



National Electric Power Regulatory Authority
Islamic Republic of Pakistan

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Registrar

No. NEPRA/ADG(L)/LAG-243/ 3123-87

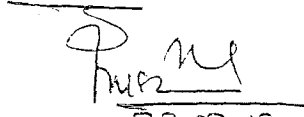
February 28, 2018

1. Chief Executive Officer
K-Electric Limited (KEL)
KE House, Punjab Chowrangi,
39 – B, Sunset Boulevard, Phase-II
Defence Housing Authority
Karachi
2. Chief Executive Officer
K-Energy (Pvt.) Ltd.
F-60, Park Lane, Block-5,
Kehkashan,
Clifton, Karachi
Tele: 021 – 3515 7421

Subject: Order of the Authority in the matter of Suo-Moto Review Proceedings regarding Generation Licence of K-Energy (Pvt.) Ltd. and Licensee Proposed Modification-V in the Generation Licence of KEL

Please find attached herewith Order of the Authority dated 28.02.2018 (08 pages) along with Revised/Modified Schedule-I (37 pages) and Revised/Modified Schedule-II (10 pages) of the Generation Licence of KEL in the subject matter for information and record.

Encl: As above


28 02 18
(Syed Safer Hussain)

CC:

1. Managing Director, National Transmission & Dispatch Company Ltd., 414-WAPDA House, Lahore.
2. Chief Executive Officer, Central Power Purchasing Agency Guarantee Limited (CPPA-G), ENERCON Building, Sector G-5/2, Islamabad.
3. Director General, Sindh Environmental Protection Agency, Plot No. ST 2/1, Sector 23, Korangi Industrial Area, Karachi.

Nation Electric Power Regulatory Authority
(NEPRA)

Order of the Authority
in the Matter of Suo-Moto Review Proceedings
Regarding Generation Licence of K-Energy (Pvt.) Limited
and Licensee Proposed Modification-V in the Generation
Licence of K-Electric Limited

February²⁸, 2018

(A). Background

(i). K-Electric Limited (KEL) under its generation licence (No. GL/04/2002) is operating a fleet of different power plants including Bin Qasim Power Station-I (BQPS-I), which consisted of 6x210 MW units, which are dual fuel (i.e. RFO and natural gas). After the commissioning of Combined Cycle Power Plant (CCPP) of Bin Qasim Power Station-II (BQPS-II), the old complex of BQPS-I mainly operated on RFO. Due to the volatility of RFO prices, KEL decided to convert unit-3&4 of BQPS-I on coal through a leasing arrangement with a separate company in the name of K-Energy (Pvt.) Limited (KEPL).

(ii). Accordingly, KEL communicated the Licensee Proposed Modification-V (LPM-V) on May 30, 2013 for excluding unit-3&4 of BQPS-I from its generation licence and leasing out the same to KEPL for coal conversion. The Authority through its determination dated April 03, 2014 approved the communicated LPM. The Authority further decided that the amended Schedule- I&II of the generation licence of KEL will be issued once the Authority decides the application of KEPL for the grant of generation licence.

(iii). In accordance with Section-15 of Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (the NEPRA Act), KEPL filed an application on November 22, 2013, requesting for grant of the generation licence for the unit-3&4 of BQPS-I. The Authority granted a generation licence (No. IGSP/48/2015 dated March 13, 2015) to KEPL for coal conversion. The Authority also issued revised/modified schedules of the generation licence of KEL excluding the unit-3&4 of BQPS-I, on the same date.



(B). Suo-Moto Review Proceedings by the Authority

(i). The Authority as a routine practice conducts hearing for Fuel Charges Adjustment (FCA) of KEL. During proceedings of FCA for the month of May 2016, it was transpired that KEL was operating the unit-3&4 of BQPS-I despite the fact that these units were not included its generation licence. In this regard KEL also requested for allowing FCA for the energy generated from the said units. However, in view of the fact that the said units were not part of the generation fleet of KEL, the Authority did not allow FCA for the energy generated from these units.

(ii). KEL filed a review motion against the decision of the Authority and inter alia contested the deduction of FCA in respect of the energy generated from the unit-3&4 of BQPS-I. In this regard, KEL submitted that it considers the said units as part of its generation licence and will be excluded from its generation license on commercial operation date (COD) of these units after coal conversion.

(iii). The Authority considered the submissions made by KEL in its review motion as well as during the hearing and noted that the units continued to operate and coal conversion plan has not been executed which was the reason for exclusion of the units from the generation licence of KEL and grant of license to KEPL. In this regard the Authority observed that during the proceedings of the LPM-V of KEL, it was desired by the Authority that downtime of the units should be minimum during their conversion on to coal.

(iv). The Authority observed that operation of these units has, not only resulted in additional energy but also favorable negative FCA adjustments at times for the consumers. Therefore, discontinuing operation of these units is not in favor of KEL's consumers, particularly keeping in view the existing demand and supply gap. Accordingly, the decided to allow the FCA adjustment to KEL in respect of energy produced from the units.

(v). However, the Authority did not agree with the submission of KEL that the units are considered part of KEL's licence till the achievement of COD on coal. For the said purpose, the Authority, decided to initiate suo-moto

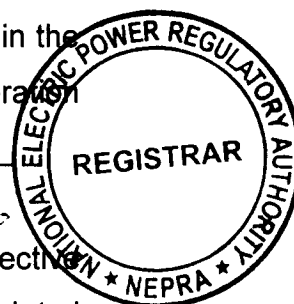


proceedings to review the determination of generation licence of KEPL and LPM-V of KEL's generation licence. Accordingly, the Authority initiated review proceedings under Regulation 3(1) of the NEPRA (Review Procedure) Regulations 2009 (the "Review Regulations").

(vi). In this regard, as stipulated in Regulation 3(8) of the Review Regulations, the Authority decided to hold a hearing of the parties (i.e. KEL and KEPL). The hearing was held on November 17, 2016 and KEL participated in the said hearing whereas KEPL did not attend the hearing. During proceedings of the hearing, representatives of KEL inter alia informed that agreement with KEPL for coal conversion of the above units could not materialize. KEPL has not shown any progress regarding implementation of the project and is lingering it on and on. Therefore, in the interest of consumers as well as KEL, the management of KEL has decided not to proceed further in the matter. KEL further informed that it intends to retain the said units and requested the Authority to include these units in its generation licence.

(vii). In view of the said, the Authority decided to seek prospective of KEPL on the position of KEL. In response, KEPL vide its letter dated January 10, 2017 informed that the assertion by KEL is incorrect as KEPL is actively pursuing the project with NEPRA, KEL and EPC contractors. In view of the said KEPL requested to deny the request of KEL to retain the units and to direct KEL to cooperate with it to implement the coal conversion project.

(viii). On the observations of KEPL, through its letter dated March 01, 2017 KEL clarified that it had entered into a Joint Development Agreement (JDA) with Bright Eagle Enterprises Group Limited (the holding company of KEPL) on 18th February 2012 for development of the coal conversion project. The said JDA expired on May 18th 2013 and was not renewed or extended by the parties. Since the expiry of JDA, KEL and KEPL had no contractual commitment or legal obligation to pursue the project. Further, due to lack of firm progress regarding implementation of the project, KEL had provided a final deadline of July 2016 to KEPL. However, KEPL failed to provide any term sheets or commitment letters with EPC contractors.



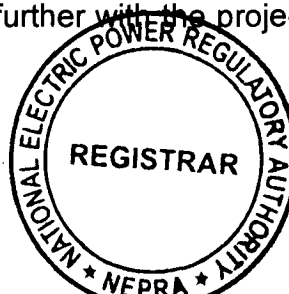
during this entire period which would give KEL comfort that KEPL is progressing with their discussion and towards financial close in a timely manner. After this deadline, KEPL did not further pursue KEL regarding the project and discussions came to a halt.

(ix). KEL further submitted that with an obligation to supply electric power in the city, it could not indefinitely wait for the coal conversion project to materialize and for KEPL to deliver. Hence KEL decided to stop pursuing the project entirely, and to retain unit-3&4 of BQPS-I in its generation licence. Accordingly, the said units have been rehabilitated and are being utilized by KEL to meet the electricity demand of its consumers.

(x). The Authority considered the matter and in view of the contradictory position taken by KEL and KEPL, decided to provide a final opportunity of hearing to the parties. Accordingly, the hearing was scheduled on August 29, 2017. KEL attended the hearing and reiterated its earlier position regarding termination of the agreement with KEPL and retaining/operation of the units. However, KEPL once again failed to participate in the hearing.

(xi). In the above mentioned hearing, the Authority considered the submissions of KEL and in view of the importance of the matter decided to provide a final opportunity of hearing to KEPL. Accordingly, the opportunity of hearing was provided to KEPL on October 12, 2017. In the said hearing representative of KEPL submitted that they have spent considerable time and amount on the project. The stance of KEL to reinstate the licence is morally, legally and business wise incorrect. The generation licence is KEPL's asset and it may be allowed to retain with it and should not be revert to KEL, so that KEPL can implement the project.

(xii). In the said hearing, the issue of non-payment of annual licence fee by KEPL was also highlighted. In this regard, KEPL submitted that it has already spent 5.0 million dollars in the project and due to non cooperation of KEL, it is unable to proceed further with the project and to pay the annual licence fee.



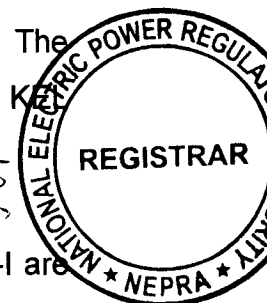
• **(C). Evaluation and Decision of the Authority**

(i). The Authority has examined the entire case in detail including LPM-V in the generation licence of KEL, generation licence granted to KEPL, submissions of KEL and KEPL regarding the coal conversion project of unit-3&4 of BQPS-I and other facts related to the case.

(ii). In this regard, the Authority has considered the submission including other relevant facts of the case and observed that till May 30, 2013 the generation licence (No. GL/04/2002) of KEL consisted of eight (08) distinctly located generation facilities/thermal power plants including: (a) 1260.0 MW Bin Qasim Power Station-I/BQPS-I (b). 125.00 MW Korangi Thermal Power Station/KTPS (c). 220.00 MW CCPP Korangi (d). 25.00 MW Korangi Town Gas Turbine Power Station/KTGTPS (e). 97.312 MW Korangi Town Gas Engine Power Station/KTGEPS (f). 25.00 MW SITE Gas Turbine Power Station/SGTPS (g). 97.312 MW SITE Gas Engines Power Station/SGEPS and (h). 560.00 MW CCPP At Bin Qasim/BQPS-II. The accumulative installed capacity of the above mention generation fleet of KEL was 2422.29 MW.

(iii). The 6x210 MW units of the generation facility of BQPS-I are dual fuel (i.e. RFO and natural gas). In this regard, the Authority has observed that after coming into operation of BQPS-II, the old complex of BQPS-I mainly operated on RFO. In view of the volatility of RFO prices, KEL decided to convert less efficient units i.e. (unit-3&4) of BQPS-I on coal, through a leasing arrangement with KEPL.

(iv). Accordingly, KEL communicated an LPM (i.e. LPM-V) on May 30, 2013 for excluding unit-3&4 of BQPS-I from its generation licence and leasing out the same to KEPL for coal conversion. The Authority through its determination dated April 03, 2014 approved the LPM-V in generation licence of KEL. Accordingly, the installed capacity of KEL was revised/reduced to 2002.29 MW from 2422.29 MW. Later on, through another modification dated April 02, 2015 (i.e. LPM-VI), the installed capacity of KEL was further reduced to 1874.794 MW by installation/decommissioning different generating units.



(v). The Authority observes that KEPL was granted a generation licence (No. IGSPL/48/2015 dated March 13, 2015) for coal conversion of unit-3&4 (2x210 MW) of BQPS-I. The Licence was granted to KEPL for a term of 30 years starting from COD of the units on coal. In this regard, the Authority has observed that for coal conversion project, the parties had entered into JDA on February 18, 2012. The said JDA expired on May 18, 2013 and never renewed or extended by the parties. Further, KEPL has failed to implement the project even after considerable time. Eventually, seeing that KEPL was not making any firm progress, KEL had provided final deadline of July 2016 to KEPL. However, KEPL failed to show any material progress regarding implementation of the project.

(vi). In this regard, during proceedings of the review petition of KEL in the matter its FCA for the month of May 2016, the Authority noted that KEL continued to operate unit-3&4 of BQPS-I and coal conversion plan has not been executed which was the reason for exclusion of the units from the licence of KEL and grant of licence to KEPL. In this regard the Authority has observed that during the proceedings of the LPM-V of KEL, it was desired by the Authority that downtime of the units should be minimum during their conversion on to coal. However, in the LPM-V, mechanism was not provided regarding operation of these units till their coal conversion.

(vii). The Authority observed that operations of these units have not only resulted in additional energy but also favorable negative FCA adjustments. Therefore, discontinuing operation of these units is not in favor of KEL's consumers, particularly keeping in view the existing demand and supply gap. Accordingly, for the purpose of making appropriate provisions to regulate operation of these units, the Authority initiated suo-moto proceedings to review the determination of generation license of KEPL and LPM-V of KEL's generation licence accordingly.

(viii). The Authority also observes that through determination dated December 09, 2015, it had already granted tariff to KEPL for implementation of the project. KEPL filed a Motion for Leave for Review against the

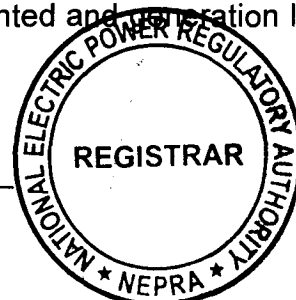


determination of the Authority. The Authority considered the matter and observed that the submissions made in the review motion were already deliberated upon in the earlier determination. Further, the petitioner had not provided any additional evidence and/or ground based on which the determination could be reviewed. The petitioner had also not brought on record any mistake or error which may result in modification of the determination. In view thereof, the Authority through its decision dated April 27, 2016 dismissed the review motion filed by KEPL.

(ix). Regarding implementation of coal conversion project by KEPL, the Authority observes that even after lapse of the considerable time of the grant of generation licence and determination of tariff, KEPL has failed to show serious efforts or any visible progress regarding implementation of the project. Further, an amount of Rs.19,162,096/- also due against KEPL on account of annual generation licence for the FY-2014-15, FY-2015-16, FY-2016-17 and FY-2017-18. During the hearing held on October 12, 2017 KEPL was enquired regarding non-payment of annual licence fee. However, KEPL did not provide any valid justification/explanation and has consistently failed to pay the annual licence fee.

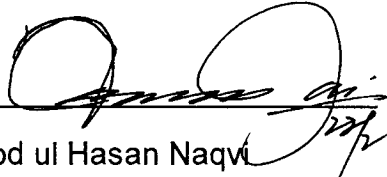
(x). The Authority has noted that KEPL has consistently failed to implement the coal conversion project whereas, KEL being the sole utility in Karachi with an obligation to increase generation in the city, KEL could not indefinitely wait for the coal conversion project to materialize. Accordingly, KEL decided to stop pursuing the project entirely, and to retain unit-3&4 of BQPS-I in its generation license. Further, in order to meet demand-supply situation in Karachi, KEL has already rehabilitated the unit-3&4 of BQPS-I and is utilizing the same.

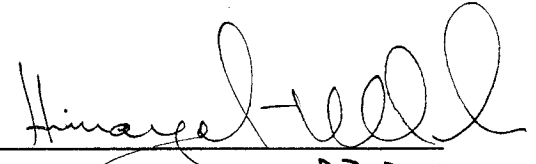
(xi). In view of the above, the Authority hereby decides to revoke the generation licence (No. IGSP/L/48/2015 dated March 13, 2015) granted to KEPL, as it has failed to materialize the coal conversion plan, the very basis on which the generation licence was granted and generation licence of KEPL is no more valid.

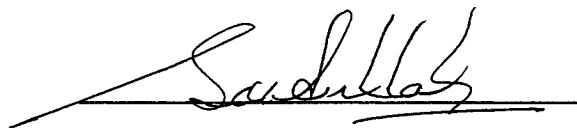


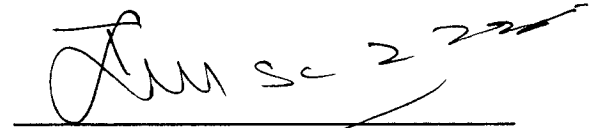
(xii). Further, to make provision for the operation of unit-3&4 of BQPS-I after March 13, 2015 and to add the said units in the generation fleet of KEL, the Authority hereby decides to amend the Schedule-I and Schedule-II of the generation licence of KEL, as attached to this determination as Annexure-A.

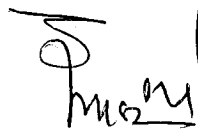

Authority


Masood ul Hasan Naqvi
(Member)


Himayat Ullah Khan
(Member) 23.2.18

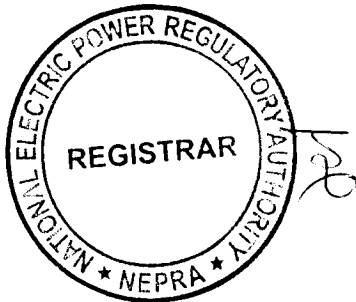

Saif Ullah Chattha 23.2.2018
(Member/Vice Chairman)


Tariq Saddozai
(Chairman)


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ANNEXURE-A

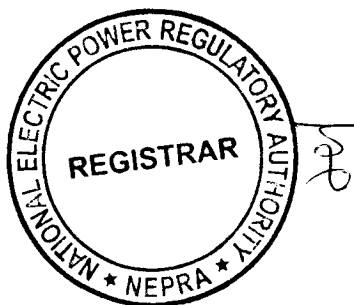
**(Modification-VII in the generation Licence of K-Electric Limited
through Suo-Moto Review Proceedings)**



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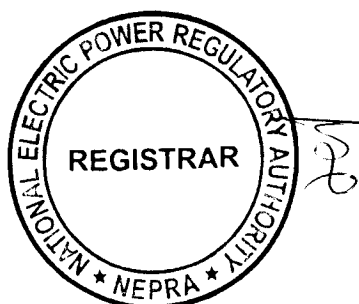
SCHEDULE-I
(Revised/Modified)
Modification-VII

The Location, Size (i.e. Capacity in MW), Type of Technology, Interconnection Arrangements, Technical Limits, Technical/Functional Specifications and other details specific to the Generation Facilities of the Licensee are described in this Schedule



**General Information About
the Licensee/K-Electric Limited-
KEL**

(i).	Name of Licensee	K-Electric Limited-KEL				
(ii).	Registered /Business Office	KE House,39B, Sunset Boulevard, Phase-II, (Ext)Defence Housing Authority, Karachi, in the Province of Sindh				
(iii).	Detail of Generation Facilities/Power Plants	Power Plant - I	Power Plant - II	Power Plant - III	Power Plant - IV	Power Plant - V
		Bin Qasim Power Station - I	Korangi Combined Cycle Power Plant-CCPP	Gas Engine Power Plant At Korangi Town	Gas Engine Power Plant At Site	Bin Qasim Power Station - II
(iv).	Location of Generation Facilities/Power Plants	Power Plant - I	Power Plant - II	Power Plant - III	Power Plant - IV	Power Plant - V
		Bin Qasim	Korangi	Korangi	SITE	Bin Qasim
(v).	Type of Generation Facility/Power Plants	Power Plant - I	Power Plant - II	Power Plant - III	Power Plant - IV	Power Plant - V
		Thermal Power Generation	CCPP	CCPP	CCPP	CCPP

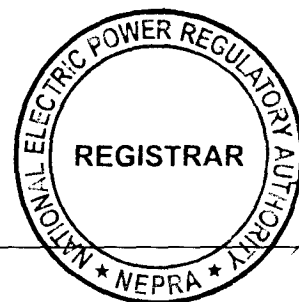


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Location of All Plants of KEL



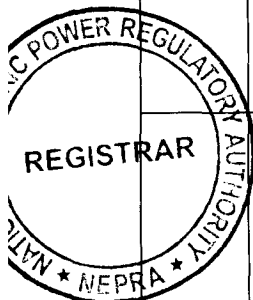
Detail of Generation Facility/ Power Plant-I



(A). Plant Configuration

(i).	Plant Size Installed Capacity (Gross ISO)	1260.00 MW					
(ii).	Type of Technology	Conventional Thermal Power Generation Plant with Sub-Critical Boilers and Steam Turbines					
(iii).	Number of Units/Size (MW)	6 x 210 MW Steam Turbine					
(iv).	Unit Make & Model	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		Hitachi	Hitachi	Ercole	Ercole	Hitachi	Hitachi
(v).	Commissioning Date/ Commercial Operation Date-COD (of each Unit)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		1983	1984	1989	1990	1991	1997
(vi).	Expected Useful Life of the of each Unit of the Generation Facility/Power Plant from Commissioning Date/COD	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		32 Years	32 Years	32 Years	32 Years	32 Years	32 Years
(vii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of Grant of Original Generation Licence (No. GL/04/2002, dated November 18, 2002)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		13 Years	14 Years	19 Years	20 Years	21 Years	27 Years

(viii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-I (dated May 13, 2008)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		As Above. No Change	As Above. No Change	As Above. No Change	As Above. No Change	As Above. No Change	As Above. No Change
(ix).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-II (dated March 17, 2009)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		As Above. No Change	As Above. No Change	As Above. No Change	As Above. No Change	As Above. No Change	As Above. No Change
(x).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-III (dated May 13, 2009)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		Total 35 Years from COD of the Plant/ Balance Useful Life is 16 Years	Total 35 Years/ Balance Useful Life is 17 Years	Total 35 Years/ Balance Useful Life is 22 Years	Total 35 Years/ Balance Useful Life is 23 Years	Total 35 Years/ Balance Useful Life is 24 Years	Total 35 Years/ Balance Useful Life is 30 Years
(xi).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-IV (dated August 22, 2013)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		05 Years	06 Years	11 Years	12 Years	13 Years	19 Years
(xii).	Expected Useful Life of Each Unit of the Generation	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6



	Facility/Power Plant at the time of issuance of Modification-V (dated March 13, 2015)	03 Years & 5 Months	04 Years & 5 Months	9 Years & 5 Months	10 Years & 5 Months	11 Years & 5 Months	17 Years & 5 Months
(xiii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-VI (dated April 02, 2015)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		03 Years & 4 Months	04 Years & 4 Months	9 Years & 4 Months	10 Years & 4 Months	11 Years & 4 Months	17 Years & 4 Months
(xiv)	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-VII (dated February, 2018)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		06 Months	01 Year & 06 Months	06 Years & 06 Months	07 Years & 06 Months	08 Years & 06 Months	14 Years & 06 Months

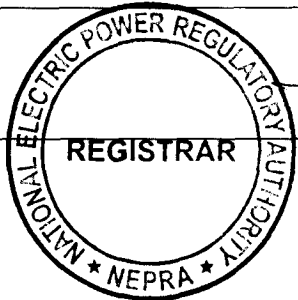
(B). Fuel Details

(i).	Primary Fuel	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas	Natural Gas
(ii).	Alternative Fuel	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		Residual Furnace Oil/RFO	RFO	RFO	RFO	RFO	RFO



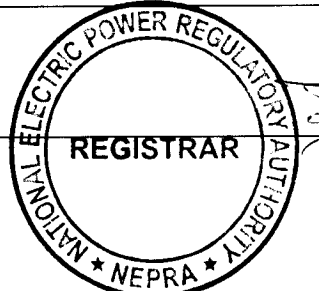
		Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
(iii).	Start-Up Fuel	Light Diesel Oil/LDO	LDO	LDO	LDO	LDO	LDO
(iv).	Fuel Source for each of the above (i.e. Imported/ Indigenous)	Imported/Indigenous					
(v).	Fuel Supplier for each of the above	Natural Gas			SSGC		
		RFO			PSO/BYCO		
		LDO			PSO		
(vi).	Supply Arrangement for each of the above	Natural Gas			Through Pipeline		
		RFO	PSO		BYCO		
			Pipeline		Tankers		
		LDO		Tankers			
(vii).	No of Storage Tanks	Eight (Tank # 6 in PSO custody) (Two tanks for LDO) (Tank # 1 & 2 for BYCO tanker decanting)					
(viii).	Storage Capacity of each Tank	LDO (two tanks 500 m ³ each) HFO/RFO (tank # 1 & 2 are 10000 m ³ each) (tank # 3,4,5 and 6 for 25000 m ³ each)					
(ix).	Gross Storage	1,21000 m ³					

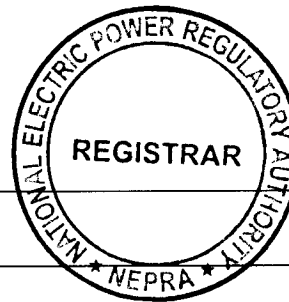
(C). Emission/Effluents Values

(i).	SO _x (mg/Nm ³)	 <p>The Plant is old Emission and Emission Equipment not Installed</p>
(ii).	NO _x (mg/Nm ³)	
(iii).	CO ₂	
(iv).	Effluents	
(v).	CO (mg/Nm ³)	
(vi).	PM ₁₀	

		Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
(iii).	Start-Up Fuel	Light Diesel Oil/LDO	LDO	LDO	LDO	LDO	LDO
(iv).	Fuel Source for each of the above (i.e. Imported/ Indigenous)	Imported/Indigenous					
(v).	Fuel Supplier for each of the above	Natural Gas			SSGC		
		RFO			PSO/BYCO		
		LDO			PSO		
(vi).	Supply Arrangement for each of the above	Natural Gas			Through Pipeline		
		RFO	PSO		BYCO		
			Pipeline		Tankers		
		LDO		Tankers			
(vii).	No of Storage Tanks	Eight (Tank # 6 in PSO custody) (Two tanks for LDO) (Tank # 1 & 2 for BYCO tanker decanting)					
(viii).	Storage Capacity of each Tank	LDO (two tanks 500 m ³ each) HFO/RFO (tank # 1 & 2 are 10000 m ³ each) (tank # 3,4,5 and 6 for 25000 m ³ each)					
(ix).	Gross Storage	1,21000 m ³					

(C). Emission/Effluents Values

(i).	SO _x (mg/Nm ³)	 The Plant is old Emission and Emission Equipment not Installed
(ii).	NO _x (mg/Nm ³)	
(iii).	CO ₂	
(iv).	Effluents	
(v).	CO (mg/Nm ³)	
(vi).	PM ₁₀	



(D). Cooling System

(i).	Cooling Water Source/Cycle	Sea Water
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(E). Plant Characteristics

		Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
(i).	Generation Voltage	21 KV	21 KV	18 KV	18 KV	18 KV	18 KV
(ii).	Frequency	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz	50 Hz
(iii).	Power Factor	0.85	0.85	0.85	0.85	0.85	0.85
(iv).	Automatic Generation Control (AGC) (MW control is the general practice)	MW/ Hz	MW/ Hz	MW/ Hz	MW/ Hz	MW/ Hz	MW/ Hz
(v).	<u>Ramping Rate</u>						
	(a).	Light mode	1 %	1 %	1 %	1 %	1 %
	(b).	Medium mode	3 %	3 %	3 %	3 %	3 %
	(c).	Heavy mode	5 %	5 %	5 %	5 %	5 %
(vi).	Time required to Synchronize to Grid and loading the complex to full load.						
	Ambient cold start (hours)		22 + 2	22 + 2	09 + 3.5	09 + 3.5	22 + 2
	Cold Start Mode		07 + 2	07 + 2	09 + 3.5	09 + 3.5	07 + 2
	Warm Start mode		03 + 1.5	03 + 1.5	3.5 + 3.5	3.5 + 3.5	03 + 1.5
	Hot Start Mode		2.25 + 0.5	2.25 + 0.5	1.3 + 2.3	1.3 + 2.3	2.25 + 0.5

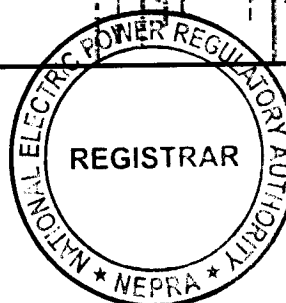
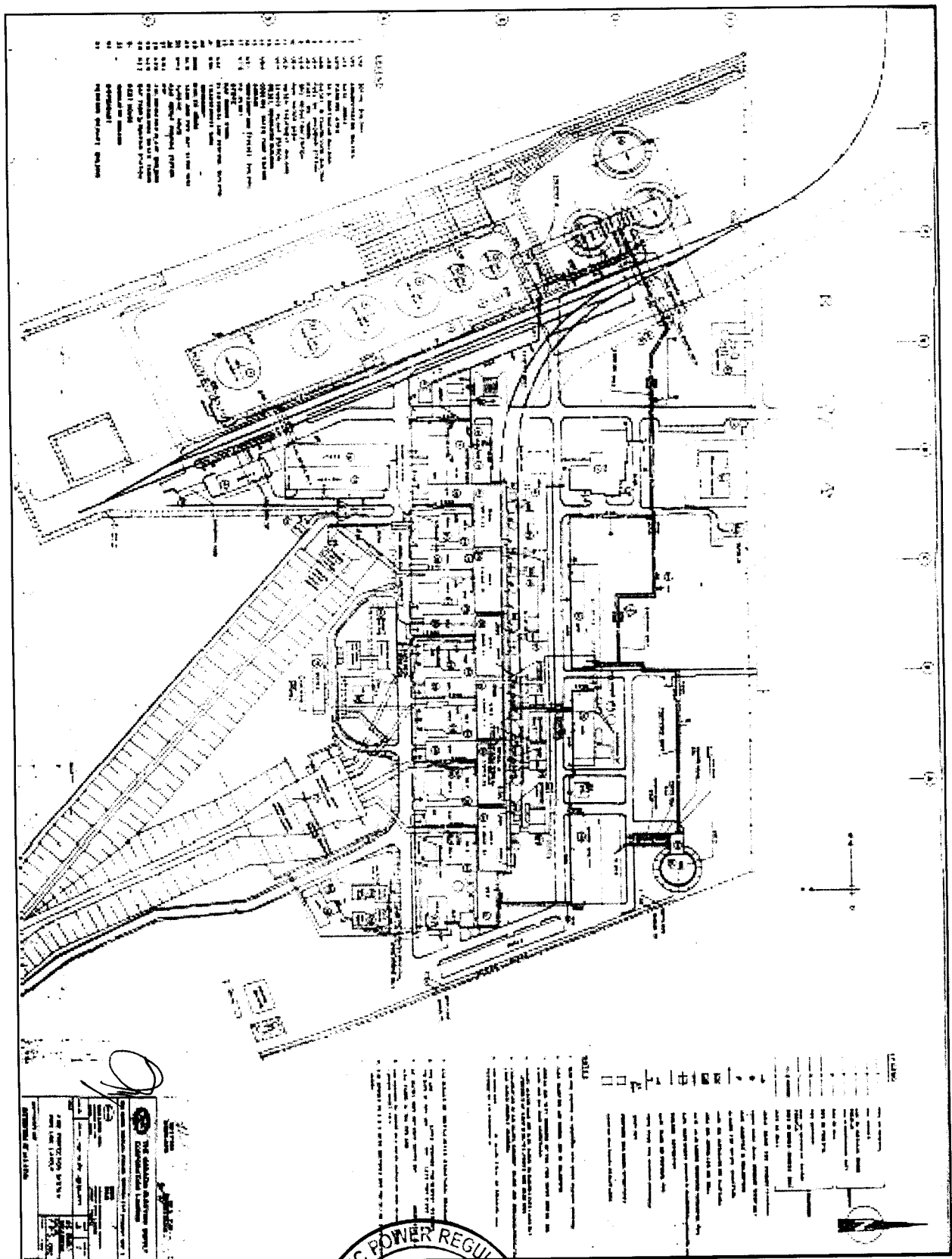
	Very Hot Mode	0.25 + 0.5	0.25 + 0.5	1.3 + 2.3	1.3 + 2.3	0.25 + 0.5	0.25 + 0.5
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(F). Interconnection Arrangement

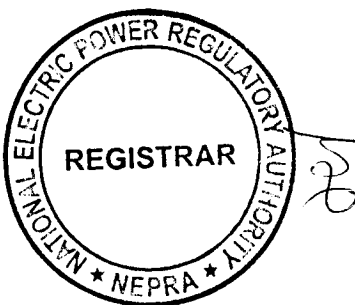
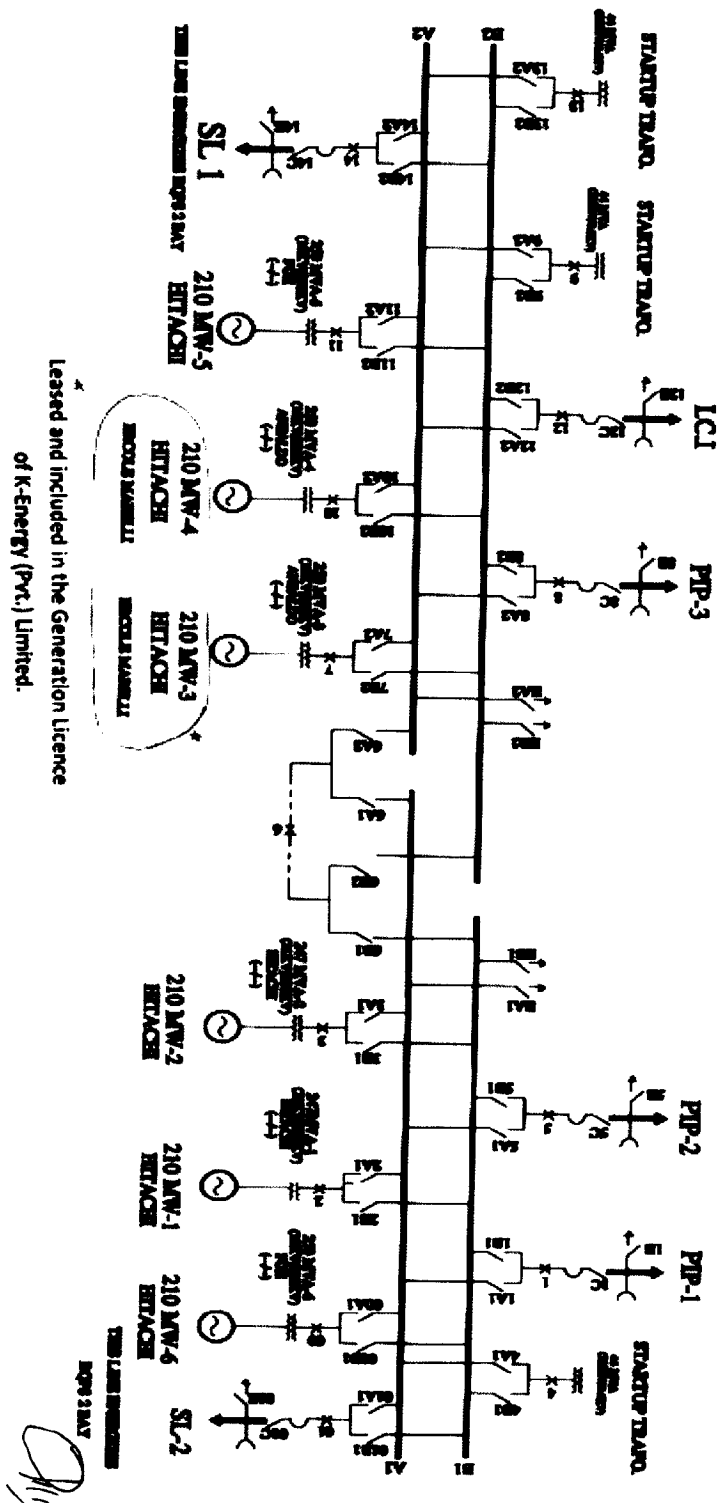
(i).	Interconnection & Transmission Arrangement for Power Plant-I	<p>(a). 220KV D/C Pipri West Circuit No. 1</p> <p>(b). 220KV D/C Pipri West Circuit No. 2</p> <p>(c). 220KV D/C Pipri West Circuit # 3</p> <p>(d). 220KV D/C ICI Circuit</p> <p>(e). 220KVD/C Short Line/SL-1 (interconnection with Bin Qasim-2/Plant-V)</p> <p>(f). 220KVD/C Short Line/SL-2 (interconnection with Bin Qasim-2/Plant-V)</p>
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Layout of Power Plant-I



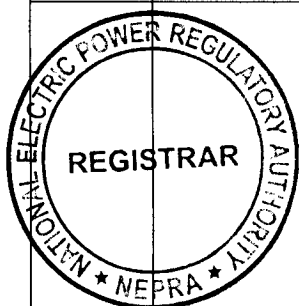
Single Line Diagram (Electrical) of Power Plant-I



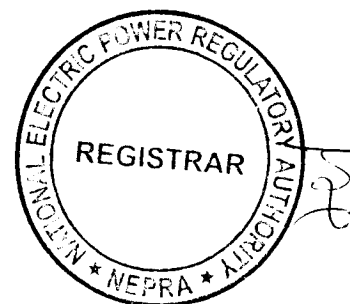
Detail of Generation Facility/ Power Plant-II

(A). Plant Configuration

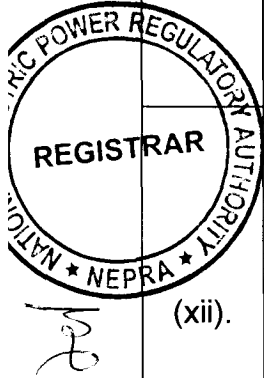
(i).	Plant Size Installed Capacity (Gross ISO)	247.500 MW		
(ii).	Type of Technology	Combined Cycle Power Plant (CCPP) with Gas turbines and Steam Turbines		
(iii).	Number of Units/Size (MW)	Gas Turbine - G.T.	4 x 48.375 MW (Unit- 1~4)	
		Steam Turbine - S.T.	1 x 26.50 MW + 1 x 27.50 MW (Unit- 5~6)	
(iv).	Unit Make & Model	G.T.	LM6000PC NDW SPRINT-General Electric G.E.	
		S.T.	G.E. Thermodyne	
(v).	Commissioning Date/COD	Unit Detail	Commissioning Date	Commercial Operation Date
		Unit No. - 1	As C.O.D.	November 17, 2008
		Unit No. - 2	As C.O.D.	November 17, 2008
		Unit No. - 3	As C.O.D.	March 25, 2009
		Unit No. - 4	As C.O.D.	March 26, 2009
		Unit No. - 5	As C.O.D.	September 1, 2009



		Unit No. - 6	As C.O.D.			April 30, 2015	
(vi).	Expected Useful Life of the of each Unit of the Generation Facility/Power Plant from Commercial Operation/ Commissioning Date/COD	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		30 Years from COD	30 Years from COD	30 Years from COD	30 Years from COD	30 Years from COD	25 Years from COD
(vii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of Grant of Original Generation Licence (No. GL/04/2002, dated November 18, 2002)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		Not Included					
(viii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-I (dated May 13, 2008)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		Not Included					
(ix).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-II (dated March 17, 2009)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		30 Years	30 Years	30 Years	30 Years	30 Years	Not Included



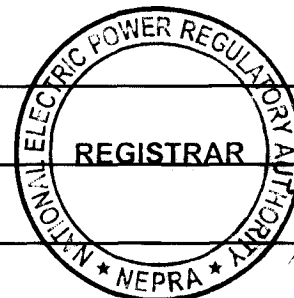
(x).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-III (dated May 13, 2009)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		As Above	As Above	As Above	As Above	As Above	Not Included
(xi).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-IV (dated August 22, 2013)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		26 Years	26 Years	26 Years	26 Years	26 Years	Not Included
(xii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-V (dated March 13, 2015)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		24 Years & 05 Months	24 Years & 05 Months	24 Years & 05 Months	24 Years & 05 Months	24 Years & 05 Months	Not Included
(xiii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-VI (dated April 02, 2015)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		24 Years & 04 Months	24 Years & 04 Months	24 Years & 04 Months	24 Years & 04 Months	24 Years & 04 Months	25 Years
(xiv).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		21 Years &	21 Years &	21 Years &	21 Years &	21 Years &	22 Years &



issuance of Modification-VII (dated February 2018)	06 Months	06 Months	06 Months	06 Months	06 Months	02 Months
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(B). Fuel Details

(i).	Primary Fuel	Natural Gas	
(ii).	Alternate/ Back Up Fuel	High Speed Diesel Oil (HSDO)	
(iii).	Fuel Source (Imported/ Indigenous)	Indigenous	
(iv).	Fuel Supplier	Natural Gas	HSDO
		Sui Southern Gas Company (SSGC)	PSO/BYCO/PRL
(v).	Supply Arrangement	Natural Gas	HSDO
		Gas through pipeline	Tanker
(vi).	No of Storage Tanks for Primary/ Alternate/Backup Fuels	Natural Gas	HSDO
		Not Applicable	2
(vii).	Storage Capacity of Tanks	Natural Gas	HSDO
		Not applicable	1 x 8000 m ³ + 1 x 1500 m ³
(viii).	Gross Storage	Natural Gas	HSDO
		Not applicable	9,500 m ³



(C). Emission Values

		Natural Gas	HSDO
(i).	SO _x	Max 400 mg/Nm3	As Per NEQS
(ii).	NO _x	Max 400 mg/Nm3	-Do-
(iii).	CO	Max 800 mg/Nm3	-Do-

(iv).	PM10	-	-Do-
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(D). Cooling System

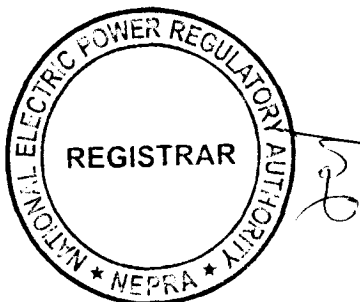
(i).	Cooling Water Source/Cycle	Sea Water/Demineralized water /Open/Closed Cycle
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(E). Plant Characteristics

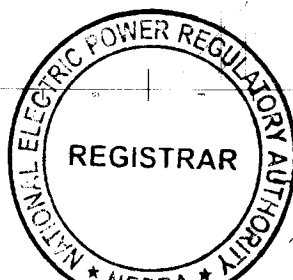
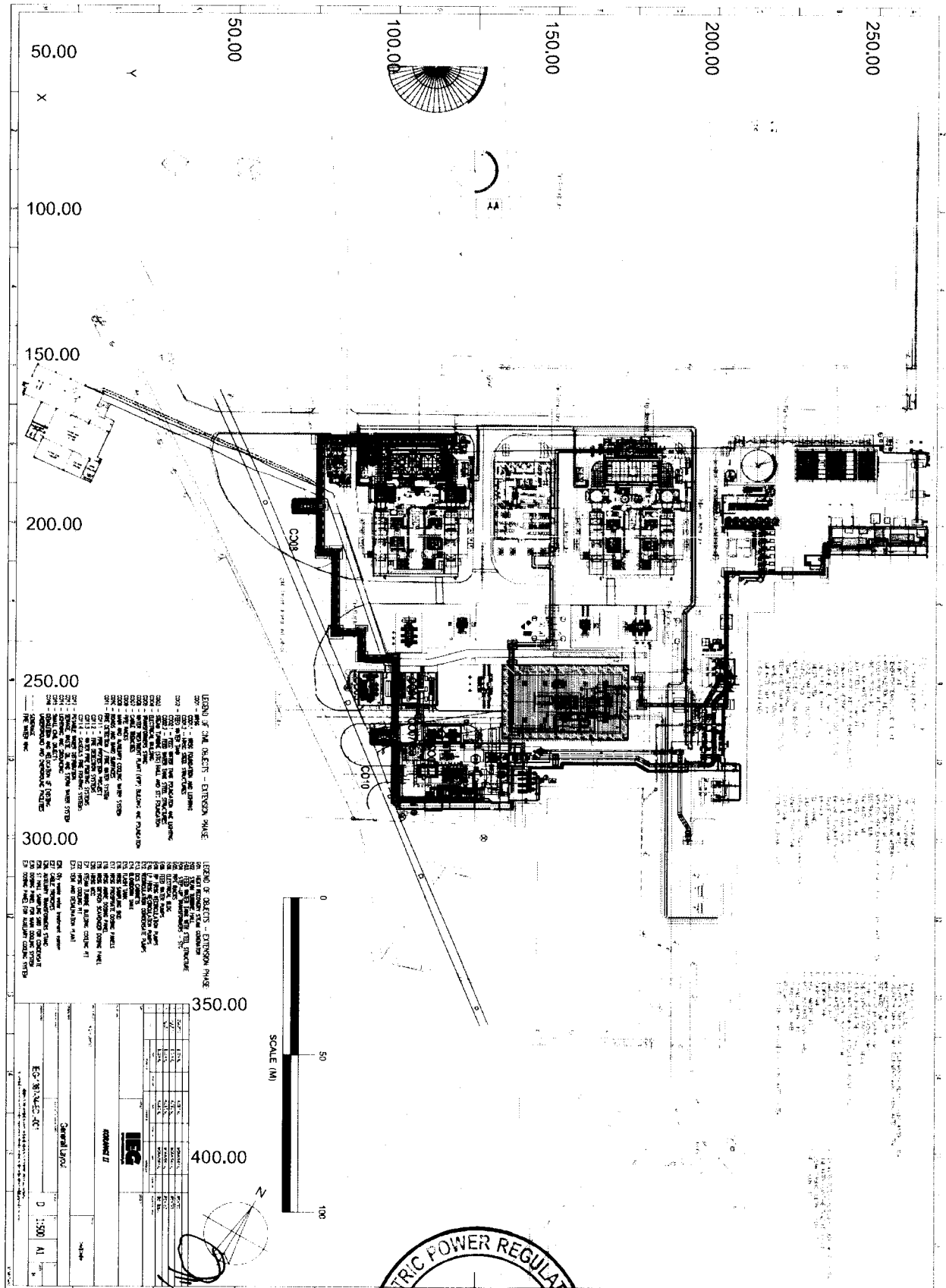
		All G.T. & S.T.-1	S.T.-2
(i).	Generation Voltage	11.5KV for G.T.& 11 KV for S.T.	11KV±10%
(ii).	Frequency	50 HZ	50±3% Hz
(iii).	Power Factor	0.8 (lag)	0.8
(iv).	Automatic Generation Control	Yes	-
(v).	Ramping Rate	5 MW/Minute	400 KW/min when S.T. is Cold 1000 kW/min when S.T. is Hot
(vi).	Time required to Synchronize to Grid and loading the complex to full load.	13 Minutes	6-8 Hrs (From cold startup)

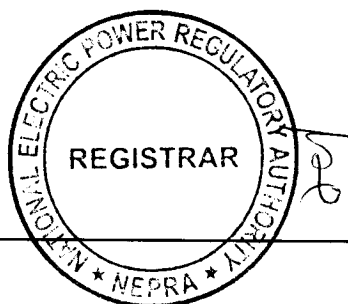
(F). Interconnection Arrangement

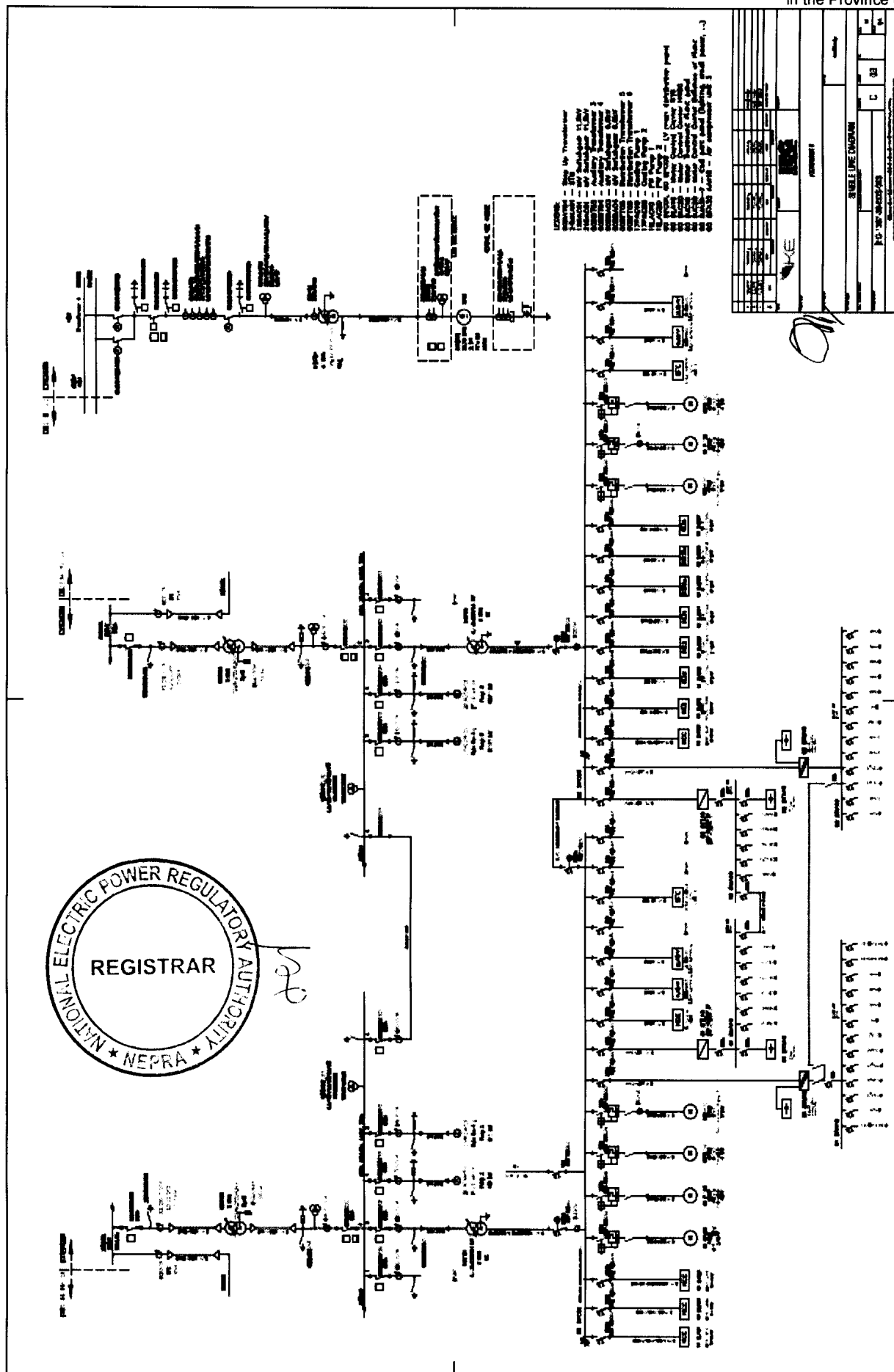
(i).	Interconnection & Transmission Arrangement for Power Plant-II	(a). 220 D/C Korangi Creek Road Circuit No. 1; and (b). 220 D/C Korangi Creek Road Circuit No. 2
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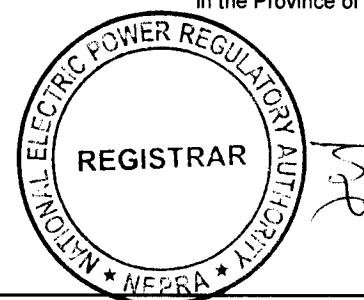
Layout of Power Plant -II







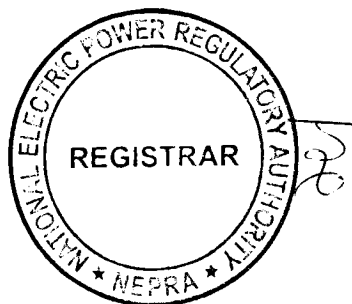
Detail of Generation Facility/ Power Plant-III



(A). Plant Configuration

(i).	Plant Size Installed Capacity (Gross ISO)	107.312MW				
(ii).	Type of Technology	CCPP with Gas Engines & Steam Turbine				
(iii).	Number of Units/Size(MW)	Gas Engine		Steam Turbine		
		32 x 3.041 MW (Unit No. 1-32)		1 x 10.00 MW (Unit No. 33)		
(iv).	Unit Make & Model	Gas Engine		Steam Turbine		
		G.E. Jenbacher JGS 620 GS-NL		NG Allen Steam Turbine UK- MC 800		
(v).	Commissioning Date/COD	Unit No. 1 ~ 8	Unit No. 9 ~ 16	Unit No. 17 ~ 24	Unit No. 25 ~ 32	Unit No. 33
		August 22, 2009	September 16, 2009	December 12, 2009	December 20, 2009	June 30, 2015
(vi).	Expected Useful Life of the of each Unit of the Generation Facility/Power Plant from Commercial Operation/ Commissioning Date/COD	Unit No. 1 ~ 8	Unit No. 9 ~ 16	Unit No. 17 ~ 24	Unit No. 25 ~ 32	Unit No. 33
		30 Years from COD	30 Years from COD	30 Years from COD	30 Years from COD	25 Years from COD
(vii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of Grant of Original Generation Licence (No. GL/04/2002, dated November 18, 2002)	Unit No. 1 ~ 8	Unit No. 9 ~ 16	Unit No. 17 ~ 24	Unit No. 25 ~ 32	Unit No. 33
		Not Included				
(viii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-I (dated May 13, 2008)	Unit No. 1 ~ 8	Unit No. 9 ~ 16	Unit No. 17 ~ 24	Unit No. 25 ~ 32	Unit No. 33
		Not Included				

(ix).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-II (dated March 17, 2009)	Unit No. 1 ~ 8	Unit No. 9 ~ 16	Unit No. 17 ~ 24	Unit No. 25 ~ 32	Unit No. 33
		Not Included				
(x).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-III (dated May 13, 2009)	Unit No. 1 ~ 8	Unit No. 9 ~ 16	Unit No. 17 ~ 24	Unit No. 25 ~ 32	Unit No. 33
		30 Years	30 Years	30 Years	30 Years	Not Included
(xi).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-IV (dated August 22, 2013)	Unit No. 1 ~ 8	Unit No. 9 ~ 16	Unit No. 17 ~ 24	Unit No. 25 ~ 32	Unit No. 33
		26 Years	26 Years	26 Years	26 Years	Not included
(xii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-V (dated March 13, 2015)	Unit No. 1 ~ 8	Unit No. 9 ~ 16	Unit No. 17 ~ 24	Unit No. 25 ~ 32	Unit No. 33
		24 Years & 05 Months	24 Years & 05 Months	24 Years & 05 Months	24 Years & 05 Months	Not Included
(xiii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-VI (dated April 02, 2015)	Unit No. 1 ~ 8	Unit No. 9 ~ 16	Unit No. 17 ~ 24	Unit No. 25 ~ 32	Unit No. 33
		24 Years & 04 Months	24 Years & 04 Months	24 Years & 04 Months	24 Years & 04 Months	25 Years
(xiv).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of this Modification-VII (dated February , 2018)	Unit No. 1 ~ 8	Unit No. 9 ~ 16	Unit No. 17 ~ 24	Unit No. 25 ~ 32	Unit No. 33
		21 Years & 06 Months	21 Years & 06 Months	21 Years & 06 Months	21 Years & 06 Months	22 Years & 02 Months

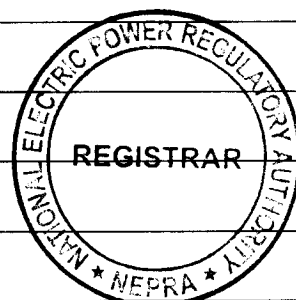


(B). Fuel Details

(i).	Primary Fuel	Natural Gas
(ii).	Alternate/Back-up Fuel	None
(iii).	Fuel Source (Imported/Indigenous)	Indigenous
(iv).	Fuel Supplier	Sui Southern Gas Company (SSGC)
(v).	Supply Arrangement	Gas through pipeline

(C). Emission Values

(i).	SO _x	Insignificant
(ii).	NO _x	<500 mg/Nm ³
(iii).	CO	<800 mg/Nm ³
(iv).	PM ₁₀	Insignificant



(D). Cooling System

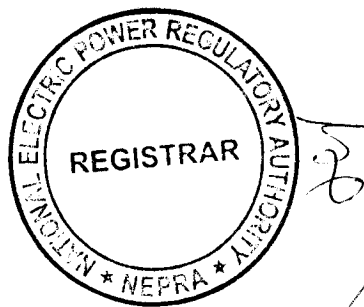
(i).	Cooling Water Source/Cycle	Well water Air cool condenser/Demineralized water from reverse osmosis plant
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(E). Plant Characteristics

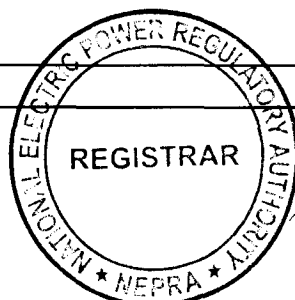
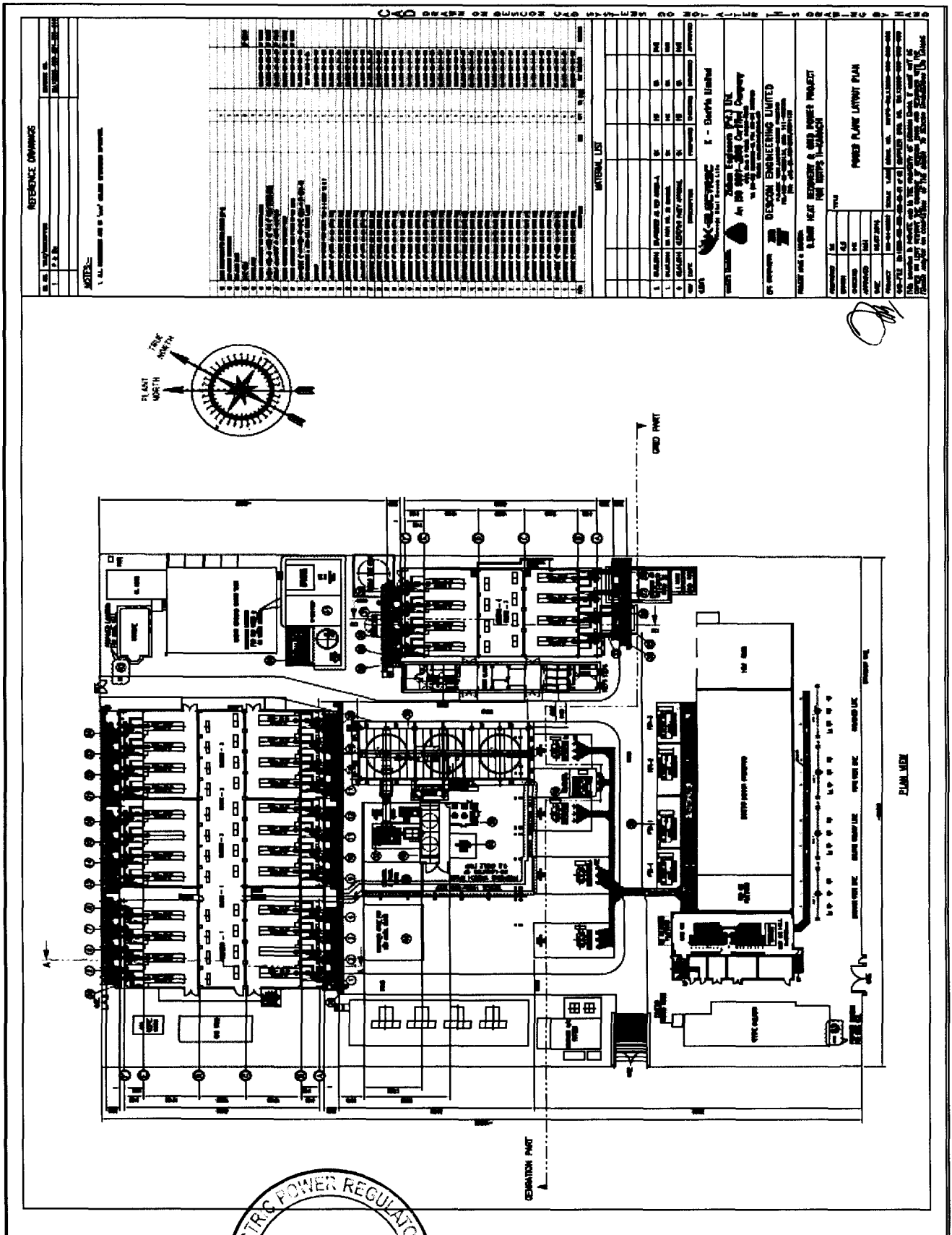
		Gas Engines	Steam Turbine
(i).	Generation Voltage	11.0 KV	11 KV (+-5%)
(ii).	Frequency	50 HZ	50 HZ (+3%/-4%)
(iii).	Power Factor	0.8 ~ 1.0 (lagging)	0.8 lagging-0.9 leading
(iv).	Automatic Generation Control	Yes	N/A
(v).	Ramping Rate	16 KW/Second	0.8 MW/Minute
(vi).	Time required to Synchronize to Grid and loading the complex to full load.	From No Load to full Load in 311 sec per engine	35 minutes from start-up

(F). Interconnection Arrangement

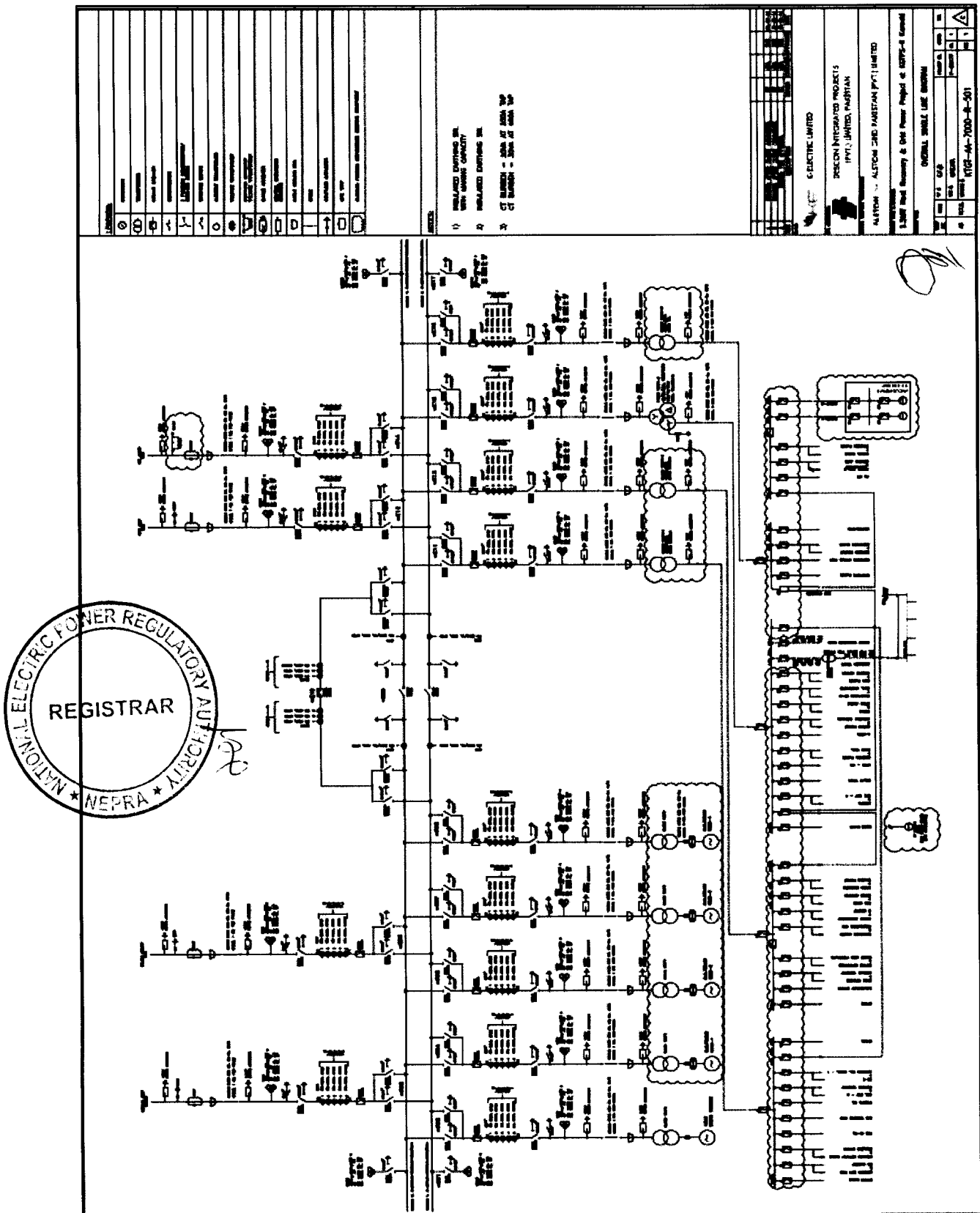
(i).	Interconnection & Transmission Arrangement for Power Plant-III	(a). 132 KV S/C Pipri Circuit (b). 132 KV S/C Gul Ahmed Circuit (c). 132 KV S/C Baloch Circuit
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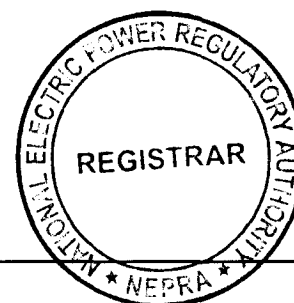
Layout of Power Plant-III



Single Line Diagram (Electrical) of Power Plant-III



Detail
of Generation Facility/
Power Plant-IV



(A). Plant Configuration

(i).	Plant Size Installed Capacity (Gross ISO)	107.312 MW				
(ii).	Type of Technology	Combined Cycle with Gas Engines & Steam Turbine				
(iii).	Number of Units/Size(MW)	Gas Engine		Steam Turbine		
		32 x 3.041 MW (Unit No. 1-32)		1 x 10.00 MW (Unit No. 33)		
(iv).	Unit Make & Model	Gas Engine		Steam Turbine		
		G.E. Jenbacher JGS 620 GS-NL		NG Allen Steam Turbine UK- MC 800		
(v).	Commissioning Date /COD	Unit No. 1~8	Unit No. 9~16	Unit No. 17~24	Unit No. 25~32	Unit No. 33
		June 23, 2009	July 13, 2009	August 21, 2009	August 21, 2009	September 30, 2015
(vi).	Expected Useful Life of the of each Unit of the Generation Facility/Power Plant from Commercial Operation/ Commissioning Date/COD	Unit No. 1~8	Unit No. 9~16	Unit No. 17~24	Unit No. 25~32	Unit No. 33
		30 Years from COD	30 Years from COD	30 Years from COD	30 Years from COD	25 Years From COD
	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of Grant of Original Generation Licence (No. GL/04/2002, dated November 18, 2002)	Unit No. 1 ~ 8	Unit No. 9 ~ 16	Unit No. 17 ~ 24	Unit No. 25 ~ 32	Unit No. 33
		Not Included				
(viii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-I (dated May 13, 2008)	Unit No. 1~8	Unit No. 9~16	Unit No. 17~24	Unit No. 25~32	Unit No. 33
		Not Included				

(ix).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-II (dated March 17, 2009)	Unit No. 1~8	Unit No. 9~16	Unit No. 17~24	Unit No. 25~32	Unit No. 33
		Not Included				
(x).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-III (dated May 13, 2009)	Unit No. 1~8	Unit No. 9~16	Unit No. 17~24	Unit No. 25~32	Unit No. 33
		30 Years	30 Years	30 Years	30 Years	Not Included
(xi).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-IV (dated August 22, 2013)	Unit No. 1~8	Unit No. 9~16	Unit No. 17~24	Unit No. 25~32	Unit No. 33
		26 Years	26 Years	26 Years	26 Years	Not Included
(xii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-V (dated March 13, 2015)	Unit No. 1~8	Unit No. 9~16	Unit No. 17~24	Unit No. 25~32	Unit No. 33
		24 Years & 05 Months	24 Years & 05 Months	24 Years & 05 Months	24 Years & 05 Months	Not Included
(xiii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-VI (dated April 02, 2015)	Unit No. 1~8	Unit No. 9~16	Unit No. 17~24	Unit No. 25~32	Unit No. 33
		24 Years & 04 Months	24 Years & 04 Months	24 Years & 04 Months	24 Years & 04 Months	25 Years
(xiv).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of this Modification-VII (dated February , 2018)	Unit No. 1~8	Unit No. 9~16	Unit No. 17~24	Unit No. 25~32	Unit No. 33
		21 Years & 06 Months	21 Years & 06 Months	21 Years & 06 Months	21 Years & 06 Months	22 Years & 02 Months

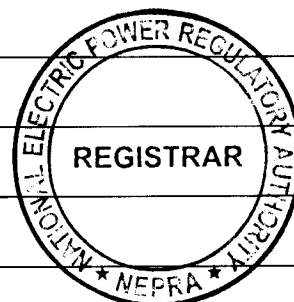


(B). Fuel Details

(i).	Primary Fuel	Natural Gas
(ii).	Alternate/Back-up Fuel	None
(iii).	Fuel Source (Imported/Indigenous)	Indigenous
(iv).	Fuel Supplier	Sui Southern Gas Company (SSGC)
(v).	Supply Arrangement	Gas through pipeline

(C). Emission Values

(i).	SO _x	Insignificant
(ii).	NO _x	<500 mg/Nm ³
(iii).	CO	<800 mg/Nm ³
(iv).	PM ₁₀	Insignificant



(D). Cooling System

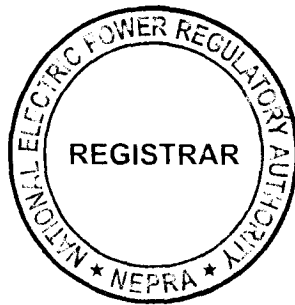
(i).	Cooling Water Source/Cycle	Well Water Air cool condenser/Demineralized water from reverse osmosis plant
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(E). Plant Characteristics

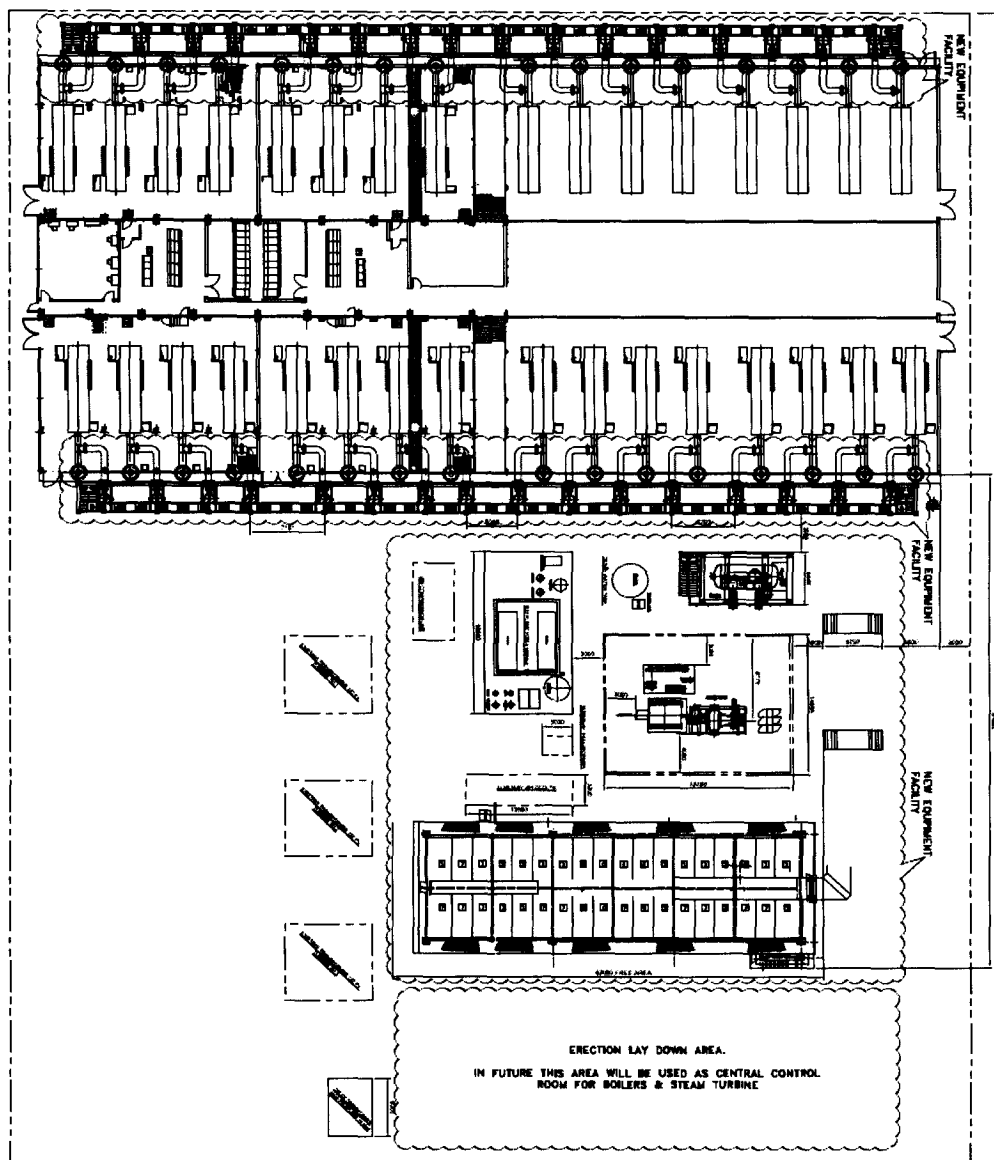
		Gas Engine	Steam Turbine
(i).	Generation Voltage	11.0 KV	11 KV (+/-5%)
(ii).	Frequency	50 HZ	50 HZ (+3%/-4%)
(iii).	Power Factor	0.8 ~ 1.0 (lagging)	0.8 lag cos. Phi, 0.9 lead
(iv).	Automatic Generation Control	Yes	N/A
(v).	Ramping Rate	16 KW/Second	0.8 MW/m
(vi).	Time required to Synchronize to Grid and loading the complex to full load.	From No Load to full Load in 311 sec per engine	35 minutes from start-up

(F). Interconnection Arrangement

(i).	Interconnection & Transmission Arrangement for Power Plant-IV	(a). 132KV D/C Baldia Circuit No. 1; (b). 132 KV D/C Baldia Circuit No. 2; (c). 132KV D/C SITE Circuit No. 1; (d). 132KV D/C SITE Circuit No. 2; and (e). 132KV S/C Lyari.
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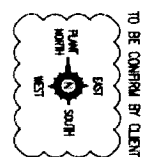


Layout of Power Plant-IV



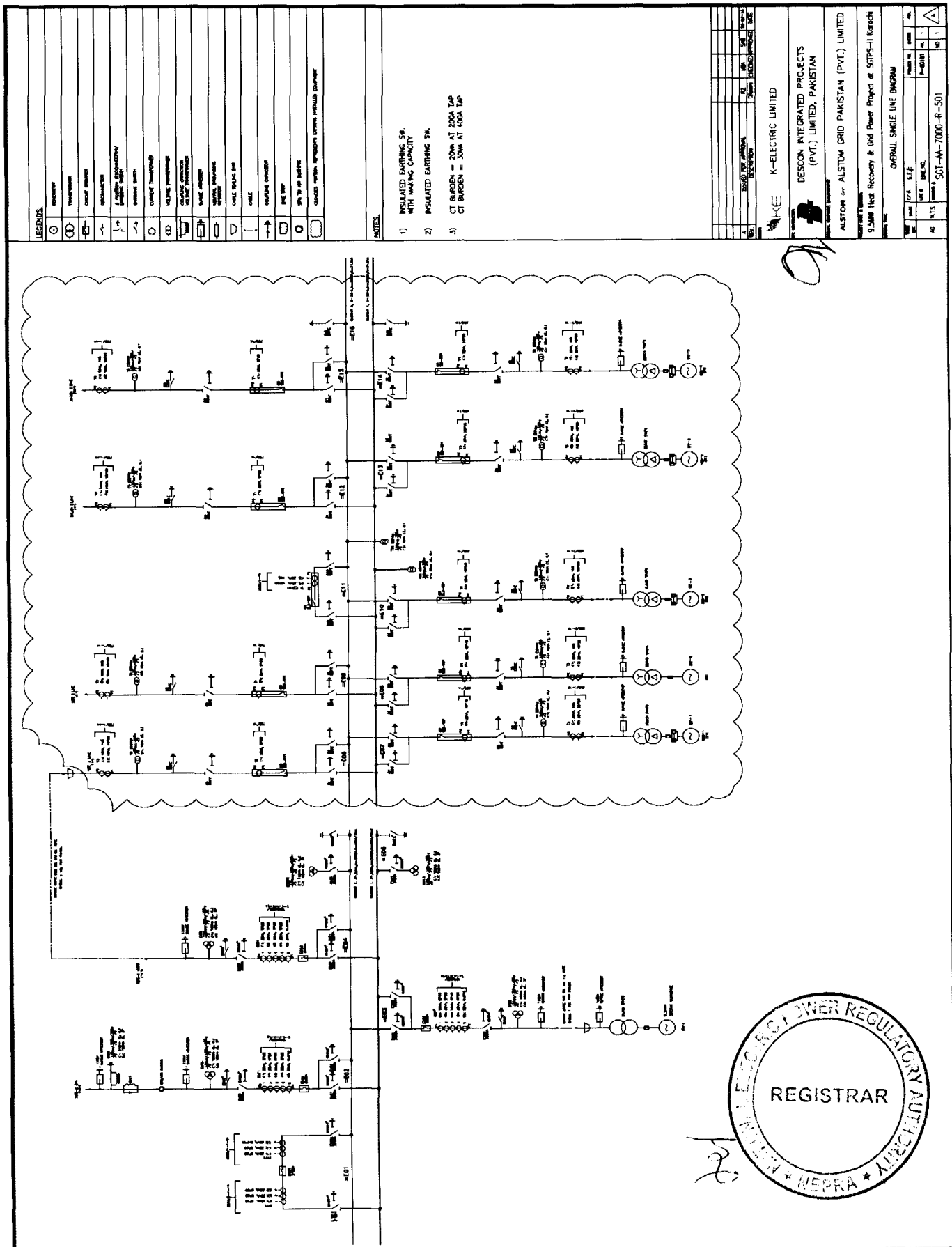
MATERIAL LIST									
NO.	DESCRIPTION	QTY.	UNIT	REMARKS	DATE	BY	CHKD.	APPD.	REMARKS
1	STEEL PLATE	100	SQ. FT.	FOR BOILER	12/04	ABC	DEF	GHI	
2	STEEL PLATE	200	SQ. FT.	FOR BOILER	12/04	ABC	DEF	GHI	
3	STEEL PLATE	300	SQ. FT.	FOR BOILER	12/04	ABC	DEF	GHI	
4	STEEL PLATE	400	SQ. FT.	FOR BOILER	12/04	ABC	DEF	GHI	
5	STEEL PLATE	500	SQ. FT.	FOR BOILER	12/04	ABC	DEF	GHI	
6	STEEL PLATE	600	SQ. FT.	FOR BOILER	12/04	ABC	DEF	GHI	
7	STEEL PLATE	700	SQ. FT.	FOR BOILER	12/04	ABC	DEF	GHI	
8	STEEL PLATE	800	SQ. FT.	FOR BOILER	12/04	ABC	DEF	GHI	
9	STEEL PLATE	900	SQ. FT.	FOR BOILER	12/04	ABC	DEF	GHI	
10	STEEL PLATE	1000	SQ. FT.	FOR BOILER	12/04	ABC	DEF	GHI	

PRELIMINARY

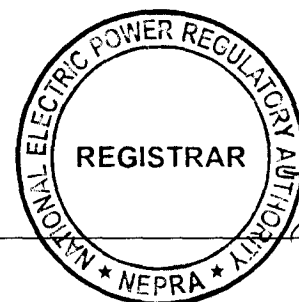


NOTES:-
1. ALL DIMENSIONS ARE IN METERS UNLESS OTHERWISE SPECIFIED.

Single Line Diagram (Electrical) of Power Plant-IV



Detail
of Generation Facility/
Power Plant-V



(A). Plant Configuration

(i).	Plant Size Installed Capacity (Gross ISO)	572.67 MW			
(ii).	Type of Technology	Combined Cycle Power Plant			
(iii).	Number of Units/Size (MW)	Gas Turbine	3 x 127.8 MW (Unit No. 1-3)		
		Steam Turbine	1 x 189.27 MW (Unit No. 4)		
(iv).	Unit Make & Model	Gas Turbine	G.E. PG 9171 E		
		Steam Turbine	Harbin, China		
(v).	Commissioning Date/COD	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4
		February 15, 2012	February 15, 2012	February 15, 2012	May 7, 2012
(vi).	Expected Useful Life of the of each Unit of the Generation Facility/Power Plant from Commissioning Date/COD	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4
		30 Years From COD	30 Years From COD	30 Years From COD	30 Years From COD
(vii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of Grant of Original Generation Licence (No. GL/04/2002, dated November 18, 2002)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4
		Not Included			
(viii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-I (dated May 13, 2008)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4
		Not Included			

(ix).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-II (dated March 17, 2009)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4
		Not Included			
(x).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-III (dated May 13, 2009)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4
		Not Included			
(xi).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-IV (dated August 22, 2013)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4
		29 Years	29 Years	29 Years	29 Years
(xii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-V (dated March 13, 2015)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4
		27 Years & 05 Months	27 Years & 05 Months	27 Years & 05 Months	27 Years & 05 Months
(xiii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-VI (dated April 02, 2015)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4
		27 Years & 04 Months	27 Years & 04 Months	27 Years & 04 Months	27 Years & 04 Months
(xiv).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of this Modification-VII (dated February , 2018)	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4
		24 Years & 06 Months	24 Years & 06 Months	24 Years & 06 Months	24 Years & 06 Months



(B). Fuel Details

(i).	Primary Fuel	Natural Gas (NG)	
(ii).	Alternate/Back-up Fuel	High Speed Diesel Oil (HSDO)	
(iii).	Fuel Source (Imported/Indigenous)	Indigenous	
(iv).	Fuel Supplier	Primary Fuel	Alternate/Back-up Fuel
		SSGC	PSO
(v).	Supply Arrangement	Primary Fuel	Alternate/Back-up Fuel
		Pipe line	Pipe line
(vi).	No of Storage Tanks for Main / Alternate /Backup Fuel	Primary Fuel	Alternate/Back-up Fuel
		Not Applicable	03 tanks
(vii).	Storage Capacity of each Tank	Primary Fuel	Alternate/Back-up Fuel
		Not Applicable	10, 000 M ³
(viii).	Gross Storage of Tank(s)	Primary Fuel	Alternate/Back-up Fuel
		Not Applicable	30, 000 M ³

(C). Emission Values

(i).	SO _x	Primary Fuel	Alternate/Back-up Fuel
		2000 mg/nm ³	Not Applicable
(ii).	NO _x	Primary Fuel	Alternate/Back-up Fuel
		125 mg/nm ³	165 mg / nm ³
(iii).	CO	Primary Fuel	Alternate/Back-up Fuel
		Not Applicable	Not Applicable
(iv).	PM10	Primary Fuel	Alternate/Back-up Fuel
		50mg/nm ³	Not Applicable



(D). Cooling System

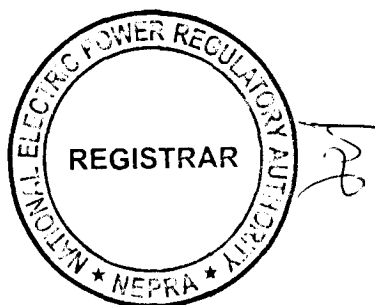
(i).	Cooling Water Source/Cycle	Sea Water /Open Cycle
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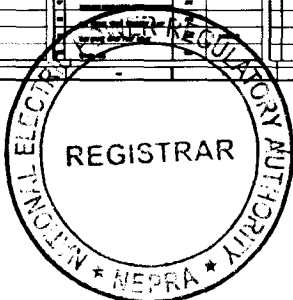
(E). Plant Characteristics

(i).	Generation Voltage	15 KV	
(ii).	Frequency	50 Hz	
(iii).	Power Factor	0.85	
(iv).	Automatic Generation Control	Yes	
(v).	Ramping Rate	9.1 MW per minute	
(vi).	Time required to Synchronize to Grid and loading the complex to full load.	Gas Turbine	Steam Turbine
		18 minutes	20 minutes approximately (hot start)

(F). Interconnection Arrangement

(i).	Interconnection & Transmission Arrangement for Power Plant-V	<p>(a). 220 D/C Korangi Creek Road Circuit No. 1;</p> <p>(b). 220 D/C Korangi Creek Road Circuit No. 2;</p> <p>(c). 220KV D/C Short Line/SL-1 (interconnection with Bin Qasim-1)</p> <p>(d). 220KV D/C Short Line/SL-2 (interconnection with Bin Qasim-1)</p>
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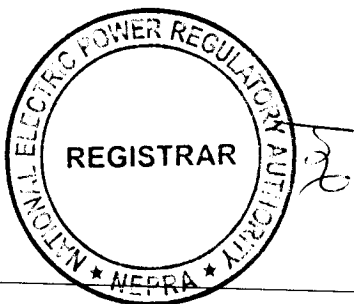
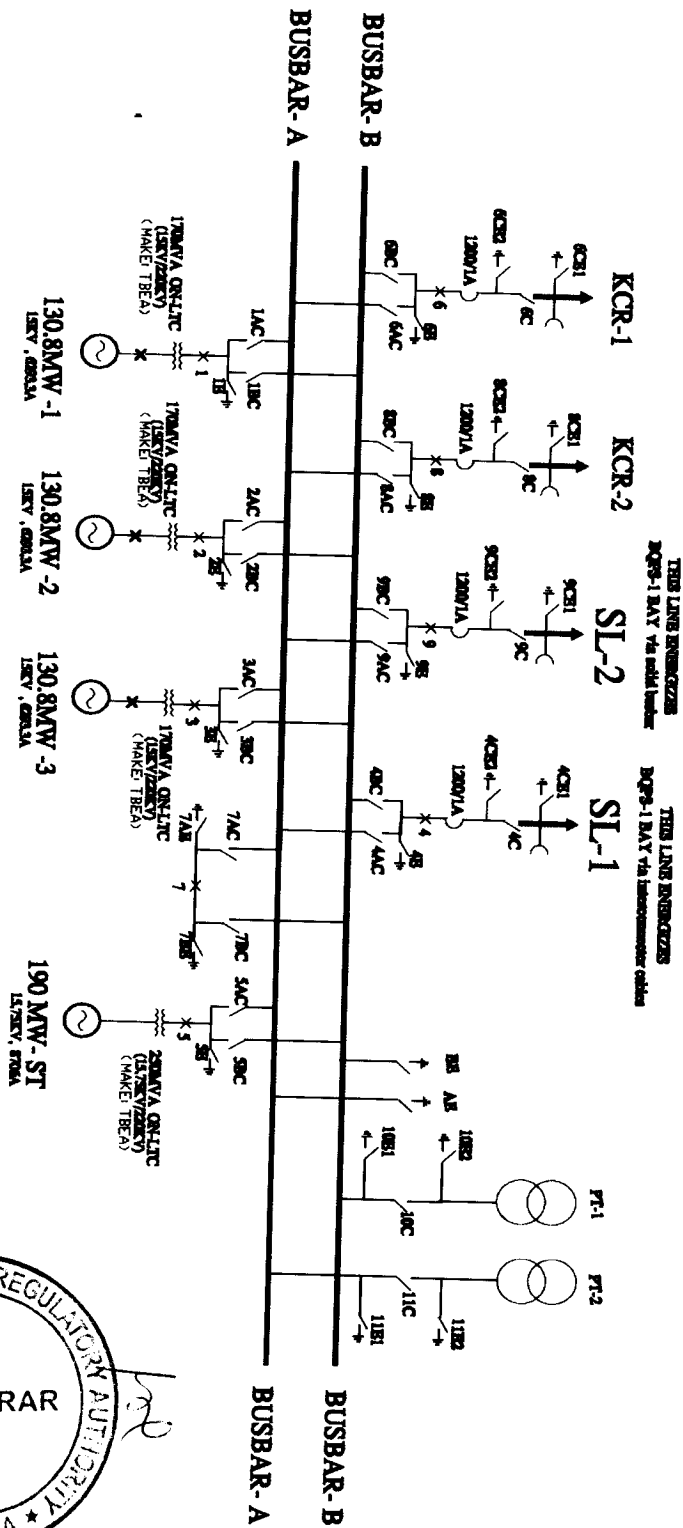




Single Line Diagram (Electrical) of Power Plant-V

1. MAKE of 220kV Line Breakers GIS is from Pinggao Group High Volt Co. China, while circuit breakers is from ABB, HMB A2 Mechanism.
2. MAKE of Generator units circuit breakers, ABB, HGC 3, and No Breaker at Steam Turbine Generator
3. CT Ratio of Line CTS 1500/1 for metering & 1200/1 for protection
4. CT Ratio of bus-coupler 1200/1

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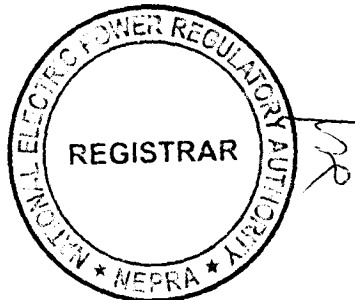


220KV B.Q.P.S-2

24-06-13

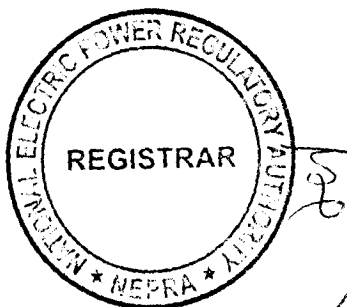
SCHEDULE-II
(Revised/Modified)
Modification-VII

The Installed/ISO Capacity (MW), De-Rated Capacity At Mean Site Conditions (MW), Auxiliary Consumption (MW) and the Net Capacity At Mean Site Conditions (MW) of the Generation Facilities of Licensee is given in this Schedule



SCHEDULE-II

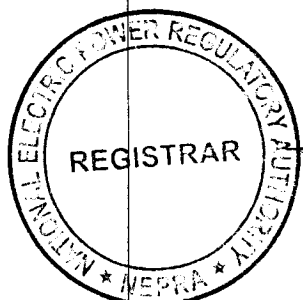
Generation Facility/ Power Plant	Unit Detail	Installed Capacity (MW)	De-Rated Capacity (MW)	Net Capacity after Auxiliary Consumption (MW)
BIN QASIM POWER STATION-I (PLANT-I)	Unit No.-1	210.00	200.00	184.60
	Unit No.-2	210.00	200.00	184.60
	Unit No.-3	210.00	200.00	184.60
	Unit No.-4	210.00	200.00	184.60
	Unit No.-5	210.00	200.00	184.60
	Unit No.-6	210.00	200.00	184.60
	<u>Sub-Total-I</u>	<u>1260.00</u>	<u>1200.00</u>	<u>1107.60</u>



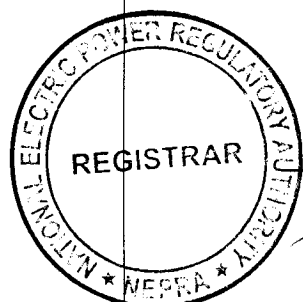
Generation Facility/ Power Plant	Unit Detail	Installed Capacity (MW)	De-Rated Capacity (MW)	Net Capacity after Auxiliary Consumption (MW)
KORANGI COMBINED CYCLE POWER PLANT-CCPP (PLANT-II)	Unit No. -1	48.375	46.925	43.925
	Unit No. -2	48.375	46.925	43.925
	Unit No. -3	48.375	46.925	43.925
	Unit No. -4	48.375	46.925	43.925
	Unit No. -5	26.500	25.700	24.000
	Unit No. -6	27.500	26.700	25.000
	<u>Sub-Total-II</u>	<u>247.500</u>	<u>240.100</u>	<u>224.700</u>



Generation Facility/ Power Plant	Unit Detail	Installed Capacity (MW)	De-Rated Capacity (MW)	Net Capacity after Auxiliary Consumption (MW)
GAS ENGINE POWER PLANT AT KORANGI TOWN (PLANT-III)	Unit No. - 1	3.041	2.739	2.644
	Unit No. - 2	3.041	2.739	2.644
	Unit No. - 3	3.041	2.739	2.644
	Unit No. - 4	3.041	2.739	2.644
	Unit No. - 5	3.041	2.739	2.644
	Unit No. - 6	3.041	2.739	2.644
	Unit No. - 7	3.041	2.739	2.644
	Unit No. - 8	3.041	2.739	2.644
	Unit No. - 9	3.041	2.739	2.644
	Unit No. - 10	3.041	2.739	2.644
	Unit No. - 11	3.041	2.739	2.644
	Unit No. - 12	3.041	2.739	2.644



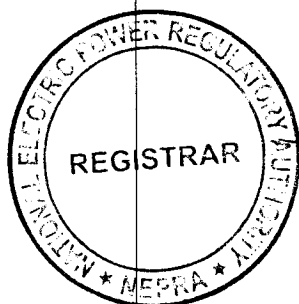
Unit No. - 13	3.041	2.739	2.644
Unit No. - 14	3.041	2.739	2.644
Unit No. - 15	3.041	2.739	2.644
Unit No. - 16	3.041	2.739	2.644
Unit No. - 17	3.041	2.739	2.644
Unit No. - 18	3.041	2.739	2.644
Unit No. - 19	3.041	2.739	2.644
Unit No. - 20	3.041	2.739	2.644
Unit No. - 21	3.041	2.739	2.644
Unit No. - 22	3.041	2.739	2.644
Unit No. - 23	3.041	2.739	2.644
Unit No. - 24	3.041	2.739	2.644
Unit No. -	3.041	2.739	2.644



25			
Unit No. - 26	3.041	2.739	2.644
Unit No. - 27	3.041	2.739	2.644
Unit No. - 28	3.041	2.739	2.644
Unit No. - 29	3.041	2.739	2.644
Unit No. - 30	3.041	2.739	2.644
Unit No. - 31	3.041	2.739	2.644
Unit No. - 32	3.041	2.739	2.644
Unit No. - 33	10.000	9.565	8.912
<u>Sub-Total-III</u>	<u>107.312</u>	<u>97.213</u>	<u>93.520</u>

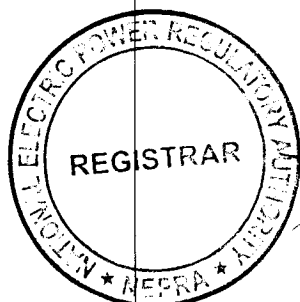


Generation Facility/ Power Plant	Unit Detail	Installed Capacity (MW)	De-Rated Capacity (MW)	Net Capacity after Auxiliary Consumption (MW)
GAS ENGINE POWER PLANT AT SITE (PLANT-IV)	Unit No. - 1	3.041	2.739	2.644
	Unit No. - 2	3.041	2.739	2.644
	Unit No. - 3	3.041	2.739	2.644
	Unit No. - 4	3.041	2.739	2.644
	Unit No. - 5	3.041	2.739	2.644
	Unit No. - 6	3.041	2.739	2.644
	Unit No. - 7	3.041	2.739	2.644
	Unit No. - 8	3.041	2.739	2.644
	Unit No. - 9	3.041	2.739	2.644
	Unit No. - 10	3.041	2.739	2.644
	Unit No. - 11	3.041	2.739	2.644
	Unit No. - 12	3.041	2.739	2.644



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Unit No. - 13	3.041	2.739	2.644
Unit No. - 14	3.041	2.739	2.644
Unit No. - 15	3.041	2.739	2.644
Unit No. - 16	3.041	2.739	2.644
Unit No. - 17	3.041	2.739	2.644
Unit No. - 18	3.041	2.739	2.644
Unit No. - 19	3.041	2.739	2.644
Unit No. - 20	3.041	2.739	2.644
Unit No. - 21	3.041	2.739	2.644
Unit No. - 22	3.041	2.739	2.644
Unit No. - 23	3.041	2.739	2.644
Unit No. - 24	3.041	2.739	2.644
Unit No. -	3.041	2.739	2.644



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25			
Unit No. - 26	3.041	2.739	2.644
Unit No. - 27	3.041	2.739	2.644
Unit No. - 28	3.041	2.739	2.644
Unit No. - 29	3.041	2.739	2.644
Unit No. - 30	3.041	2.739	2.644
Unit No. - 31	3.041	2.739	2.644
Unit No. - 32	3.041	2.739	2.644
Unit No. - 33	10.000	9.565	8.912
<u>Sub-Total-IV</u>	<u>107.312</u>	<u>97.213</u>	<u>93.520</u>



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Generation Facility/ Power Plant	Unit Detail	Installed Capacity (MW)	De-Rated Capacity (MW)	Net Capacity after Auxiliary Consumption (MW)
BIN QASIM POWER STATION-II (PLANT-V)	Unit No - 1	127.8	115.7	108.66
	Unit No - 2	127.8	115.7	108.66
	Unit No - 3	127.8	115.7	108.66
	Unit No - 4	189.27	181.3	176.12
	<u>Sub-Total-V</u>	<u>572.67</u>	<u>528.40</u>	<u>502.10</u>
<u>Grand Total</u> <u>[Sub-Total-I</u> <u>+ Sub-Total-II</u> <u>+ Sub-Total-III</u> <u>+ Sub-Total-IV</u> <u>+ Sub-Total-V]</u> <u>(MW)</u>		<u>2294.794</u>	<u>2162.926</u>	<u>2021.44</u> 