



National Electric Power Regulatory Authority

Islamic Republic of Pakistan

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No. NEPRA/PAR-147/SNPCL-2015/13634-13636

August 4, 2017

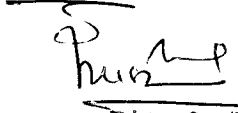
Subject: Motion for Leave for Review filed by Sindh Nooriabad Power Company (Private) Limited (“SNPCL”) against Decision of the Authority in the matter of Power Acquisition Request submitted by K-Electric Ltd. (“K-Electric”) for Purchase of 50 MW Electric Power (Gas Fired) from SNPCL [Case # PAR-147/SNPCL-2015]

Dear Sir,

This is in continuation of this office letter No. NEPRA/PAR-147/SNPCL-2015/8271-8273 dated June 01, 2016 whereby Decision of the Authority in the matter of Power Acquisition Request submitted by K-Electric Ltd. (K-Electric) for Purchase of Power (Gas Fired) from Sindh Nooriabad Power Company (Private) Limited was communicated to the Federal Government for notification in the official Gazette.

2. Please find enclosed herewith the subject Decision of the Authority along with Annex I & II (22 pages) in the matter of Motion for Leave for Review filed by Sindh Nooriabad Power Company (Private) Limited (“SNPCL”) against Decision of the Authority dated 01.06.2016 in Case No. NEPRA/PAR-147/SNPCL-2015.
3. The Decision is being intimated to the Federal Government for the purpose of notification in the official gazette in accordance with the provisions of Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997).
4. The Order Part of the Authority’s Decision along with two Annexures (Annex-1 & II) is to be notified in the official Gazette.

Enclosure: As above


040817
(Syed Safer Hussain)

Secretary
Ministry of Water & Power
'A' Block, Pak Secretariat
Islamabad

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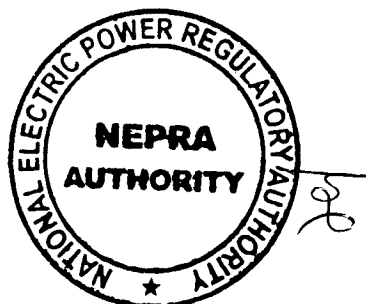
1. Secretary, Cabinet Division, Cabinet Secretariat, Islamabad.
2. Secretary, Ministry of Finance, 'Q' Block, Pak Secretariat, Islamabad.

**MOTION FOR LEAVE FOR REVIEW FILED BY SINDH NOORIABAD POWER COMPANY (PRIVATE)
LIMITED ("SNPCL") AGAINST DECISION OF THE AUTHORITY IN THE MATTER OF POWER
ACQUISITION REQUEST SUBMITTED BY K-ELECTRIC LIMITED ("K-ELECTRIC") FOR PURCHASE OF 50
MW ELECTRIC POWER (GAS FIRED) FROM SNPCL**

1. Sindh Nooriabad Power Company Limited ("SNPCL/the Petitioner") filed a motion for leave for review ("review motion") with regard to the decision of National Electric Power Regulatory Authority (hereinafter referred to as "NEPRA/the Authority") dated June 23, 2016 regarding the Power Acquisition Request ("PAR") filed by K-Electric Limited ("K-Electric") for purchase of 50 MW power from SNPCL (hereinafter referred to as "Impugned decision /PAR decision").

BACK GROUND

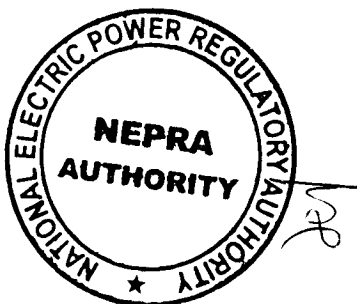
2. K-Electric submitted PAR to purchase 50 MW electrical power (gas fired) from SNPCL before the Authority in July 2015, pursuant to NEPRA Interim Power Procurement (Procedures and Standards) Regulations, 2005 (hereinafter referred to as "IPPR-2005"). In the said PAR, K-Electric requested the Authority for following;
 - Approval of proposed power acquisition from SNPC under IPPR 2005;
 - Determination of reference tariff;
 - Approval of indexation mechanism at Commercial Operation Date ("COD") and after operations;
3. The Authority considered the subject PAR and after fulfillment of all the relevant regulatory/ documentary requirements decided to admit the same under Regulation 4(1) of IPPR-2005 in September, 2015. The Authority decided to conduct a public hearing for inviting input/opinion/ views from the relevant stakeholders. The hearing was held at NEPRA Head Office, Islamabad on November 05, 2015; notices thereof were published in the daily newspapers on October 27, 2015. The Authority on June 01, 2016 issued its decision in respect of PAR of K-Electric whereby permission was granted to K-Electric to procure power from SNPCL. The reference tariff along with adjustment mechanism of different components of tariff was also determined through the said PAR decision.
4. SNPCL later submitted a review motion dated June 23, 2016 in respect of the aforesaid PAR decision whereby the Petitioner submitted that the mentioned decision of the Authority is in contradiction to the legislation of NEPRA and also deprives SNPCL of its genuine, prudent and just costs hence merits for review. Listed hereunder are the parameters that were requested for reconsideration by SNPCL:



- i. Cost of Gas Pipeline Infrastructure
- ii. Residential Colony and Landscaping
- iii. Custom Duty and Clearance Charges
- iv. Fuel for Pre-commissioning
- v. Insurance during Construction
- vi. Mobilization Fee for the O&M Contractor
- vii. Project Development, Management and Consultancy Fee
- viii. Additional Cost Incurred on Bulk Water Supply System
- ix. Additional Cost of Extra Metering System for Net Electrical Output, Wheeling and Power Line Carrier and Communication (PLCC) System
- x. Cost of Safety Spare Parts and Additional Costs
- xi. Interest During Construction
- xii. Net Dependable Capacity and Net Efficiency:
- xiii. Fixed O&M Costs
- xiv. Variable O&M Costs
- xv. Equity ("Internal Rate of Return") IRR and With Holding Tax (WHT) on Dividend as Pass Through
- xvi. Working Capital Financing Cost
- xvii. Debt Servicing

5. The review motion was considered on August 09, 2016 and was admitted by the Authority. The hearing in this matter was held on October 05, 2016 at NEPRA Tower, Islamabad; notices thereof were sent to the petitioner, K-Electric and Sindh Transmission and Dispatch Company Private Limited ("ST&DCPL").

6. At the outset, the Authority observed that the Petitioner in its review motion has revised certain cost claims. Moreover, new costs that were not part of project cost in PAR have also been included in the subject review motion. The Authority noted that under Regulation 3(2) of NEPRA Review Procedure Regulations, 2009, it has been prescribed that **"Any party aggrieved from an order of the Authority and who, from the discovery of new and important matter of evidence or on account of some mistake or error apparent on the face of record or from any other sufficient reasons, may file a motion seeking review of such order."** Referring the said Regulation, the Petitioner during the hearing submitted that based on sufficient reasons, the Authority may allow the revised and additional claims under the review motion. The Authority, however, deliberated on this issue and decided that new and revised claims of different components of the project do not fall under the review motion jurisdiction, which is limited in nature; hence such claims shall not be considered as part of the review motion.



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ANALYSIS OF ISSUES AND DECISIONS

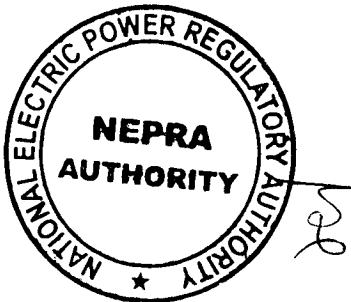
7. The component wise claims made by SNPCL in review motion and during the hearing, followed by analysis and Authority's decision thereon are referred hereunder;

A. COST OF GAS PIPELINE INFRASTRUCTURE

SNPCL vide review motion submitted that the impugned decision denied SNPCL the cost of design, construction and installation of gas pipeline which constitutes a critical part of the project. SNPCL has submitted that a contract was executed with Sui Southern Gas Company Limited ("SSGCL") for design, construction and installation of the pipeline. For the supply of materials needed in gas pipeline, SNPCL submitted that a contract was signed with Technomen Kinetics (Pvt) Limited ("TKPL"). For the works related to excavation and backfilling, SNPCL submitted that it has signed contract with Akbar & Brothers. Following details of the aforesaid contracts were submitted by SNPCL in its review motion:

Contracts	Million PKR
SSGCL	106.840
Akbar & Brothers	20.160
TKPL	294.000
Total cost of Pipeline	421.000

SNPCL submitted that it will bear half of the total cost of the pipeline i.e. around Rs. 210.500 million (USD 2.024 million). The Authority is of the opinion that comprehension of SNPCL regarding the non-provision of this cost is not precise as an amount of around USD 1.800 million, in respect of SSGCL and TKPL, was allowed by the Authority in the PAR decision. It was even though noted that the cost, as per the contracts with SSGCL and TKPL, to be borne by SNPCL is USD 1.925 million; however, USD 1.800 million was allowed since amount, to this extent, was claimed in the PAR. Nevertheless, considering the review request, the Authority has deliberated on this issue and has decided to allow the costs for SSGCL and TKPL amounting USD 1.925 million, as per the signed contracts. Regarding the claimed cost of Rs. 20.160 million in respect of works contracted to Akbar & Brothers, the Authority is of the opinion that the same is a new claim which does not fall under the scope of review motion; hence, cannot be allowed.



B. RESIDENTIAL COLONY, LAND AND LANDSCAPING

SNPCL in its review motion has submitted following costs in respect of construction of Residential Colony, Boundary wall and Architect Fee;

Cost Items	Contracted Parties	Cumulative Cost (Mill. PKR)
Construction of Residential Colony	TKPL and M/s Engineering Force	75.000
Construction of Boundary Wall	TKPL	25.000
Architect Fee	Coalesce	3.333
Total		103.333

The Petitioner submitted that aforementioned costs to the extent of 50%, i.e. Rs. 51.667 million or USD 0.508 million shall be borne by SNPCL. However, during the hearing the Petitioner enhanced its claim from Rs. 51.667 million to Rs. 66.491 million; breakup of which is tabulated below;

Items	Cumulative Cost (Mill. PKR)
Villa	40.450
Labor Lodge	64.199
Boundary Wall	25.000
Architect	3.333
Total	132.982
SNPCL's share of cost	66.491

The Petitioner also submitted the contracts in respect of its claim for the tabulated above costs. Following details have been observed in the submitted contracts;

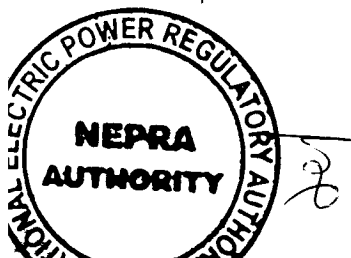
Items	Contacted Parties	Cumulative Cost (Mill. PKR)
Villa	M/s Engineering Force	40.450
Labor Lodge	M/s Engineering Force & TKPL	75.822
Boundary Wall	TKPL	25.000
Architect	Coalesce	3.000
Total		144.272
SNPCL's share of cost		72.136



The Authority has taken notice of the multiple revisions in this cost component by SNPCL and is of the view that the Petitioner should have done comprehensive review prior to submitting sale proposal and review motion. Notwithstanding the above, it was found that K-Electric in its PAR had claimed USD 0.235 million for the cost of residential colony. During the proceedings of PAR, SNPCL had submitted that 20,000 square feet labor accommodation for 40 plus staff members shall be built on site. In addition, the cost of Landscaping to the tune of USD 0.050 million was also claimed. The Authority allowed USD 0.235 million to SNPCL on account of Residential colony inclusive of cost for Landscaping.

As tabulated above, in the subject review motion, the Petitioner has revised the cost of labor lodges to around Rs. 37.911 million (for SNPCL only) or USD 0.373 million from earlier claim of USD 0.235 million. Further, new costs in respect of Villa (USD 0.199 million), Boundary Wall (USD 0.123 million) and Architect Fee (USD 0.015 million) have been claimed in the subject review motion. Moreover, the cost of Landscaping earlier disallowed by the Authority has been claimed again by the Petitioner. The Authority noted that the cost of USD 0.235 million, was earlier allowed to SNPCL which works out to be around Rs. 2400/sqft. It was mentioned in the PAR decision that the allowed component constitutes the costs both for the residential colony as well as landscaping. The Authority, however, noted that the cost of residential colony, including landscaping, of Rs. 3,000/sqft to Rs. 5,000/sqft has been allowed in the recent tariff determinations of other projects which shows that the captioned cost allowed to the subject project is on the lower side. In view thereof, the Authority has decided to increase this component to the extent of earlier disallowed cost on account of Landscaping amounting USD 0.050 million. Accordingly, the total allowed cost for residential colony and landscaping works out to be USD 0.285 million against earlier allowed amount of USD 0.235 million. For the revised claim for labor lodges and additional cost claims for Villa, Boundary Wall and Architect Fee, the Authority is of the opinion that the same does not fall under the scope of review motion; therefore cannot be considered.

Regarding land cost, SNPCL requested to allow the cost of around Rs. 6.375 million or USD 0.063 million. The Petitioner has submitted that the land for the subject project has been leased to the Company by Government of Sindh ("GOS") for the duration of 30 years against total amount of lease rentals of Rs. 12.750 million and the share of SNPCL works out to be Rs. 6.375 million. Considering the lease agreement provided with PAR, it was understood that the lease rentals are to be paid on annual basis by SNPCL to the GOS, hence, the Authority decided to include this cost under fixed O&M cost instead of making it the part of project cost. However, during the hearing of the review motion, SNPCL requested the Authority to include lease payments in the project cost because upfront payments have to be made in this regard to GOS. It has been noted that the lease agreement does not clearly state whether the rentals have to be made in advance or on annual basis. However, the Authority has noted that in comparable projects, the land cost has been included in the allowed project cost. Therefore, the Authority has acceded to this request of the Petitioner and decided to include the cost of land lease in the allowed project cost.



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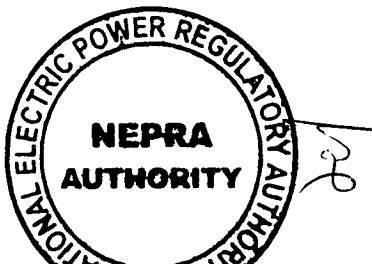
However, the Petitioner is hereby directed that documents related to upfront payment of land lease shall be furnished at the time of COD; failing which the same shall again be adjusted in fixed O&M cost.

C. CUSTOM DUTIES AND CLEARANCE CHARGES

SNPCL in its review motion has requested the Authority to allow custom duties on actual basis at the time of COD. SNPCL submitted that the Authority allowed custom duties at the rate of 5% and Sindh Infrastructure Tax ("SIT") of 0.92% on the offshore portion of the EPC cost in the impugned decision whereas it had to pay 20% custom duties on some of the imports. SNPCL also requested the Authority to allow port clearance charges which were not allowed in the PAR decision. The Authority noted that although SNPCL was allowed custom duties and SIT at rate of 5% and 0.92% respectively on the offshore portion of the EPC cost but it has also been mentioned in the PAR decision that this component shall be adjusted on actual at the time of COD; hence, no changes are required to be made in this regard. The Authority did not take into account port clearance charges, requested by SNPCL as 0.08% of the offshore EPC costs, as such charges were not claimed and also not made part of the other tariff cases. However, it is noted that as per the signed EPC contract, it is the responsibility of the project company to pay, inter alia, the port charges. In view thereof, the Authority has decided to allow port clearance changes, if any. This cost shall be made part of the project cost at the time of COD, maximum to the limit of 0.075% of the value of imported EPC equipment, subject to production of all the source documentary evidence, including bills of lading, to the satisfaction of the Authority.

D. FUEL FOR PRE-COMMISSIONING

SNPCL in its review motion submitted that the Authority in its PAR decision allowed around USD 0.317 million as fuel cost for pre-commissioning tests using fuel consumption of seven (07) days instead of claimed fifteen days. The Petitioner submitted that based on fuel consumption of seven (07) days, this cost works out to be USD 0.474 million which may be allowed, subject to actual at the time of COD. The Authority, in the PAR decision, had allowed USD 0.317 million as cost of fuel required for pre-commissioning tests. Basically, the requirement of gas for seven days operation of the subject plant and corresponding cost was calculated and allowed under this head. It has been noted that for the computation of fuel costs for pre-commissioning tests, gas price of Rs. 488.23/MMBTU and thermal efficiency of 44% on net HHV basis. Whereas, for the computation of the gas cost component of the approved tariff, the gas price of Rs. 700/MMBTu, as notified by the relevant Authority, was taken into account. The Authority has decided to remove this inconsistency by allowing this cost component based on gas price of Rs. 700/MMBTu. Further, the Authority has also decided to change the efficiency of 44%, approved in the PAR, to 43.66% in this review motion (details are discussed below in the relevant section). Based on revised gas price and revised heat rates approved in this review motion, the amount being



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allowed in this cost component works out to be USD 0.457 million. This cost component shall be actualized based on actual fuel consumption, notified gas prices and approved heat rates at the time of COD. It is important to mention here that this cost shall be limited only to the tests for which the responsibility of fuel is of the project company as per the signed EPC contract, against which no energy shall be sold and charged by the company to the power purchaser. Any amount recovered or billed will not be considered and allowed in this regard.

E. INSURANCE DURING CONSTRUCTION

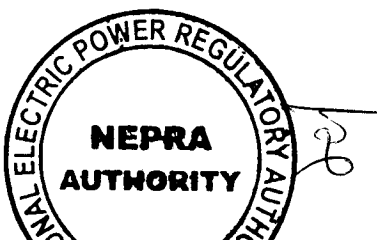
SNPCL in its review motion requested to allow insurance during construction @ 1% of sum of EPC cost, Gas Pipeline Infrastructure cost, Water Pipeline cost, Residential Colony and Custom Duties and Taxes which in the impugned decision of the Authority was allowed @ 1% of EPC cost only. The Authority noted that SNPCL had been allowed insurance during construction following the same basis that has been allowed by the Authority in the comparable cases. Hence, the Authority considers that this component requires no adjustment.

F. MOBILIZATION FEE FOR THE O&M CONTRACTOR

SNPCL in its review motion has requested to allow USD 0.176 million which is equal to the claimed fixed O&M cost for one month. The Authority has noted that in PAR, the cost of USD 0.135 million, equivalent to approximately one month of claimed fixed O&M expenses was requested under the captioned head. The Authority after detailed analysis acceded to the proposed method for the calculation of this claim; however, the amount of USD 0.116 million against the claim of USD 0.135 million was allowed. The said variance was mainly due to the difference in the claimed (Rs. 0.42/kWh) and the allowed (Rs. 0.32/kWh) fixed O&M cost component. Now the Authority has decided to increase the fixed O&M cost component to Rs. 0.35/kWh in this review decision from Rs. 0.32/kWh as allowed in the PAR (details are discussed below in the relevant section). Based on the fixed O&M cost component being allowed in this review motion, while applying the aforesaid formula/method, the allowed cost in respect of mobilization fee works out to be USD 0.127 million. This allowed amount shall be adjusted at actual, up to the maximum limit of USD 0.127 million, based on production of verifiable documents at the time of COD.

G. PROJECT DEVELOPMENT AND MANAGEMENT COST AND CONSULTING FEES

SNPCL requested the Authority to allow the Project Development & Management cost of USD 0.600 million which is about 1% of the total project cost. To support its claim, the Petitioner referred that in certain cases; the Authority has allowed this cost up to 3% of the project cost. Furthermore, SNPCL requested the Authority to favorably consider and allow the consultants fee to the tune of USD 0.206



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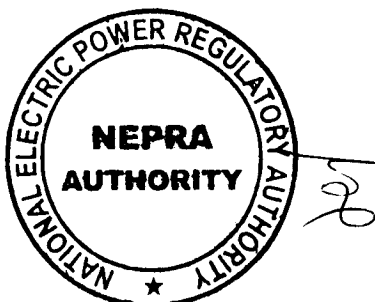
million. The Authority noted that in the PAR, Project development and Management cost to the tune of USD 0.600 million and Consultants Fee of USD 0.250 million was claimed. However, the Authority allowed a cumulative amount of USD 0.500 million for both of the aforesaid cost components. The claimed cost was reduced due to the reason that most of the expenses under these heads would be common and shared by both SNPCL and other phase of the project. Considering the argument advanced by the Petitioner regarding the provision of this cost allowed in some other cases, the Authority carried out a comparative analysis. Particularly in the determinations of thermal projects issued in the recent past, the Authority has noted that the captioned costs have been allowed to the extent of around 3% of the capital cost of the project. In view thereof, the Authority decided to allow the claimed cost of USD 0.806 million under both of these heads. This allowed amount shall be adjusted at actual, up to the maximum limit of USD 0.806 million, based on production of verifiable documents at the time of COD.

H. ADDITIONAL COST INCURRED ON BULK WATER SUPPLY SYSTEM

SNPCL in its review motion submitted that Sindh Industrial Trading Estate ("SITE"), Nooriabad was contacted to provide the required quantities of water for the operation of the power plant for which SITE has shown inability to provide water from the pipeline passing in front of the project site. However, it has allowed pumping water from the storage reservoir located some six kilometer away from the project site. SNPCL submitted that the cost of laying six kilometer, eight inch pipeline and associated pumping system was therefore incurred additionally for the project. The contract was awarded to TKPL at a cost of Rs. 93.000 million which is divided equally for SNPCL and its other phase and the cost to each project works out to be Rs. 46.500 million or USD 0.457 million. The Petitioner submitted the Bulk Water Supply System Contract dated March 01, 2016 and requested the Authority to allow this cost. The Authority noted that this cost is an additional claim which does not fall under the review jurisdiction, which is limited in nature, hence cannot be considered.

I. ADDITIONAL COST OF EXTRA METERING SYSTEM FOR NET ELECTRICAL OUTPUT, WHEELING AND POWER LINE CARRIER AND COMMUNICATION (PLCC) SYSTEM:

SNPCL claimed cost of extra metering system including CT/PT and dis-connector switches amounting USD 0.250 million. Furthermore, SNPCL claimed USD 0.249 million for Power Line Carrier and Communication ("PLCC") System along with Tele-Protection and Tele-Metering. The Authority noted that this cost is a new claim which does not fall under the review domain, which is limited in nature, hence cannot be considered.



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J. COST OF SAFETY SPARE PARTS AND ADDITIONAL COSTS

SNPCL in its review motion submitted that the O&M Contractor has required it to arrange the safety spare parts to ensure higher availability of the subject power plant. According to SNPCL, the cost of these safety spare parts, as appended in the O&M Contract, is Euro 0.951 million i.e. USD 1.055 million, which will be equally shared by SNPC and its other phase i.e. USD 0.528 million. The Authority has noted that it has already allowed the O&M cost in the PAR decision. This additional cost being claimed was not the part of PAR filed by K-Electric. Moreover, being a new claim, this cost component does not fall under the scope of the review motion hence not allowed by the Authority.

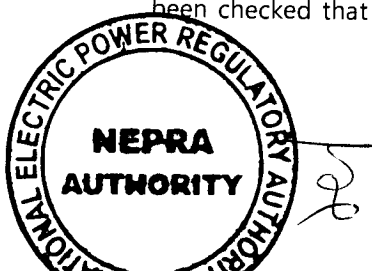
K. INTEREST DURING CONSTRUCTION

SNPCL in its review motion requested the Authority to allow interest during construction of twenty four months (24) months against the earlier allowed duration of eighteen (18) months. SNPCL submitted that due to delay in completion of transmission line and award of tariff, the project may not be able to achieve COD in the originally planned construction period of 18 months. The Authority has noted that in the PAR, the construction period of 18 months was claimed and the same had been allowed. The Authority further noted that during the proceedings of PAR, SNPCL had informed the Authority that the construction of the subject project had started even before filing of the said PAR; hence, the Authority does not consider it a tenable argument that the project got delayed due to time involved in evaluation and award of tariff. Further, the Authority considers that it is not justified to modify the construction period because of the delay in the construction of the transmission line. In view thereof, the Authority considers that no changes are required to be made in the allowed amount of interest during construction due to change in the construction period.

However, the earlier allowed interest during construction has been recomputed to account for the changes in few cost components of the project cost which now works out to be USD 2.951 million against earlier allowed cost of USD 2.897 million. This allowed cost will be finalized at the time of COD upon verification of relevant documentary evidence, within the approved project cost and construction period.

L. NET DEPENDABLE CAPACITY AND NET EFFICIENCY

SNPCL in its review motion has submitted that the net efficiency on LHV basis of 46.43% and net dependable capacity of 49.980 MW may be allowed by the Authority with actualization at the time of COD. The Authority noted that the efficiency of 44% net HHV and net dependable capacity of 50.795 MW was allowed in the PAR decision. The Authority observed that it approved the auxiliary consumption and transformer losses of 3% for the computation of the allowed net efficiency and capacity. However, it has been checked that auxiliary consumption and transformer losses, only to the extent of 2.5%, was taken



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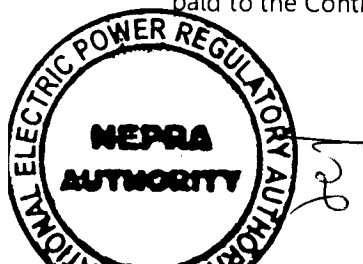
into account. Further, the gross dependable capacity of 52.10 MW, i.e. two digits figure was used instead of 52.094 MW. Therefore, after making the aforementioned corrections; the allowed net capacity and net HHV thermal efficiency of the plant works out to be 50.531 MW and 43.66% respectively. The fuel component shall be adjusted in case of change in the net efficiency at the time of COD, based on the test to be conducted by a reputable Independent Engineer in the presence of NEPRA professionals. A lower efficiency than the above approved number shall be accepted, provided that combined auxiliary and transformer losses are lower or equal to 3%. The compensation of applicable degradation and part load adjustment shall be decided and allowed at the time of COD on submission of such curves as provided by Original Equipment Manufacturer ("OEM").

M. FIXED O&M COSTS

SNPCL in its review motion requested the Authority to allow Rs. 0.54/ kWh in respect of Fixed O&M costs with foreign component of Rs. 0.16/kWh and local component of Rs. 0.38/kWh. Following are details of the costs claimed under this head by SNPCL in the PAR and in review motion;

Cost Components	PAR	Review Motion
O&M Contract Fee (Rs. Million per year)	93.000	106.680
Management Fee (Rs. Million per year)	70.160	100.000
Overhead and Miscellaneous (Rs. Million per year)	19.200	30.000
Total Fixed O&M Cost(Rs. Million per year)	182.360	236.680
Total saleable electricity @ 100% load factor (GWh)	437.860	437.860
Fixed O&M (Rs./kWh)	0.42	0.54

The Petitioner submitted that above tabulated difference is because the O&M Contractor has revised the O&M Contract Fee due to delay in COD of the project. Further, SNPCL submitted that due to additional maintenance cost of water pumping station and pipeline, the management cost and overheads have also been increased. The Authority has noted that SNPCL during the proceedings of PAR submitted draft O&M agreement with Wartsila Pakistan Pvt. Ltd. However, with its review motion, the Petitioner has submitted a signed O&M contract with TKPL instead of Original Equipment Manufacturer ("OEM"), i.e. Wartsila. In this regard, a query dated January 04, 2017 was raised with the Petitioner directing it to explain whether TKPL has the necessary experience and expertise to carry out the O&M of these power plants. In response, SNPCL vide letter dated January 18, 2017 submitted that TKPL has back to back agreement with the OEM of plant, i.e. Wartsila who has the requisite experience and expertise of O&M of their own plants. The Authority noted that the cost of Rs. 0.32/kWh was allowed in the PAR in respect of fixed O&M cost. This allowed cost was inclusive of foreign and local components of Rs. 0.10/kWh and Rs. 0.22/kWh respectively. As per the aforesaid O&M contract submitted with the review motion, the fixed fee to be paid to the Contractor works out to be Rs. 93.000 million per annum. Keeping in view this contracted cost,



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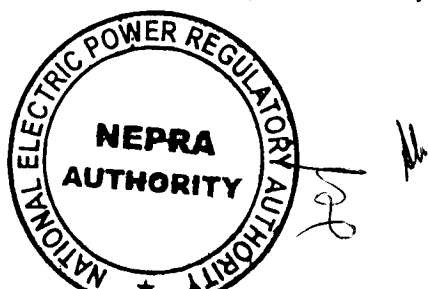
an analysis was carried out for management overheads of the comparable power projects wherein the current levels, actual and allowed overheads by the Authority, of said cost component was analyzed. In view thereof, the Authority considered that due to the smaller size of the subject project and the revision made in the figure of net dependable capacity, there is a provision of upward adjustment in this component. After necessary workings and adjusting the impact of land lease cost (as discussed above in the relevant section), the Authority decided to enhance the total fixed O&M cost to Rs. 0.35/kWh from earlier allowed component of Rs. 0.32/kWh. Since, as per the O&M contract, the fee to the contractor has to be paid in PKR, therefore, the whole fixed O&M component has been determined in local currency and shall be allowed local CPI adjustment only as per the mechanism prescribed in the Order part of this decision.

N. VARIABLE O&M COSTS

SNPCL, in its review motion requested the Authority to allow Rs. 0.43/kWh in respect of local variable O&M component and Rs. 0.68/kWh in respect of foreign variable O&M component, details of which are given hereunder;

	Rs./kWh	
Local Variable O&M	PAR	Review Motion
Tariff Rate for Lube Oil consumption	0.2821	0.2821
Tariff Rate for Chemicals	0.1500	0.1500
Total Local Variable O&M	0.4321	0.4321
Foreign Variable O&M		
Tariff Rate of Spare parts	0.541	0.6748
Total Variable O&M	0.9731	1.1069

With its review motion, the Petitioner has submitted O&M agreement which has been signed between TKPL and SNPCL for a period of five years. In the said agreement, the cost of Lube Oil and Chemical has been decided as Rs. 432.10/MWh, i.e. Rs. 0.43/kWh. The cost of Spare Parts has been agreed as Euros 4.90/MWh which works out to be Rs. 0.57/kWh (PKR/Euro = 117.075). SNPCL in its review motion has requested that Euro/PKR parity and Euro CPI indexations may be allowed on Variable O&M (Foreign). The Authority noted that the Petitioner in the review motion has worked out the cost of Lube Oil and Spare Parts on 85% of the plant factor which is incorrect. Being part of the variable cost, this component is applicable only on the actual amount of energy produced during the operating cycle. Furthermore, the Authority observed that SNPCL, in the impugned PAR decision was allowed variable cost of Rs. 0.62/ kWh. This cost was allowed after detailed analysis of requirement of spare parts, chemical and lubes for the technology being installed in the subject power station. A detailed comparative analysis was also carried out regarding the costs in this regard allowed by the Authority and being actually incurred by comparable projects.



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Reviewing all those workings, the Authority is of the view that the cost and corresponding adjustments already allowed in respect of variable O&M are reasonable and does not require any upward revision.

O. EQUITY ("INTERNAL RATE OF RETURN") IRR AND WITH HOLDING TAX (WHT) ON DIVIDEND AS PASS THROUGH:

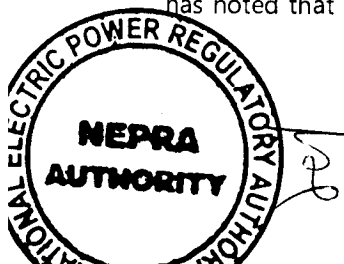
SNPCL vide its review motion requested to allow an 18% Equity IRR. The Petitioner submitted that it is requesting relatively higher returns because the subject project is not backed by GoP Guarantee. Further, SNPCL requested the Authority to provide clarifications on whether withholding tax on dividends is being considered as a pass-through item or otherwise. The Authority noted that SNPCL in the impugned decision has been allowed an IRR of 15% equivalent to returns being allowed for the gas based power projects. Hence, the Authority is of the view that no change is required to be made in this regard. Regarding the cost of withholding tax on dividend, the Authority has principally decided not to allow this tariff component in any of the tariff decisions and maintained the same for the subject case as dividend is the income of the shareholders and any incidence of tax on their income should not burden consumers.

P. WORKING CAPITAL FINANCING COST

SNPCL has submitted that the Authority in its determination of Upfront Tariff for Re-gasified Liquid Natural Gas ("RLNG") projects has allowed working capital cost. Referring the said decision, the Petitioner has requested the Authority to allow it the earlier claimed working capital cost of Rs. 0.0687/ kWh to cover the lag of 30 days in receipts and payments. The Authority has noted that there is a fundamental difference in the cases of RLNG since the payments for the purchase of RLNG are to be made in advance due to which the said component has been allowed therein. Whereas as per Gas Supply Agreement signed between SNPCL and SSGCL, the gas company shall raise the invoice in ten (10) days of the subsequent month and from the date of delivery of invoice, the purchaser shall have ten (10) days to pay off the invoiced amount. Therefore, this aspect can be efficiently managed and cost can be avoided. The Authority thus decided to maintain its earlier decision in this regard.

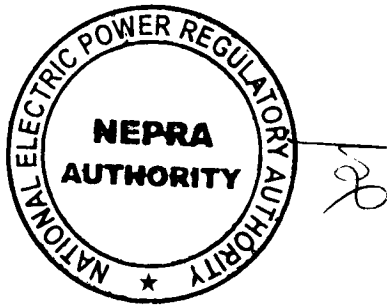
Q. DEBT SERVICING

SNPCL has submitted that it informed the Authority during PAR proceedings that the current financing is arranged by Government of Sindh (GoS) providing collateral in the form of Guarantee to the lending banks. However, SNPCL submitted that the classical Project Financing is yet to be achieved and is currently being worked upon. In this regard, the Petitioner requested the Authority to approve adjustment of the allowed Principal Repayment and Interest Component on foreign financing as well. The Authority has noted that the tariff approved in the PAR was computed on 100% local financing. The Authority has



considered this request and decided to allow the adjustment of approved tariff on foreign financing at the time of COD. However, the spread of such loan should not be higher than 4.25% over London Inter-Bank Offer Rate ("LIBOR") and debt servicing tenor should not be less than 10 years after COD. In case negotiated spread is less than the said limits, the savings in the spread over LIBOR shall be shared between the power purchaser and the power producer in the ratio of 60:40 respectively.

In addition to the requests made by SNPCL in the subject review motion, K-Electric vide its letter No. SBD/NEPRA-0110/2016-0614 dated June 14, 2016 requested the Authority to provide clarifications with respect to the term of Economic Merit Order. K-Electric submitted that in the Paragraph I (ii) of the PAR decision, the Authority, inter alia, stated "*the Authority has decided that if it is found that SNPCL plant was available and was also falling in the economic merit order of K-Electric system but was not given despatch, the capacity payment made to SNPCL by K-Electric shall not be passed on to the consumers to the extent of capacity of this plant not dispatched/utilized by K-Electric. In addition, the energy charge differential between the costliest sources of power in K-Electric's system and of SNPCL shall also not be passed on to the consumers.*" Referring the said extracts, K-Electric submitted that the term "Economic Merit Order" is not defined in the NEPRA Act or the rules and regulations made thereunder. However, the term "economic dispatch" is defined in NEPRA Licensing (Generation) Rules, 2000 and also in K-Electric's transmission license no. TL/02/2010 dated June 11, 2010. During the hearing of the review motion, K-Electric again raised this point and requested the Authority to provide clarifications thereon. The Authority has considered this request of K-Electric and has decided to replace the term "Economic Merit Order" with "Economic Dispatch" in the decision accordingly.



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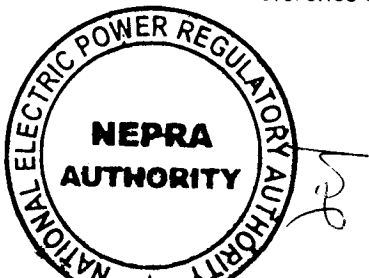
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ORDER

8. The Authority has decided to approve the following tariff which shall be incorporated in the PAC to be signed between K-Electric and SNPCL;

Tariff Components	Year 1-10	Year 11-25	Levelized (1-25)
Energy Purchase Price (Rs./kWh)			
Fuel Cost	5.4721	5.4721	5.4721
Variable O&M-Foreign	0.3410	0.3410	0.3410
Variable O&M-Local	0.2790	0.2790	0.2790
Total	6.0921	6.0921	6.0921
Capacity Purchase Price (Rs./kW/hour)			
Fixed O&M- Local	0.3500	0.3500	0.3500
Insurance	0.1090	0.1090	0.1090
Return on Equity	0.3991	0.3991	0.3991
Return on Equity During Construction	0.0450	0.0450	0.0450
Debt Servicing	1.6252	-	1.1001
Total	2.5283	0.9031	2.0032
Total Tariff (100% plant factor)	8.6203	6.9952	8.0953

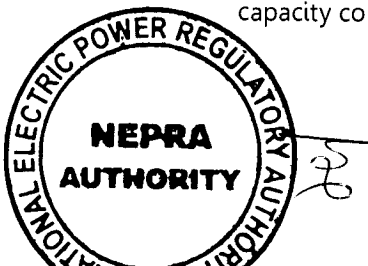
- The aforementioned tariff is applicable for twenty five (25) years, extendable for another five years, commencing from the date of COD.
- Plant availability factor of 92% (approximately 336 days per years) has been allowed.
- Electricity generation shall be subject to Economic Dispatch.
- Tariff shall be charged on Take or Pay basis.
- The tariff has been calculated on the basis of net capacity of 50.5312 MW.
- Debt Service shall be paid in the first 10 years of commercial operation of the plant.
- Debt Repayment Schedule has been worked out using three months KIBOR (6%) + spread (3%).
- Net Thermal Efficiency has been taken as 43.66% (net HHV) over the tariff control period.
- Base fuel price of Rs. 700/MMBTU on HHV basis has been used for the calculation of tariff.
- Debt to Equity ratio has been allowed to be 80:20.
- Return on Equity during construction and operation of 15% has been allowed.
- Construction period of eighteen (18) months has been allowed for the workings of ROEDC and IDC.
- Insurance during Operation has been calculated as 1.00% of the allowed EPC Cost.
- Reference Exchange Rates of 101.72 PKR/USD and 1.0572 USD/ Euro have been used.



- Detailed component wise tariff is attached as **Annex-I** of this decision.
- Debt Servicing Schedule is attached as **Annex-II** of this decision.

A. One Time Adjustments at COD

- EPC cost will be adjusted at COD on account of variation in Euro/USD and USD/PKR parity, on production of authentic documentary evidences to the satisfaction of the Authority.
- Gas Pipeline Cost (Supply of Equipment/Material and Services Contract) shall be adjusted for USD/PKR parity using the rate, as decided in that contract, as reference.
- For other project cost items, the amounts allowed in USD will be converted in PKR using the reference PKR/USD rate of 101.72 to calculate the maximum limit of the amount to be allowed.
- Duties/taxes/port clearance charges paid in the course of generation business, not being of refundable nature, imposed on SNPCL up to COD will be adjusted at actual on COD, as against USD 2.388 million being allowed, upon production of verifiable documentary evidence to the satisfaction of the Authority.
- Fuel costs allowed for pre-commissioning tests before COD shall be adjusted on actual at COD, upon production of verifiable documentary evidence to the satisfaction of the Authority.
- IDC will be adjusted at COD on the basis of actual debt draw downs (within the overall debt allowed by the Authority at COD), by applying three months LIBOR/KIBOR prevailing at the respective drawdown dates.
- The reference tariff has been worked out on the basis of 3 months KIBOR of 6% plus a premium of 300 basis points. In case negotiated spread is less than the said limits, the savings in the spread over KIBOR shall be shared between the power purchaser and the power producer in the ratio of 60:40 respectively. In case of foreign financing, the savings in the spread of 425 basis points over LIBOR shall also be shared as per the aforesaid formula.
- ROEDC will be adjusted at COD on the basis of actual equity injections (within the overall equity allowed by the Authority at COD) during the project construction period of eighteen months allowed by the Authority.
- All the relevant tariff components shall be adjusted at the time of COD based upon the Initial Dependable Capacity Test to be carried out for determination of net dependable capacity in case the capacity is established higher than 50.5312 MW; however, no adjustment shall be made if the capacity comes out less than 50.5312 MW.



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- The allowed tariff has been worked out on the basis of minimum net efficiency of 43.66% (net HHV at mean site conditions). Based upon the test of the complex to be carried out at the time of COD by an Independent Engineer in presence of NEPRA officials, the reference fuel cost component of tariff shall be adjusted, provided that the combined auxiliary and transformer losses are lower or equal to 3%.
- The compensation of degradation and part load adjustment shall be allowed at the time of COD on submission of such curves as provided by Original Equipment Manufacturer ("OEM").

B. Indexations

i) Fuel Price Variation

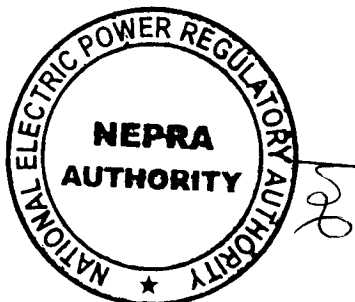
The variable charge part of the tariff relating to fuel cost will be adjusted on account of the fuel price variation as and when notified by the relevant authority, which in the instant case is the OGRA. In this regard, the variation in SNPCL's allowed rate relating to fuel cost shall be revised according to the following formula:

$FCC_{GAS(REV)}$	=	$FCC_{GAS(REF)} * P_{GAS(REV)} / P_{GAS(REF)}$
Where:		
$FCC_{GAS(REV)}$	=	The revised fuel cost component on Gas
$FCC_{GAS(REF)}$	=	The reference fuel cost component on Gas
$P_{GAS(REV)}$	=	The revised HHV Gas price notified by the relevant Authority
$P_{GAS(REF)}$	=	The reference HHV Gas price of PKR 700/MMBtu

Note: The reference numbers shall be revised after making the required adjustments at the time of COD.

ii) Variable Operation and Maintenance Costs

Variable O&M components of tariff shall be adjusted on account of local Inflation (CPI), foreign inflation (US CPI) and exchange rate quarterly on 1st July, 1st October, 1st January and 1st April based on the latest available information with respect to CPI notified by the Pakistan Bureau of Statistics (PBS), US CPI issued by US Bureau of Labor Statistics and revised TT & OD selling rate of US Dollar notified by the National Bank of Pakistan as per the following mechanism:

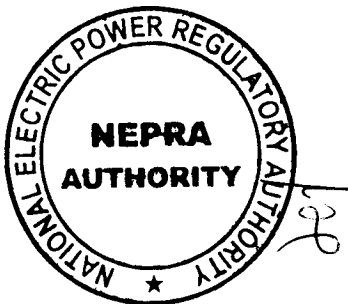


$F V. O\&M_{(REV)}$	=	$F V. O\&M_{(REF)} * US CPI_{(REV)} / US CPI_{(REF)} * ER_{(REV)} / ER_{(REF)}$
$L V. O\&M_{(REV)}$	=	$L V. O\&M_{(REF)} * CPI_{(REV)} / CPI_{(REF)}$
Where:		
$F V. O\&M_{(REV)}$	=	The revised Variable O&M Foreign Component of Tariff
$L V. O\&M_{(REV)}$	=	The revised Variable O&M Local Component of Tariff
$F V. O\&M_{(REF)}$	=	The reference Variable O&M Foreign Component of Tariff
$L V. O\&M_{(REF)}$	=	The reference Variable O&M Local Component of Tariff
$US CPI_{(REV)}$	=	The revised US CPI (All Urban Consumers)
$US CPI_{(REF)}$	=	The reference US CPI (All Urban Consumers) of 237.111 for the month of February, 2016
$CPI_{(REV)}$	=	The revised CPI (General)
$CPI_{(REF)}$	=	The reference CPI (General) of 203.28 for the month of March 2016
$ER_{(REV)}$	=	The revised TT & OD selling rate of US dollar
$ER_{(REF)}$	=	The reference TT & OD selling rate of RS. 101.72/USD

Note: The reference numbers shall be revised after making the required adjustments at the time of COD.

iii) **Fixed Operation and Maintenance Costs**

Fixed O&M components of tariff shall be adjusted on account of local Inflation (CPI) on 1st July, 1st October, 1st January and 1st April based on the latest available information with respect to CPI notified by the Pakistan Bureau of Statistics (PBS) as per the following mechanism:



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$L F. O\&M_{(REV)}$		$L F. O\&M_{(REF)} * CPI_{(REV)} / CPI_{(REF)}$
Where:		
$L F. O\&M_{(REV)}$	=	The revised Fixed O&M Local Component of Tariff
$L F. O\&M_{(REF)}$	=	The reference Fixed O&M Local Component of Tariff
$CPI_{(REV)}$	=	The revised CPI (General)
$CPI_{(REF)}$	=	The reference CPI (General) of 203.28 for the month of March 2016

Note: The reference numbers shall be revised after making the required adjustments at the time of COD.

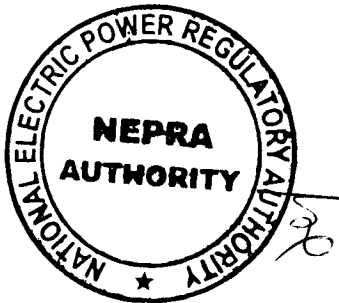
iv) **Insurance during Operation**

The actual insurance cost for the minimum cover required under contractual obligations with the Power Purchaser, not exceeding 1% of the EPC cost, will be treated as pass through. Insurance component of reference tariff shall be adjusted annually as per actual upon production of authentic documentary evidence according to the following formula;

AIC		$Ins_{(Ref)} / P_{(Ref)} * P_{(Act)}$
Where		
AIC	=	Adjusted insurance component of tariff
$Ins_{(Ref)}$	=	Reference insurance component of tariff
$P_{(Ref)}$	=	Reference premium @ 1% of EPC Cost at Rs. 101.72
$P_{(Act)}$	=	Actual premium or 1% of the EPC Cost converted into Pak Rupees on exchange rate prevailing on the 1 st day of the insurance coverage period whichever is lower

v) **Return on Equity and Return on Equity During Construction**

The ROE and ROEDC components of the tariff will be adjusted on quarterly basis on account of change in USD/PKR parity. The variation relating to these components shall be worked out according to the following formula;



$ROE_{(Rev)}$	=	$ROE_{(Ref)} * ER_{(Rev)} / ER_{(Ref)}$
Where;		
$ROE_{(Rev)}$	=	Revised ROE Component of Tariff
$ROE_{(Ref)}$	=	Reference ROE Component of Tariff
$ER_{(Rev)}$	=	The revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan
$ER_{(Ref)}$	=	The reference TT & OD selling rate of Rs. 101.72/USD

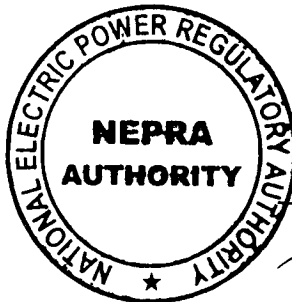
Note: The reference numbers shall be revised after making the required adjustments at the time of COD.

vi) **Variations in KIBOR**

The interest part of capacity charge component for the loan shall remain unchanged throughout the term except for the adjustment due to variation in interest rate as a result of variation in KIBOR according to the following formula;

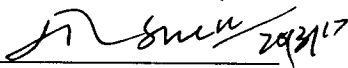
ΔI	=	$P_{(REV)} * (KIBOR_{(REV)} - 6%) / 4$
Where		
ΔI	=	The variation in interest charges applicable corresponding to variation in 3 months KIBOR. ΔI can be positive or negative depending upon whether 3 months $KIBOR_{(REV)}$ per annum > or < 6%. The interest payment obligation will be enhanced or reduced to the extent of ΔI for each quarter under adjustment.
$P_{(REV)}$	=	The outstanding principal (as indicated in the attached debt service schedule to this order), at the relevant quarterly calculations date. Quarter 1 shall commence on the commercial operations date (i.e. the first figure will be used for the purposes of calculation of interest for the first quarter after commercial operations date).
$KIBOR_{(REV)}$	=	Revised 3 months KIBOR as at the last day of the preceding quarter

Note: The reference numbers shall be revised after making the required adjustments at the time of COD.

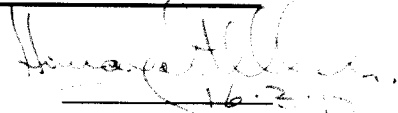


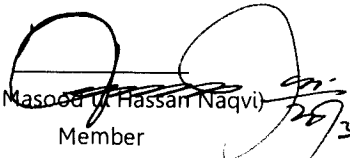
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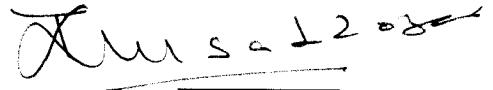
- This review motion decision shall be read with the original PAR decision.
 - K-Electric before signing the Power Acquisition Contract shall satisfy itself that the plant and machinery proposed to be installed is new and of international standards.
 - Pre COD sale of electricity is allowed, subject to the terms and conditions of Power Acquisition Contract, at the fuel cost component of the applicable tariff. However, pre COD sale will not alter the construction time allowed, in any manner.
 - General assumptions, which are not covered in this review decision, PAR decision and IPPR, 2005, may be dealt with as per the standard terms of the Power Acquisition Contract.
9. The Order part along with two Annexures is recommended for notification by the Federal Government in the official gazette in accordance with Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997.

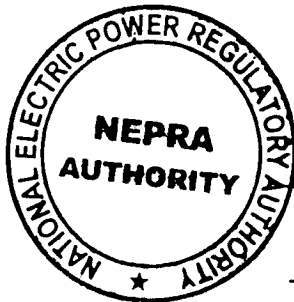

(Maj. (R) Haroon Rashid)
Member

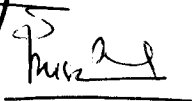
AUTHORITY

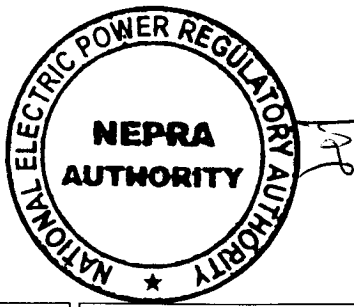

(Himayat Ullah Khan)
Member


(Syed Masood ul Hassan Naqvi)
Member


(Brig. (R) Tariq Saddozai)
Chairman




040817



SINDH NOORIABAD POWER COMPANY PRIVATE LIMITED

REFERENCE TARIFF TABLE ON TAKE OR PAY BASIS

Years	Energy Purchase Price (Rs./kWh)				Capacity Purchase Price (Rs./kW/hour)						
	Fuel Component	Variable O&M		Total EPP	Fixed O&M	Insurance	Return on Equity During Construction	Return on Equity	Principal Component	Interest Component	Total CPP
		Foreign	Local		Local						
1	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	0.6902	0.9349	2.5283
2	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	0.7545	0.8707	2.5283
3	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	0.8247	0.8005	2.5283
4	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	0.9015	0.7237	2.5283
5	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	0.9854	0.6398	2.5283
6	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	1.0771	0.5481	2.5283
7	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	1.1774	0.4478	2.5283
8	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	1.2870	0.3382	2.5283
9	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	1.4068	0.2184	2.5283
10	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	1.5377	0.0875	2.5283
11	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	-	-	0.9031
12	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	-	-	0.9031
13	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	-	-	0.9031
14	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	-	-	0.9031
15	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	-	-	0.9031
16	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	-	-	0.9031
17	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	-	-	0.9031
18	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	-	-	0.9031
19	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	-	-	0.9031
20	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	-	-	0.9031
21	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	-	-	0.9031
22	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	-	-	0.9031
23	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	-	-	0.9031
24	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	-	-	0.9031
25	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	-	-	0.9031
Levelized (1-25) Years	5.4721	0.3410	0.2790	6.0921	0.3500	0.1090	0.0450	0.3991	0.6721	0.4281	2.0032

Net Dependable Capacity 50.5312
Reference Exchange Rate 101.72
Levelized Tariff (at 92% plant factor) 8.2695

SINDH NOORIABAD POWER COMPANY PRIVATE LIMITED PHASE

DEBT SERVICING SCHEDULE

Gross Capacity	52.0940	USD/PKR Parity	101.72
Net Capacity	50.5312	Equity	20%
KIBOR	6.00%	Debt	80%
Spread Over KIBOR	3.00%		
Total Interest Rate	9.00%		

Quarters	Base Amount (Rs. million)	Interest (Rs. million)	Principal Repayment (Rs. million)	Annual Principal Component (Rs./kWh)	Annual Interest Component (Rs./kWh)
1	4,710.84	105.99	73.85		
2	4,636.99	104.33	75.52		
3	4,561.47	102.63	77.21	0.6902	0.9349
4	4,484.26	100.90	78.95		
5	4,405.31	99.12	80.73		
6	4,324.58	97.30	82.54	0.7545	0.8707
7	4,242.04	95.45	84.40		
8	4,157.63	93.55	86.30		
9	4,071.33	91.60	88.24		
10	3,983.09	89.62	90.23	0.8247	0.8005
11	3,892.86	87.59	92.26		
12	3,800.60	85.51	94.33		
13	3,706.27	83.39	96.46		
14	3,609.81	81.22	98.63	0.9015	0.7237
15	3,511.19	79.00	100.85		
16	3,410.34	76.73	103.11		
17	3,307.22	74.41	105.44		
18	3,201.79	72.04	107.81	0.9854	0.6398
19	3,093.98	69.61	110.23		
20	2,983.75	67.13	112.71		
21	2,871.04	64.60	115.25		
22	2,755.79	62.01	117.84	1.0771	0.5481
23	2,637.94	59.35	120.49		
24	2,517.45	56.64	123.21		
25	2,394.25	53.87	125.98		
26	2,268.27	51.04	128.81	1.1774	0.4478
27	2,139.46	48.14	131.71		
28	2,007.75	45.17	134.67		
29	1,873.07	42.14	137.70		
30	1,735.37	39.05	140.80	1.2870	0.3382
31	1,594.57	35.88	143.97		
32	1,450.60	32.64	147.21		
33	1,303.39	29.33	150.52		
34	1,152.87	25.94	153.91	1.4068	0.2184
35	998.96	22.48	157.37		
36	841.59	18.94	160.91		
37	680.68	15.32	164.53		
38	516.14	11.61	168.23	1.5377	0.0875
39	347.91	7.83	172.02		
40	175.89	3.96	175.89		

