

National Electric Power Regulatory Authority
(Registrar Office)

No. NEPRA/TRF-100/UTC/1260

January 27, 2015

Subject: **NOTIFICATION (i.e. S.R.O. 51(I)/2015 dated 20-01-2015)**
REGARDING NEPRA THAR COAL UPFRONT TARIFF

Enclosed please find herewith a copy of Notification (S.R.O. 53(I)/2015 dated January 20, 2015) received from Ministry of Water & Power vide letter No. Tariff/I.L.Coal-2013 dated 20-01-2015 on the subject noted above for information and record.

Encl: As Above


27-01-2015
(Muhammad Ramzan)
Deputy Registrar

1. SA(Tariff-I) [Please intimate if any discrepancy is found in the enclosed notification]
2. SA(Tech.)
3. SA(M&E)
4. Registrar
5. Director (Licensing)
6. LA(LLP)
7. LA(KIP)
8. DD(IT) [Please post the above SRO at NEPRA's website for information of the
9. Sr. AD(IT) licensees, stakeholders and the interested parties.]
10. Mr. Rizwan Ali Paracha [To scan and send the subject SRO to IT Section for uploading on NEPRA's website.]

- CC
1. Chairman
 2. Vice Chairman/Member (Licensing)
 3. Member (Tariff)
 4. Member (CA)
 5. Member (M&E)

No.Tariff/I.L.Coal-2013
Government of Pakistan
Ministry of Water & Power
<><><><><><>

Islamabad, the January 20, 2015

The Manager,
Printing Corporation of Pakistan Press,
Islamabad.

Subject: **PRINTING OF NOTIFICATION IN RESPECT OF NEPRA, UPFRONT
TARIFF FOR THE PROJECT OF IMPORTED LOCAL/ COAL.**

} Urgent
Subject

I am directed to enclose the Notification in original for immediate publication in the Official Gazette of Pakistan extra ordinary part –II within 24-48 hours as delay will otherwise result in loss to exchequer to be than explain by PCPP to PAC and other quarters.

2. It is requested that 25 copies of the printed Notification in Official Gazette may please be furnish to this Ministry on urgent basis.

Encl: As above.

S. Mateen
(Syed Mateen Ahmed)
Section Officer (Tariff)

NEPRA

Government of Pakistan
Ministry of Water & Power

Islamabad, the January 20, 2015

NOTIFICATION

S.R.O. 51(I)/2015.- In pursuance of sub-section (4) of section 31 of the Regulation of Generation, Transmission and Distribution of Electric Power Act, 1997 (XL of 1997), the Federal Government is pleased to notify up front tariff approved by National Electric Power Regulatory Authority for Thar Coal as set out in the Tables and Annexures below, namely:-

Table - I

Capacity Charge 1-10 Years	F. Financing	L. Financing
	Rs./kW/Hour	Rs./kW/Hour
330 MW	3.6736	4.9612
660 MW	3.6683	5.1242
1100 MW	3.4191	4.7747

Table - II

Capacity Charge 11-30 Years	F. Financing	L. Financing
	Rs./kW/Hour	Rs./kW/Hour
330 MW	1.9183	2.0270
660 MW	1.9992	2.1958
1100 MW	1.8648	2.0480

Table - III

Energy Charge 1-10 Years	F./L. Financing	
	Variable	Fixed
	Rs./kWh	Rs./kW/Hour
330 MW	2.0988	2.9567
660 MW	2.0392	2.8056
1100 MW	2.0115	2.7355

Table - IV

Energy Charge 11-21 Years	F./L. Financing	
	Variable	Fixed
	Rs./kWh	Rs./kW/Hour
330 MW	2.0010	1.9473
660 MW	1.9419	1.8478
1100 MW	1.9145	1.8016

Table - V

Energy Charge 22-30 Years	F./L. Financing	
	Variable	Fixed
	Rs./kWh	Rs./kW/Hour
330 MW	2.0010	1.7310
660 MW	1.9419	1.6426
1100 MW	1.9145	1.6015

- vii. The Tariff Tables & Debt Service Schedules for each project are attached as Annexes to this determination.

viii. The tariff period is 30 Years.

ix. In case of power complex of 660 MW (330 MW×2), the tariff of 330 MW will apply however, the heat rate and IDC tests will be conducted on the basis of complex as a whole and relevant tariff components will be adjusted accordingly. Same will be applicable for other combinations.

XIV. Basis for Determination

The above tariff is worked out on the following basis:

xxvi. Design Coal (Quality of Coal)

The Reference LHV calorific value of 11,005 Btus/Kg. for Thar coal has been assumed for the calculation of fuel cost component which will be subject to adjustment on the basis of actual calorific value.

xxvii. Plant Size

c. The upfront tariff has been determined for the plants of following sizes;

330 MW Gross	300 MW Net
660 MW Gross	607 MW Net
1,099 MW Gross	1,011 MW Net

d. 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, the upward adjustment in tariff will not be allowed if the IDC established lower than the benchmarks stated above. The minimum net capacity will be gross capacity minus the maximum allowed auxiliary consumption.

xxviii. Site of Plant

This tariff will be applicable only for the mine mouth projects in Thar area.

xxix. Plant Specifications

The sponsors of the plant will be at liberty to select plant of any technology based on the quality of coal as far as the minimum efficiency thresholds are ensured.

xxx. Auxiliary Consumption

The auxiliary power consumption factor shall be 9% for 330MW and 8% for 660 MW and above.

xxxi. Exchange Rate

Reference exchange rate of Rs. 97.10/US\$ has been used in calculating the reference tariff and the same shall be used for indexations/adjustments where applicable.

xxxii. Capital Cost including EPC Cost

f. The capital cost for coal based power project includes cost of Main Plant Equipment System, Boiler including Auxiliaries, STG & Auxiliaries, Balance of Plant Equipment System, Other Mechanical Equipment System, Electrical Equipment System and C&I, Coal Handling Infrastructure, Engineering & Project Management, Erection & Commissioning, land, site development and civil works, transportation and evacuation cost up to inter-connection point.

- g. 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.

330 MW	US\$ 408.245 Million
660 MW	US\$ 767.868 Million
1,099 MW & above	US\$ 1,191.670 Million

- h. The incremental cost of European boiler @ US\$ 0.1 million per MW has been assumed in the overall project cost on account of capital cost, financing fees & IDC. 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.
- i. 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.
- j. In case of variation in installed capacity to standard modules assumed above, the capital cost will be adjusted accordingly on a pro rata basis.

xxxiii. **Capital Cost Indexation Mechanism**

The following indexation mechanism shall be applicable for adjustments in capital cost during the validity period with the changes in Producers Price Index (PPI) for Steel and Electrical Machinery.

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

Note: Breakup of capital cost indicated in the above formula has been taken from New Coal-Fired Power Plant Performance and Cost Estimates (SI-009808) by Sargent & Lundy and International Energy Agency; Coal Industry Advisory Board (Ian M. Torrens & William C. Stenzel)

xxxiv. **Customs Duties, Cess and Withholding Tax**

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.

xxxv. Construction Period

- c. Construction period for the generation facility having a capacity up to 330MW shall be 40 months.
- d. Construction period for the generation facility having a capacity of 660MW and above shall be 48 months.

xxxvi. Financing of Coal Projects

- d. The sponsor of the project can arrange foreign financing in American Dollar (\$), British Pound Sterling (£), Euro (€), Japanese Yen (¥) and Chinese Yuan (¥) or in any currency as the Government of Pakistan may allow.
- e. The upfront tariff has been determined on the basis of debt equity ratio of 75:25;
- f. 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;

xxxvii. Financial Charges

- c. For the purpose of determination of upfront tariff loan tenure of 10 years plus grace period equivalent to construction period has been considered.
- d. Interest Rate
 - (K) The reference Karachi Inter Bank Offer Rate (KIBOR) of 11.91% plus 350 basis points has been used for calculating the financial charges.
 - (L) The reference London Inter Bank Offer Rate (LIBOR) of 0.45% plus 450 basis points has been used for calculating the financial charges.
 - (M) The interest calculated in the reference debt service schedule shall be subjected to adjustment for variation in quarterly-KIBOR in the case of local loan and quarterly-LIBOR in the case of foreign loan on a quarterly basis. The adjustment shall be made on 1st July, 1st October, 1st January and 1st April based on latest available TT&OD selling rate and KIBOR notified by the National Bank of Pakistan and Reuters for the purpose of LIBOR.
 - (N) The maximum allowed premium on LIBOR and KIBOR is 4.5% and 3.5% respectively and there will be no adjustment on the basis of actual higher premium than the maximum allowed limit. In case spread negotiated is less than the said limit, the saving will be shared in the ratio of 60:40 between the power purchaser and the power producer respectively.
 - (O) The repayment of loan shall be considered from the first year of commercial operation.

xxxviii. Financing Fees & Charges

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.

xxxix. Sino sure Fee

Under the foreign financing originating from Chinese banks, upfront Sino sure 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 Sino sure fee subject to maximum of 7%. In case the sponsor managed better alternative Sino sure fee arrangement, the same will be considered at the time of COD.

xi. Interest During Construction (IDC)

- f. Interest During Construction (IDC) has been calculated on the basis of 75% of the CAPEX including customs duties as per the following reference parameters;

Table - VI			
Year	330 MW	660MW	1099 MW
1 st Year	33.33%	33.33%	33.33%
2 nd Year	33.33%	33.33%	33.33%
3 rd Year	20.00%	13.33%	13.33%
4 th Year	13.33%	20.00%	20.00%

- g. IDC shall not be adjusted for any variation on account of actual expenditure percentage during the construction period.
- h. 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.
- i. In case of more than one financing plans, separate IDC shall be calculated for each plan on reference parameters.
- j. 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.

xli. Summary of Project Cost

The following project costs have been assumed for different projects in the upfront coal tariff, which will be subject to adjustments at the time of COD in accordance with the methodology prescribed in the preceding paragraphs:

Description	330MW		660MW		1099MW	
	F. Fin.	L. Fin.	F. Fin.	L. Fin.	F. Fin.	L. Fin.
	US\$	US\$	US\$	US\$	US\$	US\$
	Mlns	Mlns	Mlns	Mlns	Mlns	Mlns
Capital Cost	408.2	408.2	767.9	767.9	1,191.7	1,191.7
Custom Duties & Cess	16.2	16.2	30.5	30.5	47.3	47.3
Sub-Total	424.5	424.5	798.4	798.4	1,239.0	1,239.0
Financial Charges:						
Financing Fees & Charges	11.1	11.1	21.0	21.0	32.5	32.5
Sinosure Fee	33.2	-	63.9	-	99.2	-
IDC	28.9	100.6	72.8	261.6	113.0	405.9
Sub-Total	73.3	111.7	157.7	282.5	244.7	438.5
Total	497.7	536.2	956.1	1,080.9	1,483.7	1,677.5

xlii. Return on Equity (ROE)

The Return on Equity shall be:

- d. 30.65% per annum for the projects having construction period of 40 months.
- e. 34.49% per annum for the projects having a construction period of 48 months.
- f. In case there is a time lag between the construction of power complex and coal mine and the power complex becomes available earlier than the mine, the responsibility to provide coal will be of the sponsor and the ROE component of tariff will be adjusted accordingly depending on ROE allowed on imported/local coal usage.

xlili. Thermal Efficiency

- c. The following minimum reference net LHV thermal efficiencies have been established for calculating reference fuel cost component;

300MW net capacity (at mean site conditions)	37%
607MW net capacity (at mean site conditions)	39%
1011MW net capacity (at mean site conditions)	40%

- d. 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 different capacities is established higher as a result of heat rate tests carried out at the time of COD.

Table -VIII

Gross MW	Efficiency net (LHV) achieved At COD	Sharing Ratio Power Purchaser : Sponsor
330	37% (min)	100% : 0%
660	39% (min)	100% : 0%
1099	40% (min)	100% : 0%
330	37.01% - 37.50%	70% : 30%
660	39.01% - 39.50%	70% : 30%
1099	40.01% - 40.50%	70% : 30%

Table -VIII

Gross MW	Efficiency net (LHV) achieved At COD	Sharing Ratio
		Power Purchaser : Sponsor
330	37.51% - 38.00%	50% : 50%
660	39.51% - 40.00%	50% : 50%
1099	40.51% - 41.00%	50% : 50%
330	38.01% - 38.50%	30% : 70%
660	40.01% - 40.50%	30% : 70%
1099	41.01% - 41.50%	30% : 70%
330	>38.5%	0% : 100%
660	>40.5%	0% : 100%
1099	>41.5%	0% : 100%

xliv. **Price of Coal**

- d. The following two part reference coal price has been used for determining the upfront tariff for Thar Coal Projects:

Table IX

Year	Variable Price	Fixed Price	Total Price
	US\$/Ton	US\$/Ton	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

- e. 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.
- f. The basis of coal price shall be provided in the Power Purchase Agreement.

xlv. **Water Charges**

- d. Component of Government of Sindh water charge will be adjusted for the revised water charge as announced by GoS.
- e. 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. Pumping station and pipelines cost from Vajihar to different Thar blocks will vary, therefore, reasonable cost will be allowed for mine mouth power plant for Thar Blocks other than Block-II.

- f. 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.

xlvi. Insurance Cost During Operation

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 premiums used in the calculation of the insurance component of tariff are as under:

Table . . . X			
Description	330MW	660 MW	1099 MW
Ref. Insurance Premium (Rs. Mlns)	248.21	542.65	842.15

xlvii. Interest on Working Capital

- c. The Working Capital requirement has been worked out in accordance with the following:
- F. 30 days coal inventory at 100% plant load.
 - G. Receivables equivalent to one month of fuel charges at 100% plant load.
- d. 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.

xlviii. Operation and Maintenance (O & M) Expenses

- i. Operation and Maintenance or O&M expenses comprise of repair and maintenance, establishment including employee expenses, administrative & general expenses.

- j. Reference O&M expenses shall be;

Rs.421 per MWh for a plant of 330MW

Rs.401 per MWh for a plant of 660MW

Rs.380 per MWh for a plant of 1099MW

- k. The following shall be the breakup of O&M expenses for the different plant size:

Plant Size	Fixed O&M	Variable O&M
330 MW	Rs.0.307/kW/h	Rs.0.114/kWh
660 MW	Rs.0.287/kW/h	Rs.0.114/kWh
1099 MW	Rs.0.266/kW/h	Rs.0.114/kWh

- l. 50% of the fixed O&M expenses shall be indexed with local CPI whereas 50% shall be indexed with USCPI and Exchange rate (PKR/US\$) variation.
- m. 40% of the variable O&M shall be indexed with local CPI whereas 60% shall be indexed with USCPI and exchange rate (PKR/US\$) variation.
- n. The reference WPI and US CPI will be of June 2014.
- o. The following costs with respect to limestone and ash handling have been

determined, which are shown separately in the reference tariff table;

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

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

- p. The cost of Lime Stone and Ash Disposal will be adjusted on actual basis at the time of COD.

xlix. Fuel Price Adjustment Mechanism

During the tariff period, the fuel cost components shall be adjusted for actual variation in coal prices as and when announced by the competent Authority. The approved fuel price adjustment mechanism will be prescribed at the time of COD.

- l. If the plant has to operate on imported fuel due to unavailability of Thar Coal, the pricing mechanism for imported coal as described in the imported coal tariff determination will be applied to calculate fuel cost component.

XV. Monitoring Mechanism for the use of coal fuel

The Power Producer shall furnish a monthly coal usage and coal procurement statement duly verified and certified by the Central Power Purchasing Agency (CPPA) for each month, along with the monthly energy bill. The statement shall cover details such as -

- xv. Quantity of fuel (tons) consumed and procured along with a heating value during the month for power generation purposes,
- xvi. Cumulative quantity (tons) of coal consumed and procured till the end of that month during the year,
- xvii. Actual (gross and net) energy generation (denominated in units) during the month,
- xviii. Cumulative actual (gross and net) energy generation (denominated in units) until the end of that month during the year,
- xix. Opening fuel stock quantity (tons),
- xx. Receipt of fuel quantity (tons) at the power plant site and
- xxi. Closing fuel stock quantity (tons) for available at the power plant site.

XVI. Tariff Structure

The tariff for coal based generation technologies shall be two-part consisting of the following:

iii. Energy Purchase Price

- f. Fuel Cost Component;
- g. Variable O&M Local;

- h. Variable Foreign;
 - i. Cost of Lime Stone; and
 - j. Cost of Ash Disposal
- iv. **Capacity Purchase Price**
- g. Fixed O&M (Local);
 - h. Fixed O&M (Foreign);
 - i. Insurance Cost
 - j. Cost of Working Capital;
 - k. Return on equity; and
 - l. Debt Service (Principal Repayment and Interest Charges);

XVII. Tariff Design

- iv. The Capacity portion of upfront tariff has been determined for two periods i.e. for the period of first ten years when the project will be paying its debt and the remaining period of twenty years without debt servicing.
- v. For the purpose of comparison, levelized tariff assuming 10% discount factor has also been worked out.
- vi. Levelization has been carried out for the “useful life” of the project which in the instant case is equivalent to “Tariff Period”.

XVIII. Dispatch Criteria:

- v. The sole criterion for dispatch of all the coal based power plants shall be the “merit order dispatch”.
- vi. Variable fuel cost component will be the basis of dispatch.
- vii. The coal based generation facility shall be subjected to scheduling and dispatch code as specified under NEPRA Grid Code.
- viii. The generation plant having capacity up to 330MW shall be connected at 132/220kV and /or 500KV connection point and above shall be subjected to scheduling and dispatch code as specified under NEPRA Grid Code (IEGC) -2010, as amended from time to time.

XIX. Plant Availability

The guaranteed availability of the plants will be 85%.

XX. General Conditions

- iv. In case of mix financing, separate debt service schedules shall be developed using the annuity method at COD;
- v. At the time of COD, project cost will be converted into Pak Rupees using the Average of the Exchange Rates prevailing on 1st day of each month during construction period.
- vi. During life of the project operations, Quarterly adjustments/indexations for local inflation, foreign inflation, exchange rate variations and interest rate variations will be made on 1st July, 1st October, 1st January and 1st April each year based on latest available date with respect to CPI notified by the Federal Board of Statistics (FBS), USCPI issued by US Bureau of Labor Statistics and revised TT&OD selling rate of foreign currencies (US Dollar, British Pound Sterling, Euro, Japanese Yen and Chinese Yuan or any other currency as the Government of Pakistan may allow) notified by the National Bank of Pakistan. The method of indexation will be as follows:

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 PI
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

XXI. Validity of Tariff

This tariff shall remain in force for a period of 2 years from the date of notification in the official gazette. The revision in upfront tariff for next validity period shall be undertaken at least six months prior to the end of the validity period and in case upfront tariff for the next validity period is not notified until the commencement of next validity period, the reference tariff parameters as per this determination shall continue to remain applicable until notification of the revised upfront tariff.

XXII. Scope and extent of application

This tariff shall apply in all cases for a generating facility or a unit thereof based on imported/local coal other than Thar coal subject to fulfillment of eligibility criteria.

XXIII. Eligibility Criteria

The upfront tariff shall be only available for the brand new machinery only.

XXIV. Definitions and Interpretations

- xiii. "Auxiliary energy consumption" means the quantum of energy consumed by auxiliary equipment of the generating facility, and transformer losses within the generating facility, expressed in Megawatts as well as in percentage of the sum of gross output at the generator terminals of all the units of the generating plant;
- xiv. "Capital cost" means the cost of all capital work including plant and machinery, civil work, erection and commissioning and evacuation infrastructure up to inter-connection point;
- xv. "Control Period" means the period required to achieve the financial close and complete the construction of generation facility. The Control Period shall be of six years starting

from the date of unconditional opting of the upfront tariff.

- xvi. "Design Coal" means the ideal type of coal or fuel that is selected to be used during performance testing of steam generators in power plant engineering;
- xvii. "Grace Period" means a period equivalent to the construction period of the coal project.
- xviii. "Installed capacity" means the summation of the name plate capacities of all the units of the generating facility or the capacity of the generating facility (reckoned at the generator terminals), approved by the Authority from time to time as indicated in the generation license;
- xix. "Inter-connection Point" shall mean interface point of energy generating facility with the transmission system or distribution system, as the case may be;
- xx. "Operation and maintenance expenses" or 'O&M expenses' means the expenditure incurred on operation and maintenance of the project, or part thereof, and includes the expenditure on manpower, repairs, spares, consumables and overheads;
- xxi. "Project" means a generating facility or the evacuation system up to inter-connection point;
- xxii. "Tariff period" means the period for which the upfront tariff has been determined by the Authority on the basis of reference parameters which in the instant case is 30 years. The tariff period shall commence from the date of commercial operation.
- xxiii. 'Useful Life' in relation to a unit of a generating facility including evacuation system shall mean the period during which the generating facility including evacuation system is expected to be usable for the purpose of generating electricity from the date of commercial operation (COD) of such generation facility, namely coal based power project is 30 years;
- xxiv. "Year" means a period of 12 months.
- XXV. The above order along with 13 annexes will be notified in the Official Gazette in accordance with Section 31(4) of the NEPRA Act.

Table -

XII

Annex-1	Reference Tariff Table 330MW Thar Coal Foreign Financing
Annex-1A	Debt Repayment Schedule
Annex-2	Reference Tariff Table 330MW Thar Coal Local Financing
Annex-2A	Debt Repayment Schedule
Annex-3	Reference Tariff Table 6600MW Thar Coal Foreign Financing
Annex-3A	Debt Repayment Schedule
Annex-4	Reference Tariff Table 6600MW Thar Coal Local Financing
Annex-4A	Debt Repayment Schedule
Annex-5	Reference Tariff Table 1100MW Thar Coal Foreign Financing
Annex-5A	Debt Repayment Schedule
Annex-6	Reference Tariff Table 1100MW Thar Coal Local Financing
Annex-6A	Debt Repayment Schedule
Annex-7	Summary of Upfront Coal Tariff

Annex - 1

Year	Energy Purchase Price (Rs./kWh)							Fixed FCC		Capacity Purchase Price (PKR/kWh/Hour)								Capacity Charge@ 85%	Total	
	Var. FCC	Water Charges	Ash Disposal	Lime Stone	Var. O&M		Total EPP	Rs./kWh/r.	at 85% PF (Rs./kWh)	Fixed O&M		Cost of W/C	Insurance	ROE	Debt Repayment	Interest Charges	Total CPP		Tariff Rs./kWh	Total Cents/kWh
					Foreign	Local				Local	Foreign									
1	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.4075	1.0933	0.6620	3.6736	4.3218	9.3773	9.6574
2	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.4075	1.1484	0.6068	3.6736	4.3218	9.3773	9.6574
3	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.4075	1.2063	0.5489	3.6736	4.3218	9.3773	9.6574
4	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.4075	1.2672	0.4881	3.6736	4.3218	9.3773	9.6574
5	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.4075	1.3311	0.4242	3.6736	4.3218	9.3773	9.6574
6	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.4075	1.3982	0.3571	3.6736	4.3218	9.3773	9.6574
7	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.4075	1.4687	0.2866	3.6736	4.3218	9.3773	9.6574
8	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.4075	1.5428	0.2125	3.6736	4.3218	9.3773	9.6574
9	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.4075	1.6206	0.1347	3.6736	4.3218	9.3773	9.6574
10	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.4075	1.7023	0.0530	3.6736	4.3218	9.3773	9.6574
11	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	6.2052	6.3905
12	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	6.2052	6.3905
13	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	6.2052	6.3905
14	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	6.2052	6.3905
15	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	6.2052	6.3905
16	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	6.2052	6.3905
17	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	6.2052	6.3905
18	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	6.2052	6.3905
19	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	6.2052	6.3905
20	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	6.2052	6.3905
21	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	6.2052	6.3905
22	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.4714	1.7310	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	5.9889	6.1677
23	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.4714	1.7310	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	5.9889	6.1677
24	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.4714	1.7310	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	5.9889	6.1677
25	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.4714	1.7310	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	5.9889	6.1677
26	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.4714	1.7310	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	5.9889	6.1677
27	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.4714	1.7310	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	5.9889	6.1677
28	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.4714	1.7310	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	5.9889	6.1677
29	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.4714	1.7310	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	5.9889	6.1677
30	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.4714	1.7310	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	5.9889	6.1677
Average																				
1-10	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.4075	1.3779	0.3774	3.6736	4.3218	9.3773	9.6574
11-30	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.5725	1.8500	0.1535	0.1535	0.1094	0.0944	1.4075	0.0000	0.0000	1.9183	2.2568	6.1078	6.2903
1-30	1.1606	0.4490	0.2200	0.0900	0.0684	0.0456	2.0336	1.8860	2.2189	0.1535	0.1535	0.1094	0.0944	1.4075	0.4593	0.1258	2.5034	2.9452	7.1977	7.4126
Levelized																				
1-30	1.1640	0.4768	0.2200	0.0900	0.0684	0.0456	2.0648	2.1993	2.5874	0.1535	0.1535	0.1094	0.0944	1.4075	0.8643	0.2798	3.0624	3.6028	8.2550	8.5015
Levelized Tariff =										8.2550 Rs./kWh					8.5015 Cents/kWh					

Upfront Tariff - Debt Servicing on Foreign Financing

Gross Capacity	330.00	MWs	Parity	97.10	PKR/US\$
Net Capacity	300.30	MWs	Debt	373.30	US\$ Million
LIBOR	0.45%		Debt in Pak Rupees	36,246.96	PKR Million
Spread over LIBOR	4.50%				
Total Interest Rate	4.95%				

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	373.30	7.27	4.62	366.03	\$11.89			
2	366.03	7.36	4.53	358.67	11.89			
3	358.67	7.45	4.44	351.22	11.89			
4	351.22	7.54	4.35	343.68	11.89	1.0933	0.6620	1.7553
1st Year		29.62	17.93		47.55			
5	343.68	7.64	4.25	336.04	11.89			
6	336.04	7.73	4.16	328.31	11.89			
7	328.31	7.83	4.06	320.48	11.89			
8	320.48	7.92	3.97	312.56	11.89	1.1484	0.6068	1.7553
2nd Year		31.11	16.44		47.55			
9	312.56	8.02	3.87	304.54	11.89			
10	304.54	8.12	3.77	296.42	11.89			
11	296.42	8.22	3.67	288.20	11.89			
12	288.20	8.32	3.57	279.88	11.89	1.2063	0.5489	1.7553
3rd Year		32.68	14.87		47.55			
13	279.88	8.42	3.46	271.46	11.89			
14	271.46	8.53	3.36	262.93	11.89			
15	262.93	8.63	3.25	254.29	11.89			
16	254.29	8.74	3.15	245.55	11.89	1.2672	0.4881	1.7553
4th Year		34.33	13.22		47.55			
17	245.55	8.85	3.04	236.70	11.89			
18	236.70	8.96	2.93	227.74	11.89			
19	227.74	9.07	2.82	218.67	11.89			
20	218.67	9.18	2.71	209.49	11.89	1.3311	0.4242	1.7553
5th Year		36.06	11.49		47.55			
21	209.49	9.30	2.59	200.19	11.89			
22	200.19	9.41	2.48	190.78	11.89			
23	190.78	9.53	2.36	181.25	11.89			
24	181.25	9.65	2.24	171.61	11.89	1.3982	0.3571	1.7553
6th Year		37.88	9.67		47.55			
25	171.61	9.76	2.12	161.84	11.89			
26	161.84	9.89	2.00	151.96	11.89			
27	151.96	10.01	1.88	141.95	11.89			
28	141.95	10.13	1.76	131.82	11.89	1.4687	0.2866	1.7553
7th Year		39.79	7.76		47.55			
29	131.82	10.26	1.63	121.56	11.89			
30	121.56	10.38	1.50	111.18	11.89			
31	111.18	10.51	1.38	100.66	11.89			
32	100.66	10.64	1.25	90.02	11.89	1.5428	0.2125	1.7553
8th Year		41.80	5.76		47.55			
33	90.02	10.77	1.11	79.25	11.89			
34	79.25	10.91	0.98	68.34	11.89			
35	68.34	11.04	0.85	57.30	11.89			
36	57.30	11.18	0.71	46.12	11.89	1.6206	0.1347	1.7553
9th Year		43.90	3.65		47.55			
37	46.12	11.32	0.57	34.80	11.89			
38	34.80	11.46	0.43	23.34	11.89			
39	23.34	11.60	0.29	11.74	11.89			
40	11.74	11.74	0.15	0.00	11.89	1.7023	0.0530	1.7553
10th Year		46.12	1.44		47.55			

Upfront Tariff for Thar Coal based Power Projects for 330 MW on Local Financing

Annex - 2

Year	Energy Purchase Price (Rs./kWh)							Fixed FCC		Capacity Purchase Price (PKR/kW/Hour)								Capacity Charge@ 85%	Total Tariff	Total Tariff		
	Var. FCC	Water Charges	Ash Disposal	Lime Stone	Var. O&M		Total EPP	Rs./kW/hr.	at 85% PF (Rs./kWh)	Fixed O&M		Cost of W/C	Insurance	ROE	Debt Repayment	Interest Charges	Total CPP		Rs./kWh	Cents/kWh		
1	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.5163	0.6852	2.2490	4.9612	5.8367	10.8922	11.2176		
2	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.5163	0.7971	2.1371	4.9612	5.8367	10.8922	11.2176		
3	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.5163	0.9272	2.0070	4.9612	5.8367	10.8922	11.2176		
4	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.5163	1.0785	1.8557	4.9612	5.8367	10.8922	11.2176		
5	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.5163	1.2546	1.6796	4.9612	5.8367	10.8922	11.2176		
6	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.5163	1.4594	1.4748	4.9612	5.8367	10.8922	11.2176		
7	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.5163	1.6976	1.2366	4.9612	5.8367	10.8922	11.2176		
8	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.5163	1.9747	0.9595	4.9612	5.8367	10.8922	11.2176		
9	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.5163	2.2970	0.6372	4.9612	5.8367	10.8922	11.2176		
10	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.5163	2.6720	0.2622	4.9612	5.8367	10.8922	11.2176		
11	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.3331	6.5222		
12	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.3331	6.5222		
13	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.3331	6.5222		
14	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.3331	6.5222		
15	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.3331	6.5222		
16	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.3331	6.5222		
17	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.3331	6.5222		
18	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.3331	6.5222		
19	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.3331	6.5222		
20	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.3331	6.5222		
21	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.6552	1.9473	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.3331	6.5222		
22	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.4714	1.7310	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.1168	6.2995		
23	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.4714	1.7310	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.1168	6.2995		
24	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.4714	1.7310	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.1168	6.2995		
25	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.4714	1.7310	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.1168	6.2995		
26	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.4714	1.7310	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.1168	6.2995		
27	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.4714	1.7310	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.1168	6.2995		
28	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.4714	1.7310	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.1168	6.2995		
29	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.4714	1.7310	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.1168	6.2995		
30	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.4714	1.7310	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.1168	6.2995		
Average																						
1-10	1.1677	0.5071	0.2200	0.0900	0.0684	0.0456	2.0988	2.5132	2.9567	0.1535	0.1535	0.1094	0.0944	1.5163	1.4843	1.4499	4.9612	5.8367	10.8922	11.2176		
11-30	1.1571	0.4200	0.2200	0.0900	0.0684	0.0456	2.0010	1.5725	1.8500	0.1535	0.1535	0.1094	0.0944	1.5163	0.0000	0.0000	2.0270	2.3847	6.2358	6.4220		
1-30	1.1606	0.4490	0.2200	0.0900	0.0684	0.0456	2.0336	1.8860	2.2189	0.1535	0.1535	0.1094	0.0944	1.5163	0.4948	0.4833	3.0051	3.5354	7.7879	8.0205		
Levelized																						
1-30	1.1640	0.4768	0.2200	0.0900	0.0684	0.0456	2.0648	2.1993	2.5874	0.1535	0.1535	0.1094	0.0944	1.5163	0.8608	1.0518	3.9396	4.6348	9.2869	9.5643		

Levelized Tariff =

9.2869 Rs./kWh

9.5643 Cents/kWh

Upfront Tariff - Debt Servicing on Local Financing

Gross Capacity	330.00	MW	Parity	97.10	PKR/US\$
Net Capacity	300.30	MW	Debt	402.13	US\$ Million
KIBOR	11.91%		Debt in Pak Rupees	39,047.06	PKR Million
Spread over KIBOR	3.50%				
Total Interest Rate	15.41%				

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	402.13	4.38	15.49	397.75	\$19.87			
2	397.75	4.55	15.32	393.20	19.87			
3	393.20	4.73	15.15	388.48	19.87			
4	388.48	4.91	14.97	383.57	19.87	0.6852	2.2490	2.9342
1st Year		18.56	60.93		79.49			
5	383.57	5.10	14.78	378.47	19.87			
6	378.47	5.29	14.58	373.18	19.87			
7	373.18	5.50	14.38	367.68	19.87			
8	367.68	5.71	14.16	361.97	19.87	0.7971	2.1371	2.9342
2nd Year		21.59	57.90		79.49			
9	361.97	5.93	13.95	356.05	19.87			
10	356.05	6.16	13.72	349.89	19.87			
11	349.89	6.39	13.48	343.50	19.87			
12	343.50	6.64	13.23	336.86	19.87	0.9272	2.0070	2.9342
3rd Year		25.12	54.37		79.49			
13	336.86	6.90	12.98	329.96	19.87			
14	329.96	7.16	12.71	322.80	19.87			
15	322.80	7.44	12.44	315.36	19.87			
16	315.36	7.72	12.15	307.64	19.87	1.0785	1.8557	2.9342
4th Year		29.22	50.27		79.49			
17	307.64	8.02	11.85	299.61	19.87			
18	299.61	8.33	11.54	291.28	19.87			
19	291.28	8.65	11.22	282.63	19.87			
20	282.63	8.98	10.89	273.65	19.87	1.2546	1.6796	2.9342
5th Year		33.99	45.50		79.49			
21	273.65	9.33	10.54	264.32	19.87			
22	264.32	9.69	10.18	254.63	19.87			
23	254.63	10.06	9.81	244.56	19.87			
24	244.56	10.45	9.42	234.11	19.87	1.4594	1.4748	2.9342
6th Year		39.54	39.96		79.49			
25	234.11	10.85	9.02	223.26	19.87			
26	223.26	11.27	8.60	211.98	19.87			
27	211.98	11.71	8.17	200.28	19.87			
28	200.28	12.16	7.72	188.12	19.87	1.6976	1.2366	2.9342
7th Year		45.99	33.50		79.49			
29	188.12	12.63	7.25	175.49	19.87			
30	175.49	13.11	6.76	162.38	19.87			
31	162.38	13.62	6.26	148.76	19.87			
32	148.76	14.14	5.73	134.62	19.87	1.9747	0.9595	2.9342
8th Year		53.50	25.99		79.49			
33	134.62	14.69	5.19	119.93	19.87			
34	119.93	15.25	4.62	104.68	19.87			
35	104.68	15.84	4.03	88.84	19.87			
36	88.84	16.45	3.42	72.39	19.87	2.2970	0.6372	2.9342
9th Year		62.23	17.26		79.49			
37	72.39	17.08	2.79	55.31	19.87			
38	55.31	17.74	2.13	37.56	19.87			
39	37.56	18.43	1.45	19.14	19.87			
40	19.14	19.14	0.74	0.00	19.87	2.6720	0.2622	2.9342
10th Year		72.39	7.10		79.49			

Upfront Tariff for Thar Coal based Power Projects for 660 MW on Foreign Financing

Annex - 3

Year	Energy Purchase Price (Rs./kWh)							Fixed FCC		Capacity Purchase Price (PKR/kW/Hour)										Capacity Charge@ 85%	Total	
	Var. FCC	Water Charges	Ash Disposal	Lime Stone	Var. O&M		Total EPP	Rs./kW/hr.	at 85% PF (Rs./kWh)	Fixed O&M		Cost of W/C	Insurance	ROE	Debt Repayment	Interest Charges	Total CPP	Total Tariff Rs./kWh	Total Tariff Cents/kWh			
					Foreign	Local				Local	Foreign											
1	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.5062	1.0397	0.6295	3.6683	4.3157	9.1604	9.4340		
2	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.5062	1.0921	0.5771	3.6683	4.3157	9.1604	9.4340		
3	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.5062	1.1472	0.5220	3.6683	4.3157	9.1604	9.4340		
4	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.5062	1.2050	0.4641	3.6683	4.3157	9.1604	9.4340		
5	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.5062	1.2658	0.4034	3.6683	4.3157	9.1604	9.4340		
6	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.5062	1.3296	0.3396	3.6683	4.3157	9.1604	9.4340		
7	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.5062	1.3966	0.2725	3.6683	4.3157	9.1604	9.4340		
8	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.5062	1.4671	0.2021	3.6683	4.3157	9.1604	9.4340		
9	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.5062	1.5410	0.1281	3.6683	4.3157	9.1604	9.4340		
10	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.5062	1.6188	0.0504	3.6683	4.3157	9.1604	9.4340		
11	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	6.1417	6.3251		
12	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	6.1417	6.3251		
13	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	6.1417	6.3251		
14	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	6.1417	6.3251		
15	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	6.1417	6.3251		
16	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	6.1417	6.3251		
17	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	6.1417	6.3251		
18	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	6.1417	6.3251		
19	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	6.1417	6.3251		
20	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	6.1417	6.3251		
21	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	6.1417	6.3251		
22	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.3962	1.6426	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	5.9365	6.1138		
23	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.3962	1.6426	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	5.9365	6.1138		
24	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.3962	1.6426	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	5.9365	6.1138		
25	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.3962	1.6426	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	5.9365	6.1138		
26	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.3962	1.6426	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	5.9365	6.1138		
27	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.3962	1.6426	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	5.9365	6.1138		
28	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.3962	1.6426	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	5.9365	6.1138		
29	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.3962	1.6426	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	5.9365	6.1138		
30	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.3962	1.6426	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	5.9365	6.1138		
Average																						
1-10	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.5062	1.3103	0.3589	3.6683	4.3157	9.1604	9.4340		
11-30	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.4921	1.7555	0.1435	0.1435	0.1038	0.1021	1.5062	0.0000	0.0000	1.9992	2.3520	6.0493	6.2300		
1-30	1.1013	0.4490	0.2200	0.0900	0.0684	0.0456	1.9743	1.7897	2.1055	0.1435	0.1435	0.1038	0.1021	1.5062	0.4368	0.1196	2.5555	3.0065	7.0864	7.2980		
Levelized																						
1-30	1.1045	0.4768	0.2200	0.0900	0.0684	0.0456	2.0053	2.0869	2.4552	0.1435	0.1435	0.1038	0.1021	1.5062	0.8219	0.2661	3.0871	3.6319	8.0924	8.3341		

Levelized Tariff =

8.0924 Rs./kWh

8.3341 Cents/kWh

Upfront Tariff - Debt Servicing on Foreign Financing

Gross Capacity	659.34	MWs	Parity	97.10	PKR/US\$
Net Capacity	606.59	MWs	Debt	717.04	US\$ Million
LIBOR	0.45%		Debt in Pak Rupees	69,625.01	PKR Million
Spread over LIBOR	4.50%				
Total Interest Rate	4.95%				

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	717.04	13.96	8.87	703.08	\$22.84			
2	703.08	14.14	8.70	688.95	22.84			
3	688.95	14.31	8.53	674.64	22.84			
4	674.64	14.49	8.35	660.15	22.84	1.0397	0.6295	1.6691
1st Year		56.89	34.45		91.34			
5	660.15	14.67	8.17	645.48	22.84			
6	645.48	14.85	7.99	630.63	22.84			
7	630.63	15.03	7.80	615.60	22.84			
8	615.60	15.22	7.62	600.39	22.84	1.0921	0.5771	1.6691
2nd Year		59.76	31.58		91.34			
9	600.39	15.41	7.43	584.98	22.84			
10	584.98	15.60	7.24	569.38	22.84			
11	569.38	15.79	7.05	553.59	22.84			
12	553.59	15.99	6.85	537.61	22.84	1.1472	0.5220	1.6691
3rd Year		62.78	28.57		91.34			
13	537.61	16.18	6.65	521.42	22.84			
14	521.42	16.38	6.45	505.04	22.84			
15	505.04	16.59	6.25	488.46	22.84			
16	488.46	16.79	6.04	471.66	22.84	1.2050	0.4641	1.6691
4th Year		65.94	25.40		91.34			
17	471.66	17.00	5.84	454.67	22.84			
18	454.67	17.21	5.63	437.46	22.84			
19	437.46	17.42	5.41	420.03	22.84			
20	420.03	17.64	5.20	402.40	22.84	1.2658	0.4034	1.6691
5th Year		69.27	22.07		91.34			
21	402.40	17.86	4.98	384.54	22.84			
22	384.54	18.08	4.76	366.46	22.84			
23	366.46	18.30	4.53	348.16	22.84			
24	348.16	18.53	4.31	329.63	22.84	1.3296	0.3396	1.6691
6th Year		72.76	18.58		91.34			
25	329.63	18.76	4.08	310.88	22.84			
26	310.88	18.99	3.85	291.89	22.84			
27	291.89	19.22	3.61	272.67	22.84			
28	272.67	19.46	3.37	253.20	22.84	1.3966	0.2725	1.6691
7th Year		76.43	14.91		91.34			
29	253.20	19.70	3.13	233.50	22.84			
30	233.50	19.95	2.89	213.56	22.84			
31	213.56	20.19	2.64	193.36	22.84			
32	193.36	20.44	2.39	172.92	22.84	1.4671	0.2021	1.6691
8th Year		80.28	11.06		91.34			
33	172.92	20.70	2.14	152.22	22.84			
34	152.22	20.95	1.88	131.27	22.84			
35	131.27	21.21	1.62	110.06	22.84			
36	110.06	21.47	1.36	88.59	22.84	1.5410	0.1281	1.6691
9th Year		84.33	7.01		91.34			
37	88.59	21.74	1.10	66.85	22.84			
38	66.85	22.01	0.83	44.84	22.84			
39	44.84	22.28	0.55	22.56	22.84			
40	22.56	22.56	0.28	(0.00)	22.84	1.6188	0.0504	1.6691
10th Year		88.59	2.76		91.34			

Upfront Tariff for Thar Coal based Power Projects for 660 MW on Local Financing

Annex - 4

Year	Energy Purchase Price (Rs./kWh)							Fixed FCC		Capacity Purchase Price (PKR/kW/Hour)								Capacity Charge@ 85%	Total	
	Var. FCC	Water Charges	Ash Disposal	Lime Stone	Var. O&M		Total EPP	Rs./kW/hr.	at 85% PF (Rs./kWh)	Fixed O&M		Cost of W/C	Insurance	ROE	Debt Repayment	Interest Charges	Total CPP		Tariff Rs. /kWh	Total Tariff Cents/kWh
1	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.7029	0.6839	2.2445	5.1242	6.0285	10.8733	11.1980
2	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.7029	0.7955	2.1329	5.1242	6.0285	10.8733	11.1980
3	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.7029	0.9253	2.0030	5.1242	6.0285	10.8733	11.1980
4	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.7029	1.0764	1.8520	5.1242	6.0285	10.8733	11.1980
5	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.7029	1.2521	1.6763	5.1242	6.0285	10.8733	11.1980
6	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.7029	1.4565	1.4719	5.1242	6.0285	10.8733	11.1980
7	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.7029	1.6942	1.2342	5.1242	6.0285	10.8733	11.1980
8	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.7029	1.9708	0.9576	5.1242	6.0285	10.8733	11.1980
9	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.7029	2.2925	0.6359	5.1242	6.0285	10.8733	11.1980
10	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.7029	2.6667	0.2617	5.1242	6.0285	10.8733	11.1980
11	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.3731	6.5634
12	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.3731	6.5634
13	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.3731	6.5634
14	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.3731	6.5634
15	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.3731	6.5634
16	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.3731	6.5634
17	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.3731	6.5634
18	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.3731	6.5634
19	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.3731	6.5634
20	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.3731	6.5634
21	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.5706	1.8478	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.3731	6.5634
22	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.3962	1.6426	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.1678	6.3521
23	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.3962	1.6426	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.1678	6.3521
24	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.3962	1.6426	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.1678	6.3521
25	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.3962	1.6426	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.1678	6.3521
26	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.3962	1.6426	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.1678	6.3521
27	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.3962	1.6426	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.1678	6.3521
28	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.3962	1.6426	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.1678	6.3521
29	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.3962	1.6426	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.1678	6.3521
30	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.3962	1.6426	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.1678	6.3521
Average																				
1-10	1.1081	0.5071	0.2200	0.0900	0.0684	0.0456	2.0392	2.3848	2.8056	0.1435	0.1435	0.1038	0.1021	1.7029	1.4814	1.4470	5.1242	6.0285	10.8733	11.1980
11-30	1.0979	0.4200	0.2200	0.0900	0.0684	0.0456	1.9419	1.4921	1.7555	0.1435	0.1435	0.1038	0.1021	1.7029	0.0000	0.0000	2.1958	2.5833	6.2807	6.4683
1-30	1.1013	0.4490	0.2200	0.0900	0.0684	0.0456	1.9743	1.7897	2.1055	0.1435	0.1435	0.1038	0.1021	1.7029	0.4938	0.4823	3.1720	3.7317	7.8116	8.0449
Levelized																				
1-30	1.1045	0.4768	0.2200	0.0900	0.0684	0.0456	2.0053	2.0869	2.4552	0.1435	0.1435	0.1038	0.1021	1.7029	0.8591	1.0497	4.1046	4.8289	9.2894	9.5668

Levelized Tariff =

9.2894 Rs./kWh

9.5668 Cents/kWh

Upfront Tariff - Debt Servicing on Local Financing

Gross Capacity	659.34	MWs	Parity	97.10	PKR/US\$
Net Capacity	606.59	MWs	Debt	810.67	US\$ Million
KIBOR	11.91%		Debt in Pak Rupees	78,716.49	PKR Million
Spread over KIBOR	3.50%				
Total Interest Rate	15.41%				

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	810.67	8.83	31.23	801.84	\$40.06			
2	801.84	9.17	30.89	792.67	40.06			
3	792.67	9.53	30.54	783.14	40.06			
4	783.14	9.89	30.17	773.25	40.06	0.6839	2.2445	2.9284
1st Year		37.42	122.83		160.25			
5	773.25	10.27	29.79	762.98	40.06			
6	762.98	10.67	29.39	752.31	40.06			
7	752.31	11.08	28.98	741.23	40.06			
8	741.23	11.51	28.56	729.72	40.06	0.7955	2.1329	2.9284
2nd Year		43.53	116.72		160.25			
9	729.72	11.95	28.11	717.77	40.06			
10	717.77	12.41	27.65	705.36	40.06			
11	705.36	12.89	27.17	692.47	40.06			
12	692.47	13.39	26.68	679.08	40.06	0.9253	2.0030	2.9284
3rd Year		50.64	109.62		160.25			
13	679.08	13.90	26.16	665.18	40.06			
14	665.18	14.44	25.63	650.74	40.06			
15	650.74	14.99	25.07	635.75	40.06			
16	635.75	15.57	24.49	620.18	40.06	1.0764	1.8520	2.9284
4th Year		58.90	101.35		160.25			
17	620.18	16.17	23.89	604.01	40.06			
18	604.01	16.79	23.27	587.21	40.06			
19	587.21	17.44	22.62	569.77	40.06			
20	569.77	18.11	21.95	551.66	40.06	1.2521	1.6763	2.9284
5th Year		68.52	91.73		160.25			
21	551.66	18.81	21.25	532.85	40.06			
22	532.85	19.54	20.53	513.31	40.06			
23	513.31	20.29	19.78	493.02	40.06			
24	493.02	21.07	18.99	471.95	40.06	1.4565	1.4719	2.9284
6th Year		79.70	80.55		160.25			
25	471.95	21.88	18.18	450.07	40.06			
26	450.07	22.72	17.34	427.35	40.06			
27	427.35	23.60	16.46	403.75	40.06			
28	403.75	24.51	15.55	379.24	40.06	1.6942	1.2342	2.9284
7th Year		92.72	67.54		160.25			
29	379.24	25.45	14.61	353.78	40.06			
30	353.78	26.43	13.63	327.35	40.06			
31	327.35	27.45	12.61	299.90	40.06			
32	299.90	28.51	11.55	271.39	40.06	1.9708	0.9576	2.9284
8th Year		107.85	52.40		160.25			
33	271.39	29.61	10.46	241.78	40.06			
34	241.78	30.75	9.31	211.03	40.06			
35	211.03	31.93	8.13	179.10	40.06			
36	179.10	33.16	6.90	145.93	40.06	2.2925	0.6359	2.9284
9th Year		125.45	34.80		160.25			
37	145.93	34.44	5.62	111.49	40.06			
38	111.49	35.77	4.30	75.72	40.06			
39	75.72	37.15	2.92	38.58	40.06			
40	38.58	38.58	1.49	(0.00)	40.06	2.6667	0.2617	2.9284
10th Year		145.93	14.32		160.25			

Annex - 5

Average																				
1-10	1.0804	0.5071	0.2200	0.0900	0.0684	0.0456	2.0115	2.3251	2.7355	0.1330	0.1330	0.1012	0.0951	1.4025	1.2201	0.3342	3.4191	4.0224	8.7694	9.0313
11-30	1.0705	0.4200	0.2200	0.0900	0.0684	0.0456	1.9145	1.4548	1.7116	0.1330	0.1330	0.1012	0.0951	1.4025	0.0000	0.0000	1.8648	2.1939	5.8200	5.9938
1-30	1.0738	0.4490	0.2200	0.0900	0.0684	0.0456	1.9468	1.7449	2.0529	0.1330	0.1330	0.1012	0.0951	1.4025	0.4067	0.1114	2.3829	2.8034	6.8031	7.0063
Levelized																				
1-30	1.0769	0.4768	0.2200	0.0900	0.0684	0.0456	1.9777	2.0347	2.3938	0.1330	0.1330	0.1012	0.0951	1.4025	0.7653	0.2478	2.8779	3.3858	7.7572	7.9889

7.9889 Cents/kWh

Upfront Tariff - Debt Servicing on Foreign Financing

Gross Capacity	1098.90	MWs	Parity	97.10	PKR/US\$
Net Capacity	1010.99	MWs	Debt	1,112.80	US\$ Million
LIBOR	0.45%		Debt in Pak Rupees	108,052.50	PKR Million
Spread over LIBOR	4.50%				
Total Interest Rate	4.95%				

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	1,112.80	21.67	13.77	1,091.13	\$35.44			
2	1,091.13	21.94	13.50	1,069.19	35.44			
3	1,069.19	22.21	13.23	1,046.98	35.44			
4	1,046.98	22.48	12.96	1,024.50	35.44	0.9681	0.5861	1.5542
1st Year		88.30	53.46		141.76			
5	1,024.50	22.76	12.68	1,001.74	35.44			
6	1,001.74	23.04	12.40	978.70	35.44			
7	978.70	23.33	12.11	955.37	35.44			
8	955.37	23.62	11.82	931.75	35.44	1.0169	0.5373	1.5542
2nd Year		92.75	49.01		141.76			
9	931.75	23.91	11.53	907.84	35.44			
10	907.84	24.20	11.23	883.64	35.44			
11	883.64	24.50	10.94	859.13	35.44			
12	859.13	24.81	10.63	834.32	35.44	1.0682	0.4861	1.5542
3rd Year		97.43	44.33		141.76			
13	834.32	25.11	10.32	809.21	35.44			
14	809.21	25.43	10.01	783.78	35.44			
15	783.78	25.74	9.70	758.04	35.44			
16	758.04	26.06	9.38	731.99	35.44	1.1220	0.4322	1.5542
4th Year		102.34	39.42		141.76			
17	731.99	26.38	9.06	705.61	35.44			
18	705.61	26.71	8.73	678.90	35.44			
19	678.90	27.04	8.40	651.86	35.44			
20	651.86	27.37	8.07	624.49	35.44	1.1786	0.3756	1.5542
5th Year		107.50	34.26		141.76			
21	624.49	27.71	7.73	596.78	35.44			
22	596.78	28.05	7.39	568.72	35.44			
23	568.72	28.40	7.04	540.32	35.44			
24	540.32	28.75	6.69	511.57	35.44	1.2381	0.3162	1.5542
6th Year		112.92	28.84		141.76			
25	511.57	29.11	6.33	482.46	35.44			
26	482.46	29.47	5.97	452.99	35.44			
27	452.99	29.83	5.61	423.16	35.44			
28	423.16	30.20	5.24	392.95	35.44	1.3005	0.2537	1.5542
7th Year		118.61	23.14		141.76			
29	392.95	30.58	4.86	362.38	35.44			
30	362.38	30.96	4.48	331.42	35.44			
31	331.42	31.34	4.10	300.08	35.44			
32	300.08	31.73	3.71	268.36	35.44	1.3661	0.1882	1.5542
8th Year		124.60	17.16		141.76			
33	268.36	32.12	3.32	236.24	35.44			
34	236.24	32.52	2.92	203.72	35.44			
35	203.72	32.92	2.52	170.80	35.44			
36	170.80	33.33	2.11	137.48	35.44	1.4350	0.1193	1.5542
9th Year		130.88	10.88		141.76			
37	137.48	33.74	1.70	103.74	35.44			
38	103.74	34.16	1.28	69.58	35.44			
39	69.58	34.58	0.86	35.01	35.44			
40	35.01	35.01	0.43	(0.00)	35.44	1.5073	0.0469	1.5542
10th Year		137.48	4.28		141.76			

Annex - 6

Average																				
1-10	1.0804	0.5071	0.2200	0.0900	0.0684	0.0456	2,0115	2.3251	2.7355	0.1330	0.1330	0.1012	0.0951	1.5857	1.3794	1.3474	4.7747	5.6173	10.3643	10.6738
11-30	1.0705	0.4200	0.2200	0.0900	0.0684	0.0456	1.9145	1.4548	1.7116	0.1330	0.1330	0.1012	0.0951	1.5857	0.0000	0.0000	2.0480	2.4094	6.0354	6.2157
1-30	1.0738	0.4490	0.2200	0.0900	0.0684	0.0456	1.9468	1.7449	2.0529	0.1330	0.1330	0.1012	0.0951	1.5857	0.4598	0.4491	2.9569	3.4787	7.4784	7.7017
Levelized																				
1-30	1.0769	0.4768	0.2200	0.0900	0.0684	0.0456	1.9777	2.0347	2.3938	0.1330	0.1330	0.1012	0.0951	1.5857	0.7999	0.9774	3.8253	4.5004	8.8718	9.1368

8.8718 Rs./kWh

9.1368 Cents/kWh

Upfront Tariff - Debt Servicing on Local Financing

Gross Capacity	1098.90	MWs	Parity	97.10	PKR/US\$
Net Capacity	1010.99	MWs	Debt	1,258.10	US\$ Million
KIBOR	11.91%		Debt in Pak Rupees	122,161.74	PKR Million
Spread over KIBOR	3.50%				
Total Interest Rate	15.41%				

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	1,258.10	13.71	48.47	1,244.40	\$62.18			
2	1,244.40	14.23	47.94	1,230.16	62.18			
3	1,230.16	14.78	47.39	1,215.38	62.18			
4	1,215.38	15.35	46.82	1,200.02	62.18	0.6368	2.0900	2.7268
1st Year		58.08	190.62		248.70			
5	1,200.02	15.94	46.23	1,184.08	62.18			
6	1,184.08	16.56	45.62	1,167.52	62.18			
7	1,167.52	17.20	44.98	1,150.32	62.18			
8	1,150.32	17.86	44.32	1,132.47	62.18	0.7407	1.9860	2.7268
2nd Year		67.56	181.14		248.70			
9	1,132.47	18.55	43.63	1,113.92	62.18			
10	1,113.92	19.26	42.91	1,094.66	62.18			
11	1,094.66	20.00	42.17	1,074.65	62.18			
12	1,074.65	20.77	41.40	1,053.88	62.18	0.8616	1.8651	2.7268
3rd Year		78.59	170.11		248.70			
13	1,053.88	21.57	40.60	1,032.30	62.18			
14	1,032.30	22.41	39.77	1,009.90	62.18			
15	1,009.90	23.27	38.91	986.63	62.18			
16	986.63	24.17	38.01	962.46	62.18	1.0023	1.7245	2.7268
4th Year		91.41	157.29		248.70			
17	962.46	25.10	37.08	937.37	62.18			
18	937.37	26.06	36.11	911.30	62.18			
19	911.30	27.07	35.11	884.24	62.18			
20	884.24	28.11	34.07	856.13	62.18	1.1659	1.5609	2.7268
5th Year		106.34	142.36		248.70			
21	856.13	29.19	32.98	826.93	62.18			
22	826.93	30.32	31.86	796.62	62.18			
23	796.62	31.49	30.69	765.13	62.18			
24	765.13	32.70	29.48	732.43	62.18	1.3562	1.3706	2.7268
6th Year		123.69	125.01		248.70			
25	732.43	33.96	28.22	698.47	62.18			
26	698.47	35.27	26.91	663.21	62.18			
27	663.21	36.63	25.55	626.58	62.18			
28	626.58	38.04	24.14	588.55	62.18	1.5776	1.1492	2.7268
7th Year		143.89	104.81		248.70			
29	588.55	39.50	22.67	549.04	62.18			
30	549.04	41.02	21.15	508.02	62.18			
31	508.02	42.60	19.57	465.42	62.18			
32	465.42	44.25	17.93	421.17	62.18	1.8351	0.8917	2.7268
8th Year		167.37	81.33		248.70			
33	421.17	45.95	16.23	375.22	62.18			
34	375.22	47.72	14.46	327.50	62.18			
35	327.50	49.56	12.62	277.94	62.18			
36	277.94	51.47	10.71	226.48	62.18	2.1346	0.5921	2.7268
9th Year		194.70	54.01		248.70			
37	226.48	53.45	8.73	173.03	62.18			
38	173.03	55.51	6.67	117.52	62.18			
39	117.52	57.65	4.53	59.87	62.18			
40	59.87	59.87	2.31	0.00	62.18	2.4831	0.2437	2.7268
10th Year		226.48	22.22		248.70			

SUMMARY OF THAR UPFRONT COAL TARIFF

Levelized Tariff	F. Financing	L. Financing
	Cents/kWh	Cents/kWh
330 MW	8.5015	9.5643
660 MW	8.3341	9.5668
1100 MW	7.9889	9.1368
1-10 Years Tariff	F. Financing	L. Financing
	Cents/kWh	Cents/kWh
330 MW	9.6574	11.2176
660 MW	9.4340	11.1980
1100 MW	9.0313	10.6738
11-21 Years Tariff	F. Financing	L. Financing
	Cents/kWh	Cents/kWh
330 MW	6.3905	6.5222
660 MW	6.3251	6.5634
1100 MW	6.0865	6.3084
22-30 Years Tariff	F. Financing	L. Financing
	Cents/kWh	Cents/kWh
330 MW	6.1677	6.2995
660 MW	6.1138	6.3521
1100 MW	5.8804	6.1023

Assumptions:

Gross Capacity	330 MW	660 MW	1099 MW
Net Capacity	300 MW	607 MW	1011 MW
Auxiliary	9.0%	8.0%	8.0%
Efficiency	37.0%	39.0%	40.0%
Calorific Value LHV (Btu/kg.)	11,005.00	11,005.00	11,005.00

Price:

Variable Levelized (US\$/M. Ton)	14.30	14.30	14.30
Fixed Levelized (US\$/M. Ton)	31.80	31.80	31.80
Proj. Cost F. Fin. (US\$ Million/MW)	1.51	1.45	1.35
Proj. Cost L. Fin. (US\$ Million/MW)	1.62	1.64	1.53
Exchange Rate (Rs./\$)	97.10	97.10	97.10

Debt Equity Ratio:

Debt	75%	75%	75%
Equity	25%	25%	25%
Kibor/Libor	11.91%/0.45%	11.91%/0.45%	11.91%/0.45%
Premium Kibor/Libor	3.5%/4.5%	3.5%/4.5%	3.5%/4.5%
ROE	30.65%	34.49%	34.49%

Project Drawdown:

1st Year of Construction Period	40%	40%	40%
2nd Year of Construction Period	30%	30%	30%
3rd Year of Construction Period	20%	15%	15%
4th Year of Construction Period	10%	15%	15%

Debt Drawdown:

1st Year of Construction Period	33%	33%	33%
2nd Year of Construction Period	33%	33%	33%
3rd Year of Construction Period	20%	13%	13%
4th Year of Construction Period	13%	20%	20%

Equity Drawdown:

1st Year of Construction Period	60%	60%	60%
2nd Year of Construction Period	20%	20%	20%
3rd Year of Construction Period	20%	20%	20%

[No.Tariff/I.L.Coal-2013]

S. Mateen
(Syed Mateen Ahmed)
Section Officer (Tariff)