



Registrar

# National Electric Power Regulatory Authority Islamic Republic of Pakistan

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No. NEPRA/R/ADG(Tariff)/TRF-593(HBS)-2022/1942-47

February 03, 2025

Subject: **DECISION OF THE AUTHORITY REGARDING MODIFICATION PETITION OF TARIFF DETERMINATION DATED 20-05-2020 UNDER SECTION 7 AND 31 OF THE NEPRA ACT AND RULE 3 OF THE NEPRA (TARIFF STANDARDS & PROCEDURE) RULES, 1998 AND ALL OTHER ENABLING PROVISIONS OF LAW-1230.54 MW (GROSS)) POWER PROJECT AT HAVELI BAHADUR SHAH, DIST, JHANG**

Dear Sir,

Please find enclosed herewith the subject Decision of the Authority along with Annex-I & II (Total 18 Pages) regarding Modification Petition of tariff determination dated 20-05-2020 in Case No. NEPRA/ TRF-593(HBS)-2022.

2. The Decision 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 within 30 days from the intimation of this Decision. In the event the Federal Government fails to notify the subject tariff Decision within the time period specified in Section 31(7), then the Authority shall notify the same in the official Gazette pursuant to Section 31(7) of NEPRA Act.

Enclosure: As above

  
(Wasim Anwar Bhinder)

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

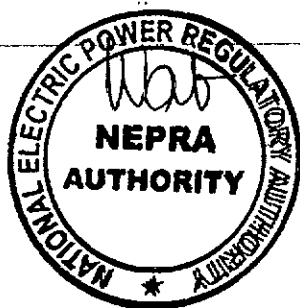
Copy to:

1. Secretary, Cabinet Division, Cabinet Secretariat, Islamabad.
2. Secretary, Ministry of Finance, 'Q' Block, Pak Secretariat, Islamabad.
3. Chief Executive Officer, Central Power Purchasing Agency Guarantee Limited (CPPA-G), Shaheen Plaza, 73-West, Fazl-e-Haq Road, Islamabad
4. Chief Executive Officer, National Power Parks Management Company (Pvt.) Ltd. Second Floor 7-C-1, Gulberg-III, Lahore

**DECISION OF THE AUTHORITY REGARDING MODIFICATION PETITION OF TARIFF DETERMINATION DATED MAY 20, 2020 UNDER SECTION 7 AND 31 OF THE NEPRA ACT AND RULE 3 OF THE NEPRA (TARIFF STANDARDS & PROCEDURE) RULES, 1998 AND ALL OTHER ENABLING PROVISIONS OF LAW - 1230.54 MW (GROSS) POWER PROJECT AT HAVELI BAHADUR SHAH DIST. JHANG**

**Background**

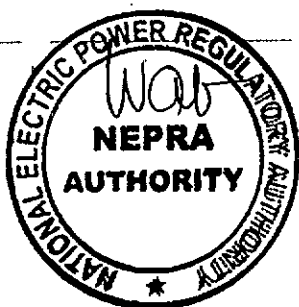
1. National Power Parks Management Company Private Limited (herein after referred as "NPPMCL" or "the Company" or "the Petitioner") is a private limited company, owned by the Federal Government, incorporated in the year 2015 under the Companies Ordinance, 1984. NPPMCL has set up a 1,230.54 MW (gross) RLNG power plant located at Haveli Bahadur Shah, Jhang (the "Project"). NPPMCL had filed an application for the grant of Generation License for the Project on Apr 21, 2016 which was granted by the Authority on Sep 29, 2016 vide license No. IGSPL/70/2016. Thereafter, NPPMCL filed its cost-plus Tariff petition on Apr 22, 2016 (the "Tariff Petition"), for approval of reference generation tariff for Single Cycle and Combined Cycle Operation for the Project. NEPRA issued its determination on Aug 09, 2016, approving the reference tariff (referred to as the "Determination" or "Reference Tariff Order").
2. NPPMCL filed a petition for modification of the Determination vide application no. NPPMCL-HBS/CEO/2019/13165 dated May 24, 2019 (the "Modification Petition"). Through the Modification Petition, NPPMCL requested for modification of decision of NEPRA pertaining to NPPMCL's tariff. NEPRA issued its decision on the Modification Petition on Nov 18, 2019 (referred to as the "Modification Order" or "Modified Reference Tariff").
3. The Company filed a motion for leave for review against the Modification Order on Nov 29, 2019 vide application no. NPPMCL-HBS/CEO/2019/15691. NEPRA issued its decision on the same on Feb 12, 2020 (the "Review Order").
4. In terms of the Reference Tariff Order, NPPMCL filed a petition for the one-time COD adjustment of the Reference Tariff on Dec 10, 2019 ("COD Tariff Petition"). The decision on the COD Tariff Petition was issued by the Authority on Feb 19, 2020 ("COD Order" or "COD Determination"). Subsequently NPPMCL filed a Review motion petition before NEPRA on Feb 28, 2020 vide application no. NPPMCL-HBS/CEO/2020/16844. NEPRA issued its decision on the same on May 20, 2020 (the "COD Tariff Review Order").
5. In compliance with the direction of the Federal Government, NPPMCL filed a petition to NEPRA requesting for a reduction of ROE. NEPRA issued its decision vide letter No. NEPRA/R/ADG/(TRF)/TRF-471/NPPMCL-2019/8774-8776 dated Feb 18, 2021 (the "ROE Reduction Order").
6. NPPMCL had submitted letter No. NPPMCL/CEO/21289 dated May 20, 2021 to NEPRA requesting an extension of time allowed regarding submission of verifiable documentary evidence of the costs allowed as payable in COD Tariff Review Order dated May 20, 2020. NEPRA vide letter No.30956 dated Jul 02, 2021 communicated that NPPMCL has to file its



petition for Modification in the Decision of the Authority because the instant request cannot be done through a simple application.

**Filing of Modification Petition**

7. Subsequently NPPMCL filed petition on Oct 11, 2022 for Modification of COD Tariff Review Order (hereinafter "**Instant Petition**") under Section 7 and 31 of the NEPRA Act and Rule 3 of the NEPRA Tariff (Standards and Procedures) Rules 1998 (hereinafter "Rules") and all other enabling provisions of the law. The instant petition has been filed by the Company on following grounds:
- i. Adjustment of Remaining Payables
    - a) EPC Offshore
    - b) EPC Onshore
    - c) Site Housing complex
    - d) BOP Spares
    - e) Engineering & Consultancy
    - f) Land Cost
    - g) Security Surveillance
    - h) Insurance During Construction
  - ii. Increase in Housing Complex Cost
  - iii. Use of Canal Water for Cooling Purpose
  - iv. PPIB Fee
  - v. Operation / Start-up on HSD
  - vi. ROE/ROEDC Reduction due to retrospective re-computation of ROEDC
  - vii. Simple Cycle Tariff
  - viii. O&M Indexation
8. The Authority admitted the petition for consideration on October 27, 2022. In order to provide opportunity of hearing to the Petitioner and the relevant stakeholders the Authority decided to conduct hearing on the matter. Accordingly, notice of admission along with salient features of the petition and issues were published in the national newspaper on January 25, 2023. Individual notices were also issued to the relevant stakeholders for meaningful participation in the proceedings. The following issues were approved for discussion during the hearing;
- i. Whether the request of the Petitioner for adjustment of the payables/partially paid amount after the lapse of allowed one year period as per Authority's decision dated May 20, 2020 is justified?
  - ii. Whether the proposed increase in timelines and cost for housing complex are justified?
  - iii. Whether the cost for canal Water for cooling purposes in generation tariff is reasonable and justified?
  - iv. Whether the request of the Petitioner is justified for allowing PPIB fee as pass through item?



ANP 7

- v. Whether the request of the Petitioner with respect to operations/startups on HSD is justified?
  - vi. Whether the request for re-computation of ROE/ROEDC is reasonable and justified?
  - vii. Whether the request of the Petitioner with regard to simple cycle tariff is reasonable and justified?
  - viii. Whether the request for revision in indexes for O&M is justified?
  - ix. Any other relevant issue arising during the proceedings.
9. The hearing on the matter was held on Feb 01, 2023 at NEPRA Headquarter Islamabad, which was attended by representatives of NPPMCL, CPPA-G and other stakeholders.
10. Detailed discussions on each issues raised by the Petitioner and approved by the Authority are provided in the following paragraphs.
11. **Whether the request of the Petitioner for adjustment of the payables/partially paid amount after the lapse of allowed one year period as per Authority's decision dated May 20, 2020 is justified?**
- 11.1. NPPMCL submitted that the Authority in its COD Tariff Review decision dated May 20, 2020, decided to allow the payable amount of US\$ 31.876 million at COD (without any exchange rate variation beyond Rs. 110.60/US\$) which shall be subject to adjustment on the basis of verifiable documentary evidence within one year of the decision. The relevant extract of the aforesaid decision referred by the Company is as under:

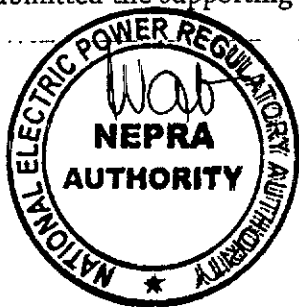
**II. Adjustments on Account of Project Cost Payables**

In accordance with the decision of the Authority following adjustments with respect to project costs which stand payable at COD shall be made after submitting the verifiable documentary evidence and without any exchange rate variation beyond Rs.110.60/US\$ within one year of this decision of the Authority;

- a) EPC Cost Offshore for an amount of US\$ 7.080 million.
- b) EPC Cost Onshore for an amount of US \$ 1.480 million.
- c) Items not covered under EPC\*, which includes:
  - a. Site Housing Colony  
The adjustment of cost for Site Housing Complex including the Auditorium which amounts to US\$ 11.664 million has been deferred. In case, the Petitioner fails to complete Site Housing Complex within 2 years from COD of the complex, a penalty shall be applicable @ KIBOR+ actual premium adjusted for power producer's share.
  - b. Adjustment of BOP spares of amount of US\$ 2.799 million.
- d) Non-EPC which includes:
  - i. Engineering Consultancy amounting to US\$ 0.417 million.
  - ii. Land Cost amounting to US\$ 0.147 million,
  - iii. Security Surveillance amounting to US\$ 8.257 million
  - iv. Insurance during construction to US\$ 0.032 million.

The one time payable adjustments will be incorporated in the project cost based on the provision of verifiable documentary evidence once paid full and final and the revised tariff shall be applicable prospectively from the date of revised COD order.

- 11.2. NPPMCL in support of its claim submitted the invoices, payment evidence, bank statements etc and requested the Authority to allow adjustment on account of above referred heads.
- 11.3. While reviewing the documentary evidence it was observed that the Company has not submitted the supporting documentary evidence related to Security Surveillance cost of US\$



AN 47

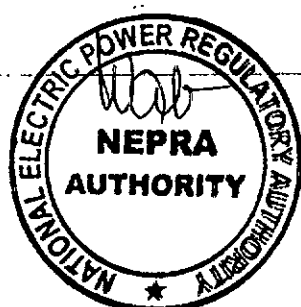
8.257 million. In addition, the sales tax amount was also included in certain items. Accordingly based on the verifiable documentary evidence and following a comparison of payables at COD, as claimed in the instant modification petition and verified/allowed is as under;

S.No.	Project Cost	Project Cost allowed as Payable by NEPRA	Project Cost (Claimed)	Project Cost Allowed (Assessed)
<b>USD in Million</b>				
<b>1</b>	<b>EPC Cost</b>			
i.	EPC Cost-Offshore	7.080	6.905	6.891
ii.	EPC Cost-Onshore	1.480	1.215	1.009
	<b>Sub-Total</b>	<b>8.560</b>	<b>8.120</b>	<b>7.900</b>
	<b>Items not covered in EPC cost</b>			
iii.	Site housing complex	11.664	0.012	0.010
iv.	BOP Spares	2.799	2.799	2.799
	<b>Sub-Total</b>	<b>14.463</b>	<b>2.811</b>	<b>2.809</b>
<b>2</b>	<b>Non-EPC cost</b>			
v.	Engineering consultancy	0.417	0.417	0.417
vi.	Land Cost	0.147	0.083	0.079
vii.	Security Surveillance	8.257	8.257	-
viii.	Insurance during construction	0.032	0.032	0.028
	<b>Sub-Total</b>	<b>8.853</b>	<b>8.789</b>	<b>0.524</b>
<b>Total</b>		<b>31.876</b>	<b>19.72</b>	<b>11.232</b>

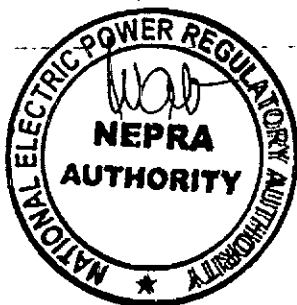
11.4. It may be noted that out of total payable amount of US\$ 31.876 million, HBS claimed US\$ 19.72 million. As informed by the Company, EPC cost payable has been settled and no further amount is outstanding on this account. While reviewing the above table it has been observed that the major difference is on account of housing colony (the issue of housing colony has been discussed separately in the succeeding paragraphs) and security surveillance cost. HBS was directed to provide the documentary evidence pertaining to security surveillance cost of US\$ 8.257 million however the same was not provided therefore the same has not been considered. Accordingly after disallowing the cost of security surveillance, adjusting the sales tax, exchange rate and cost beyond allowed limit, the Authority has decided to allow the verified amount of US\$ 11.232 million as full and final settlement prospectively from May 20, 2021.

**12. Whether the proposed increase in timelines and cost for housing complex are justified?**

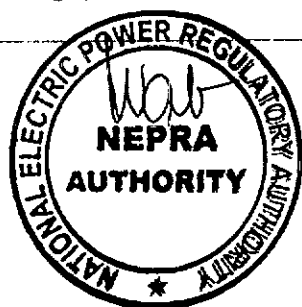
12.1. The Authority had allowed an amount of US\$ 11.738 Million for construction of site housing complex, subject to adjustment at the time of COD on actual basis in the Reference Tariff determination dated Aug 09, 2016. Subsequently, the construction period was extended by 24 months from the date of COD through the determinations dated Nov 18, 2019, Feb 12, 2020, Feb 19, 2020 and May 20, 2020. The Authority in its COD review decision dated May 20, 2020 allowed US\$ 11.664 Million as payable on account of Housing Complex cost which was required to be made within two years from COD of the complex. Additionally, the Authority stipulated that in case any delays, a penalty in the form of KIBOR plus Actual premium would be imposed due to non-performance of this matter.



- 12.2. In justifying the delay in Construction of Housing Complex, NPPMCL submitted that in terms of the EPC Agreement, provision of land for the purposes of storing the equipment, construction material and batching plants was the responsibility of the Licensee for which land was temporary acquired under section 35 of the Land Acquisition Act, 1896. As per the conditions of this temporary acquisition, land was to be returned to the owners after restoring the same in proper cultivable condition. Since the said land became uncultivable due to extensive construction activity and the restoration cost was considerable and not covered in the Reference Tariff, therefore, it was decided to permanently acquire the said land for the purpose of the construction of housing facility. However, this resulted in delay in construction and completion of the housing facility, but saving significant cost required for land and restoration. Later on, the construction of housing facility could not be started due to selection of HBS project by the Federal Government for urgent privatization for which the process was initiated by the Privatization Commission of Pakistan in Oct 2018. Subsequent delays caused on account of Covid-19 pandemic, including lockdowns and travel advisories. Since the Covid-19 situation in the Country improved and Government allowed construction activities in the country, the Company's Board of Directors in their 55th meeting held on Feb 04, 2021 resolved to initiate the process of hiring of construction contractor for which tenders were invited through publication in the national newspapers. Resultantly pursuant to the competitive bidding process, the Petitioner received only one bid amounting to Rs. 2,464 million, which was rejected by the BOD of the Company due to lack of the natural competition in the bidding process and directed that bidding process be conducted afresh. Accordingly, the bidding documents were modified for re-bidding process for construction of housing facility.
- 12.3. NPPMCL vide email dated Jun 06, 2023 and subsequent rejoinder dated November 10, 2023 informed NEPRA that the initial bidding process had been scraped due to lack of competition and a rebidding process commenced in January 2023. However no bid was received in the rebidding process. Accordingly the BOD decided to conduct the third round of bidding by inviting bids from Public Sector entities.
- 12.4. NPPMCL vide email dated Jan 15, 2024 submitted a rejoinder and informed NEPRA that the third round of bidding for the construction of Housing facility at Haveli Bahadur Shah Power Project has been completed and requested that cost of construction of housing complex of HBS Power Project may kindly be revised to Rs. 3,188.33 million i.e. the lowest bid received from Railway Constructions Pakistan Limited (RAILCOP) pursuant to the bidding process conducted under the PPRA Rules, 2004 and to allow construction period of twenty four (24) months, commencing prospectively from the date of issuance of Notice-to-Proceed along with waiver of penalty.
- 12.5. CPPA-G commented that no construction work is commenced for the housing colony even the cost was allowed in reference tariff and was subject to adjustment at COD. It is therefore requested that the allowed amount be adjusted from the project cost and revise the tariff components retrospectively. The Authority may, however, allow the same when the actual construction work is accomplished.



- 12.6. The submissions of the Petitioner and comments of CPPA-G have been examined. The Authority noted that housing colony is mandatory part of the generation facility which has not been constructed due to different reasons as stated by the Petitioner. For smooth operation of the remaining operational life of the power plant, the housing colony needs to be constructed at the earliest. The Authority further noted that plant is located at the vicinity where housing colony requirement is compulsory. Keeping in view the aforesaid factors, the Authority has decided to allow the requested amount of lowest bid received i.e. Rs. 3,188.33 million (as maximum cap). As requested by the Petitioner, the construction period will be two years from the date of issuance of notice to proceed to the contractor. Subsequent to the completion of the housing complex, NPPMCL-HBS shall submit request for inclusion of cost in the tariff along with the documentary evidence. Upon satisfaction of the Authority, the allowed cost shall be adjusted in tariff prospectively from completion of the housing complex.
13. **Whether the cost for Canal Water for cooling purposes in generation tariff is reasonable and justified?**
- 13.1. The Use of Canal Water for cooling purpose was disallowed at the time of Original reference decision dated Aug 09, 2016 on the ground that there was no such kind of cost imposed by Punjab Revenue Authority (PRA). Accordingly at the time of COD no true-up was made on account of this cost.
- 13.2. NPPMCL submitted in the modification petition that as per the design of the Complex, approximately 790 Cusec of canal water is required for cooling purposes of the plant by using through Cooling Water System. In this system, water is taken from the canal and almost the same quantity is returned to the canal after cooling of the plant except small quantity of water (less than 01 Cusec) which is consumed during the cooling process. NPPMCL further submitted that the cost of supply of canal water for cooling purpose was not allowed in the Tariff determination dated Aug 09, 2016 due to the reason that this cooling water is not consumed in the system and almost whole quantity returns to the canal. However, the Government of the Punjab has now notified the rate for water supplied to any cooling system of an industrial unit including a power plant and returned to that canal at the rate of Rs. 10/- per 1000 Cubic Feet effective from Jul 01, 2021. The charges for the 790 Cusec pass-through water would be Rs. 228,657,600/- for eleven (11) months per year and will increase annually at the rate of 10%. The Petitioner further submitted that as canal water cannot be used throughout the year due to annual closure of canals for maintenance and low water levels as per irrigation requirements, so this cost will reduce depending upon the actual use of canal water for cooling purpose. According to the Petitioner, the cost of actual use of canal water for cooling purpose is required to be included in the Tariff as pass-through item for which documentary evidence of quantity & cost will be submitted to claim it.
- 13.3. The Petitioner during the hearing stated that currently no canal water is consumed as the tube-well water is used in the cooling towers. The Petitioner submitted that the Canal water may be used as an alternate option in future for the power complex. The Petitioner further submitted that the Government of the Punjab has notified the rate for water supplied to any cooling system of an industrial unit including a power plant and returned to the canal.



AN 19

13.4. The Authority noted that any such kind of charges, levy or tax imposed by the Provincial Government will enhance the generation tariff and ultimately the consumer end tariff. The Authority observed that initially the notification was about the consumption of the water. Subsequently considering the fact that there was no water consumption in RLNG power plants the same notification was amended with water supplied to the industrial units along with power plants. The Authority considers that these based load power plants were constructed to bring efficiency in the power sector and availability of the electricity generation at a reasonable price. The Authority deliberated that treating canal water as source of revenue for the provincial government would increase the generation cost and the per unit electricity price which may not be conducive for achieving the sustainable economic growth. Consequently, the Authority decided that the claim of the Petitioner does not a merit consideration. Further, the Authority noted that the Company may raise this matter with the Federal and Provincial Government to withdraw this additional charges imposed by the Irrigation Department of Government of Punjab for protecting the end-consumer from such additional costs.

**14. Whether the request of the Petitioner is justified for allowing PPIB fee as pass through item?**

14.1. The Petitioner submitted that the Private Power & Infrastructure Board (PPIB) vide its letters dated Aug 21, 2019, Jul 14, 2020, May 20, 2021, Jan 07, 2022, and Aug 31, 2022 repeatedly requested NPPMCL to pay Annual Fee @ US\$ 300 per MW under PPIB Fee and Charges Rules, 2018 as notified in the official Gazette of Pakistan. Accordingly, the Petitioner vide letter dated Jul 21, 2020, Jun 04, 2021, Jan 12, 2022 and Sep 02, 2022 had already submitted the same for consideration and approval of the Authority. NPPMCL further submitted that since the said Annual Fee is not a part of Capacity Tariff of 1230.54 MW HBS power project, therefore, the Authority is kindly requested to approve the said Annual Fee considering as Pass-Through Item so that the outstanding Annual Fee from COD onwards can be paid to PPIB.

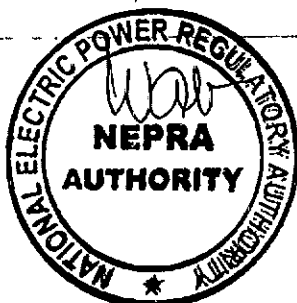
14.2. The matter pertains to all power plants and is under consideration of the Authority. The matter shall be adjudicated separately.

**15. Whether the request of the Petitioner with respect to operations/startups on HSD is justified?**

15.1. NPPMCL requested the Authority to allow operation on startup cost on HSD in line with the other RLNG based power projects. NPPMCL in support of its request submitted GE's document "Pressure Atomized Liquid Fuel Maintenance and Trouble-shooting Guidelines (GEK121350 Rev D)". NPPMCL submitted that the para IV (C) of the said guidelines stated as under:

*"The unit shall be operated on liquid fuel every six months to ensure all components are exercised and operating correctly. In order to complete this requirement, the gas turbine shall be:*

- a. Either started on liquid fuel (in case the turbine was shutdown) or transferred from gas to liquid fuel at low load.*
- b. Loaded up to LFE mode.*



AN 19



*c. Held in LFE mode for 30 minutes.*

*d. Either shutdown or transferred back to gas.*

*Ensure the water flush was successful after liquid fuel was turned off."*

15.2. Accordingly, NPPMCL has worked out the cost based on following cases:

- a. Startup on HSD
- b. Changeover from RLNG

15.3. NPPMCL submitted that it took up the matter with CPPA-G vide its letter dated Feb 11, 2021 and informed that as per OEM of Gas Turbines i.e. General Electric (GE), it was mandatory to operate both GTs of HBS Power Plant on HSD fuel twice in a year. This was essential for ensuring reliable start-up and operation of GTs on liquid fuel whenever required. However, the Power Purchaser suggested that the matter be taken up with the regulator NEPRA. NPPMCL submitted that NEPRA had recently allowed a similar request of another identical power plant i.e. M/s Quaid-e-Azam Thermal (Pvt.) Ltd (Bhikki Power Plant), therefore, it is requested that the Petitioner may also be allowed to operate its power plant on Liquid Fuel (HSD) twice a year for thirty (30) minutes each in line with the approval granted to Bhikki Power Plant.

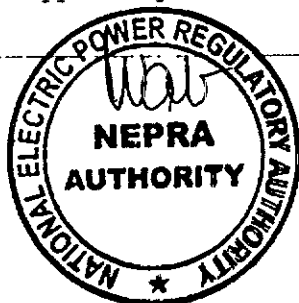
15.4. NPPMCL-HBS has submitted the impact of operation/startups on HSD (estimated cost of offline fuel changeover of one GT (while previously on RLNG operation) and estimated cost of online fuel changeover of one GT from RLNG to HSD (at 50% load) and then back to RLNG) with the petition. Petitioner also submitted GE guidelines for liquid fuel maintenance and Trouble-shooting.

15.5. CPPA-G submitted their comments on the instant matter vide letter no. DGMT-C/MT-R&G/NPPMCL/1599-1602 dated Feb 08, 2023 as below:

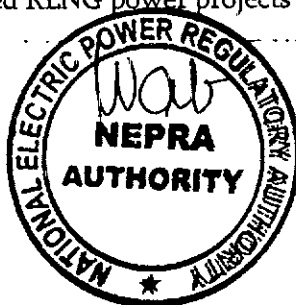
- *In view of the OEM's recommendations of biannual testing/operation of GTs of its power plant on HSD to ensure reliability of its operation on HSD, CPPA-G supports the option of online fuel changeover of NPPMCL power plants from RLNG to HSD in line with the decision of the Authority in case of QATPL's Bhikki power plant dated 27-01-2022. Moreover, NPPMCL may not be allowed the cost operation /startups on HSD in case the plant is operated on HSD upon the instruction of System operator due to the system requirements and hence the recommendations of the OEM are met with.*

15.6. The Authority considered the request of NPPMCL and observed that similar kind of decision has been made in QATPL wherein online changeover from RLNG to HSD on bi-annual basis was allowed subject to the following directions:

- a) *Heat Rate Degradation, Output Degradation and Variation in Fuel Prices will be applied as per actual.*



- b) *QATPL will not be entitled for the requested cost, in case the plant is operated on HSD upon the instructions of System Operator due to the system requirements and hence the recommendations of the OEM are met with.*
- 15.7. Based on the considerations mentioned above, the Authority allows the operation/start up on HSD to NPPMCL as per OEM manufacturer in line with QATPL i.e. transferred from gas to liquid fuel at low load only. NPPMCL is accordingly directed to submit its claim to the power purchaser i.e. CPPA-G in line with the above parameters at para 15.6 above and claim this cost as a pass-through item. NPPMCL will not be entitled for the claim, in case the plant is operated on HSD upon the instructions of System Operator due to the system requirements as the recommendations of the OEM are met with. Further, the Authority directs CPPA-G to assess and verify the costs for the same.
16. **Whether the request for re-computation of ROE/ROEDC is reasonable and justified?**
- 16.1. NPPMCL requested the Authority to allow ROEDC in line with the IPP's without retrospective effect. The Petitioner submitted that Ministry of Energy (Power Division) vide its letter No. IPPs-10(18)/2020 dated Oct 06, 2020 conveyed the decision of the Cabinet Committee on Energy (CCoE) to NPPMCL, which was ratified by the Cabinet in case No. 648/35/2020 dated Sep 08, 2020, regarding reduction in Return on Equity (ROE) of the Government owned power projects (RLNG IPPs) from 16% IRR with Dollar indexation to 12% IRR with Dollar indexation along with direction to approach NEPRA for revision of ROE component by submission of tariff revision petition to NEPRA. Accordingly, NPPMCL filed petition as per directions of the Federal Government for reduction in ROE component with NEPRA.
- 16.2. NPPMCL submitted that NEPRA Authority vide its ROE Reduction Order dated Feb 18, 2021 reduced the ROE component from 16% IRR to 12% IRR. However, while reducing the ROE component prospectively, NEPRA also reduced the Return on Equity During Construction (ROEDC) component from USD 23.338 million to USD 17.413 million which was already locked by the NEPRA through its COD Order dated May 20, 2020, which translates into further reduction of ROE by Rs. 87 million for the Company. However, NEPRA took altogether a different stance in case of IPP's and reduced the ROE component of private sector IPPs prospectively i.e. without retrospective re-computation of the ROEDC components that were locked in COD tariffs of respective IPPs. NPPMCL is of the view that NEPRA has taken two different approaches in its determinations for reducing ROE of private sector IPPs and public sector owned RLNG power plants. In view of the forgoing, the Authority is requested to remove the impact retrospectively in the ROE Reduction Order dated Feb 18, 2021 by making the ROEDC a separate tariff component as this shall ensure consistency with its similar determinations given for the private sector IPPs.
- 16.3. CPPA-G commented in the instant matter that the GOP vide its cabinet decision in case no. 648/35/2020 dated 08-09-2020 had reduced the return on equity (ROE) for Government owned RLNG power projects from 16% IRR to 12% IRR with dollar indexation. Whereas the



ROE Component for IPPs was reduced consequent upon negotiation and joint filing of revised tariff application accordingly. Therefore the two cases are different and should not be confused. Furthermore, re-computing the ROEDC component prospectively will lead to higher IRR than 12% which will again violate the GOP decision.

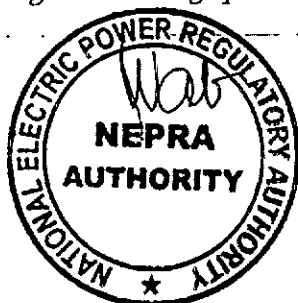
16.4. The Authority considered the submissions of NPPMCL and the comments of CPPA-G. The Authority acknowledges with the comments of CPPA-G that the ROE component was reduced in case of IPPs through negotiations whereas in the instant case CCoE has decided to reduce the IRR therefore both cannot be mixed with each other. The decision dated February 18, 2021 pertaining to reduction of IRR from 16% to 12% has been made in line with the above referred CCoE decision. Consequently, the request of NPPMCL to allow the same mechanism as in case of IPP's is not justified and not aligned to the aforesaid CCoE decision therefore the instant request is declined.

17. **Whether the request of the Petitioner with regard to simple cycle tariff is reasonable and justified?**

17.1. NPPMCL submitted that in the COD Order dated May 20, 2020, NEPRA did not provide any rationale or basis for reaching the simple cycle tariff approved by it, which was considerably lesser than the amount requested by the Company. The Simple Cycle Efficiency / Heat Rate of 41.26% (after sharing of savings achieved), as referred to at para 15.6 of the Order, has been agreed with the Power Purchaser as tested at the time of Simple Cycle Commissioning and witnessed by Power Purchaser and Independent Engineer. By considering the said Efficiency/Heat Rate and RLNG price of Rs. 1249.9553/MMTBU referred to para 4.1.15 of tariff adjustment at COD Order dated February 19, 2020, the Fuel Cost Component for Simple Cycle Tariff works out to be Rs. 11.4497/kWh (para 15.7 of the Order) and the same was requested to be allowed as Fuel Cost Component of simple cycle tariff. However, NEPRA has determined Fuel Cost Component of Rs. 10.3769/kWh which appears to be a result of calculation error as it is not aligned with the tested Efficiency / Heat Rate of the simple cycle. Since, due to this calculation error, simple cycle operations of plant would generate fuel loss of Rs. 1.0728/kWh, therefore, the Authority is requested to correct the calculation error and allow Rs. 11.4497/kWh as Fuel Cost Component of Simple Cycle Tariff. Furthermore, the simple cycle tariff was requested for any outage period, including forced outage. However, without providing any reasons or rationale, NEPRA has only allowed the simple cycle tariff during maintenance outage, scheduled outage or major overhaul outage. The exclusion of forced outage defeats the purpose of seeking the simple cycle tariff. Additionally, the Order also states that simple cycle operations will not be applicable under existing gas supply arrangements of the Company. In this regard, it is submitted that there is no nexus between the gas supply arrangements and simple cycle operations.

17.2. CPPA-G submitted their comments vide letter no. DGMT-G/MT-R&G//NPPMCL/1599-1602 dated Feb 08, 2023 as below:

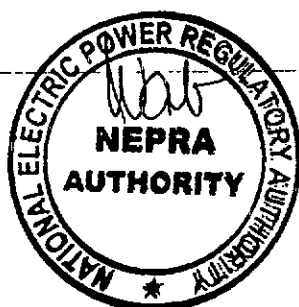
- *The request of NPPMCL may be considered by the Authority for simple cycle operations during forced outage period as well in addition to maintenance outage schedule outage or*



major overhaul outage if demanded by the system operator based on Economic merit order under provision of Grid code.

- NPPMCL in its petition also highlighted inconsistency in simple cycle tariff calculations. CPPAG considers that any inconsistency if available may be addressed by the Authority.
- Furthermore, as there is no provision of efficiency sharing on Simple Cycle mode in reference tariff determinations therefore, this office does not support efficiency sharing of 60:40 between Seller and Purchaser and recommends determining tariff on tested efficiency numbers i.e. 41.45% net LHV for HBS and 41.09% net LHV for Balloki Power Plant which are higher than EPC guaranteed efficiency numbers i.e. 40.96% net LHV for HBS and 41.01% net LHV for Balloki power plant."

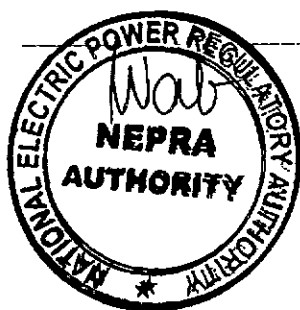
- 17.3. The submission of the Petitioner and comments of the CPPAG have been considered. The efficiency on simple cycle operation as established by the Independent Engineer works out as 41.4610%. Since no mechanism on the sharing of efficiency on simple cycle was provided in the Authority's decision dated August 9, 2016, therefore, the same has not been considered and the fuel cost component was allowed on the tested efficiency. As regards the claim of NPPMCL regarding calculation error, the same has been rechecked and no error has been found. The exchange rate for calculation of fuel cost component of simple cycle has been used as Rs. 105.38/US\$ whereas the combined cycle fuel cost component has been worked out on the basis of exchange rate of Rs. 115.7/US\$. Therefore, due to different exchange rate parameters the fuel cost component for simple cycle operation and combined cycle operation is different.
- 17.4. The Authority considered that the request of NPPMCL for allowing the simple cycle operation in forced outages as well is in line with the precedent cases. Keeping in view the request being legitimate, the Authority has decided to allow simple cycle operations to NPPMCL subject to Economic Merit Order (EMO) in all kind of outages including forced outages. However, the company shall not be entitled for any capacity charges on simple cycle operation except during allowed outages under the relevant provisions of PPA. Therefore, for simple cycle operation, the Company shall be entitled for energy charge part of tariff i.e. fuel cost component and variable O&M components except in cases of allowed outages under the PPA where company is already entitled to receive capacity charges. Further, the Authority agrees with the submission of the Petitioner that there is no nexus between the gas supply arrangements and simple cycle operations and therefore, simple cycle operations is allowed under the present gas supply arrangement.
- 17.5. The Authority has noted a contradiction in its COD Review Motion decision dated May 20, 2020 where Simple Cycle tariff table was provided under para 15.7 and para 20(I) while under para 15.10 and para 20(III), the Authority decided that the simple cycle operation shall be on the basis of approved fuel cost component and variable O&M. As decided under para 15.10 and para 20(III), the Authority upheld its decision and decided to withdraw the Simple Cycle



tariff tables. Therefore the Simple Cycle tariff tables under para 15.7 and 20(I) of the decision dated May 20, 2020 shall stand withdrawn.

**18. Whether the request for revision in indexes for O&M is justified?**

- 18.1. NPPMCL submitted that NEPRA in its Reference Tariff Determination dated Aug 09, 2016 determined the base value for US CPI as 237.111, which was accordingly also agreed in the O&M Agreement executed on May 04, 2017 with the O&M Contractor. NEPRA further determined that at COD, the O&M components shall be adjusted as per the signed O&M Agreement, LTSA Agreement and actual recurring administrative expenses. However, in the COD Determination dated 19 Feb 2020, instead of allowing the base value of US CPI as 237.111, already determined in Reference Tariff Determination and accordingly agreed in the O&M Agreement, NEPRA used US CPI of 251.99. Subsequently, NEPRA again revised this figure to 251.588 vide COD Tariff Review Order dated May 20, 2020 resulting in loss of Rs. 343 million. It is, therefore, requested that the base value of US CPI may kindly be corrected to 237.111 as was determined in the Reference Tariff Order dated Aug 09, 2016.
- 18.2. CPPA-G commented that the O&M cost, its mix, and the corresponding mechanism thereof as approved in the tariff determination of Balloki and Haveli Bahadur Shah may be applicable for the period during which the Petitioner has already finalized O&M Agreement's i.e 12 years. During this time however the Petitioner may be required to submit on an annual basis the documentary evidence/report pertaining to actual expenditure on account of O&M. The savings, if any, in the actual O&M cost compared to the approved O&M cost shall completely be passed on to the consumers. Subsequent to the lapse of O&M contract, in order to claim O&M costs the Petitioner may be required to carry out reverse competitive bidding process, the Authority shall make revisions in the O&M Cost, while capping the prevailing level of the approved O&M cost. Those revisions may also entail changing the mix of the approved O&M cost (Local & Foreign) as well as the indexation mechanism (indices, frequency etc)"
- 18.3. As per decision of the Authority dated Aug 09, 2016, the O&M cost was required to be adjusted at the time of COD. The relevant extract of the Authority's decision is as under:
- "At COD, O&M components shall be adjusted as per the signed O&M Agreement, LTSA Agreement and actual recurring administrative expenses. Thereafter, O&M components of tariff shall be adjusted on account of local Inflation (CPI), foreign inflation (US CPI) and exchange rate quarterly on 1<sup>st</sup> July, 1<sup>st</sup> October, 1<sup>st</sup> January and 1<sup>st</sup> April based on the latest available information with respect to CPI notified by the Pakistan Bureau of Statistics (PBS), US CPI (All Urban Consumers) issued by US Bureau of Labor Statistics and revised TT & OD selling rate of US Dollar notified by the National Bank of Pakistan...."*
- 18.4. It has been observed that the O&M Agreement was signed on May 04, 2017 between NPPMCL and SEPCOIII Electric Power Construction Corporation. As per documents provided by the NPPMCL, in definition of the aforesaid O&M agreement following has been stated:



*"Inflation adjustment factor has the meaning ascribed to the term under Schedule-I of the PPA."*

- 18.5. The PPA was signed on October 29, 2016. As per Schedule-I of the PPA:

*"Inflation Adjustment Factor means foreign cost component of reference variable O&M component and reference fixed O&M component for fluctuations in US CPI which factor shall be calculated as specified in Part-V."*

- 18.6. The Part-V of the PPA stated as follows:

*US CPI Ref = Reference US CPI = 237.111 for February 2016 as per NEPRA Tariff determination dated August 09, 2016*

- 18.7. As per Order para V (ii) of the COD Tariff Review Order dated 20 May 2020;

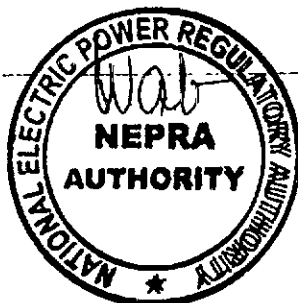
*"O&M components of tariff shall be adjusted on account of local Inflation (CPI), foreign inflation (US CPI) and exchange rate quarterly on 1st July, 1st October, 1st January and 1st April based on the latest available information with respect to CPI notified by the Pakistan Bureau of Statistics (PBS), 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"*

- 18.8. The Authority considered the request of Petitioner, comments of CPPAG and observed that in the COD Review decision dated May 20, 2020, the US CPI of 244.524 has been used as reference for indexation of foreign O&M component. The Authority considered that the request of Petitioner for using the correct US CPI of 237.11 instead of 244.524 for calculation of O&M cost is justified and in-line with the above referred decision of the Authority, PPA and O&M Agreement. Accordingly the O&M components have been revised which will be applicable from COD i.e. May 09, 2018 and are given as under;

O&M Components	COD Review Decision (May 20, 2020)		Revised as per O&M Agreement	
	RLNG	HSD	RLNG	HSD
Fixed O&M (Foreign) (Rs./kW/hr)	0.1179	0.1345	0.1196	0.1365
Variable O&M (Foreign) (Rs./kWh)	0.1205	0.1563	0.1220	0.1578
Total	0.2384	0.2908	0.2416	0.2943

19. Any other relevant issue arising during the proceedings? (SBLC Charges)

- 19.1. The Authority vide determination dated August 09, 2016, allowed NPPMCL-HBS the cost of SBLC @ 1.5% subject to adjustment as per actual arrangement finalized in the GSA. The Authority retained the same SBLC charges @ 1.5% per annum in COD Decision dated February 19, 2020 and COD review decision dated May 20, 2020.



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- 19.2. During the proceedings of modification petition it was observed that under the GSA, NPPMCL is required to have in place at all times a 'Gas Supply Deposit' which is quantified on the basis of three (03) months consumption at 100% load. The Gas Supply Deposit can be in the form of an escrow account, a Standby Letter of Credit (SBLC), or a combination of both. Under the Tariff Determination, a combination of one (01) month's escrow account and two (02) month's SBLC has been allowed. Since Escrow account is locked at COD, any variation in RLNG price (including impact of US\$ to PKR indexation) over and above (or vice versa) the cost the escrow account is allowed as part of cost of working capital and will be added to or reduced from cost of SBLC.
- 19.3. The Authority noted that NPPMCL is not maintaining the SBLC as per GSA and actual SBLC amount is far less than the amount being allowed in the cost of working capital. Further, it has been learnt that amendment in GSA is under consideration to fix the SBLC to approximately Rs. 15 billion. Accordingly the issue was framed and sent to the HBS and Balloki to present their case in the matter during the hearing. Reminder in the matter was also issued to the NPPMCL (HBS / Balloki).
- 19.4. In response the Company has provided the relevant documents. As per Standby Letter of Credit Facility Agreement, actual rate of SBLC charges/commission is indicated as 0.10% per quarter of the unfunded portion of the SBLC to be paid in advance until the expiry of SBLC Agreement (i.e. 12 months unless renewed by the SBLC Agent with the mutual consent of the company).
- 19.5. While reviewing the supported documents, it has been further observed that the total SBLC Commission cost charged in financial statements (i.e. Statement of Profit or Loss for the year ended 30 June 2022) is at the rate of 0.10% per quarter (i.e. 0.40 % per annum).
- 19.6. It is pertinent to mention that ECC vide its decision dated Jan 11, 2023 has decided as follows:
- "that the GSD (Gas Supply Deposit) under the GSA be fixed at Rs. 15 billion per power project instead of the existing GSD which is equivalent to one-fourth (1/4) of Maximum Gas Allocation valued at current applicable Gas Price inclusion of taxes."*
- 19.7. The Authority in its tariff decision dated May 20, 2020 allowed the cost of working capital adjustment on account of KIBOR and fuel price variation. In addition the adjustment is also linked with the actual dispatch factor of the preceding quarter. Further, any post COD variation in RLNG price (including impact of US\$ to PKR exchange rate) over and above (or vice versa) the cost for escrow amount locked at COD, shall be added to or subtracted from cost of SBLC as part of cost of working capital. However, it has been observed that the Company is not maintaining the SBLC as per allowed amount by the Authority. Accordingly the Authority has decided to allow actual SBLC amount subject to maximum 60 days consumption as per GSA ± the impact of additional escrow account requirement. In line with the above mentioned ECC decision, actual SBLC amount shall be allowed with maximum of Rs. 15 billion minus escrow account with effect from the implementation of the ECC decision.



27/8

14/18

Keeping in view the actual SBLC cost charged in financial statements, the Authority has further decided to allow actual cost subject to maximum of 1% per annum.

## **ORDER**

- I. The Authority hereby modifies and approves the generation tariff dated May 20, 2020 and February 21, 2021 of National Power Parks Management Company (Private) Limited — Haveli Bahadur Shah for its 1,215.176 MW (net) Power Project on RLNG and 1064.887 MW on HSD along with adjustments/indexations for delivery of electricity to the power purchaser to the extent of following tariff components:

Tariff Components	*COD Review Decision (May 20, 2020) & Reduction of ROE Decision (Feb 18, 2021)		Revised after inclusion of payables paid		Indexation / Adjustment
	RLNG	HSD	RLNG	HSD	
Capacity Charges (Rs./kW/hr):					
Fixed O&M (Foreign) <sup>(1)</sup>	0.1179	0.1345	0.1196	0.1365	US CPI & Rs./US\$
ROE <sup>(2)</sup>	0.2912	0.3323	0.2952	0.3369	Rs/US\$
• Principal • Interest Debt Servicing <sup>(3)</sup>	0.4511	0.5148	0.4601	0.5250	KIBOR
	0.3261	0.3721	0.3326	0.3795	
	0.7772	0.8869	0.7927	0.9046	
Energy Charge (Rs./kWh):					
Variable O&M (Foreign) <sup>(1)</sup>	0.1205	0.1563	0.1220	0.1578	US CPI & Rs./US\$

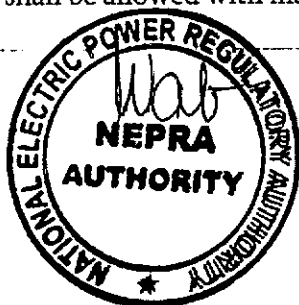
1. Revised O&M components (variable & fixed) shall be applicable from COD.
2. Revised ROE component shall be applicable from May 20, 2021 i.e. one year after COD Review Decision.
3. Revised Debt Servicing Component shall be applicable from 13<sup>th</sup> Quarter.
4. The Debt Service Schedules are attached as Annex-I and Annex-II to this decision.

## **II. Adjustments on Account of Housing Complex:**

The Authority has decided to allow cost for construction of housing complex as per actual which is subject to maximum cap of Rs. 3,188.33 million. The construction period shall be two years from the date of issuance of notice to proceed to the Contractor. Upon completion of the housing complex, NPPMCL-HBS shall submit request for inclusion of cost in the tariff along with the documentary evidence upto the satisfaction of the Authority and the allowed cost shall be adjusted prospectively from completion of the housing complex.

## **III. Cost of Working Capital:**

The Authority has decided to allow SBLC Charges at actual subject to maximum of 1% per annum. Working capital component shall be adjusted from the date of COD (i.e. May 09, 2018) based on the actual SBLC charges. Further the Authority has decided to allow actual SBLC amount subject to maximum of 60 days consumption as per GSA ± the impact of additional escrow account requirement. In line with the ECC decision dated Jan 11, 2023, actual SBLC amount shall be allowed with maximum of Rs. 15 billion minus escrow account with effect from





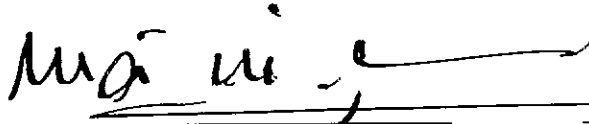
the implementation of the ECC decision. Till that time, the allowed limit of SBLC shall be in line with the decision dated May 20, 2020 or actual amount whichever is lower.

- IV. In line with the above decisions, the Petitioner is directed to submit request for indexation of relevant tariff components.
- V. The terms and conditions and indexation mechanism will remain same as given in the COD Review decision dated May 20, 2020 and subsequent ROE reduction decision dated February 18, 2021.

VI. **NOTIFICATION**

The above Order of the Authority along with 2 Annexes 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.

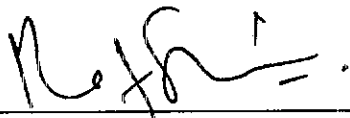
**AUTHORITY**



Mathar Niaz Rana (nsc)  
Member



Engr. Maqsood Anwar Khan  
Member



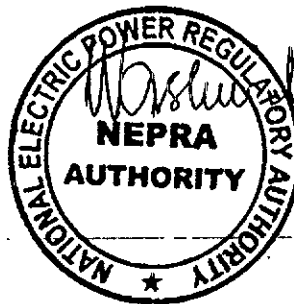
Engr. Rafique Ahmed Shaikh  
Member



Amina Ahmed  
Member



Waseem Mukhtar  
Chairman



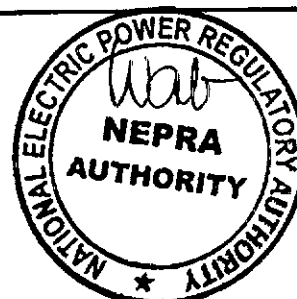
**National Power Parks Management (Private) Limited**  
**Haveli Bahadur Shah Project**  
**Debt Service Schedule (RLNG)**

Gross Capacity	1,230.540 MWs	US\$/PKR Parity	105.38
Net Capacity	1,215.176 MWs	Debt	529.92 US\$ Million
KIBOR	6.50%	Debt in Pak Rupees	55,842.51 Rs. Million
Spread over KIBOR	1.80%		
Total Interest Rate	8.30%		

Period	Principal Million Rs.	Principal Repayment Million Rs.	Interest Million Rs.	Balaance Million Rs.	Debt Service Million Rs.	Principal Repayment Rs./kW/h	Interest Rs./kW/h	Debt Servicing Rs./kW/h
1	55,842.51	909.58	1,158.73	54,932.93	2,068.31			
2	54,932.93	928.45	1,139.86	54,004.48	2,068.31			
3	54,004.48	947.72	1,120.59	53,056.76	2,068.31			
4	53,056.76	967.38	1,100.93	52,089.38	2,068.31	0.3526	0.4246	0.7772
1st Year		3,753.13	4,520.11		8,273.24			
5	52,089.38	987.46	1,080.85	51,101.92	2,068.31			
6	51,101.92	1,007.95	1,060.36	50,093.97	2,068.31			
7	50,093.97	1,028.86	1,039.45	49,065.11	2,068.31			
8	49,065.11	1,050.21	1,018.10	48,014.90	2,068.31	0.3828	0.3944	0.7772
2nd Year		4,074.47	4,198.77		8,273.24			
9	48,014.90	1,072.00	996.31	46,942.90	2,068.31			
10	46,942.90	1,094.25	974.07	45,848.66	2,068.31			
11	45,848.66	1,116.95	951.36	44,731.71	2,068.31			
12	44,731.71	1,140.13	928.18	43,591.58	2,068.31	0.4155	0.3617	0.7772
3rd Year		4,423.33	3,849.92		8,273.24			
13	44,461.19	1,187.00	922.57	43,274.19	2,109.57			
14	43,274.19	1,211.63	897.94	42,062.56	2,109.57			
15	42,062.56	1,236.77	872.80	40,825.79	2,109.57			
16	40,825.79	1,262.44	847.14	39,563.35	2,109.57	0.4601	0.3326	0.7927
4th Year		4,897.84	3,540.44		8,438.29			
17	39,563.35	1,288.63	820.94	38,274.72	2,109.57			
18	38,274.72	1,315.37	794.20	36,959.35	2,109.57			
19	36,959.35	1,342.67	766.91	35,616.68	2,109.57			
20	35,616.68	1,370.53	739.05	34,246.16	2,109.57	0.4995	0.2932	0.7927
5th Year		5,317.19	3,121.09		8,438.29			
21	34,246.16	1,398.96	710.61	32,847.19	2,109.57			
22	32,847.19	1,427.99	681.58	31,419.20	2,109.57			
23	31,419.20	1,457.62	651.95	29,961.58	2,109.57			
24	29,961.58	1,487.87	621.70	28,473.71	2,109.57	0.5423	0.2504	0.7927
6th Year		5,772.45	2,665.84		8,438.29			
25	28,473.71	1,518.74	590.83	26,954.97	2,109.57			
26	26,954.97	1,550.26	559.32	25,404.71	2,109.57			
27	25,404.71	1,582.42	527.15	23,822.29	2,109.57			
28	23,822.29	1,615.26	494.31	22,207.03	2,109.57	0.5887	0.2040	0.7927
7th Year		6,266.68	2,171.61		8,438.29			
29	22,207.03	1,648.78	460.80	20,558.25	2,109.57			
30	20,558.25	1,682.99	426.58	18,875.26	2,109.57			
31	18,875.26	1,717.91	391.66	17,157.35	2,109.57			
32	17,157.35	1,753.56	356.02	15,403.80	2,109.57	0.6391	0.1536	0.7927
8th Year		6,803.23	1,635.06		8,438.29			
33	15,403.80	1,789.94	319.63	13,613.85	2,109.57			
34	13,613.85	1,827.08	282.49	11,786.77	2,109.57			
35	11,786.77	1,865.00	244.58	9,921.77	2,109.57			
36	9,921.77	1,903.69	205.88	8,018.08	2,109.57	0.6938	0.0989	0.7927
9th Year		7,385.72	1,052.57		8,438.29			
37	8,018.08	1,943.20	166.38	6,074.88	2,109.57			
38	6,074.88	1,983.52	126.05	4,091.36	2,109.57			
39	4,091.36	2,024.68	84.90	2,066.69	2,109.57			
40	2,066.69	2,066.69	42.88	-	2,109.57	0.7532	0.0395	0.7927
10th Year		8,018.08	420.21		8,438.29			

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17/18



**National Power Parks Management (Private) Limited**  
**Haveli Bahadur Shah Project**  
**Debt Service Schedule (HSD)**

Gross Capacity	1,085.400 MWs	US\$/PKR Parity	105.38
Net Capacity	1,064.887 MWs	Debt	529.92 US\$ Million
KIBOR	6.50%	Debt in Pak Rupees	55,842.51 Rs. Million
Spread over KIBOR	1.80%		
Total Interest Rate	8.30%		

Period	Principal Million Rs.	Principal Repayment Million Rs.	Interest Million Rs.	Balaance Million Rs.	Debt Service Million Rs.	Principal Repayment Rs./kW/h	Interest Rs./kW/h	Debt Servicing Rs./kW/h
1	55,842.51	909.58	1,158.73	54,932.93	2,068.31			
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3	54,004.48	947.72	1,120.59	53,056.76	2,068.31			
4	53,056.76	967.38	1,100.93	52,089.38	2,068.31	0.4023	0.4846	0.8869
<b>1st Year</b>		<b>3,753.13</b>	<b>4,520.11</b>		<b>8,273.24</b>			
5	52,089.38	987.46	1,080.85	51,101.92	2,068.31			
6	51,101.92	1,007.95	1,060.36	50,093.97	2,068.31			
7	50,093.97	1,028.86	1,039.45	49,065.11	2,068.31			
8	49,065.11	1,050.21	1,018.10	48,014.90	2,068.31	0.4368	0.4501	0.8869
<b>2nd Year</b>		<b>4,074.47</b>	<b>4,198.77</b>		<b>8,273.24</b>			
9	48,014.90	1,072.00	996.31	46,942.90	2,068.31			
10	46,942.90	1,094.25	974.07	45,848.66	2,068.31			
11	45,848.66	1,116.95	951.36	44,731.71	2,068.31			
12	44,731.71	1,140.13	928.18	43,591.58	2,068.31	0.4742	0.4127	0.8869
<b>3rd Year</b>		<b>4,423.33</b>	<b>3,849.92</b>		<b>8,273.24</b>			
13	44,461.19	1,187.00	922.57	43,274.19	2,109.57			
14	43,274.19	1,211.63	897.94	42,062.56	2,109.57			
15	42,062.56	1,236.77	872.80	40,825.79	2,109.57			
16	40,825.79	1,262.44	847.14	39,563.35	2,109.57	0.5250	0.3795	0.9046
<b>4th Year</b>		<b>4,897.84</b>	<b>3,540.44</b>		<b>8,438.29</b>			
17	39,563.35	1,288.63	820.94	38,274.72	2,109.57			
18	38,274.72	1,315.37	794.20	36,959.35	2,109.57			
19	36,959.35	1,342.67	766.91	35,616.68	2,109.57			
20	35,616.68	1,370.53	739.05	34,246.16	2,109.57	0.5700	0.3346	0.9046
<b>5th Year</b>		<b>5,317.19</b>	<b>3,121.09</b>		<b>8,438.29</b>			
21	34,246.16	1,398.96	710.61	32,847.19	2,109.57			
22	32,847.19	1,427.99	681.58	31,419.20	2,109.57			
23	31,419.20	1,457.62	651.95	29,961.58	2,109.57			
24	29,961.58	1,487.87	621.70	28,473.71	2,109.57	0.6188	0.2858	0.9046
<b>6th Year</b>		<b>5,772.45</b>	<b>2,665.84</b>		<b>8,438.29</b>			
25	28,473.71	1,518.74	590.83	26,954.97	2,109.57			
26	26,954.97	1,550.26	559.32	25,404.71	2,109.57			
27	25,404.71	1,582.42	527.15	23,822.29	2,109.57			
28	23,822.29	1,615.26	494.31	22,207.03	2,109.57	0.6718	0.2328	0.9046
<b>7th Year</b>		<b>6,266.68</b>	<b>2,171.61</b>		<b>8,438.29</b>			
29	22,207.03	1,648.78	460.80	20,558.25	2,109.57			
30	20,558.25	1,682.99	426.58	18,875.26	2,109.57			
31	18,875.26	1,717.91	391.66	17,157.35	2,109.57			
32	17,157.35	1,753.56	356.02	15,403.80	2,109.57	0.7293	0.1753	0.9046
<b>8th Year</b>		<b>6,803.23</b>	<b>1,635.06</b>		<b>8,438.29</b>			
33	15,403.80	1,789.94	319.63	13,613.85	2,109.57			
34	13,613.85	1,827.08	282.49	11,786.77	2,109.57			
35	11,786.77	1,865.00	244.58	9,921.77	2,109.57			
36	9,921.77	1,903.69	205.88	8,018.08	2,109.57	0.7917	0.1128	0.9046
<b>9th Year</b>		<b>7,385.72</b>	<b>1,052.57</b>		<b>8,438.29</b>			
37	8,018.08	1,943.20	166.38	6,074.88	2,109.57			
38	6,074.88	1,983.52	126.05	4,091.36	2,109.57			
39	4,091.36	2,024.68	84.90	2,066.69	2,109.57			
40	2,066.69	2,066.69	42.88	-	2,109.57	0.8595	0.0450	0.9046
<b>10th Year</b>		<b>8,018.08</b>	<b>420.21</b>		<b>8,438.29</b>			

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