



National Electric Power Regulatory Authority

Islamic Republic of Pakistan

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Registrar

No. NEPRA/R/DL/LAG-05/ 4812-17

April 02, 2015

Chief Executive Officer
K-Electric Limited,
KE House, 39-B,
Sunset Boulevard, DHA II,
Karachi

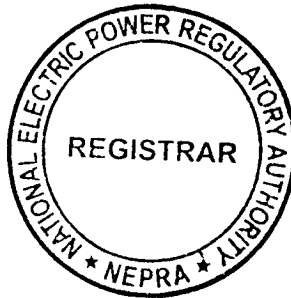
Subject: Modification-VI in respect of Generation Licence No. GL/04/2002 granted to K-Electric Limited for De-Commissioning of Units which have Outlived their useful lives.

Reference: Your letter No. GM(RA)/NEPRA/2013/1228 dated October 29, 2013.

It is intimated that the Authority has approved "Licensee Proposed Modification" in Generation Licence No. GL/04/2002 (issued on November 18, 2002) in respect of K-Electric Limited pursuant to Regulation 10(11) of the NEPRA Licensing (Application & Modification Procedure) Regulations, 1999.

2. Enclosed please find herewith determination of Authority in the matter of Licensee Proposed Modification in the Generation Licence of K-Electric along with Modification-VI in the Generation Licence No. GL/04/2002, as approved by the Authority.

Enclosure:/As above



P Hussain
02.04.15
(Syed Safeer Hussain)

Copy to:

1. Secretary, Ministry of Water and Power, Government of Pakistan, Block 'A', Pak. Secretariat, Islamabad.
2. Secretary, Ministry of Finance, Government of Pakistan, Islamabad
3. Secretary, Privatization Commission, EAC Building, Islamabad
4. Chief Executive Officer, NTDC, 414-WAPDA House, Lahore
5. Director General, Sindh Environmental Protection Agency, Plot No. ST 2/1, Sector 23, Korangi Industrial Area, Karachi

National Electric Power Regulatory Authority
(NEPRA)

Determination of the Authority
Pertaining to the Licensee Proposed Modification of K-Electric
Limited for De-Commissioning of Units Which Have Outlived
their Useful Lives

March 30, 2015
Case No. LAG-05

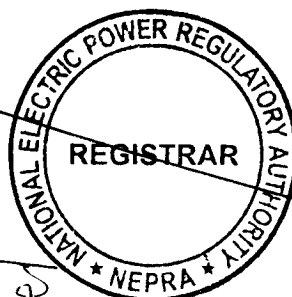
(A). Background

(i). The Authority has granted a Generation Licence (No. GL/04/2002, dated November 18, 2002 as amended from time to time) to K-Electric Limited (KEL) with a Total Installed Capacity of 2002.29 MW for its different distinctly located generating units/power plants/generation facilities across the metropolitan city of Karachi in the Province of Sindh.

(ii). The above mentioned Generation Licence consists of (a). Bin Qasim Power Station-I/BQPS-I (b). Korangi Thermal Power Station/KTPS (c). 220 MW Combined Cycle Power Plant at Korangi/CCPP Korangi (d). Korangi Town Gas Turbine Power Station/KTGTPS (e). Korangi Town Gas Engine Power Station/KTGEPS (f). SITE Gas Turbine Power Station/SGTPS (g). SITE Gas Engines Power Station/SGEPS and (h). 572.67 MW New CCPP At Bin Qasim/BQPS-II.

(B). Communication of LPM

(i). Pursuant to Regulation-10 of NEPRA Licensing (Application & Modification Procedure) Regulations, 1999 ("the Regulations"), KEL vide its letter dated October 29, 2013 communicated a Licensee Proposed Modification (LPM). The said LPM meant for excluding three (03) Units of different power



plants/generating units/generation facilities with a cumulative Installed Capacity of 175.00 MW.

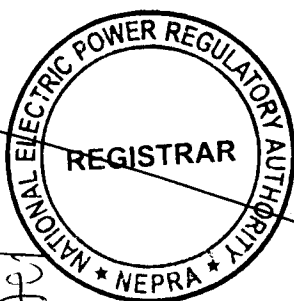
(ii). In the "Text of the Proposed Modification" statement, KEL submitted that one (01) Unit of KTPS (i.e. Unit No. 3 with Installed Capacity of 125.00 MW), One (01) Unit of KTGTPS (i.e. Unit No. 3 with Installed Capacity of 25.00 MW) and One (01) Unit of SGTPS (i.e. Unit No. 2 with Installed Capacity of 25.00 MW), would be de-commissioned and would be excluded from the Installed Capacity of its Generation Licence.

(iii). Regarding the "Statement of Reasons in Support of the Modification", KEL submitted that Unit No. 3 of KTPS has outlived its designed life (now more than 42 years since commissioning). Ageing of the units has resulted in irreversible degradation in performance and condition of major components and system. Similarly, Unit No. 3 of KTGTPS and Unit No. 2 of SGTPS each of Hitachi – GE Frame 5B of 25.00MW ISO, de-rated Installed Capacity of 20.00 MW at Mean Site Condition was commissioned in 1978-79. In September 2008, the said Gas Turbines (GTs) were more than 30 year old and had poor reliability and a very high maintenance and operating cost.

(iv). As regards, the Impact of proposed modification on Tariff, it was submitted that the proposed de-commissioning will not have any impact on the existing Tariff. About the Impact of Modification on the Quality of Service, KEL submitted that the proposed de-commissioning will not have any adverse impact. Further, KEL submitted that the allocated gas for these units will be utilized in a more efficient and optimum manner by supplying to efficient units of its fleet.

(C). Processing of LPM

(i). The Registrar examined the submitted application to confirm its compliance with the Regulations. It was observed that some of required information/documentation was missing. Accordingly, the Registrar directed



KEL for submitting the missing information/documentation. KEL completed the missing information/documentation on November 25, 2013.

(ii). After completion of all the required information as stipulated under the Regulation-10 (2) and 10 (3) of the Regulations by KEL, the Registrar accepted the LPM for further processing as stipulated in the Regulations and submitted the case of LPM for the consideration of the Authority.

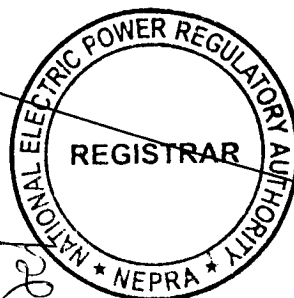
(iii). The Authority in its Regulatory Meeting (RM-13-640) held on December 03, 2013 considered the matter and accepted the LPM for further processing. A notice about the LPM was published in the Newspapers of December 05, 2013, seeking comments from general public and other stakeholders in favor or against the proposed LPM. Further, separate letters were also sent to experts, government ministries and representative organizations etc. inviting their views and comments in the matter.

(D). Comments of Stakeholders

(i). In reply to the above, the Authority received comments from seven (07) stakeholders including Mr. CH. Mazhar Ali, Pasban Public Issues Committee (PPIC), Securities and Exchange Commission of Pakistan (SECP), Mr. Muhammad Arif Bilvani, SITE Association of Industry (SAol), Gresham's Eastern (Pvt.) Limited (GEPL), Ministry of Petroleum & Natural Resources (MoP&NR),

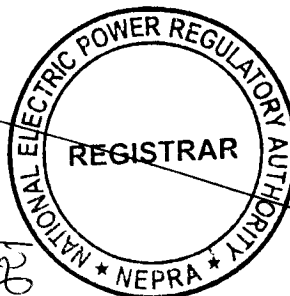
(ii). The salient points of the comments offered by the above mentioned stakeholders are summarized in the following paragraphs: -

(a). Mr. Ch. Mazhar Ali commented that there is shortage of electricity in Karachi and excessive load shading is being forced on the consumers therefore, reduction in

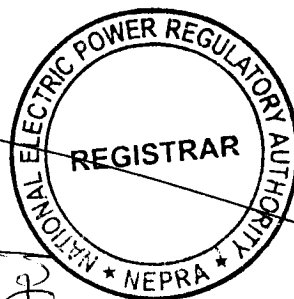


generation is not justified on any grounds. Both 25 MW units (one at SGTPS and one at KTGTPS) are in a perfect working condition as was admitted by KEL vide its letter No. DGMRA.&SP/Nepra/2010/25, Dated February 03, 2010. These two units were not de-commissioned earlier and were retained to be used in an emergency while other seven (07) units of 25 MW were de-commissioned. However, the fate of the said seven (07) units is not known even though these seven (07) units were promised to be used somewhere else, as according to KEL these were in working condition. The remaining two (02) units were to be used for Black Start in the event there was a major break down in the city. Or in an emergency the electricity was to be given to important consumers like military installations and VIP connections. What KESC/KEL wants to do with these de-commissioned generation units? Will these be sold as scrap, will these be sent abroad for use or will these be used in this country some were else?

- (b). PPIC remarked that in reality KEL is trying to sell out its three units in the name of LPM request, whereas in actual it is a winding -up / liquidation of assets. KEL is a public limited company listed on Karachi Stock Exchange. Therefore for the protection of the interests of KEL stakeholders, the Companies Ordinance 1984 is applicable to KEL along with the following rules which are applicable to KEL as well (a). Rehabilitation of companies owing sick industrial units rules-1999-Section 296; (b). Modes of winding up Companies Ordinance 1984 Section 297; (c). Provision as to application for winding up Companies Ordinance 1984 Section 309; (d). Power

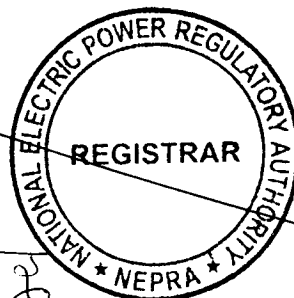


of courts to stay winding up Companies Ordinance 1984 Section 319; (e). Appointment of official liquidator Companies Ordinance 1984 Section 321 and (f) along with Companies Ordinance 1984 Sections 362, 361, 358, and 364 also. What was the rationale that prompted KEL to submit a request to NEPRA for conversion of 42 years old Unit No. 3 of KTPS into coal; whereas now KEL claims this unit to be in-operational. According to tested report KTPS unit No. 3 has an efficiency of 28.9 %, then why only 26.1% is being obtained? If the performance of this unit would have been upgraded as per privatization agreement, then the efficiency of this unit would have been increased to 38%, which would have been profitable and there would have been a supply of 125.00 MW to Karachi instead of 60 MW. People of Karachi want this unit to be operated on Natural Gas which generates cheaper electricity as compared to Furnace Oil. If KEL honestly generates 1890 MW of its available Generation Capacity there will be no load-shedding in Karachi. Therefore, this Unit must be up-graded instead of shutting it down so that the people of Karachi can get uninterrupted supply of electricity. The people of Karachi were deprived of 25.00 MW of electricity by keeping Unit No.2 of SGTPS on stand-by since September 2013. The installation of one unit for generation 10.00 MW electricity by DESCON by utilizing steam turbine and heat recovery boilers is indeed a very encouraging act but it is requested not to put the nation into depression by closure of already installed unit. Unit No.3 of KTPS despite being 42 years old is generating profitably for KEL. In comparison to Unit No.3 of KTPS, the unit No.3 of KTGTPS utilizes gas and generates electricity at low cost

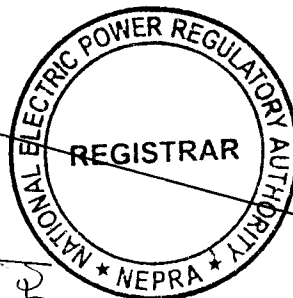


then why KEL is unable to bear this 30 year old unit and what is the motive of KEL behind selling off this unit. This has created an unusual unrest for the residents of Karachi. With due regrets, the attention of honorable members of NEPRA is drawn to the fact that generation cost of KEL has always been higher as compared to NTDC and IPPs; still the Karachites are forced to buy expensive electricity with patience. In order to redress the grievances of the Karachites NEPRA should take serious steps against this economic downturn in order to provide relief to Karachites.

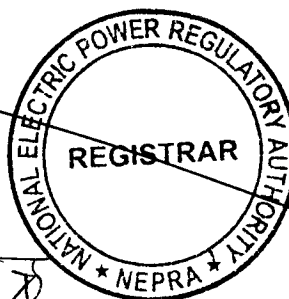
- (c). SECP explained that it focuses on entity based regulation of the corporate entities and does not regulate the operations of the companies. Hence the matter of modification in license of KEL does not fall within the purview of the SECP. Therefore, the Commission has no comments to furnish in the subject matter.
- (d). Mr. Muhammad Arif Bilvani submitted that between 2009 & 2010 application for LPM was filed by the licensee to de-commission unit 1, 2 & 4 of KTGTPS & unit 4 of KTPS. The undersigned sought information on various points in writing, which the Authority has enumerated at point (b) on page 6 of its determination dated August 15, 2013. But no information was provided either by the licensee or by the Authority during the ensuing 3 years and the determination was issued. Since then I am unaware of the fate of these de-commissioned units. Whether these are still with the licensee or have they been disposed off as nothing has been said in the reported financial statements of the licensee for the years



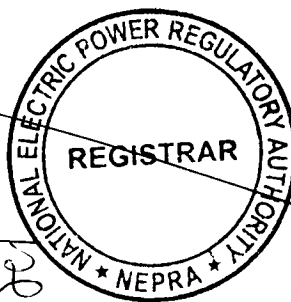
2009 to 2013? If these units have been disposed then at what price & to whom? Mr. Bilwani contested that the same questions were raised by him earlier and needs to be answered for this de-commissioning too so that further question can be raised in the light of these answers. After their deletion from the Generation Licence what will be the fate of these units since I have not heard anything about the previously de-commissioned units? Since when these units are lying un-operational and what was their performance during the last 18 months (month-wise) before they became dysfunctional? How many people will become redundant due to deletion of these units and what will be their fate? From 2009 to date i.e. including the present LPM, the licensee has de-commissioned various generating units of 500MW capacity & during the same period it has added new units of 960.00 MW which means only 460.00 MW of additional capacity has been brought in after the privatization. Surely this was not the aim of privatization. The licensee was supposed to bring in new capacities but instead it is depending on outside supplies particularly NTDC. Even this supply from NTDC is a stop gap measure to provide the licensee ample time i.e. 5 years to bring additional capacities to meet the growing needs of the City of Karachi. But the licensee is not at all interested in doing so because of the Multi Year Tariff (MYT) and in its own words on page 547 of the reply dated October 07 2013, in response to my comment no.4 on licensee's LPM of Coal conversion, "Reason is that KEL'S MYT Formula is an incentive based tariff system whereby KEL is not given any direct return on its investment, but it earns its profits through efficiency improvement in its generation fleet." Therefore,



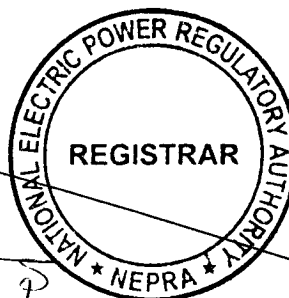
the Authority must bind the licensee to replenish its de-commissioned facility before allowing its de-commissioning & deletion from the Generation Licence so as to maintain the generation capacity at least intact if not enhanced. Any modification, alteration or amendment in the Generation Licence cannot be done unilaterally & in isolation without reopening/amending the MYT Determination of 2009. Generation Licence cannot be changed or amended or modified in isolation because many aspects of the MYT decision are based on the Generation Licence as it existed at that time. The licensee i.e. KEL was allowed a fixed margin/allowance of 6.1% of auxiliary consumption in its generation for determining its monthly and quarterly tariff. This high percentage of 6.1% of auxiliary consumption in its generation for determining its monthly and quarterly tariff was due to, in licensee's own words, obsolete and inefficient generating station of KTPS, KTGTPS and SGTPS with a combined capacity of 500MW." Few of these units or part thereof have already been de-commissioned / deleted from the Generation Licence and the remaining are being proposed to be deleted now. If the licensee is continuously allowed this high percentage of auxiliary consumption, which is not there, in its monthly & quarterly tariff determination under the MYT, then the resulting loss is borne by the GOP & the Consumers in the shape of Tariff subsidy & / or higher tariff. This serious issue must be immediately addressed by the Regulator otherwise it shall tantamount to be illegally and unlawfully allowed.



(e). SAol commented that the recent request by KEL for the de-commissioning of its 175 MW worth of generating capacity units has far reaching consequences. There are certainly merits in increasing efficiency of units and their de-commissioning provided the overall effect is positive along with the right timings of the decision. There is no argument that they have outlived their productive life. The question is whether this was a recent observation? The state of affairs has been the same for several past years and the decision is coming at a time when (a). KANNUP is not generating its designated 80 MW of output and even if it did the power cannot be obtained due to payment issues between KEL and KANNUP; (b). two units of BQPS-I are already out of commission due to conversion to coal approval; (c). the 570 MW unit is not generating optimally due to gas supply issues and other reasons; (d). the overall power production of KEL is not increasing compared to the installed capacity and its own admitted capacity which may or may not be its own fault singularly; (e). requirement of power is increasing at 7% by the end users in Karachi; (f). substantial amounts have been received by KEL under the head of O&M since its privatization and logically all the requirements for keeping the plants in running conditions were provided by NEPRA based on O&M expense approvals; (g). supply of the 650MW from NTDC is under the stay order from SHC. In such a perilous state of affairs the reduction of 175 MW will be neither suitable time wise nor advisable; (h). the import of power from the IPPs is under capacity again and the recent refusal of NEPRA to entertain its FAS request manifests the fact that all is not well in that area either where KEL is being accused by

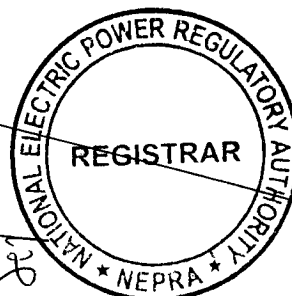


NEPRA, of under capacity production and not purchasing sufficient power from IPPs. The consumer has the right to ask: (a). if the auxiliary consumption level is based on the efficiency level of the available plant capacity and is restricted to 6.1% then after the de-commissioning of these units the auxiliary consumption percentage must be reduced as the standard was set on the designed efficiency of those units. If newer plants have been placed into the fleet with a better efficiency and older lower efficiency ones are de commissioned is it not logical to reset the auxiliary consumption level again at a lower than 6.1% level in all fairness? (b). NEPRA in its various hearings has continuously side lined the issue of the tariff amount given to KEL based on its employees inducted in excess of the requirements. The number of employees has been reduced to a great level yet the end consumers are still paying the same amount to KEL. What is the logic here? Is NEPRA getting cold feet in this simple decision of handing out justice to the end users? If it is, then it is denying the very reason of its existence and creation. (c). It is also requested to be apprised of the procedure in place by NEPRA of the disposal of the said de-commissioned plants. Are they sold as running plants and the money reinvested in the production capacity generation by law or they will simply increase the cash supply of KEL? (d). When can the end user hope to be augmented for the loss of 175 MW or is this a permanent loss in capacity being replaced with slightly better and efficient plants but with lower capacity of production? Advancement and progress is always a welcome step. We support KEL in its positive steps. In this particular case the timing is very critical and planning



to supplement the reduction in power generation for the masses of Karachi should be communicated. Has NEPRA made a calculation or asked KEL how this 175MW of reduction will translate into load shedding hours increase? Whose fault will this be? Will it also affect industrial areas? what is the present overall combined efficiency of the fleet and what will it be after de-commissioning? How this will affect the fuel consumption levels? What standby arrangement has been made by KEL to reduce the load shedding impact? We do know that some of the units were not producing much power to begin with and some were idle but even then the end user was suffering then as well.

- (f). GEPL commented that it would like to have a life cycle assessment report conducted by an international third party assessor such as KEMA, Germanischer Lloyds, and SGS etc. to verify KEL's statement. KEL may kindly provide the log books of the GT sets to verify what they say is correct as well as submit International Third Party Assessor Reports. In actual fact, at both the stations with the GTs, KEL never bothered to pursue the easier alternative of installing HEAT RECOVERY system and generate the additional power which would have increased the efficiency to over 55%. Rather, Gas Engines were procured at a huge additional cost which was done ONLY to increase their ownership shares as GOP's equity was overtaken by KEL. Indeed clever way to increase their holdings from 26% to 76% presently all at NO COST TO KEL owners. So, we feel that these units are being de-commissioned only to wipe out traces of later day culpability of the owners in one of the

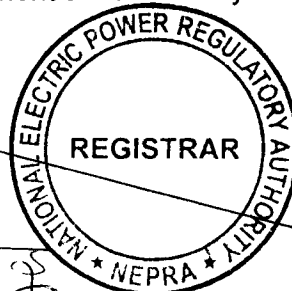


greatest scams in Pakistan's history. If we are wrong, let KEL prove otherwise and we shall be only too happy to apologize;

- (g). MoP&NR stated that in view of the rationale given by KEL regarding the aging, degradation, poor reliability and high maintenance cost of units mention under the LPM, this Ministry has no objection to the de-commissioning of these units as supplying gas to these old unit may neither be prudent nor effective. It may, however, be noted that if after de-commissioning, KEL decides to utilize the gas being supplied to de-commissioning units for any of its other plant(s) or location, they shall seek prior written approval from SSGC/MoP&NR.

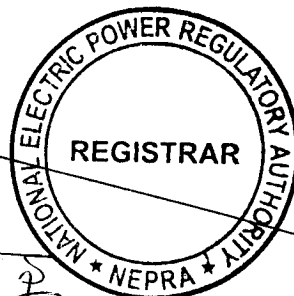
(iii). The Authority considered the above comments of the stakeholders and observed that except SECP and MoP&NR, all other stakeholders had raised their concerns against the communicated LPM. In order to proceed further, the Authority considered its appropriate seeking the prospective of KEL on the comments of all the stakeholders except SECP and MoP&NR.

(iv). KEL on the comments of Mr. Ch. Mazhar Ali, remarked that The proposed de-commissioning of units will not result in additional load shedding in the system of KEL, as the capacity proposed for de-commissioning is not the effective/dependable capacity. Moreover, the units proposed for de-commissioning are grossly inefficient, obsolete and unsafe to operate and have outlived their designed life. KEL has planned to add One Steam Turbine each at KTGTPS and SGTPS for converting its General Electric Jenbacher (GE JB) Gas Engine Plants into Combined Cycle. This will result in 10.00 MW at each KTGTPS and SGTPS. KEL in its letter No. DGM RA&SP/NEPRA/2010/25 dated February 03, 2010 clearly mentioned contrary to the claim here, that it is

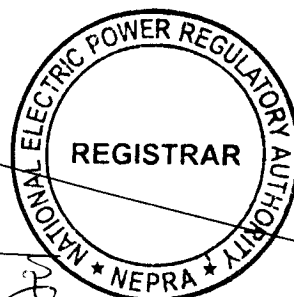


not feasible to keep these generating units operational with such low efficiency levels and after two years from that date, these units will lose their remaining viability. Further, highly efficient units in our fleet are not getting any gas and are at standby for months so there is no rationale to keep such old, inefficient and unreliable units in our generation fleet. In the past one GT each at SGTPS and KTGTPS were not de-commissioned and were kept for 'BLACK START' at the stations. Presently, KEL requires space to convert the simple cycle GE JB gas engines into combined cycle plant by installation of 32 number Heat Recovery Steam Generators (HRSGs) and a Steam Turbine along with other ancillary equipments. The benefit of increased efficiency and capacity by closing of the cycle is huge and it by far outweighs any possible usage of 35 years old inefficient and unreliable GTs.

(v). About the observations of PPIC, it was submitted that KEL has no plans to liquidate or winding up its assets which is vigorously denied. The fact is that these units are 35 years old and have outlived their useful lives and have become inefficient, obsolete, unreliable and unsafe to operate. As you are aware, KEL has invested over U.S.\$ 1.00 billion through equity and debt since 2009 and has significantly increased the generation capacity overall within the ESC fleet by induction of new and rehabilitation of plants which has resulted in increase in capacity of around 1,010 MW. This is fully covered in our annual reports for FY 2011-12 as well as FY 2012-13 which have already been provided to NEPRA in the past. Further, 09 new grid stations have been energized, 267 new feeders and over 2,074 new PMTs were energized/installed in the distribution network since 2009. KEL is also pursuing alternative fuel strategies such as the conversion of two units in BQPS - I to coal power generation, which is pending with NEPRA. These provisions are irrelevant as KEL is neither a sick unit nor is it winding up its operations under the Companies Ordinance. KEL is one of the core members of the KSE-100 stock index and its share price in the open market is ample testimony to the vigor of its management and expansion plans for the future. The comment is wrong and is categorically denied. Please note that unit No.3 of KTPS is being

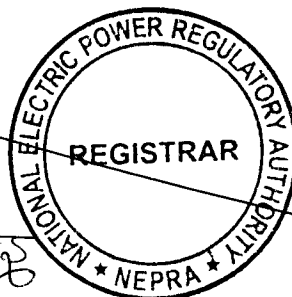


de-commissioned and there is no such plan of converting it to coal use. It is duly submitted that Unit No.3 of KTPS, having installed capacity of 125MW, was commissioned in the year 1970 and has already outlived its useful life; it is now more than 42 years old. It is not possible to operate a unit of lower designed efficiency at a higher efficiency. Please note that KEL evaluated the possibility of rehabilitation and retrofitting before applying for de-commissioning, however, all critical areas of the plant were weak and unreliable. Unit No.2 of SGTPS as stated in the query was not on standby and it was meant only for 'BLACK START' under emergency situations. This has already been covered above and the same is reiterated. On this location, KEL has now started the project of converting the simple cycle GE JB engines at SGTPS into combined cycles by installation of steam turbines of 10 MW along with ancillary equipment which will enhance the capacity as well as efficiency of the existing GE JB engines. We are happy to note the clear appreciation for KEL's actions in converting the said plant to combined cycle which will increase efficiency, but we disagree with the comment that de-commissioning of the above referred plants will contribute to any alleged depression in the country. We refer to the recent Energy Policy, 2013 issued by GOP wherein some of the crucial initiatives begun by KEL have now been officially adopted as part of the Government's agenda for improving the energy sector. In particular, please see page 6 where GOP has endorsed the economic merit order in terms of dispatch of power and has encouraged diversification of fuel mix to produce lowest cost power for the ultimate benefit of all consumers. In other words, there is a clear message that generation capacity should be varied and enhanced away from burning expensive refined furnace oil. This is also clearly endorsed by the Honorable Supreme Court of Pakistan (SCP) in its judgment dated December 10, 2013 in HRC Case No. 14392 of 2013 on page 35, para (iii) which provides:- "(iii) It is responsibility of the NEPRA and PEPCO to reduce the prices while ensuring that electricity is generated through less-costing value of production from hydel power. And as far as thermal power is concerned, preference must be given to generate electricity by using coal and gas, and unless there is no compulsion, the electricity should not be generated from



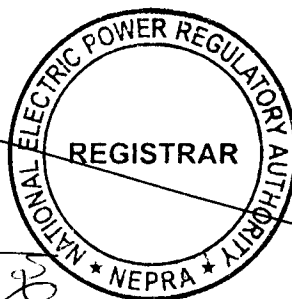
RFO as it is casting higher prices, which ultimately has to be borne by the consumers.... "(emphasis supplied) Unit No.3 of KTGTPS was commissioned in the year 1978 and has already outlived its designed life. The motive behind de-commissioning of this KTGTPS unit is to enhance capacity and efficiency through installation of 10 MW Steam Turbine to convert the existing GE JB Engine based open cycle plant to a Combined Cycle Plant. KEL has now signed an EPC contract with DESCON to convert the GE JB Engine based open cycle plant to a Combined Cycle. The new Steam Turbine cannot be installed without dismantling of the old GT as it will utilize the same space. As a Prudent Utility Operator, KEL dispatches its energy in accordance with Economic Merit Order which is clearly defined under the law. Economic Merit Order means the generation and power purchase sources are optimized so as to reduce the financial burden on the tariff paying consumers in accordance with law. It should be appreciated that Gas is the cheapest fuel source compatible with KEL power generation plants but on the contrary, SSGC has failed to optimize gas supply to KEL on one pretext or another and in year 2013, has been averaging to only 164 MMCFD which is grossly below the allocated quota of 276 MMCFD for existing plants and additional 130 MMCFD for BQPS-II. Due to this short gas supply extra furnace oil is consumed for electricity generation to handle the demand supply gap which increases the fuel cost of total generation. KEL is strongly pursuing it with GOP to implement the Natural Gas Allocation and Management Policy 2012 in letter and spirit. Even the Honorable SCP in its recent judgment dated December 10, 2013 referred above has stated in Para (v) on page 36 of the said Judgment that priority in gas supply should not be provided to captive power producers but should be given to others, which relates to domestic and energy sector consumers such as KEL.

(vi). Regarding the comments of Mr. Muhammad Arif Bilwani, KEL submitted that the subject units have not been disposed off as yet. However, KEL invited bids for disposal of the said machines as per KEL policies and procedures but did not receive the expected offer. KEL is still pursuing the

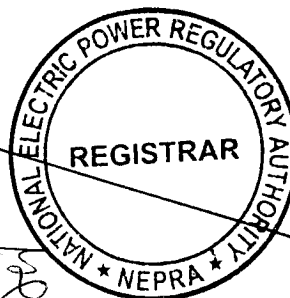


disposal of these units through fresh tenders and the same will be disposed off as and when the right price is received. The questions raised by Mr., Arif Bilwani to NEPRA during the years 2009 & 2010 at the time of de-commissioning units 1,2 & 4 were mostly related to: (a). Quantity of present gas quota of KEL; (b). Month wise consumption of gas for 18 months; (c). Gas required to run the units of KTGTPS and three units of GT at SGTPS; (d). No. of new units installed at both Korangi and SITE with their installed capacity and net capacity; (e). Gas required to run the newly installed Gas Engines at Korangi and SITE separately. Please note that above mentioned queries of Mr. Arif Bilwani were responded by NEPRA in its determination dated: August 15, 2013 (Application NO.LAG- 05) as being irrelevant in the wake of the fact that these plants were operating on low single cycle and same was also conceded by Mr. Arif Bilwani himself. Further, the response to the all above gas specific queries has been provided by KEL in our response dated December 20, 2013 and same shall be treated as integral part of this letter. The de-commissioning of these units has been applied because the units are old, obsolete, inefficient, unsafe and unreliable to operate. The company will dispose of these machines through Company's disposal policy and procedures. There was no generation on these units during last eighteen (18) months owing to the reasons that these units were inefficient, obsolete and unsafe to operate and have outlived its designed life. KEL has set procedure of Annual Performance Management and performance of all the employees is evaluated as per the laid criterion and achievements against the set targets. The employees are not laid off for the reason that the plant is being de-commissioned as redundant employees are transferred to other plants as per the requirement.

(vii). Regarding comments of SAol, KEL submitted that the capacity of these plants (175 MW) at KTPS, SGTPS & KTGTPS cannot be considered as available capacity as these are not in running condition and have already outlived their designed lives. As such, the generation from KANNUP, conversion of 420 MW of two units of BQPS -I on the coal has no relevance with the proposed de-commissioning of 175 MW. All the variations allowed in

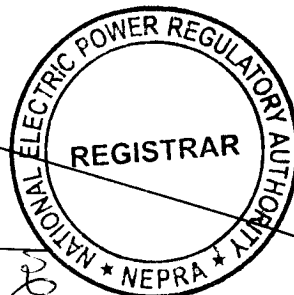


KEL Tariff are strictly in accordance with NEPRA Tariff determination NEPRA/TRF-133/KE-2009 dated December 23, 2009. Variations allowed on account of O&M are allowed through increase in CPI (with X factor adjustment) under the said Determination. KEL has increased the generation capacity by induction of around 1,010.00 MW since 2009 and there is no provision in tariff to allow O&M increase for new plants separately so there is no connection with deletion/de-commissioning of the plants. It was informed that the supply of power by NTDC to KEL is under Power Purchase Agreement (PPA) and KEL fully complies with the relevant provisions of the PPA which is a bilateral agreement between KEL and NTDC. Further, the issue of 650 MW by KEL from NTDC is sub judice before the Honorable Sindh High Court. Even otherwise, the non-decommissioning of 175.00 MW will not help in any case as these plants are not in operational condition for the reasons mentioned above. The de-commissioning of 175.00 MW is wrongly being confused with the capacity issues and we would like to clarify that KEL has to meet all firm loads at all times in capacity (MW) and energy excluding load shedding, subject to availability of plants and fuel. KEL is also responsible for the dispatch as per Economic Merit Order from its own generation units and import from external sources in order to result in the lowest variable cost to the ultimate consumers. The auxiliary consumption of the new state of the art plants in KEL system need not necessarily be lower than the old plants, because auxiliary consumption of any power station is dependent mainly upon the technology and site conditions used for generation. Combined cycle gas fired plants need compressors to boost SSGC supplied gas pressures and also big motors for pumping, condensate, steam & feed water etc. and so their auxiliary consumption is higher. Gas engine plants of KEL operate at line gas pressures and so their auxiliary consumption is much lower. The subject units have not been disposed off yet and bids were invited for disposal of the said machines as per KEL policies and procedures but did not receive the expected offer. KEL is still pursuing the disposal of these units through fresh tenders and the same will be disposed off as and when the right price is received. De-commissioning of these units has been applied because the units are old, obsolete, inefficient,



unsafe and unreliable to operate. The company will dispose of these machines through Company's disposal policy and procedures. There was no generation on these units during last eighteen months owing to the reasons that these units were inefficient, obsolete and unsafe to operate and have outlived its designed life. KEL has set procedure of Annual Performance Management and performance of all the employees is evaluated as per the laid criterion and achievements against the set targets. The employees are not laid off for the reason that the plant is being de-commissioned as redundant employees are transferred to other plants as per the requirement.

(viii). In reply to the observations of GEPL, KEL replied that there is no requirement of getting life cycle assessment report for its de-commissioned assets conducted by an international third party and nor it would serve any purpose as these two GTs have outlived their useful life by any standards and has become inefficient, old, obsolete and unsafe to operate. In addition, we may inform that the life of the Plant has already been verified by NEPRA itself in the Generation License of KEL. Further, we may inform that all the possibilities of rehabilitation and retrofitting were explored before applying for de-commissioning, however all critical areas of plant were weak and unreliable. In response to this query of GEPL, it shall be informed that the mentioned efficiency of more than 55% cannot be achieved even with a combined cycle on this old frame-V technology and please note that even the latest and most efficient combines cycle stations in Pakistan and those which are developed as combined cycle stations from the base design deliver only 52% (LHV) efficiency as claimed by original Engine Manufacturers (OEMs). We may further inform the intervener for the sake of facts that the gas available to KEL is insufficient to operate even its new generating stations having very high efficiencies ranging from 36.5% to 45.5% ; as such, keeping these highly inefficient and unreliable old units in KEL's system dependent on whatever gas available would not be good decision. We hasten to add further that GEPL's request to consider closing cycle with these 35 year old, obsolete, unreliable and inefficient GTs having defects and cracks in turbine casings, combustors and generators is



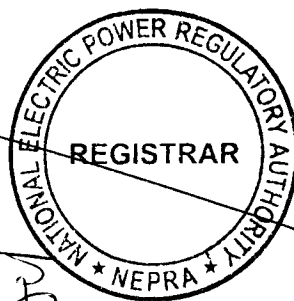
beyond any engineering and technical understandings. Even financially, investment on these obsolete and old plants is not feasible as these turbines or their spare parts can be unavailable, unreliable or out of market anytime. Furthermore, the baseless claim by GEPL regarding "procuring gas engines on a huge additional cost" is surprising, as its declared statistics that the engines have been bought on economical and reasonable cost of \$0.59m/MW. It is also informed for your kind perusal that the gas engine plants installed at SGTPS and KTGTPS have increased the efficiency of the SITE and Korangi stations from an unacceptable low of 20% to 36.5% and the resultant output has increased from 2.2MW/MMCFD to 4.2 MW/MMCFD with the gas engines.

(ix). The Authority considered the comments of the stakeholders, the rejoinders of KEL, other details of the communicated LPM and decided to hold a Public Hearing in terms of Rule 3(4) of the NEPRA Licensing (Generation) Rules, 2000 (the Rules).

(E). Public Hearing

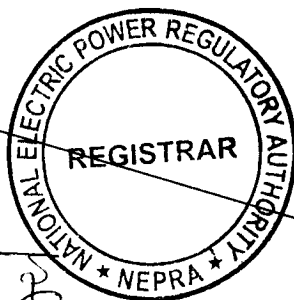
(i). In view of the above, notices were published in two different newspapers including daily Dawn and Jang on May 21 2014 conveying the date, venue and time of the proposed Public hearing. Further, Individual Experts/Government Ministries/Representative Organizations etc. were also informed about the proposed Public Hearing through separate notices sent on May 16, 2014.

(ii). The Public Hearing in the matter was held on May 29, 2014 at Marriot Hotel Karachi. The participants included representative of GEPL, Ch. Mazhar Ali, Mr. Arif Bilwani, PPIC, EDGoS, representatives of KEL and the general public. The representatives of KEL were invited to present their case about the communicated LPM relating to exclusion of different units. Mr. Amir Ghaziani Director (Finance) of KEL explained that Unit No. 3 of KTPS has outlived its designed life (now more than 40 years since commissioning). In

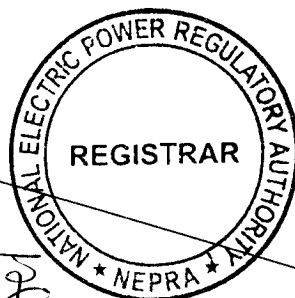


2009, unit was tested for efficiency and was reported to be 28.9%. The overall plant efficiency in 2011-12, the last year of operation of the unit, was only 26.1 percent. 20 MMCFD gas was consumed for generating 60MW and we use the same 20 MMCFD gas at Combined Cycle Plant at Korangi KCCPP to generate 120 MW. In comparison to other plants having much higher efficiency, the operation of Unit No.3 of KTPS became highly uneconomical. The Operational availability during year (2012) is significantly low primarily owing to problems associated with turbine & boiler problems. Unit No. 2 of SGTPS is about 30 year old had poor reliability and a very high maintenance and operating cost. These GT Units were operating at a very low efficiency of about 21 %. GT-2 was kept available as standby till September, 2013. KEL has now signed an EPC contract with DESCON to covert the GE JB Engine based open cycle plant to a Combined Cycle Plant by enhancing the capacity up to 10MW in total by adding a Steam Turbine and Heat Recovery Boilers. Owing to the critical space constraint, we are advised by the EPC Contractor to remove the old GTs to release a suitable place to construct the HRSGs and ST along with necessary additional Balance Plant. Unit No. 3 of KTGTPS is also more than 30 year old and had poor reliability and a very high maintenance and operating cost. The turbine had hot gas path leakages through wheel space seals resulting in high temperature. These units were operating at a very low efficiency of about 21 %. KEL has now signed an EPC contract with DESCON to covert the GE JB Engine based open cycle plant to a Combined Cycle Plant by enhancing the capacity up to 10MW in total by adding a Steam Turbine and Heat Recovery Boilers. Owing to the critical space constraint, we are advised by the EPC Contractor to remove the old GTs to release a suitable place to construct the HRSGs and ST along with necessary additional Balance Plant.

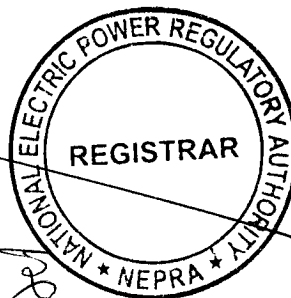
(iii). Mr. CH. Mazhar Ali, PPIC, Mr. Muhammad Arif Bilwani and the representative of GEPL (Mian Sohail Hussain) were also afforded an opportunity to express their point of view in the matter. All the said stakeholders reiterated their earlier stance in the matter as explained at Para- D.ii.(a),(b),(d) & (f) above.



(iv). The representative of EDGoS explained its point of view on the communicated LPM. He submitted that the technical reasons stated by KEL regarding issues with turbine , generators and other equipments may be verified by a third party or the authority's own technical Division due to various ambiguities: for example: It is stated that the proposed plants completed their useful life of 40 years. On the other hand these plants were reserved as BLACK START facility etc. According to various power sector reports, the 5%-7% increase per annum in energy demand is being witnessed since many years. The NEPRA authority may bind the KEL to increase the installed capacity in par with demand growth rate annually. A thermal power plant requires 2-3 years time period to be commissioned. In order to ensure the uninterrupted supply as per its mandate, the KEL may be made bound to submit its future generation's plans of at least 5 years. The KEL has already reduced its generation capacity of 420 MW few months ago, and has further requested the reduction of 175 MW i.e. 600MW in a year (almost 30% in a year). If this speed of capacity drain is maintained, then within two years there will be zero installed capacity with the power utility to fulfill its obligations of power distribution to the city of Karachi under the NEPRA Act. In January 2015, the company's agreement with NTDC for 650 MW power is expiring, and company has not yet provided the alternate sources to cover the gap to meet the demand of the Karachi. Based on the above, it is requested that the NEPRA Authority may bound the KEL to enhance the existing installed capacity, rather than endorsing the reduction in generation capacity. The EDGoS strongly opposes the modification in Generation Licence to reduce the 175 MW installed capacity and request the authority to allow only replacement of these units with state of the art technology. The representatives of KEL were directed to submit rejoinder on the observations of GoS. In its response, KEL explained that these turbines have outlived their useful life by any standards and have become inefficient, old, obsolete and unsafe to operate. All the possibilities of rehabilitation and retrofitting were explored before applying for de-commissioning, therefore as



such getting a lifecycle assessment for our de-commissioned assets conducted by an international third party would not serve any purpose as all the critical areas of plant are weak and unreliable. We further request NEPRA attention to the one of the cases of Jamshoro Power Company, where Authority itself Proposed Modification (APM), under Regulation-10 of the Regulations on the basis that the plants became old, inefficient and economically unviable. Moreover, the decision to reserve two 25 MW units each at SITE and Korangi Power Stations for BLACK START was not based upon their viability to operate continuously; they were quite old, economically unviable and technically unreliable to be operated on a continuous basis. As such, these units were expected to address the start-up requirement for a short duration of operation as a black start. This black start option will now be taken care of at KGTPS and SGTPS GE-JB engines as already conveyed through our previous correspondences. Further, in the current scenario KEL also requires space, vacated by the de-commissioning of these two 25 MW units, to convert the simple cycle GE JB gas engines into combined cycle plant by installation of Steam Turbines along with other ancillary equipments. As far as the query highlighted in Para 2 (b) is concerned, we would like to inform that KEL has invested over USD.1 billion through equity and debt since 2009 and has significantly increased the generation capacity overall within the KEL fleet by induction of new and rehabilitation of plants which has resulted in increase in capacity of around 1010 MW. This is fully covered in our annual reports for FY 2011-12 as well as 2012-13 which have already been provided in the past and also acknowledged by NEPRA under approved Generation Licence of KEL. Further, 09 new grid stations have been energized, 267 new feeders and over 2074 new PMTs were energized/installed in the distribution network since 2009. In addition to this, KEL is also pursuing alternative fuel strategies such as the conversion of two units in BQPS-I to coal power generation, which has been approved by NEPRA. Further, it is informed that KEL has already provided its future generation plans to NEPRA vide the State of Industry Report 2013 and other correspondences, whereby 27.00 CCPP Korangi Cycle Closing, 10 MW KTGTPS Cycle Closing, 10 MW SGTPS Cycle Closing and 420.00 MW

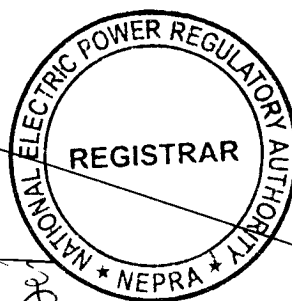


Coal conversion project. Regarding supply of the 650MW from NTDC it is inform that the supply of power by NTDC to KEL is under PPA, which is a bilateral agreement and further discussions are underway with NTDC and updates regarding any progress in the issue will be informed to the Authority/ NEPRA accordingly.

(F). Approval of LPM

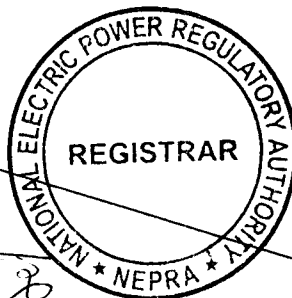
(i). In terms of Regulation-10(5) of the Regulations, the Authority is entitled to modify a licence subject to and in accordance with such further changes as the Authority may deem fit if, in the opinion of the Authority such modification (a). does not adversely affect the performance by the licensee of its obligations; (b). does not cause the Authority to act or acquiesce in any act or omission of the licensee in a manner contrary to the provisions of the NEPRA Act or the rules or regulations made pursuant to it; (c). is or is likely to be beneficial to the consumers; (d). is reasonably necessary for the licensee to effectively and efficiently perform its obligations under the licence; and (e). is reasonably necessary to ensure the continuous, safe and reliable supply of electric power to the consumers keeping in view the financial and technical viability of the licensee.

(ii). As explained at Para-B above, the communicated LPM envisages retiring/de-commissioning of (a). Unit No. 3 of KTPS; (b). Unit No. 3 of KTGTPS; and (c). Unit No. 2 of SGTPS. The Authority has examined the issue and has observed that Unit No, 3 of KTPS was commissioned in 1970 and has already completed its designed and useful life as given in the Generation Licence of KEL. The Authority has also reviewed the operation data of this Unit which revealed that its performance has declined significantly. Further, being conventional Steam Unit, the Authority does not consider its operation on Natural Gas rational as this is not the optimum use of this scarce resource. Previously, the Authority allowed the retiring/de-commissioning of a similar



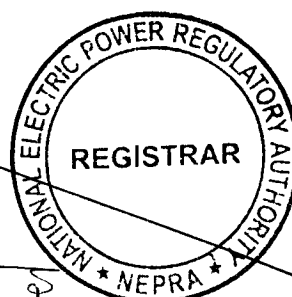
unit of KTPS (Unit No. 4). Similarly, the GT Units at KTGTPS and SGTPS have also completed their useful life and were retained for standby/Black Start purpose only, meaning thereby that these units are not contributing to the normal operation. The de-commissioning of these units for installing HRSG and Steam Turbine will be a rational decision as this will increase the efficiency of Gas Engine based Power Plant at Korangi and SITE. It is relevant to mention that the Authority previously allowed exclusion of seven (07) similar GT Units of KTGTPS and SGTPS as these units had completed their useful lives and their operation on Open Cycle was not considered prudent using Natural Gas. The installation of 1 x 27.50 MW Steam Turbine to complete the conversion of the CCPP on GT No. 3 & 4 of CCPP Korangi, is in line with directions of the Authority communicated earlier, which KEL is now complying with by installing the same through this LPM. The proposed addition of the Steam Turbine will make the operation of the CCPP more efficient as 27.50MW additional electricity will be available to the system without any fuel cost. In order to satisfy itself that KEL will have some Black Start capacity if the GT units at KTGTPS and SGTPS are allowed to be de-commissioned, the Authority directed KEL for submitting a detail on the issue. In response, KEL clarified that CCPP Korangi has four (04) LM 6000. An agreement has been signed with GE according to which two (02) of the GTs will be modified to operate in Island mode in a black out situation. The said GTs in island mode operation will be able to energize the system. KEL clarified that apart from the said arrangement, there are two Independent Power Producers namely Tapal Energy (Pvt.) Limited (TEPL) and Gul Ahmed Energy Limited (GAEL). The former has twelve (12) HFO fired Engines each of 10.50 MW. Whereas, GAEL has nine (09) HFO fired engines each of 14.00 MW. Both TEPL and GAEL will be able to energize the system of KEL in case there is a BLACK START situation.

(iii). The Authority considered the above submissions and was satisfied that being old units and duly completed their useful lives, the retiring/de-commissioning of (a). Unit No. 3 of KTPS; (b). Unit No. 3 of



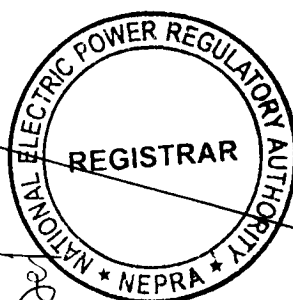
KTGTPS; and (c). Unit No. 2 of SGTPS is justified. However, the Authority considered it appropriate directing KEL for submitting a plan to replenish the lost capacity through de-commissioning. In compliance with the above directions of the Authority, KEL submitted a replenishing plan according to which a total of 47.50 MW will be added which will include (a). 1 x 27.5 MW Steam Turbine at 220 MW CCPP Korangi; (b). 1 x 10. MW Steam Turbine at KTGTPS; (c). 1 x 10. MW Steam Turbine at SGTPS. According to the submitted information, 1 x 27.50 MW Steam Turbine will be installed by the 1st quarter of 2015. The 1 x 10.00 MW Steam Turbine at KTGTPS will be put into operation by June 2015 whereas, the 1 x 10.00 MW Steam Turbine at SGTPS will be operational by August 2015. The Authority has observed that Unit No. 3 of KTPS, Unit No. 3 of KTGTPS and Unit No. 2 of SGTPS had not been contributing any energy in the system of KEL for the past many months due to the reasons explained above. Only Unit No. 3 of KTPS with an Installed Capacity of 125.00 MW used to contribute between 50.00 MW-60.00 MW. Whereas, now KEL will be able to generate around 50.00 MW (to be exact 47.50 MW) to its system and that too with no fuel cost at all. In addition to the said, The Authority encourages KEL to explore further options to enhance its Generation Capacity to meet with the future needs/requirements of its consumers.

(iv). In view of the above, the Authority is satisfied that the communicated LPM is reasonably necessary for KEL/the licensee to effectively and efficiently perform its obligations under its Generation Licence. The communicated LPM will not have any adverse affect on the performance of KEL in fulfilling its obligations under the existing Generation Licence. Further, the communicated LPM will be beneficial to the consumers as the same will provide low cost energy to them. The communicated LPM will ensure the continuous, safe and reliable supply of electric power to the consumers as new equipment and machinery will be installed.



(v). About the "Impact of Tariff" on the communicated LPM, it is clarified that the Authority determined an MYT for KEL dated September 10, 2002. The said MYT was applicable for a period of seven (07) years from the date of its Privatization. However, the period for MYT was extended upto June 30, 2016 alongwith modification in the fuel price adjustment mechanism and increase of Ps. 15/kwh through determination of the Authority dated December 23, 2009 without changing the main essence of MYT. The Authority in its determination dated September 10, 2002, did not determine separate tariff for each unit/generating facility of KEL. The said MYT is an incentive based tariff whereby, KEL is allowed to retain efficiency gain through further investment in Generation, Transmission and Distribution segments of the supply chain management of its electric power system by cutting cost and improving efficiency. Regarding, the Impact of Tariff due to current retiring/de-commissioning of the above mentioned units, it is clarified that the Authority has not determined separate tariff for each unit/generating facility. Therefore, the Authority determines that considering any reduction in MYT on account of retiring/de-commissioning will not be in accordance with the spirit of MYT as KEL has not been allowed any incentive in MYT on account of its new Investment in past in the case of (a). 220 MW CCPP Korangi and (b). 572.67 MW BQPS-II. The Authority is satisfied that KEL is adding almost equivalent amount of generation to what is being retired/De-Commissioned. In view of the said, the Authority is convinced that the communicated LPM will not have any impact on Tariff.

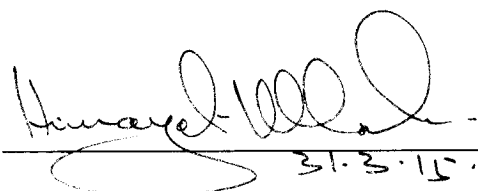
(vi). The Authority is convinced that KEL/Licensee has complied with all the requirements of the Regulations pertaining to the modification. Accordingly, the Authority in terms of Regulation 10(11)(a) of the Regulations approves the communicated LPM without any changes. Accordingly, the already granted Generation Licence (No. GL/04/2002, dated November 18, 2002 and different Modifications made subsequently from time to time) in the name of KEL is hereby modified.



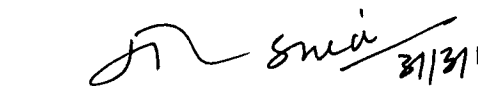
(vii). The changes in "Schedule-I" and "Schedule-II" of the Generation Licence are attached as annexure to this determination. The grant of the LPM will be subject to the provisions contained in the NEPRA Act, relevant rules framed there under, terms and conditions of the Generation Licence and other applicable documents.

Authority

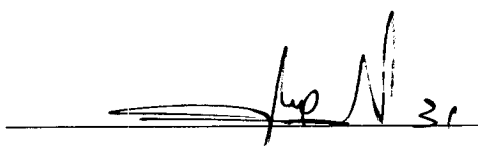
Himayat Ullah Khan
Member


31.3.15

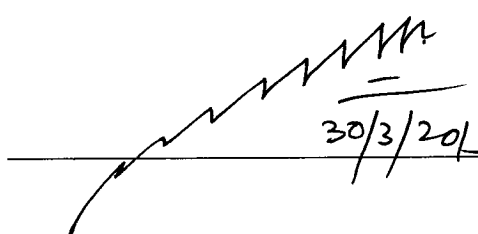
Maj. (R) Haroon Rashid
Member


31/3/15

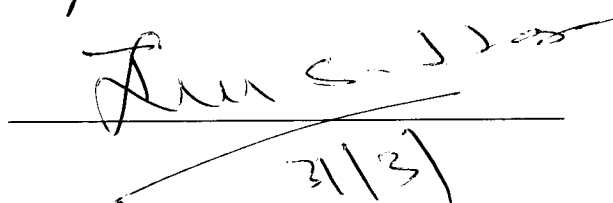
Khawaja Muhammad Naeem
Member


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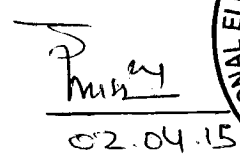
Habibullah Khilji
Member/Vice Chairman

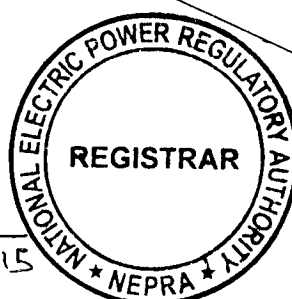

30/3/2015

Brig. (R) Tariq Saddozai
Chairman


31/3/15




02.04.15



**National Electric Power Regulatory Authority
(NEPRA)
Islamabad – Pakistan**

GENERATION LICENCE

No. GL/04/2002

In exercise of the Powers conferred upon the National Electric Power Regulatory Authority (NEPRA) under Section-26 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, the Authority hereby modifies the Generation Licence granted to **K-Electric Limited-KEL** (issued on November 18, 2002 amended from time to time and expiring on November 17, 2027) to the extent of changes mentioned as here under: -

- (a). **Changes in Schedule-I** attached as **Revised/Modified Schedule-I**; and
- (b). **Changes in Schedule-II** attached as **Revised/Modified Schedule-II**.

This **Modification-VI** is given under my hand this 02nd of **April**
Two Thousand & Fifteen

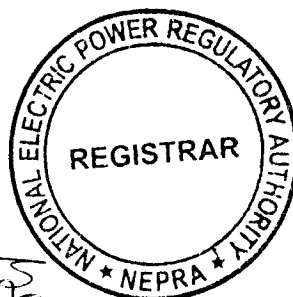


Registrar



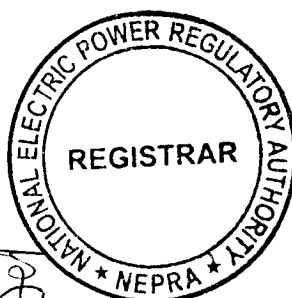
SCHEDULE-I
(Revised/Modified)
Modification-VI

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



Location of All Plants of KEL

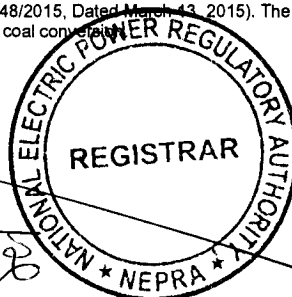


Detail of Generation Facility/ Power Plant-I

(A). Plant Configuration

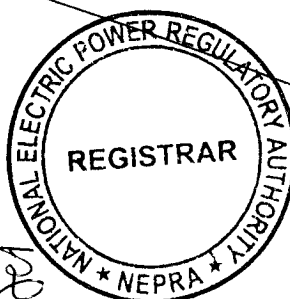
(i).	Plant Size Installed Capacity (Gross ISO)	840.00 MW [†]			
(ii).	Type of Technology	Conventional Thermal Power Generation Plant with Sub-Critical Boilers and Steam Turbines			
(iii).	Number of Units/Size (MW)	4 x 210 MW Steam Turbine			
(iv).	Unit Make & Model	Unit No. - 1	Unit No. - 2	Unit No. - 5	Unit No. - 6
		Hitachi	Hitachi	Hitachi	Hitachi
(v).	Commissioning /Commercial Operation date (of each Unit)	Unit No. - 1	Unit No. - 2	Unit No. - 5	Unit No. - 6
		1983	1984	1991	1997
(vi).	Expected Useful Life of the of each Unit of the Generation Facility/Power Plant from Commercial Operation/ Commissioning Date	Unit No. - 1	Unit No. - 2	Unit No. - 5	Unit No. - 6
		32 Years	32 Years	32 Years	32 Years

[†] Unit No. 3 & 4 of Power Plant-I have been leased out to K-Energy (Pvt.) Limited (KEPL) for converting the same for operation on Imported/Indigenous Coal. The said units are now included in the Generation Licence (No. IGSPL/48/2015, Dated March 13, 2015). The term of the lease agreement is initially fixed for twenty (20) years from the Commercial Operate Date (COD) of said Units after coal conversion.

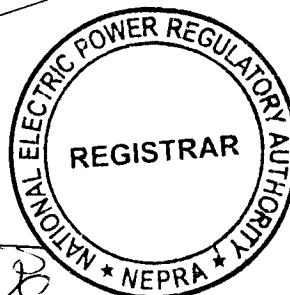


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(vii).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of Grant of Original Generation Licence (No. GL/04/2002, dated November 18, 2002)	Unit No. - 1	Unit No. - 2	Unit No. - 5	Unit No. - 6
		13 Years	14 Years	21 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. - 5	Unit No. - 6
		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. - 5	Unit No. - 6
		As Above. No Change	As Above. No Change	As Above. No Change	As Above. No Change



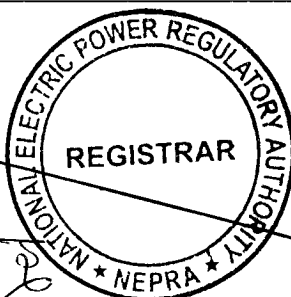
(x).	Expected Useful Life of Each Unit of the Generation Facility/Power Plant at the time of issuance of Modification-III (dated May 13, 2009)	Unit No. - 1	Unit No. - 2	Unit No. - 5	Unit No. - 6
		Total 35 Years from Original COD of the Plant/ Balance Useful Life is 16 Years	Total 35 Years/ Balance Useful Life is 17 Years	Total 35 Years/ Balance Useful Life is 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. - 5	Unit No. - 6
		05 Years	06 Years	13 Years	19 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. - 5	Unit No. - 6
		03 Years & 5 Months	04 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. - 5	Unit No. - 6
		03 Years & 4 Months	04 Years & 4 Months	11 Years & 4 Months	17 Years & 4 Months

(B). FuelDetails

(i).	Primary Fuel	Unit No. - 1	Unit No. - 2	Unit No. - 5	Unit No. - 6
		Natural Gas	Natural Gas	Natural Gas	Natural Gas
(ii).	Alternative Fuel	Unit No. - 1	Unit No. - 2	Unit No. - 5	Unit No. - 6
		Residual Furnace Oil/RFO	RFO	RFO	RFO
(iii).	Start-Up Fuel	Unit No. - 1	Unit No. - 2	Unit No. - 5	Unit No. - 6
		Light Diesel Oil/LDO	LDO	LDO	LDO
(iv).	Fuel Source for each of the above (i.e. Imported/ Indigenous)	Imported/Indigenous			

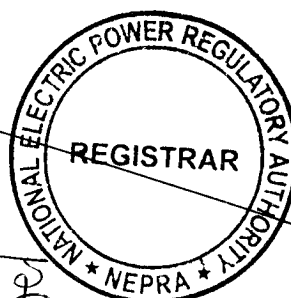


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(v).	Fuel Supplier for each of the above	Natural Gas	SSGC	
		RFO	PSO/BYCO	
		LDO	PSO	
(vi).	Supply Arrangement for each of the above	Natural Gas	Through Pipeline	
		RFO	PSO	BYCO
			Pipeline	Tankers
		LDO	Tankers	
(vii).	No of Storage Tanks	Eight (Tank # 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	

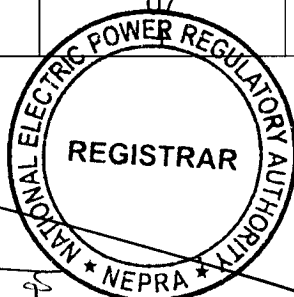


(D). Cooling System

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

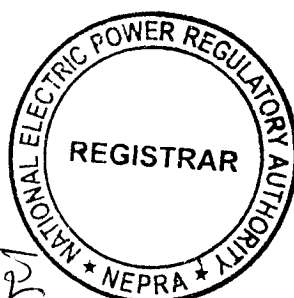
		Unit No. - 1	Unit No. - 2	Unit No. - 5	Unit No. - 6
(i).	Generation Voltage	21 KV	21 KV	18 KV	18 KV
(ii).	Frequency	50 Hz	50 Hz	50 Hz	50 Hz
(iii).	Power Factor	0.85	0.85	0.85	0.85
(iv).	Automatic Generation Control (AGC) (MW control is the general practice)	MW/Hz	MW/Hz	MW/Hz	MW/Hz
(v).	<u>Ramping Rate</u>				
	(a).	Light mode	1 %	1 %	1 %
	(b).	Medium mode	3 %	3 %	3 %
	(c).	Heavy mode	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	22 + 2	22 + 2
	Cold Start Mode	07 +	07 +	07 +	07 +



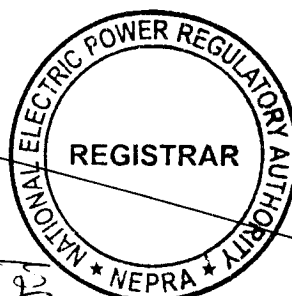
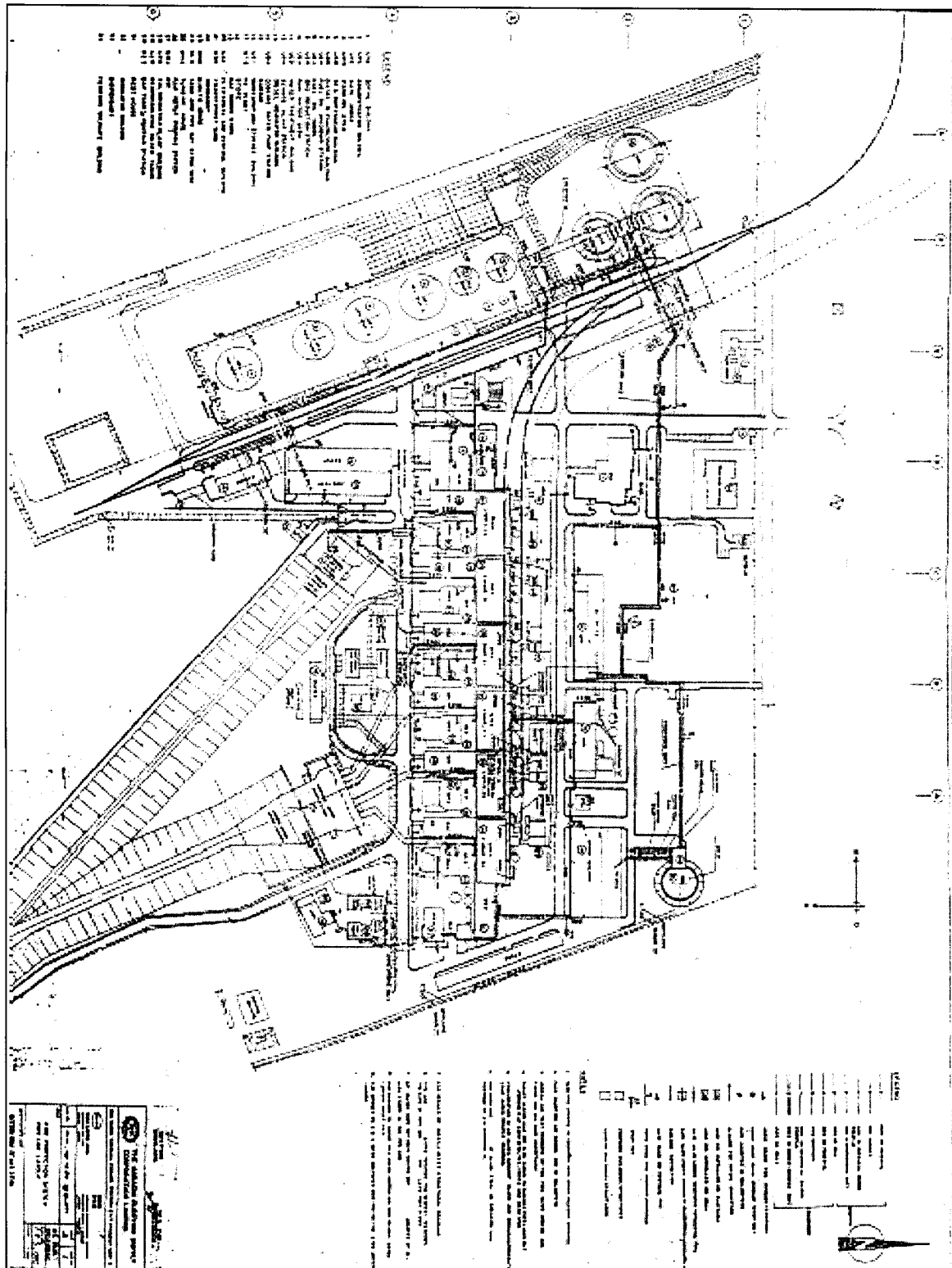
		2	2	2	2
	Warm Start mode	03 + 1.5	03 + 1.5	03 + 1.5	03 + 1.5
	Hot Start Mode	2.25 + 0.5	2.25 + 0.5	2.25 + 0.5	2.25 + 0.5
	Very Hot Mode	0.25 + 0.5	0.25 + 0.5	0.25 + 0.5	0.25 + 0.5

(F). Interconnection Arrangement

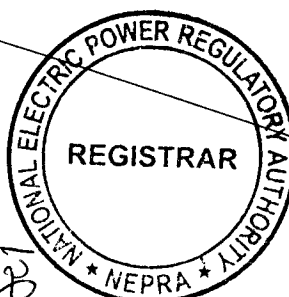
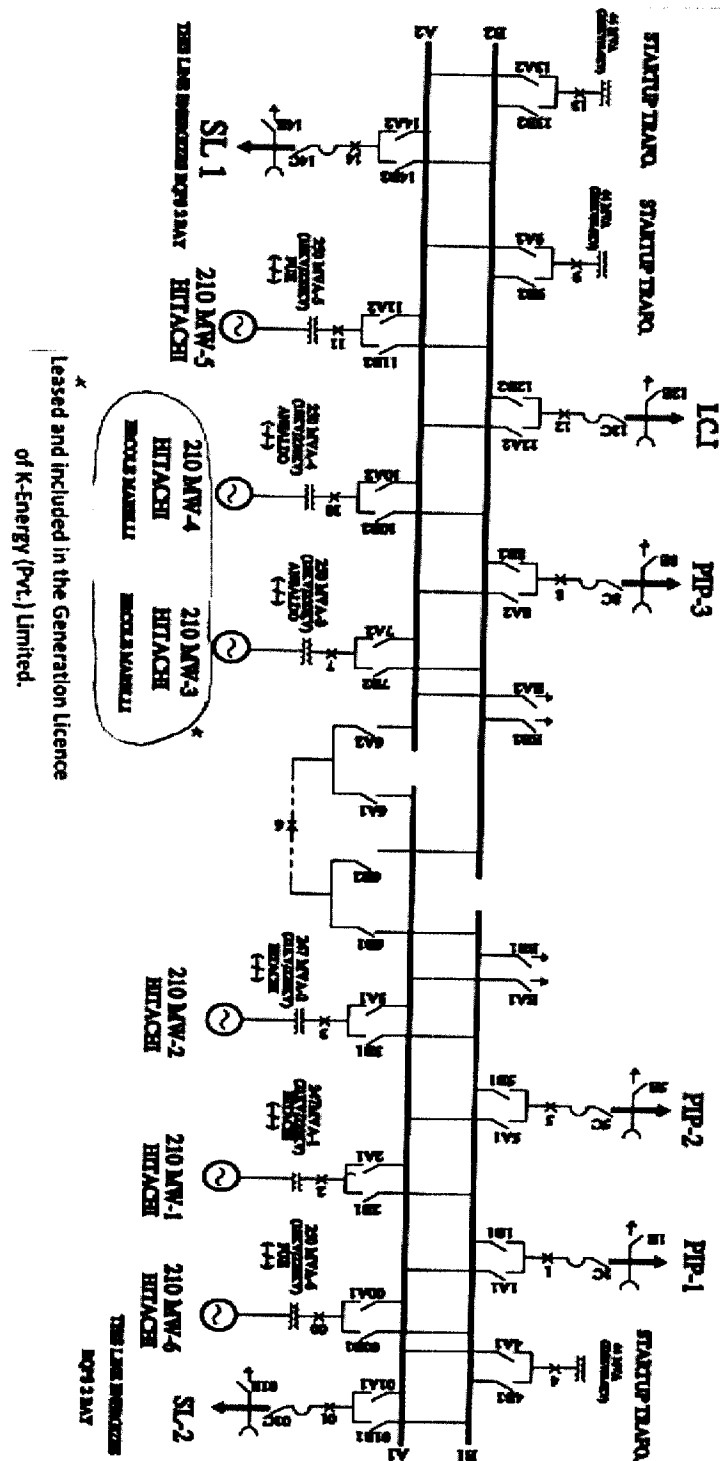
(i).	Interconnection & Transmission Arrangement for Power Plant-I	<p>(a). 220KV D/C Pipri West Circuit No. 1</p> <p>(b). 220KV D/C Pipri West Circuit No. 2</p> <p>(c). 220KV D/C Pipri West Circuit # 3</p> <p>(d). 220KV D/C ICI Circuit</p> <p>(e). 220KVD/C Short Line/SL-1 (interconnection with Bin Qasim-2/Plant-V)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



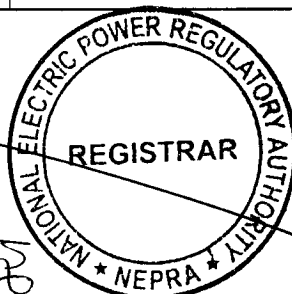
Single Line Diagram (Electrical) of Power Plant-I



Detail of
Generation Facility/
Power Plant-II

(A). Plant Configuration

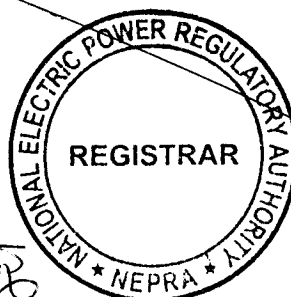
(i).	Plant Size Installed Capacity (Gross ISO)	247.500 MW		
(ii).	Type of Technology	Combined Cycle Power Plant (CCPP) with Gas turbines and Steam Turbines		
(iii).	Number of Units/Size (MW)	Gas Turbine - G.T.	4 x 48.375 MW (Unit- 1~4)	
		Steam Turbine - S.T.	1 x 26.50 MW + 1 x 27.50 MW (Unit- 5~6)	
(iv).	Unit Make & Model	G.T.	LM6000PC NDW SPRINT-General Electric G.E.	
		S.T.	G.E. Thermodyne	
(v).	Commissioning and Commercial Operation 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 - 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



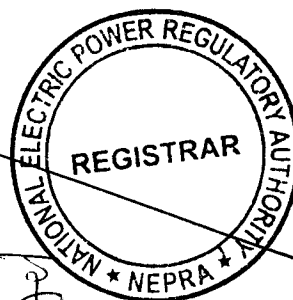
		Unit No. - 6	As C.O.D.			‡April 30, 2015	
(vi).	Expected Useful Life of the of each Unit of the Generation Facility/Power Plant from Commercial Operation/ Commissioning Date/COD	Unit No. - 1	Unit No. - 2	Unit No. - 3	Unit No. - 4	Unit No. - 5	Unit No. - 6
		30 Years from COD	30 Years from COD	30 Years 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 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					
(viii).	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 From COD	30 Years From COD	30 Years From COD	30 Years from COD	30 Years From COD	Not Included

‡ Anticipated

§Unit No. 1-5 of Power Plant-II were included in this Modification



(ix).	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
(x).	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	2 Years & 05 Months	24 Years & 05 Months	24 Years & 05 Months	24 Years & 05 Months	Not Included
(xii).	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	Included

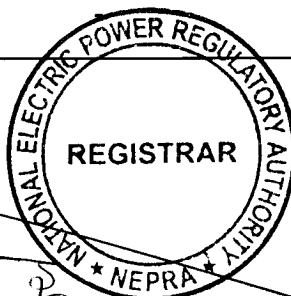


(B). Fuel Details

(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/Nm ³	As Per NEQS
(ii).	NO _x	Max 400 mg/Nm ³	-Do-
(iii).	CO	Max 800 mg/Nm ³	-Do-
(iv).	PM10		-Do-



(D). Cooling System

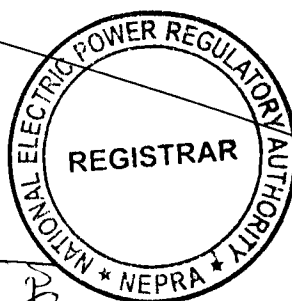
(i).	Cooling Water Source/Cycle	Sea Water/Demineralized water /Open/Closed Cycle
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(E). Plant Characteristics

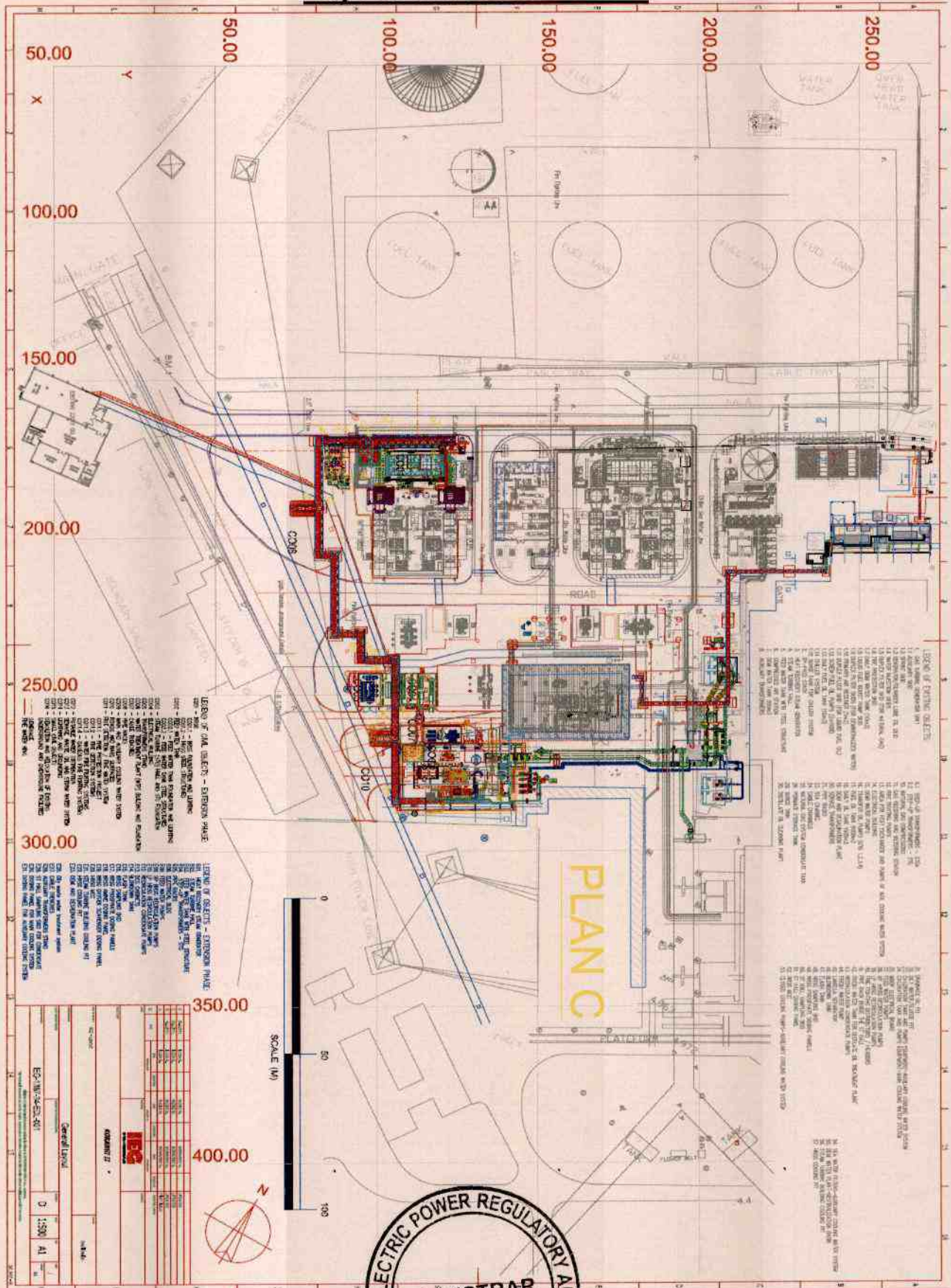
		All G.T. & S.T.-1	S.T.-2
(i).	Generation Voltage	11.5KV for G.T.& 11 KV for S.T.	11KV±10%
(ii).	Frequency	50 HZ	50±3% Hz
(iii).	Power Factor	0.8 (lag)	0.8
(iv).	Automatic Generation Control	Yes	-
(v).	Ramping Rate	5 MW/Minute	400 KW/min when S.T. is Cold 1000 kW/min when S.T. is Hot
(vi).	Time required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

(F). Interconnection Arrangement

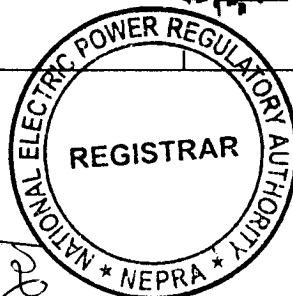
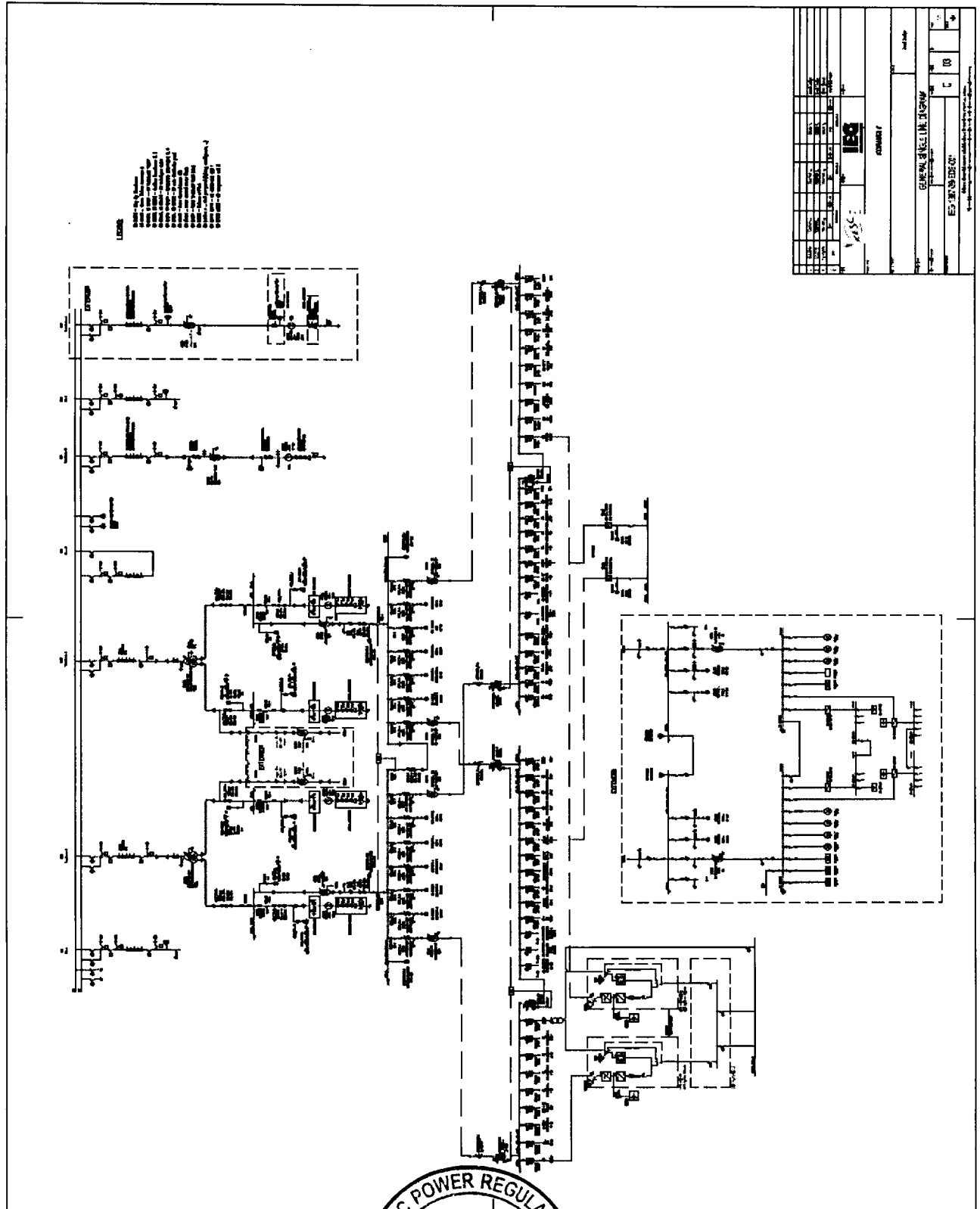
(i).	Interconnection & Transmission Arrangement for Power Plant-II	(a). 220 D/C Korangi Creek Road Circuit No. 1; and (b). 220 D/C Korangi Creek Road Circuit No. 2.
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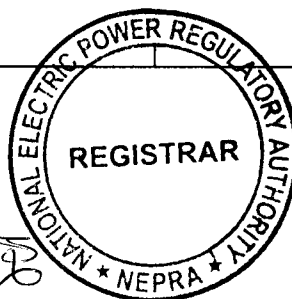
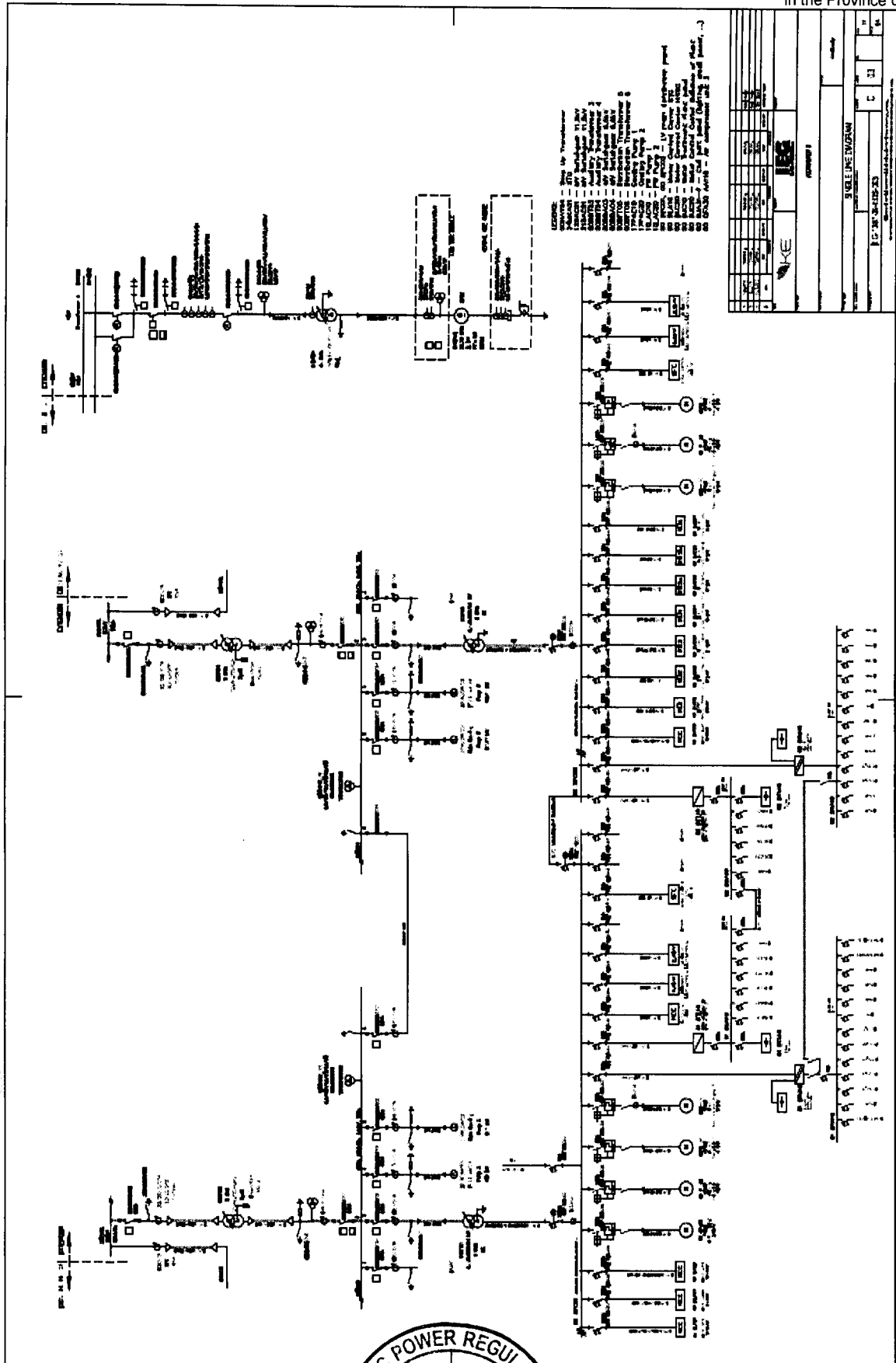


Layout of Power Plant -II



Single Line Diagram (Electrical) of Power Plant-II



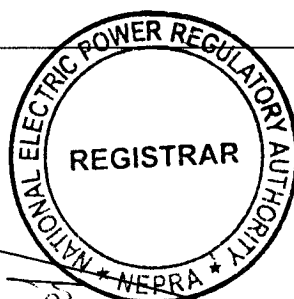


Detail of
Generation Facility/
Power Plant-III

(A). Plant Configuration

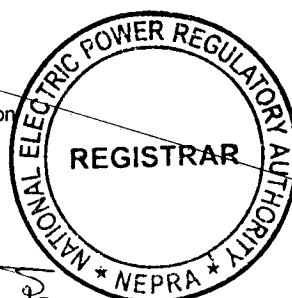
(i).	Plant Size Installed Capacity (Gross ISO)	107.312MW				
(ii).	Type of Technology	CCPP with Gas Engines & Steam Turbine				
(iii).	Number of Units/Size(MW)	Gas Engine		Steam Turbine		
		32 x 3.041 MW (Unit No. 1-32)		1 x 10.00 MW (Unit No. 33)		
(iv).	Unit Make & Model	Gas Engine		Steam Turbine		
		G.E. Jenbacher JGS 620 GS-NL		NG Allen Steam Turbine UK- MC 800		
(v).	Commissioning and Commercial Operation 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
(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				

** Anticipated



(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
		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	Included

^{††}Unit No. 1-32 of Power Plant-III were included in this Modification



(B). Fuel Details

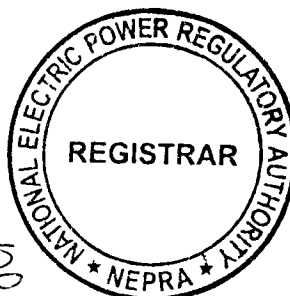
(i).	Primary Fuel	Natural Gas
(ii).	Alternate/Back-up Fuel	None
(iii).	Fuel Source (Imported/Indigenous)	Indigenous
(iv).	Fuel Supplier	Sui Southern Gas Company (SSGC)
(v).	Supply Arrangement	Gas through pipeline

(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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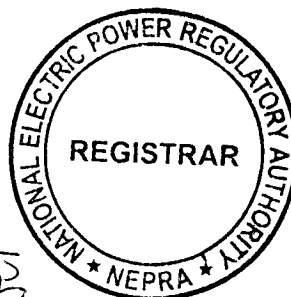


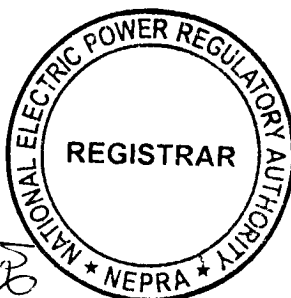
(E). Plant Characteristics

		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

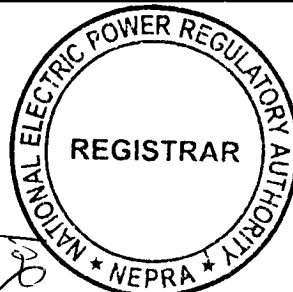
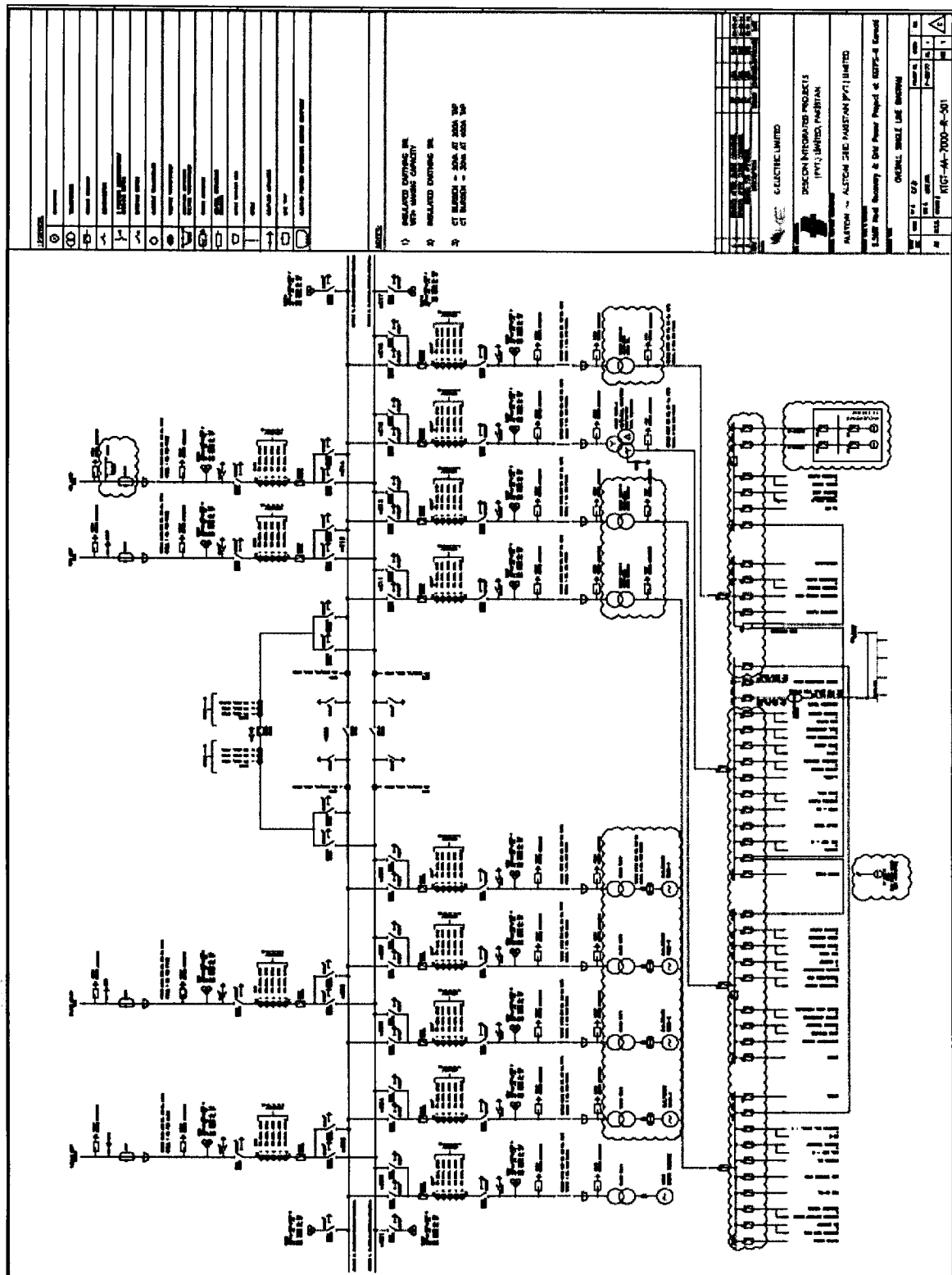
(F). Interconnection Arrangement

(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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Single Line Diagram (Electrical) of Power Plant-III

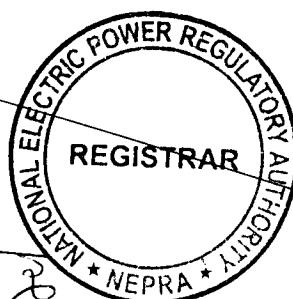


Detail
of Generation Facility/
Power Plant-IV

(A). Plant Configuration

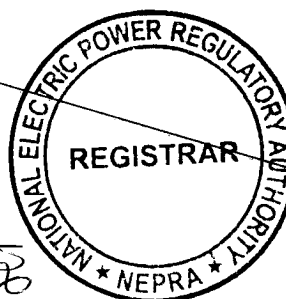
(i).	Plant Size Installed Capacity (Gross ISO)	107.312 MW				
(ii).	Type of Technology	Combined Cycle with Gas Engines & Steam Turbine				
(iii).	Number of Units/Size(MW)	Gas Engine		Steam Turbine		
		32 x 3.041 MW (Unit No. 1-32)		1 x 10.00 MW (Unit No. 33)		
(iv).	Unit Make & Model	Gas Engine		Steam Turbine		
		G.E. Jenbacher JGS 620 GS-NL		NG Allen Steam Turbine UK- MC 800		
(v).	Commissioning and Commercial Operation 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
(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				

^{##} Anticipated



(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 ^{ss} 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
		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	Included

^{ss}Unit No. 1-32 of Power Plant-IV were included in this Modification



(B). Fuel Details

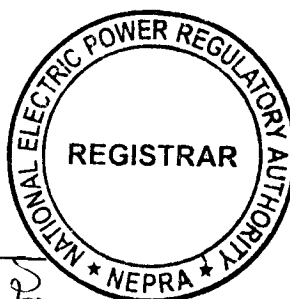
(i).	Primary Fuel	Natural Gas
(ii).	Alternate/Back-up Fuel	None
(iii).	Fuel Source (Imported/Indigenous)	Indigenous
(iv).	Fuel Supplier	Sui Southern Gas Company (SSGC)
(v).	Supply Arrangement	Gas through pipeline

(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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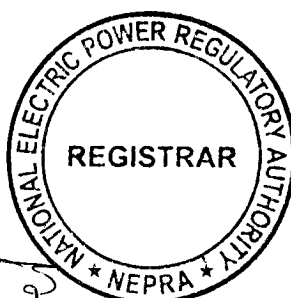


(E). Plant Characteristics

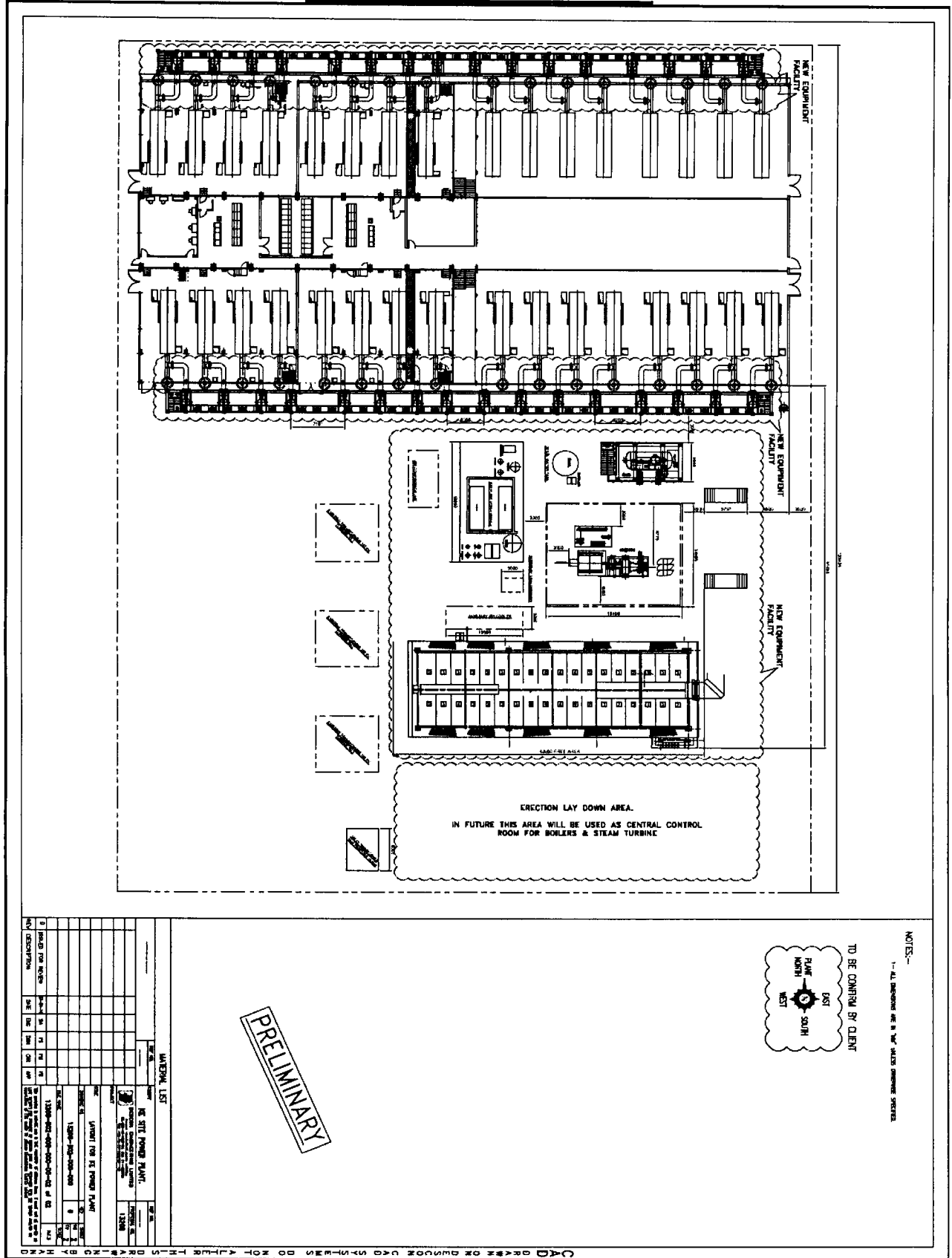
		Gas Engine	Steam Turbine
(i).	Generation Voltage	11.0 KV	11 KV (+-5%)
(ii).	Frequency	50 HZ	50 HZ (+3%/-4%)
(iii).	Power Factor	0.8 ~ 1.0 (lagging)	0.8 lag cos. Phi, 0.9 lead
(iv).	Automatic Generation Control	Yes	N/A
(v).	Ramping Rate	16 KW/Second	0.8 MW/m
(vi).	Time required to Synchronize to Grid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

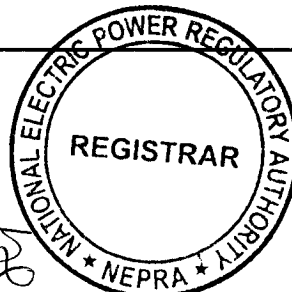
(F). Interconnection Arrangement

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

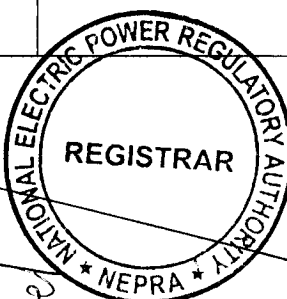




Detail
of Generation Facility/
Power Plant-V

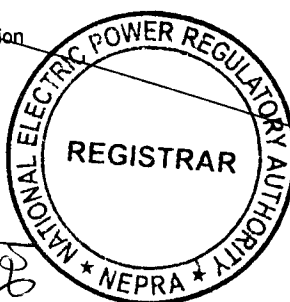
(A). Plant Configuration

(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 and Commercial Operation 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 Commercial Operation/ 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
(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. -	Unit No. -	Unit No. -	Unit No. -
		1	2	3	4
(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. -	Unit No. -	Unit No. -	Unit No. -
		1	2	3	4
(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. -	Unit No. -	Unit No. -	Unit No. -
		1	2	3	4
(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)	29 Years	29 Years	29 Years	29 Years
		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. -	Unit No. -	Unit No. -	Unit No. -
		1	2	3	4
(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)	27 Years & 04 Months	27 Years & 04 Months	27 Years & 04 Months	27 Years & 04 Months
		27 Years & 04 Months	27 Years & 04 Months	27 Years & 04 Months	27 Years & 04 Months

*** Unit No. 1-4 of Power Plant-V were included in this Modification



(B). Fuel Details

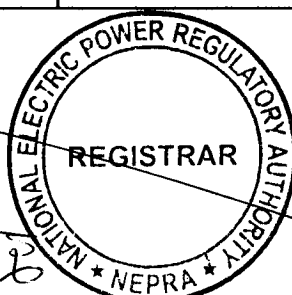
(i).	Primary Fuel	Natural Gas (NG)	
(ii).	Alternate/Back-up Fuel	High Speed Diesel Oil (HSDO)	
(iii).	Fuel Source (Imported/Indigenous)	Indigenous	
(iv).	Fuel Supplier	Primary Fuel	Alternate/Back-up Fuel
		SSGC	PSO
(v).	Supply Arrangement	Primary Fuel	Alternate/Back-up Fuel
		Pipe line	Pipe line
(vi).	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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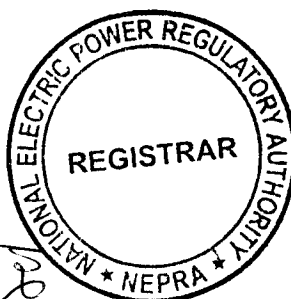


(E). Plant Characteristics

(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
		18 minutes
		Steam Turbine
		20 minutes approximately (hot start)

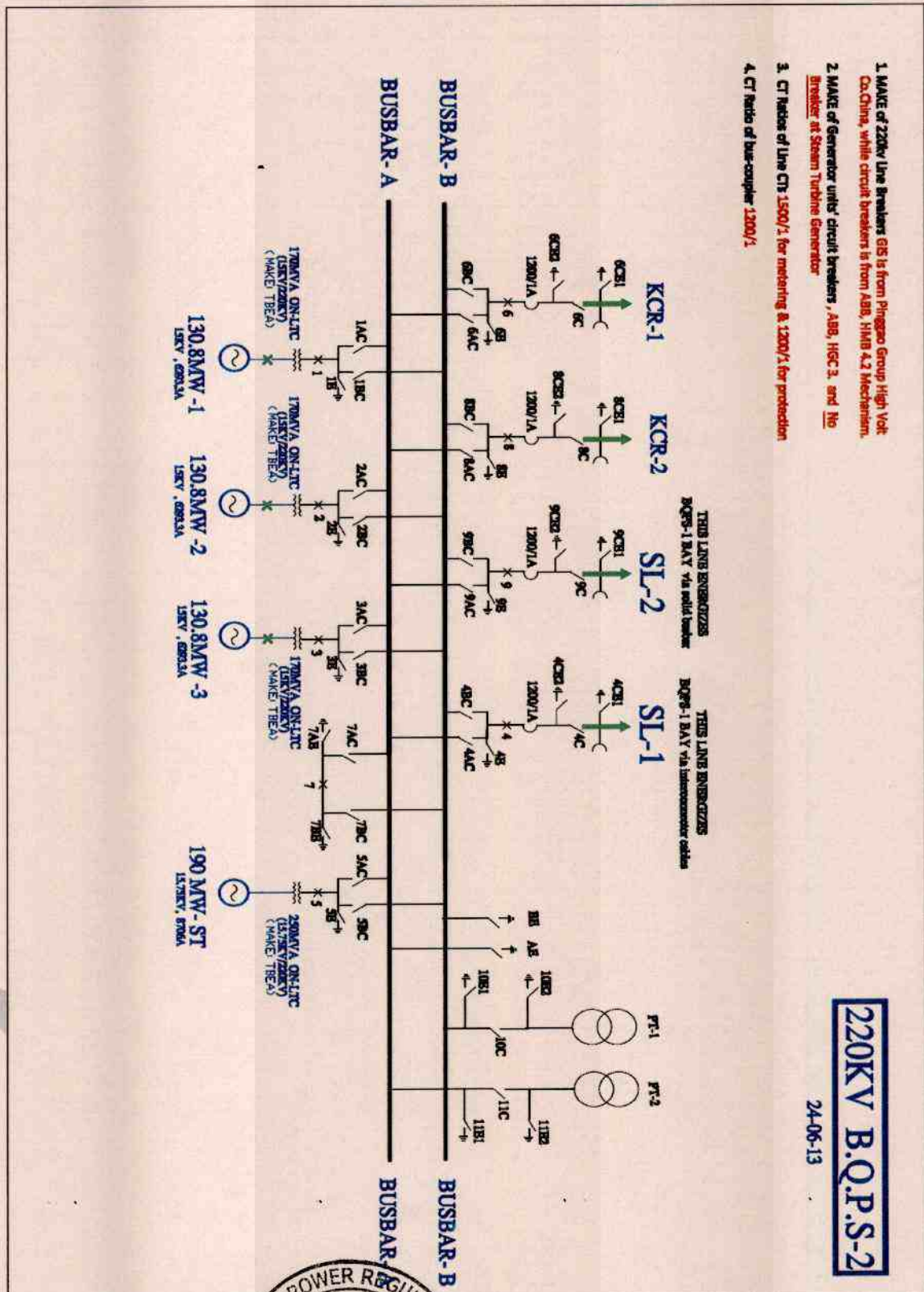
(F). Interconnection Arrangement

(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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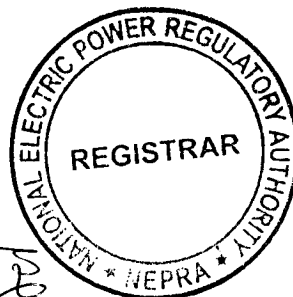


Single Line Diagram (Electrical) of Power Plant-V



SCHEDULE-II
(Revised/Modified)
Modification-VI

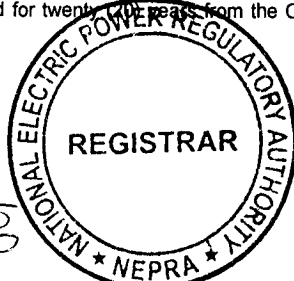
The Installed/ISO Capacity (MW), De-Rated Capacity At Mean Site Conditions (MW), Auxiliary Consumption (MW) and the Net Capacity At Mean Site Conditions (MW) of the Generation Facilities of Licensee is given in this Schedule



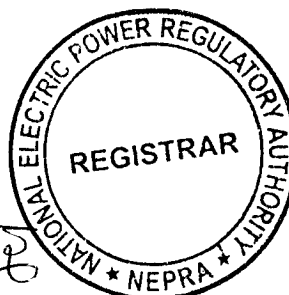
SCHEDULE-II

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) ¹	Unit No. -1	210.00	200.00	184.60
	Unit No. -2	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>840.00</u>	<u>800.00</u>	<u>738.40</u>

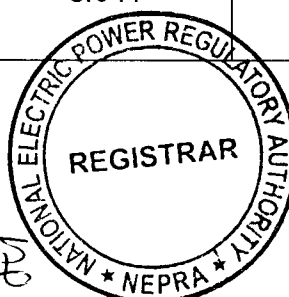
¹ Unit No. 3 & 4 of Plant-I have been leased out to K-Energy (Pvt.) Limited (KEPL) for converting the same for operation on Imported/Indigenous Coal. The said units are now included in the Generation Licence (No. IGSP/L/48/2015, Dated March 13, 2015). The term of the lease agreement is initially fixed for twenty (20) years from the Commercial Operate Date (COD) of said Units after coal conversion.



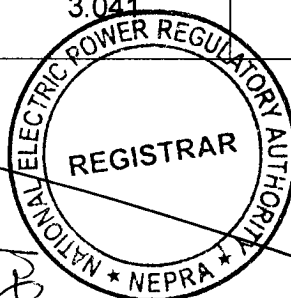
Generation Facility/ Power Plant	Unit Detail	Installed Capacity (MW)	De-Rated Capacity (MW)	Net Capacity after Auxiliary Consumption (MW)
KORANGI COMBINED CYCLE POWER PLANT-CCPP (PLANT-II)	Unit No. -1	48.375	46.925	43.925
	Unit No. -2	48.375	46.925	43.925
	Unit No. -3	48.375	46.925	43.925
	Unit No. -4	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>



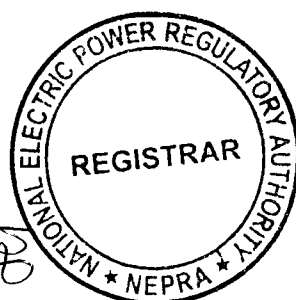
Generation Facility/ Power Plant	Unit Detail	Installed Capacity (MW)	De-Rated Capacity (MW)	Net Capacity after Auxilliary Consumption (MW)
GAS ENGINE POWER PLANT AT KORANGI TOWN (PLANT-III)	Unit No. - 1	3.041	2.739	2.644
	Unit No. - 2	3.041	2.739	2.644
	Unit No. - 3	3.041	2.739	2.644
	Unit No. - 4	3.041	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



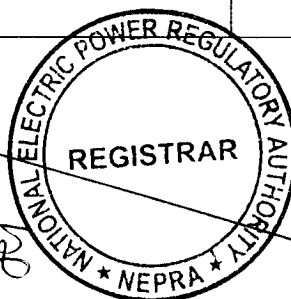
Unit No. - 13	3.041	2.739	2.644
Unit No. - 14	3.041	2.739	2.644
Unit No. - 15	3.041	2.739	2.644
Unit No. - 16	3.041	2.739	2.644
Unit No. - 17	3.041	2.739	2.644
Unit No. - 18	3.041	2.739	2.644
Unit No. - 19	3.041	2.739	2.644
Unit No. - 20	3.041	2.739	2.644
Unit No. - 21	3.041	2.739	2.644
Unit No. - 22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



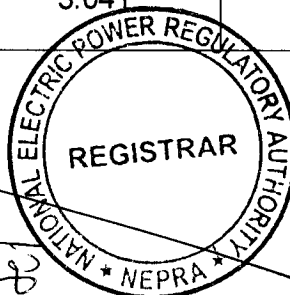
25			
Unit No. - 26	3.041	2.739	2.644
Unit No. - 27	3.041	2.739	2.644
Unit No. - 28	3.041	2.739	2.644
Unit No. - 29	3.041	2.739	2.644
Unit No. - 30	3.041	2.739	2.644
Unit No. - 31	3.041	2.739	2.644
Unit No. - 32	3.041	2.739	2.644
Unit No. - 33	10.000	9.565	8.912
<u>Sub-Total-III</u>	<u>107.312</u>	<u>97.213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



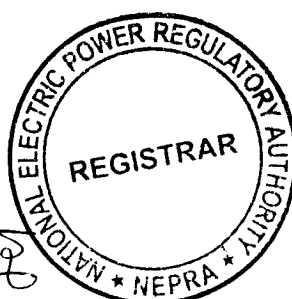
Generation Facility/ Power Plant	Unit Detail	Installed Capacity (MW)	De-Rated Capacity (MW)	Net Capacity after Auxiliary Consumption (MW)
GAS ENGINE POWER PLANT AT SITE (PLANT-IV)	Unit No. - 1	3.041	2.739	2.644
	Unit No. - 2	3.041	2.739	2.644
	Unit No. - 3	3.041	2.739	2.644
	Unit No. - 4	3.041	2.739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



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-IV</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)
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>1874.794</u>	<u>1762.926</u>	<u>1652.240</u>

