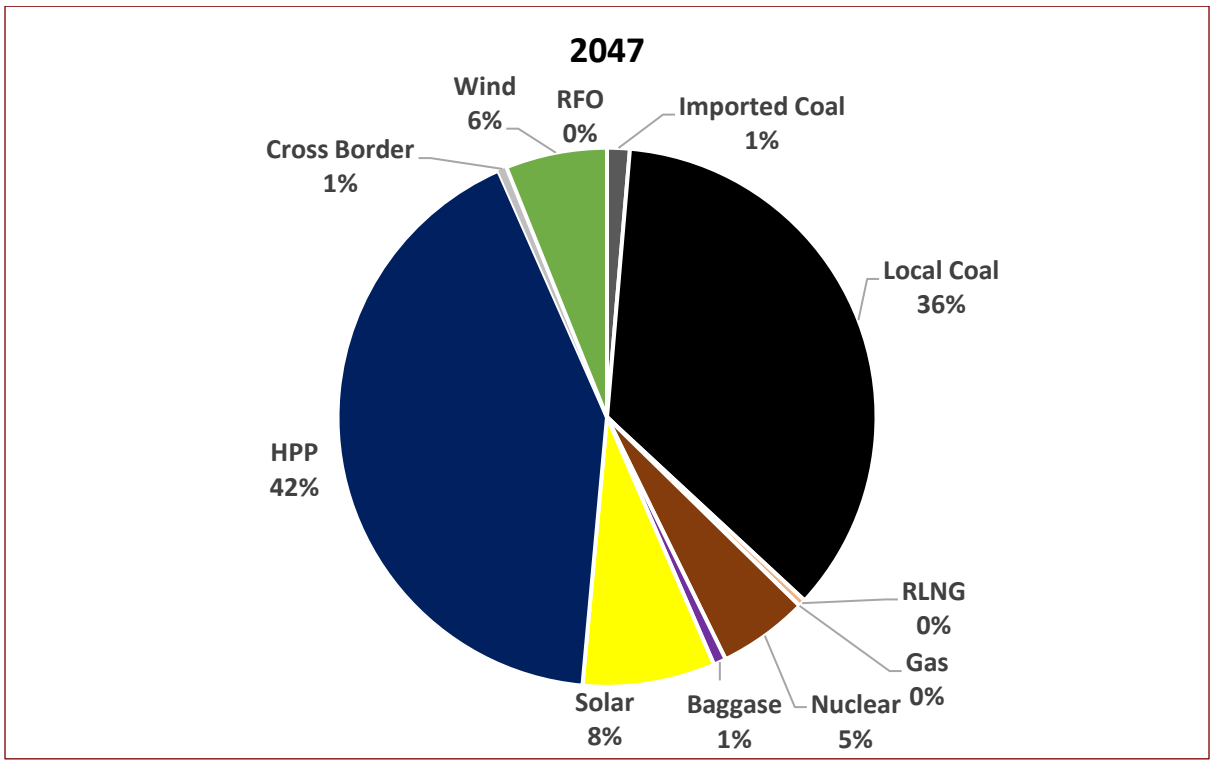


Chart N-6: IGCEP Generation Mix 2047 (GWh)

N-12: IGCEP Generation Mix 2020-47 (MW)

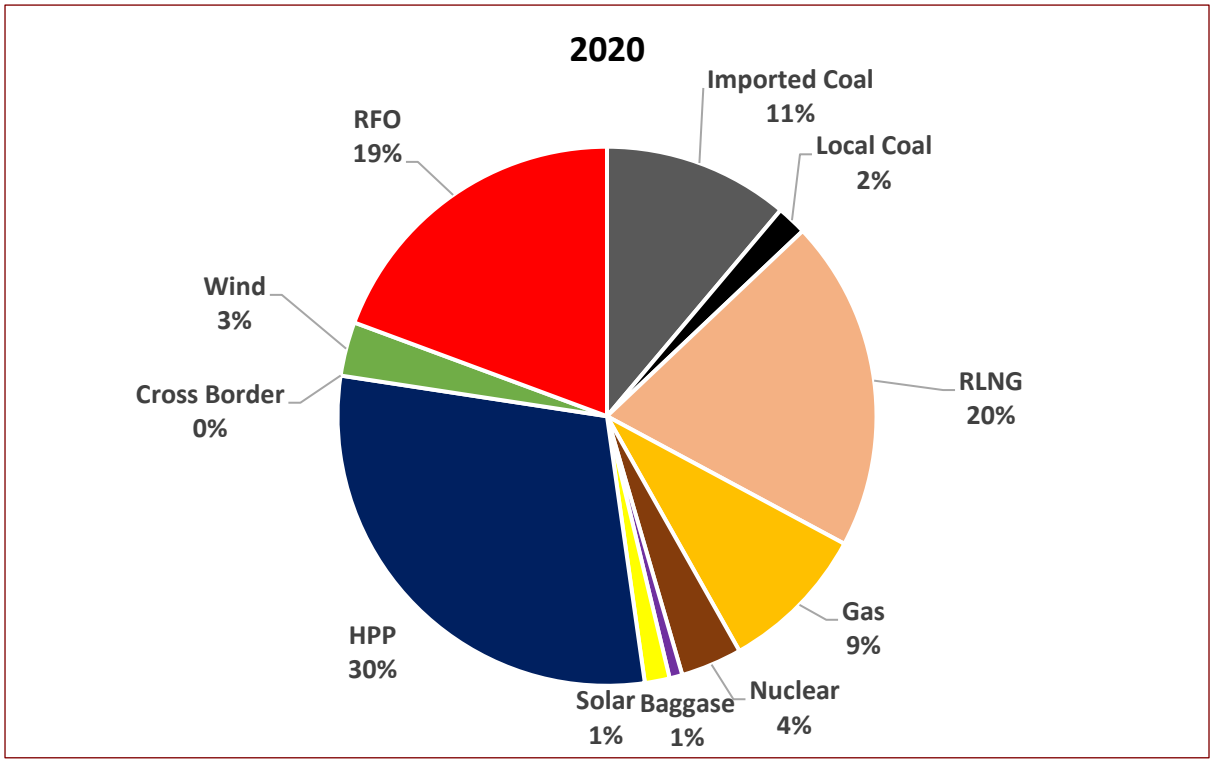


Chart N-7: IGCEP Generation Mix 2020 (MW)

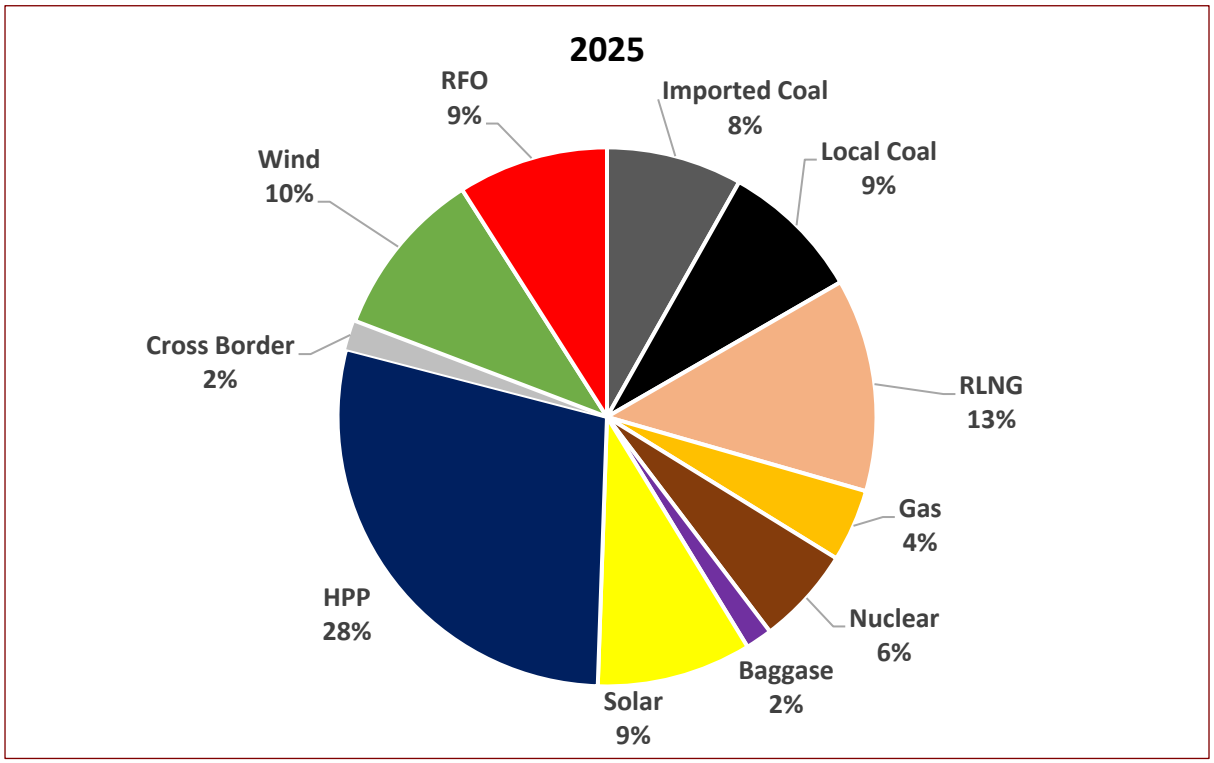


Chart N-8: IGCEP Generation Mix 2025 (MW)

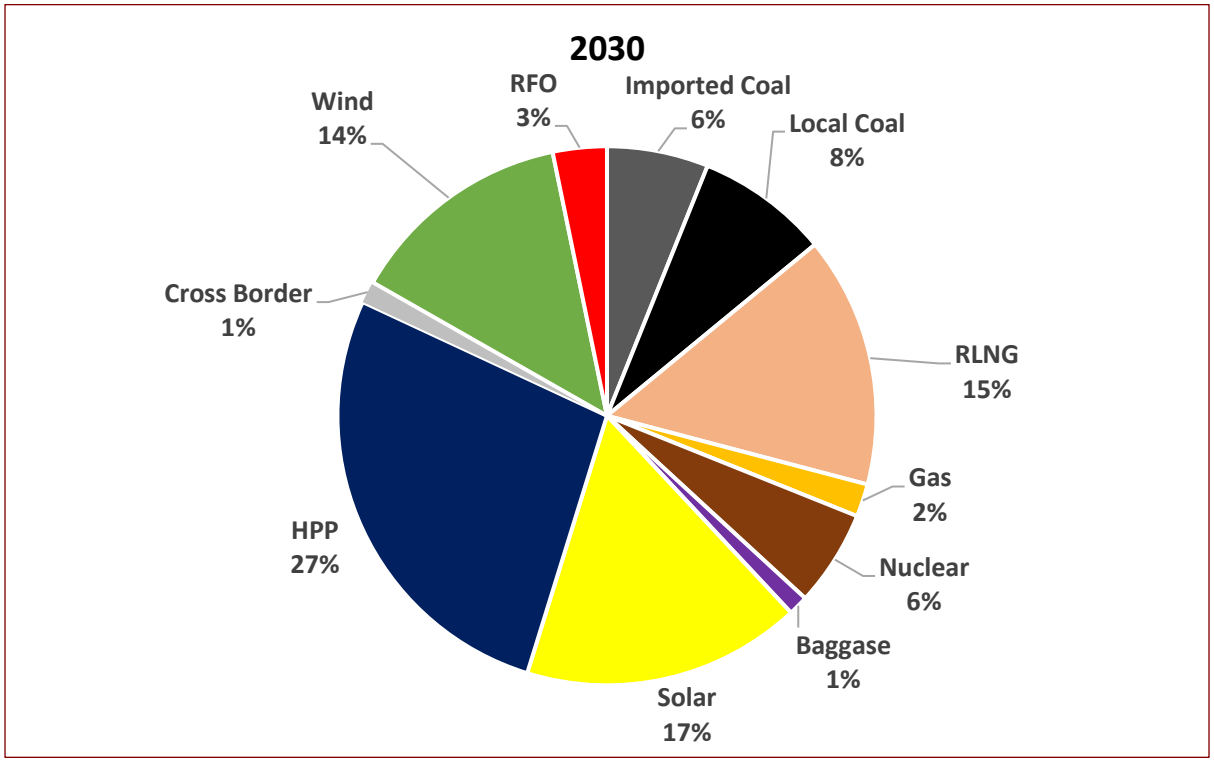


Chart N-9: IGCEP Generation Mix 2030 (MW)

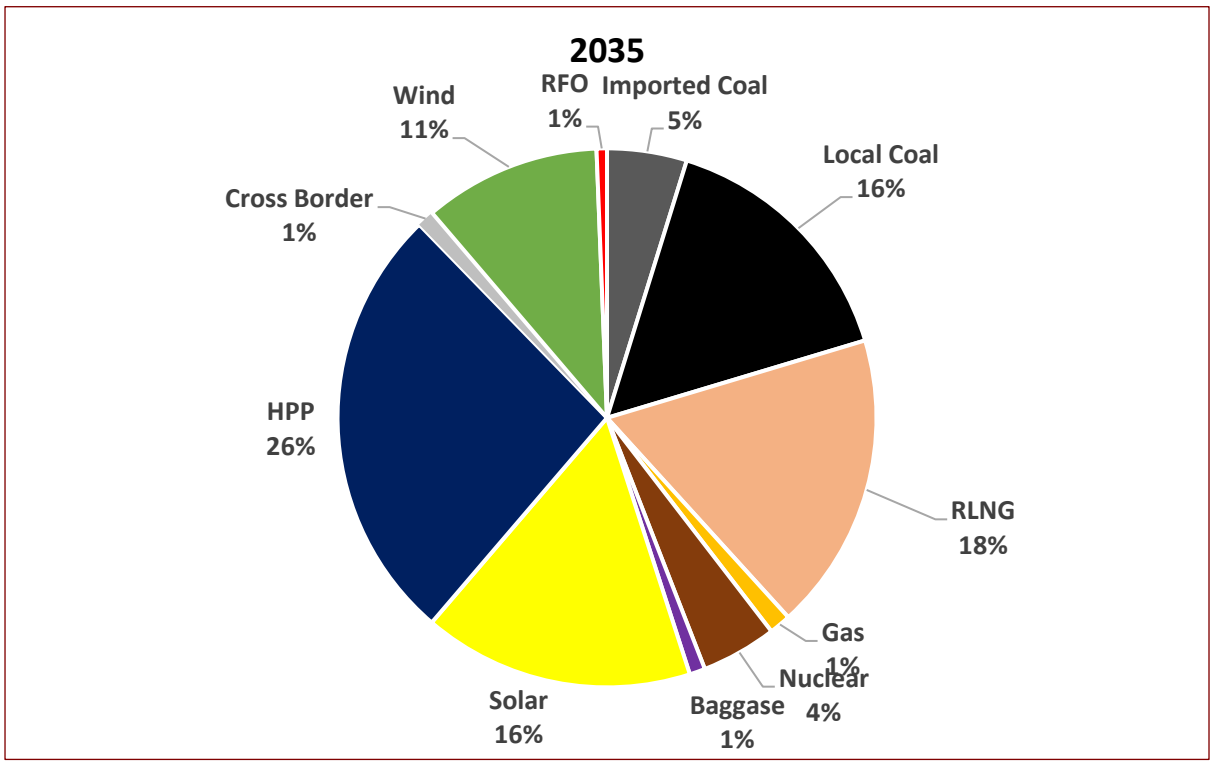


Chart N-10: IGCEP Generation Mix 2035 (MW)

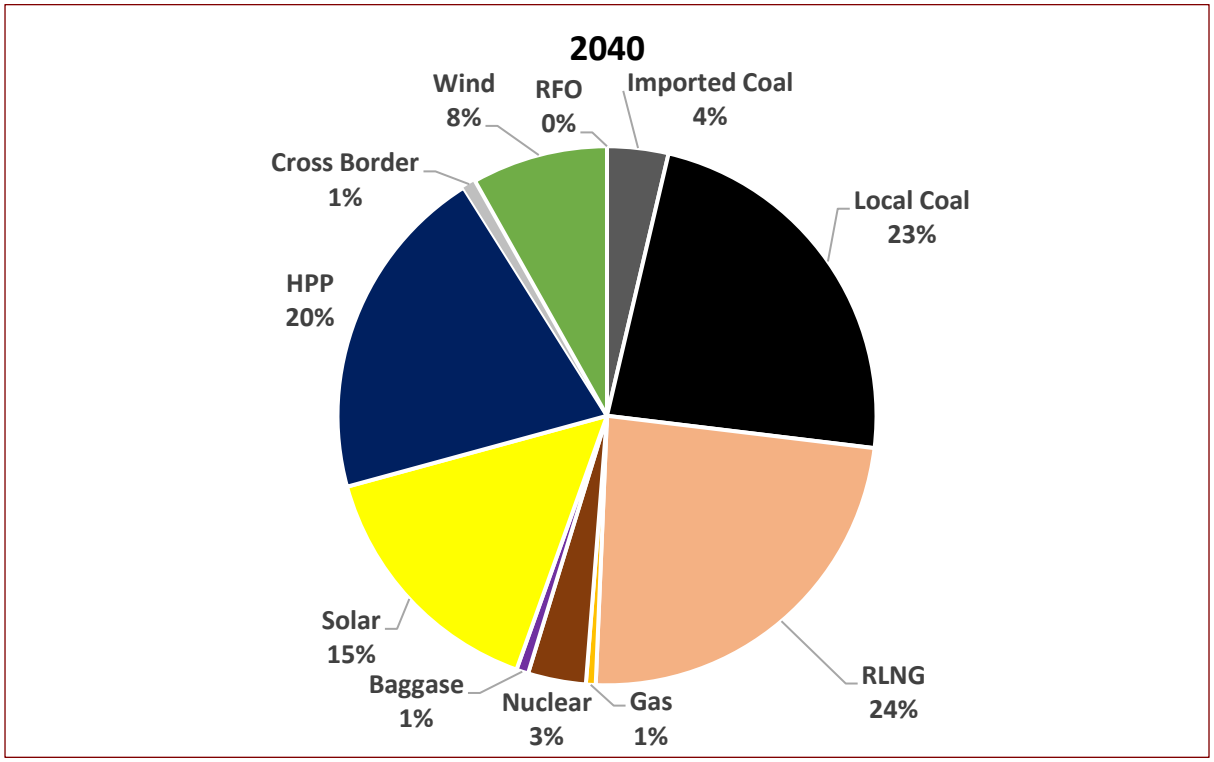


Chart N-11: IGCEP Generation Mix 2040 (MW)

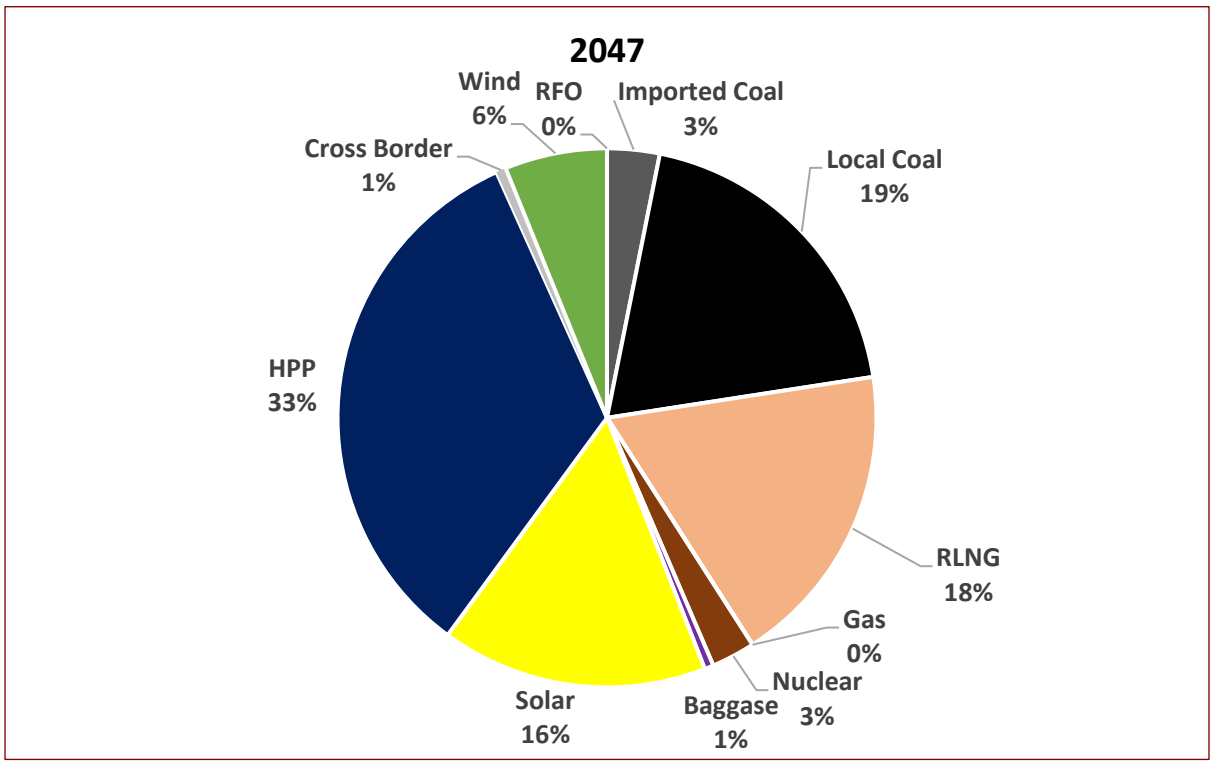


Chart N-12: IGCEP Generation Mix 2047 (MW)

N-13: IGCEP Monthly Generation Mix 2019-47 (GWh)

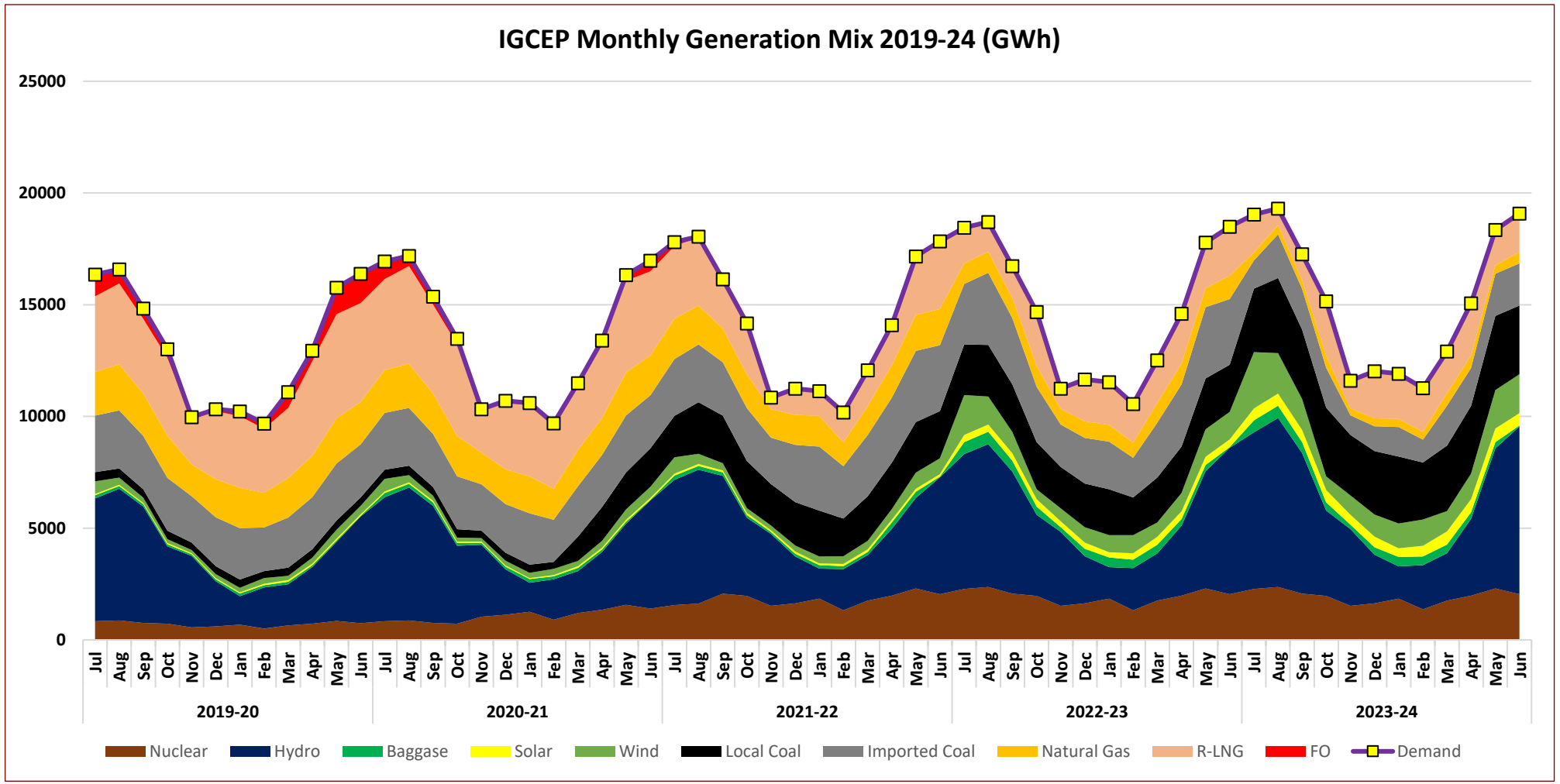


Chart N-13: IGCEP Monthly Generation Mix 2019-24 (GWh)

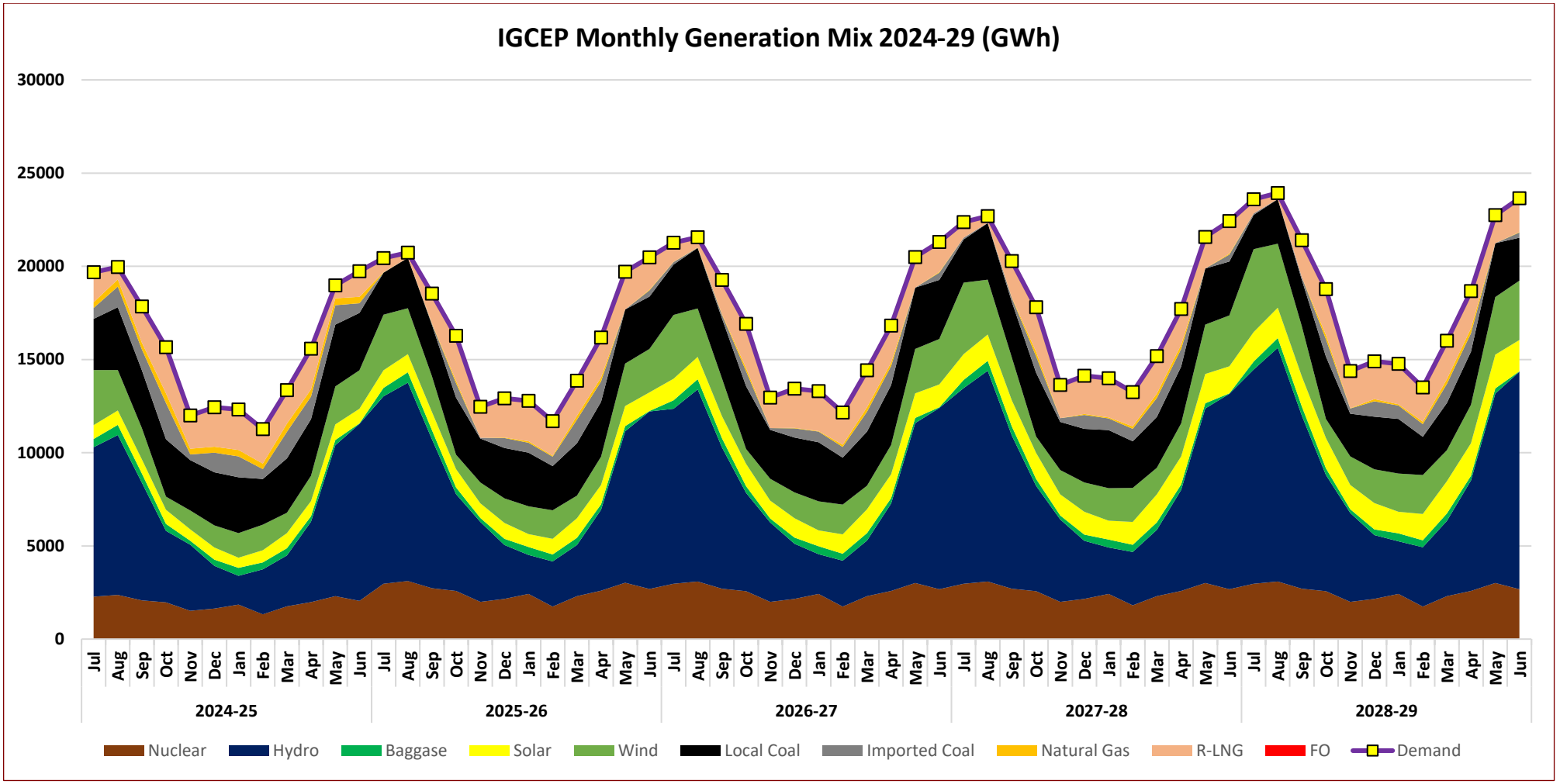


Chart N-14: IGCEP Monthly Generation Mix 2024-29 (GWh)

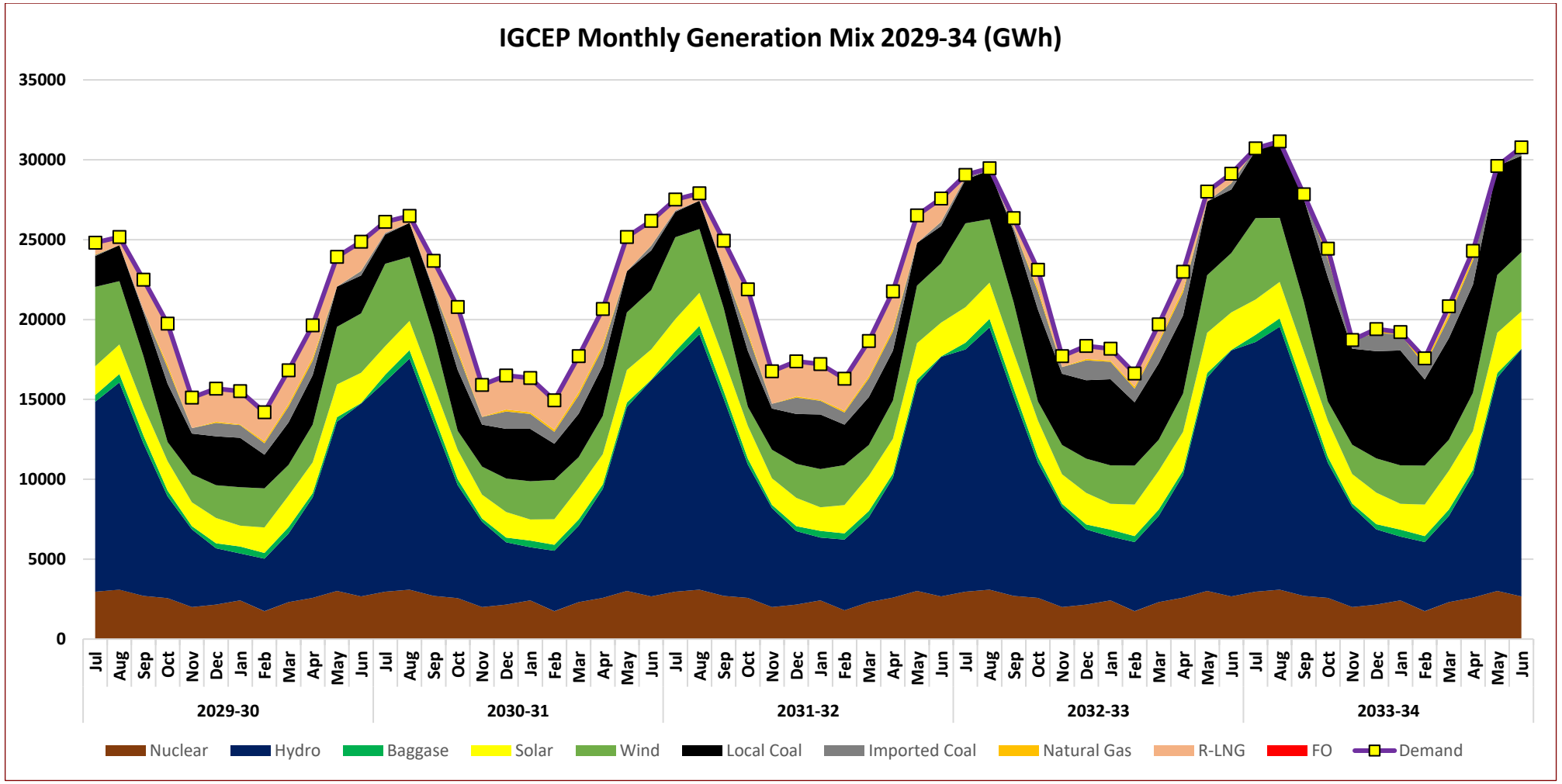


Chart N-15: IGCEP Monthly Generation Mix 2029-34 (GWh)

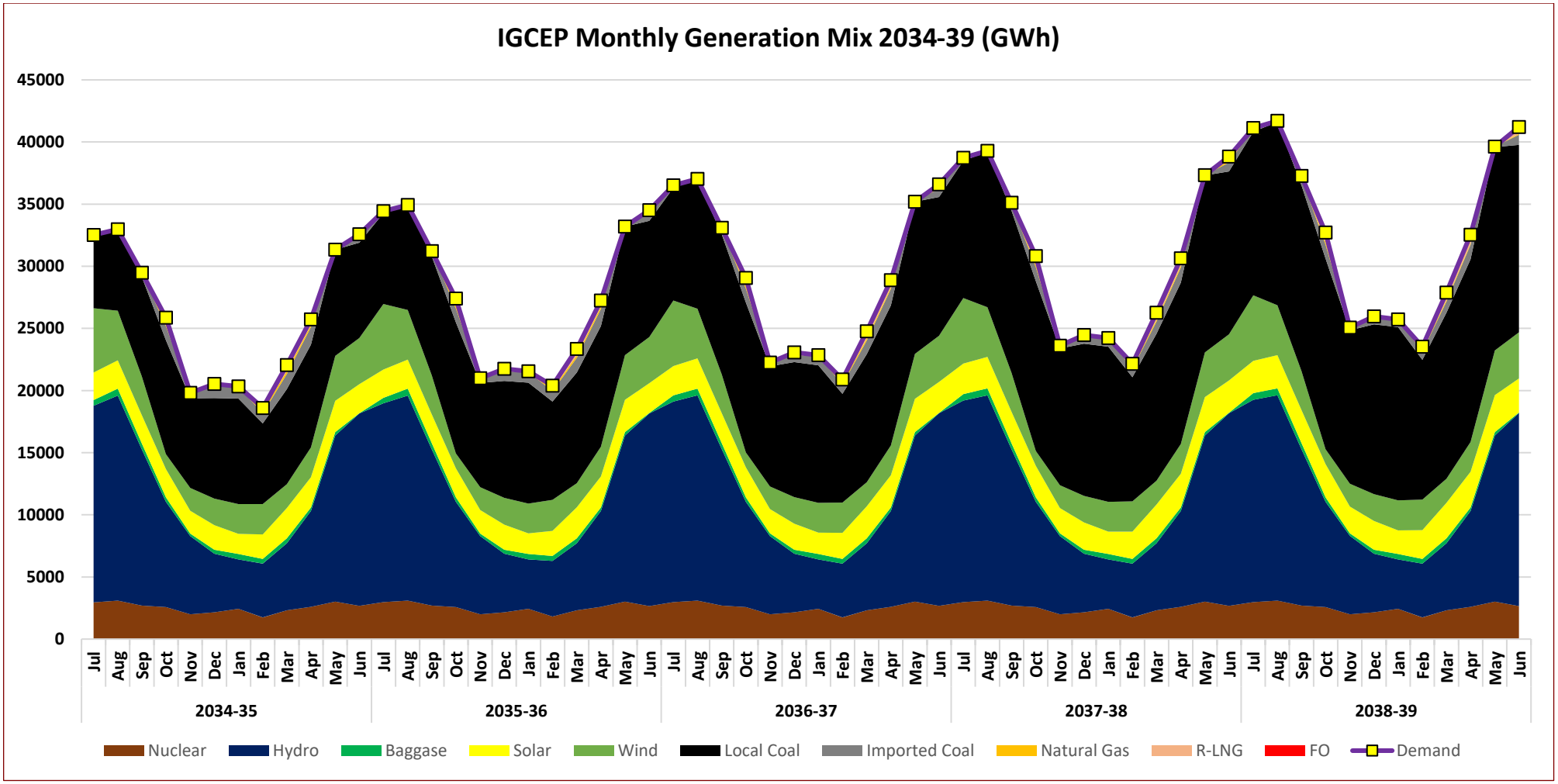


Chart N-16: IGCEP Monthly Generation Mix 2034-39 (GWh)

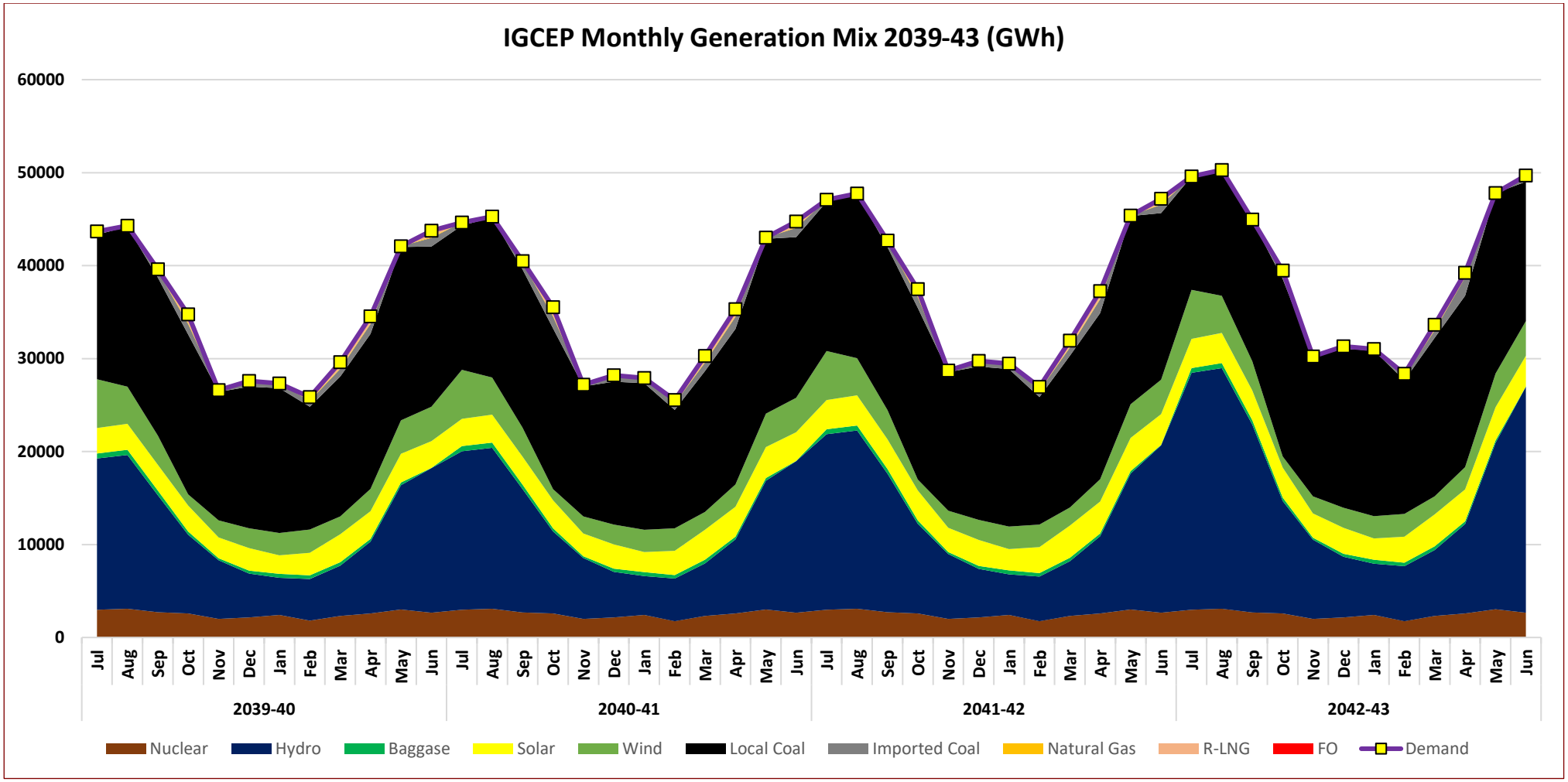


Chart N-17: IGCEP Monthly Generation Mix 2039-43 (GWh)

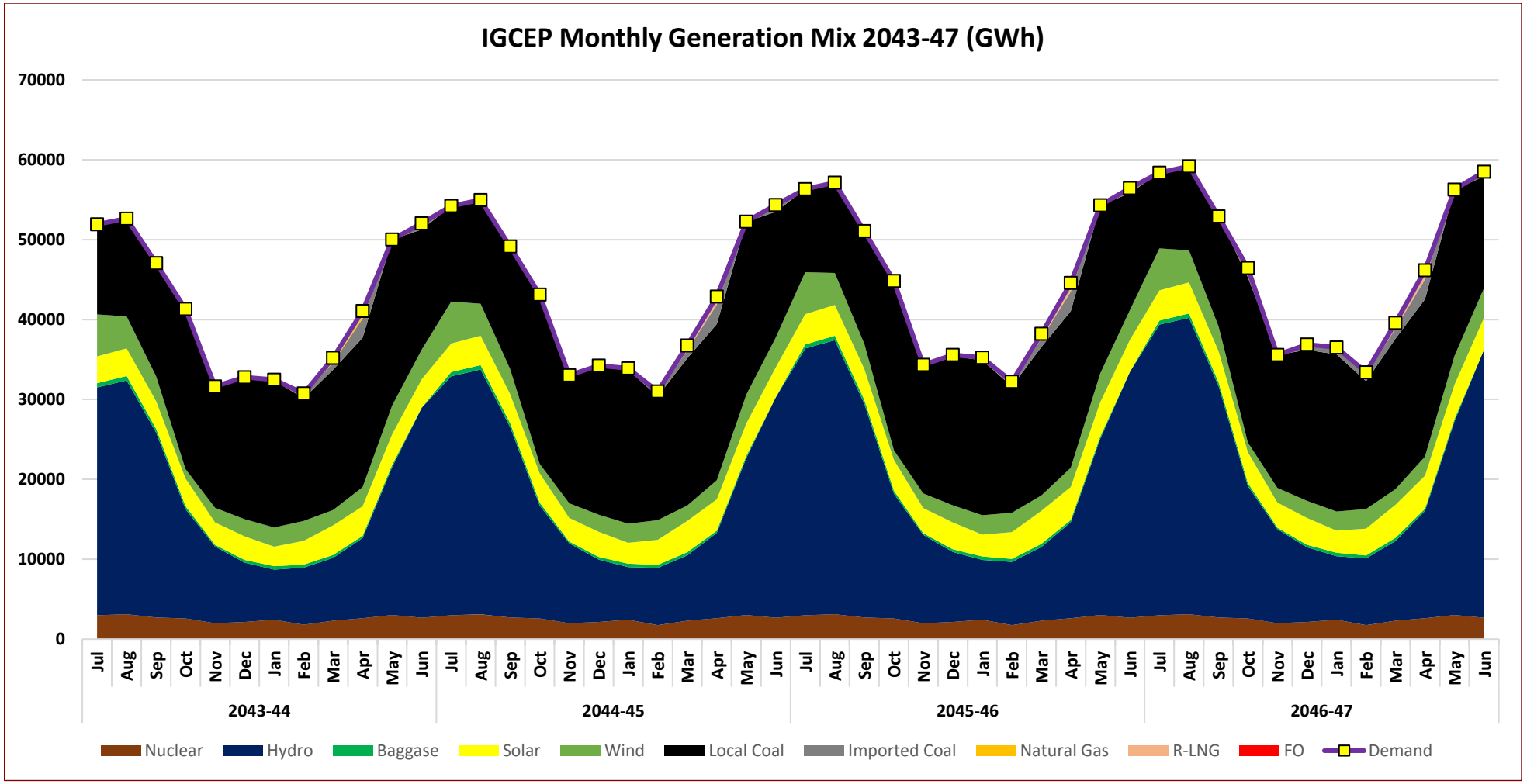


Chart N-18: IGCEP Monthly Generation Mix 2043-47 (GWh)

N-14: Year-wise Present Worth and Un-Discounted Cost

FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2020	0	956,722	5,751,312	6,708,034	6,708,034	0	956,722	5,751,312	6,708,034	6,708,034
2021	0	913,435	4,826,457	5,739,893	12,447,927	0	1,014,928	5,362,730	6,377,658	13,085,692
2022	0	909,992	3,537,939	4,447,931	16,895,858	0	1,123,447	4,367,826	5,491,273	18,576,965
2023	215,029	890,290	2,739,694	3,845,013	20,740,870	294,964	1,221,248	3,758,154	5,274,366	23,851,331
2024	536,256	881,359	2,110,171	3,527,786	24,268,657	817,339	1,343,331	3,216,234	5,376,903	29,228,234
2025	597,163	826,026	1,764,662	3,187,850	27,456,506	1,011,300	1,398,882	2,988,470	5,398,652	34,626,886
2026	624,699	793,469	1,405,832	2,824,000	30,280,507	1,175,481	1,493,052	2,645,321	5,313,855	39,940,741
2027	656,644	731,967	1,319,878	2,708,489	32,988,996	1,372,879	1,530,362	2,759,537	5,662,778	45,603,519
2028	697,272	688,333	1,194,583	2,580,188	35,569,184	1,619,803	1,599,036	2,775,085	5,993,925	51,597,444
2029	843,340	645,306	1,069,619	2,558,265	38,127,449	2,176,809	1,665,647	2,760,874	6,603,330	58,200,774
2030	952,149	595,456	985,313	2,532,918	40,660,367	2,730,737	1,707,752	2,825,849	7,264,338	65,465,112
2031	971,727	520,052	883,336	2,375,115	43,035,482	3,096,538	1,657,216	2,814,870	7,568,625	73,033,736
2032	972,957	477,247	781,714	2,231,918	45,267,400	3,444,954	1,689,792	2,767,821	7,902,567	80,936,303
2033	1,035,738	447,526	534,216	2,017,480	47,284,880	4,074,717	1,760,619	2,101,668	7,937,003	88,873,307
2034	1,048,874	422,339	441,188	1,912,402	49,197,282	4,584,884	1,846,145	1,928,541	8,359,571	97,232,877

FY	Present Worth Cost of the Year (k$)					Un-Discounted Cost of the Year (k$)				
	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)	Annualized Construction Cost	FO&M Cost	Generation Cost	Total	Objective Function (Cumulative)
2035	1,037,856	397,690	442,110	1,877,657	51,074,939	5,040,802	1,931,555	2,147,302	9,119,659	106,352,537
2036	1,023,243	374,141	454,477	1,851,861	52,926,800	5,522,028	2,019,090	2,452,628	9,993,745	116,346,282
2037	1,003,413	350,742	462,827	1,816,982	54,743,782	6,016,680	2,103,128	2,775,213	10,895,021	127,241,303
2038	984,424	331,841	461,354	1,777,619	56,521,401	6,558,687	2,210,880	3,073,755	11,843,322	139,084,625
2039	965,602	314,488	466,297	1,746,387	58,267,788	7,148,100	2,328,070	3,451,871	12,928,041	152,012,666
2040	946,637	298,547	461,930	1,707,115	59,974,903	7,786,343	2,455,629	3,799,496	14,041,467	166,054,133
2041	955,987	270,687	418,899	1,645,573	61,620,476	8,736,939	2,473,857	3,828,395	15,039,192	181,093,325
2042	880,887	253,116	391,680	1,525,683	63,146,159	8,945,096	2,570,302	3,977,377	15,492,775	196,586,100
2043	948,625	247,200	313,033	1,508,858	64,655,017	10,703,283	2,789,142	3,531,928	17,024,353	213,610,453
2044	952,274	224,485	286,235	1,462,994	66,118,011	11,938,277	2,814,280	3,588,413	18,340,970	231,951,423
2045	907,376	207,801	272,324	1,387,500	67,505,511	12,639,341	2,894,576	3,793,345	19,327,262	251,278,685
2046	899,070	204,537	239,397	1,343,004	68,848,515	13,915,154	3,165,684	3,705,220	20,786,059	272,064,744
2047	891,190	193,783	221,609	1,306,582	70,155,097	15,325,774	3,332,477	3,811,010	22,469,261	294,534,005

Pakistan 100

'Nature has given you everything; you have got unlimited resources. The foundations of your state have been laid and it is now for you to build and build as quickly and as well as you can.'

Quaid-e-Azam, Muhammad Ali Jinnah, 14 August 1948

Driven by the Future

For comments, suggestions and concerns, please contact at
+92 42 99202612 I ce.glfp@ntdc.com.pk
Power System Planning National Transmission and Despatch Company

NATIONAL TRANSMISSION & DESPATCH COMPANY LIMITED