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No. NEPRA/R/ADG(Trf)/TRF-301/EPTPL-2015/10145-10147

June 15, 2022

Subject: Decision of the Authority in the matter of Commercial Operation Date Adjustment of 660 MW Engro Powergen Thar (Pvt.) Ltd.'s Thar Coal Power Plant at Tharparkar Sindh in Pursuance of Upfront Tariff Determination dated March 13, 2015 [Case # NEPRA/TRF-301/EPTPL-2015]

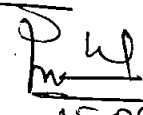
Dear Sir,

Please find enclosed herewith the subject decision of the Authority along with Annex-I, Annex-II(a) & II(b) (37 Pages) in Case No. NEPRA/TRF-301/EPTPL-2015.

2. The Decision is being intimated to the Federal Government for the purpose of notification in the official Gazette pursuant to Section 31(7) of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 within 30 days from the intimation of this Decision. In the event the Federal Government fails to notify the subject tariff Decision or refer the matter to the Authority for reconsideration, within the time period specified in Section 31(7), then the Authority shall notify the same in the official Gazette pursuant to Section 31(7) of NEPRA Act.

3. The Order of the Authority along with Tariff Table (Annex-I) and Debt Servicing Schedules [Annex-II(a) & II(b)] are to be notified in the official Gazette.

Enclosure: As above


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(Syed Safeer Hussain)

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

CC:

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



June 13, 2022

Subject: **Decision of the Authority in the matter of Commercial Operations Date Adjustment of 660 MW Engro Powergen Thar Coal Power Plant at Tharparkar Sindh, in pursuance of Upfront Tariff Determination dated March 13, 2015**

1. **Introduction:**

- 1.1 Engro Powergen Thar (Private) Limited (herein referred to as "EPTPL") bearing generation license No. IGSPL/49/2015 dated March 18, 2015 is a 2 * 330 MW coal based generation facility located at 5 km from Thar Block-II of Thar Coal fields, District Thar Parkar, Sindh pursuant to Section 15 of the NEPRA Act (XL of 1997).
- 1.2 The Authority vide decision dated July 09, 2014 determined the Upfront Tariffs for Thar Coal based power projects depending on the capacity and type of financing. The Authority through its decision dated November 21, 2014 also disposed off the review petition filed by Asad Umar. These two decisions hereinafter shall be called "Upfront Coal Tariff". EPTPL submitted an application on February 18, 2015 for unconditional acceptance of Upfront Thar Coal Tariff for category of 2* 330MW Thar coal based on foreign financing. Subsequently the tariff was approved by National Electric Power Regulatory Authority (hereinafter "the Authority") vide its determination dated March 13, 2015 (hereinafter "the reference tariff") at Rs.8.2550/kWh, US Cents 8.5015/kWh.
- 1.3 Pursuant to the relevant COD adjustments given in the reference tariff, EPTPL after commencing commercial operations with effect from July 10, 2019 notified by Central Power Purchasing Agency - Guarantee (CPPA-G)'s letter dated October 31, 2019, submitted its request for adjustment of relevant components of its tariff at commercial operations date (hereinafter referred to as "COD request") on December 12, 2019 along with documents.
- 1.4 COD adjustments are processed on the basis of adjustments provided in reference tariff determination, the documentary evidence provided by the petitioner and past practices adopted by the Authority while determining COD tariff adjustments applications. The information submitted by EPTPL along with its request for adjustment of tariff at COD was found to be incomplete. Accordingly, EPTPL was time and again directed (via various emails dated May 20, 2020 and July 23, 2020) to submit the required information, wherein the reply against the first information direction was received on May 20, 2020 which was related to withholding tax, capital structure and limestone usage and ash handling while response to the last information direction was received on February 18, 2022 which related to European Boiler cost.



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2. Approved Project Cost:

2.1 The summary of reference project cost allowed to EPTPL as per reference tariff is as under:

Cost Components	330 MW	660 MW
	US\$ in M	
Capital Cost	408.2	816.5
Custom Duties & Cess	16.2	32.4
Sub-Total	424.5	848.9
Financial Charges:		
Financing Fees & Charges	11.1	22.3
Sino sure Fee	33.2	66.4
Interest During Construction	28.9	57.9
Sub-Total	73.3	146.5
Total	497.7	995.5

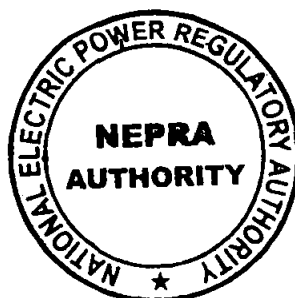
2.2 Summary of the tariff as per the reference tariff is as follows:

Reference Tariff Table Thar Coal on Foreign Financing			
Tariff Components:	1-10 Years	11-21 Years	22-30 Years
Capacity Charges (Rs./kW/Hour):			
Fixed O&M – Local	0.1535	0.1535	0.1535
Fixed O&M - Foreign	0.1535	0.1535	0.1535
Working Capital	0.1094	0.1094	0.1094
Insurance	0.0944	0.0944	0.0944
Return on Equity	1.4075	1.4075	1.4075
Debt Servicing	1.7553	-	-
Total Capacity Charges	3.6736	1.9183	1.9183
Energy Charges Variable (Rs./kWh):			
Fuel cost Component Variable	1.1677	1.1571	1.1571
Water Charges	0.5071	0.4200	0.4200
Ash Disposal	0.2200	0.2200	0.2200
Limestone	0.0900	0.0900	0.0900
Variable O&M – foreign	0.0684	0.0684	0.0684
Variable O&M – Local	0.0456	0.0456	0.0456
Total Energy Charges Variable	2.0988	2.0011	2.0011
Energy Charges Fixed (Rs./kW/Hour):			
Fuel cost Component Fixed	2.5132	1.6552	1.4714
Total Energy Charges Fixed	2.5132	1.6552	1.4714

3. Adjustments in Project Cost at Commercial Operation Date (COD):

3.1 The reference tariff was required to be adjusted at COD included but not limited to on the following grounds:

i. Capital Cost.





- a) Boiler Cost Adjustment - European or Chinese Make
- b) Steel Price & Electrical Machinery Indexation
- ii. US\$ to PKR Adjustment in Total Project Cost as per the given mechanism
- iii. Custom Duties, Cess and Withholding Tax, as per actual
- iv. Sinasure Fee as per actual, not exceeding ceiling percentage
- v. Interest During Construction (IDC), within spread threshold allowed
- vi. Financing Fee and Charges, within the percentage ceiling allowed
- 4. **Head wise discussion on the adjustments and openers allowed in the project cost:** Below is the head wise detail on the admissible claim of one-time adjustments;
- 4.1 **Capital Cost:**
- 4.1.1 **Boiler Cost Adjustment –European Make**

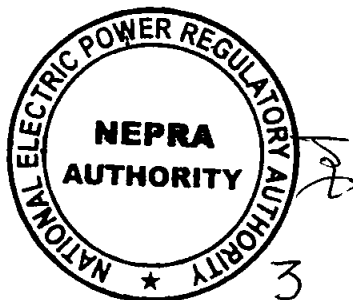
- i. EPTPL was allowed an incremental cost of European boiler @ US\$ 0.1 million per MW which was assumed in the overall project cost by the Authority on account of capital cost, financing fees & IDC, as specified in Clause 3 (*Order*), Part II paragraph vii(c), (d) & para 23 of the Upfront Coal Tariff. The relevant paras are reproduced hereunder:

vii (c) “The sponsor will submit verifiable documentary evidence at the time of COD regarding installation of European boiler for entitlement of this cost. The projects which do not install European boiler will not be eligible for this cost.”

vii (d) “Any boiler will be categorized as European boiler regardless of its place of manufacture if it is designed and supplied by European boiler manufacturer and installed under its warranty”

“23. In order to claim the cost of Sinasure, customs duties and additional cost of European boiler, the verifiable documentary evidence shall have to be provided to the satisfaction of the Authority. The investor, however, shall not be allowed the costs, above the allowed limits as accounted for in the upfront tariff.”

- ii. EPTPL submitted that it had installed a European boiler which meets the criteria stated in the reference tariff. According to EPTPL, the boiler has been designed and manufactured by a European manufacturer, Alstom Boiler France and the boiler is installed under a warranty by Alstom; and that the boiler also carries the nameplate of Alstom.
- iii. EPTPL also submitted a letter dated November 15, 2019 by the Project Manager, General Electric Steam Power, Steam Power Systems – Boilers Mr. Craig Perreault which accordingly to EPTPL confirms that the boilers for EPTPL are designed, manufactured and



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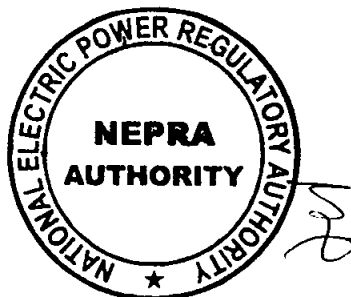
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installed under the warranty of Alstom Boiler France SA, a subsidiary of General Electric Company. EPTPL has thus requested NEPRA that having complied with the requirements of the Upfront Coal Tariff for installation of a European boiler, EPTPL may be allowed incremental cost of European boiler @ US\$ 0.1 million per MW or US\$ 66 million.

- iv. EPTPL was directed on June 15, 2020 to provide the financial trail of procurement of European boiler, the cost of which had to be actualized through documentary evidence. In reply EPTPL submitted that the documentary evidence regarding the financial trail of European Boiler is not required for the purposes of true-up of tariffs determined on upfront basis, thus the same cannot be provided.
- v. EPTPL was also offered several opportunities to argue its stance on European boiler through meetings. NEPRA subsequently directed EPTPL once again to provide the requisite documentary evidence of adjustment of European boiler however in its response dated February 28, 2022 EPTPL reiterated the same stance that for adjustment of European boiler cost, financial trail/documentary evidence is not required under the conditions given in the reference tariff.
- vi. The Authority noted that during the proceedings of Thar upfront coal tariff, Engro Powergen Thar requested for incremental cost of US\$ 33 million or US\$ 0.1 million per MW for European boiler. For this purpose, Engro Powergen Thar then submitted a quotation from China Machinery Engineering Corporation (CMEC), EPTPL's EPC contractor dated March 17, 2014 which was considered by the Authority and accordingly, allowed such cost in the upfront tariff subject to requisite adjustment at COD. The basis of requesting incremental cost of US\$ 33 million by Engro Powergen Thar and the Authority's deliberation on the issues is already explained in the Upfront Coal Tariff dated July 2014.
- vii. With reference to EPTPL's stance that the documentary evidence regarding the financial trail of European Boiler is not required for the purposes of true-up of tariffs determined on upfront basis, the Authority noted that as per para 23 of the Upfront Coal Tariff, which states that "In order to claim the cost of Sinosure, customs duties and additional cost of European boiler, the verifiable documentary evidence shall have to be provided to the satisfaction of the Authority," entitlement of European Boiler cost is subject documentary evidence which also includes financial trail.
- viii. In view of above and as per the decision taken by the Authority in the precedent case of Port Qasim Electric Power Company Pvt. Ltd. (PQEPCL), the Authority considers that based on the evidence provided, the boiler installed by EPTPL broadly fulfills the definition of European boiler defined in the Upfront Coal Tariff, however, the Authority could not clearly establish the contractual arrangements on the boiler including the financial trail of payment for the incremental cost of European Boiler (i.e US\$ 33 million).



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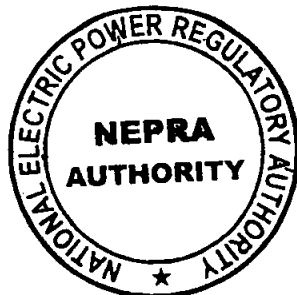
- ix. Therefore, the Authority decided to allow the US\$ 0.1 million/MW provisionally for three months from date of this decision. In this time period, EPTPL shall provide the basis of US\$ 33 million requested at the time of Upfront Coal Tariff, the final incremental price agreed with the EPC contractor after EPC was negotiated and signed with the same EPC contractor which was previously quoted as USD 33 million per unit of 330 MW boiler along with the legal arrangements and financial trail to the Authority. This information should be backed by evidence including bidding documents justifying the final agreed price for incremental European Boiler cost followed by payment evidence of the same. Failing the submission of the aforementioned documents by EPTPL, the incremental cost of European Boiler shall be adjusted accordingly from the true up COD cost of the Petitioner, as the burden of proof regarding entitlement of incremental cost of European Boiler lies with EPTPL, as it was initially requested by them during the proceedings of Upfront Coal Tariff.

4.1.2 **Capital Cost Indexation:**

- i. As per reference tariff, 89% of capital cost has to be indexed as per mechanism given with the changes in Producers Price Index (PPI) for Steel and Electrical Machinery, wherein Clause 3 (Order), Part II paragraph viii states the mechanism as reproduced below:

$CC_{(n)}$	=	$(CC_{(0)} * 51\% * \Delta SI) + (CC_{(0)} * 38\% * \Delta EI) + (CC_{(0)} * 11\%)$
Where:		
$CC_{(n)}$	=	Capital Cost at the time of opting the tariff during the validity period
$CC_{(0)}$	=	Capital Cost at the beginning of the validity period
ΔSI	=	Variation in US PPI for Steel i.e. $SI_{(n)}/SI_{(0)}$
$SI_{(n)}$	=	PPI Steel at the time of opting the tariff
$SI_{(0)}$	=	PPI Steel for the month of June 2014
ΔEI	=	Variation in US PPI for Electrical Machinery i.e. $EI_{(n)}/EI_{(0)}$
$EI_{(n)}$	=	PPI Electrical Machinery at the time of opting the tariff
$EI_{(0)}$	=	PPI Electrical Machinery for the month of June 2014

- ii. EPTPL however submitted that capital cost for first year of the validity period has been fixed as US\$ 408.245 million, consequently, the indexation mechanism stated in Clause 3 (Order), Part II paragraph viii of the EPTPL Upfront Tariff Determination is not applicable in their case.
- iii. Clause 3 (Order), Part II paragraph vii(b) of the reference tariff states:



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"The following capital cost for coal-based power projects has been determined by the Authority; FY 2014-15 will be the first year of validity period. The capital cost shall be linked to the specified indexation mechanism.(mechanism given at para 5.1.2(i)/above)

330 MW US\$ 408.245 Million"

- iv. The Authority while noting the request of non-indexation of capital cost by EPTPL considered that there was no restriction of indexation on the basis of validity period and previous coal upfront COD cases (i.e HSRPEL & PQEPCPL) were indexed as per the given mechanism in the upfront tariff.
- v. The revised indexed capital cost in light of the indexation mechanism provided in the reference tariff dated March 13, 2015 results as follows:

$$CC(n) = (CC(0) * 51\% * \Delta SI) + (CC(0) * 38\% * \Delta EI) + (CC(0) * 11\%)$$

$$\begin{aligned} \text{Ref. Capital Cost} &= \text{US\$ 816.490 million} \\ \text{Indexed Capital Cost} &= 816.490 * 51\% * (205.2/232.6) + \\ &816.490 * 38\% * (114.1/113.6) + \\ &816.490 * 11\% \\ &= \text{US\$ 768.80 million.} \end{aligned}$$

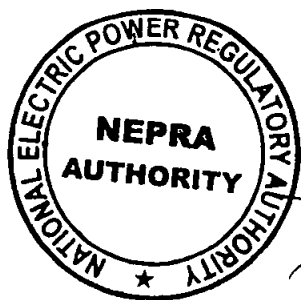
- vi. Consistent to earlier decisions, the Authority has decided that PPI index to be used are (a) Electrical Machinery and Equipment (b) Iron & Steel (Group: Metal and Metal product). with relevant reference values of the month of June 2014. Revised Indices of March 2015 (month of opting tariff by EPTPL) from the US Bureau of Labor Statistics has been applied for indexation. Based on the above, the revised indexed capital cost works out as US\$ 768.80 million and the same is therefore allowed to EPTPL.

4.1.3 Adjustment of Exchange Rate:

- i. As per Clause 3 (Order) Part VIII paragraph ii of the reference tariff:

"At the time of COD, Project Cost will be converted into Pak Rupees using the Average of the Exchange Rates prevailing on the 1st day of each month during the construction period"

- ii. As per the submission of EPTPL, the average of prevailing exchange rates on 1st day of each month during construction period between May 2016 and August 2019, has been calculated as Rs. 117.65 per US\$.





- iii. However, it was noted that EPTPL has incorrectly taken a month later than that of the actual timelines of construction period. The Financial Close (F.C) of EPTPL was on April 04, 2016 and COD was achieved on July 10, 2019, thus the number of months to be used for the basis of computation of average exchange rate shall be 38 months (as agreed in the PPA by EPTPL, discussed in detail at para 4.3/below) which would be (from April 2016 to May 2019). Accordingly the average Rs. to US\$ exchange rates works out as Rs. 114.26 per US\$ and the same has been allowed to EPTPL.

4.2 Custom Duties, Cess and Withholding Tax

- i. As per Clause 3 (Order) Part II para xvi of the reference tariff, duties and taxes of US \$ 32.428 million (Rs. 3,148.748 million @ Rs. 97.10/US\$) were assumed, which were to be adjusted at COD stage on actual as per Clause 3 (Order) Part II para ix of the reference tariff, as prescribed below:

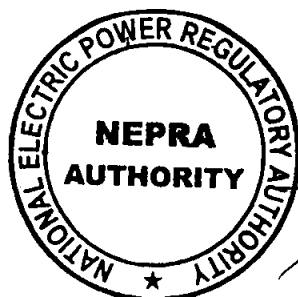
"Customs duties & cess @ 5.95% of the 66.75% of the capital cost has been assumed in the project cost which will be adjusted at the time of COD on actual basis. No withholding tax on local foreign contractors, sub-contractors, supervisory services and technical services provided by foreign (non-residents) entities has been assumed. Actual expenditure, if any, on this account will be included in the project cost at the time of COD on the basis of verifiable documentary evidence."

- ii. EPTPL as a part of COD request claimed duties and taxes amounting to Rs. 6,254.232 million (US\$ 54.103 million @ Rs. 115.59/US\$) as summarized below:

Sr	Description	Rs. in M	US\$ in M	Exch. Rate	Rs. in M	US\$ in M	Exch. Rate
Duties		Initial Claim			Revised Claim		
1.	Custom Duties	2,544.944 ¹	22.573	110.38	2,395.350	21.683	110.47
2.	Withholding Tax	2,968.399 ²	25.231	117.65	2,995.382	25.461	117.65
3.	Sales Tax	740.888	6.297	117.65	740.888	6.297	117.65
	Total	6,254.232	54.103	115.41	6,131.621	53.442	114.73

1. Under Custom Duty, tentative claim of Rs. 182.967 million was assumed in initial claim of Rs. 2.544 billion
2. In WHT tentative claim of Rs. 245.774 million was assumed in initial claim of Rs. 2.968 billion

- iii. As per EPTPL claim, Custom Duty amount of Rs. 182.967 million (US\$ 1.176 million) was a tentative claim, which was subsequently revised at Rs. 33.374 million (US\$ 0.286 million) vide letter dated September 28, 2020. Similarly withholding tax claim amount of Rs. 245.774 million (US\$ 2.089 million) was a tentative claim, which was also revised later at Rs. 272.757 million (US\$ 2.318 million). The total claim amount of taxes was revised from Rs. 6,254.232 million (US\$ 54.103 million) to Rs. 6,131.621 million (US\$ 53.442). Detail of sub-heads of Duties & Taxes are discussed below:





4.2.1 Custom Duty:

- i. EPTPL submitted a revised claim of Rs. 2,395.350 million (US\$ 21.683 million @ Rs. 110.47/US\$) in respect of custom duties, cess and related charges during the construction period on account of off-shore supply. In support of its claim, EPTPL submitted copies of goods declarations, pay orders, payment challans of duties, commercial invoices, bank statements etc.

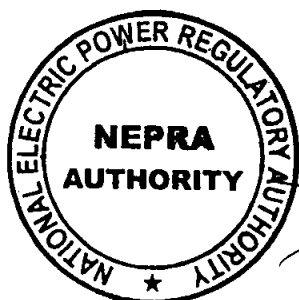
Sr.	Description	Rs. in M.	US\$ in M.	Rs. in M.	US\$ in M.
Duties		Claimed		Assessed	
1	Custom Duties (Import Duty 3% to 5%)	2,073.460	18.832	2,073.46	18.832
2	Regulatory Custom Duty	257.692	2.254	-	-
3	Anti-Dumping Custom Duty	5.205	0.040	-	-
4	Cess (Offshore import)	57.511	0.542	57.511	0.542
5	De-Blocking	0.620	0.005	-	-
6	Penalty	0.435	0.003	-	-
7	Stamp Duty	0.425	0.003	0.425	0.003
Total (Duties)		2,395.350	21.687	2,131.39	19.382

- ii. It was noted that Custom Duty on account Regulatory Custom Duty, Anti-Dumping Custom Duty, De-blocking & penalty has not been considered by the Authority in other cases of upfront imported coal tariffs such as Huaneng Shandong Ruyi (Pakistan) Energy (Private) Limited (HSRPEL) and PQEPCPL. The reasons for disallowance was that these items were locally available therefore there was no need to import it. Thus EPTPL, like HSRPEL and PQEPCPL should have avoided these duties.
- iii. The Authority decided to allow US\$ 19.382 million on account of Custom Duty, Cess and Stamp Duty and disallowed the amount of US\$ 2.305 million due to the fact narrated above.

4.2.2 Withholding Tax (WHT):

- i. No withholding tax (WHT) was assumed in the Project Cost in the reference tariff, which was subject to adjustment on actual at COD.
- ii. EPTPL at COD claimed withholding tax of Rs. 2,968.399 million (US\$ 25.231 million @ Rs. 117.65/US\$) which was subsequently revised to Rs. 2,995.382 million (US\$ 25.461 million @ Rs. 117.65/US\$) as summarized below:

Sr.	Description	Rs. in M.	US\$ in M.	Rs. in M.	US\$ in M.
Duties		Revised Claim		Assessed	
1.	Foreign Contractors/ Others (EPC and IDC)	1,604.083	13.634	827.901	7.251
2.	Local Contractor (EPL & EEL)	1,294.913	11.006	-	-
3.	Offshore Supply by Foreign Contractors	78.041	0.663	-	-
4.	Foreign Technical Services (Engineering Consultants)	18.343	0.155	-	-
Total (Duties)		2,995.382	25.461	827.9	7.251





- iii. In support of its claim, EPTPL submitted computerized tax payment receipts (CPR) and cheques. While examining the documents submitted by EPTPL, it was observed that contracts, invoices and banks statements of relevant payments were not submitted. Accordingly, EPTPL was directed on May 23, 2020 to submit requisite information. However despite reminders, EPTPL was unable to submit the supportive documents for the above claim.
- iv. Contrary to above, EPTPL submitted Tax Orders on April 13, 2021 received by EPTPL from the Federal Board of Revenue (FBR), which claimed an amount of Rs. 1.4 billion to be paid by EPTPL in the capacity of WHT agent while making payments to a non-resident contractor under the EPC Contract. EPTPL requested NEPRA to consider the amount of Rs. 1.4 billion as it has been paid to FBR to discharge its obligations as WHT agent under the Income Tax Ordinance 2001 (ordinance), also supported with bank settlements and CPRs.
- v. While observing the above Tax Orders it was noted that the amount of WHT Tax paid by EPTPL to FBR of Rs. 1.4 billion is a demanded income tax under Section 137 of the ordinance, an amount of tax computed on the profits of EPTPL's EPC Contractors i.e China Machinery Engineering Corporation (CMEC) and China East Resources Import & Export Corporation (CERIEC) and not on the payments of EPTPL to the EPC Contractors.
- vi. The tax order also mentioned that the delayed tax could have been avoided by EPTPL through timely collection of WHT on payments made to the EPC Contractor.
- vii. NEPRA principally do not allow inefficiency of the licensee to be passed to the end consumers. Accordingly, WHT as 7% of EPC Onshore payments amounting to US\$ 7.251 million or Rs. 827.901 million @ of Rs. 114.71/US\$ has been allowed to EPTPL and disallowed the remaining WHT amount of US\$ 18.20 million due to lack of documentary evidence (as discussed at sub-para iii/above).

4.2.3 Sales Tax:

- i. The reference tariff awarded to EPTPL did not mention any proviso regarding adjustment of Sales Tax.
- ii. EPTPL vide the COD request claimed non-adjustable sales tax amounting to Rs. 740.888 million (US\$ 6.297 million @ Rs. 117.65/US\$) paid on account of various goods and services, fuel, financing fees and bank charges, consultancy fees, insurance as summarized below:

Sr.	Description	Rs. in M	US in M
Duties			
1.	Sales Tax – Offshore Supply (paid to FBR)	403,098,235	3.426
2.	Withholding Sales Tax (paid to SRB)	337,790,591	2.871
	Total	740,888,826	6.297



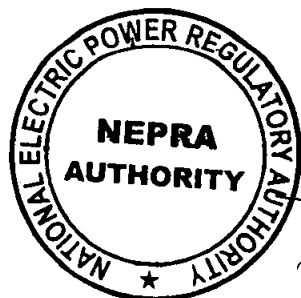


- iii. EPTPL submitted as per sections 7 and 8 of the Sales Tax Act, 1990 read with the notifications issued thereunder which provides the basis of the claim of input tax, the sales tax paid during the construction phase of the project, prior to synchronization were disallowed as there were no taxable supplies for such period.
- iv. In support of its claim, EPTPL submitted copies of invoices, bank statements and also submitted the opinion of A.F. Ferguson & Co., Chartered Accountants, which stated "...at this stage no comment is made on the admissibility of individual items and it is our conservative view to claim the input tax of Rs. 403 million as part of the cost of asset capitalized.
- v. It was noted that it is not clear at this stage whether the sales tax claimed is adjustable or un-adjustable against the output tax, therefore the Authority decided to dis-allow US\$ 6.297 million on account of Sales Tax, on the fact that EPTPL can adjust the same against their output tax, and if any circumstance it is not adjustable, EPTPL can claim this Sales Tax as Pass-through item by CPPA-G under the PPA. However, CPPA-G has to ensure that EPTPL has exercised all legal remedies for adjusting the sales tax from the relevant agencies before submitting the claim to the Power Purchaser.
- vi. Summarizing the above, with reference to tax adjustment clause of EPTPL, their claims and the approval of the Authority is reproduced below:

Sr.	Description	Rs. in M	US\$ in M	Rs. in M	US\$ in M
Duties		Claimed		Assessed	
1.	Custom Duties	2,360.541	21.063	2,131.397	19.382
2.	Withholding Tax	2,968.399	25.231	827.901	7.121
3.	Sales Tax	740.888	6.297	-	-
Total (Duties)		6,069.829	52.592	2,959.299	26.634

4.3 Construction Period:

- i. As per the para Order para(x) of the reference tariff "The allowed construction period for the generation facility is 40 months".
- ii. EPTPL submitted that it achieved Financial Close (FC) on April 04, 2016 notified by Private Power Infrastructure Board (PIBB) letter dated April 04, 2016. Assuming construction period to start from F.C date and end at COD i.e July 10, 2019, construction time period works out as 39 months and 6 days.
- iii. While examining the PPA that, the definition of Required COD (RCOD) stated that "the date that is 38 months following the date of Financial Close."

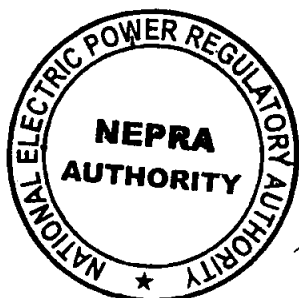




- iv. In the Upfront tariff, IDC and RoEDC was assumed on the construction period of 40 months. However, when PPA was signed after the award of reference tariff the Petitioner agreed to construction period of 38 months meaning thereby EPTPL agreed with Power Purchaser for a discount of 2 months. In addition, the petitioner also agreed that in case of delay in construction period of 38 months, the Power Purchaser shall apply Liquidated Damages to the Company. It is understood that the construction period allowed in any tariff determination is generally without any start and end date, the reason being that the project companies approaches NEPRA well before FC, signing of EPC contract etc. These dates are made a part of binding contract between power purchaser and power producers through Power Purchase Agreements under which remedies are available and Liquidated Damages (LD) to be imposed based on non-performance of either party is well documented and agreed. So as a practice the construction period allowed in tariff determinations are generic and considered as a maximum ceiling and any delays beyond the allowed limit in the determination is not allowed. In instant case, EPTPL has already agreed to a construction period of 38 months in the PPA
- v. Therefore the Authority considered that EPTPL itself agreed to 38 months construction period with CPPA-G in the PPA regardless of 40 months assumed in the reference tariff thus giving the benefit to the consumers and the same has been allowed to EPTPL.

4.4 Capital Structure

- i. In the reference tariff, the Authority had assumed debt equity ratio of 75:25. Order para 3(II)(xi) under Financing of Coal Projects states the following:
- "a. The sponsor of the project can arrange foreign financing in American Dollar (\$), British Pound Sterling (£), Euro (€), Japanese Yen (Y) and Chinese Yuan (Y) or in any currency as the Government of Pakistan may allow.*
- b. The upfront tariff has been determined on the basis of debt equity ratio of 75:25;*
- c. The minimum equity shall be 20% and the maximum equity shall be 30%; if the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as loan;"*
- ii. EPTPL at COD has claimed a capital structure of 74.5% : 25.5% on the basis of locking US\$ 277 million of equity first, then US\$ 621 million foreign (Chinese RMB) loan (77% of debt) and remaining US\$ 187 million as local loan (i.e 23% of debt) of the total Project Cost of US\$ 1,085 million. According to EPTPL, this would result in revised capital structure of 70:30 based on NEPRA's assessed project cost.
- iii. EPTPL submitted references of past COD cases of HSRPEL, PQEPCPL, Halmore Power Generation Company Ltd. and Engro Energy Limited (EEL) now (EPQL), wherein the Authority has approved capital structure on the basis of the requests made by the respective





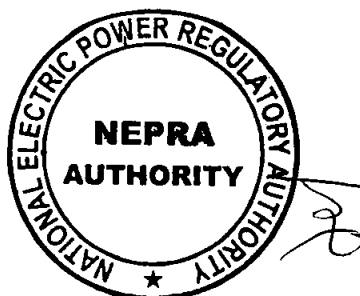
- IPPs. EPTPL in the light of past precedence, requested the Authority to adjust the disallowances from the local debt and actualize its actual equity first and foreign loan subsequently.
- iv. It has been noted by the Authority that, in case of HSRPEL, financial accounts were made the basis of determining capital structure and in case of Port Qasim, only foreign debt was actualized first as against equity as the former being relatively cheaper source of financing. Therefore, reference made by EPTPL regarding determination of capital structure on the request made by Companies is not correct.
- v. It was noted that the actual capital structure as per the financial statements of EPTPL ending December 2019 (COD year) was 77.41:22.59, however EPTPL requested NEPRA not to consider this ratio because of two reasons:
- The debt portion of capital structure includes water capex of pumping station amounting to US\$ 40 million which is to be covered through separate component of tariff as Water Charges Component in the tariff table.
 - While recording the foreign loan of US\$ 621 million in rupee terms the auditor has used spot rate of financial year ending date of December 31, 2019 i.e Rs. 154/US\$ rather than actual prevailing exchange rate of Rs. 121/US\$.
 - If these two points are taken into consideration than according to EPTPL the resultant capital structure works out to be 74.97:25.03.
- vi. The Authority considering the request of re-adjustment of capital structure by EPTPL being reasonable decided to allow actual percentages of capital structure i.e 74.97:25.03 (while relying on financial accounts regardless of the actual amounts of equity and debt) as long as it is within the allowed limit range provided in the reference tariff and within debt foreign loan is allowed on actual. The Authority also decided to revise the same working in likewise cases e.g HSRPEL and PQEPCPL etc.

4.5 Financial Charges:

4.5.1 Sinosure Fee:

- i. Reference Sinosure fee of US\$ 66.40 million was assumed in the reference tariff. Adjustment at COD was provided in the reference tariff Clause 3 (Order) Part II paragraph xiv which is reproduced below:

"Under the foreign financing originating from Chinese banks, upfront Sinosure fee @ 7% on the total debt servicing (including principal and mark-up for the entire loan tenor) has been included in the project cost. The project cost will be adjusted at the time of COD on the basis of actual Sinosure fee subject to maximum of 7%.





In case the sponsor managed better alternative Sinasure fee arrangement, the same will be considered at the time of COD”.

- ii. EPTPL submitted that the Sinasure fee was to be adjusted based on actual cost incurred by the company subject to a maximum of 7%, based on a premium of 6.909% of debt servicing, an amount of US\$ 67.699 million equivalent to Rs. 7,078.901 million has been paid by EPTPL as Sinasure cost to China Export & Credit Insurance Corporation and the same amount of US\$ 67.699 million is requested by EPTPL for consideration.
- iii. It has been noted that as per the tariff calculations, the maximum ceiling of Sinasure fee is computed by allowing 7% of the total debt servicing (i.e principal and mark-up). Since EPTPL has agreed Sinasure fee at a rate of 6.909%, therefore assessed Sinasure fee at 6.909% of the assessed debt servicing amounts to be USD 59.056 million and the same is allowed by the Authority.

4.5.2 Financing Fee & Charges:

- i. As per reference tariff, the Authority had allowed US\$ 22.28 million as financing fee & charges @ 3.5% of approved capex loan of US\$ 636.688 million which at the time of reference tariff was based on capital structure of 75% debt and 25% equity. The relevant para i.e., Clause 3 (Order) Part II paragraph xiii of the reference tariff is reproduced hereunder:
“Financing fee & charges are taken @ 3.5% of the borrowing to cater for the upfront fee, commitment fee, lenders' technical, financial and legal consultants' fee etc.”
- ii. EPTPL in its COD application has requested the Authority that financing fee and charges @ 3.5% should be allowed on the entire project cost of US\$ 1,084.5 million, instead of reference Capex amount of 869 million with debt percentage of 74.5%. This according to EPTPL will result in financing fee and charges amounting to US\$ 28.264 million (US\$ 1084.5 million * 74.5% * 3.5%).
- iii. The Authority noted that the reference financing fee and charges amounting to US\$ 22.284 as given in the reference tariff is based on the formula of assessed capex (capex of US\$ 849 million * 75% * 3.5%). At COD only adjusted warranted on account of financing fee and charges is limited to the extent of revised capital structure and revised capex. The same treatment was also accorded to other imported coal plants at COD who opted for upfront tariffs. At this stage the financing fee and charges computation can't be reworked by including the entire project cost debt instead of Capex debt. In view of above, the amount of financing fees and charges at 3.5% of the revised debt portion of 74.97% and assessed Capex of US\$ 795.436 million works out as US\$ 20.871 million.



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4.5.3 **Interest During Construction:**

- i. As per EPTPL reference tariff, the Authority had allowed an Interest During Construction (IDC) on the basis of 75% of the CAPEX including customs duties as per the following reference parameters:

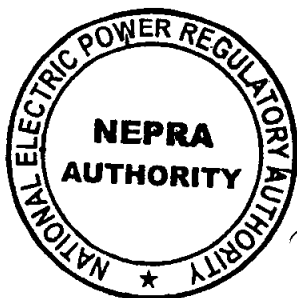
1 st Year	33.33%
2 nd Year	33.33%
3 rd Year	20.00%
4 th Year	13.33%

- ii. EPTPL stated that in the reference tariff, IDC was not required to be adjusted for any variation on account of actual expenditure percentage during the construction period. At the time of COD, IDC shall be reestablished on the basis of indexed capital cost, actual custom duties & cess, withholding tax on contracts/services, actual premium on LIBOR & KIBOR subject to maximum of 4.5% and 3.5% respectively and the impact of Sino sure fee, if any. IDC shall be recalculated on the basis of weighted average quarterly LIBOR/KIBOR during the construction period plus actual premium subject to the maximum limit on reference parameters. At the time of award of upfront tariff, EPTPL was allowed an IDC of US \$ 57.853 million (Rs. 5,617.515 million) on the basis of its scheduled construction period of 40 months.

- iii. EPTPL provided the following information with respect to its financing:

Agreement	Lender	Total financing US\$	Interest rate	Repayment period
Dollar Term Loan Facility Agreement dated Dec 21, 2015	China Development Bank, China Construction Bank and Industrial and Commercial Bank of China	US\$ 621,000,000	3 month LIBOR plus 4.20%	10 years
Rupee Facility Agreement dated Dec 21, 2015	Habib Bank L., United Bank L., Bank Alfalah L., Askari Bank L., Bank of Punjab, NIB Bank L., Soneri Bank L., Sindh Bank Limited, Pak Brunei Invest. Co. L.	Rs. 17,016,000,000	3 month KIBOR plus 3.5%	10 years
NBP Bilateral Facility Agreement dated Dec 18, 2015	National Bank of Pakistan	Rs. 3,131,000,000	3 month KIBOR plus 3.5%	10 years
Lease Agreement dated Dec 25, 2015	Faysal bank L., Meezan Bank L., Habib Bank L.	Rs. 4,000,000,000	3 month KIBOR plus 3.5%	10 years
Total Debt in US\$		US\$ 621,000,000		
Total Debt in PKR		Rs. 24,147,000,000		

- iv. EPTPL at COD has requested to allow the total IDC of US\$ 119.5 million (Rs. 14,060.285) comprising of foreign debt IDC at US\$ 76.6 million (PKR 9,013.1 million) and local debt





IDC at US\$ 42.9 million (PKR 5,047.6 million) on the allowed construction period of 40 months instead of 38 months agreed in the PPA.

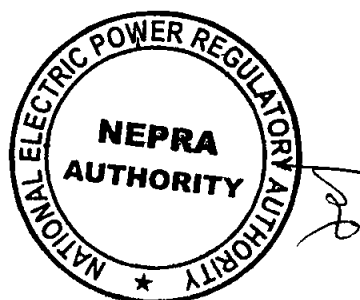
- v. The Authority while considering documents submitted by EPTPL noted that IDC should be worked out on the basis of time frame agreed in the PPA, the reasons of which are already given at para 4.3/above. Therefore, based on assessed Capex + sinosure fee which cumulatively amounts to US\$ 854.493 million while assuming capital structure of 74.97% debt and 25.03% equity with construction period of 38 months, the IDC works out as US\$ 76.687 million within which US\$ 59.7 million pertains to IDC on foreign debt and US\$ 16.9 million on account of local debt.
- vi. It is pertinent to note that in pursuance to the terms and condition given in the reference tariff, savings in spread over LIBOR (below 4.5%) is required to be shared in the ratio of 60% to power purchaser/consumers and 40% to EPTPL. The Authority noted that the actual spread agreed was 4.2%. This led to revised spread over LIBOR of 4.32% after taking into account the abovementioned sharing ratio. It was however regretfully noted that EPTPL in its claims didn't share such benefit with the consumers as clearly stipulated in the reference tariff. The key assumptions leading to approved IDC of US\$ 76.687 million is tabulated below:

IDC Summary	Reference	Claim	Assessed
IDC Amount US\$ in Millions	57.85	119.52	76.687
Basis for Calculation	CAPEX	Project Cost	CAPEX + Sino
Amount for Calculation	US\$ 848.91 million	US\$ 1,085 million	US\$ 854.493 million
Capital Structure - Debt : Equity	75% : 25%	74.5% : 25.5%	74.97 : 25.03
LIBOR / KIBOR	3 Month	3 Month	3 Month
Spread	4.5% / 3.5%	4.5% / 3.5%	4.32% / 3.5%
Exchange Rate Rs./US\$	97.10	117.65	114.26
Period	40 months	40 months	38 months

4.6 Project Cost:

- i. The adjusted project cost after incorporating the above one-time adjustments in the reference tariff is tabulated below:

Cost Item	Reference		Claim		Assessed	
	US\$	PKR	US\$	PKR	US\$	PKR
Capital Cost	816.5	79,281.1	816.4	96,056	768.8	87,839
Custom Duties	32.4	3,148.8	21.1	2,360.5	19.38	2,131.3
Withholding Tax	-	-	25.2	2,968.4	7.25	827.9
Sales Tax	-	-	6.3	740.9	-	-
Project CAPEX	848.9	82,429.9	869.0	102,125.8	795.4	90,799
Sinosure Fee	66.4	6,447.4	67.7	7,078.9	59.0	6,747.5
Interest during Const.	57.9	5,617.5	119.5	14,060.6	76.7	8,761.9



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Financing Fees & Chr.	22.3	2,163.8	28.3	3,325.1	20.9	2,384.5
Total Project Cost	995.5	96,658.6	1,084.5	126,590.4	952.0	108,692
Debt	75%	75%	74.5%	74.5%	74.97%	74.97%
Equity	25%	25%	25.5%	25.5%	25.03%	25.03%
Total Project Debt	746.6	72,493.9	807.5	94,258.0	713.7	81,482.3
Total Project Equity	248.9	24,164.7	277.0	32,332.4	238.3	27,210.6

4.7 Tariff Components:

- i. Summarizing the project cost, following adjustments/indexations at COD are allowed to EPTPL as per the determination of the Authority:

Tariff Components	Tariff Indexation & Adjustment
Fuel Cost component	Delivered Fuel Price (inclusive of transportation) at the Power Plant
Variable O&M (Foreign)	US\$ to Pak Rupees & US CPI
Variable O&M (Local)	Pakistan CPI
Fixed O&M (Foreign)	US\$ to Pak Rupees & US CPI
Fixed O&M (Local)	Pakistan CPI
Cost of Working Capital	Adjustments for relevant KIBOR variations
Return on Equity	US\$ to Pak Rupees
Principal Repayment (Foreign Currency Loan)	US\$/Euro/Yen/Pound to Pak Rupees (based on borrowing by the Company)
Interest/Mark-up Payments* (Foreign Currency Loan)	Adjustments for relevant LIBOR or other applicable Interest Rate benchmark Adjustment for variation in Rs./Foreign Currency (US\$/Euro/Yen/Pound) rates as applicable
Interest/Mark-up Payments* (Local Currency Loan)	Adjustments for relevant KIBOR variations

4.7.1 Net Capacity

- i. As per Clause 3 (Order) Part II paragraph ii of the reference tariff:

"(1) The applicable upfront tariff is for the following plant size:

MW (Gross) 300 MW (Net)

(2) The actual net capacity of the complex will be determined on the basis of Initial Dependable Capacity (IDC) Test at the time of COD and the relevant tariff components will be adjusted downward. However, upward adjustment in tariff will not be allowed if the IDC established lower than the benchmarks stated above."





- ii. The reference tariff assumes a net capacity 600 MW (300 x 2) for the Project. However, the actual net capacity of the Project during the IDC test for COD was determined as 602.6 MW, which has been duly certified by the Independent Engineer and the same is being allowed in the instant case.
- iii. Consequently, the capacity components of the reference tariff have been adjusted downwards accordingly to arrive at the adjusted tariff to reflect the change in net capacity of 602.6 MW.

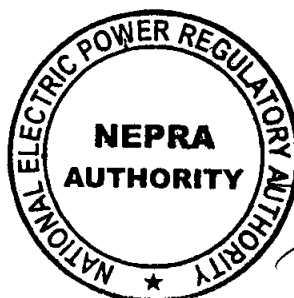
4.7.2 Fuel Cost Component:

- i. In the reference tariff EPTPL was allowed a Fuel Cost Component (FCC) of **Rs. 3.6809/kW/h** which comprised of variable FCC of Rs. 1.1677/kWh + fixed FCC of Rs. 2.5132/kW/h.
- ii. EPTPL in its COD application requested a FCC component of **Rs. 8.2136/kW/h** which includes variable FCC of Rs. 2.1223/kWh & fixed FCC of Rs. 6.0913/kW/h).
- iii. The Authority noted that since July 2019 when FCC is adjusted on monthly basis through fuel price adjustments therefore FCC has already been worked out and notified by the Authority vide its order November 3, 2017 determined FCC for the month of October 2017 as **Rs. 8.2435/kW/h** (Variable FCC of Rs. 2.1367/kWh + Fixed FCC of Rs. 6.1068/kW/h)
- iv. As per Clause 3 (*Order*) Part II paragraph xviii of the reference tariff:

"(a) The minimum reference net LHV thermal efficiency of 37% has been established for calculating reference fuel cost component.

(b) The fuel cost component will be subject to downward revision on the basis of actual heat rates established as a result of heat rate test conducted at the time of COD in accordance with the established benchmarks in the presence of the representatives of the power purchaser. For acceptance of the test, approval of the power purchaser will be mandatory. Upward revision in the fuel cost component will not be allowed in case the net LHV heat rates are established lower than the minimum thermal efficiency specified above and the financial impact, if any, of lower thermal efficiency over the term of the Agreement will be borne by the power producer. However, the following sharing mechanism will be applicable only in case the efficiency, approved by the Authority for 330 MW project, is established higher as a result of heat rate tests carried out at the time of COD."

Efficiency net (LHV) achieved At COD	Sharing Ratio Power Purchaser : Sponsor
37% (min)	100% : 0%
37.01% - 37.50%	70% : 30%
37.51% - 38.00%	50% : 50%





38.01% - 38.50%	30% : 70%
>38.5%	0% : 100%

- v. As per Clause 3 (*Order*) Part II paragraph xix of the EPTPL Upfront Tariff Determination, the following two-part reference coal price has been used for determining the upfront tariff for Thar Coal Projects:

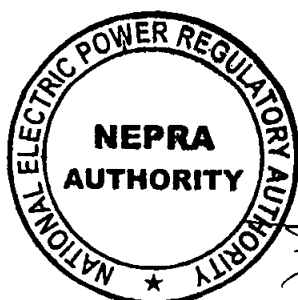
Year	Variable Price US\$/Ton	Fixed Price US\$/Ton	Total Price US\$/Ton
1-10	14.35	36.33	50.69
11-21	14.22	23.93	38.15
22-30	14.22	21.27	35.49

- vi. Clause 3 (Order) Part II paragraph xix of the EPTPL Upfront Tariff Determination further provides that,

"b. The actual coal price of each block of Thar Coal will be determined by Thar Coal Energy Board (TCEB)/Competent Authority and the reference fuel cost components will be adjusted accordingly.

c. The price of coal shall be provided in the Power Purchase Agreement"

- vii. EPTPL submitted that the thermal efficiency of the complex established as a result of heat rate test conducted at COD was 37.36%. As per EPTPL, after adjusting for the given sharing mechanism, the resultant thermal efficiency to be assumed for computing fuel cost component at COD should be 37.252%.
- viii. Further EPTPL submitted that it was required to issue and maintain letter of credit in favor of Sindh Engro Coal Mining Company Ltd. (SECMC) equivalent to two months of fixed and variable fuel charges at 100% plant load, as a precondition to signing of the coal supply agreement with SECMC. As per EPTPL, the cost of such letter of credit is incurred separately by EPTPL which is around Rs.35.12/ton the same is not included in the price determined by Thar Coal & Energy Board ("TCEB"). Therefore EPTPL has requested the Authority to allow and include cost of letter of credit as a part of the fixed fuel cost component.
- ix. The Thar Coal Energy Board (TCEB) determined the Financial Close (F.C) Stage coal rate for SECMC for 3.8 Mtpa capacity at Block II, Thar Coalfields on October 26, 2016, wherein the coal price for first year is US\$ 67.5/ton among which US\$ 14.03/ton plus US\$ 1.45/ton as Variable Price and US\$ 52.05/ton as Fixed Price.





- x. Also the LHV heating value of Thar Coal has been determined as 11.30MJ/Kg for 1-8 years and 11.61MJ/Kg for 9-30 years, which translates to 10,710 BTU/Kg.

Fuel Cost Component	Reference		Claim		Assessed	
	Variable	Fixed	Variable	Fixed	Variable	Fixed
Price of Coal US\$/ton	14.35	36.33	15.48	52.05	15.48	52.05
Exchange Rate	97.10	97.10	160.30	160.30	160.30	160.30
Price of Coal (Rs./ton)	1,393.44	3,528.12	2,481.44	8,343.62	2,481.44	8,343.62
SBLC Cost (Rs./ton)	-	-	-	35.12	-	-
Efficiency %	37		37.252		37.252	
Calorific Value (MMBTU/Ton)	11.005		10.710		10.710	
Heat Rate Efficiency (BTU/kWh)	9,222.49		9,160.10		9,160.10	
Plant Factor	85%		85%		85%	
FCC (Rs./kW/h)	1.1677	2.5132	2.1223	6.0913	2.1228	6.0656
Total	3.6809		8.2136		8.1878	

- xi. It was observed that Fixed FCC of EPTPL needs to be adjusted on the basis of actual coal consumption and energy delivered on monthly basis and adjustment in future on the same basis. Coal consumption by EPTPL from COD i.e July 10, 2019 to July 30, 2019 was 1.874 Mton which translates into 8,343.13 Rs./ton. The energy delivered during the period by EPTPL was 318.17 GWh. Per day consumption of coal by EPTPL amounts to 224,731.183 tons. Summarized parameters are tabulated below:

Item	Amount
Invoice Price of coal for the month of July 2019 – A (Rs.)	1,874,962,395
Avg. Consumption of coal per month – B (tons)	316,666.667
Consumption for 22 days – C = B/31*22 (tons)	224,731.183
Coal price per ton – D = A/C (Rs.)	8,434.13
Energy Delivered during the period – E = 24*22*602.6/1000 (gWh)	318.17
Fixed FCC – F = D*C/E/10^6 (Rs/kW/h)	5.8929





- xii. The revised Fixed FCC results to be Rs. 5.8929/kW/h instead of earlier calculated Rs. 6.0656/kW/h.

FCC Summary	Reference	Claim	Assessed
Efficiency %	37%	37.252% after sharing	37.252%
Calorific Value of coal BTU/kg	11,005	10,710	10,710.334
Coal Price US\$/ton	50.7	67.5 + SBLC	67.5
FCC Rs./kW/h	3.6809	8.2136	8.0152

- xiii. In view of above, the Authority decided that SBLC not being part of reference tariff is not being considered, therefore, assuming thermal efficiency of 37.252%, coal price of US\$ 67.5 per ton with a CV of 10.710 per mmbtu, excluding the SBLC cost of Rs. 35 per ton, the final FCC approved at COD works out as Rs 8.0152 per kW/h.
- xiv. The Authority noted that as per Clause 3 (*Order*) Part II paragraph xviii of the reference tariff of EPTPL, the Power Purchaser was required to provide approval for acceptance of test conducted by EPTPL regarding heat rate test, confirming the thermal efficiency of 37.36% established by the complex at COD. Therefore the Authority directs CPPA-G to provide the approval of acceptance of the heat rate test conducted at COD by EPTPL establishing thermal efficiency of 37.36%.

4.7.3 Water Charges:

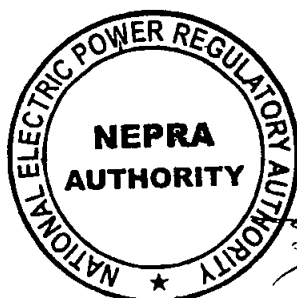
- i. As per Clause 3 (*Order*) Part II paragraph xx(b) of the EPTPL reference tariff:

"a. Component of Government of Sindh water charge will be adjusted for the revised water charge as announced by GoS.

b. Capital cost of 20.13 million has been assumed for water pumping station/pipelines from Vajihar to the project site. At the time of COD, this cost will be indexed in whole or in parts for the exchange rate variation for the portion of cost that has been occurred in foreign currency. -

c. The O&M cost of Rs 0.06 per kWh for pumping station at Vajihar will be indexed with Local WPI or US CPI as the case may be, at the time of COD along with timing and mode of indexation."

- ii. It was noted that Water Charges of Rs. 0.5071/kWh was assumed in the reference tariff, which was based on three sub-components a. Water Capex of Rs. 0.1574/kWh b. Govt. of Sindh Charge of Rs. 0.2897/kWh and c. Water O&M of Rs. 0.06/kWh.
- iii. The total water charges component of Rs 0.6405/kWh is claimed by EPTPL against the allowed component of Rs. 0.5071/kWh.





- iv. At COD Water Charges cost was to be adjusted for revised actual cost of Water Capex i.e US\$ 40 million, Govt. of Sindh Charge through notification and indexation of Water O&M with local or foreign inflation as per the source of funds.
- v. EPTPL claimed Water Charges at Rs. 0.6405/kWh (which included Water Capex of Rs 0.2193/kWh on the basis of revised KIBOR and exchange rate prevailing at COD, GoS Charge of 0.3612/kWh and Water O&M Rs 0.06/kWh. EPTPL was directed to provide documentary evidence regarding the capital cost of US\$ 40 million and Water O&M annual expense of 0.06 Rs per kWh, which was not provided.
- vi. It is pertinent to mention that the Water related cost (i.e three items a. water capex cost, b. Water O&M & c. Water GoS Charge) was based on the submissions of EPTPL during the proceedings of determination of Thar Upfront Coal Tarif, which included a. an engineering estimate of water capex, b. O&M expense worksheet and c. GoS charge to be notified time to time. After reviewing the above studies it can clearly be construed that a & b cost related to water related charges needs to be based on actual as the estimates were based on Engro's own submission which was very basic and at best a desktop study warranting a review at COD stage. Further this cost will differ for different Thar plants owing to different water arrangements and water capex and opex further.
- vii. Therefore, the Authority decided to revise GoS charge to Rs. 0.3597/kWh (due to change in water rate from Rs 320 per thousand gallons to Rs 397 per thousand gallon as agreed between EPTPL, GoS & Thar Company) and dis-allowed the cost of Water CAPEX and Water O&M due to lack of documentary evidence.
- viii. On the basis above, calculations for claim and assessed are as under:

Water Charges Summary	Reference	Claim	Assessed
Water Capex (Rs./kWh)	0.1574	0.2193	-
GoS Charge (Rs./kWh)	0.2897	0.3612	0.3597
Water O&M (Rs./kWh)	0.0600	0.0600	-
Total (Rs./kWh)	0.5071	0.6405	0.3597

4.7.4 Ash Handling:

- i. In the reference tariff ash disposal cost of Rs 0.22 /kWh was based on the following assumptions:

Cost of Ash Disposal

Ash produced	Kg.0.22/kWh
Ash Transportation cost	Rs.1000.00/M.Ton
Ash Disposal Cost	Rs.0.22/kWh





- ii. The reference tariff also stated that the above cost will be adjusted on actual basis at the time of COD.
- iii. EPTPL informed that experts have assessed that ash produced by EPTPL's CFB boiler is not fit for commercial use and is recommended to be dumped in an environmentally safe manner. EPTPL also submitted that based on the Thar coal specifications, each unit will produce 66 tons per hour of ash (fly and bottom ash) which translates into 982.9 million tons per annum of ash for the entire complex.
- iv. EPTPL further stated that it went for three different strategies to dispose of the ash:
 - a. Sindh Engro Coal Mining Company (SECMC) to dump the ash in one of their mines, which was refused by SECMC.
 - b. EPTPL has received a proposal from M/s Epic Intercon Pvt. Ltd. which is a SEPA (Sindh Environment Protection Agency) certified contractor with a quotation of Rs. 1980/ton cost of ash disposal, this translates to Rs. 0.4337/kWh.
 - c. EPTPL also presented an option of managing the ash disposal activity on itself and they proposed per ton cost of Rs. 2747/ton cost of ash disposal, this translates to Rs. 0.6017/kWh.
- v. EPTPL further submitted that the option of contracting with Epic Intercon Pvt. Ltd for ash disposal is not viable as it does not have the financial strength to back stop its long-term performance obligation in a bankable manner or has any past record of managing ash disposal at such a large scale. Therefore, the Authority may consider EPTPL's own activity of ash disposal.
- vi. EPTPL has also suggested to the Authority to index fifty percent (50%) of the ash disposal cost with changes in HSD rates as specified by the OGRA.
- vii. EPTPL was directed to provide documentary evidence regarding actual expenditure of Ash cost. In response no satisfactory evidence (apart from a draft contract with Epic Intercon) was provided in support of its requested component for Ash handling. Therefore, the Authority decided to dis-allow Ash Handling Cost of Rs. 0.22/kWh subject to provision of satisfactory documentary evidence.

4.7.5 Limestone Cost:

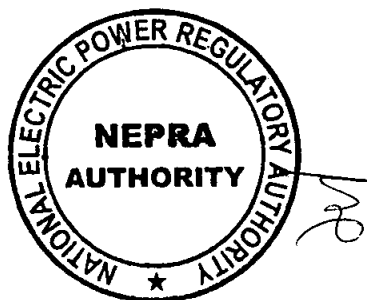
- i. In the reference tariff, cost of lime stone was based on the following parameters:

Cost of Lime Stone

Cost of Lime Stone including Transportation Rs.1250.00/M.Ton

Consumption Kg.0.07/kWh

Cost of Lime Stone Rs.0.09/kWh





- ii. In the reference tariff cost of limestone was to be adjusted at COD based on actual as mentioned in the reference tariff.
- viii. EPTPL also submitted that based on the Thar coal specifications, each unit will require 18.26 tons per hour of limestone which translates into 271.93 million tons per annum. For this purpose, EPTPL entered into an agreement with M/s Crown Mining Pvt. Ltd. for procurement of limestone and agreed on a per ton cost of Rs. 2080/ton, which translates into Rs. 0.1261/kWh for limestone component.
- ix. EPTPL also requested the Authority to index fifty five percent (55%) of the limestone cost with changes in HSD rates as specified by OGRA and the remaining forty-five (45%) of the limestone cost by Pakistan CPI.
- x. EPTPL on September 28, 2020 submitted lab reports regarding selection of contractor, invoices, payment orders and bank statements as actual cost regarding limestone cost for the first operational year.
- xi. EPTPL was directed to submit evidence of competitiveness and transparency in selection of Crown Mining as the limestone contractor, which was not submitted. It was noted that no lab report in the name of Crown Mining was present in EPTPL's additional submissions. Also it was noted that the invoices submitted by EPTPL regarding limestone procurement were generated in the name of EPTPL's O&M Contractor and not EPTPL, on query regarding the legal trail of this arrangement, nothing was provided.
- iii. In view of above, it is noted that the limestone component requested is not based on any competitive process and lacks transparency and legal contractual trail, therefore, the Authority decided to dis-allow Limestone Cost of Rs. 0.09/kWh subject to provision of satisfactory documentary evidence.

4.7.6 O&M Cost:

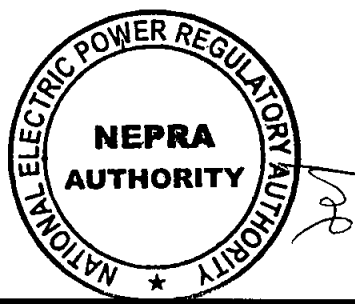
- i. In the reference tariff, EPTPL was allowed fixed O&M of Rs 0.307 /kW/h and variable O&M of Rs 0.114/kWh which was subject to indexation as per the following mechanism.

"d. 50% of the fixed O&M expenses shall be indexed with local CPI whereas 50% shall be indexed with US CPI and Exchange rate (PKR/US\$) variation.

e. 40% of the variable O&M shall be indexed with local CPI whereas 60% shall be indexed with US CPI and exchange rate (PKR/US\$) variation.

f. The reference CPI and US CPI will be of June 2014."

- ii. EPTPL in its request followed the above mechanism but instead of starting indexation for Jul-Sep 2019 quarter which is where the COD of the plant was achieved i.e., July 10, 2019, EPTPL indexed the component for Oct-Dec 2019 quarter. Therefore the claim of EPTPL is revised for the quarter of July to September 2019, to reflect the COD of the project.





iii. The summary of the indexed O&M components has been listed below:

O&M Components	Unit	Reference	Claim	Assessed
Variable O&M – Foreign	PKR/kWh	0.0684	0.1188	0.1245
Variable O&M – Local	PKR/kWh	0.0456	0.0599	0.0576
Fixed O&M – Foreign	PKR/kW/h	0.1535	0.2667	0.2785
Fixed O&M – Local	PKR/kW/h	0.1535	0.2017	0.1932
Indexation Values:				
Local CPI		194.74	255.940	245.940
US CPI		238.34	256.558	256.092
Exchange Rate	PKR/US\$	97.10	156.7	164.5

Note: Fixed O&M Cost is adjusted @ 602.6 MW capacity, as per Clause 3 (Order) Part II paragraph ii of reference tariff.

4.7.7 Cost of Working Capital:

- i. In the reference tariff, working capital component of Rs. 0.1094 per kWh was allowed based on the following assumptions :

“a. The Working Capital requirement has been worked out in accordance with the following:

30 days coal inventory at 100% plant load.

Receivables equivalent to one month of fuel charges at 100% plant load.

b. Interest on Working Capital has been calculated on the basis of quarterly-KIBOR of 11.91% plus 200 basis point, which will be adjusted for variation in quarterly-KIBOR and weighted average cost of coal inventory”.

- ii. Based on the above, working capital component of Rs 0.1247 /kW/h has been allowed to EPTPL while assuming the following:
- Coal calorific value of 10,710.34 BTU/kg representing the calorific value of coal consumed during the month of July 2019 instead of 11,005 BTU/kg as assumed in the reference tariff;
 - Thermal efficiency of 37.25% (reasons for arriving at this number already explained above) instead of 37.00% as assumed in the reference tariff;
 - Coal Price of US\$ 67.53 per ton and exchange rate of PKR 160.30 per US\$ as petitioned by EPTPL for its first period after COD between July 10, 2019 to July 31, 2019 instead of US\$ 50.69 per ton and PKR 97.10 per US\$, respectively, as assumed in the reference tariff;
 - 3-month KIBOR of 13.00% being the latest KIBOR as of July 1st, 2019 instead of 11.91% as assumed in the reference tariff;
 - Federal sales tax rate of 17% and;
 - Total net capacity of 602.6 MW instead of 600 MW as assumed in the reference tariff.





4.7.8 **Insurance:**

- i. The Authority allowed Rs. 0.0944/kWh as Insurance component under the reference tariff. The relevant paras of reference tariff is reproduced below:

"During the term of the Agreement, insurance component of tariff will be adjusted on the basis of actual insurance cost with maximum of 1% of the 70% of Capital Cost determined under (vii) above converted into Pak Rupees on the basis of Rs.-US\$ parity prevailing on the 1st day of the start of each Agreement Year. The reference insurance premium used in the calculation of insurance component of tariff is Rs. 248.21 million". (Clause 3 (Order) Part II paragraph xxi)

- ii. The Authority observed that EPTPL paid a total insurance premium amounting to Rs. 760.283 million or US\$ 4.871 million for the 1st Agreement Year under the PPA. In support. EPTPL provided contracts, invoices and bank statements. The Authority found the paid amount of insurance works out to 0.87% of the 70% of assessed Capex of US\$ 795 million which is within the maximum limit of 1% of 70% of assessed Capex, hence allowed to EPTPL. Accordingly, the approved insurance component at COD stage works out as Rs. 0.1440/kW/h.

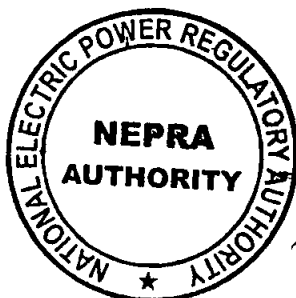
Type of Insurance Policy	Insurer	Policy Period	Curr.	Total Premium (US\$)	Exchange Rate	Total Policy Premium (PKR)
Property Damage & Business Interruption	EFU/Adamjee/ Jubilee/IGI	July 19- Jul 20	PKR	4,763,424	156.1	743,512,915
Third Party Liability	EFU	July 19- Jul 20	PKR	42,200	156.0	6,583,230
Political Violence	EFU	July 19- Jul 20	PKR	65,304	156.0	10,187,415
Total				4,870,928	156.09	760,283,560

4.7.9 **Return On Equity (including Return On Equity during Construction) ROE & ROEDC**

- i. Based on the return of 30.65% (i.e IRR of 20%) approved in upfront tariff, a component of Rs. 1.4075 per kW/h was incorporated in upfront tariff as return on equity (hereinafter referred to as "RoE"). The RoE component was required to be adjusted on the basis of revised TT & OD selling rate of US Dollar as notified by the National Bank of Pakistan.

EPTPL has requested ROE of Rs. 1.8770/kW/h at the COD stage and claimed it on the basis of equity ratio of 25.5% (US\$ 277 million). EPTPL has requested that the Authority may consider the absolute equity amount of US\$ 277 million for consideration of the capital structure before debt.

- ii. Important to mention, ECC decision was also referred in the proceedings of Coal Upfront Tariff, wherein EPTPL requested NEPRA to allow IRR based on the ECC Decision of





October 15, 2010 which stated that "20% (\$based) IRR to firms which achieve Financial Close before 31st December 2015 for mining and Power Projects based on indigenous coal and an additional half a percentage i.e. 20.5% IRR for firms which achieve financial Close by or before 31st December 2014". EPTPL missed the financial close deadline by three months. EPTPL claimed ROE component of Rs. 1.8770/kW/h on equity amount of US\$ 277 million at the rate of 20% IRR. On the issue of IRR of 20%, the Authority has kept the aforementioned paras and extracts of earlier determinations of the Authority which are as follows:

- iii. The Authority vide para 27 of the determination dated July 09, 2014, independently and without referring to any other decision held that

"The Authority is cognizant of the fact that Thar coal is strategic energy resource, and investment in Thar has to be incentivized in order to expedite Thar coal development. The Authority acknowledges that RoE for Thar coal has to be more than RoE offered to import/local coal (non-Thar). In view of above, the Authority has decided to approve the following RoE (based on reference parameters including IRR of 20%) for Thar coal based mine mouth power projects:

Table - VI

Description	ROE Allowed (Thar Coal)
330 MW 40 months construction time	30.65%
660/1099 MW 48 months construction time	34.49%

- iv. Further, under para 51 (xvii) of the order part the Authority again, inter-alia, independently decided as under:

"The Return on Equity shall be:

- a) 30.65% per annum for the projects having construction period of 40 months.
b) 34.49% per annum for projects having a construction period of 48 months."

- v. The Authority granted its approval in the matter of Application of EPTPL for unconditional acceptance of Upfront Thar Coal Tariff for 2x330 MW Coal Power plant vide its decision dated March 13, 2015. Under para II (xvii) of its decision the Authority independently, inter-alia, decided as follows:

"The Return on Equity shall be:

- a) 30.65% per annum for the projects having construction period of 40 months.
b) 34.49% per annum for projects having a construction period of 48 months."



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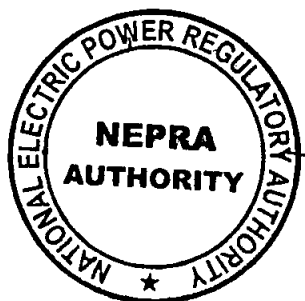
- vi. Excerpt from the determination of the Authority in the matter of Upfront Generation Tariff for the projects on Thar Coal dated July 27, 2017:

"12.1. In the previous upfront Thar coal tariff, IRR on equity of 20% was allowed to incentivize the development and utilization of Thar coal reserves. The higher IRR as compared to imported and local coal and other technologies was offered to first movers to offset higher risk involved in the Thar region. MW&P submitted that the interest rate has now come down to 5.75% from 9.5% in 2014 which requires a matching rationalization in IRR especially when uncertainties in investment on Thar Coal based power plants have reduced considerably."
[emphasis added]

- vii. Excerpt from the Decision of the Authority in the matter of review petition filed by Fazal e Akbar & Company on behalf of Asad Umer (Member National Assembly) under NEPRA (Review Procedure) Regulations 2009 with respect to the Upfront tariff of Coal dated June 26, 2014

"51. It is to be noted that the Authority has in past accounted for construction periods return (RoEDC) to all IPPs. Therefore, to be consistent with the previous decisions, the Authority included ROEDC in the Decision. Earlier the Authority while determining the upfront tariff in 2013 Upfront followed the international practice w.r.t returns and accordingly allowed 17% RoE for imported coal and 20% RoE for local coal. Unfortunately, no one opted for 2013 upfront tariff that prompted the GOP to request NEPRA to revisit the upfront tariff numbers/assumptions. The discussion of RoE vs. IRR is detailed in para 32 to 34 of the decision dated June 26, 2014 which is reproduced hereunder:

"32. The Authority considered the comments of GoP and Engro Corporation. In Authority's opinion, IRR based return (which automatically accounts for RoEDC) does not provide reasonable flexibility to the investor for efficient draw downs and payments to the EPC contractor. For making adjustment at the time of COD, a lot of information is required, which involve a cumbersome time consuming process. Moreover this also does not provide incentive to the investor for early completion of the project. In order to provide incentive to the investor for early completion and efficient utilization of funds, the Authority has decided to allow ROE instead of IRR. The Authority considers that RoE is very sensitive to the Project draw downs. To cite an example, with 20% IRR and 40 months construction period, one can calculate RoE as low as 23% and as high as 37%, by only changing project draw downs. The Authority understands that, it is highly unlikely that project sponsor would get such extreme values of RoE. But the point is that the process of IRR based return is not only complex (at CoD stage wherein every dollar injection dates are noted) but also very subjective and prone to the analyst's bias. It must also be noted that the Authority does understand that to avoid complications, IRR based return can be standardized, but in doing so, NEPRA would have





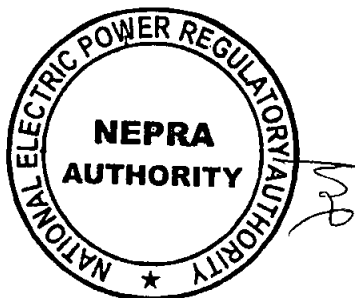
to set benchmarks in many stages of calculation, that will lead to micromanagement which are considered against the spirit of regulation. Further, the sponsor's needs to understand that return to be computed for upfront tariff is required to be based on generic draw downs, which can't be tailored to individual projects. The bottom line of allowing return should always be to adequately compensate the investors for the risk they are taking, keeping in view comparable market returns and other incentives/safety offered to the power sector. Further, after gathering information on the subject from various sources, it was revealed that straight RoE not IRR is offered to power projects in many regions of the world including India and US. The Authority therefore, decides to allow simple RoE based on generic draw downs and other reference parameter that also ensures adequate IRR i.e. 17% for imported coal and 18% for local coal other than Thar coal.

62. The Petitioner further stated that that two power companies based on Thar coal agreed to ROE of 20%, thus an ROE of up to 30% must not be permitted. The Authority observes that the Thar Power Company requested IRR of 20% not RoE of 20%. Therefore, such statement is factually wrong "[emphasis added].

- viii. Based on above relevant IRR paras, the Authority finds sufficient reasons to allow 20% IRR to EPTPL.
- ix. Accordingly based on the Authority's finding discussed in the previous paras under the capital structure of EPTPL wherein equity portion has been determined as 25.03% and equity amount as US\$ 238.340 million, the revised RoE components based weighted average exchange of Rs. 114.17/US\$, construction period of 38 months, works out as Rs 1.5302/kW/h
- x. The Authority noted that RoE component in the reference tariff is based on annual computations, therefore, the Authority decided to direct CPPA-G to ensure RoE payments to EPTPL be made on annual basis so that the payment of RoE component and its component working is in line.

4.7.10 Debt Service:

- i. In the upfront tariff, the Authority had assessed debt servicing component of Rs. 1.7553/kW/h on basis of debt equity ratio of 75:25. For the purpose of adjustment at COD stage, the minimum and maximum equity allowed under tariff was from 20% to 30%.
- ii. The reference KIBOR and LIBOR used for calculating debt servicing is to be adjusted for variation in quarterly KIBOR/ LIBOR rates. The maximum allowed spread over LIBOR and KIBOR in upfront tariff is also 4.5% and 3.5% respectively. The tariff determination had incentivized that in case spread is negotiated at less than the allowed limit, the saving is to be shared in ratio of 60:40 between power purchaser and the power producer respectively.



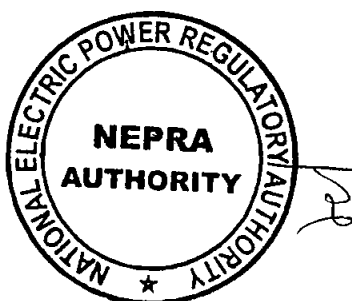


- iii. Against the above parameters, EPTPL claimed debt servicing component of Rs. 2.7562/kW/h at the COD stage which comprises of principal component of Rs. 1.1723/kW/h & interest component of Rs.1.5839/kW/h. This has been worked out by EPTPL assuming debt amount of US\$ 807.98 million, out of which 76.9% is foreign debt and 23.1% is local debt with overall debt equity ratio of 74.5% : 25.5%.
- iv. As discussed comprehensively at para 4.4/above, EPTPL has requested NEPRA to consider, actual equity, actual foreign loan and adjusted local loan on the assessed Project Cost in order to assess the company's capital structure. If this arrangement is assumed the resultant capital structure works out as 70:30.
- v. EPTPL stated in its COD request that the spread agreed on local borrowing equals to 3.5% which is the maximum allowed premium. However, on foreign borrowing, a spread of 4.20% has been agreed with the lenders on LIBOR based financing.
- vi. EPTPL requested the Authority that no adjustment on account of a lower margin to be given, the reason being that to secure the lower margin, EPTPL has to incur the additional Guarantee Fee of almost 1.16%, a Guarantee/Put Option of US\$ 142 million was a necessity since the commercial risk covered by Sinasure was limited to the extent of 65% as opposed to 85% required by the foreign financiers, which enabled the financing of the Project and to secure a favorable spread of 4.2% over LIBOR. In view of the said, EPTPL requested the Authority to consider spread of 4.5% for the foreign financing without application of any saving mechanism.
- vii. The Authority noted that the allowance of additional guarantee fee is not covered in the reference tariff therefore, its impact in calculation of revised spread can't be included. The Authority therefore, decided to allow debt servicing component of Rs. 2.2610/kW/h at the COD stage, which includes debt component of Rs. 1.0683/kW/h and Interest charges of Rs. 1.1927/kW/h for the first year. The debt servicing component has been allowed based on the assessed debt of US\$ 713.711 million.

5. Order

- I. The Authority hereby determines and approves the following generation tariff at COD for Engro Powergen Thar Private Limited (EPTPL) for its 660 MW Coal based Generation Facility located at 5 km from Thar Block-II of Thar Coal fields, District Thar Parkar, Sindh, along with adjustments/indexations for delivery of electricity to the power purchaser:

Component	Tariff Rs./kW/h
Fixed O&M – Local	0.1932
Fixed O&M – Foreign	0.2785
Working Capital	0.1247
Insurance	0.1440
Return on Equity	1.5302





Debt Servicing	2.2610
Capacity Tariff @ 85% 1-10	5.3314
Capacity Tariff @ 85% 11-30	2.6713
Fixed Fuel Cost 1-10	5.8179
Fixed Fuel Cost 11-20	3.4418
Fixed Fuel Cost 21-30	3.4387
Component	Tariff Rs./kWh
Fuel cost Component Variable (1-10)	2.1223
Fuel cost Component Variable (11-30)	2.1223
Water Charges (1-10)	0.3597
Water Charges (11-30)	0.3597
Ash Disposal	-
Lime Stone	-
Variable O&M – Foreign	0.1245
Variable O&M – Local	0.0576
Energy Tariff 1-10	2.6640
Energy Tariff 11-30	2.6640
Total Tariff 1-10 yr	14.8400
Total Tariff 11-20 yr	9.3846
Total Tariff 21-30 yr	9.3809
Levelized Tariff 1-30 yr	12.9552

- The reference tariff has been calculated on the basis of net annual production of 5,278.78 GWh.
- Pursuant to Clause 3 (*Order*) Part II paragraph xviii of the reference tariff of EPTPL, it is mandatory on CPPA-G to provide the approval of acceptance of the heat rate test conducted by EPTPL at COD establishing thermal efficiency of 37.36%.
- The reference PKR/Dollar rate has been assumed at 114.17.
- The above tariff is applicable for a period of thirty (30) years commencing from the date of the COD.
- Debt service will be paid in the first 10 years of commercial operation of plant after COD.
- The Tariff Table is indicated at Annex-I.
- Foreign and Local Debt Servicing Schedule is attached as Annex-II(a) & II(b), respectively.
- CPPA-G to ensure RoE payments to EPTPL be made on annual basis so that the payment of RoE component and its working is in line.

II. Indexations:

The following indexations shall be applicable to the reference tariff;



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Tariff Components	Tariff Indexation & Adjustment
Fuel Cost component	Delivered Fuel Price as determined by Thar Coal Energy Board
Variable O&M (Foreign)	US\$ to Pak Rupees & US CPI
Variable O&M (Local)	Pakistan CPI
Fixed O&M (Foreign)	US\$ to Pak Rupees & US CPI
Fixed O&M (Local)	Pakistan CPI
Insurance	
Cost of Working Capital	Adjustments for relevant KIBOR variations
Return on Equity	US\$ to Pak Rupees
Principal Repayment (Foreign Currency)	US\$/Euro/Yen/Pound to Pak Rupees (based on borrowing by the Company)
Interest/Mark-up Payments (Foreign Currency Loan)	Adjustments for relevant LIBOR or other applicable Interest Rate benchmark Adjustment for variation in Rs./Foreign Currency (US\$/Euro/Yen/Pound) rates as applicable
Interest/Mark-up Payments (Local Currency Loan)	Adjustments for relevant KIBOR variations

i. Fuel Cost Component

The fuel cost component shall be adjusted on account of fuel price variation as and when notified by the relevant authority. The actual coal price of each block of Thar Coal will be determined by Thar Coal Energy Board (TCEB)/Competent Authority and the reference fuel cost component will be adjusted accordingly.

ii. Indexation applicable to O&M

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

$F V. O\&M_{(REV)}$	=	$F V. O\&M_{(REF)} * US CPI_{(REV)} / US CPI_{(REF)} * ER_{(REV)} / ER_{(REF)}$
$L V. O\&M_{(REV)}$	=	$L V. O\&M_{(REF)} * CPI_{(REV)} / CPI_{(REF)}$
$L F. O\&M_{(REV)}$	=	$L F. O\&M_{(REF)} * CPI_{(REV)} / CPI_{(REF)}$
$F F. O\&M_{(REV)}$	=	$F F. O\&M_{(REF)} * US CPI_{(REV)} / US CPI_{(REF)} * ER_{(REV)} / ER_{(REF)}$
Where:		
$F V. O\&M_{(REV)}$	=	The revised Variable O&M Foreign Component of Tariff
$L V. O\&M_{(REV)}$	=	The revised Variable O&M Local 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 which is Rs. 0.1245/kWh
L V. O&M _(REF)	=	The reference Variable O&M Local Component of Tariff which is Rs. 0.0576/kWh
L F. O&M _(REF)	=	The reference Fixed O&M Local Component of Tariff which is Rs. 0.1932/kWh
F F. O&M _(REF)	=	The reference Fixed O&M Foreign Component of Tariff which is Rs. 0.2785/kWh
CPI _(REV)	=	The revised CPI (General) notified by Pakistan Bureau of Statistics (PBS)
CPI _(REF)	=	The reference CPI (General) of 245.940 for May 2019
US CPI _(REV)	=	The revised US CPI (All Urban Consumers) notified by US Bureau of Labor Statistics
US CPI _(REF)	=	The reference US CPI of 256.092 for May 2019
ER _(REV)	=	The revised TT& OD selling rate of US dollar
ER _(REF)	=	The reference TT& OD selling rate of Rs. 164.50/US\$ of last day of the preceding quarter i.e June 28, 2019

iii. 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 70% of the Capital cost shall 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 following formula:

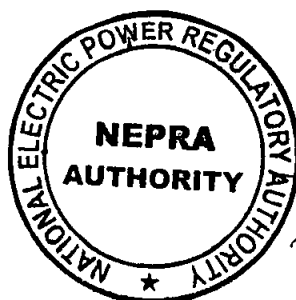
AIC	=	$Ins_{(Ref)} / P_{(Ref)} * P_{(Act)}$
Where		
AIC	=	Adjusted Insurance Component of Tariff
Ins _(Ref)	=	Reference Insurance Component of Tariff
P _(Ref)	=	Reference Premium US\$ 4.870 million at Rs. 156.09/US\$.
P _(Act)	=	Actual Premium or 1% of the 70% of the Capital cost at exchange rate prevailing on the 1st day of the insurance coverage period whichever is lower

iv. Cost of Working Capital

During operational period, the cost of working capital shall be adjusted quarterly for variation in KIBOR and fuel prices only.

v. Indexation of Return on Equity (ROE)

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





$ROE_{(Rev)}$	=	$ROE_{(Ref)} * ER_{(Rev)} / ER_{(Ref)}$
Where;		
$ROE_{(Rev)}$	=	Revised ROE Component of Tariff
$ROE_{(Ref)}$	=	Reference ROE Component of Tariff
$ER_{(Rev)}$	=	The revised TT& OD selling rate of US dollar as notified by the National Bank of Pakistan
$ER_{(Ref)}$	=	The reference TT& OD selling rate of Rs. 114.17/US\$

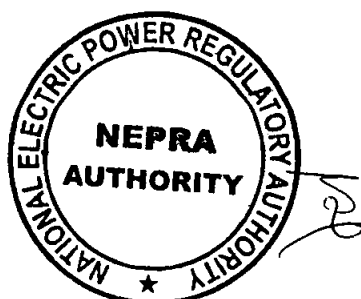
vi. Indexation applicable to Debt

Foreign debt and its interest shall be adjusted for exchange rate variation quarterly on 1st July, 1st October, 1st January and 1st April 1st January & 1st July TT & OD selling rate of US dollar for the quarter immediately preceding the relevant period as notified by the National Bank of Pakistan, wherein the reference TT& OD selling rate is Rs. 114.17/US\$.

vii. Indexation for LIBOR 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 LIBOR according to the following formula;

ΔI	=	$P_{(REV)} * (LIBOR_{(REV)} - 2.32\%) / 4$
Where:		
ΔI	=	The variation in interest charges applicable corresponding to variation in 3 months LIBOR. ΔI can be positive or negative depending upon whether $LIBOR_{(REV)}$ is > or < 2.32%. The interest payment obligation will be enhanced or reduced to the extent of ΔI for each quarter under adjustment applicable on quarterly basis.
$P_{(REV)}$	=	The outstanding principal (as indicated in the attached debt service schedule to this order) on a quarterly basis on the relevant quarterly calculation date. Period 1 shall commence on the date on which the 1 st installment is due after availing the grace period.





viii. 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;

ΔI	=	$P_{(REV)} * (KIBOR_{(REV)} - 12.97\%) / 4$
Where:		
ΔI	=	The variation in interest charges applicable corresponding to variation in 3 months KIBOR. ΔI can be positive or negative depending upon whether $KIBOR_{(REV)}$ is > or < 12.97%. The interest payment obligation will be enhanced or reduced to the extent of ΔI for each quarter under adjustment applicable on quarterly basis.
$P_{(REV)}$	=	The outstanding principal (as indicated in the attached debt service schedule to this order) on a quarterly basis on the relevant quarterly calculation date. Period 1 shall commence on the date on which the 1 st installment is due after availing the grace period.

III. NOTIFICATION

The above Order of the Authority along with revised tariff table and debt servicing schedules as attached thereto as Annex-I & II shall be notified in the Official Gazette in terms of Section 31(7) of the Regulations of Generation, Transmission and Distribution of Electric Power Act, 1997.

AUTHORITY



Engr. Maqsood Anwar Khan
Member

Rafique Ahmed Shaikh
Member

Tauseef H. Farooqi
Chairman

FF
regime
tariff
upfront
same
**

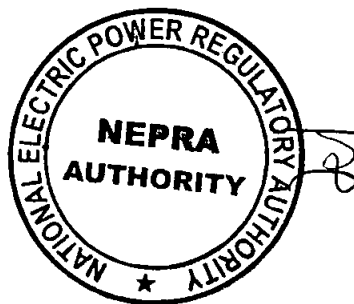
* I understand that Authority gave 02% additional IRR on top of 18% so making it 20% (overall) as a special incentive to Engro Powergen Thar Pvt. Ltd. being the first mover in the Thar Area capitalising on Thar's indigenous coal resources. So I believe this additional incentive of 02% IRR will not apply on other project falling in the **

Tariff Table - Engro Powergen Thar (Pvt.) Ltd. 660 MW Coal Power Plant																			Annex - I		
Year	Energy Purchase Price (Rs./kWh)							Fixed FCC		Capacity Purchase Price (PKR/kWh/Hour)								Capacity Charge@ 85%	Total Tariff Rs./kWh	Total Tariff Cents/kWh	
	Var. FCC	Water Charges	Ash Disposal	Lime Stone	Var. O&M		Total EPP	Rs./kWh/hr.	at 85% PF (Rs./kWh)	Fixed O&M		Cost of W/C	Insurance	ROE	Debt Repayment	Interest Charges	Total CPP				
					Foreign	Local				Local	Foreign										
1	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	5.8929	6.9328	0.1932	0.2785	0.1247	0.1440	1.5302	1.0683	1.1927	4.5317	5.3314	14.9282	13.0757	
2	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	5.9245	6.9701	0.1932	0.2785	0.1247	0.1440	1.5302	1.1503	1.1107	4.5317	5.3314	14.9654	13.1083	
3	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	5.8966	6.9372	0.1932	0.2785	0.1247	0.1440	1.5302	1.2396	1.0214	4.5317	5.3314	14.9325	13.0795	
4	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	5.8942	6.9344	0.1932	0.2785	0.1247	0.1440	1.5302	1.3369	0.9241	4.5317	5.3314	14.9298	13.0771	
5	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	5.8942	6.9344	0.1932	0.2785	0.1247	0.1440	1.5302	1.4431	0.8179	4.5317	5.3314	14.9298	13.0771	
6	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	5.7358	6.7480	0.1932	0.2785	0.1247	0.1440	1.5302	1.5592	0.7018	4.5317	5.3314	14.7433	12.9138	
7	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	5.7358	6.7480	0.1932	0.2785	0.1247	0.1440	1.5302	1.6863	0.5747	4.5317	5.3314	14.7433	12.9138	
8	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	5.7358	6.7480	0.1932	0.2785	0.1247	0.1440	1.5302	1.8257	0.4353	4.5317	5.3314	14.7433	12.9138	
9	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	5.7346	6.7466	0.1932	0.2785	0.1247	0.1440	1.5302	1.9789	0.2821	4.5317	5.3314	14.7420	12.9126	
10	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	5.7346	6.7466	0.1932	0.2785	0.1247	0.1440	1.5302	2.1476	0.1134	4.5317	5.3314	14.7420	12.9126	
11	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4412	4.0485	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3839	8.2194	
12	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4412	4.0485	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3839	8.2194	
13	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4412	4.0485	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3839	8.2194	
14	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4412	4.0485	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3839	8.2194	
15	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4412	4.0485	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3839	8.2194	
16	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4424	4.0499	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3853	8.2206	
17	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4424	4.0499	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3853	8.2206	
18	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4424	4.0499	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3853	8.2206	
19	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4424	4.0499	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3853	8.2206	
20	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4424	4.0499	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3853	8.2206	
21	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4424	4.0499	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3853	8.2206	
22	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4424	4.0499	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3853	8.2206	
23	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4377	4.0444	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3798	8.2158	
24	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4377	4.0444	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3798	8.2158	
25	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4377	4.0444	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3798	8.2158	
26	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4377	4.0444	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3798	8.2158	
27	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4377	4.0444	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3798	8.2158	
28	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4377	4.0444	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3798	8.2158	
29	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4377	4.0444	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3798	8.2158	
30	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4377	4.0444	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3798	8.2158	
Average																					
1-10	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	5.8179	6.8446	0.1932	0.2785	0.1247	0.1440	1.5302	1.5436	0.7174	4.5317	5.3314	14.8400	12.9985	
11-30	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	3.4402	4.0473	0.1932	0.2785	0.1247	0.1440	1.5302	0.0000	0.0000	2.2706	2.6713	9.3827	8.2184	
1-30	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	4.2328	4.9798	0.1932	0.2785	0.1247	0.1440	1.5302	0.5145	0.2391	3.0243	3.5580	11.2018	9.8117	
Levelized																					
1-30	2.1223	0.3597	0.0000	0.0000	0.1245	0.0576	2.6640	5.0031	5.8860	0.1932	0.2785	0.1247	0.1440	1.5302	0.9469	0.5268	3.7444	4.4052	12.9552	11.3475	

Levelized Tariff =

12.9552 Rs./kWh

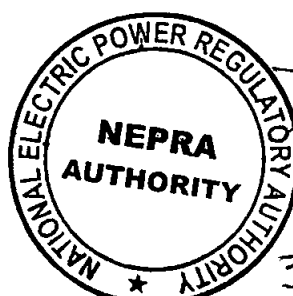
11.3475 Cents/kWh



Engro Powergen Thar (Pvt.) Ltd. - Debt Servicing on Foreign Financing

Gross Capacity	660.00	MWs	Parity	114.17	PKR/US\$
Net Capacity	602.60	MWs	Debt	621.000	US\$ Million
LIBOR	2.32%		Debt in Pak Rupees	70,897.88	PKR Million
Spread over LIBOR	4.32%				
Total Interest Rate	6.64%				

Period	Principal Million \$	Principal Repayment Million \$	Interest Million \$	Balaance Million \$	Debt Service Million \$	Principal Repayment Rs./kW/hour	Interest Rs./kW/ Hour	Debt Servicing Rs./kW/h
1	621.00	11.06	10.31	609.94	\$21.37			
2	609.94	11.24	10.12	598.69	21.37			
3	598.69	11.43	9.94	587.26	21.37			
4	587.26	11.62	9.75	575.64	21.37	0.9810	0.8677	1.8487
1st Year		45.36	40.12		85.48			
5	575.64	11.81	9.56	563.83	21.37			
6	563.83	12.01	9.36	551.82	21.37			
7	551.82	12.21	9.16	539.61	21.37			
8	539.61	12.41	8.96	527.20	21.37	1.0478	0.8009	1.8487
2nd Year		48.45	37.03		85.48			
9	527.20	12.62	8.75	514.58	21.37			
10	514.58	12.83	8.54	501.75	21.37			
11	501.75	13.04	8.33	488.71	21.37			
12	488.71	13.26	8.11	475.45	21.37	1.1191	0.7296	1.8487
3rd Year		51.74	33.73		85.48			
13	475.45	13.48	7.89	461.98	21.37			
14	461.98	13.70	7.67	448.28	21.37			
15	448.28	13.93	7.44	434.35	21.37			
16	434.35	14.16	7.21	420.19	21.37	1.1953	0.6534	1.8487
4th Year		55.27	30.21		85.48			
17	420.19	14.39	6.98	405.79	21.37			
18	405.79	14.63	6.74	391.16	21.37			
19	391.16	14.88	6.49	376.29	21.37			
20	376.29	15.12	6.25	361.16	21.37	1.2766	0.5721	1.8487
5th Year		59.03	26.45		85.48			
21	361.16	15.37	6.00	345.79	21.37			
22	345.79	15.63	5.74	330.16	21.37			
23	330.16	15.89	5.48	314.27	21.37			
24	314.27	16.15	5.22	298.12	21.37	1.3635	0.4852	1.8487
6th Year		63.05	22.43		85.48			
25	298.12	16.42	4.95	281.70	21.37			
26	281.70	16.69	4.68	265.00	21.37			
27	265.00	16.97	4.40	248.03	21.37			
28	248.03	17.25	4.12	230.78	21.37	1.4563	0.3923	1.8487
7th Year		67.34	18.14		85.48			
29	230.78	17.54	3.83	213.24	21.37			
30	213.24	17.83	3.54	195.41	21.37			
31	195.41	18.13	3.24	177.29	21.37			
32	177.29	18.43	2.94	158.86	21.37	1.5555	0.2932	1.8487
8th Year		71.92	13.56		85.48			
33	158.86	18.73	2.64	140.13	21.37			
34	140.13	19.04	2.33	121.08	21.37			
35	121.08	19.36	2.01	101.73	21.37			
36	101.73	19.68	1.69	82.04	21.37	1.6613	0.1873	1.8487
9th Year		76.82	8.66		85.48			
37	82.04	20.01	1.36	62.04	21.37			
38	62.04	20.34	1.03	41.70	21.37			
39	41.70	20.68	0.69	21.02	21.37			
40	21.02	21.02	0.35	0.00	21.37	1.7744	0.0742	1.8487
10th Year		82.04	3.43		85.48			



Engro Powergen Thar (Pvt.) Ltd. - Debt Servicing on Local Financing

Gross Capacity	660.00	MWs	Parity	114.17	PKR/US\$
Net Capacity	602.60	MWs	Debt	92.711	US\$ Million
KIBOR	12.97%		Debt in Pak Rupees	10,584.51	PKR Million
Spread over KIBOR	3.50%				
Total Interest Rate	16.47%				

Period	Principal Million \$	Principal Repayment Million \$	Interest Million \$	Balaance Million \$	Debt Service Million \$	Principal Repayment Rs./kW/hour	Interest Rs./kW/ Hour	Debt Servicing Rs./kW/h
1	92.71	0.95	3.82	91.76	\$4.77			
2	91.76	0.99	3.78	90.77	4.77			
3	90.77	1.03	3.74	89.74	4.77			
4	89.74	1.07	3.70	88.67	4.77	0.0873	0.3250	0.4123
1st Year		4.04	15.03		19.07			
5	88.67	1.12	3.65	87.56	4.77			
6	87.56	1.16	3.61	86.40	4.77			
7	86.40	1.21	3.56	85.19	4.77			
8	85.19	1.26	3.51	83.93	4.77	0.1026	0.3097	0.4123
2nd Year		4.74	14.32		19.07			
9	83.93	1.31	3.46	82.62	4.77			
10	82.62	1.36	3.40	81.26	4.77			
11	81.26	1.42	3.35	79.83	4.77			
12	79.83	1.48	3.29	78.36	4.77	0.1206	0.2918	0.4123
3rd Year		5.57	13.49		19.07			
13	78.36	1.54	3.23	76.82	4.77			
14	76.82	1.60	3.16	75.21	4.77			
15	75.21	1.67	3.10	73.54	4.77			
16	73.54	1.74	3.03	71.80	4.77	0.1417	0.2707	0.4123
4th Year		6.55	12.51		19.07			
17	71.80	1.81	2.96	70.00	4.77			
18	70.00	1.88	2.88	68.11	4.77			
19	68.11	1.96	2.80	66.15	4.77			
20	66.15	2.04	2.72	64.11	4.77	0.1665	0.2458	0.4123
5th Year		7.70	11.37		19.07			
21	64.11	2.13	2.64	61.98	4.77			
22	61.98	2.21	2.55	59.77	4.77			
23	59.77	2.31	2.46	57.46	4.77			
24	57.46	2.40	2.37	55.06	4.77	0.1957	0.2167	0.4123
6th Year		9.05	10.02		19.07			
25	55.06	2.50	2.27	52.56	4.77			
26	52.56	2.60	2.16	49.96	4.77			
27	49.96	2.71	2.06	47.25	4.77			
28	47.25	2.82	1.95	44.43	4.77	0.2299	0.1824	0.4123
7th Year		10.63	8.43		19.07			
29	44.43	2.94	1.83	41.49	4.77			
30	41.49	3.06	1.71	38.43	4.77			
31	38.43	3.18	1.58	35.25	4.77			
32	35.25	3.31	1.45	31.94	4.77	0.2702	0.1421	0.4123
8th Year		12.49	6.57		19.07			
33	31.94	3.45	1.31	28.48	4.77			
34	28.48	3.59	1.17	24.89	4.77			
35	24.89	3.74	1.02	21.15	4.77			
36	21.15	3.90	0.87	17.25	4.77	0.3175	0.0948	0.4123
9th Year		14.68	4.38		19.07			
37	17.25	4.06	0.71	13.20	4.77			
38	13.20	4.22	0.54	8.97	4.77			
39	8.97	4.40	0.37	4.58	4.77			
40	4.58	4.58	0.19	(0.00)	4.77	0.3731	0.0392	0.4123
10th Year		17.25	1.81		19.07			

