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National Electric Power Regulatory Authority Islamic Republic of Pakistan

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No. NEPRA/TRF-362/K-Electric-2016/18927-18929
December 7, 2018

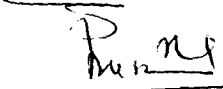
Subject: **Decision of the Authority in the matter of Request filed by K-Electric Ltd. for approval to utilize RLNG as Alternate Fuel for its Generation Plants [Case # NEPRA/TRF-362/K-Electric-2016]**

Dear Sir,

Please find enclosed herewith subject decision of the Authority (10 Pages) in the matter of request filed by K-Electric Ltd. for approval to utilize RLNG as alternate fuel for its Generation Plants.

2. The subject Decision of the Authority is being intimated to the Federal Government for the purpose of notification in the official Gazette pursuant to Section 31(7) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.
3. The Order of the Authority's Decision is to be notified in the Official Gazette.

Enclosure: As above


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(Syed Safer Hussain)

Secretary
Ministry of Energy (Power Division)
'A' Block, Pak Secretariat
Islamabad

CC:

1. Secretary, Cabinet Division, Cabinet Secretariat, Islamabad.
2. Secretary, Ministry of Finance, 'Q' Block, Pak Secretariat, Islamabad.



**DECISION OF THE AUTHORITY IN THE MATTER OF REQUEST OF KE FOR
APPROVAL TO UTILIZE RLNG AS ALTERNATE FUEL FOR ITS GENERATION PLANTS**

1. FILING OF REQUEST

1.1. K – Electric (hereinafter referred as “KE”) vide its letter No. KE/BPR/NEPRA/2018/197 dated April 30, 2018 requested the Authority to allow RLNG as alternate fuel for its existing power plants. According to KE, the request has been filed in purview of the Cabinet Committee on Energy’s (hereinafter referred as “CCoE”) directives dated April 23, 2018, wherein Sui Southern Gas Company (hereinafter referred as “SSGCL”) was directed to resume supply of gas to KE immediately and both parties will initiate process for signing gas sale agreement for natural gas as well as LNG within 15 days. Pursuant to the CCoE decision, SSGCL is providing 130 MMCFD of natural gas and 60 MMCFD of RLNG to meet KE’s minimum gas requirement of 190 MMCFD. KE also requested the Authority to provisionally approve inclusion of RLNG as an alternate fuel with effect from the date of CCoE’s directives as KE had started operating its power plants on RLNG with effect from the date of CCoE’s directives.

2. DECISION IN THE MATTER OF IMMEDIATE APPLICATION

2.1. The Authority considered the above request of KE on May 09, 2018 and admitted the same for further processing. The Authority also considered the request of KE for immediate application of RLNG as an alternate fuel.

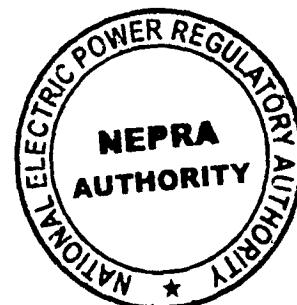
2.2. In order to bridge the demand-supply gap and to provide immediate relief to end-consumers, the Authority decided to allow immediate application of RLNG as alternative fuel in the instant case subject to an order of refund for the protection of the consumers, while the proceedings were pending before the Authority. Utilization of RLNG should only be allowed after utilization of the minimum quota of 180 MMCFD. A decision in the matter of immediate application for use of RLNG as an alternate fuel was issued on June 19, 2018.

3. PROCEEDINGS

3.1. The Authority decided to hold a hearing in the matter and following issues were approved for the hearing :

i) Whether KE has taken any steps to ensure the minimum supply of natural gas quantity of 180 MMCFD as committed by concerned Government entities and SSGCL?

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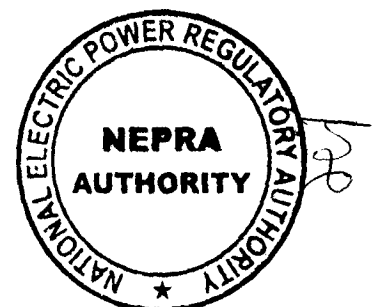
- ii) Whether the Gas Supply Agreements (GSAs) or any interim arrangement with SSGCL is in place which includes specifications of delivered RLNG and natural gas like pressure, quota and duration of agreement etc?
- iii) Depending on the tenure of the GSA or any interim arrangement for RLNG, whether the option of allocation of RLNG from private fuel supplier on competitive rates as compared to SSGCL has been explored?
- iv) How the overall natural gas/RLNG will be assigned to different gas-based power plants within the KE system keeping in view the merit order criteria?
- v) Whether the use of RLNG will have an impact on the operational parameters of KE power plants like thermal efficiency, net capacity, auxiliary consumption, availability along with outages, O&M expenses (fixed and variable), plant capacity factor, degradation and partial loading?
- vi) Whether the availability of fuel will impact KE's decision on induction of new generation facilities?
- vii) Currently, existing interconnection network of SSGCL is being utilized for provision of fuel, whether the techno-economic analysis regarding installation of dedicated RLNG pipeline for the existing and upcoming power plant has been carried out?
- viii) How will KE ensure that due to any change in gas supply mix, the resulting increase in overall fuel cost is not passed on to the consumers?
- ix) In case KE is required to operate its plants on HSD, provide the name of those power plants. What will be the financial and technical impact due to such power plants operation compared to gas or RLNG?

3.2. The hearing in the matter was scheduled on August 16, 2018, at NEPRA Tower, Islamabad. Accordingly, notice of admission/hearing, along-with the issues framed for the hearing was published in the newspaper on August 8, 2018. Individual notices were also sent to various stakeholders on August 8, 2018 inviting comments from the stakeholders for the assistance of the Authority to make an informed decision.

4. COMMENTS/INTERVENTIONS

4.1. In response to notice of hearing and individual notices, no comments or intervention requests were received. Comments were received from an individual Mr. Arif Bilvani and SSGCL.

4.2. Mr. Arif Bilvani submitted following comments:



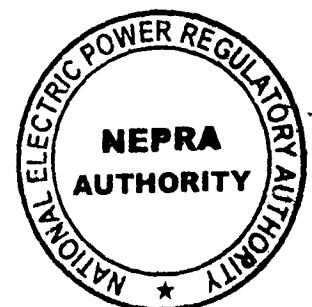


- i) KE has not entered into a long-term GSA because it is adamant to dictate its own terms & conditions.
- ii) Being the sole supplier, if SSGCL fails to supply gas, KE will have to resort to HSFO for BQPS-I and HSD for the rest of the generation plants.
- iii) This will result in significant increase in consumer-end tariff, therefore, it is necessary to conduct financial implication of the same before allowing any approval.

4.3. SSGCL vide letter No. ASGM (Coord)/F-28/2018/8014 dated August 13, 2018 reiterated its earlier comments submitted vide letters dated 28th June 2018 and 23rd July 2018. SSGCL vide letter No. MD.NEPRA/369, dated June 28, 2018 provided comments on the decision of the Authority in the matter of immediate application for use of RLNG as alternate fuel dated June 19, 2018 which are summarized below:

- i) SSGCL is under no obligation to supply 180 MMCFD indigenous natural gas to KE as there exists no such gas sale agreement. Pursuant to CCoE decision dated April 23, 2018, both SSGCL and KE agreed on supply of 130 MMCFD of natural gas and 60 MMCFD of RLNG.
- ii) RLNG is being imported only to bridge the demand-supply gap of indigenous gas.
- iii) SSGCL is also supplying gas to IPPs and small power plants which are producing electricity solely for KE.
- iv) Therefore, SSGCL is unable to provide 180 MMCFD indigenous gas to KE.
- v) According to SSGCL, the stakeholders agreed to the following in the CCoE meeting:
 - a. SSGCL shall manage the load according to the available volumes which is currently upto 130 MMCFD maximum indigenous gas to KE. Any additional volumes required shall be met through RLNG.
 - b. SSGCL and KE to finalize and initial GSAs for indigenous gas upto 130 MMCFD on as and when available basis and GSA for RLNG for 60 MMCFD within 15 days with effect from April 23, 2018.
 - c. TORs for reconciliation of dues between SSGCL and KE and between KE and Karachi Water & Sewerage Board are to be finalized within 15 days. In the event if the TORs between SSGCL and KE are not executed within 15 days, SSGCL shall be at liberty to reduce gas supply to KE.

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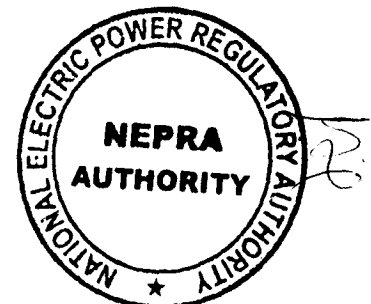


- d. NEPRA to expedite its decision on review petition for revision of multi-year tariff for KE.
 - e. KE to immediately approach NEPRA for determination of provisional tariff for conversion of its power plants to LNG.
 - vi) The Ministry of Energy vide ECC decision No. ECC-126/15/2015, dated September 3, 2015, allocated 60 MMCFD RLNG for KE.
 - vii) Based on the above, SSGCL requested the Authority to revisit its decision dated June 19, 2018, in the light of the decision of CCoE and based on the undeniable fact of the ever widening gap in the supply and demand of indigenous gas.
- 4.4. SSGCL vide letter No. ASGM(Coord)/F-28/2018, dated July 23, 2018, reiterated its stance and objected the decision dated 19th June 2018 to supply 180 MMCFD of indigenous gas to KE on the following grounds:
- i) SSGCL believes that KE did not inform the Authority in true essence the facts of the matter with and the understanding reached pursuant to the deliberations during the course of the meeting of Cabinet Committee on Energy (CCoE).
 - ii) In the light of the widening demand-supply gap of the indigenous gas, the Authority needs to revisit its decision.
 - iii) In the meeting of CCoE, SSGCL explained that the supply of 130 MMCFD of indigenous gas to KE will only be possible through load management and that this volume of 130 MMCFD will substantially fall over a period of time due to depleting gas reserves.
 - iv) Currently, two GSAs are in the field since November 9, 1978 having minimum quantity of 6.67 MMCFD and 3.33 MMCFD for SITE Gas Turbine Power Station and Korangi Town Gas Turbine Power Station, respectively. Therefore, any allocations beyond 10 MMCFD as per the provisions of Gas Allocation and Management Policy 2005 stand expired.
 - v) SSGCL is regulated by the Oil and Gas Regulatory Authority (OGRA) and cannot act upon in the absence of specific instructions from the Federal Government.
 - vi) SSGCL has requested a copy of the representation along-with all annexures filed by KE before the Authority.
 - vii) SSGCL will assail the order of the Authority before the appropriate forum.

5. HEARING

- 5.1. Hearing in the matter was held as per schedule which was participated by the representatives from KE and SSGCL.

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6. CONSIDERATION OF THE VIEWS OF THE STAKEHOLDERS, ANALYSIS, FINDINGS AND RECOMMENDATIONS ON IMPORTANT ISSUES

6.1. The issue wise discussion, submissions of the Petitioner and stakeholders, analysis, findings and decisions are provided in the succeeding paragraphs.

7. Whether KE has taken any steps to ensure the minimum supply of natural gas quantity of 180 MMCFD as committed by concerned Government entities and SSGCL?

7.1. According to KE, following NEPRA's decision dated June 19, 2018, KE approached SSGCL (**June 21, 2018**) and Ministry of Energy (MoE) Power Division (**July 5, 2018**) & Petroleum Division (**July 20, 2018**) and requested them to comply with NEPRA's directives and supply KE with the minimum quota of 180 MMCFD of local gas. However, SSGCL through its letter dated June 28, 2018 communicated that NEPRA's decision is not in line with CCoE's decision and SSGCL is regulated by OGRA, therefore, is not in a position to implement NEPRA's decision. MoE (Power Division) vide its letter dated 18th July 2018 advised KE to approach MoE (Petroleum Division) in the subject matter. MoE (Petroleum Division) vide its letter dated 13th August 2018 informed that ECC allocation of gas stands cancelled as no GSA has been signed and NEPRA needs to review its decision with respect to utilization of RLNG as alternate fuel by KE.

7.2. From the record made available, it is evident that KE made efforts and approached the relevant forums to ensure minimum supply of natural gas quantity of 180 MMCFD, however, due to unwilling stance of fuel supplier and the relevant governmental authorities availability of 180 MMCFD of natural gas is not likely to materialize. In the light of the above, the Authority has decided to allow utilization of RLNG as alternate fuel in excess of minimum quantity of 130 MMCFD of gas in accordance with the arrangement agreed between the parties.

8. Whether the Gas Supply Agreements (GSAs) or any interim arrangement with SSGCL is in place which includes specifications of delivered RLNG and natural gas like pressure, quota and duration of agreement etc.?

8.1. According to KE, CCoE in the meeting dated April 23, 2018 directed SSGCL to resume supply of gas to KE immediately. Subsequently, SSGCL confirmed supply of upto 130 MMCFD of local gas and any excess requirement in the form of RLNG. KE agreed to offtake 60 MMCFD of RLNG in order to meet the minimum requirement of 190 MMCFD to operate its gas-based power plants. However, after NEPRA's decision dated June 19, 2018 KE requested SSGCL to supply 180 MMCFD local gas

8.2. According to KE, SSGCL has proposed a maximum quantity of 130 MMCFD (*minimum annual avg. of 80 MMCFD*) on '**as and when available basis**' for a term of 5 years and firm

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RLNG supply of 60 MMCFD on '100% take or pay' basis till Oct 31, 2018. KE has asked SSGCL to confirm the minimum quantity of local gas – so that KE could confirm the definite quantity of RLNG required post Oct 31, 2018. According to KE, SSGCL is currently delivering GCV at 1,050 btu/cft and has conveyed that the GCV would be in accordance with specifications set by OGRA, whereas the pressure of local gas at delivery points shall be dependent upon volumes of local gas available with SSGCL at the delivery point. RLNG is being billed by SSGCL at distribution tariff. Marked-up drafts of GSA for local gas along with term sheet on RLNG have been exchanged between KE and SSGCL – and KE has requested SSGCL for a negotiation meeting to discuss further steps.

8.3. The Authority considers that the gas supply agreement (GSA) which includes specifications of delivered local gas and RLNG is an essential requirement and needs to be signed on priority between KE and SSGCL. KE is directed to sign GSA at the earliest and submit the same to NEPRA for review.

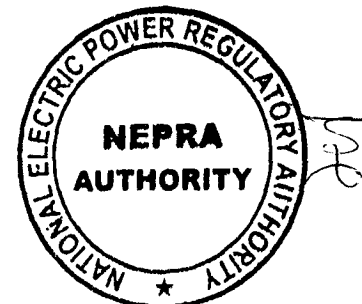
9. Depending on the tenure of the GSA or any interim arrangement for RLNG, whether the option of allocation of RLNG from private fuel supplier on competitive rates as compared to SSGCL has been explored?

9.1. According to KE it is exploring the option of getting RLNG supply from private fuel suppliers on competitive rates in comparison to SSGCL for its proposed 900 MW Bin Qasim Power Plant (BQPS-III). Active discussions with consortiums of terminal developers and international LNG suppliers are underway for supply of the desired quantity of RLNG from the LNG terminal to the plant gate through a dedicated pipeline. KE further submitted that subject to the Authority's decision on the Licensee Proposed Modification request of KE for addition of RLNG as an alternate fuel for KE's existing power plants, discussions with private RLNG suppliers will be considered to cover the RLNG requirement for KE's existing power plants as well.

9.2. The supply of RLNG from private fuel suppliers at competitive rates shall be beneficial for the consumers of Karachi. KE is directed to explore the option of supply of RLNG from private fuel supplier and submit a detailed report to the Authority within three months after the issuance of LPM.

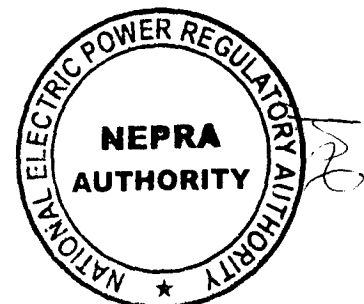
10. How the overall natural gas/RLNG will be assigned to different gas-based power plants within the KE system keeping in view the merit order criteria?

10.1. According to KE, SSGCL is supplying comingled gas (mixture of RLNG and local gas) through the existing pipelines to KE and RLNG is being proportionately allocated to each of KE's power plants as per the ratio of RLNG to local gas supplied to KE. Further, there is no practical way of measuring supply of local gas and RLNG separately and KE has to



rely on invoices issued by SSGCL. However, there is no impact of RLNG on KE's EMO as KE is being supplied comingled gas which is cheaper than Furnace Oil (FO) and accordingly is used on KE's power plants ahead of FO in line with the EMO criteria.

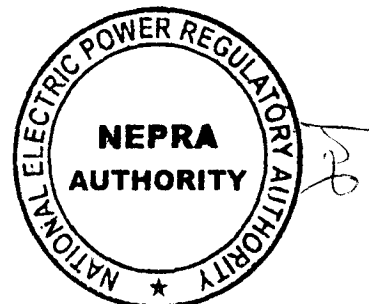
- 10.2. The Authority considered the submissions made by KE on the instant issue. KE is directed to dispatch its power plants strictly in accordance with the economic merit order with an objective to minimize the overall cost of generation.
11. **Whether the use of RLNG will have an impact on the operational parameters of KE power plants like thermal efficiency, net capacity, auxiliary consumption, availability along with outages, O&M expenses (fixed and variable), plant capacity factor, degradation and partial loading?**
- 11.1. KE submitted that currently there is no impact on operational parameters of KE's power plants since SSGCL is supplying comingled gas.
- 11.2. As directed above, upon execution of GSA, KE shall submit the same to NEPRA for evaluation of its impact on performance parameters of existing power plants. The Authority also observed that existing heat rates of BQPS-I were based on mixed fuel i.e. FO/local gas. KE is further directed to carry out performance tests of BQPS-I on local gas/RLNG. Performance test shall be carried out by an Independent Engineer within a period of six months from the date of issuance of this decision. Based on the results of performance test, unit wise capacity and heat rates of BQPS 1 (as reflected in recently approved MYT of KE) shall be revised / adjusted. The selection process and appointment of Independent Engineer shall be in line with the procedure included in MYT determination of KE.
12. **Whether the availability of fuel will impact KE's decision on induction of new generation facilities?**
- 12.1. According to KE, it has planned significant capacity addition over the coming years and of the total planned capacity additions, 44% will utilize RLNG fuel. This has been planned keeping in view the availability of long term RLNG supply contract, increasing government support and availability of consortiums of terminal developers and international LNG suppliers for RLNG supply.
- 12.2. Keeping in view the submissions on this issue, no further deliberations are required in the matter.
13. **Currently, existing interconnection network of SSGCL is being utilized for provision of fuel, whether the techno-economic analysis regarding installation of dedicated RLNG pipeline for the existing and upcoming power plant has been carried out?**



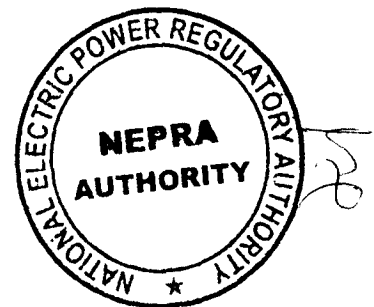


- 13.1. KE submitted that vide its letter No. SSGCL/2018-0626 dated June 26, 2018, it has expressed its willingness to collaborate with SSGCL on establishing a dedicated pipeline arrangement for RLNG supply to KE. However, this will require extensive capex and as per preliminary assessment will take approximately 2 years to build a dedicated RLNG line of around 16 km to join with SSGCL's transmission system.
- 13.2. Further, according to KE, subject to agreement of SSGCL in respect of provision of RLNG through dedicated pipeline, the RLNG supply will be made available to KE at desired high pressure of 33 bar, which would result in auxiliary savings of up to 18 MW due to bypassing of compressors. Moreover, KE expects that through the proposed arrangement, transmission tariff as notified by OGRA shall be charged to KE on supply of RLNG, which is lower than the currently charged distribution tariff.
- 13.3. KE further submitted that once the dedicated RLNG line for BQPS-II is operational, KE will evaluate the option of having dedicated RLNG line for KE's other existing power plants which needs to be allowed as investments in the MYT.
- 13.4. Keeping in view the above submissions of KE, no change in existing distribution network of SSGCL is foreseen in near future. In case of any change in the prevailing scenario, KE shall timely communicate the change and seek appropriate approval from NEPRA.
14. **How will KE ensure that due to any change in gas supply mix, the resulting increase in overall fuel cost is not passed on to the consumers?**
- 14.1. According to KE, in order to ensure smooth and reliable power supply to the city of Karachi, minimum 190 MMCFD of gas is required to operate its gas-based plants and any reduction in aforementioned gas quota impacts the households, commercial and industrial sectors in the form of load management. Pursuant to CCoE's decision and in view of availability of local gas, SSGCL offered 130 MMCFD of local gas on 'as and when available' basis. KE in order to provide immediate relief to the consumers and operate its power plants having minimum requirement of 190 MMCFD agreed to off-take 60 MMCFD of RLNG on firm supply basis till October 2018.
- 14.2. Further, according to KE, as per the mechanism stipulated in KE's Multi Year Tariff (MYT), fuel cost is a pass-through item wherein NEPRA reviews and adjusts KE's tariff on account of variation in fuel costs. Accordingly, any variation in cost of fuel is passed on to the consumer as monthly fuel adjustment and at the end of each quarter the determined tariff is adjusted after which the impact would be included in the tariff differential subsidy borne by Government of Pakistan as per the current uniform tariff policy in vogue.
- 14.3. Keeping in view the submissions made by KE, no further deliberations are required in the matter.

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15. **In case KE is required to operate its plants on HSD, provide the name of those power plants. What will be the financial and technical impact due to such power plants operation compared to gas or RLNG?**
- 15.1. According to KE, currently no plant of KE is commissioned on HSD, and neither any direction to commission KE's existing plants on HSD was received from NEPRA in the past nor separate heat rates and other generation benchmarks were determined within KE's tariff for operation of KE's existing plants on HSD.
- 15.2. According to KE, NEPRA through its letter dated April 18, 2018 directed KE to commission HSD as an alternate fuel on KCCP and BQPS-II and the company has submitted its response to NEPRA. As per KE, keeping in view the availability of RLNG as backup fuel, increased cost of operations on HSD and intensive maintenance requirement, adding HSD as an alternative fuel will increase the tariff and burden the GoP/consumers unnecessarily. KE highlights that the extensive capital infrastructure amounting to PKR 1.5 Billion is required to be incurred to operate aforementioned plants on HSD. Moreover, KE also mentioned that it will be mandatory to run BQPS-II on HSD for certain number of hours each year to keep the system in operational condition and minimum inventory of HSD will be required to be maintained for both plants with an estimated additional cost of PKR 2.5 Billion. Further, KE submitted the 1.5~2.5 times higher maintenance cost is also required for operation on HSD. Following comparison has been provided by KE.
- 15.3. Regarding technical impact on operational parameters like thermal efficiency owing to operation of plants on HSD, KE submitted operations on HSD will be less efficient as compared to RLNG. KE also referred the reduced thermal efficiencies on HSD of approximately 54% as compared to > 61.5% on RLNG for Balloki and Havali Bahadur Shah resulting in more than 8% reduction in thermal efficiencies.
- 15.4. The Authority has considered the submissions made by KE on this issue. As per generation license, KE was required to commission the plant on HSD along with commissioning of plants on gas. It was the responsibility of KE to lay down all infrastructure necessary to commission its power plants on the backup HSD fuel like all other power plants in the national grid. A team of NEPRA visited both power plants and reported that major infrastructure for commissioning of power plants on HSD are already in place. KE is therefore, directed to implement earlier directions conveyed vide letter April 18, 2018 in true letter and spirit and submit the compliance report within three months of the issuance of the instant determination.

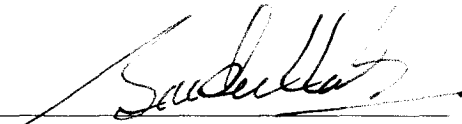





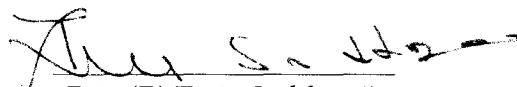
16. Order

- 16.1. K–Electric is allowed to use RLNG as alternative fuel for its power plants subject to the following conditions:
- Utilization of RLNG as alternate fuel shall only be allowed in excess of minimum quantity of 130 MMCFD of gas in accordance with the arrangement agreed between the parties and the adjustments shall be granted accordingly;
 - The dispatch shall be strictly in accordance with the economic merit order.
 - KE is directed to carry out performance tests of BQPS-I on local gas/RLNG within a period of six months by an independent engineer and submit the test report to NEPRA for revision of the unit wise capacity and heat rates.
 - KE is directed to implement earlier directions conveyed vide letter April 18, 2018 regarding commissioning of KCCP and BQPS-II power plants on HSD in true letter and spirit and submit the compliance report within three months of the issuance of the instant determination.
- 16.2. The above Order of the Authority shall be notified in the official gazette in terms of Section 31(7) of the Regulations of Generation, Transmission and Distribution of Electric Power Act, 1997.

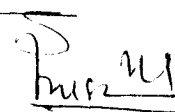
Authority


(Saif Ullah Chattha) 20.11.2018
Member


20/11/2018
(Rehmatullah Baloach)
Vice Chairman


Brig (R) Tariq Saddozai
Chairman




07.12.18