

National Electric Power Regulatory Authority



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No. NEPRA/ADG(L)/LAG-243/ 3/23-87

February 28, 2018

- Chief Executive Officer 1. K-Electric Limited (KEL) KE House, Punjab Chowrangi, 39 - B. Sunset Boulevard, Phase-II Defence Housing Authority Karachi
- Chief Executive Officer 2. 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

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

February ²⁸, 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. IGSPL/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.

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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").

- 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 over Regular and units and requested the Authority to include these units in its generation.
- (vii). In view of the said, the Authority decided to seek prospection 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.

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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 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 REG accumulative installed capacity of the above mention generation fleet of KE was 2422.29 MW.
- The 6x210 MW units of the generation facility of BQPS-I are (iii). 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.
- Accordingly, KEL communicated an LPM (i.e. LPM-V) on May (iv). 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

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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. IGSPL/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 provided in the coal conversion licence of KEPL...

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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 the 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)

Saif Ullah Chattha 3.2.28

(Member/Vice Chairman)

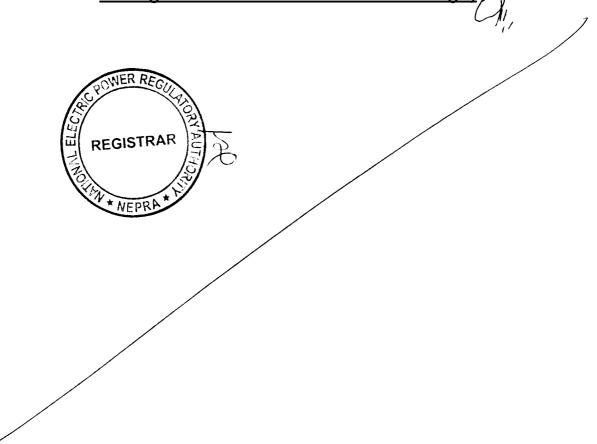
Tariq Saddozai

(Chairman)



ANNEXURE-A

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



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

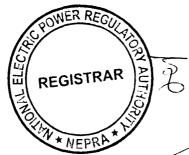
(i).	Name of Licensee	K-Electric Lir	K-Electric Limited-KEL								
(ii).	Registered /Business Office		KE House,39B, Sunset Boulevard, Phase-II, (Ext)Defence Housing Authority, Karachi, in the Province of Sindh								
(iii).	Detail of Generation Facilities/Power Plants	Power Plant - I Bin Qasim Power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





Location of All Plants of KEL







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<u>Detail</u> of Generation Facility/ <u>Power Plant-I</u>

(A). Plant Configuration

Plant Size Installed Capacity (Gross ISO)	1260.00 MW						
Type of Technology				eration Plan	t with Sub-C	Pritical	
Number of Units/Size (MW)	6 x 210 MV	V Steam Tu	rbine				
Unit Make	Unit No.	Unit No.	Unit No.	Unit No. -	Unit No. -	Unit No. -	
1	1	2	3	4	5	6	
Wiodei	Hitachi	Hitachi	Ercole	Ercole	Hitachi	Hitachi	
Commissioning Date/	Unit No.	Unit No.	Unit No.	Unit No.	Unit No.	Unit No.	
	1	2	3	4	5	6	
Date-COD (of each Unit)	1983	1984	1989	1990	1991	1997	
Expected Useful Life of the 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 from Commissioning Date/COD	32 Years	32 Years	32 Years	32 Years	32 Years	32 Years	
Expected Useful Life of	Unit No.	Unit No.	Unit No.	Unit No.	Unit No.	Unit No.	
•	1	- 2	3	4	- 5	- 6	
Facility/Power Plant at the time of Grant of Original Generation	13	14	19	20	21	27	
GL/04/2002, dated November 18,	Years	Years	Years	Years	Years	Years	
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(x). Plant at the time of issuance of Modification-III (dated May 13, 2009) Expected Useful Useful Life is 16 Years Expected Unit Useful Life of the Generation Facility/Power (xi). Plant at the time of issuance of Modification-IV Years (x). Plant at the time of issuance of Modification-IV Years Total 35 Years/ Balance Useful Life is 22 Years/ Years/ Balance Useful Life is 23 Years/ Years/ Balance Useful Life is 23 Years/ Years/ Balance Useful Life is 23 Years/ Years/ Balance Useful Life is 24 Years/ Years/ Years/ Balance Useful Life is 22 Years/ Years/ Balance Useful Life is 23 Years/ Years/ Balance Useful Life is 24 Years/ Years/ Years/ Years/ Seals Advance Useful Life is 24 Years/ Years/ Years/ Seals Advance Useful Life is 24 Years/ Years/ Years/ Years/ Seals Advance Useful Life is 24 Years/ Years/ Years/ Seals Advance Useful Life is 24 Years/ Years/ Years/ Balance Useful Life is 22 Years/ Years/ Balance Useful Life is 24 Years/ Years/ Years/ Balance Useful Life is 23 Years/ Years/ Balance Useful Life is 23 Years/ Years/ Years/ Years/ Balance Useful Life is 23 Years/ Years/ Years/ Years/ Balance Useful Life is 24 Years/ Years			Each Unit of	1	2	3	4	5	6
(x). Plant at the time of issuance of Modification-III (dated May 13, 2009) Expected Useful Useful Life is 16 Years Expected Unit Useful Life of the Generation Facility/Power (xi). Plant at the time of issuance of Modification-IV Years (x). Plant at the time of issuance of Modification-IV Years Total 35 Years/ Balance Useful Life is 22 Years/ Years/ Balance Useful Life is 23 Years/ Years/ Balance Useful Life is 23 Years/ Years/ Balance Useful Life is 23 Years/ Years/ Balance Useful Life is 24 Years/ Years/ Years/ Balance Useful Life is 22 Years/ Years/ Balance Useful Life is 23 Years/ Years/ Balance Useful Life is 24 Years/ Years/ Years/ Years/ Seals Advance Useful Life is 24 Years/ Years/ Years/ Seals Advance Useful Life is 24 Years/ Years/ Years/ Years/ Seals Advance Useful Life is 24 Years/ Years/ Years/ Seals Advance Useful Life is 24 Years/ Years/ Years/ Balance Useful Life is 22 Years/ Years/ Balance Useful Life is 24 Years/ Years/ Years/ Balance Useful Life is 23 Years/ Years/ Balance Useful Life is 23 Years/ Years/ Years/ Years/ Balance Useful Life is 23 Years/ Years/ Years/ Years/ Balance Useful Life is 24 Years/ Years	* NEPR	A	\	Total 35					
(x). Plant at the time of issuance of Modification-III (dated May 13, 2009) Expected Useful Useful Life is 16 Years Useful Life is 17 Years Expected Unit Unit Unit Unit Unit Useful Life is 22 Years Expected Unit of the Generation Facility/Power (xi). Plant at the time of issuance of Modification-IV Years Y	-								
time of issuance of Modification-III (dated May 13, 2009) Expected Useful Life is 16 Years Expected Useful Life of Each Unit of Facility/Power (xi). Plant at the time of issuance of Modification-IV Years Years COD of the Plant/Balance Useful Life is 17 Years Balance Useful Life is 22 Years Salance Useful Life is 24 Years Salance Useful Life is 25 Years Salance Useful Life is 26 Years Salance Useful Life is 27 Years Salance Useful Life is 27 Years Salance Useful Life is 24 Years Salance Useful Life is 24 Years Salance Useful Life is 25 Years Salance Useful Life is 26 Years Salance Useful Life is 27 Years Salance Useful Life is 27 Years Salance Useful Life is 27 Years Salance Useful Life is 22 Years Salance Useful Life is 25 Years Salance Useful Life is 27 Years Salance Useful Life is 27 Years Salance Useful Life is 27 Years Salance Useful Life is 28 Years Salance Useful Life is 29 Years Salance Usef	\mathcal{P}	(v)				1	1		Total 35
issuance of Modification-III (dated May 13, 2009) Expected Unit Useful Life of Each Unit of Facility/Power (xi). (xi). Plant at the time of Modification-IV Years Useful Life is 17 Years Year	70	(^).			Years/	Years/	Years/	Years/	Years/
Modification-III (dated May 13, 2009) Expected Unit Useful Life of the Generation Facility/Power (xi). Plant at the time of issuance of Modification-IV Years Yea			i		Balance	Balance	Balance	Balance	Balance
Modification-III (dated May 13, 2009) Life is 16					Useful	Useful	Useful	Useful	Useful
Coated May 13, 2009 Life is 16		<u> </u>	1			Life is 22	Life is 23	Life is 24	Life is 30
Expected Unit Uni			1 ` ' '		i	1			Years
Expected Unit Unit Unit Unit Unit Unit Unit Useful Life of No.			2009)		1.00.0	. 54.5	. 00.0		
Useful Life of Each Unit of the Generation Facility/Power (xi). Plant at the time of issuance of Modification-IV Years Years Years Years Years Years Years Years				Years					
Useful Life of Each Unit of Eac			Expected	Unit	Unit	Unit	Unit	Unit	Unit
Each Unit of the Generation Facility/Power (xi). (xi). Plant at the time of issuance of Modification-IV Years Years Years Years Years Years Years			•	No.	No.	No.	No.	No.	No.
the Generation Facility/Power (xi). Plant at the time of issuance of Modification-IV Years Years Years Years Years Years Years				_	_	_	_	_	_
(xi). Facility/Power Plant at the time of issuance of 05 06 11 12 13 19 Modification-IV Years Years Years Years Years Years				1	2	3	4	5	6
(xi). Plant at the time of issuance of 05 06 11 12 13 19 Modification-IV Years Years Years Years Years Years				-	_			_	
time of issuance of O5 O6 11 12 13 19 Modification-IV Years Years Years Years Years Years Years		(vi)	1 -						
issuance of 05 06 11 12 13 19 Modification-IV Years Years Years Years Years Years		(*1).	i						
Modification-IV Years Years Years Years Years Years		ļ		0.5	00		40	40	10
						1	1	1	1
(dated August		}	i	Years	Years	Years	Years	Years	Years
(ualou) luguot			(dated August						
22, 2013)			22, 2013)						
				Unit	Unit	Unit	Unit	Unit	Unit
Useful Life of No No No No No No					1	1	l .		No.
(xii). Each Unit of		(xii).		-	_	_	_	_	_
the Generation 1 2 3 4 5 6				1	2	3	1	5	6
the Scheration 1 2 5 5		L	The Ocheration	<u> </u>			<u> </u>		J



				,		in the	Province of Sindh
	Facility/Power Plant at the time of issuance of Modification-V (dated March13, 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
	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
(xiii).	Facility/Power Plant at the time of issuance of Modification-VI (dated April 02, 2015)	03 Years & 4 Months	04 Years & 4 Months	9 Years & 4 Months	10 Years & 4 Months	11 Years & 4 Months	17 Years & 4 Months
	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
(xiv)	Facility/Power Plant at the time of issuance of Modification-VII (dated February , 2018)	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

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



		in the Province of Sindh								
		Unit	Unit	Unit	Unit	Unit	Unit			
		No.	No.	No.	No.	No.	No.			
		_	_		_	_	_			
(iii).	Start-Up Fuel	1	2	3	4	5	6			
		Light								
		Diesel	LDO	LDO	LDO	LDO	LDO			
		Oil/LDO	-20							
(iv).	Fuel Source for each of the above (i.e. Imported/ Indigenous)		Imported/Indigenous							
	Fuel Supplier	Natural Gas			SSGC					
(v).	for each of the	RFO			PSO/BYCO					
	above	LDO PSO								
		Natural Gas			Thr	ough Pipelin	е			
(, ;)	Supply Arrangement	RFO			PSO BYCO		BYCO			
(vi).	for each of the above				Pipeline	Tankers				
	above	LDO			Tankers					
,	No of Storage	Eight (Tank # 6 in PSO custody)								
(vii).	Tanks	(Two tanks for LDO) (Tank # 1 & 2 for BYCO tanker decanting)								
	Storage	LDO (two tanks 500 m ³ each)								
(viii).	Capacity of each Tank	HFO/RFO (tank # 1 & 2 are 10000 m ³ each) (tank # 3,4,5 and 6 for 25000 m ³ each)								
(ix).	Gross Storage		, , , , , , , , , , , , , , , , , , ,		21000 m ³					
L	<u></u>	TI,Z TOOO TII								

(C). Emission/Effluents Values

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



	in the Province of Sindh									
		Unit N o.	Unit No.	Unit No.	Ur No		Unit No.	Unit No.		
(iii).	Start-Up Fuel	- 1	2	3		· •	- 5	6		
().		Light Diesel Oil/LDO	LDO	LDO	LC	00	LDO	LDO		
(iv).	Fuel Source for each of the above (i.e. Imported/ Indigenous)	Imported/I	Imported/Indigenous							
	Ford Consider	N	Natural Gas SSGC							
(v).	Fuel Supplier for each of the above	RFO			PSO/BYCO					
	above	LDO PSO					PSO			
		Natural Gas Through Pipeline				e				
	Supply Arrangement	RFO			PSO BYCO		BYCO			
(vi).	for each of the above				Pip	eline	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)								
(ix).	Gross Storage			1,2	21000 m ³	3	urn.			

(C). Emission/Effluents Values

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



Generation Licence K-Electric Limited -KEL Karachi in the Province of Sindh

(D). Cooling System

(i)	Cooling Water	Sea Water
(i).	Source/Cycle	Sea vvalei

REGISTRAR NEPRA

(E). Plant Characteristics

			Unit No.	Unit No.	Unit No.	Unit No.	Unit No.	Unit No.
			- 1	- 2	3	- 4	5	- 6
(i).	Genera Voltag		21 KV	21 KV	18 KV	18 KV	18 KV	18 KV
(ii).	Freque	ency	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).		ation ol (AGC) control is neral	MVV/ Hz	MW/ Hz	MW/ Hz	MW/ Hz	MW/ Hz	MW/ Hz
	Rampi	ing Rate						
	(a).	Light mode	1 %	1 %	1 %	1 %	1 %	1 %
(v).	(b).	Medium mode	3 %	3 %	3 %	3 %	3 %	3 %
	(c).	Heavy mode	5 %	5 %	5 %	5 %	5 %	5 %
	to Syn to Grid loadin				<i>y</i> *			
(vi).	Ambient cold start (hours)		22 + 2	22 + 2	09 + 3.5	09 + 3.5	22 + 2	22 + 2
	Cold Start Mode		07 + 2	07 + 2	09 + 3.5	09 + 3.5	07 + 2	07 + 2
	Warm Start mode		03 + 1.5	03 + 1.5	3.5 + 3.5	3.5 + 3.5	03 + 1.5	03 + 1.5
	Hot S	tart Mode	2.25 + 0.5	2.25 + 0.5	1.3 + 2.3	1.3 + 2.3	2.25 + 0.5	2.25 + 0.5

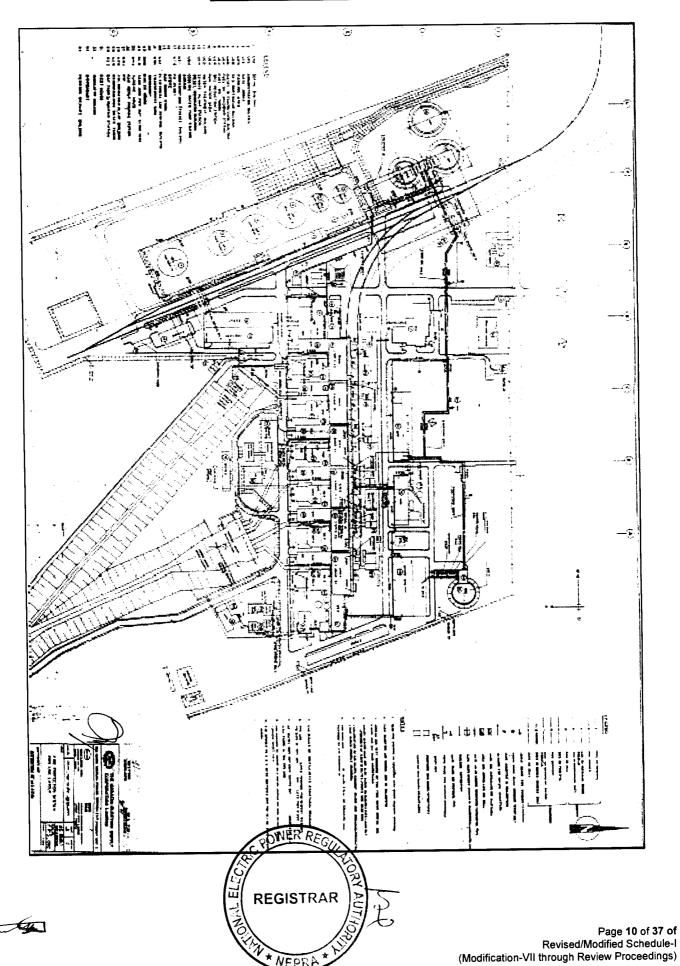
					III LIIC	T TOVINCE OF CHICK
	0.25	0.25	1.3	1.3	0.25	0.25
Very I	Hot Mode │ +	+	+	+	+	+
	0.5	0.5	2.3	2.3	0.5	0.5

(F). Interconnection Arrangement

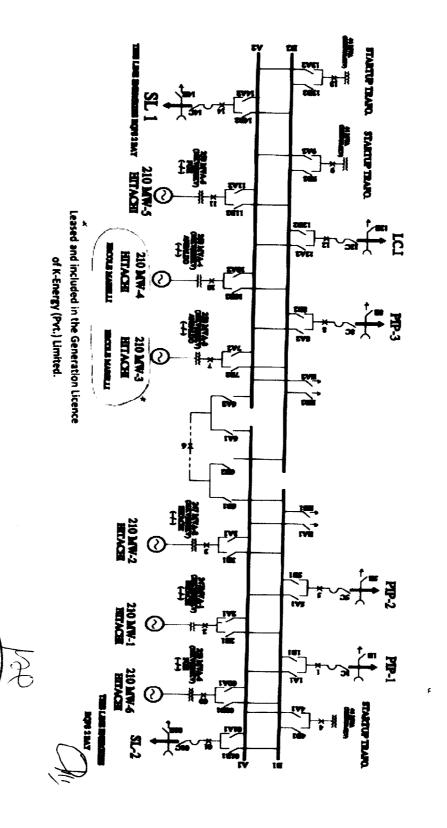
		(a).	220KV D/C Pipri West Circuit No. 1
Interconnection &Transmission	(b).	220KV D/C Pipri West Circuit No. 2	
	Interconnection	(c).	220KV D/C Pipri West Circuit # 3
	&Transmission	(d).	220KV D/C ICI Circuit
(i).	Arrangement for Power	(e).	220KVD/C Short Line/SL-1 (interconnection with Bin Qasim-
	Plant-I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



Layout of Power Plant-I



Single Line Diagram (Electrical) of Power Plant-I





<u>Detail of</u> <u>Generation Facility/</u> <u>Power Plant-II</u>

(A). Plant Configuration

(i).	Plant Size Installed Capacity (Gross ISO)	247.500 M\	N			
(ii).	Type of Technology	Combined Cycle Power Plant (CCPP) with Gas turbines and Steam Turbines				
(iii)	Number of	Gas Turbine - G.T.	4 x 48.375 MW (Unit- 1~4)			
(iii).	Units/Size (MW)	Steam Turbine - S.T.	1 x 26.50 MW + 1 x 27.50 MW (Unit- 5~6)			
(iv.)	Unit Make &	G.T.	LM6000PC NDW SPRIN	NT-General Electric G.E.		
(iv).	Model	S.T.	G.E. Thermodyne			
CONE	REGULA	Unit Detail	Commissioning Date	Commercial Operation Date		
REGIS	TRAR	Unit No. - 1	As C.O.D.	November 17, 2008		
NE NE	PRA * KIN	Unit No. - 2	As C.O.D.	November 17, 2008		
(v).	Commissioning Date/COD	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		



	1	1111	Т			in the I	Province of Sindh
		Unit No. -	As	C.O.D.		April 30, 20	15
	Expected Useful Life of the of each Unit	6 Unit No.	Unit No.	Unit No.	Unit No.	Unit No.	Unit No.
	of the Generation	1	2	3	4	5	6
(vi).	Facility/Power Plant from Commercial Operation/ Commissioning Date/COD	30 Years from COD	30 Years from COD	30 Years from COD	30 Years from COD	30 Years from COD	25 Years from COD
	Expected Useful Life of	Unit No.	Unit No.	Unit No.	Unit No.	Unit No.	Unit No.
	Each Unit of the Generation	1	2	3	4	- 5	6
(vii).	Facility/Power Plant at the time of Grant of Original Generation Licence (No. GL/04/2002, dated November 18, 2002)	Not Include	:		O TO	EGISTRAR NEPRA * N	A A A A A A A A A A A A A A A A A A A
	Expected Useful Life of	Unit No.	Unit No.	Unit N o.	Unit N o.	Unit No.	Unit No.
	Each Unit of the Generation	- 1	- 2	3	- 4	- 5	6
(viii).	Facility/Power Plant at the time of issuance of Modification-I (dated May 13, 2008)	Not Include					
	Expected Useful Life of	Unit No.	Unit No.	Unit No.	Unit N o.	Unit No.	Unit No.
	Each Unit of the Generation	- 1	- 2	3	- 4	5	- 6
(ix).	Facility/Power Plant at the time of issuance of Modification-II (dated March 17, 2009)	30 Years	30 Years	30 Years	30 Years	30 Years	Not Included



Expected Unit Uni								in the P	rovince of Sindh
Each Unit of the Generation			Expected	Unit	Unit	Unit	Unit	Unit	Unit
the Generation Facility/Power Plant at the time of issuance of Modification-III (dated May 13, 2009) Expected Unit of the Generation Facility/Power Plant at the time of issuance of Modification-IV (dated August 22, 2013) REGISTRAR Expected Unit Unit Unit Unit Unit Unit Unit Unit			Useful Life of	No.	No.	No.	No.	No.	No.
the Generation Facility/Power Plant at the time of issuance of Modification-III (dated May 13, 2009) Expected Unit of the Generation Facility/Power Plant at the time of issuance of Modification-IV (dated August 22, 2013) REGISTRAR Expected Unit Unit Unit Unit Unit Unit Unit Unit			Each Unit of	_	-	_	_	-	-
Facility/Power Plant at the time of issuance of Modification-III (dated May 13, 2009) Expected Unit of the Generation Facility/Power Plant at the time of issuance of Modification-IV (dated Maysta 22, 2013) Expected Unit of the Generation Facility/Power Plant at the time of issuance of Modification-IV (dated August 22, 2013) Expected Unit of the Generation Facility/Power Plant at the time of issuance of Modification-IV (dated Maysta 22, 2013) Months M			the Generation	1	2	3	4	5	6
(x). Plant at the time of issuance of Modification-III (dated May 13, 2009) Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-IV (dated August 22, 2013) REGIST RAR (xii). Persected Unit of the Generation Facility/Power Plant at the time of issuance of Modification-IV (dated March 13, 2015) Expected Unit of the Generation Facility/Power Plant at the time of issuance of Modification-IV (dated March 13, 2015) Expected Unit of the Generation Facility/Power Plant at the time of issuance of Modification-V (dated March 13, 2015) Expected Unit Unit Unit Unit Unit Unit Unit Unit			, <u> </u>						
time of issuance of Modification-III (dated May 13, 2009)		(x)	- 1						
Sesuance of Modification-III (dated May 13, 2009)		(^).	-						
Modification-III (dated May 13, 2009)			1	As	As	As	As	As	Not
(dated May 13, 2009) Expected Unit Unit Unit Unit Useful Life of Each Unit of the Generation of Each Unit of the Generation of Sisuance of Modification-V (dated March 13, 2015) Expected Unit Unit Unit Unit Useful Life of Sisuance of Modification-V (dated March 13, 2015) Expected Unit Unit Unit Unit Useful Life of Sisuance of Modification-V (dated March 13, 2015) Expected Unit Unit Unit Unit Unit Useful Life of Sisuance of Modification-V (dated March 13, 2015) Expected Unit Unit Unit Unit Unit Useful Life of Sisuance of Modification-V (dated March 13, 2015) Expected Unit Unit Unit Unit Unit Useful Life of Sisuance of Modification-V (dated March 13, 2015) Expected Unit Unit Unit Unit Unit Useful Life of Sisuance of Modification-V (dated March 13, 2015) Expected Unit Of Teach Unit Unit Unit Unit Unit Unit Unit Unit				Above	Above	Above	Above	Above	Included
Expected Unit Uni									
Expected Unit Uni		l	,						
Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-IV (dated March 13, 2015) Expected Unit of the Generation 1 2 3 4 5 6 6 Not Included (dated March 13, 2015) Expected Unit Useful Life of Each Unit of the Generation 1 2 3 4 5 6 Not Included (dated Agrillo Query Plant at the time of issuance of Modification-V (dated March 13, 2015) Expected Unit Unit Unit Unit Useful Life of Each Unit of 1 2 3 4 5 6 Not Included (dated Agrillo Query Plant at the time of the Generation 1 2 3 4 5 6 Not Included (dated March 13, 2015) Expected Unit Unit Unit Unit Unit Useful Life of No.				I Imit	11	11	l In:i	I Imi4	Limit
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time			- 1						
Issuance of Modification-IV (dated August 22, 2013) Vears		(xi).	Plant at the						
SSUANCE Of Modification-IV (dated August 22, 2013) Expected Useful Life of issuance of Modification-V (dated March 13, 2015) Expected Unit Unit Unit Unit Useful Life of Each Unit of the Generation 1 2 3 4 5 6 6 6 6 6 6 6 6 6			time of	26	26	26	26	26	Not
Modification-V (dated August 22, 2013) Expected Unit Un			issuance of	3	1		1		1 1
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Expected Unit Unit No. 680		(dated August							
Expected Unit Unit No. Ÿ	/હૃં/								
Second Column C	1	121		Unit	Unit	Unit	Unit	Unit	Unit
Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-V (dated March 13, 2015) Expected Unit Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-V (dated April 02, 2015) Expected Unit Useful Life of Each Unit of the Generation I I I I I I I I I I I I I I I I I I I	REGIST	RAR							1
the Generation Facility/Power Plant at the time of issuance of Modification-V (dated March 13, 2015) Expected Unit of Each Unit of The Generation Facility/Power (xiii). Plant at the time of Sa & & & & & & & & & & & & & & & & & &	1	/ '~~'		-	-	_	-	-	_
time of issuance of Modification-V (dated March 13, 2015) Expected Unit Unit Unit Unit Unit Unit Unit Generation Facility/Power (dated April 02, 2015) Expected Unit Unit Unit Unit Unit Unit Unit Unit	<u> </u>			1	2	3	1 4	5	6
time of issuance of Modification-V (dated March 13, 2015) Expected Unit Unit Unit Unit Unit Unit Unit Generation Facility/Power (dated April 02, 2015) Expected Unit Unit Unit Unit Unit Unit Unit Unit	* AUED	1 × ×	· -				•		
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issuance of Modification-V (dated March 13, 2015)	Ş −	(XII).					24		
Modification-V (dated March 13, 2015)	1				i i		Years		Not
(dated March 13, 2015) Months			1		l i		&		Included
Clated March 13, 2015							05 Months		
Expected Unit No.				Months	Months	Months		Months	
Useful Life of Each Unit of Each Unit of the Generation Facility/Power (xiii). Plant at the time of issuance of Modification-VI (dated April 02, 2015) Expected Unit of Useful Life of Each Unit of Tacility/Power Plant at the Useful Life of Each Unit of Tacility/Power Plant at the Useful Life of Each Unit of Tacility/Power Plant at the Years Years Years Years As A Years As Years As Years As A A Years As As A Years As As A Years As As As A Years As						L			
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(xiii). the Generation Facility/Power Plant at the time of issuance of Modification-VI (dated April 02, 2015) 24 24 24 24 24 Years Years Years & & Years & Years & & Years & Years & & Years & Ye				No.	No.	No.	No.	No.	No.
(xiii). Facility/Power Plant at the time of issuance of Modification-VI (dated April 02, 2015) Expected Unit Useful Life of Each Unit of Facility/Power Plant at the Years Years Years Years As				-	-	-	- [-	-
(xiii). Plant at the time of issuance of issuance of Modification-VI (dated April 02, 2015) 24 Years & Years			the Generation	1	2	3	4	5	6
time of issuance of Modification-VI (dated April 02, 2015) Expected Unit Unit Unit Unit Unit Useful Life of Each Unit of Facility/Power Plant at the Years			Facility/Power						
time of issuance of Modification-VI (dated April 02, 2015) Expected Unit Unit Unit Unit Unit Useful Life of Each Unit of Facility/Power Plant at the Years		(xiii).	Plant at the	24	24	24	24	24	1
issuance of Modification-VI (dated April 02, 2015)		' '			l i	Years	1		25
Modification-VI (dated April 02, 2015)			1		i				1
(dated April 02, 2015) Months							1		
Expected			ŀ				04 Months		
Expected Unit Unit Unit Unit Unit Unit Unit Unit			1 ' ' 1					,011010	
(xiv). Useful Life of Each Unit of Facility/Power Plant at the No. No		-		Unit	Unit	Linit	Unit	Unit	Unit
(xiv). Each Unit of the Generation Facility/Power Plant at the - <td></td> <td></td> <td>•</td> <td></td> <td>f</td> <td></td> <td></td> <td></td> <td>1</td>			•		f				1
(xiv). the Generation 1 2 3 4 5 6 Facility/Power 21 21 21 21 21 22 Plant at the Years Years Years Years Years Years				INU.	INO.	INU.	INU.	INU.	INU.
Facility/Power 21 21 21 21 21 22 Plant at the Years Years Years Years Years Years		(· . ·	1	-	-	_	-	- E	-
Plant at the Years Years Years Years Years Years		(XIV).	1						
			-		1		1 1		1
time of & & & & & & & & &			l		l		I i		Years
· · · · · · · · · · · · · · · · · · ·		L	time of	&	&	&	&	<u>&</u>	& <u></u>

issuance o	of 06	06	06	06	06	02
Modification-VI	I Months	Months	Months	Months	Months	Months
(dated						
February	,					
2018)						

(B).	Fuel [Details
`		

(B).	Fuel Details		C VOWER REGULA
(i).	Primary Fuel	Natural Gas	REGISTRAR
(ii).	Alternate/ Back Up Fuel	High Speed Diesel Oil (HSD	00)
(iii).	Fuel Source (Imported/ Indigenous)	Indigenous	* NEPRA * N
	5 10 15	Natural Gas	HSDO
(iv).	iv). Fuel Supplier	Sui Southern Gas Company (SSGC)	PSO/BYCO/PRL
(4)	Supply Arrangement	Natural Gas	HSDO
(v).		Gas through pipeline	Tanker
(. :)	No of Storage Tanks for Primary/	Natural Gas	HSDO
(vi).	Alternate/Backup Fuels	Not Applicable	2
		Natural Gas	HSDO
(vii).	Storage Capacity of Tanks	Not andicable	1 x 8000 m ³
		Not applicable	1 x 1500 m ³
(viii)	Cross Storogs	Natural Gas	HSDO
(viii).	Gross Storage	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).	со	Max 800 mg/Nm3	-Do



(iv).	PM10	-	-Do-
	l		

(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.T1	S.T2
(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)

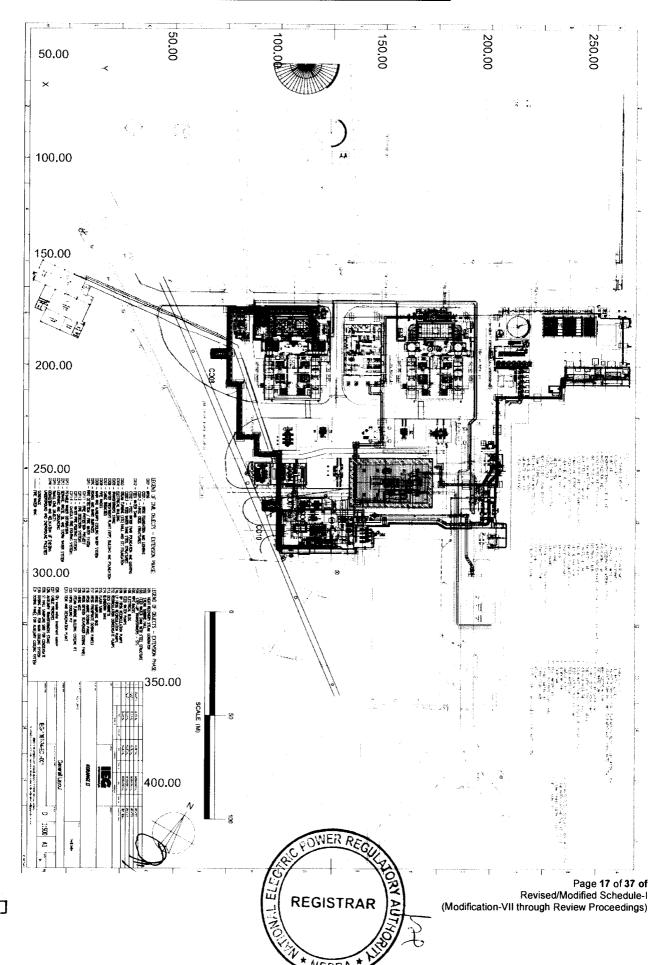
(F). <u>Interconnection Arrangement</u>

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

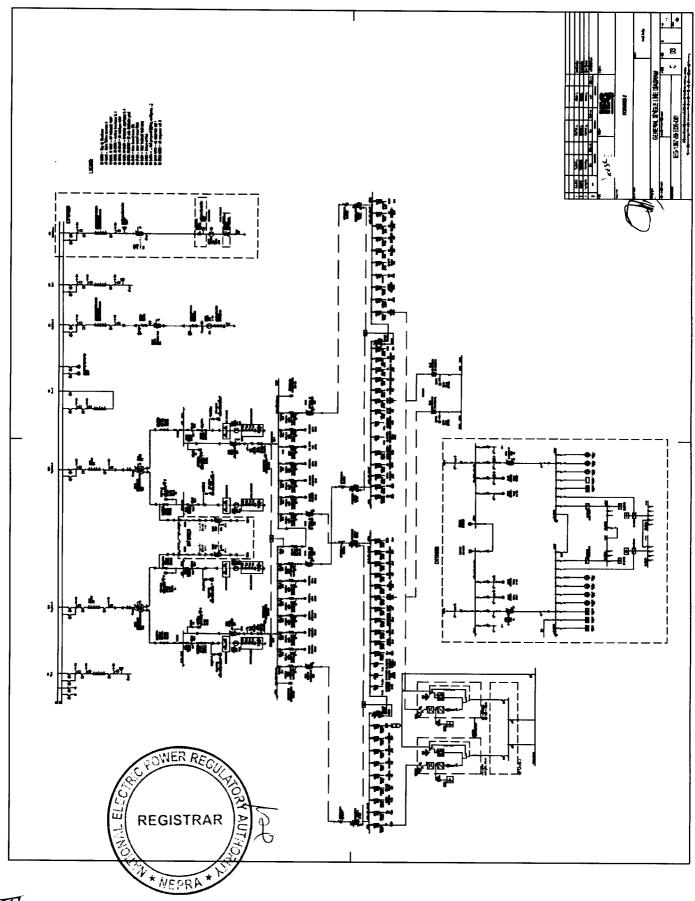




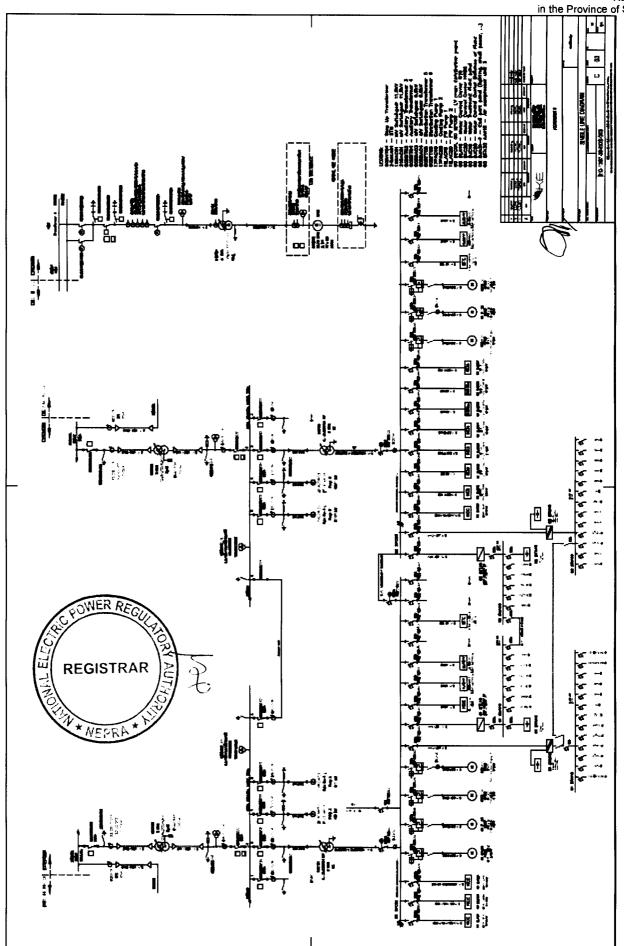
Layout of Power Plant -II



Single Line Diagram (Electrical) of Power Plant-II

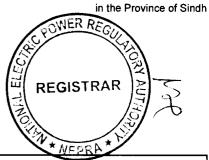








<u>Detail of</u> <u>Generation Facility/</u> <u>Power Plant-III</u>



(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 32 x 3.041 MW			Steam Turbine 1 x 10.00 MW	
(iv).	Unit Make & Model	(Unit No. 1-32) Gas Engine G.E. Jenbacher JGS 620 GS-NL			(Unit No. 33) Steam Turbine G Allen Steam Turbine UK- MC 800	
(v).	Commissioning Date/COD	Unit No. 1 ~ 8 August 22, 2009	Unit No. 9 ~ 16 September 16, 2009	Unit No. 17 ~ 24	Unit No. 25 ~ 32	Unit No. 33 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 30 Years from COD	Unit No. 9 ~ 16 30 Years from COD	Unit No. 17 ~ 24 30 Years from COD	Unit No. 25 ~ 32 30 Years from COD	Unit No. 33 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 Unit Unit Unit Unit Unit No. No. No. No. No. 1 ~ 8 9 ~ 16 17 ~ 24 25 ~ 32 33				
(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)	1~8 9~16 17~24 25~32 33				



					in the	Rarach Province of Sindh
	Expected Useful Life of	Unit	Unit	Unit	Unit	Unit
	Each Unit of the	No.	No.	No.	No.	No.
	Generation	1~8	9 ~ 16	17 ~ 24	25 ~ 32	33
(ix).	Facility/Power Plant at					•
	the time of issuance of					
	Modification-II					
	(dated March 17, 2009)					
	Expected Useful Life of	Unit	Unit	Unit	Unit	Unit
	Each Unit of the	No.	No.	No.	No.	No.
	Generation	1~8	9 ~ 16	17 ~ 24	25 ~ 32	33
(x).	Facility/Power Plant at					
` ′	the time of issuance of	30	30	30	30	Not
	Modification-III	Years	Years	Years	Years	Included
	(dated May 13, 2009)					
	Expected Useful Life of	Unit	Unit	Unit	Unit	Unit
	Each Unit of the	No.	No.	No.	No.	No.
	Generation	1~8	9 ~ 16	17 ~ 24	25 ~ 32	33
(xi).	Facility/Power Plant at					
` ′	the time of issuance of	26	26	26	26	Not
	Modification-IV	Years	Years	Years	Years	included
	(dated August 22, 2013)					
		Unit	Unit	Unit	Unit	Unit
	Expected Useful Life of	No.	No.	No.	No.	No.
	Each Unit of the	1~8	9 ~ 16	17 ~ 24	25 ~ 32	33
(-::)	Generation	24	24	24	24	
(xii).	Facility/Power Plant at	Years	Years	Years	Years	
	the time of issuance of Modification-V	&	&	&	&	Not
		05	05	05	05	Included
	(dated March 13, 2015)	Months	Months	Months	Months	
	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of	Unit	Unit	Unit	Unit	Unit
		No.	No.	No.	No.	No.
		1~8	9 ~ 16	17 ~ 24	25 ~ 32	33
4		24	24	24	24	
(xiii).		Years	Years	Years	Years	
		&	&	&	&	25
	Modification-VI	04	04	04	04	Years
	(dated April 02, 2015)	Months	Months	Months	Months	
	Expected Useful Life of Each Unit of the Generation	Unit	Unit	Unit	Unit	Unit
		No.	No.	No.	No.	No.
		1~8	9 ~ 16	17 ~ 24	25 ~ 32	33
()		21	21	21	21	22
(xiv).	Facility/Power Plant at	Years	Years	Years	Years	Years
	the time of issuance of	&	&	&	& &	&
	this Modification-VII	06	06	06	06	02
	(dated February , 2018)	Months	Months	Months	Months	Months
L		1110111111	1410111111	141011013	1410111113	1410111119





(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). <u>Emission Values</u>

(i).	SO _x	Insignificant	C OWER RECUE
(ii).	NO _x	<500 mg/Nm ³	REGISTRAR E
(iii).	со	<800 mg/Nm ³	
(iv).	PM ₁₀	Insignificant	* NEPRA * N

(D). Cooling System

(i).	Cooling Water	Well water Air cool condenser/Demineralized water from	l
(1).	Source/Cycle	reverse osmosis plant	

(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



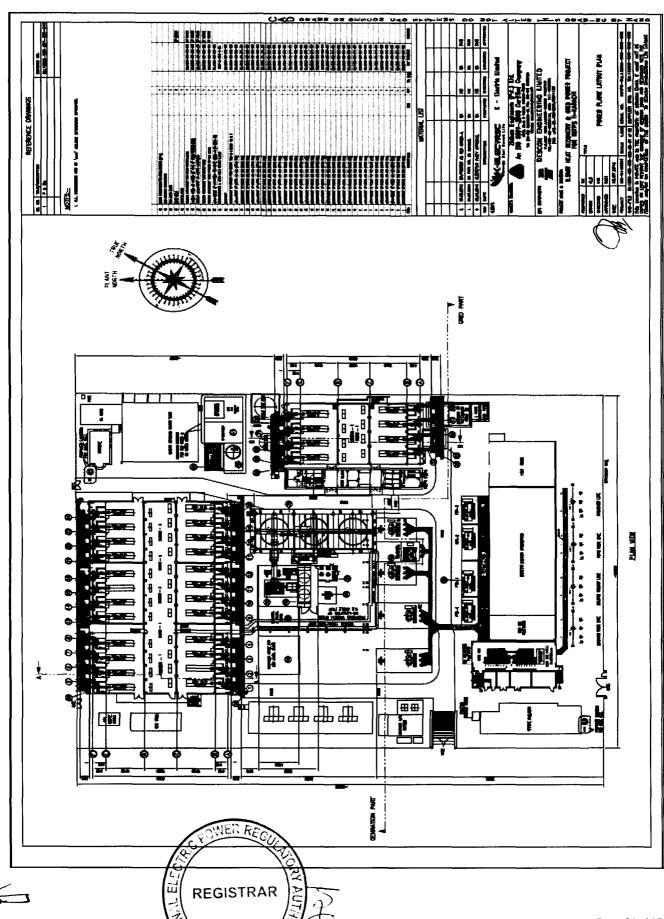
(F). <u>Interconnection Arrangement</u>

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





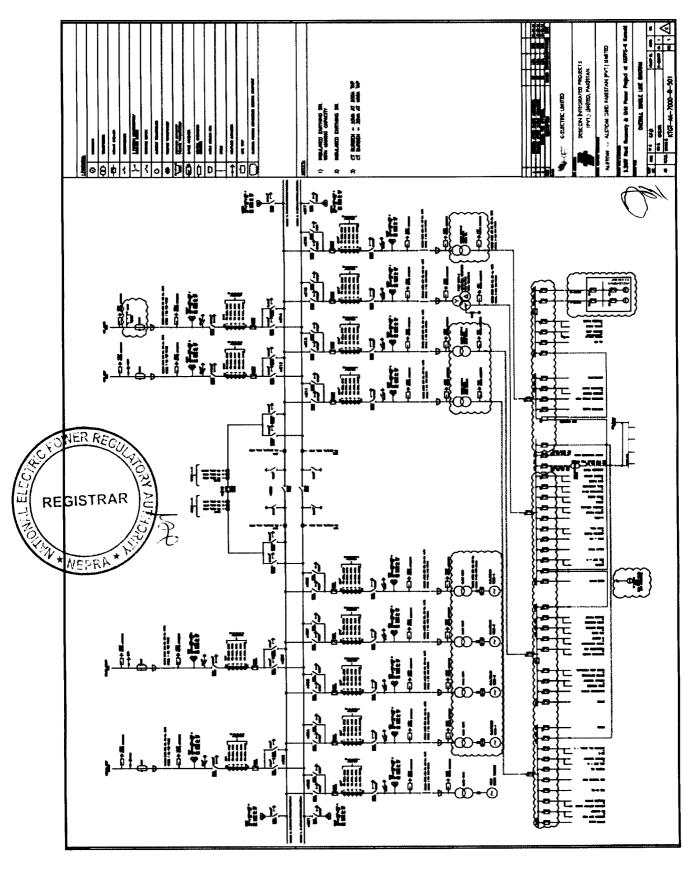
Layout of Power Plant-III



* NEPRA



Single Line Diagram (Electrical) of Power Plant-III





REGISTRAR

<u>Detail</u> of Generation Facility/ <u>Power Plant-IV</u>

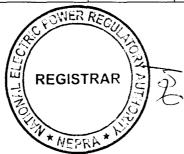
(A). Plant Configuration

	T =	т ————				<u> </u>
(i).	Plant Size Installed Capacity (Gross ISO)	107.312 M	W		* NEPRI	
(ii).	Type of Technology	Combined Cycle with Gas Engines & Steam Turbine			rbine	
/:::\	Number of	Gas E	Engine		Steam Turbir	ne
(iii).	Units/Size(MW)		041 MW o. 1-32)		1 x 10.00 MV (Unit No. 33	
		Gas E	Engine		Steam Turbir	4
(iv).	Unit Make & Model		nbacher 0 GS-NL	NG A	llen Steam T UK- MC 800	
(v)	Commissioning Date	Unit No. 1~8	Unit No. 9~16	Unit No. 17~24	Unit No. 25~32	Unit No. 33
(v).	/COD	June 23, 2009	July 13, 2009	August 21, 2009	August 21, 2009	September 30, 2015
	Expected Useful Life of the of each Unit of the Generation	Unit No. 1~8	Unit No. 9~16	Unit No. 17~24	Unit No. 25~32	Unit No. 33
(vi).	Facility/Power Plant from Commercial Operation/ Commissioning Date/COD	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	Unit No. 1 ~ 8	Unit No. 9 ~ 16	Unit No. 17 ~ 24	Unit No. 25 ~ 32	Unit No. 33
	Facility/Power Plant at the time of Grant of Original Generation Licence (No. GL/04/2002, dated November 18, 2002)	Not Include	ed			
	Expected Useful Life of Each Unit of the Generation	Unit No. 1~8	Unit No. 9~16	Unit No. 17~24	Unit No. 25~32	Unit No. 33
(viii).	Facility/Power Plant at the time of issuance of Modification-I (dated May 13, 2008)	Not Include	1		,	



						Province of Sindh		
	Expected Useful Life of	Unit	Unit	Unit	Unit	Unit		
	Each Unit of the	No.	No.	No.	No.	No.		
	Generation	1~8	9~16	17~24	25~32	33		
(ix).	Facility/Power Plant at							
, ,	the time of issuance of	Not Included						
	Modification-II	Not included						
	(dated March 17, 2009)							
	Expected Useful Life of	Unit	Unit	Unit	Unit	Unit		
	Each Unit of the	No.	No.	No.	No.	No.		
l	Generation	1~8	9~16	17~24	25~32	33		
(x).	Facility/Power Plant at		7.11					
\	the time of issuance of	30	30	30	30	Not		
	Modification-III	Years	Years	Years	Years	Included		
	(dated May 13, 2009)			:				
	Expected Useful Life of	Unit	Unit	Unit	Unit	Unit		
	Each Unit of the	No.	No.	No.	No.	No.		
	Generation	1~8	9~16	17~24	25~32	33		
(1)	Facility/Power Plant at	41						
(xi).	the time of issuance of	00	00	00	00	Nina		
	Modification-IV	26	26	26	26	Not		
	(dated August 22,	Years	Years	Years	Years	Included		
	2013)							
		Unit	Unit	Unit	Unit	Unit		
	Expected Useful Life of	No.	No.	No.	No.	No.		
	Each Unit of the	1~8	9~16	17~24	25~32	33		
/	Generation	24	24	24	04.1/			
(xii).	Facility/Power Plant at	Years	Years	Years	24 Years	N1 - 4		
	the time of issuance of	&	- &	&	&	Not		
	Modification-V	05	05	05	05	Included		
	(dated March13, 2015)	Months	Months	Months	Months			
	E	Unit	Unit	Unit	Unit	Unit		
ļ	Expected Useful Life of	No.	No.	No.	No.	No.		
	Each Unit of the	1~8	9~16	17~24	25~32	33		
()	Generation	24	24	24	24			
(xiii).	Facility/Power Plant at	Years	Years	Years	24	25		
	the time of issuance of	&	&	&	Years &	25		
	Modification-VI	04	04	04	04	Years		
	(dated April 02, 2015)	Months	Months	Months	Months			
	Expected Useful Life of	Unit	Unit	Unit	Unit	Unit		
1	Each Unit of the	No.	No.	No.	No.	No.		
	Generation	1~8	9~16	17~24	25~32	33		
(seine)	Facility/Power Plant at	21	21	21	21	22		
(xiv).	the time of issuance of	Years	Years	Years	Years	Years		
	this Modification-VII	&	&	&	&	&		
	(dated February ,	06	06	06	06	02		
	2018)	Months	Months	Months	Months	Months		
	OWER			•		-		





(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

			YOWER REGA
(i).	SO _x	Insignificant	
(ii).	NO _x	<500 mg/Nm ³	REGISTRAR
(iii).	со	<800 mg/Nm ³	
(iv).	PM ₁₀	Insignificant	*NEPRA*

(D). Cooling System

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

(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



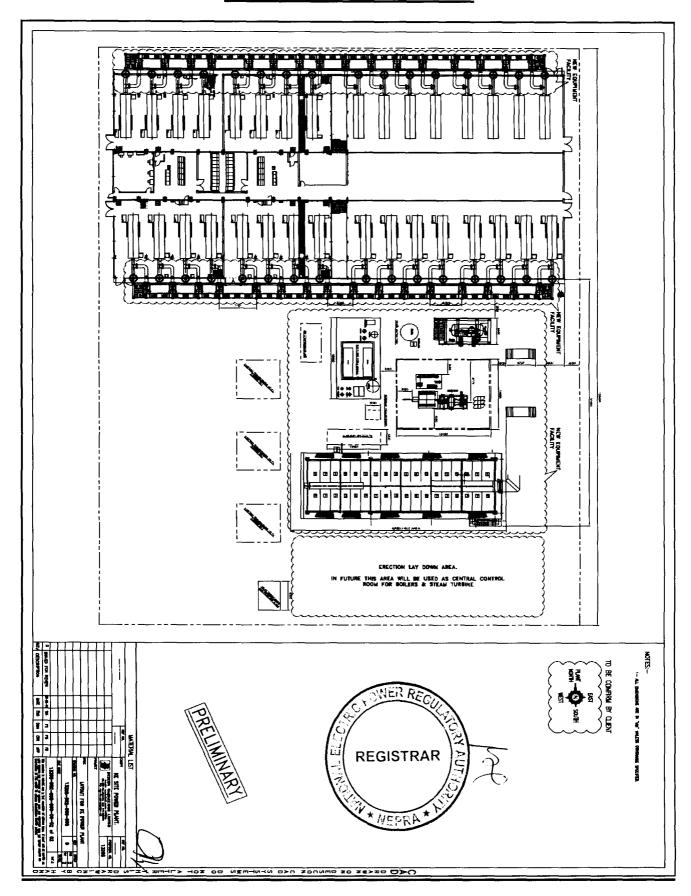
(F). Interconnection Arrangement

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



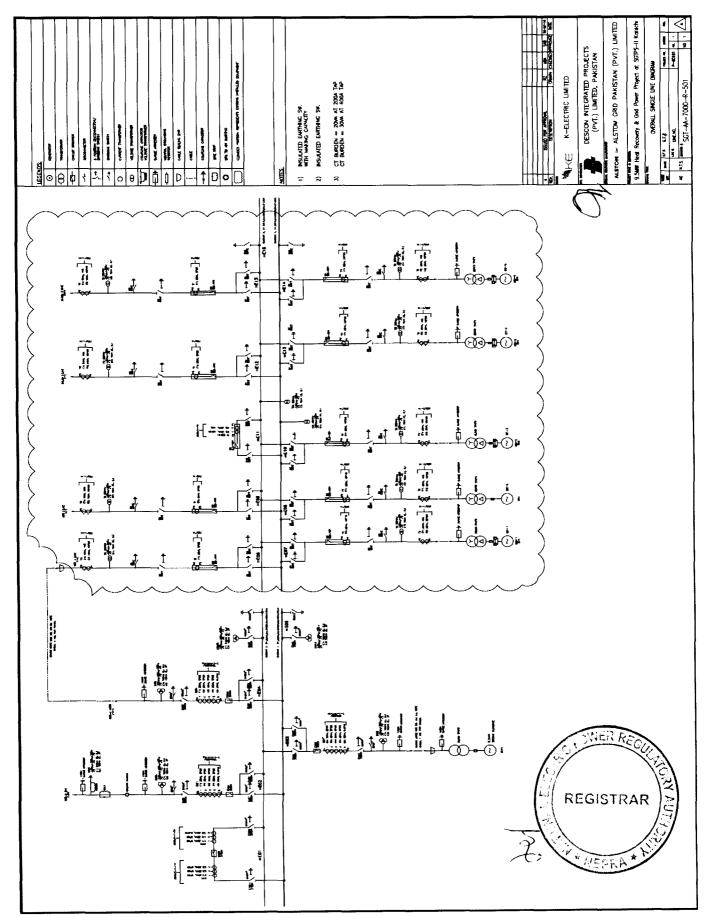


Layout of Power Plant-IV





Single Line Diagram (Electrical) of Power Plant-IV





REGISTRAR

<u>Detail</u> of Generation Facility/ <u>Power Plant-V</u>

(A). Plant Configuration

(i).	Plant Size Installed Capacity (Gross ISO)	572.67 MV	V	TA * N	PRA THE
(ii).	Type of Technology	Combined	Cycle Power		
(iii).	Number of Units/Size (MW)	Gas Turbine	3 x 127.8 M	W (Unit No. 1-3)
().	Trainiber of Office/Office (MVV)	Steam Turbine	1 x 189.27 N	ИW (Unit No. 4)	
(iv).	Unit Make & Model	Gas Turbine	G.E. PG 91	71 E	
(IV).	Ont wake & woder	Steam Turbine	Harbin, Chir	na	
		Unit No.	Unit No.	Unit No.	Unit No.
(v).	Commissioning Date/COD	- 1	- 2	3	- 4
(-)-	(v). Commissioning Date/COD	Februar y 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	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4
(*1).	Plant from Commissioning Date/COD	30 Years From COD	30 Years From COD	30 Years From COD	30 Years From COD
	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4
(vii).	time of Grant of Original Generation Licence (No. GL/04/2002, dated November 18, 2002)	Not Includ	ed		
(viii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4
	Modification-I (dated May 13, 2008)	Not Includ	led		



				ir	Karacn the Province of Sindh
	Expected Useful Life of Each	Unit	Unit	Unit	Unit
(ix).	Unit of the Generation	No.	No.	No.	No.
	Facility/Power Plant at the	-	-	-	-
	time of issuance of	1	2	3	4
	Modification-II	Not Include	4		
	(dated March 17, 2009)	NOT ITICIQUE	u 		
	Expected Useful Life of Each	Unit	Unit	Unit	Unit
	Unit of the Generation	No.	No.	No.	No.
(x).	Facility/Power Plant at the	-	-	-	-
(^).	time of issuance of	11	2	3	4
	Modification-III	Not Include	Ч		
	(dated May 13, 2009)			,	
	Expected Useful Life of Each	Unit	Unit	Unit	Unit
	Unit of the Generation	No.	No.	No.	No.
(xi).	Facility/Power Plant at the	-	_	-	-
(//.).	time of issuance of	11	2	3	4
	Modification-IV	29	29	29	29
	(dated August 22, 2013)	Years	Years	Years	Years
		Unit	Unit	Unit	Unit
	Expected Useful Life of Each	No.	No.	No.	No.
	Unit of the Generation	-	-	-	-
	Facility/Power Plant at the	11	2	3	4
(xii).	time of issuance of	27	27	27	27
	Modification-V	Years	Years	Years	Years
	(dated March13, 2015)	&	&	&	&
	(, , , , , , , , , , , , , , , , , , ,	05	05	05	05
		Months	Months	Months	Months
		Unit	Unit	Unit	Unit
	Expected Useful Life of Each	No.	No.	No.	No.
	Unit of the Generation	-	-	-	_
(::i)	Facility/Power Plant at the	07	2	3	4
(xiii).	time of issuance of	27	27	27	27
	Modification-VI (dated April	Years	Years	Years	Years
	02,2015)	&	&	&	&
		04	04	04	04
		Months	Months	Months	Months
		Unit	Unit	Unit	Unit
	Expected Useful Life of Each	No.	No.	No.	No.
(Unit of the Generation	-	-	3	-
	Facility/Power Plant at the	24	2		24
(xiv).	time of issuance of this	24 Vacro	24	24 Voors	
	Modification-VII	Years	Years	Years	Years
	(dated February , 2018)	& 06	& 06	& 06	& 06
		06	06	06 Months	
	1	Months	Months	Months	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		
(5.4)	Fuel Supplier	Primary Fuel	Alternate/Back-up Fuel	
(iv).	. Fuel Supplier	SSGC	PSO	
(10)	Supply Arrangement	Primary Fuel	Alternate/Back-up Fuel	
(v).	(v). Supply Arrangement	Pipe line	Pipe line	
(v.i)	No of Storage Tanks for	Primary Fuel	Alternate/Back-up Fuel	
(vi).	Main / Alternate /Backup Fuel	Not Applicable	03 tanks	
(, ;;;)	Storage Capacity of each	Primary Fuel	Alternate/Back-up Fuel	
(vii).	Tank	Not Applicable	10, 000 M ³	
(viii)	Cross Stores of Toulds)	Primary Fuel	Alternate/Back-up Fuel	
(VIII).	(viii). Gross Storage of Tank(s)	Not Applicable	30, 000 M ³	

(C). Emission Values

(;)	(i). SO _x	Primary Fuel	Alternate/Back-up Fuel	
(1).		2000 mg/nm ³	Not Applicable	
/ii\	NO	Primary Fuel	Alternate/Back-up Fuel	
(ii).	NO _x	125 mg/nm ³	165 mg / nm3	
(:::\		l l	Primary Fuel	Alternate/Back-up Fuel
(iii).	CO	Not Applicable	Not Applicable	
(i.d)	DM10	Primary Fuel	Alternate/Back-up Fuel	
(iv).	PM10	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		
	Time required to Synchronize to Grid and	Gas Turbine Steam Turbine		
(vi).	loading the complex to full load.	18 minutes	20 minutes approximately (hot start)	

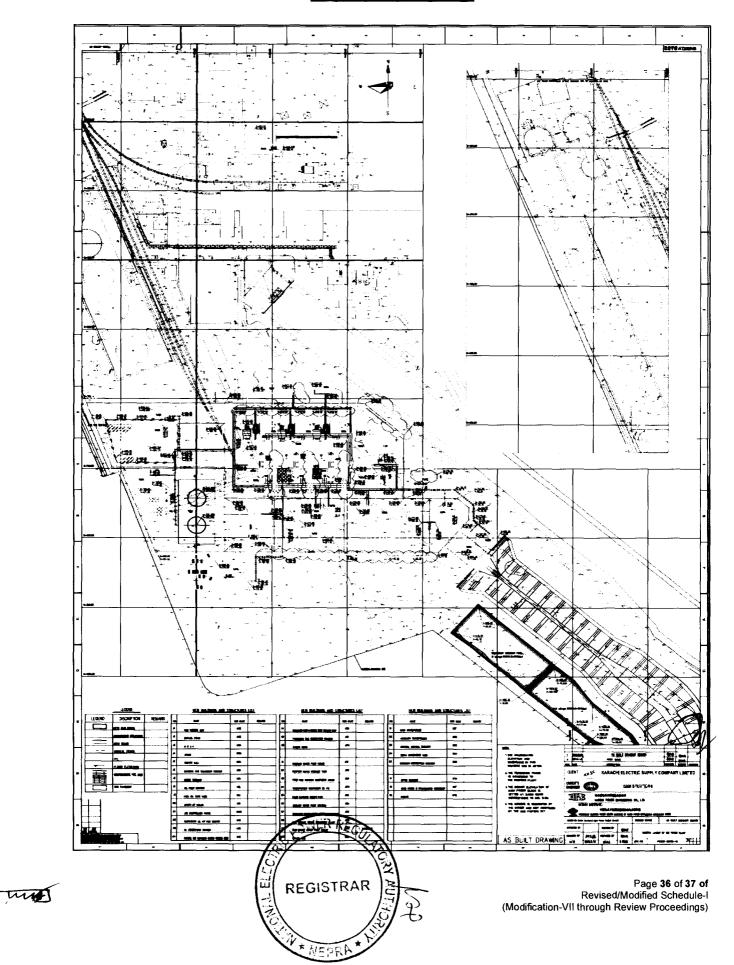
(F). <u>Interconnection Arrangement</u>

		a). 220 D/C Korangi Creek Road Ci	cuit No. 1;
	o). 220 D/C Korangi Creek Road Ci	cuit No. 2;	
	Interconnection &	c). 220KV D/C Short Line/SL-1 (inte	rconnection
(i).	Transmission Arrangement for Power Plant-V	with Bin Qasim-1)	
	lor rower right	d). 220KV D/C Short Line/SL-2 (inte	rconnection
		with Bin Qasim-1)	

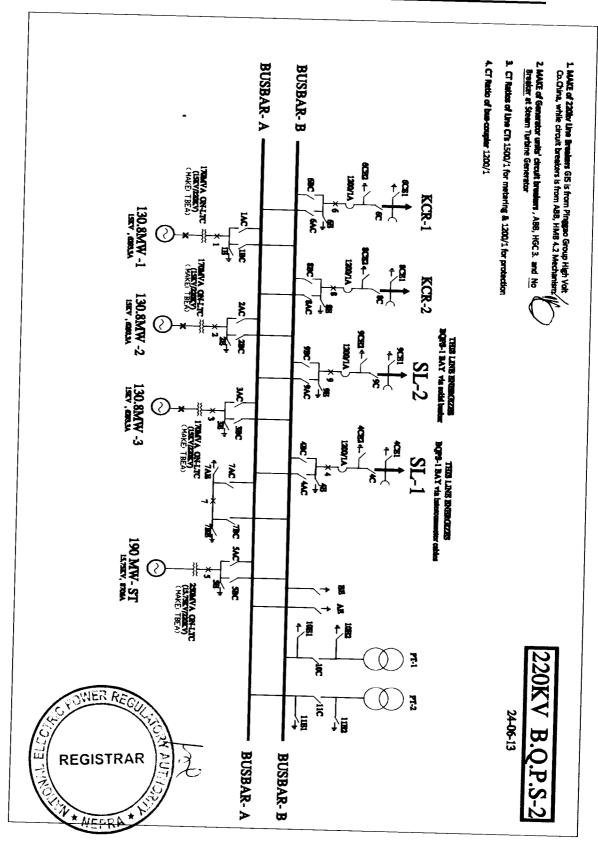




Layout of Plant-V



Single Line Diagram (Electrical) of Power Plant-V





SCHEDULE-II (Revised/Modified) Modification-VII

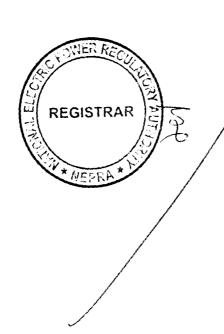
The Installed/ISO Capacity (MW), De-Rated Capacity At Mean Site Conditions (MW), Auxiliary Consumption (MW) and the Net Capacity At Mean Site Conditions (MW) of the Generation Facilities of Licensee is given in this Schedule





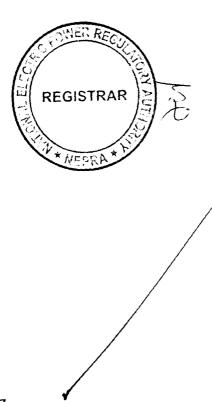
SCHEDULE-II

Generation Facility/ Power Plant	Unit Detail	Installed Capacity (MW)	De-Rated Capacity (MW)	Net Capacity after Auxiliary Consumption (MW)
	Unit No1	210.00	200.00	184.60
	Unit No2	210.00	200.00	184.60
DIN OACIN	Unit No3	210.00	200.00	184.60
POWER	Unit No	210.00	200.00	184.60
STATION-I (PLANT-I)	Unit No5	210.00	200.00	184.60
	Unit No6	210.00	200.00	184.60
	Sub-Total-I	<u>1260.00</u>	1200.00	1107.60





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



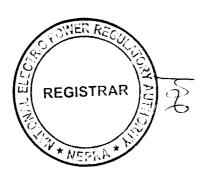


Generation Facility/ Power Plant	Unit Detail	Ins talled Capacity (MW)	De-Rated Capacity (MW)	in the Province of Sind Net Capacity after Auxiliary Consumption (MW)
	Unit No. - 1	3.041	2.739	2.644
	Unit No. - 2	3.041	2.739	2.644
	Unit No. -3	3.041	2.739	2.644
	Unit No. - 4	3.041	2.739	2.644
	Unit No. - 5	3.041	2.739	2.644
GAS ENGINE POWER	Unit No. - 6	3.041	2.739	2.644
PLANT AT KORANGI TOWN (PLANT-III)	Unit No. - 7	3.041	2.739	2.644
	Unit No. - 8	3.041	2.739	2.644
ET RECUL	Unit No. - 9	3.041	2.739	2.644
ISTRAR 2	Unit No. - 10	3.041	2.739	2.644
IEPRA* N	Unit No. - 11	3.041	2.739	2.644
	Unit No. - 12	3.041	2.739	2.644 Au



	·			in the Province of Sindh
	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
SISTRAR 2	Unit No 22	3.041	2.739	2.644
MESEA *	- Unit No. 	3.041	2.739	2.644
NATION STATES	Unit No. - 24	3.041	2.739	2.644
-	Unit No.	3.041	2.739	2.644

32Unit	3.041	2.739	2.644
No. - 31 Unit No.	3.041	2.739	2.644
Unit No. - 30 Unit	3.041	2.739	2.644
Unit No. - 29	3.041	2.739	2.644
Unit No. - 28	3. 041	2.739	2.644
Unit No. - 27	3.041	2.739	2.644
Unit No. - 26	3.041	2.739	2.644
25			in the Province of Sin





				in the Province of Sindh
Generation Facility/ Power Plant	Unit Detail	Installed Capacity (MW)	De-Rated Capacity (MW)	Net Capacity after Auxiliary Consumption (MW)
	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
GAS ENGINE	Unit No. - 6	3.041	2.739	2.644
POWER PLANT AT SITE (PLANT-IV)	Unit No. - 7	3.041	2.739	2.644
	Unit No. - 8	3.041	2.739	2.644
ET. RECOL	Unit No. - 9	3.041	2.739	2.644
STRAR	Unit No.	3.041	2.739	2.644
MERRA	Unit No. - 11	3.041	2.739	2.644
	Unit No. - 12	3.041	2.739	2.644

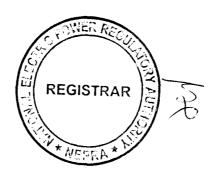


		,		in the Province of Sindh
	Unit No. - 13	3.041	2.739	2.644
	Unit No. - 14	3.041	2.739	2.644
	Unit No. - 15	3.041	2.739	2.644
	Unit No. - 16	3.041	2.739	2.644
	Unit No. - 17	3.041	2.739	2.644
	Unit No. - 18	3.041	2.739	2.644
	Unit No. - 19	3.041	2.739	2.644
	Unit No. - 20	3.041	2.739	2.644
	Unit No. - 21	3.041	2.739	2.644
CYON IT RECORD	Unit No 2 2	3.041	2.739	2.644
REGISTRAR 2	Unit No	3.041	2.739	2.644
THE PROPERTY OF THE PROPERTY O	Unit No. - 24	3.041	2.739	2.644
	Unit No.	3.041	2.739	2.644



26			in the Province of Sindh
25			
Unit			
No.	2.044	2.720	2.644
-	3.041	2.739	2.644
26			
Unit			
No.	3.041	2.739	2.644
-	0.041	2.100	2.044
27			
Unit		!	
No.	3.041	2.739	2.644
-			
28 Unit			
No.			
-	3.041	2.739	2.644
29			
Unit			
No.			
-	3.041	2.739	2.644
30			
Unit			
No.	0.044	0.700	0.044
-	3.041	2.739	2.644
31			
Unit			
No.	3.041	2.739	2.644
-	3.041	2.739	2.0 44
32			
Unit			
No.	10.000	9.565	8.912
-	10.000	9.505	0.312
33			
Cub Tatal N	407 240	07.040	02.500
Sub-Total-IV	<u>107.312</u>	<u>97.213</u>	93.520
			(<i>M</i>





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



