# TARIFF PETITION

# ON BEHALF OF

# CENTRAL POWER GENERATION COMPANY LIMITED

GENCO-II/GoP owned entity

FOR A POWER PROJECT OF 747 MW (Gross) COMBINED CYCLE

At Guddu in district Kashmore (Sindh)

Chief Executive Officer Central Power Generation Co. Ltd., Guddu

# CONSULTANTS:

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#### GLOSSARY

BTU British Thermal Unit CC Capacity Charge

COD Commercial Operation Date

Company Central Power Generation Company Limited (GENCO-II)
CPGCL Central Power Generation Company Limited (GENCO-II)

CPPA Central Power Purchase Agency

CPI Consumer Price Index
CPP Capacity Purchase Price

EC Energy Charge

EPC Engineering, Procurement and Construction

EPP Energy Purchase Price

E&M Electrical & Mechanical

FCC Fuel Cost Component

FX Foreign Currency Component

GoP Government of Pakistan

GWh Giga Watt hour (1,000,000 kilowatt hour)
HSD High Speed Diesel (Light Fuel Oil)

HSD per ton 1129 Litres

IDC Interest During Construction
IFC International Finance Corporation
IPP Independent Power Producer
IRR Internal Rate of Return

Kw Kilowatt kWh Kilowatt hour

KIBOR

KSE Karachi Stock Exchange
LCC Local Currency Component
LIBOR London Interbank Offered Rate
MW Mega Watt (1,000 kilowatts)

MWh Mega Watt Hour

NEPRA/Authority National Electric Power Regulatory Authority

Karachi Interbank Offered Rate

NTDC National Transmission and Dispatch Company Limited / Power Purchaser

OGRA Oil & Gas Regulatory Authority
O&M Operation & Maintenance

Petitioner Central Power Generation Company Limited

Power Policy 2002 GoP's Policy for Power Generation, 2002 as amended from time to time

Project 747 MW (Gross) Combined Cycle Power Project

PKR/Rupees-/Rs Pak Rupees, Legal Currency of Pakistan

PPA Power Purchase Agreement

RFO Residual Fuel Oil
ROE Return on Equity

ROEDC Return on Equity During Construction

Ton Metric Tonne i.e. 1000 Kg

USD/\$ United States Dollars; legal tender of USA
WAPDA Water & Power Development Authority

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# A INTRODUCTION

Rule 3

Tariff Petition (the "Tariff Petition") under Rule 31 of the Regulation of Generation, Transmission and Distribution of Electric Power Act 1997 (XL of 1997) (the "Act") read with Rule 3 of the National Electric Power Regulatory Authority (Tariff Standards and Procedure) Rules, 1998 (the "Tariff Rules") for determination of Generation Tariff.

Rule 3(2)(a)

#### Petitioner's Name and Address

# Muhammad Khalid Alvi

Chief Executive Officer

Central Power Generation Company Limited (GENCO-II)

Tel No. +92 -722-579088 Fax No. +92 -722-578328

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# **Authorized Representatives:**

- i. Mr. Muhammad Imran Mian, Finance Director / CFO, CPGCL
- ii. Engr. Nadeem Ahmed, Chief Engineer / Technical Director CPGCL
- iii. Dr. Niaz Memon, Additional Manager / Coordinator, CPGCL
- iv. Mr. Ashar Saeed, Shajar Capital (Pvt) Ltd
- v. Mr. Muhammad Azam Khan Shad, Bridgelink Consultants (Pvt) Limited

# Rule 3(2)(b)

#### Generation License

Generation License NO. GL/02/2002

Dated: July 1, 2002

Modification-I Dated: April 26, 2013

# Rule 3(2)(c)

# Grounds

Grounds forming the basis for the petition are elaborated in this Tariff Petition.

# Rule 3(2)(d)

# Relief Sought

Relief sought is mentioned in Para B-5 of Tariff Petition.

# Rule 3(2)(e)

# Summary of Evidence

A brief detail of technical and financial data, which forms the basis of revision in tariff, is given in the subsequent Paras.

# Attachments

- i. Affidavit in accordance with Rule 3(8) of Tariff Petition
- ii. Board of Directors Resolution
- iii. Bank draft of the requisite fee
- iv. Annexures attached hereto are numbered separately

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# B MAIN BODY OF THE TARIFF PETITION

#### 1. BRIEF HISTORY OF THE COMPANY

Central Power Generation Company Limited (CPGCL) was incorporated on October 26, 1998 to take over all properties, rights, assets, obligations and liabilities of thermal power station at Guddu in district Kashmore (Sindh) previously owned and operated by WAPDA. The Company also inherited Sukkur and Quetta Power Stations.

CPGCL commenced its commercial operations on March 1, 1999. The Company holds Generation License number GL/02/2002 granted by NEPRA on July 1, 2002 for a term of 15 years i.e. until June 30, 2017 and modified for addition of the new 747 MW (Gross) Combined Cycle Power Plant (CCPP) on April 26, 2013. The total nameplate capacity of the Company's power stations is 2,402 MW, while the net dependable capacity as approved by NEPRRA in its tariff determination dated December 31, 2003 was 1400 MW. Whereas, the Company has now added an additional dependable capacity of 747MW (Gross) recently.

The Company has gas supply arrangement through M/S SNGPL, M/S PPL and M/S MPCL through dedicated pipelines and had secondary fuel (HSD and RFO) supply arrangements with OMCs, mainly PSO. OMCs supply to Company's storage facilities at plant sites through road tankers.

The Company is wholly owned by Government of Pakistan, who makes appointments to the Company's Board of Directors and exercises ownership control through its various agencies. However, the Company is likely to become fully autonomous consequent to completion of corporatization process and winding up of PEPCO. Under state ownership, the Company is likely to remain subject to public sector governance and accountability mechanisms (such as Public Procurement Regulatory Authority, Public Accounts Committee, Auditor General and Planning Commission). The management of CPGCL consists of CEO and Directors responsible for technical, financial and human resource functions.

Since the unbundling of WAPDA in 1998 and subsequent incorporation of GENCOs, DISCOs and NTDC, PEPCO, GENCO Holding Company Limited (GHCL), Islamabad has exercised control over all the unbundled power generation companies. In effect, the unbundling has meant separation of power wing of WAPDA and handing it over to PEPCO and presently to the GHCL. The thermal power generation, transmission and distribution activities of WAPDA were given to PEPCO as corporate entities. However, minimal corporate autonomy was exercised by any of the corporate entities, while modern corporate management practices have not emerged pending full corporatization of these entities.

The public sector governance mechanism is applicable to the activities of the Company, as long as it remains in state ownership, such as compliance to PPRA regulations for procurement, to Planning Commission guidelines for project development and expenditure, to Accountant General Pakistan Revenues for accounting and reporting, and to Public Accounts Committee for parliamentary oversight.

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#### 2. BRIEF OF THE PROJECT

The new power plant is a combined cycle power plant of 747MW (Gross) capacity comprising of two (2) gas turbines of 243MW each, two (2) heat recovery system generators (HRSGs) and one (1) steam turbine unit of 261MW at the available site of Thermal Power Station at Guddu. It is an efficient plant having high efficiency resulting into lesser generation cost/kWh in addition to significantly better plant availability factor as compared to the conventional thermal plants.

#### 3. PROJECT COST

The Project Cost is divided into two (2) main components of EPC Cost and Non EPC Costs, which are as follows:

Project Cost Rupees (in million)		
EPC (Local & Foreign)		61,933
Non EPC	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	16,834
Total Cost		78,767

In the following lines, three aspects of the project have been covered starting from (i) the PC I that has been the basis of this project then (ii) current cost structure in terms of EPC and (iii) Non-EPC components. Each one discussed briefly in the following paras.

# 3.1 Project Cost as per PC-1

The approved PC-1 cost was Rs 59,775.41 million, which has escalated up to Rs 78,767.22 million at COD. The details are provided in Annexure I.

The details of escalation in the project cost are given below:

Comparison of Escalated Project Cost With Approved PC -1 Rupees (in million)			
	Project Cost As Per PC - 1	Project Cost	
EPC Cost	47,071	61,933	
Non EPC Cost	5,590	4,752	
Financing Fee	1,023	5,345	
Interest During Construction	6,091	6,737	
Total Cost	59,775	78,767	

The escalation in the project cost is attributed to the following reasons:

- Inflationary items;
- Depreciation of Pakistan rupee against US dollar;
- Increase in financing cost from Rs 1,022.84 million to Rs 5,344.72 million;
- Installation of Gas booster compressor station and construction of additional culvert for out fall drains (water);
- Due to delay in achieving of financial close, the contractor has become entitled to claim extension of time resulting in additional cost claim; and
- On account of cost escalation (Inflation) claim i.e. under the provisions of the contract viz Preamble to Conditions of Contract sub-clause 47.1, sub-clause 47.1 of

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General Conditions of Contract, and sub-clause 47.1 of Particular Conditions of Contract the contractor will also claim cost escalation (Inflation) against civil works (Labour, Material and Transport for Civil Works). The cost of the same was not envisaged in PC 1. An amount of Rs 1,928 Million is so far due for payment to the contractor plus the estimated expenditure to be paid till finalization of all works and due payment.

#### 3.2 EPC Cost

The Company upon the approval of Federal Government floated international tender for the EPC Contract on International Competitive Bidding (ICB) basis to execute the Project on Engineering, Procurement and Construction (EPC) basis. The EPC contract covers Design, Supply, Installation, Testing, and Commissioning of 747MW (Gross) Combined Cycle Power Plant (CCPP) at Guddu. Harbin Electric International Company Ltd has been short-listed, screened and finalized for the contract. Subsequently, the EPC Contract of the project was signed on 19th September 2009 between Central Power Generation Company Limited and Harbin Electric International Company Ltd (formerly Harbin Power Engineering Co. Ltd.) comprising USD 545.98 million. The financial close of the project was due in April 2011 but the same was achieved in October 2012.

The local and foreign EPC cost components are as follow:

EPC Cost Rupees (in million)*		
EPC (Local)	8,909	
EPC (Foreign)	53,024	
Total	61,933	

<sup>\*</sup>The detailed breakup of EPC cost is given in Annexure II.

The foreign component of EPC cost amounts to USD 545.98 million, out of which USD 474.48 million has been paid while balance of USD 71.51 million remains outstanding. The amount of USD 474.48 million has been used in contracted power plant equipment, whereas USD 66.56 million are payable to the Contractor on Taking Over Certificate (TOC) against equipment, erection & commissioning and services. The balance of USD 5 million highlights pending payments against equipment erection, commissioning and mandatory spare parts.

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The breakup of foreign EPC cost has been provided below in USD:

Category A1, A2, B1 & C	USD (in million)
Gas Turbine with allied accessories	156.22
Gas Turbine Generators	32.38
Transformers	18.83
500 kV Sub Station	14.46
Mechanical Aux. & Allied equipment	70.46
Sub-Total A1	292.35
HRSG	87.49
Steam Turbine	41.92
Cooling Water System	11.93
HV Connectors	13.52
Instrumentation and Control	16.95
Generator and Auxiliaries	15.00
BOP	56.14
Sub-Total A2	242.95
Mandatory Spares (B1)	0.80
Services(C)	9.88
Sub-Total (B1+C)	10.68
Total (A1+A2+B1+C)	545.98

# 3.3 Non EPC Costs

The following items have been included in the Non EPC Cost of the Project.

Non EPC Cost Rupee	es (in million)
Gas Booster Compressor Station	1,465
Consultancy	323
Startup Expenses	1,695
Training & Development	301
IDC-Local	4,720
IDC-Foreign	1,570
IDC - Foreign (Pending Invoices)	447
Financing Fee	4,957
Financing Fee – Pending Invoices	387
Administrative, Salaries & Wages	117
Other Miscellaneous	447
Construction of Additional Culvert	405
Total Non-EPC Costs	16,834

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# 3.4 Other Project Costs

# 3.4.1 Interest during Construction

The Company incurred Rs 6,736.82 million as interest during construction, which were based on the payment schedules keeping in view the equity and debt injections together with the applicable interest rates. The component for local IDC is Rs 4,719.51 million and foreign IDC is Rs 2,017.31 million which includes pending invoices of Rs 446.84 million.

#### 3.4.2 Pre-COD Insurance Cost

The insurance cost during construction period for complex up till the COD has been built in the EPC cost. This cost amounts to Rs 3,872.52 million. This insurance has been procured under obligation of financing agreement.

# 3.4.3 Financing fees

The financing fees comprises of up-front fee, arrangement fee and lenders' monitoring fee. The total fee of foreign loan is estimated to be Rs 5,344.72 million including Rs 387.26 million in pending invoices. There is no financing fee on the local loan.

Financing Fee Rupees	(in million)	
Legal Fee (Pak Law Firm) LCC		2
Legal Fee (Foreign Law Firms) FCC		. 5
Guarantee Fee		361
CEXIM & HSBC Bank Management Fee	S. 5.4.7	530
HSBC Bank Agency Fee		4
CEXIM & HSBC Bank Commitment Fee		570
Sinosure Insurance Premium (Foreign Loan)	eria i Fiy	3,873
Total Financing Fee For Foreign Loan		5,345

#### 3.4.4 Start-up Expenses

It includes the costs associated with the initial filling of fuel, diesel, chemicals, consumables and lubricants for startup. The total start-up expenses sum up to Rs 1,694.626 million. The breakup of start-up expenses is as follows:

Start-up Expenses Rupees (in million)	
Fuel Gas	1,640
HSD	10
Miscellaneous (Chemical/Auxiliary consumption)	45
Total	1,695

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# 3.4.5 Capital Structure

The capital structure of the project is as follows:

Capital Structure Rupees (in million)		
Debt (Local)	7,874	
Debt (Foreign)	46,039	
Total Debt	53,913	
Equity	24,854	
Total Project cost	78,767	
Debt: Equity Ratio	68:32	

#### 3.5 Reimbursement

The lenders have made all the payments directly to the EPC contractor under the Sinosure backed facility agreement with the exception of one payment. Basically, the Company has made a payment of USD 559,390 equal to Pak Rupees amounting Rs 48.78 million (USD 110,500 was made at an exchange rate of Rs 87.45 amounting to Rs 9.66 million and USD 448,890 at an exchange rate of Rs 87.15 amounting to Rs 39.12 million) to EPC contractor before execution of the facility agreement.

As per the facility agreement, the lenders have agreed to reimburse the payments being made by the Company in respect of EPC Contract before the execution of facility agreement. The lenders have reimbursed this amount to the Company at an exchange rate of Rs 95.77 totaling to Rs 53.57 million. Therefore, the asset has been booked at Rs 53.57 million in the books of the project.

The difference in the amount paid and reimbursed resulted in an income of Rs 4.78 million for the company. This amount has been considered as the opportunity cost of financing the transaction.

The details of reimbursement are given in Annexure III.

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# 4.1 Tariff Structure

The year wise tariff sheet to be applicable for a period of 30 years commencing from the Commercial Operation Date of December 17, 2014, is attached herewith for consideration by the Authority for its approval and determination. The detailed breakup of the tariff is included in **Annexure IV**. However, a Brief Summary is tabulated below.

Details of the Reference Tariff for Foreign Loan (Rs./kW/hour) are as follows:

Foreign Loan	Tariff (Rs./kW/hour)
Debt Repayment	0.4623
Interest Charges	0.0837
Agency Fee & Guarantee Fee	0.0143
Total Tariff	0.5604

Details of the Reference Tariff for Local Loan (Rs./kW/hour) are as follows:

Local Loan	Tariff (Rs./kW/hour)	
Debt Repayment	0.0337	
Interest Charges	0.1224	
Total Tariff	0.1561	

The Reference Tariff for various components is as follows:

Tariff Break Up	Tariff
Capacity Charge (Rs/kW/hour)	
Return on Equity	0.6372
Return on Equity During Construction	0.1342
Fixed O&M	0.3332
Insurance	0.1324
Financing Cost on Working Capital	0.0487
Debt Repayment (Local)	0.0337
Interest (Local)	0.1224
Debt Repayment (Foreign)	0.4623
Interest (Foreign)	0.0837
Agency Fee & Guarantee Fee (Foreign)	0.0143
Total Capacity Charge	2.0023
Energy Charge (Rs/kWh)	
Fuel Cost Component	4.1064
Variable O&M (Local)	0.1281
Variable O&M (Foreign)	0.6652
Total Energy Charge	4.8997
Total Tariff	6.9020

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The proposed Tariff is a two-part tariff comprising an Energy Charge (EC) payable on the basis of Rs/kWh for the energy delivered to the Bus Bar and Capacity Charge (CC) payable on the basis of Rs/kW/hour for the Available Capacity for each Month (or pat-Month). The tariff tends to be high during earlier years primarily due to debt-payment period. The Tariff has been structured in such a way that it will not only recover the investment on the project but also ensures return on equity as per Power Policy 2002. The tariff consists of two parts corresponding to tariff as per by NEPRA's guidelines highlighted in Power Policy 2002, which is as below:-

- a) Energy Charge in Rs/kWh; and
- b) Capacity Charge in Rs/kW/hour

#### 4.2 Tariff Control Period

Useful / economic life of 30 years has been envisioned for the plant for tariff calculations purposes. The Tariff is applicable for a period of 30 years commencing from Commercial Operation Date of the plant. The Tariff will only be adjusted against variation of exchange rates, interest rates, Pak CPI, US CPI, etc. The Company will approach NEPRA for onetime adjustment for the following costs at a subsequent date:

- Extension of time claims of contractor for contract cost finalization on actual basis;
- b) Cost Escalation against civil works;
- c) Construction of additional culvert for out fall drains (water);
- d) Heat rate test: The Company will conduct heat rate test within next six months in accordance with the established benchmarks subsequent to the submission of test report, one-time adjustment shall be allowed to the fuel cost component; and
- e) Sindh sales tax: Recently, Sindh Revenue Board has served a notice to CPGCL for payment of Sindh Sales Tax, which has not been paid. The Company believes that this amount is not applicable to CPGCL and it will contest this with the relevant authorities. In case of an adverse order, the company will request NEPRA for a possible adjustment resulting from this cost.

# 4.3 Energy Charge

The Energy Charge indicates the price of a unit of electrical energy i.e. kWh. It is payable for the electricity generated and delivered to the Power Purchaser. It consists of Variable O&M Component and Fuel Cost Component as explained below:

#### 4.3.1 Variable O&M Component

Variable O&M Component caters for the cost of the services of operation and maintenance on a kWh basis for the periodic maintenance of the thermal power plant. In addition, it covers replacement of spare parts on completion of their service life. It also includes cost of periodic maintenance as per recommendation of manufacturers based on running hours. Along with it, consumption of lubricants, additives, water, chemicals and consumables, etc. are also included in this

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component. The Variable O&M Component consists of local and foreign components, which comes out to Rs 0.1281/kWh and Rs 0.6652/kWh, respectively. The total variable O&M component adds up to Rs 0.7933/kWh. The Variable O&M component is calculated for a cycle of 48,000 operating hours.

#### 4.3.1.1 Local Variable O&M

The local variable O&M consists of additive, other chemicals, water charges and services. The total cost is given in the following schedule:

Local Variable O&M	Rupees (in Million)
Additives and other chemicals	89.1
Total: Water Charges	4.5
Electricity Consumption for Gas Booster	586.2
Running Cost for Gas Booster	58.6
Total	738.4
Tariff (Rs /kWh)	0.1281

Further break up of these costs are given in **Annexure V**. The tariff for the local component of Variable O&M is Rs 0.1281 / kWh. This cost would further be adjusted as on each quarter every year according to indexation methodology. The details pertaining to indexation methodology is given in Section 4.5.

#### 4.3.1.2 Foreign Variable O&M

The foreign variable O&M consists of periodic maintenance, consumables and services. The break-up of these costs are given in **Annexure VI**. The tariff for the foreign component of Variable O&M is Rs 0.6652 / kWh for a cycle of 48,000 operating hours. This component would be adjusted as on each quarter every year according to indexation methodology given in Section 4.5.

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# 4.3.2 Fuel Cost Component

The fuel cost represents the fuel consumption over 30 years of project life. The plant is run on Gas and HSD. Due to cheaper generation through gas the plant is likely to run mostly on gas. The fuel cost component has been calculated on the basis of following assumptions:

Assumptions for Fuel Cost Component*				
	Unit	Value		
Guarantee Data		Fuel Gas	HSD Oil	
Combined Cycle operation				
Gross power output at HV side of Transformer	MW	747.006	721.536	
Total auxiliary consumption and losses	MW	26.215	27.29	
Gross heat rate referred to LHV of Fuel	KJ/kWh	6,376	7,199	
Net power output	MW	720.79	694.245	
Net heat rate referred to LHV of Fuel	KJ/kWh	6,608	7,482	

<sup>\*</sup>For Open Cycle operation the rates would be 1.5 times that of combined cycle operations.

Partial loading: Heat rate will be adjusted in accordance with manufacturer's calculation method/curve, that is, GEK 116403; updated version.

For the purpose of calculation of fuel cost component, the following reference values have been used:

Gas Price Rs 588.23/MMBTU
HSD Price Rs 96.61/Litre
HSD Calorific Value 35,560.37 BTU/ Ltr

LHV factor (Gas) 1.11401 LHV factor (HSD) 1.05 LHV/HHV

Based on these assumptions, the following is the tariff for fuel cost element:

Fuel Cost Element	
Rs / kWh	
	Combined Cycle operation
Fuel Gas	4.1064
HSD Oil	20.2410

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The details regarding Energy Charge (EC) and dependable capacity for fuel gas and HSD oil are given below:

Energy Charge (EC)		
	Rs / kWh	
	Combined Cycle Operation	
Fuel Gas	4.1064	
Variable O & M	0.7933	
EPP	4.8997	
HSD Oil	20.2410	
Variable O & M	0.7933	
EPP	21.0343	

The details regarding dependable capacity for fuel gas and HSD oil are given below:

Dependable Capacity (MW)	
Fuel Gas	720.79
HSD Oil	694.25

# 4.4 Capacity Charge (CC)

The Capacity Charge has been computed on the basis of the plant dependable capacity net of auxiliary consumption and is expressed in Rs /kWh/hour. This tariff component is meant to cater for the fixed costs, insurance cost, ROE and ROEDC and Debt services of the project. The Capacity Charge has been segregated into following sub-components:

#### 4.4.1 Fixed Operation & Maintenance Cost

This component represents the fixed costs incidental on day to day plant operation and maintenance. It covers management fee, remuneration to the personnel, rent, utilities, and fee for maintaining consents, local taxes and cost of expatriate services to be engaged for O&M of the plant.

The fixed component comprises of the following components.

- Administrative Expenses
- Salaries and Wages
- Repair and Maintenance Expenses

The fixed O&M component of the escalable CPP represents fixed costs of all the staff for O&M, cost that are associated with day to day maintenance for ensuring availability, plant administration, security, transportation, overheads, office costs, professional fees such as audit, tax and legal. It also includes some other fixed operational costs such as environmental monitoring and obsolescence, which do not change with dispatch levels.

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Chief Exerpive Officer Central Fower Concration Co. Ltd. Guddu It further consists of major components that constitute of fixed operating and maintenance costs of the Capacity Purchase Price.

#### 4.4.1.1 Admin Expenses

The administrative costs include rent and taxes, power, light, gas and water, communication, office supplies & other charges, travelling expenses, professional fees, management fees, vehicle expenses, miscellaneous expenses and NEPRA fees. The total Administration Cost is Rs 137.33 million and the tariff for this component has been calculated at Rs 0.0217/kW/hour with Net Dependable Capacity of 720.79 MW.

The details are enclosed in Annexure VII.

# 4.4.1.2 Salaries & Wages

The salaries, wages and other benefits includes for pay and allowances, overtime, conveyance allowance, medical and generation allowance etc to the employees of the Company. This also includes medical and hospitalization, education and training, EOBI, pension charges, free electricity, etc. The total Salary & Wages expenses are Rs 525.04 million, which translates into tariff of Rs 0.0832/kW/hour with Net Dependable Capacity of 720.79 MW.

The details are enclosed in Annexure VIII.

# 4.4.1.3 Repair & Maintenance

The Repair & Maintenance estimates include Building and Civil Works, Power Generation Plant Assets, Balance of Plant, 500kV Sub Station Switch Gear and Other Physical Property. The total repair and maintenance cost is Rs 1,441.39 million and break up of this cost is given in Annexure IX. This translates into tariff of Rs 0.2283 / kWh with Net Dependable Capacity of 720.79 MW.

Fixed Operation & Maintenance Cost Rupees (in million)		
Admin Expenses	137	
Salaries & Wages	525	
Repair & Maintenance	1,441	
Total	2,103	

# 4.4.2 Cost of Working Capital

The working capital loan facility of Rs 3,289.65 million has been assumed in order to finance the inventory level of HSD equivalent to 15 days generation at 100% load factor and energy payment at 60% receivable along with GST for 15 days. The cost of working capital facility has been assumed Rs 296.07 million as 9% (3 month KIBOR 7% + 2% margin). This translates into tariff of Rs 0.0487/kW/hour.

The details are given in Annexure X.

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#### 4.4.3 Insurance Cost

It covers the cost of insurance of the Complex and is estimated at 1.35% of value of the EPC cost. The insurance premium turns out to be Rs. 836.10 million, translating into tariff of Rs. 0.1324/kW/hour. The insurance premium is calculated in line with Authority's ruling in other projects and the initial discussions with insurance companies.

The details are enclosed in Annexure XI.

# 4.4.4 Equity Component

# 4.4.4.1 Return on Equity

The return on equity has been calculated using 16% IRR, which has been allowed by the Authority in the case of upfront tariff for RLNG based power plants.

Equity: Rs 24,854.48 million

IRR: 16% Term: 30 Years

Payment: 4,023.58 million

On the basis of these assumptions, the tariff for equity is Rs 0.6372/kW/hour with Dependable Capacity of 720.79 MW.

# 4.4.4.2 Return on Equity during Construction

The ROEDC has been calculated based on 16% IRR on equity during construction as allowed by the Authority in the upfront tariff of RLNG based power plants. The amount is Rs 5,235.06 million which translates into annual payment of Rs 847.48 million and the tariff of Rs 0.1342/kW/hour based on Dependable Capacity of 720.79 MW.

#### 4.4.5 Debt-Servicing Component

The current financing structure is as under.-

Debt Servicing Rupees (in million)		
Total Project Cost	78,767	
Debt 68%	53,913	
Equity 32%	24,854	

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#### 4.4.5.1 Local Loan

The Company obtained following Cash Development Loan (CDL) that has been procured locally, the detail is given as follows:

Cash Development Loan Rupees in (million)				
	CDL 1	CDL 2	CDL 3	
CDL	5,100	2,600	3,600	
Interest Rate	13.61%	13.61%	12.64%	
Grace period	5	5	5	
Repayment period	20	20	20	
Total Tenor	25	25	25	

The Company has repaid/adjusted an amount of Rs 3,426 million from CDL I through Circular Debt vide Government of Pakistan, Finance Division letter No. F.1(5)-CF.I/2012-13/1101 dated July 21, 2013. Accordingly, the Company has paid this amount of principal from its own sources and increased the amount of its equity in the project by similar amount. This resulted in an outstanding loan of Rs 1,673.40 million under CDL I and aggregate loan of Rs 7,873 million as on the date of COD i.e. December 17, 2014.

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The details of repayment of local loans are given as follows:

Local CDL Future	Payment Schedule Rupees in	(million)
Period	Interest	Principal
18.12.2014 to 31.12.2014	39.01	
01.01.2015 to 30.06.2015	518.33	
2015-16	1,036.65	49.1
2016-17	1,029.96	102.2
2017-18	1,016.50	115.6
2018-19	1,001.26	130.92
2019-20	984.01	148.17
2020-21	964.49	167.69
2021-22	942.39	189.79
2022-23	917.37	214.8
2023-24	889.06	243.1
2024-25	857.00	275.18
2025-26	820.72	311.47
2026-27	779.64	352.54
2027-28	733.14	399.04
2028-29	680.50	451.69
2029-30	620.90	511.29
2030-31	553.43	578.76
2031-32	477.04	655.14
2032-33	390.56	741.63
2033-34	292.64	839.54
2034-35	181.78	950.40
2035-36	56.27	445.16
Total	15,782.63	7,873.40

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# 4.4.5.2 Foreign Loan

The Central Power Generation Company Limited has also availed a foreign currency loan worth Rs 46,039.35 million (USD 464 million) for a tenor of 12 years effective from October 19, 2012.

As per the terms of the foreign currency loan agreement, the loan has a drawdown period of 3 years and repayment period of 9 years. The first drawdown was made on October 30, 2012 while the last one is expected to be made on July 1, 2015.

The drawdown of Rs 38,720.62 million (USD 392.58 million) has been drawn down by the Company as of December 17th, 2014 while the remaining amount of Rs 7,318.73 billion (USD 71.51 million) is expected to be drawn down entirely by July 31, 2015.

The total interest computed on each drawdown has been calculated as the sum of base interest rate and an interest margin provided. The same has been indicated below:

- a) Base interest rate was 2.4% as per the terms of the agreement
- b) Interest margin for each period was the LIBOR rate on a date preceding the actual date of drawdown
- c) Interest margin on any drawdown that is expected to occur subsequent to COD will be calculated on the basis of average of 1-month, 2-month and 6-month LIBOR rates, as necessary, for the past three years.

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The details regarding draw down payments are given as follow:

Draw Down Payments	Date of Draw-down	Draw-Down (US\$)	Exchange Rate	Draw-Down (Rs
		FY 2012-13		
1 A	30.10.2012	182,967,865.50	95.70	17,510,024,72
1 B	30.10.2012	559,390.00	95.77	53,572,78
2	23.11.2012	38,210,827.00	97.25	3,716,002,92
3	30.01.2013	31,988,912.15	99.35	3,178,098,42
4	19.03.2013	30,000,185.15	99.55	2,986,518,43
5	03.06.2013	16,900,586.05	100.20	1,693,438,72
6	26.06.2013	11,906,309.35	100.95	1,201,941,92
To	tal	312,534,075.20		30,339,597,93
		FY 2013-14		
7	21.08.2013	31,804,434.66	104.00	3,307,661,20
8	05.09.2013	10,935,977.02	105.45	1,153,198,77
9	05.12.2013	12,343,664.35	109.55	1,352,248,43
10	12.02.2014	4,310,551.40	106.15	457,565,03
11	12.06.2014	8,316,458.90	100.05	832,061,71
Tot	al	67,711,086.33		7,102,735,15
		FY 2014-15		
12	29.10.2014	12,332,709.00	103.65	1,278,285,28
Tot	al	12,332,709.00		1,278,285,28
	FY 20	14-15 (Future Paye	nents)	
13	01.04.2015	25,000,000.00	102.35	2,558,750,00
14	- 01.05.2015	20,000,000.00	102.35	2,047,000,00
15	01.06.2015	26,506,866.87	102.35	2,712,977,82
	Total	71,506,866.87		7,318,727,82
Total Drawdo	wn Payments	464,084,737.40		46,039,346,200

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The repayment schedule is calculated using exchange rate USD / PKR 102.35. The details are given as follow:

Period	Interest Payment	Principal Payment
18.12.2014 to 31.12.2014	42,566,431	
01.01.2015 to 30.06.2015	657,435,555	
01.07.2015 to 31.12.2015	694,358,298	2,404,274,059
01.01.2016 to 30.06.2016	654,080,178	2,638,837,382
01.07.2016 to 31.12.2016	622,333,227	2,638,837,382
01.01.2017 to 30.06.2017	574,001,260	2,638,837,382
01.07.2017 to 31.12.2017	544,556,838	2,638,837,382
01.01.2018 to 30.06.2018	497,492,964	2,638,837,382
01.07.2018 to 31.12.2018	466,780,449	2,638,837,382
01.01.2019 to 30.06.2019	420,984,668	2,638,837,382
01.07.2019 to 31.12.2019	389,004,059	2,638,837,382
01.01.2020 to 30.06.2020	346,356,203	2,638,837,382
01.07.2020 to 31.12.2020	311,227,670	2,638,837,382
01.01.2021 to 30.06.2021	267,968,076	2,638,837,382
01.07.2021 to 31.12.2021	233,451,281	- 2,638,837,382
01.01.2022 to 30.06.2022	191,459,780	2,638,837,382
01.07.2022 to 31.12.2022	155,674,891	2,638,837,382
01.01.2023 to 30.06.2023	114,951,484	2,638,837,382
01.07.2023 to 31.12.2023	77,898,502	2,638,837,382
01.01.2024 to 30.06.2024	38,632,228	2,638,837,382
01.07.2024 to 20.07.2024	3,780,797	234,563,323
Total	7,304,994,837	47,499,072,873

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# 4.4.5.3 Other Fees

As per the financing arrangement, the Company has to pay agency fee to the lenders and guarantee fee to GoP/ Guarantor for the entire tenor of loans. The detailed schedule of agency fee and guarantee fee are enclosed below.

The Agency Fee schedule is calculated using exchange rate USD / PKR 102.35. The details are given as follow:

	Agency Fee Schedule			
Year	Agency Fee (US\$)	Agency Fee (PKR)		
2015	15,000	1,535,250		
2016	15,000	1,535,250		
2017	15,000	1,535,250		
2018	15,000	1,535,250		
2019	15,000	1,535,250		
2020	15,000	1,535,250		
2021	15,000	1,535,250		
2022	15,000	1,535,250		
2023	15,000	1,535,250		
2024	15,000	1,535,250		
Total	150,000	15,352,500		

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The Guarantee Fee schedule is calculated using exchange rate USD / PKR 102.35. The details are given as follow:

Guarantee Fee Schedule							
Start Date	End Date	Guarantee Fee (US\$)	Guarantee Fee (PKR)				
18.12.2014	31.12.2014	. 75,288.91	7,705,820				
01.01.2015	30.06.2015	1,002,487.60	102,604,606				
01.07.2015	31.12.2015	1,169,747.83	119,723,691				
01.01.2016	30.06.2016	1,092,955.40	111,863,986				
01.07.2016	31.12.2016	1,040,057.54	106,449,889				
01.01.2017	30.06.2017	959,097.28	98,163,607				
01.07.2017	31.12.2017	910,125.01	93,151,295				
01.01.2018	30.06.2018	831,244.41	85,077,865				
01.07.2018	31.12.2018	780,153.03	79,848,662				
01.01.2019	30.06.2019	703,391.54	71,992,124				
01.07.2019	31.12.2019	650,181.05	66,546,030				
01.01.2020	30.06.2020	578,718.43	59,231,832				
01.07.2020	31.12.2020	520,169.61	53,239,360				
01.01.2021	30.06.2021	447,685.79	45,820,641				
01.07.2021	31.12.2021	390,237.08	39,940,766				
01.01.2022	30.06.2022	319,832.92	32,734,899				
01.07.2022	31.12.2022	260,265.10	26,638,133				
01.01.2023	30.06.2023	191,980.04	19,649,158				
01.07.2023	31.12.2023	130,293.12	13,335,501				
01.01.2024	30.06.2024	64,481.47	6,599.678				
01.07.2024	20.07.2024	694.29	71,061				
To	tal	12,119,087.45	1,240,388,600				

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# 4.5 Indexation of Tariff Components

The above stated Tariff will be indexed against changes in the values as mentioned against each component. The Reference Date for US CPI and Pak CPI values will be 1st January 2015. The Reference USD rate is Rs 102.35 whereas Interest Rates is 0.3585% plus 2.4% Margin.

Tariff Components Indexation					
Description	Indexation				
Fixed O&M Cost – Local	Pakistan (CPI)				
ROE During Construction	US Exchange Rate				
ROE	US Exchange Rate				
Foreign Loan Interest and Principal Payment	US Exchange Rate and LIBOR Rate as per agreement				
Fuel Cost Component	Gas Price, HSD Price & HSD Calorific Value				
Fixed O&M (Local)	Pakistan (CPI)				
Fixed O&M (Foreign)	(USCPI); Exchange rate (PKR/USD)				
Variable O&M Cost (Local)	Pakistan (CPI)				
Variable O&M Cost (Foreign)	(USCPI); Exchange rate (PKR/USD)				

# 4.5.1 Indexation

The following indexation shall be applicable to the reference tariff:

#### 4.5.1.1 Fixed O&M

The Fixed O&M cost is based on local and foreign expense. The indexation of Fixed O&M will be subject to following table:

Fixed O & M Indexation				
Item	Indexation allowed			
Fixed O&M (Local)	Inflation Pakistan (CPI)			
Fixed O&M (Foreign)	Inflation (USCPI); Exchange rate (PKR/USD)			

Quarterly Adjustment for local inflation, foreign inflation and exchange rate variation will be made on July 1, October 1, January 1 and April 1 respectively.

The mode of indexation will be as under:

Fixed O & MREV = Fixed O & MEREV + Fixed O & MLREV

Where:

Fixed O & MfREV = Fixed O & MfREF x USCPI (REV)/USCPI (REF) x ER

(REVY/ER(REF)

Fixed O & MfREF = Reference Fixed O & M Foreign

Component in Rs/kW/hour

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USCPI (REV)

 The Revised US Consumer Price Index (All Urban Consumers) notified by the Bureau of Labor Statistics.

USCPI (REF)

 Reference US CPI (All Urban Consumers) notified by the Bureau of Labor Statistics for the relevant month.

ER (REV)

 Revised TT and OD selling rate (PKR/USD) as notified by the National Bank of Pakistan for the latest available month.

ERIREFI

 Reference exchange rate (PKR/USD) of Rs 102.35 / USD will be used.

Fixed O & MLREF

Fixed O & MLREF X CPI (REV) / CPI (REF)

Where:

Fixed O & MLREF

 Reference Fixed O &. M Local Component in Rs/kW/hour

CPI (REV)

The Consumer Price Index / or alternative index as determined by the Authority.

CPI (REF)

= The Consumer Price Index / or alternative index as determined by the Authority.

# 4.5.1.2 Return on Equity

Return on equity (ROE) as well as Return on Equity during Construction (ROEDC) component of tariff shall be adjusted for variation in Rs/USD exchange rate according to the following formula:

ROE (REV) =

ROE (REF) X ER (REV) ER (REF)

ROEDC (REF) =

ROEDC (REF) X ER (REV) ER (REF)

Where;

ROE (REV)

Revised Return on Equity component of tariff expressed in Rs/kW/hour adjusted with exchange rate variation (PKR/USD).

ROEDC (REV)=

Revised Return on equity during construction component of tariff in Rs/kW/hour adjusted with exchange rate variation

(PKR/USD).

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ROE (REF) Reference Return on Equity component of tariff expressed in Rs/kW/hour as adjusted at COD.

ROEDC (ref) = Reference Return on equity during construction component of tariff expressed in Rs/kW/hour as adjusted at COD.

Revised TT and OD selling rate (PKR/USD) as notified by the National Bank of Pakistan for the latest available month.

Reference exchange rate (PKR/USD) of Rs 102.35 / USD will ER (REF) be used.

Indexation will be carried out on quarterly basis.

# 4.5.1.3 Adjustment for LIBOR Variation

Due to variation in 6-month LIBOR, the interest part will be adjusted according to the following formula:

P (REV) X (LIBOR (REV) - LIBOR (REF)) / 2 ΔΙ

Where:

the variation in interest charges applicable corresponding ΔI to variation in six month LIBOR. Al can be positive or negative depending upon whether LIBOR (REV) > or < LIBOR (REF). The interest payment obligation will be enhanced or reduced to the extent of  $\Delta I$  for each half under adjustment applicable on semi-annual basis.

the outstanding principal on a semi-annual basis at the P (REV) relevant semi-annual calculations dates.

Indexation will be carried out on semi-annual basis.

# 4.5.1.4 Fuel Cost Component(s)

The fuel cost components will be adjusted with respect to degradation in heat rate with passage of time:

- To compensate for the effect of efficiency degradation between the schedule maintenance cycles:
- To compensate for efficiency decrease due to partial loading, due to changes in ambient temperature; and
- To compensate for non-recoverable degradation after COD.

The Fuel Cost Component of the Energy Purchase Price will be adjusted against the variation in the fuel prices as and when revised by the relevant authority as per the following formulae:

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FCC(Rev)

= FCC(Ren X FP(Rev) / FP(Ren

Where:

FCC(Rev)

FCC(Ref)

FP(Rev)

The applicable Fuel Cost Component as revised in

= accordance with the revised fuel price.

The Fuel Cost Component as indicated in the reference

= tariff or that adjusted pursuant to the heat rate tests

The fuel price as notified by the relevant authority per

= unit of fuel (residual fuel oil, and natural gas)

FP<sub>(Ref)</sub> = The reference fuel price per unit of fuel (residual fuel oil, and natural gas) as mentioned below:

Gas Price

Rs 588.23/MMBTU

**HSD Price** 

Rs 96.61/Litre (Ex-GST)

#### 4.5.1.5 Variable O&M

VO&MREV

= VO&MLREV + VO&MFREV

Where:

VO&M (LREV)

= VO&M (LREF)/kWh x CPI (REV) / CPI (REF)

VO&MIFREY

= VO&MIFREFY/kWh x USCPI (REV)/ USCPI (REF) X ER(REV)/

ER(REF)

Where:

VO&M (LREV)

The revised applicable Variable O&M Local Component

of the Variable Charges indexed with CPI.

VO&M (FREV)

The revised applicable Variable O&M foreign component

of the Variable Charges indexed with US CPI and currency

fluctuation.

CPI (REV)

The Consumer Price Index/or alternative index as

determined by the Authority.

CPI (REF)

The Consumer Price Index/or alternative index as

determined by the Authority.

USCPICKEY

The Revised US Consumer Price Index (All Urban

Consumers) notified by the Bureau of Labor Statistics.

USCPI (REF)

Reference US CPI (All Urban Consumers) notified by the

Bureau of Labor Statistics for the relevant month.

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# 5. RELIEF SOUGHT

#### 5.1 Reference Tariff

In light of the foregoing submissions, the learned Authority is kindly requested to approve the Company's generation tariff together with the pertinent indexation to remain effective for a period of 30 years from COD.

Details of the Reference Tariff for Foreign Loan (Rs./kW/hour) are as follows:

Foreign Loan (Levelized Tariff)	Rs./kW/hour	c/kW/hour	
Debt Repayment	0.4623	0.4517	
Interest Charges	0.0837	0.0818	
Agency Fee & Guarantee Fee	0.0143	0.0140	
Total Tariff	0.5604	0.5476	

Details of the Reference Tariff for Local Loan (Rs./kW/hour) are as follows:

Local Loan (Levelized Tariff)	Rs./kW/hour	c/kW/hour	
Debt Repayment	0.0337	0.0329	
Interest Charges	0.1224	0.1196	
Total Tariff	0.1561	0.1525	

The Reference Tariff for various components is as follows:

Tariff Break Up (Levelized Tariff)	In Rupees	in US cents	
Capacity Charge (/kW/hour)			
Return on Equity	0.6372	0.6226	
Return on Equity During Construction	0.1342	0.1311	
Fixed O&M	0.3332	0.3255	
Insurance	0.1324	0.1294	
Financing Cost on Working Capital	0.0487	0.0476	
Debt Repayment (Local)	0.0337	0.0329	
Interest (Local)	0.1224	0.1196	
Debt Repayment (Foreign)	0.4623	0.4517	
Interest (Foreign)	0.0837	0.0818	
Agency Fee & Guarantee Fee (Foreign)	0.0143	0.0140	
Total Capacity Charge	2.0023	1.9563	
Energy Charge (/kWh)			
Fuel Cost Component	4.1064	4.0122	
Variable O&M (Local)	0.1281	0.1251	
Variable O&M (Foreign)	0.6652	0.6500	
Total Energy Charge	4.8997	4.7872	
Total Tariff	6.9020	6.7435	

# 5.2 Tariff Adjustment/Indexations

Along with above tariff following adjustments/indexations are prayed:

# 5.2.1 Adjustment for indexation on cost variations in Fixed O&M:

Fixed O & MREV = Fixed O & MIREV + Fixed O & MIREV

Fixed O & MLREF = Fixed O & MLREF x CPI (REV) / CPI (REF)

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Fixed O & MFREV

Fixed O & MFREE x USCPI (REV)/USCPI (REF) x ER
(REV)/ER(REF)

# 5.2.2 Adjustment for indexation on cost variations in Return on Equity:

ROE (REV)

= ROE (REF) X ER (REV) ER (REF)

ROEDC (REF)

ROEDC (REF) X ER (REV) ER (REF)

# 5.2.3 Adjustment for indexation on cost variations in LIBOR Variation:

ΔΙ

P (REV) X (LIBOR (REV) - LIBOR (REF)) / 4

# 5.2.4 Adjustment for indexation on cost variations in Fuel Cost Component(s):

FCC(Rev)

FCC(Ren x FP(Rev) / FP(Ren

# 5.2.5 Adjustment for indexation on cost variations in Variable O&M:

VO&M (LREV)

VO&M (LREFY/kWh x CPI (REV) / CPI (REF)

VO&M (LREV)

= VO&M(FREFY/KWh x USCPI (REV)/ USCPI (REF) x ER(REV)/ ER(REF)

# 5.3 Assumptions

The Company's tariff proposal takes into the account the following assumptions. Any changes in these assumptions will result in an appropriate adjustment to proposed tariff.

- No provision for working capital has been made on account of any delay in NTDC payments.
- b) Any tax on income of the Company including sale proceeds from NTDC, general sales tax as per Sales Tax Act and all other corporate taxes will be treated as pass-through items.
- c) No taxes or duties (including stamp duties) have been assumed on the execution of the financing documents, loan repayment, interest repayment, agency fee, commitment fee, upfront fee, advisor's fee or charges, transportation. Such taxes or duties, if any, including on advisor's fee will be treated as pass-through under the PPA.
- d) Payments into Workers Welfare Fund and Workers Profit Participation Fund have not been taken into account. In case of these payments by the Company, they will be treated as pass-through pursuant to the relevant provisions of the Power Purchase Agreement.
- e) Any benefit/ concession/ incentives given to any other IPP projects will also be applicable to CPGCL.
- The tariff table shall be further updated subsequently in order to accommodate changes related to one-time adjustment for extension of time claims of

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contractor for contract cost finalization on actual basis, cost escalation against civil works, construction of additional culvert for out fall drains (water), Sindh Sales Tax and heat rate test.

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Muhammad Khalid Alvi Chief Executive Officer Chief Executive Officer Central Power Generation Co. Ltd. Guddu

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# Annexure I

Project Cost as per PC-I (Rupees)	
Land for Power Station and Colony	0
Site Preparation and Engineering	30,000,000
Handling of fuel ash and cooling water supply	50,000,000
Plant and Equipment	
Foreign Currency- Equipment cost including erection for Gas Turbines,	
Steam Turbine, HRSG & all auxiliaries /BOP	44,429,900,000
Local Currency- Equipment cost including erection for Gas Turbines,	
Steam Turbine, HRSG & all auxiliaries /BOP	419,880,000
Provision for import duties @ 5 % of FCC	2,221,500,000
Total - Plant and Equipment	47,071,280,000
Mandatory Spare Parts for Gas Turbine	69,900,000
Main Civil Work	
For Gas Turbine Generator	
Survey works, subsoil investigation, site clearance/demolishing, landscaping etc	12,935,693
Site Installation	1,501,354,571
Civil Worker for Machine Hall Building including foundation for G TGs , T/F foundation etc	316,567,436
Civil Work of central control Building	352,859,646
Civil work of fuel forwarding system building	34,860,898
Civil work of fuel storage handling system (structure and foundations)	13,153,882
Civil work of intake air filter house	34,465,838
Civil work of exhaust stack (included)	
Civil work for Black start emergency diesel engine building (included)	
Services Buildings (workshop, store, hydrogen generation plant, fire fighting, admin, security, etc)	370,480,000
Civil work of switchyard control building structure and foundation	160,670,000
Civil work of road, paved areas, crash barriers etc	156,720,000
One complete drainage and storm water drainage system	84,350,000
One lot of HVAC system	57,370,000

Relocation of existing underground unit No 4 CCW return pipe /outfall channel (Included)	0
All other facilities and services required to complete power plant in all respects (included)	0
Sub Total (A)	3,095,787,964

For HRSGS and Steam Turbine Generators	
Site Installation	81,720,384
Civil work of machine hall building including transformer foundation for steam turbine etc	222,110.370
Civil work of chemical dosing/chlorination building	62,916,816
Civil work of water treatment building	7,832,879
Civil work of intake from canal and outfall to river	189,910,525
Civil work of CW make up water supply pipe line and effluent disposal system	16,389,000
Civil work for HRSGs	69,360,000
Building Services	28,990,000
Roads, paved areas, crash Barrier etc	22,629,000
All other facilities and services required to complete the combined cycle power plant in all respect (included)	
Sub Total (B)	701,858,974
Total (A+B)	3,797,646,938
Interconnect Transmission Line .	.123,000,000
Residential Building	101,700,000
Vehicle	11,200,000
Engineering and Consultancy	255,710,000
Administration	383,560,000
Contingencies	767,130,000
Financial Charges	1,022,840,000
Import duty	
Interest During construction	6,091,440,000
Total Project Cost	59,775,406,938

EPC Cost (Local & Foreign)								
Description EPC Cost Actual Expenditure Future Payment								
Description	EPC COST	upto 17-Dec-2014	Pending Invoices	TOC	Total Cost			
HEI (Local) 10% Advance Payment + 5% Interim Payment	680,436,234	680,436,234			680,436,234			
HEI Civil Work (Local)	3,292,608,701	2,636,345,046	75,215,061	581,048,594	3,292,608,701			
HEI Erection Work (LCC)	212,005,595	168,503,312	6,089,531	37,412,752	212,005,595			
HEI Witnessing & Inspection (Foreign)	765,000	765,000	•		765,000			
Supervisory Services During DLP	6,885,000	( <b>.</b>		6,885,000	6,885,000			
1st Inspection	27,540,000			27,540,000	27,540,000			
HEI Foreign Training (Paid in PKR)	6,885,000	5,670,000		1,215,000	6,885,000			
HEI Supply of Local Goods	2,356,058	1,940,284		415,774	2,356,058			
HEI Local Transportation Charges	306,759,971	: 304,159,076	2,600,895		306,759,971			
HEI Custom Duties & Tax	2,445,659,621	2,420,359,724	25,299,897	•	2,445,659,621			
Escalation Cost	1,927,606,542	•	1,927,606,542	•	1,927,606,542			
Total (Local EPC)	8,909,507,722	3,797,818,952	2,036,811,925	654,517,121	8,909,507,722			
Foreign	USD				Rupees			
HEI (Foreign) 10% Advance Payment + 5% Interim Payment	81,897,307	6,984,611,793			6,984,611,793			
HEI (Foreign Payment) for Power Plant	464,084,737	38,720,618,382	506,293,222	6,812,434,602	46,039,346,206			
Total (Foreign)	545,982,044	45,705,230,175	506,293,222	6,812,434,602	53,023,957,999			
Total EPC (Local+ Foreign)	9,455,489,766	49,503,049,127	2,543,105,147	7,466,951,723	61,933,465,721			

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	Reimbursement/Adjustment (In relation to import plant, equipment, materials or mandatory spare parts & special tools (65%))									
Sr. No.	Invoice #	Date	Amount of Invoice (USD)	TT/ Cheque/ DD No.	Bank	Date	Amount (USD)	Exchange Rate	Amount (Rs)	
1	HPE-05-PKGD-0402CIF-01	20.05.2011	110,500	MT-103	UBL	29.09.2011	110,500	87.45	9,663,225.00	
2	HPE-05-PKGD-0402CIF-02	05.07.2011	32,500	MT-103	UBL	13.10.2011	32.500	87.15	2,832,375.00	
3	HPE-05-PKGD-0402CIF-03	10.07.2011	94,900	MT-103	UBL	13.10.2011	94,900	87.15	8,270,535.00	
4	HPE-05-PKGD-0402CIF-04	15.07.2011	317,200	MT-103	UBL	13.10.2011	317,200	87.15	27,643,980.00	
5	HPE-05-PKGD-0402CIF-05	10.08.2011	4,290	MT-103	UBL	13.10.2011	4,290	87.15	373,873.50	
			559,390						48,783,988.50	

# Annexure IV:

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1	4 106	0 791	6 900	0 417	0 114	0 111	0 112	0 141	o ons	0 164	0 7917	0 114	0 0169	1 501	1 507	7 407
1	4 104	0.791	4 900	0 617	0 114	4 111	0 113	0.049	0 014	0 141	0 8157	0.169	001:6	1311	2 323	1421
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	4 106	0 101	1 900	0 417	0 114	0 111	0.111	0 041	0.011	0 159	0 1114	* 111	0 0:41	2 444	1 144	7 144
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10	4 106	0 791	1 900	0 417	0 114	0 333	0 111	0.41	0117	0 042				141	1 465	6 161
10	4 106	0 791	4 900	9 617	0 114	0 111	0 112	0041	0 111	0 044				1 445	1 443	4 141
- 11	4 104	0 791	4 900	0417	0 114	0 111	0 113	0 049	0 151	0 024				1 41	1 445	6 141
22	4 106	0 791	4 100	0.417	0 114	0 111	0 112	0 049	0 071	9 009				1 141	1 341	4 245
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# Annexure V

	Variable O & M (Local Component)	
Description	Item Wise Detail	Budgeted Exp.
	747MW Combined Cycle Power Plant	
		Rupee
	Sulphuric Acid (Commercial) 98%	4,200,000
	Caustic Soda (liquid) 50%	24,300,000
	Hydrochloric Acid (Commercial) 32%	7,600,000
	Hydrazine Hydrate 80%	1,275,000
	Ammonia Gas 99%	360,000
	Tri Sodium phosphate 17% as p2O5	274,000
Total : Additives	Nitrogen Gas	9,000
and	Lime (Calcium oxide) 80%	25,000
other chemicals	Polyacrylamide	595,00
	Sodium Nitrite 96%	135,00
	Hypochlorite Liquid (Available Ci2 19-20%)	50,000
	Potassium Hydro oxide 85%	270,000
	Poly Aluminum Chloride	12,000,000
	Sodium Tetreaborate 98%	35,000
	Polyphosphate	12,000,000
	Laboratory Chemicals & Glass Ware	3,000,000
	Total	57,328,000
Water Charges		4,500,000
Lubricants		31,770,000
Total		61,828,000
Electricity Consu	mption for Gas Booster	586,244,841
		58,624,484
Grand Total		738,467,326
Tariff (Rs/kWh)		0.1281

# Annexure VI

C-#	Variable O & M (Foreign Com	Qty	List Price	Total
Sr#	Description			
_1	Combustion Inspection (CI) Capitals	6	13,661,965.00	81,971,790.00
2	CI Consumables	12	210,862.00	2,530,344.00
3	Turbine Operational	2	878,399.00	1,756,798.00
4	Turbine Controls	2	386,638.48	773,276.96
5	Generator Consumables	2	47,802.33	95,604.66
6	Load Commutated Inverter	2	223,108.00	446,216.00
7	Generator Maintenance	2	626,921.13	1,253,842.26
8	Excitation Protection	2	296,192.11	592,384.22
9	Hot Gas Path Inspection (HGPI) Capitals	6	580,298.49	3,481,790.94
10	HGP Consumables	6	623,586.18	3,741,517.08
11	Major Inspection (MI) (Consumables)	2	528,855.00	1,057,710.00
12	Major Inspection (MI) (Turbine) Capitals	2	35,130,892.93	70,261,785.86
13	Material Shipped Directly	2	5,323,400.00	10,646,799.22
15	Sub Total		58,518,920.65	178,609,859.20
16	06 Years Services 02 GTs		6,463,081.40	6,463,081.40
17	Air inlet filters for six 6-years for 2 GT	6	184,640.00	1,107,840.00
18	Repair of CI Capitals	6	599,386.00	3,596,316.00
19	6 Years VOM cost for two Gas Turbines in USD			189,777,096.60
20	Annual VOM Cost of 02 GTs			31,629,516.10
	Total Cost (USD) of Two GTs as per EPC Contract (Page SOP- 10)			292,345,723.00
	Percentage of O & M cost of EPC cost for one GT (06 Yerars)			10.82%
	Total Cost (USD) of Two HRSGs ,STG and BOP as per EPC Contract (Page SOP-10)			242,947,257.00
21	4% of the cost (USD) of Two HRSGs , STG and BOP for 1-Years VOM			2,429,472.57
22	Cost of ST Services (MI) at Par 1 MI of GT			3,419,732.60
23	Annual VOM Cost of 01 Steam Turbine, Two HRSGs and Allied Equip			5,849,205.17
24	Total Cost USD			37,478,721.27
25	Exchange rate Dollar to PKR			102.35
26	Total Cost PKR			3,835,947,121.98
27	Tariff Rs./kWh			0.6652

# Annexure VII

Administra	tion Cost
Description	Estimated Cost
	Rupee
Rent, Rates & Taxes	1,500,000
Power, Light, Gas & Water	84,267,046
Communication	1,250,000
Office Supplies & other Charges	1,800,000
Store handling Expenses	500,000
Advertising & Publicity	2,000,000
Subscription & Periodicals	200,000
Presentation Entertainment	500,000
Travelling Expenses	8,655,358
Injuries & Damages	500,000
Director's Fees .	100,000
Professional Fee	3,500,000
Management Fees	2,400,000
Vehicle Expenses	4,076,010
Miscellaneous Expenses	13,913,990
NEPRA Fees	12,163,146
Other Charges	0
Total	137,325,551
Tariff (Rs/kW/hour)	0.0217

Annexure VIII

Salaries & Wages	
Description	Budgeted Exp.
	Rupees
Basic Pay	70,293,410
Ad hoc Relief Allowance	73,808,082
Cash Medical Allowance	3,576,000
Conveyance Allowance	11,921,040
Deputation Pay	250,000
Duel Charge Allowance	500,000
Entertainment Allowance	350,000
Group Life Insurance	115,176
House Rent Allowance	6,275,916
Job Allowance	•
Livery Allowance	122,400
Local Compensatory Allowance (Guddu Allowance)	4,368,132
Officiating/Personal Special Pay	50,000
Other / Special Allowance	-
Overtime and off Day Wages	2,641,844
Personal Allowance	40,000
Qualification Pay/Technical Pay	700,000
Senior Post Allowance	100,000
Shift Allowance	3,103,200
Special Allowance	4,680,000
Staff Allowance	100,000
Washing Allowance	235,800
Generation Allowance	19,555,800
Total: Pay and Allowances	202,786,800
Total : Daily Wage Labour	1,000,000
Power, Light and Water	39,126,003
House Rent / Acquisition	298,841
Bereavement other Denotations	3,000,000
Sports and Recreation	51,902
Awards and Gratuities	65,181
Medical and Hospitalization Expenses	28,735,232
Education and Training Expenses	192,227
Education Cess	500,000
Residential Telephone	100,000
Funeral Expenses	100,000
Liveries	1,000,000
Total : Employee Benefits	73,169,386

Pension Fund	163,222,827
Post Retirement Free Electricity Benefits Fund	40,874,805
Post Retirement Medical Benefits Fund	10,065,323
Post Retirement Compensated Absence Fund	33,924,896
Total: Employers' Share in Fund Contributions	248,087,851
Total : Salaries, Wages & Other Benefits of 337 Sanctioned Strength	525,044,036
Tariff (Rs/kW/hour)	0.0832

# Annexure IX

Repair And Maintenance	
Description	Budgeted Exp.
	Rupee
Offices	10,000,000
Store Houses	3,000,000
Other Building (Operating)	40,000,000
Total : Rep and Maint - Buildings and Civil Works on Freehold Land	53,000,000
Boiler Plant Equipment (Budget Submitted)	10,080,350
Engines and Engine Driven Generators	3,003,700
Turbo generator Units	1,255,592,045
Accessory Electric Equipment	33,817,300
Misc.Power Plant Equipment	60,628,409
Total: Rep and Maint- Power Generation Plant Assets (Steam Power)	1,363,121,804
Computer and Office Equipment	200,000
Furniture and Fixtures	300,000
Transportation Equipment	500,000
Stores Equipment	500,000
Workshop Equipment	300,000
Laboratory Equipment	200,000
Construction Equipment	500,000
Communication Equipment	100,000
Fire Safety Equipment	200,000
Medical and Hospital Equipment	100,000
Arms and Ammunition	500,000
Miscellaneous Equipment	500,000
Total : Rep and Maint -General Plant Assets	3,900,000
Schools / Colleges	725,988
Hospitals and Dispensaries	674,977
Residential Buildings	18,171,737
Rest Houses	211,627
Recreation/Community Centres/Cinemas	220,595
Mosques	364,326
Misc. Buildings	1,000,000
Total : Rep and Maint -Other Physical Property	21,369,250
Total Repair & Maintenance	1,441,391,054
Tariff (Rs/kW/hour)	0.2283

# Annexure X

Cost of Working Capital					
Working Capital Requirement	3,289,649,392				
Rate (3 Month Kibor +2% Margin)	9%				
Cost of Capital	296,068,445				
Tariff (Rs/kWh)	0.0487				

Annexure XI

Insurance Co	sst
EPC Cost (Rupees)	61,933,465,721
Insurance Rate	1.35%
Insurance Premium (Rupees)	836,101,787
Tariff (Rs/kWh)	0.1324





# GHCL

# Central Power Generation Co. Ltd.

(GENCO-II), GENCO-II, T.P.S, GUDDU

**2** 0722-578425

Ø 0722-578014

genco2\_guddu@yahoo.com

No. CPGCL/CS/15/01

Date: 04/06/2015

Chief Executive Officer CPGCL (GENCO-II) Guddu

Subject:

EXTRACTS FROM DRAFT MINUTES OF 61st BOD MEETING

AGENDA ITEM NO. 25: TO CONSIDER & APPROVE THE TARIFF

PETITION OF 747MW CCPP, GUDDU

The Board Of Directors CPGCL (GENCO-II) considered the subject matter in its 61<sup>st</sup> Meeting held on April 29, 2015. After consideration & discussion, the Board resolved as under:

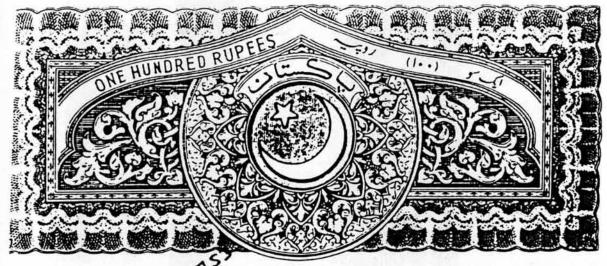
"RESOLVED UNANIMOUSLY that Tariff Petition for 747MW CCPP, Guddu be & is hereby approved.

FURTHER RESOLVED UNANIMOUSLY that CEO is hereby authorized to file the Tariff Petition with NEPRA and provide all the required details in connection with it."

This is for your information and further necessary action please.

MUHAMMAD IMRAN 04/06/2015
Company Secretary

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# BEFORE THE NATIONAL ELECTRIC POWER REGULATORY AUTHORITY ("NEPRA")

# APPLICATION FOR TARIFF DETERMINATION

AFFIDAVIT of Mr. MUHAMMAD KHALID ALVI S/O HAFIZ LAL AHMED Pakistani National, having CNIC # 32304-1596603-9, Chief Executive of Central Power Generation Company Limited (the "CPGCL") (Generation License No. GL/02/2002).

I, the above-named Deponent, do hereby solemnly affirm and declare as under:-

- 1. I am Chief Executive and Principal authorized representative of CPGCL.
- 2. That I have filed the accompanying Tariff Petition / Application No. \_\_\_\_\_\_
  together with supporting documents and annexure before the learned Authority, and the contents of the same may kindly be read as an integral part of this affidavit
- That the contents of the accompanying Tariff Petition are true and correct to the best of my knowledge and belief of and according to the information received by the Deponent, and that nothing has been concealed.
- 4. That all further documentation and information to be provided by me in connection with the accompanying Tariff Petition shall be true to the best of my knowledge and belief and according to the information received by the Deponent.

DEPONENT

Central Power Generation La Little

Verified on oath on this 161k day of May, 2015 that the contents of this affidavit

re try sand correct to the best of my knowledge and belief.

DEPONENT

Fan. L. Alus

Chief Executive
Circle Executive Office
Central Power Generation Co. Ltd
Codds