National Electric Power Regulatory Authority
Islamic Republic of Pakistan

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No. NEPRA/TRF-408/PTPL-2017/20789-20791
December 26, 2017

Subject: **Determination of the Authority in the matter of Tariff Petition filed by Punjab Thermal Power (Private) Limited for Determination of Generation Tariff for 1,263.2 MW Power Project on RLNG/HSD at Jhang** [Case No. NEPRA/TRF-408/PTPL-2017]

Dear Sir,

Please find enclosed herewith the subject Determination of the Authority along with Annex-I, II, III & IV (45 pages) and Additional Note of Mr. Himayat Ullah Khan, Member NEPRA along with Annex-I of Additional Note (04 pages) in Case No. NEPRA/TRF-408/PTPL-2017.

2. The Determination is being intimated to the Federal Government for the purpose of notification in the official gazette pursuant to Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act (XL of 1997).

3. Order of the Authority's Determination along with Annex-I, II, III & IV needs to be notified in the official gazette.

Enclosure: As above

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(Syed Safeer Hussain)

Secretary
Ministry of Energy
'A' Block, Pak Secretariat
Islamabad

CC:

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

National Electric Power Regulatory Authority

(NEPRA)

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Determination of the Authority

In the matter of Tariff Petition filed by Punjab Thermal Power (Private) Limited for determination of Generation Tariff for 1,263.2 MW Power Project on RLNG/ HSD at Jhang

(Case No. NEPRA/TRF – 408/PTPL/2017)

December 26th, 2017

Intervener:

Anwar Kamal Law Associates

The Authority, in exercise of the powers conferred on it under Section 7(3) (a) read with Section 31 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997, Tariff Standards and Procedure Rules, 1998 and all other powers enabling it in this behalf, and after taking into consideration all the submissions made by the parties, issues raised, evidence/record produced during hearings, and all other relevant material, hereby issues this determination.

AUTHORITY

My additional Note on issue xvi, xvii and xviii is placed below.

(Himayat Ullah Khan) 22.12.17
Member

(Syed Masood ul Hassan Naqvi) 22/12
Member

(Saif Ullah Chattha)
Member/Vice Chairman
21.12.2017

(Brig (R) Tariq Saddozai)
Chairman

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26/12/17

1. INTRODUCTION

1.1. Punjab Thermal Power (Private) Limited (hereinafter the "Petitioner", the "Company" or "PTPL") is wholly owned company of the Government of Punjab (GoPb) incorporated under the Companies Act, 2017to act as an IPP to set up a combined cycle power project of 1,263.20 MW (net 1,242.70 MW) on Re-gasified Liquefied Natural Gas (RLNG) as the primary fuel and High-Speed Diesel (HSD) as back-up fuel located near Haveli Bahadur Shah /Trimmu Barrage, District Jhang, Punjab. The project was approved by the Cabinet Committee on Energy (CCE) of the Federal Government on 6th June 2017. CCE also relaxed, to the extent of this project, the ban it had placed on new imported fuel based power projects. PPIB issued the letter of intent for the project on 26th July 2017.PTPL has filed application for grant of generation license on July 26th, 2017 which is under process.

1.2. According to the Petitioner, key features of the project are as under:

(a) The procurement of the EPC and LTSA contractors, was carried out by PTPL through ICB process in line with all applicable public procurement rules. The Petitioner is successful in achieving the lowest EPC cost for the Project, contributing towards the Government's objective to rationalize energy tariffs for the benefit of the consumers.

(b) As part of the ICB Process for the appointment of EPC Contractor, bidders were also required to arrange and submit for price of LTSA services by GT OEM for the inter alia maintenance and supply of initial service spares on a long-term basis for scheduled and unscheduled maintenance of Gas Turbines, Gas Turbine Generators and associated auxiliaries. The LTSA cost quoted by CMEC is lowest as compared to other three RLNG projects, which was further reduced by voluntary discount offered by the GT OEM.

(c) Project financing is to be obtained from various local financial institutions. The mandated lead arrangers and the Petitioner are currently negotiating the terms and conditions for the finance facilities, and in the meantime, the costs of the Project on a debt to equity ratio of 75 :25 have been assumed. Finalisation of financing terms is subject to determination of a viable tariff from NEPRA.

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2. FILING OF TARIFF PETITION& ADMISSION

2.1. Pursuant to the relevant provisions of the NEPRA Act and the Rules and Regulations made there under read with the enabling provision of the Power Policy 2015; PTPL filed a tariff petition for approval of the reference generation tariff for Single Cycle and Combined Cycle Operation for the proposed project vide its letter dated September 13, 2017.

3. SITE

3.1. According to the Petitioner, National Transmission and Dispatch Company Limited (NTDC) after due consideration of load flow, availability of grid station, transmission lines and in view of the requirements and electricity demand of the area, has allocated to PTPL the Site. The Site will be developed by PTPL to serve the Project's land, logistical, water, and drainage requirements.

3.2. According to the Petitioner, the site location is favorable in term of accessibility and water availability, Power evacuation and spurs gas pipeline's connectivity. From a power evacuation standpoint, the site posts an advantage because CPPA-G/ NTDC will not have to add significant transmission infrastructure to the area. As per the current power evacuation plan the project will feed net generation to the nearest Toba Tek Singh (TTS) 220 KV grid station and the proposed dispersal is 220KV in the existing lines. The power will be evacuated from the Project through 220 KV transmission lines that will connect it to national grid through Grid Station.

3.3. Further, for the provision of gas supply to the site, a spur pipeline and allied facilities will be constructed at the Petitioner's cost, the same is requested to be entertained in tariff as allowed by the Authority in case of the previous three RLNG projects.

4. TECHNOLOGY

4.1. According to the Petitioner, the Project entails setting up of the Facility on BOO basis. The Facility will be a thermal IPP using RLNG as the primary fuel and HSD as back-up fuel. The proposed Project is based on the combined cycle technology with a net capacity of 1,242.7 MW at RSC. The Facility configuration shall consist of two Gas Turbines, two HRSGs and one Steam Turbine.

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5. SALIENT FEATURES OF THE PETITION

5.1. The salient feature of the petition are as under:

i. **Project Cost**: The petitioner proposed the following project cost:

BREAKUP OF PROJECT COST	US$ Million
EPC cost	520.000
Additional EPC Cost:	10.000
i. Independent Asset Monitoring and Management System	0.500
ii. Combustion Monitoring System of Gas Turbines	0.500
iii. Flood Protection	2.000
iv. Auditorium	1.500
v. BOP Spares	5.500
Non EPC and Project Development Cost :	59.356
i. Engineering consultancy	12.597
ii. Administrative Expenses during construction	11.676
iii. O&M mobilization & training	6.000
iv. Land Cost	4.620
v. Security Surveillance	8.257
vi. Insurance during construction @ 1% of EPC Cost	5.200
vii. Testing & Commissioning	11.906
Custom Duties & Cess	29.326
LTSA Initial Spare Parts	10.500
Gas Pipeline Cost	37.735
CAPEX	**666.916**
Financing Fees & Charges 3.50% of Debt	21.048
Interest During Construction 30 Months	65.038
One month LNG Escrow Account	48.830
Total Project Cost	**801.836**

ii. **Capital Structure:** The proposed debt equity ratio is 75:25.

iii. **Interest Rate:** The petitioner assumed interest rate of 3 months KIBOR 6.14% + 3% premium for cost of debt and KIBOR + 2% for cost of Working capital.

iv. **Return on Equity:** The return on Equity component of tariff has been calculated on the basis of 16% IRR.

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v. **Exchange Rate:** Exchange Rate of Rs. 105.5/USD has been assumed.

vi. **Thermal Efficiency:** The proposed combined cycle efficiencies are 61.16% and 55.76% on RLNG and HSD respectively and Simple Cycle efficiency is 39.2% on RLNG.

vii. **Annual Availability:** The proposed annual plant availability is 92%.

viii. **Dependable Capacity:** The proposed net capacity after auxiliary consumption is 1242.7 MW (Gross 1263.2 MW) on RLNG and 1081.8 MW (Gross 1105.0 MW) on HSD.

ix. **Insurance cost:** The petitioner proposed annual insurance cost @ 1% of the EPC Cost.

x. **Tariff Period:** The petitioner proposed a tariff control period of 30 Years.

xi. **Reference Fuel Price:** The Petitioner assumed Ex-GST base fuel price USD 8.2464 per MMBTU-HHV for gas and PKR 59.54 per Litre on HSD.

xii. **Proposed Tariff:** The petitioner proposed the following tariff:

COMBINED CYCLE OPERATION

Description	RLNG	HSD
Energy Charge (Rs./kWh):		
Fuel cost component	5.3763	10.7216
Variable O&M	0.3041	0.4388
Total	**5.6804**	**11.1604**
Capacity Charge (Rs./kW/hour):		
Fixed O&M (Local)	0.0605	0.0695
Fixed O&M (Foreign)	0.1036	0.1190
Cost of working capital	0.0824	0.0947
Insurance	0.0514	0.0590
Return on Equity	0.4157	0.4775
Debt servicing (1-10 years only)	0.9016	1.0356
Total 1-10 years	**1.6151**	**1.8554**
Total 11-30 years	**0.7136**	**0.8197**
Avg. Tariff 1-10 years @ 92% (Rs./kWh)	**7.4360**	**13.1771**
Avg. Tariff 11-30 years @ 92% (Rs./kWh)	**6.4560**	**12.0514**
Levelized tariff (Rs./kWh)	**7.0947**	**12.7851**
Levelized tariff (Cents/kWh)	**6.7249**	**12.1186**

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SIMPLE CYCLE OPERATION ON RLNG

Description	Rs./kWh
Fuel cost component	8.3871
Variable O&M	0.3041
Fixed O&M (Local)	0.0605
Fixed O&M (Foreign)	0.1036
Cost of working capital	0.0824
Total	**8.9377**

5.2 The Petitioner vide letter No. PPTL/FIN/227/2017 dated 10th November 2017 filed an addendum to the Petition. The Petitioner submitted that the detail of administrative expenses submitted under Schedule L of the tariff petition, by mistake, did not cover fees, subscription and charges payable to regulators such as PPIB, SECP and NEPRA. The Petitioner requested the Authority to consider and allow the fees, subscription and charges of USD 2.457 million in the project cost as detailed under Schedule L1 to the addendum. The Petitioner also requested to allow output degradation factor application to the Variable O&M Cost components based on the OEM degradation curve. The revised tariff submitted by the Petitioner is as under:

COMBINED CYCLE OPERATION

Description	RLNG	HSD
Energy Charge (Rs./kWh):		
Fuel cost component	5.3763	10.7216
Variable O&M	0.3041	0.4388
Total	**5.6804**	**11.1604**
Capacity Charge (Rs./kW/hour):		
Fixed O&M (Local)	0.0605	0.0695
Fixed O&M (Foreign)	0.1036	0.1190
Cost of working capital	0.0824	0.0947
Insurance	0.0514	0.0590
Return on Equity	0.4170	0.4790
Debt servicing (1-10 years only)	0.9047	1.0392
Total 1-10 years	**1.6196**	**1.8605**
Total 11-30 years	**0.7149**	**0.8213**
Avg. Tariff 1-10 years @ 92% (Rs./kWh)	**7.4408**	**13.1827**
Avg. Tariff 11-30 years @ 92% (Rs./kWh)	**6.4575**	**12.0531**
Levelized tariff (Rs./kWh)	**7.0984**	**12.7894**
Levelized tariff (Cents/kWh)	**6.7284**	**12.1226**

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6. NOTICE OF ADMISSION

6.1. The Authority admitted the tariff petition on September 27, 2017. While admitting the petition, the Authority also decided to hold a hearing in the matter. The hearing was fixed for December 7, 2017.Notice of Admission along with salient features of the petition was made public on 5th October 2017.The petition was also made available on NEPRA website for information of the stakeholders. Stakeholders were invited to become party to the proceedings by filing intervention request and/or to file comments in the matter within 14 days for assistance of the Authority. Individual notices were also sent to important stakeholders on 12th October 2017.

7. ISSUES FRAMED FOR THE HEARING

7.1. Based on the contents of the tariff petition and submissions of the intervener, following issues were framed for the hearing:

i. Whether the EPC Cost is reasonable and justified?
ii. Whether the Non-EPC cost is reasonable and justified?
iii. Whether the cost of LTSA initial spares inventory is reasonable and justified?
iv. Whether the gas pipeline cost is justified?
v. Whether the financing fee and charges are justified?
vi. Whether the proposed construction period of 30 months are justified?
vii. Whether the one month LNG Escrow Account is reasonable and justified?
viii. Whether the requested efficiencies are reasonable and justified?
ix. Whether the Net Dependable Capacity is justified?
x. Whether the Variable O&M cost is reasonable and justified?
xi. Whether the Fixed O&M cost is reasonable and justified?
xii. Whether the Insurance Cost during operation is justified?
xiii. Whether the requested cost of working capital is reasonable and justified?
xiv. Whether the requested cost of capital is reasonable and justified?
xv. Whether the gas pipeline infrastructure from Karachi to Plant site shall be available as per the proposed project schedule?

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xvi. Whether the tariff should be determined on "Take or Pay basis" or "Take and Pay basis"?

xvii. Whether the project will add to surplus generation capacity in the system?

xviii. Whether the capacity payment will have to be made for idle capacity, if any?

8. FILING OF COMMENTS / INTERVENTIONS

8.1. In response to the notice of admission Anwar Kamal Law Associates filed an intervention request in the matter on 14th October 2017. The summary of the submissions made by the intervener is as under:

i. A firm Gas Supply Agreement (GSA) for the entire life of the Power Plant (usually 25 to 30 year after COD) has not yet been executed, the price of RLNG is not known, and Transmission of RLNG Gas from the City to the Power Plant is neither in place nor is the cost of the laying of such infrastructure available.

ii. Gas/HSD based power plants should not be allowed to be inducted in our power system unless the Power Plant submits a firm GSA for the Control Period of the approved tariff or the legally binding determination to operate the Plant on HSD fuel in case Gas is not available or to determine the tariff on "Take and Pay" basis while giving the responsibility for the arrangement of Fuel supply to the Power Producer.

iii. The tariff for the power plant should be determined on the basis of "Take and Pay" in competitive mode with no responsibility for the supply of Fuel on the Power Purchaser. Instead of setting up new Power Plants, which are comparatively costlier and that too in haste with terms and condition dictated by the Investor, effort should be made to utilize the available Power Generation Capacity to its full and then go for setting up new Power Plants as per Pakistan's real need.

iv. If the subject project is commissioned in the given time frame, may create a situation of huge surplus Power in the country and the Sector may face the same problems it had faced in the past. If careful steps are not taken, AKLA see a serious situation in the Power Sector three to four years down the line on account of Surplus Capacity, the situation will be more serious because taking advantage of lower Fuel prices, in the last two years NEPRA has accommodated the inefficiencies of the Power Sector through an increased

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electricity tariff. It is being reported that more than 11000 MW Generation Capacity will be added in the National system by the end of 2018.

v. AKLA drew the attention of the Authority to its Policy for the development of Electricity Market by 2017. NEPRA has notified NEPRA (Supply of Electric Power) Regulations, 2015 which is encouraging direct purchases of electricity. In this regard many industrial estates in Punjab and Khyber Pakhtunkhawa have published 'Expression of Interest' for purchase of Power from Private Power Producers. If such a move materializes, it will mean that the demand in the CPPA system may go down. If this happens, how will CPPA be able to pay the Power Producers with which it has executed long term PPAs on 'Take or Pay' basis, and that too for a period of 25 to 30 years? AKLA is not against setting up of new power plants but this should be in the competitive mode and on "Take and Pay" basis. Based on the above submissions, AKLA requested the Authority not to determine any Tariff for "Take or Pay" or 'Must Run' Power Plant.

vi. AKLA further requested NEPRA to calculate the financial loss that the Power Sector and the electricity consumers are suffering and have to suffer the next 25 years due to purchase of electricity from costlier Power Plants while leaving aside the cheaper electricity available in the generation basket of CPPA. It needs to be noted that for the electricity consumers the consumer-end tariff is critically important: this includes both capacity and energy charges.

8.2 The intervention request was forwarded to the Petitioner for rejoinder and the response of the Petitioner is as under:

i) The Petitioner has been granted Firm Gas Allocation by the Ministry of Petroleum & Natural Resources for 200 MMCFD. Moreover the petitioner is currently finalizing GSA with the gas supplier. The price of RLNG is being regularly notified by the competent forum, i.e. OGRA, hence, the contention that the gas price is not known, is incorrect. The contention that the calorific value (CV) for the RLNG is not known, is incorrect. It may be noted that the CV has been communicated to the Petitioner by the gas supplier / transporter, hence, the same has no bearing to the petition.

ii) The take or pay arrangement under a long term PPA is envisaged in the Power Generation Policy, 2015 ("Power Policy") as approved by the Government of Pakistan and CCI, hence, is completely compliant in terms of the Power Policy. It may also be noted that the "take and pay" regime has only been allowed / made applicable for either short-term IPPs or captive

power plants. Moreover, financing from the lenders, as envisaged under the Power Policy, would not be possible.

iii) The contention that the terms under which new power plants are set up, whereby the investors dictate the terms, is incorrect. The same are subservient to the power policies in vogue or other rules and regulations as applicable. The reason "take and pay" regimes are not feasible to attract investors is that operation of the plant could end up being subject to inefficiencies of the system, and the investment made by the same is not secured.

iv) If cycling of different sources is taken into considerations, such as peak utilization of hydel during summer season compared to almost no utilization in the winter months and the different schedules for maintenance outages of different power plant means that base capacities are not truly reflective of ability to supply the same capacity at any given time of the year. Another consideration to be taken into account is that a majority of the said dependable capacity is based on lower efficiency power plants, using oil as primary fuel and with much lower guaranteed availability rates than the subject power plant. The subject power plant has achieved unprecedently low EPC costs with benchmark high efficiencies. The latest technology has allowed 92% availability to be guaranteed by the Petitioner. This and the lower cost of productions means lower cost being passed onto the consumer. It may still be noted that in order of precedence dispatch will still only be given to the Company based on the economic merit order.

v) The contention of the development of electricity market by 2017 has no relevance to the petition as the contended situation is still far from materialization. Additionally, the EOIs published by Industrial Estates have no current basis in terms of fuel availability etc.

vi) The Petitioner is offering lowest achieved costs of electricity for a project of such nature. With the introduction of the subject power plant, the average electricity cost of the system will reduce.

9. HEARING

9.1. The hearing in the matter was held on 7th December 2017 at NEPRA Tower, G-5/1, Islamabad. In the hearing representatives of the Petitioner, PPIB, CPPA-G, NTDC and other stakeholders participated.

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10. CONSIDERATION OF THE VIEWS OF THE STAKEHOLDERS, ANALYSIS, FINDINGS AND DECISIONS ON IMPORTANT ISSUES

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

11. Whether the EPC Cost is reasonable and justified?

11.1. The Petitioner requested EPC cost of US$ 520 million comprising offshore portion of US$ 415.968 million and onshore portion of US$ 104.032 million. The Petitioner also requested another US$ 10 million for items not covered in the EPC contract scope.

11.2. The Petitioner entered into an EPC Agreement with CMEC for the construction of 1,263.2 MW (Gross)/1,242.7 MW (Net) for the subject RLNG base power generation complex. The EPC cost includes power generation sets together with all the necessary auxiliary machinery, equipment and systems. According to the Petitioner, the procurement process was carried out through ICB in line with all applicable public procurement rules. The bidding process was structured after taking into consideration the benchmark efficiency levels and detailed assessment of proven technologies in commercial operations in Pakistan. The process for the selection of EPC Contractor attracted participation of world renowned manufacturers as the supplier / OEM of Gas Turbines for the Project. Based on the detailed evaluation of bids, CMEC (with Siemens as OEM) emerged as the Lowest Evaluated Bidder.

11.3. The Authority considered EPC Agreement Price, agreements, information and evidence available on record and is of view that all information and documents show that international competitive bidding was done by the Petitioner to arrive at the lowest EPC price. EPC Agreement price translates into approximately US$ 0.412 million/MW which is the lowest among all the gas/RLNG based power projects already commissioned and one of its kind. The EPC cost approved for previous three RLNG projects of similar size was in the range of US$ 0.47-0.50 million/MW. By all standards, the EPC Agreement price is the most efficient, therefore, is approved as such.

11.4. Regarding US$ 10 million on account of items not covered in the EPC contract scope, the Petitioner submitted that these are contingent items/design improvements and have not been covered in the EPC Agreement. The details of additional items not covered in the EPC scope are as under:

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Sr. #	Description	US$ Million
1	Independent Asset Monitoring and Management System	0.50
2	Combustion Monitoring System of Gas Turbine	0.50
3	Flood Protection	2.00
4	Auditorium	1.50
5	BOP Spares	5.50
	Total	**10.00**

11.5. According to the Petitioner, due to the nature and size of the Project, the technical advisors have recommended additional items costing US$ 10 million during the course of completion of the Project. These cost items are not covered in the scope of EPC contract. Accordingly; such costs need to be allowed as additional EPC cost so as to safeguard the interests of the Project in the event the same are incurred which may be actualized at the time of COD. The Petitioner submitted that these items are estimated by the Technical Advisor and may be replaced with other items that may be required during construction. The Petitioner also referred the tariff approval of Bhikki project wherein the Authority approved certain additional items costs which were not covered in the EPC contract and requested to also approve the additional items in the instant case.

Independent Asset Monitoring and Management System

11.6. The Petitioner requested US$ 0.5 million on account of Independent Asset Monitoring and Management System. According to the Petitioner, this shall also be outside of the scope of the O&M Contractor and that this equipment shall be used to remotely Asset Monitoring & Management System for the GTs/GTGs.

11.7. In the previous three RLNG projects, no cost was requested on account of an Independent Asset Monitoring and Management System. Therefore, in-line with the previous decisions, the Authority has decided not to consider this cost item.

Combustion Monitoring System of Gas Turbine

11.8. The Petitioner requested US$ 0.5 million on account of Combustion Monitoring System of Gas Turbine which monitors the condition and status of the combustion parts of the gas turbine. According to the Petitioner, combustion monitoring system is not part of the OEM standard package and has to be ordered separately. It keeps record of the out of flame fuel injectors and calculate the exhaust spread (the temperature difference between the two combustors with maximum and

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minimum temperatures). It generates alarm and trips the GT if the spread is above the set points.

11.9. The Authority considered the request of the Petitioner and decided to allow maximum cap of US$ 0.5 million for installation of the combustion monitoring system subject to its verification at the time of COD on account of actual spending based on verifiable documentary evidence.

Flood Protection

11.10. The Petitioner requested US$ 2 million on account of flood protection. According to the Petitioner the amount shall be utilized for protection from flood from the left marginal bank.

11.11. Keeping in view the hazards of flood in the area, the Authority has decided to allow the requested cost of US$ 2 million with maximum cap subject to its verification at the time of COD on the basis of documentary evidence.

Auditorium

11.12. The Petitioner requested US$ 1.5 million on account of cost for construction of Auditorium. According to the Petitioner, the auditorium shall be used to hold conferences, seminars and training sessions etc.

11.13. The Authority has considered the request of the Petitioner and decided to allow maximum cap of US$ 1.5 million in-line with the decisions in similar cases for construction of auditorium subject to its verification at the time of COD on account of actual spending based on verifiable documentary evidence.

BOP Spares

11.14. The Petitioner requested US$ 5.5 million on account of BOP Spares. According to the Petitioner, in addition to the spares covered under the EPC Contract, additional spares could be procured to ensure that in case of a breakdown parts would be readily available. This will be based on the List of Recommended Spare Parts of the EPC Contractor. Employer will purchase these spares and hand them over to the O&M Contractor who will keep replenishing it regularly. These will remain in the ownership of the Employer.

11.15. The Authority has considered the request of the Petitioner, and decided to allow maximum cap of US$ 1.71 million, in-line with the three previous RLNG

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decisions, for BOP Spares subject to its verification at the time of COD on account of actual spending based on verifiable documentary evidence.

12. Whether the Non-EPC cost is reasonable and justified?

12.1. According to the Petitioner, a consortium of reputable advisors with strong power sector experience were engaged. Based on their recommendations, the company's estimates and industry trends, Non-EPC and project development costs have been budgeted at USD 59.356 million. The same are comparable with the previous RLNG power projects. These include engineering and related consultancy, administrative expenses, O&M mobilization cost, land cost, security and surveillance, insurance during construction, fixed O&M and LTSA during construction and testing and commissioning cost. The Petitioner also requested additional non-EPC cost of US$ 2.456 million in the addendum. The petitioner also submitted that certain project specific customizations/adjustments have been assumed and accordingly incorporated in the Non-EPC costs allowed by the Authority for the previous three RLNG Power Projects.

Engineering and related consultancy

12.2. The Petitioner requested USD 12.597 million on account of Engineering and related consultancy costs which depicts the cost and scope of the consultancy work agreed with the consultant. The consultancy fee, in comparison with the three RLNG projects, is slightly enhanced, primarily due to the following factors:

i. Annual Price Escalation factor, Exchange Rate Escalation and additional services (USD 0.8 million)

ii. Inclusion of Geo-tech study and investigation (increase by USD 0.7 million); and

iii. The enhanced scope of foreign technical consultant (increase by USD 1.9 million)

12.3. The Petitioner in support of the requested cost provided the signed Agreement between PTPL and NESPAK. According to the consultancy contract, the price in foreign currency is Euro 3,362,069 and US$ 52,812 and in local currency Rs. 912,759,371 including provincial sales tax on services of Rs. 182,310,746. The total contract price in equivalent PKR is 1,321,752,911 at Rs. 120/Euro and Rs. 105/US$.

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12.4. The Authority has examined the documents provided by the Petitioner and considers that the provincial sales tax of Rs. 182,310,746 is adjustable/refundable, therefore, cannot be claimed as expense, hence has been set aside. The revised consultancy contract cost works out US$ 10.678 million at exchange rates of Rs. 109.9/US$ and Rs. 130.06/Euro and the same is being approved. In case provincial sales tax can not be adjusted against the input tax and becomes the final liability of the Petitioner, the same can be added to taxes and duties at the time of COD as separate item.

Administrative expenses

12.5. The Petitioner requested US$ 14.133 million on account of administrative costs. The Petitioner originally requested US$ 11.676 million on account of administrative expenses for a period of 30 months and submitted that the requested cost is in line with the benchmark costs determined in case of the previous three RLNG projects. The Petitioner vide letter No. PPTL/FIN/227/2017 dated 10th November 2017 filed an addendum to the Petition and submitted that the detail of administrative expenses submitted under Schedule L of the tariff petition, by mistake, did not cover fees, subscription and charges payable to regulators such as PPIB, SECP and NEPRA. The Petitioner requested the Authority to consider and allow the fees, subscription and charges of USD 2.457 million in the project cost.

12.6. The cost breakup submitted by the Petitioner was examined. Since the construction period of the facility is 26 months, the Petitioner's request of administrative cost for 30 months is not justifiable. The requested administrative cost has been adjusted for 26 months and some items have been rationalized in accordance with the administrative costs allowed in the similar projects. As a result thereof, the revised administrative cost works out US$ 8.538 million. The Petitioner has also requested fees subscription and charges of US$ 2.457 million pertaining to PPIB US$ 1.579 million, NEPRA US$ 191,807/- and SECP US$ 424,391/-. PPIB fees include registration fee, LOI fee, LOS fee, Financial Close fee and fee at COD. NEPRA fee include generation license and its renewal fees. SECP fees include company incorporation fee, Authorized Share capital fee and charge registration fee. Accordingly, the total Administrative expenses including fees and charges works out US$ 10.995 million and are being approved subject to its adjustment as per actual at the time of COD on the basis of verifiable documentary evidence with maximum cap of US$ 10.995 million.

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O&M mobilization

12.7. The Petitioner requested US$ 6 million on account of O&M mobilization & training cost during the construction phase. According to the Petitioner, the O&M mobilization fee is an industry practice and requirement of O&M contractor, hence requested herein. The Petitioner further submitted that the requested mobilization fee is in line with the benchmark allowed for all the three RLNG power plants by the Authority.

12.8. The Authority has examined the request of the Petitioner in the light of the international benchmarks and estimates available and decided to allow O&M mobilization and training cost as 1% of the EPC cost i.e. US$ 5.257 million as maximum cap subject to downward adjustment only based on provision of documentary evidence at the time of COD.

Land cost

12.9. The Petitioner requested US$ 4.62 million for purchase of land for the project. According to the Petitioner, land area measuring 170 acres approximately has been estimated to be required for the project and includes the land for the housing complex, plantation and the land required for performing allied engineering works for the project. The land has been purchased through land acquisition process at the rate of PKR. 2.5 million/acre. According to the Petitioner, the cost is based on the notification of the District Price Assessment Committee, which set the price at Rs 2 million per acre plus 25% compulsory acquisition charges as per the Government policy. This comes to a total of USD 4.05 million. In addition, an approximate amount of USD 0.57 million is estimated by the Petitioner to be spent toward the cost of compensation for structures, crops and trees.

12.11 The Authority has examined the request of the Petitioner and found it in-line with the previous three RLNG projects in terms of the land area allowed by the Authority, therefore, approves the land area requested. However, the Authority noted that the Petitioner used an exchange rate of Rs. 105/US$ for conversion of rupee to dollars which has been adjusted with Rs. 109.9/USD. Accordingly, the land costs works out US$ 4.437 million and is being approved as a maximum cap and shall be verified at the time of COD on the basis of documentary evidence.

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Security and surveillance

12.12 The Petitioner requested security and surveillance cost of US$ 8.257 million in line with the previous RLNG power projects. According to the Petitioner GoPb has established a Special Protection Unit (SPU) for providing security to expatriates especially Chinese working on different development projects in Pakistan as part of its commitment for security of the foreign nationals. Although the Project is not part of China Pakistan Economic Corridor (CPEC), but the level of the security being provided to the Chinese and other expats working on the Project is up to the level of CPEC. SPU not only provides security to expats working at site but also at their residences, offices and during their movements.

12.13 The Authority in case of similar three RLNG projects allowed US$ 8.257 million on account of Security & Surveillance cost during the construction period of 27 months with maximum cap subject to adjustment as per actual on the basis of verifiable documentary evidence at COD. Since the construction period in the instant case is 26 months, accordingly the maximum cap for security cost has been adjusted to US$ 7.986 million which shall be subject to adjustment as per actual on the basis of verifiable documentary evidence.

Insurance During Construction

12.14 The Petitioner requested insurance during construction of US$ 5.3 million on the basis of 1% of the EPC cost. The request of the Petitioner is in line with the benchmark established by the Authority in other projects. On the basis of revised EPC cost including additional items, the Authority has decided to allow insurance during construction of US$ 5.257 million on the basis of 1% of EPC cost.

Testing and Commissioning Cost

12.15 The Petitioner requested testing and commissioning cost of US$ 10.906 million. According to the Petitioner, the requested cost is in line with the cost allowed by the Authority in case of previous RLNG power projects, subject to customization relating to technical parameters of the Project, including but not limited to plant efficiency and output, as reflected in the Lowest Evaluated Bid. The Petitioner provided the following breakup of the testing and commissioning costs:

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Description	USD
Fuel during testing	9,617,297
O&M cost during the shutdown period:	1,288,407
LTSA Fixed Fee 2 months Shutdown for SC to CC	605,407
O&M Fixed Fee 2 months Shutdown for SC to CC	683,000
Total	**10,905,407**

12.16 The Authority has examined the requested cost on account of testing and commissioning. In the opinion of the Authority, the requested fuel cost during testing is in line with the cost allowed in similar projects. Accordingly, the Authority has decided to allow the requested fuel cost during testing of US$ 9.617 million as maximum cap which shall be verified at the time of COD on the basis of documentary evidence. The Authority has also decided to allow 35 days LTSA and O&M Fixed fee during shutdown period for conversion from simple cycle to combined cycle in line with the cost allowed in similar projects. The summary of the approved cost is provided hereunder:

Description	USD
Fuel during testing	9,617,297
O&M cost during the shutdown period:	710,060
LTSA Fixed Fee 35 days Shutdown for SC to CC	311,644
O&M Fixed Fee for 35 days Shutdown for SC to CC	398,417
Total	**10,327,357**

13. Whether the cost of LTSA initial spares inventory is reasonable and justified?

13.1. The Petitioner requested US$ 10.5 million on account of LTSA initial spares inventory. According to the Petitioner, as part of the ICB Process for the appointment of EPC Contractor, bidders were also required to arrange and submit for price of LTSA services by GT OEM for inter alia maintenance and supply of initial service spares on a long-term basis for scheduled and unscheduled maintenance of Gas Turbines, Gas Turbine Generators and associated auxiliaries. According to the Petitioner, the LTSA cost quoted by CMEC is lowest as compared to other three RLNG projects, which was further reduced by voluntary discount offered by the GT OEM.

13.2. The requested LTSA initial spares inventory cost of US$ 10.5 million is approximately 50% of the cost allowed in the similar projects. Accordingly, the

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Authority has decided to approve LTSA initial spares inventory cost of US$ 10.5 million in the instant case.

14. Whether the gas pipeline cost is justified?

14.1. The Petitioner requested US$ 37.735 million on account of construction of spur Gas Pipeline Cost of 92 Kms from off-take point Kabirwala to Punjab Power Plant site. The Petitioner submitted that the Authority, in the case of the similar three RLNG based Power Projects, allowed Spur Gas Pipeline cost on estimated basis and is subject to actualization at the time of its COD and accordingly requested the estimated cost of the spur gas pipeline and its actualization mechanism for the Project. The Petitioner in support of gas pipeline cost submitted cost estimates of the spur line submitted by SNGPL vide its letter No. P&D/02-10170 dated 16th August 2017. SNGPL estimated Rs. 3,981 million comprising Rs. 3,581 million on account of gas pipeline cost of 24" dia x 18 KM and Rs. 400 million on account of metering station at power plant site.

14.2. In the case of three similar RLNG based power projects, spur gas pipeline cost was approved subject to verification at the time of COD. The Authority has decided to approve US$ 36.224 million (Rs. 3,981 million on the basis of revised exchange rate of Rs. 109.9/US$) in the instant case. The Petitioner shall be required to submit verifiable documentary evidence of actual cost incurred on gas pipeline, duly verified by SNGPL. In case, the petitioner fails to justify this cost at COD, the cost of gas pipeline shall be set aside.

15. Whether the financing fee and charges are justified?

15.1. The Petitioner has requested financing fees and charges of US$ 21.048 million @ 3.5% of the debt amount. According to the Petitioner, the requested cost is in line with the established industry benchmarks and the Authority's precedents and the same shall be re-established at COD in accordance with debt availed.

15.2. The Authority in its recent decision in the case of Thar Coal Upfront Tariff has allowed financing fees & charges @ 3% of the total debt amount. The same is being approved in the instant case. Accordingly, Financing fee & charges works out US$ 14.776 million on the basis of 75% debt portion of the revised CAPEX. Financing fees & charges are subject to adjustment as per actual at the time of COD with maximum cap of 3% of the total loan amount.

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16. Whether the proposed construction period of 30 months is justified?

16.1. The Petitioner requested to allow construction period of 30 months and also requested to allow early completion bonus as pass-through item.The Petitioner during the hearing submitted that the agreed construction period as per the EPC contract is 26 months but it is highly unlikely that the project will be constructed in the stipulated time period. The delay in construction will increase all the relevant costs and will result in cost overruns.

16.2. The request of the Petitioner regarding construction period of 30 months and payment of early completion bonus has been examined along with the relevant clauses of the EPC contract and was found contradictory. According to the EPC Agreement, the maximum construction period allowed for the facility is 791 days which is equivalent to 26 months and the delay shall attract liquidated damages. Similarly early commissioning of the project has been incentivised through payment of bonus. Therefore, the Authority considers that there is no reason to allow delay in construction period with the provision of early commissioning bonus. Since the delay in commissioning is also protected through LDs, the Authority believes that the extended construction period has no justification and cannot be considered. Therefore, the only possibility left is the early commissioning bonus which may have financial implications both in terms of savings and extra cost. The completion of the project before the agreed time shall result in savings in IDC, ROEDC, administrative and security cost.

16.3. Considering the agreed terms of the EPC contract, savings in IDC, ROEDC, administrative and security costs due to early completion and in line with the decision in similar cases, the Authority has decided to fix the construction period as 26 months and to make the early commissioning bonus as pass through strictly in accordance with the terms of the EPC Agreement. Savings in IDC, ROEDC and administrative and security cost shall be passed on to the consumers. Accordingly on the basis of 26 months construction period, interest during construction works out US$ 36.285 million on the basis of loan drawdown of 24.29%, 60.71% and 15% in 1st year, 2nd year and last 2 months respectively as proposed by the Petitioner. The IDC shall be re-established at the time of COD on the basis of applicable KIBOR, actual premium, actual loan and its actual drawdown.

17. Whether the one month LNG Escrow Account is reasonable and justified?

17.1. In line with the earlier determinations by the Authority and requirements of the Gas Supplier in case of the three RLNG projects, the Petitioner requested USD

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48.834 million on account of one-month LNG escrow account. The RLNG price has been assumed at USD 9.6483 / MMBTU HHV (i.e. HHV USD 8.2464 / MMBTU being the OGRA notified provisional RLNG price for the month of August 2017 with addition of 17% GST). The Petitioner requested this price to be indexed to prices as notified by the competent authority from time to time and allowed to the Petitioner at the time of COD.

17.2. The Authority noted that according to the signed GSA of Bhikki RLNG power project, gas supply deposit equal to one-fourth (1/4) of the maximum gas allocation valued at the current applicable gas price and inclusive of taxes thereon, if any, is required in the form of SBLC or cash deposited under an agreed escrow account or a combination of both.

17.3. In case of three previous similar RLNG based power projects, one month escrow account and cost of SBLC for two months has been allowed by the Authority. According to Section 1.1 of the GSA referred above 3 months gas supply deposit in the form of SBLC or cash deposit in escrow account or a combination of both is required. Since cost of SBLC @ 1.5% is much lower than the weighted average cost of capital of around 10.23%, therefore, 3 months cost of SBLC in the working capital has been approved by the Authority. Accordingly, the request of the Petitioner for cash deposit in escrow account is being disallowed.

18. **Whether the requested efficiencies are reasonable and justified?**

18.1. The Petitioner proposed combined cycle efficiencies of 61.16% and 55.76% on RLNG and HSD respectively and Simple Cycle efficiency of 39.2% on RLNG as guaranteed in the EPC contract. The Petitioner further submitted that the fuel cost component shall be adjusted as per various established benchmarks including but not limited to the corrections / adjustments for ambient temperature, degradation etc.

18.2. The Petitioner also proposed that any excess efficiency over and above the contracted efficiency under the EPC Contract shall be shared between the Power Purchaser and PTPL in the ratio of 60:40 at COD. The actual efficiency shall be established at the time of COD after applying all applicable/permissible (IPP industry) corrections / degradations including but not limited to:

- recoverable and non-recoverable adjustments,
- grid frequency variation,
- blow-down adjustment,

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- temperature adjustments,
- part – load / load correction factor adjustment,
- fuel calorific value variation, and
- miscellaneous adjustment

18.3. The Petitioner also requested that in case the actual efficiency is established less than the contracted efficiency at time of COD, appropriate adjustment shall be made in the fuel cost component for such reduced efficiency as no power project can afford to operate on a financial loss on account of fuel consumption. The Petitioner submits that the higher efficiency parameter in the Project was given weightage in the public interest, however, non-achievement of the same by any reason whatsoever shall not be allowed to put the Petitioner in disadvantageous position by establishing the quoted efficiency as a benchmark.

18.4. According to the guaranteed performance levels agreed between the Petitioner and the EPC Contractor, net LHV combined cycle efficiencies are 61.169% for RLNG, 55.76% for HSD and simple cycle efficiency of 39.2% for RLNG operation of the plant. The EPC contractor has provided guaranteed efficiency levels, the failure of which shall attract penalties. As per the Schedule 10 to the EPC Agreement, each 1% deviation in heat rate shall attract 5% of the Agreement Price (AP) with the maximum cap of 15% as liquidated damages (LDs) in combined cycle mode and (5/3)% of AP for either of the gas turbines provided that LDs under combined cycle shall be calculated after reducing LDs for the gas turbines, if any. In case the net heat rate exceeds 103% of the guaranteed net heat rates, the Petitioner would have the right to reject the facility.

18.5. There is a possibility under the EPC contract, that net efficiency may establish lower than the guaranteed levels. In such a case, the Petitioner is required to be protected against the permanent efficiency loss over the life of the project of 30 years otherwise the project cannot survive and will not be in the interest of the stakeholders. Therefore, the Authority has decided to approve the guaranteed efficiency levels subject to its adjustment on the basis of heat rate test. In case the efficiencies on either fuel establish lower than the guaranteed levels, the fuel cost components shall be adjusted accordingly and the LDs imposed on the EPC contractor for deviations in the heat rates under the terms of the EPC contract shall be adjusted against the project cost at the time of COD. However, no adjustment shall be made below the rejection limit. In case the efficiencies on either fuel establish higher than the guaranteed levels, the gain shall be shared in the ratio of 60:40 between the power purchaser and power producer and fuel cost components

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shall be adjusted accordingly. Heat rate degradation factor (non-recoverable component only) due to aging and partial load adjustment factor as per curves provided / specified by OEM shall be dealt with in the PPA in line with gas based IPPs operating in national grid. In order to discourage the operation of plant on simple cycle for longer period, the Authority has decided to allow simple cycle operation on RLNG for the maximum period of 349 days before COD of the power complex in combined cycle mode.

18.6. On the basis of RLNG HHV price of US$ 8.2464/MMBTU, exchange rate of Rs. 109.9/US$, HHV ex-GST HSD price of Rs. 59.54/litre, net LHV combined cycle efficiencies of 61.16% for RLNG and 55.76% for HSD and simple cycle efficiency of 39.20% for RLNG, the fuel cost components works out as under:

Operation	Fuel	Rs./kWh
Combined Cycle	RLNG	5.6005
Simple Cycle	RLNG	8.7369
Combined Cycle	HSD	10.7216

19. Whether the Net Dependable Capacity is justified?

19.1. The Petitioner proposed following gross and net capacities and auxiliary consumption for the proposed plant:

Description	Combined Cycle (2GTs+1ST)		Simple Cycle (1GT)
	RLNG	HSD	RLNG
Gross Capacity	1,263,200 kW	1,105,000 kW	405,000 kW
Net Capacity	1,242,700 kW	1,081,800 kW	400,000 kW
Auxiliary load	20,500 kW	23,200 kW	5,000 kW
Auxiliary load	1.65%	2.14%	1.25%

19.2. According to the Petitioner, the capacity purchase price component of the reference generation tariff is payable on the basis of the contract capacity established at the COD and annually thereafter. The Petitioner proposed that all the tariff components of capacity purchase price shall be adjusted at the time of COD based upon the Initial Dependable Capacity (IDC) tests to be carried out for determination of Contract Capacity on either fuel. The Petitioner also requested that in case net capacity is established lower than the guaranteed level, the same

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shall be allowed and appropriate adjustment in the tariff components shall be made.

19.3. The Authority noted that the proposed auxiliary consumption by the Petitioner is the lowest among all the projects including the three similar RLNG projects approved earlier. Therefore, the Authority has decided to approve the proposed auxiliary consumptions and net capacities on both fuels in combined and simple cycle mode with the provision that if the net capacity is established higher as a result of Initial Dependable Capacity Test at the time of COD, all the capacity components shall be adjusted downward.

19.4. The Authority noted that as per the Schedule 10 to the EPC Agreement provided by the Petitioner, for each 1% deviation in net output, 3% of Agreement Price (AP) shall be charged as liquidated damages (LDs) with the aggregate cap of 15% and if the net output is less than 95% of the guaranteed output on either fuel, the Petitioner would have the right to reject the facility. In the light of the above, the Authority has decided that in case net capacity is established lower than the contracted capacity subject to a maximum of 3% of auxiliary consumption, the tariff components shall be adjusted upward after adjusting the LDs against the project cost.

20. <u>Whether the Variable and Fixed O&M costs are reasonable and justified?</u>

20.1. The Petitioner requested Variable O&M cost of Rs. 0.3041/kWh on gas and Rs. 0.4388/kWh on HSD (100% foreign), Fixed O&M cost of Rs. 0.1641/kW/h on gas comprising local O&M of Rs. 0.0605/kW/h and foreign O&M of Rs. 0.1036/kW/h. In case of plant operation on HSD, the Petitioner requested Fixed O&M cost of Rs. 0.1886/kW/h comprising local O&M of Rs. 0.0695/kW/h and foreign O&M of Rs. 0.1190/kW/h. The Petitioner calculated the O&M components on the basis of following cost assumptions:

Description	V O&M	F O&M	Total
	US$	US$	US$
Long Term, Service Agreement (LTSA) cost	8,154,551	3,632,441	11,786,992
O&M Operator Fee – Foreign	20,711,941	7,058,879	27,770,820
O&M Operator Fee – Local	-	1,245,685	1,245,685
Company's OH cost	-	5,000,000	5,000,000
Total	**28,866,492**	**16,937,005**	**45,803,496**

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20.2. The Petitioner also submitted that the Variable O&M Operator Fee is being requested using a net output of 1,242.7 MW. Annual output degradation and part load operation is expected to gradually reduce the aforesaid discrete denominator over the tariff control period, thereby, exposing the Petitioner to loss on account of actual absolute variable costs being higher than the respective Variable O&M amounts to be recovered under the tariff. In view of this, the Petitioner has requested the Authority to allow application of (a) heat rate degradation factor; and (b) Part load correction factor, to the Variable O&M Cost Components. The Petitioner also requested indexations and escalations allowed for the respective components determined for the combined cycle tariff are requested to be allowed for the simple cycle tariff components.

20.3. The Petitioner has derived the LTSA costs from the 12 years LTSA bid @ US$ 456/FFH for variable cost with escalation @ 2% for each year after the first year. Similarly, the fixed LTSA cost is based on annual US$ 3.25 million with escalation @ 2% for each year after the first year. The LTSA shall be carried out by the OEM Siemens. The remaining costs pertaining to O&M and company's overhead costs are mere estimates and the same was approved in the case of Bhikki project and are subject to adjustment as per actual on the basis of O&M Agreement.

20.4. The base variable LTSA price of 456/FFH is slightly higher than the variable LTSA price of Rs. 441.6/FFH in case of three similar RLNG projects but the fixed cost of US$ 3.25 million/annum in the instant case is substantially less than the fixed LTSA cost of US$ 6.96 million/annum. The Authority has decided to accept the base fixed and variable LTSA costs as ceilings which shall be subject to adjustment as per signed LTSA Agreement at the time of COD. The determined fixed and variable O&M shall be subject to quarterly indexation for CPI, therefore, the Authority considers no justification to escalate the LTSA cost upfront @ 2%/annum and the same is being rejected. The proposed fixed and variable O&M costs have already been approved in the case of Bhikki and other projects and are subject to adjustment as per actual on the basis of signed O&M Agreement, therefore, the same is being approved in the instant case. The approved O&M cost shall be subject to adjustment as per actual on the basis of signed O&M Agreement.

20.5. The proposed overhead cost of US$ 5 million/annum is also based on the cost approved in the case of Bhikki project which comprises US$ 4.39 million on account of administrative cost and US$ 0.61 million on account of security cost. Since US$ 4.39 million was based on administrative expenses during the construction period which is subject to adjustment on actual basis at the time of

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COD, US$ 4.39 million shall also be adjusted at the time of COD on the basis of adjusted recurring administrative expenses.

20.6. The impact of heat rate degradation factor and part load correction factor on variable O&M has been carefully evaluated. The Authority is of the considered view that, heat rate degradation affects the fuel consumption and has nothing to do with variable O&M, however, annual output degradation may have an impact but it will be manageable. Such adjustments on variable O&M have never been requested nor allowed to any other power plant. Therefore, the same has not been considered in the instant case.

20.7. The summary of approved O&M costs and tariff at exchange rate of Rs. 109.9/US$ is as under:

Description	US$	RLNG	HSD
Variable O&M-Foreign	28,061,931	Rs. 0.3079/kWh	Rs. 0.4443/kWh
Fixed O&M-Foreign	10,308,879	Rs. 0.1041/kW/h	Rs. 0.1196/kW/h
Fixed O&M-Local	6,245,685	Rs. 0.0631/kW/h	Rs. 0.0724/kW/h
Total	**44,616,495**		

21. Whether the Insurance Cost during operation is justified?

21.1. The Petitioner requested insurance cost component of Rs. 0.0514/kW/Hour on RLNG operation and Rs. 0.0590/kW/Hour on HSD operation post COD operational period of the project. According to the Petitioner, the Insurance cost component consists of all-risk insurance/reinsurance for the Project, as well as business- interruption insurance (which is a standard lender-stipulated requirement). The Petitioner calculated insurance cost component at 1.00% of the EPC cost as allowed by the Authority in the earlier Determinations. The Insurance costs are to be actualized at the time of COD of the project and thereafter shall be as per actual on yearly basis.

21.2. The requested insurance cost component of tariff in in line with the benchmark of 1% of the EPC cost and the same is being accepted. Accordingly the insurance cost component of tariff is worked out Rs.0.0531/kW/h on RLNG and Rs.0.0610/kW/h on HSD and approved as such. The insurance cost component shall be adjusted annually on actual subject to maximum of 1% of the EPC cost and prevailing exchange rate on the first day of the insurance coverage period.

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22. Whether the requested cost of working capital is reasonable and justified?

22.1. The Petitioner requested cost of working capital component of Rs. 0.0824/kW/Hour on RLNG operation and Rs. 0.0947/kW/Hour on HSD operation post COD operational period of the project. PTPL has estimated its working capital requirement equivalent to 40 days of cash cycle taking into account the normal payment cycle of the PPA applicable to energy payments receivable from the Power Purchaser. Cost of short term borrowing has been assumed at 3month's KIBOR + 2%. Further, cost of 60 days SBLC at the rate of 1.5% per annum has been assumed as part of the working capital cost. Working capital requirement also includes 7 days HSD inventory requirement at 60% load.

22.2. The Petitioner also requested that in line with the Authority's decision in case of three similar RLNG projects, the cost of working capital shall be adjusted for actual payment terms agreed in the PPA and GSA and fuel prices at the time of COD and thereafter, the cost of working capital shall be adjusted quarterly for variation in KIBOR and fuel prices only.

22.3. In case of three similar power projects, the Authority approved 60 days of fuel receivable subject to adjustment as per actual terms of the PPA and GSA. The Authority noted that the request of the Petitioner for 40 days receivable subject to adjustment as per actual terms of the PPA and GSAis favourable and decided to approve the same. The cost of 7 days HSD inventory at 60% load is also in line with Authority's earlier decision in the similar cases and is being approved as such. As discussed under the escrow account, SBLC cost of 90 days @ 1.5%/annum is being approved in the instant case. Accordingly, on the basis of 3 months KIBOR +2% premium, cost of working capital works out Rs. 0.0922/kWh/h on RLNG operation and Rs. 0.1059/kW/Hour on HSD operation post COD operational period of the project and the same is being approved.

23. Whether the requested cost of capital is reasonable and justified?

23.1. The Petitioner requested the return on equity (ROE) component of Rs. 0.4157/kW/h on RLNG operation and Rs. 0.4775/kW/h on HSD operation. According to the Petitioner, the equity contribution of the project shall be provided by the Government of Punjab. According to the Petitioner, GoPb has provided upfront equity injection of PKR 10 Billion in the first year. The balance equity will be injected in proportion to the loan drawdown as per the agreed debt:equity ratio. According to the Petitioner, the upfront amount of equity

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injection shall be used to primarily backstop the EPC advance payment obligations which will be paid to the EPC Contractor immediately.

23.2. According to the Petitioner, the ROE component of tariff (including return on equity during construction) has been based on an internal rate of return of 16% which is in line with the Power Policy 2015 and previous rulings of the Authority on the matters related to RLNG generation. The Petitioner further submitted that the calculations are based on expected equity utilization up to COD and corporate income tax and Withholding tax payable on income and dividends are assumed to be pass-through and are not included in the Tariff. The Petitioner also proposed quarterly indexation of ROE component of tariff on the basis of revised TT & OD selling rate of USD notified by the National Bank of Pakistan.

23.3. The Petitioner requested the debt servicing component of Rs. 0.9016/kW/hour on RLNG operation and Rs. 1.0356/kW/hour on HSD operation during the first 10 years of the tariff control period. The Petitioner assumed 100% debt from local banks and financial institutions. The assumed term of the loan is 10 years plus 30 months grace period. The loan shall be repaid in equal semi annual instalments. The assumed cost of debt is 3 month's KIBOR 6.14% plus a premium of 3%.

23.4. The Petitioner / GoPb is also exploring the possibility of availing supplier credit through export credit agencies (ECA). In case, the Petitioner / GoPb is successful in availing ECA-financing for the Project, any additional financing cost including ECA insurance fee, arrangement fee, commitment fee, confirmation charges, LC discounting, etc. have been requested to be treated as pass-through item as per actual. In such an eventuality, KIBOR-pegged lending rate for the Debt has been requested to be substituted with a LIBOR-based rate or any other international benchmark (US Treasury rate, etc.) as per final term sheet, in accordance with NEPRA practice. The Petitioner has requested the Authority to allow for this flexibility in the financing structure and costs while determining the tariff for the Project.

23.5. The request of the Petitioner for allowing 16% IRR on equity was carefully examined. The Authority in the case of three large RLNG projects of approximately 1200 MW each has allowed an IRR of 16% keeping in view the IRR allowed to other technologies. Since the overall country risk has come down as compared to few years back and prevailing interest rates are also at the lowest, the Authority has gradually brought down the IRRs e.g. 18% in case of Thar from 20%, 16% in case of benchmark wind tariff from 17%. In line with the decisions of the Authority, an IRR on equity of 15% has been considered for the instant case.

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Accordingly the return on equity component works out Rs. 0.3330/kW/Hour on RLNG operation and Rs. 0.3825/kW/Hour on HSD operation on the basis of revised project cost, revised exchange rate of Rs. 109.9/US$ and equity IRR of 15%. The equity component will be adjusted on the basis of actual equity and actual drawdown at the time of COD.

23.6. According to the debt term sheet, the premium over KIBOR is 3%. The Authority in the recent upfront Thar coal tariff and benchmark wind tariff has allowed premium over KIBOR @ 2.5% and the same is being approved in the instant case. The savings in premiums shall be shared between power producer and power purchaser in 60:40 ratio. Accordingly debt servicing component of Rs. 0.8111/kW/Hour on RLNG operation and Rs. 0.9318/kW/Hour on HSD operation has been worked out on the basis of debt equity ratio of 75:25 and approved as such.

23.7. In case the project is financed through foreign financing or mix of local and foreign financing LIBOR+ a premium of 4.5% shall be allowed for calculation of interest of the foreign financing portion and saving, if any, in the allowed premium shall be shared between the power purchaser and the power producer in the ratio of 60:40. In case of foreign financing, Sinosure fee/ECA exposure fee/credit insurance fee shall also be applicable with maximum of 7% of debt service amount in accordance with the bench mark established in the coal upfront tariff dated 26th June 2014

24. Whether the gas pipeline infrastructure from Karachi to Plant site shall be available as per the proposed project schedule?

24.1. According to the Petitioner, SNGPL has informed through its letter dated December 4, 2017 that it has sufficient gas available from Karachi to Kabirwala for other than the three RLNG power plants. SNGPL also submitted that the Engineering and Procurement activities of the project have already been initiated and the project shall be completed as per agreed schedule if requisite amount is deposited as per agreed payment plant.

25. Whether the tariff should be determined on "Take or Pay basis" or "Take and Pay basis"?

25.1. The Petitioner requested tariff on Take or Pay basis in line with Power Generation Policy, 2015. According to the Petitioner, the Power Generation Policy, 2015 and all other previous such policies envisage take or pay based tariff regime.

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According to the Petitioner, the requested tariff regime is also consistent with the earlier tariff determinations and project documents concluded within the applicable policy frame work (approved by CCI) for the previous three RLNG projects.

25.2. Further, the Petitioner submitted that the instant project is neither captive nor short term IPP therefore, the applicability of a take and pay based tariff is irreverent. The Petitioner was of the view that even though its power plants efficiency is above 60%, there may be power plants in the future with even higher efficiency levels which may cause the instant power project to fall down in the merit order. So, the banks would not finance the project unless there is guaranteed purchase. Therefore, according to the Petitioner, bankability of the project is highly dependent on take or pay tariff.

25.3. Further, the Petitioner submitted that this project is based on imported fuel because of which there are long-term contracts of RLNG import with take or pay clauses in the GSA which require firm commitment for despatch. So, it cannot have take or pay at the fuel side and not have take or pay at the power despatch side.

25.4. On this issue, during the hearing, the CPPA-G was of the view that the LOI was issued to the instant project under the Power Policy, 2015 and the consent of the CPPA-G is also under the same policy. Therefore, the CPPA fully endorses the take or pay arrangement that has been written in the policy.

25.5. The Authority has noted that the Power Policy, 2015 and the related security documents envisage a take or pay based tariff regime. Unless a change in the power policy is made by the Federal Government that promotes take and pay based tariff regime and the same is made public, the lenders/ financiers may not be willing to finance projects on take and pay basis. Therefore, the Authority has decided to approve a take or pay based tariff in the instant case.

26. <u>Whether the project will add to surplus generation capacity in the system? And Whether the capacity payment will have to be made for idle capacity, if any?</u>

26.1. In response to the aforementioned issue, the Petitioner submitted that the Cabinet Committee on Energy decided to initiate the instant project based on the power shortages prevalent in summer of 2017 as well as the demand and supply projections of the Ministry of Water & Power. The NTDC also issued Power Evacuation Consent and indicated the project site based on its interconnection

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grid and load flow study. Further, the CPPA has also issued Power Acquisition Request/ Power Procurement Consent subsequent to which the PPIB issued LOI for the project.

26.2. The Petitioner further submitted that the instant project will lead to reduction in the basket price of electricity in the country. Currently, no RFO plant is higher than any RLNG power plant and specifically any of the three RLNG plants and this too is based on simple cycle efficiencies. According to the Petitioner, once the instant power plant comes into operations, this plant would be high in the merit order. Hence when considering capacity, it has to be kept in mind that fuel cost is the major component of the power cost, and therefore, the project will be cost efficient as compared to the older less efficient plants.

26.3. During the hearing, the Petitioner further submitted that System wide planning is not within the domain of the IPP thus concerned department may respond to these issues. The representative of CPPA-G responded that it has carried out an initial assessment with regards to the supply-demand situation in the future wherein it has segregated all generation plan into two blocks; (i) Committed (ii) non-Committed. Based on this, the instant project falls under the committed project which means that it shall not add to surplus capacity. Further, upon query whether that the instant project is part of the NTDC long-term plan, the NTDC responded that it was included in the list of projects to be implemented till 2025.

26.4. Given the above, it is clear that the instant project was conceived based on the demand-supply shortage of electricity and that it shall not add to surplus generation capacity.

27. SUMMARY OF PROJECT COST AND TARIFF

27.1. In view of the discussions in the preceding paragraphs, the approved projects cost and tariff is provided in the following Tables:

APPROVED PROJECT COST

Description	US$ Millions
EPC cost:	**520.00**
Offshore EPC Cost	415.968
Onshore EPC Cost	104.032
Items not covered in the EPC contract scope:	**5.710**
Combustion Monitoring System of Gas Turbines	0.500
Flood Protection	2.000

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Auditorium	1.500
BOP Spares	1.710
Non EPC Cost:	**54.938**
Engineering consultancy	10.678
O&M mobilization	5.257
Land Cost	4.437
Insurance during construction	5.257
Security Surveillance	7.986
Administrative Expenses during construction	10.995
Testing & Commissioning	10.327
Customs Duties &Cess	29.326
LTSA Initial Spare Parts	10.500
Gas Pipeline Cost	36.224
CAPEX	**656.698**
Financing Fees & Charges	14.776
Interest During Construction	36.285
Total Project Cost	**707.759**

TARIFF ON COMBINED CYCLE OPERATION

Description	RLNG	HSD
Energy Charge (Rs./kWh):		
Fuel cost component	5.6005	10.7216
Variable O&M	0.3079	0.4443
Total	**5.9084**	**11.1659**
Capacity Charge (Rs./kW/hour):		
Fixed O&M (Local)	0.0631	0.0724
Fixed O&M (Foreign)	0.1041	0.1196
Cost of working capital	0.0922	0.1059
Insurance	0.0531	0.0610
Return on Equity	0.3330	0.3825
Debt servicing (1-10 years only)	0.8111	0.9318
Total 1-10 years	1.4565	1.6732
Total 11-30 years	0.6454	0.7414
Avg. Tariff 1-10 years @ 92% (Rs./kWh)	7.4916	12.9845
Avg. Tariff 11-30 years @ 92% (Rs./kWh)	6.6100	11.9717
Levelized tariff (Rs./kWh)	**7.1846**	**12.6319**
Levelized tariff (Cents/kWh)	**6.5374**	**11.4940**

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TARIFF ON SIMPLE CYCLE RLNG

Description	Rs./kWh
Fuel cost component	8.7369
Variable O&M	0.3079
Fixed O&M (Local)	0.0631
Fixed O&M (Foreign)	0.1041
Cost of working capital	0.0922
Total	**9.3042**

28. ORDER

I. The Authority hereby determines and approves the following generation tariff for Punjab Thermal Power (Private) Limited for its 1,242.70 MW (net) Power Project on RLNG and 1,081.80 MW (net) on HSD at Jhang for combined cycle operations and simple cycle operation on RLNG and adjustments/indexations for delivery of electricity to the power purchaser:

TARIFF ON COMBINED CYCLE OPERATION

Tariff Components	1-10 Years		11-30 Years		
	RLNG	HSD	RLNG	HSD	
Capacity Charges (Rs./kW/hr):					
Fixed O&M (Local)	0.0631	0.0724	0.0631	0.0724	CPI (General)
Fixed O&M (Foreign)	0.1041	0.1196	0.1041	0.1196	US CPI &Rs./US$
Cost of working capital	0.0922	0.1059	0.0922	0.1059	KIBOR and Fuel Price
Insurance	0.0531	0.0610	0.0531	0.0610	Actual subject to maximum limit
ROE	0.3330	0.3825	0.3330	0.3825	Rs./US$
Debt Servicing	0.8111	0.9318	-	-	KIBOR
Total	**1.4565**	**1.6732**	**0.6454**	**0.7414**	
Energy Charge (Rs./kWh):					
Fuel cost Component	5.6005	10.7216	5.6005	10.7216	Fuel Price
Variable O&M (Foreign)	0.3079	0.4443	0.3079	0.4443	US CPI &Rs./US$
Total	**5.9084**	**11.1659**	**5.9084**	**11.1659**	

- Schedules of tariffs are attached at Annex-I and Annex-II.
- Schedules of debt servicing are attached as annex-III and Annex-IV

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TARIFF ON SIMPLE CYCLE Operation

Description	Rs./kWh	Adjustment/ Indexation
Fuel Cost Component RLNG	8.7369	Fuel Price
Variable O&M (Foreign)	0.3079	US CPI & Rs./ US$
Fixed O&M (Local)	0.0631	CPI (General)
Fixed O&M (Foreign)	0.1041	US CPI & Rs./ US$
Cost of Working Capital	0.0922	KIBOR and Fuel Price
Total	**9.3042**	

II. One-time Adjustment at COD

i) Since the exact timing of payment to EPC contractor is not known at this point of time, therefore, an adjustment for relevant foreign currency fluctuation for the US$ 415.968 million of the EPC portion of payment in the foreign currency shall be made against the reference exchange rate of Rs. 109.9/US$ on the basis of actual payment. The adjustment shall be made only for the currency fluctuation against the reference parity values.

ii) Adjustment as per actual with maximum of US$ 5.71 million for items outside the scope of the EPC contract along with currency fluctuation for dollar portion, if any.

iii) The Customs Duties and Cess of US$ 29.326 million shall be adjusted as per actual.

iv) Adjustment as per actual with maximum of US$ 5.257 million for O&M mobilization cost.

v) Adjustment as per actual with maximum of US$ 7.986 million for Security & Surveillance cost.

vi) Adjustment as per actual with maximum of US$ 10.995 million for Administrative cost.

vii) Adjustment as per actual with maximum of US$ 36.224 million for gas pipeline cost.

viii) Adjustment as per actual of US$ 14.776 million for Financing Fees & Charges subject to maximum of 3.0% of the debt amount.

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ix) The IDC shall be re-established at the time of COD on the basis of applicable KIBOR, actual premium, actual loan and actual loan drawdown.

x) ROE component of tariff shall be adjusted for variation in actual equity investment and actual equity drawdown.

xi) O&M components shall be adjusted as per the signed O&M Agreement, LTSA Agreement and actual recurring administrative expenses

III. Adjustment due to Variation in Net Capacity

The reference tariff has been determined on the basis of guaranteed net capacity of 1,242.7 MW on RLNG and 1,081.80 MW on HSD. All the tariff components of capacity charge shall be adjusted at the time of COD based upon the Initial Dependable Capacity (IDC) test to be carried out for determination of net contracted capacity. In case net capacity is established lower than the guaranteed level, maximum 3% of the auxiliary consumption shall be allowed and appropriate adjustment in the tariff components shall be made after adjusting LDs as per Schedule 10 to the EPC contract against the project cost.

IV. Heat Rate

The energy charge part of the tariff relating to fuel cost shall be adjusted subsequent to the heat rate test carried out by the independent engineer in the presence of representatives of power purchaser in accordance with the established benchmarks. Subsequent to the submission of the test report to the satisfaction of the Authority, onetime adjustment shall be made in the fuel cost components. In case the efficiencies on either fuel establish lower than the guaranteed levels, appropriate adjustment in the fuel cost components shall be made after adjusting LDs as per Schedule 10 to the EPC contract against the project cost. In case the efficiencies on either fuel establish higher than the guaranteed levels, the gain shall be shared in the ratio of 60:40 between the power purchaser and power producer and fuel cost components shall be adjusted accordingly.

V. Adjustment in Insurance as per actual

The actual insurance cost for the minimum cover required under contractual obligations with the Power Purchaser not exceeding 1% of the EPC cost shall

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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 US$ 5.257million at Rs. 109.9/US$.
$P_{(Act)}$	=	Actual Premium or 1% of the EPC cost at exchange rate prevailing on the 1st day of the insurance coverage period whichever is lower

VI. Indexations

The following indexations shall be applicable to the reference tariff;

i) Indexation of Return on Equity (ROE)

ROE component of tariff shall be quarterly indexed on account of variation inRs./US$ parity according to the following formula:

$ROE_{(Rev)}$	=	$ROE_{(Ref)} * ER_{(Rev)} / ER_{(Ref)}$
Where		
$ROE_{(Rev)}$	=	Revised ROE Component of the Tariff
$ROE_{(Ref)}$	=	Reference ROE Component of the Tariff
$ER_{(Rev)}$	=	The revised TT & OD selling rate of US dollar asnotified by the National Bank of Pakistan
$ER_{(Ref)}$	=	The reference exchange rate of Rs. 109.9/US$

ii) Indexation applicable to O&M

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 CPI, 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 (All Urban Consumers) issued by US Bureau of

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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 F. O&M$_{(REV)}$	=	L F. O&M $_{(REF)}$ * CPI $_{(REV)}$ / CPI $_{(REF)}$
F F. O&M$_{(REV)}$	=	F F. O&M $_{(REF)}$ * US CPI$_{(REV)}$ / US CPI$_{(REF)}$ *ER$_{(REV)}$/ER$_{(REF)}$
Where:		
F V. O&M$_{(REV)}$	=	The revised Variable O&M Foreign Component of Tariff
L F. O&M$_{(REV)}$	=	The revised Fixed O&M Local Component of Tariff
F F. O&M$_{(REV)}$	=	The revised Fixed O&M Foreign Component of Tariff
F V. O&M$_{(REF)}$	=	The reference Variable O&M Foreign Component of Tariff
L F. O&M$_{(REF)}$	=	The reference Fixed O&M Local Component of Tariff
F F. O&M$_{(REF)}$	=	The reference Fixed O&M Foreign Component of Tariff
CPI$_{(REV)}$	=	The revised CPI (General)
CPI$_{(REF)}$	=	The reference CPI (General) for the month of Sep. 2017
US CPI$_{(REV)}$	=	The revised US CPI (All Urban Consumers)
US CPI$_{(REF)}$	=	The reference US CPI (All Urban Consumers) for the month of Sep. 2017
ER$_{(REV)}$	=	The revised TT& OD selling rate of US dollar
ER$_{(REF)}$	=	The reference TT& OD selling rate of RS. 109.9/US$

iii) Indexation for KIBOR Variation

The interest part of capacity charge component will remain unchanged throughout the term except for the adjustment due to variation in interest rate as a result of variation in 3 months KIBOR according to the following formula;

Δ I	=	P$_{(REV)}$* (KIBOR$_{(REV)}$-6.14%) /2
Where:		
Δ I	=	the variation in interest charges applicable corresponding to variation in 3 months KIBOR. Δ I can be positive or negative depending upon whether KIBOR$_{(REV)}$ is> or <6.14%. The interest payment obligation will be enhanced or reduced to the extent of ΔI for each semi-annual period

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		under adjustment applicable on semi-annual basis.
$P_{(REV)}$	=	The outstanding principal (as indicated in the attached debt service schedule to this order) on a semi-annual basis on the relevant period calculation date. Period 1 shall commence on the date on which the 1st installment is due after availing the grace period.

iv) Cost of Working Capital

At the time of COD, cost of working capital shall be adjusted for actual payment terms agreed in the PPA and GSA and fuel prices. Thereafter, the cost of working capital shall be adjusted quarterly for variation in KIBOR and fuel prices only.

v) Fuel Price Adjustment

The fuel cost component of tariff subsequent to adjustment of heat rate test at COD shall be adjusted on account of fuel price variation as and when notified by the relevant authority as per the following mechanism:

$FCC_{RLNG(Rev)}$	=	$FCC_{RLNG(Ref)} * P_{RLNG(Rev)}/P_{RLNG(Ref)}$
Where:		
$FCC_{RLNG(Rev)}$	=	The revised fuel cost component on RLNG
$FCC_{RLNG(Ref)}$		The reference fuel cost component on RLNG
$P_{RLNG(Rev)}$	=	The revised HHV RLNG price notified by the relevant Authority
$P_{RLNG(Ref)}$	=	The reference HHV RLNG price of US$ 8.2464/MMBtu at Rs. 109.9/US$
$FCC_{HSD(Rev)}$	=	$FCC_{HSD(Ref)} * P_{HSD(Rev)}/P_{HSD(Ref)}$
Where:		
$FCC_{HSD(Rev)}$	=	The revised fuel cost component on HSD
$FCC_{HSD(Ref)}$		The reference fuel cost component on HSD
$P_{HSD(Rev)}$	=	The revised HHV HSD price notified by the relevant Authority
$P_{HSD(Ref)}$	=	The reference HHV HSD price of Rs. 59.54 /liter.

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VII. Terms & Conditions

The following terms and conditions shall apply to the determined tariff:

i. All plant and equipment shall be new and shall be designed, manufactured and tested in accordance with the acceptable standards.

ii. The verification of the new machinery will be done by the independent engineer at the time of the commissioning of the plant duly verified by the power purchaser.

iii. The tariff has been determined on the basis of debt equity ratio of 75:25. Minimum equity requirement is 20%. There will be no limit on the maximum amount of equity; however, equity exceeding 30% of the total project cost will be treated as debt.

iv. The debt part of the project can also be financed through foreign financing or mix of local and foreign financing and the debt servicing component shall be adjusted accordingly.

v. In case of foreign financing LIBOR+ a premium of 4.5% shall be applicable. In case of actual premium is negotiated less than 4.5%, the saving shall be shared between the power purchase and the power producer in the ratio of 60:40.

vi. In case of foreign financing, Sinosure fee/ECA exposure fee/credit insurance fee shall also be applicable with maximum of 7% of debt service amount in accordance with the bench mark established in the coal upfront tariff.

vii. The sponsor of the project can arrange foreign financing in American Dollar ($), British Pound Sterling (£), Euro (€) and Japanese Yen (¥) or in any currency as the Government of Pakistan may allow.

viii. The plant availability shall be 92%.

ix. The tariff control period shall be 30 years from the date of commercial operation.

x. The simple cycle tariff on unit delivered basis on RLNG fuel shall only be applicable during the availability of the gas turbines for simple cycle operation for maximum of 349 days before the COD of the complex on combined cycle operation.

xi. The construction period is 26 month. In case of early commissioning of the project, bonus shall be calculated strictly in accordance with the terms of the

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Schedule 10 to the EPC Agreement and shall be included in the project cost at the time of COD.

xii. The dispatch will be at appropriate voltage level mutually agreed between the power purchaser and the power producer.

xiii. The dispatch shall be in accordance with economic merit order.

xiv. In case the company is obligated to pay any tax on its income from generation of electricity, or any duties and/or taxes, not being of refundable nature, are imposed on the company, the exact amount paid by the company on these accounts shall be reimbursed on production of original receipts. This payment shall be considered as a pass-through payment. However, withholding tax on dividend shall not be passed through.

xv. Taxes and duties on the import of plant & machinery during the construction period have been included in the project cost and shall be adjusted on actual at the time of COD on the basis of verifiable documentary evidence.

xvi. General assumptions, which are not covered in this determination, may be dealt with as per the standard terms of the Power Purchase Agreement.

VIII. NOTIFICATION

The above Order of the Authority along with 4 Annexes shall be notified in the Official Gazette in terms of Section 31(4) of the Regulations of Generation, Transmission and Distribution of Electric Power Act, 1997.

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Punjab Thermal Power (Pvt) Limited
Refrence Tariff Table RLNG

Year	Energy Purchase Price (Rs./kWh)			Capacity Purchase Price (PKR/kW/Hour)									Total Tariff	
	Fuel	Var. O&M	Total EPP	Fixed O&M local	Fixed O&M foreign	Cost of W/C	Insurance	ROE	Debt Repayment	Interest Charges	Total CPP	Capacity charge@ 92%	Rs. / kWh	Cents/kWh
1	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	0.3557	0.4555	1.4565	1.5832	7.4916	6.8168
2	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	0.3870	0.4241	1.4565	1.5832	7.4916	6.8168
3	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	0.4212	0.3899	1.4565	1.5832	7.4916	6.8168
4	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	0.4584	0.3528	1.4565	1.5832	7.4916	6.8168
5	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	0.4988	0.3123	1.4565	1.5832	7.4916	6.8168
6	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	0.5429	0.2683	1.4565	1.5832	7.4916	6.8168
7	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	0.5908	0.2203	1.4565	1.5832	7.4916	6.8168
8	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	0.6429	0.1682	1.4565	1.5832	7.4916	6.8168
9	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	0.6997	0.1114	1.4565	1.5832	7.4916	6.8168
10	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	0.7614	0.0497	1.4565	1.5832	7.4916	6.8168
11	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
12	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
13	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
14	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
15	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
16	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
17	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
18	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
19	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
20	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
21	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
22	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
23	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
24	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
25	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
26	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
27	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
28	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
29	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
30	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	-	-	0.6454	0.7015	6.6100	6.0145
Average														
1-10	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	0.5359	0.2753	1.4565	1.5832	7.4916	6.8168
11-30	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	0.0000	0.0000	0.6454	0.7015	6.6100	6.0145
1-30	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	0.1786	0.0918	0.9158	0.9954	6.9038	6.2819
Levelized														
1-30	5.6005	0.3079	5.9084	0.0631	0.1041	0.0922	0.0531	0.3330	0.3270	0.2017	1.1741	1.2762	**7.1846**	**6.5374**

7.1846 Rs./kWh **6.5374 US Cents/kWh**

Punjab Thermal Power (Pvt) Limited
Reference Tariff Table HSD

Year	Energy Purchase Price (Rs./kWh)			Capacity Purchase Price (PKR/kW/Hour)									Total Tariff	
	Fuel	Var. O&M	Total EPP	Fixed O&M local	Fixed O&M foreign	Cost of W/C	Insurance	ROE	Debt Repayment	Interest Charges	Total CPP	Capacity charge@ 92%	Rs. / kWh	Cents/kWh
1	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	0.4085	0.5232	1.6732	1.8187	12.9845	11.8149
2	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	0.4446	0.4872	1.6732	1.8187	12.9845	11.8149
3	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	0.4839	0.4479	1.6732	1.8187	12.9845	11.8149
4	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	0.5266	0.4052	1.6732	1.8187	12.9845	11.8149
5	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	0.5730	0.3587	1.6732	1.8187	12.9845	11.8149
6	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	0.6236	0.3082	1.6732	1.8187	12.9845	11.8149
7	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	0.6787	0.2531	1.6732	1.8187	12.9845	11.8149
8	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	0.7386	0.1932	1.6732	1.8187	12.9845	11.8149
9	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	0.8038	0.1280	1.6732	1.8187	12.9845	11.8149
10	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	0.8747	0.0571	1.6732	1.8187	12.9845	11.8149
11	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
12	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
13	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
14	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
15	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
16	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
17	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
18	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
19	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
20	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
21	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
22	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
23	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
24	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
25	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
26	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
27	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
28	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
29	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
30	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	-	-	0.7414	0.8058	11.9717	10.8933
Average														
1-10	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	0.6156	0.3162	1.6732	1.8187	12.9845	11.8149
11-30	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	0.0000	0.0000	0.7414	0.8058	11.9717	10.8933
1-30	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	0.2052	0.1054	1.0520	1.1434	12.3093	11.2005
Levelized														
1-30	10.7216	0.4443	11.1659	0.0724	0.1196	0.1059	0.0610	0.3825	0.3756	0.2317	1.3487	1.4660	**12.6319**	**11.4940**

Levelized Tariff = 12.6319 Rs./kWh 11.4940 US Cents/kWh

Punjab Thermal Power (Pvt) Limited
Debt Service Schedule RLNG

Gross Capacity	1263.20	MWs	US$/PKR Parity	109.90	
Net Capacity	1242.70	MWs	Debt	530.82	US$ Million
KIBOR	6.14%		Debt in Pak Rupees	58,337.00	Rs. Million
Spread over KIBOR	2.50%				
Total Interest Rate	8.64%				

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	58,337.00	1,894.89	2,520.16	56,442.11	4,415.05			
2	56,442.11	1,976.75	2,438.30	54,465.36	4,415.05	0.3557	0.4555	0.8111
1st Year		**3,871.64**	**4,958.46**		**8,830.10**			
3	54,465.36	2,062.14	2,352.90	52,403.22	4,415.05			
4	52,403.22	2,151.23	2,263.82	50,251.99	4,415.05	0.3870	0.4241	0.8111
2nd Year		**4,213.37**	**4,616.72**		**8,830.10**			
5	50,251.99	2,244.16	2,170.89	48,007.83	4,415.05			
6	48,007.83	2,341.11	2,073.94	45,666.72	4,415.05	0.4212	0.3899	0.8111
3rd Year		**4,585.27**	**4,244.82**		**8,830.10**			
7	45,666.72	2,442.25	1,972.80	43,224.47	4,415.05			
8	43,224.47	2,547.75	1,867.30	40,676.72	4,415.05	0.4584	0.3528	0.8111
4th Year		**4,990.00**	**3,840.10**		**8,830.10**			
9	40,676.72	2,657.81	1,757.23	38,018.91	4,415.05			
10	38,018.91	2,772.63	1,642.42	35,246.28	4,415.05	0.4988	0.3123	0.8111
5th Year		**5,430.44**	**3,399.65**		**8,830.10**			
11	35,246.28	2,892.41	1,522.64	32,353.87	4,415.05			
12	32,353.87	3,017.36	1,397.69	29,336.51	4,415.05	0.5429	0.2683	0.8111
6th Year		**5,909.77**	**2,920.33**		**8,830.10**			
13	29,336.51	3,147.71	1,267.34	26,188.80	4,415.05			
14	26,188.80	3,283.69	1,131.36	22,905.11	4,415.05	0.5908	0.2203	0.8111
7th Year		**6,431.40**	**2,398.69**		**8,830.10**			
15	22,905.11	3,425.55	989.50	19,479.56	4,415.05			
16	19,479.56	3,573.53	841.52	15,906.03	4,415.05	0.6429	0.1682	0.8111
8th Year		**6,999.08**	**1,831.02**		**8,830.10**			
17	15,906.03	3,727.91	687.14	12,178.12	4,415.05			
18	12,178.12	3,888.95	526.09	8,289.17	4,415.05	0.6997	0.1114	0.8111
9th Year		**7,616.86**	**1,213.24**		**8,830.10**			
19	8,289.17	4,056.96	358.09	4,232.22	4,415.05			
20	4,232.22	4,232.22	182.83	(0.00)	4,415.05	0.7614	0.0497	0.8111
10th Year		**8,289.17**	**540.92**		**8,830.10**			

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Punjab Thermal Power (Pvt) Limited
Debt Service Schedule HSD

Gross Capacity	1105.00	MWs	US$/PKR Parity	109.90	
Net Capacity	1081.80	MWs	Debt	530.82	US$ Million
KIBOR	6.14%		Debt in Pak Rupees	58337.00	Rs. Million
Spread over KIBOR	2.50%				
Total Interest Rate	8.64%				

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	58,337.00	1,894.89	2,520.16	56,442.11	4,415.05			
2	56,442.11	1,976.75	2,438.30	54,465.36	4,415.05	0.4085	0.5232	0.9318
1st Year		**3,871.64**	**4,958.46**		**8,830.10**			
3	54,465.36	2,062.14	2,352.90	52,403.22	4,415.05			
4	52,403.22	2,151.23	2,263.82	50,251.99	4,415.05	0.4446	0.4872	0.9318
2nd Year		**4,213.37**	**4,616.72**		**8,830.10**			
5	50,251.99	2,244.16	2,170.89	48,007.83	4,415.05			
6	48,007.83	2,341.11	2,073.94	45,666.72	4,415.05	0.4839	0.4479	0.9318
3rd Year		**4,585.27**	**4,244.82**		**8,830.10**			
7	45,666.72	2,442.25	1,972.80	43,224.47	4,415.05			
8	43,224.47	2,547.75	1,867.30	40,676.72	4,415.05	0.5266	0.4052	0.9318
4th Year		**4,990.00**	**3,840.10**		**8,830.10**			
9	40,676.72	2,657.81	1,757.23	38,018.91	4,415.05			
10	38,018.91	2,772.63	1,642.42	35,246.28	4,415.05	0.5730	0.3587	0.9318
5th Year		**5,430.44**	**3,399.65**		**8,830.10**			
11	35,246.28	2,892.41	1,522.64	32,353.87	4,415.05			
12	32,353.87	3,017.36	1,397.69	29,336.51	4,415.05	0.6236	0.3082	0.9318
6th Year		**5,909.77**	**2,920.33**		**8,830.10**			
13	29,336.51	3,147.71	1,267.34	26,188.80	4,415.05			
14	26,188.80	3,283.69	1,131.36	22,905.11	4,415.05	0.6787	0.2531	0.9318
7th Year		**6,431.40**	**2,398.69**		**8,830.10**			
15	22,905.11	3,425.55	989.50	19,479.56	4,415.05			
16	19,479.56	3,573.53	841.52	15,906.03	4,415.05	0.7386	0.1932	0.9318
8th Year		**6,999.08**	**1,831.02**		**8,830.10**			
17	15,906.03	3,727.91	687.14	12,178.12	4,415.05			
18	12,178.12	3,888.95	526.09	8,289.17	4,415.05	0.8038	0.1280	0.9318
9th Year		**7,616.86**	**1,213.24**		**8,830.10**			
19	8,289.17	4,056.96	358.09	4,232.22	4,415.05			
20	4,232.22	4,232.22	182.83	(0.00)	4,415.05	0.8747	0.0571	0.9318
10th Year		**8,289.17**	**540.92**		**8,830.10**			

Additional Note

Issue # xvi: Whether the tariff should be determined on "Take or Pay basis" or "Take and Pay basis"?

1. The justification by the petitioner, CPPA-G and the Authority to grant a "take or pay" tariff is:

   a) the provisions of the applicable Power Policy;

   b) bankability of the project is based on a guaranteed / firm commitment of dispatch of power;

2. While the rationale of above justification is valid for the instant project, it is equally valid on a generic basis, for all other projects. I feel it my duty, to point out the discriminatory attitude of CPPA-G while dealing with other projects which fall within the contours of above mentioned rationale and are equally entitled to be treated accordingly but have been discriminated against. List of such projects is attached as Annexure-I, to this note.

Issue # xvii: Whether the project will add to surplus generation capacity in the system?

Issue # xviii: Whether the capacity payment will have to be made for idle capacity, if any?

3. The petitioner, submitted that due to its low tariff, the project will lead to a reduction in the basket price of electricity in the country and will also be high on the economic merit order thereby will not be directly receiving any idle capacity payments; that CPPA-G is the appropriate agency to address the issue of excess capacity.

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4. The CPPA-G stated that it has segregated all its generation plants into two categories i.e. (i) "committed" (ii) "non-committed". The instant project falls under the "committed" category and will therefore not add to surplus capacity. This is a very vague, general and invalid statement. It has not provided any details nor defined the two terms yet given a very categorical conclusion that the project will not add to surplus capacity. CPPA-G needs to further substantiate its position.

5. On the other hand, the "Power Balance upto-2025" preliminary report of June 2017, received from NTDC, points towards a different scenario, where, there is a significant visible gap between Demand & Supply of power generation in the immediate future. However, without going into the details of the report, it is worth pointing out that, the government would need to take appropriate remedial measures in retiring some of the old/less efficient Public Sector GENCOs/IPPs to avoid falling into an excess capacity trap and making avoidable idle capacity payments, thereby, addressing the issue of increase in the circular debt.

22.12.17

(Himayat Ullah Khan)
Member (Tariff)
22-12-2017

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Annex-I

List of Small Hydropower Projects with Take and Pay

S.No.	Project Name	Date of Consent	Location	Capacity	Condition of Consent
1.	Riali-II HPP	25th May, 2017	AJK	7.08 MW	Take and Pay basis
2.	Kathai IPP	25th May, 2017	AJK	8.0 MW	Take and Pay basis
3.	PehurIPP	25th May, 2017	KPK	18 MW	Take and Pay basis
4.	Ranolia	25th May, 2017	KPK	17 MW	Take and Pay basis
5.	Machai	25th May, 2017	KPK	2.6 MW	Take and Pay basis
6.	DaralKhwar	25th May, 2017	KPK	36.6 MW	Take and Pay basis
7.	Karora	25th May, 2017	KPK	11.8MW	Take and Pay basis

List of Small Hydropower Projects awaiting Consent

S.No.	Project Name	Location	Capacity
1.	SAR Energy (Private) Limited	KPK	1.8 MW
2.	Blue Star Energy (Private) Limited	KPK	3.0 MW
3.	JabriBedar Hydropower Project	KPK	3.6 MW
4.	Trident Power GR (Private) Limited	Punjab	7.55 MW
5.	Mehar Hydropower (Private) Limited	Punjab	10.49 MW
6.	MandiBahauddin Energy Limited	Punjab	3.3 MW
7.	Gugera Hydropower (Pvt.) Limited	Punjab	3.6 MW

LIST OF SOLAR POWER PROJECTS OPTED FOR 2015 UPFRONT TARIFF

S.No	Name of the Projects	UFT-2015 MWs	Status of Energy Purchase Agreement
1	Access Solar (Private) Limited (ASPL)	11.52	Not Signed
2	Access Electric (Private) Limited (AEPL)	10	Not Signed
3	Safe Solar Power (Private) Limited (SSPPL)	10	Not Signed
4	Bukhsh Solar (Private) Limited	10	Not Signed
5	Blue Star Hydel (Private) Limited	1	Not Signed
6	Quaid-e-Azam Solar Power (Pvt) Ltd.	100	Signed
7	Appolo solar Development Pakistan	100	Signed
8	Best Green Energy Pakistan Limited	100	Signed
9	Crest Energy Pakistan Limited	100	Signed
10	Blue Star Electric (Pvt.) Ltd	1	Not Signed
11	Harappa Solar (Pvt) Limited	18	Not Signed
12	AJ Power (Private) Limited	12	Not Signed
	Total	473.52	

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LIST OF BAGASSE BASED POWER PROJECTS

S.#	Project Name	Installed Capacity (MW)	Consent Letter of CPPA-G
1	JDW Sugar Mills Ltd. (Unit-II)	26.35	Unconditional Consent Letter
2	JDW Sugar Mills Ltd. (Unit-III)	26.35	
3	Chiniot Power Ltd.	62.4	
4	RYK Mills Ltd.	30	
5	Hamza Sugar Mills Ltd.	15	
6	Al-Moiz Industries Limited	36	
8	Thal Industries Corporation Ltd.	41	
7	Chanar Energy Ltd.	22	
9	Shahtaj Sugar Mills Ltd.	32	
10	Etihad Power Generation Ltd.	74	
11	Hunza Power (Pvt.) Ltd.	49.8	
12	Bahawalpur energy	31.2	
13	Indus energy	31	
14	Kashmir power	40	
15	Ittefaq Power Limited	31.2	
16	Humza Sugar Mills Ltd (HSML)	30	Conditional Consent Letter
17	Tay Powergen Company (Pvt) Limited	30	
18	Faran Power Ltd. (FAPL)	26.5	
19	Mehran Energy Limited (MEL)	26.5	
20	Mirpurkhas Energy Limited (MKEL)	26	
21	HSM Energy Ltd (HSMEL)	26.5	
22	Alliance Power (Pvt) Ltd	30	
23	Two Star Energy (Pvt) Ltd. (TSEPL)	49.8	
24	RYK Energy (Pvt) Ltd (RYKEL)	25	
25	Ghotki Power (Private) Limited (GPPL)	45	
26	Sadiqabad Power (Private) Limited (SPL)	45	
27	Sheikhoo Power (Pvt) Ltd (SPPL)	30	
	Total	**938.6**	

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