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Islamic Republic of Pakistan

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No. NEPRA/TRF-301/EPTPL-2015/3272-3274

March 13, 2015

Subject: Approval of National Electric Power Regulatory Authority in the matter of Application of Engro Powergen Thar (Private) Limited (EPTPL) for Unconditional Acceptance of Upfront Thar Coal Tariff for 2x330 MW Coal Power Plant [Case No. NEPRA/TRF-301/EPTPL-2015]

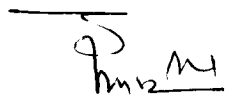
Dear Sir,

Please find enclosed herewith the subject Approval of the Authority along with Annexure-I, II & III (17 pages) in Case No. NEPRA/TRF-301/EPTPL-2015.

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

3. Please note that Order of the Authority along with Annexure-I & II needs to be notified in the official Gazette.

Enclosure: As above


13/03/15
(Syed Safeer Hussain)

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

CC:

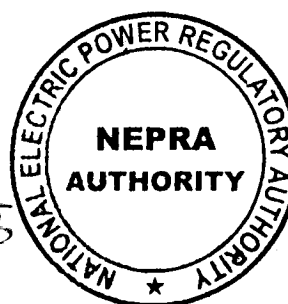
1. Secretary, Cabinet Division, Cabinet Secretariat, Islamabad.
2. Secretary, Ministry of Finance, 'Q' Block, Pak Secretariat, Islamabad.



APPROVAL OF NATIONAL ELECTRIC POWER REGULATORY AUTHORITY
IN THE MATTER OF APPLICATION OF ENGRO POWERGEN THAR (PVT) LIMITED
(EPTPL) FOR UNCONDITIONAL ACCEPTANCE OF UPFRONT THAR COAL TARIFF
FOR 2x330 MW COAL POWER PLANT

1. Engro Powergen Thar (Pvt) Limited (hereinafter "EPTPL") submitted an application vide letter dated February 18, 2015 under Regulation 4(1) of NEPRA Upfront Tariff (Approval and Procedure) Regulations, 2011 (hereinafter "Upfront Tariff Regulations") for unconditional acceptance of Upfront Thar Coal Tariff for 330 MW on Thar coal on foreign financing determined by the National Electric Power Regulatory Authority (hereinafter "The Authority") vide its determination dated 9th July 2014 notified vide SRO No. 51(I)/2015 dated January 20, 2015 with all the terms, conditions and assumptions provided therein (hereinafter "Upfront Tariff Determination"), for its proposed coal power plant of 2x330 MW capacity (660 MW Gross) located at 25 KM from city of Islamkot, near village of Singharo-Bitra, District Thar Parkar, Sindh. EPTPL has filed an application for the grant of Generation License vide letter dated December 2, 2014 which is under process.
2. The application was processed in accordance with the relevant provisions of Upfront Tariff Regulations and Upfront Tariff Determination. The Applicant provided all necessary and relevant information/documents and was considered eligible for grant of Upfront Thar Coal Tariff determination. Accordingly, the Authority has decided to grant the upfront Thar coal tariff for 330 MW on foreign financing to the applicant.
3. **Order**
 - I. The Authority hereby determines and approves the following upfront tariff and adjustments/indexations for Engro Powergen Thar (Pvt) Limited for its 2x330 MW Power Plant for delivery of electricity to the power purchaser:

| 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 |
| Lime Stone | 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 |

- i. The Tariff Table and Debt Service Schedule are attached as Annex-I and Annex -II to this determination.
- ii. The tariff control period is 30 Years.
- iii. 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.

II. Basis for Determination

The above tariff is worked out on the following basis:

i. 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.

ii. Plant Size

- (1) The applicable upfront tariff is for the following plant size;

330 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, 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.

iii. Site of Plant

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

iv. **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.

v. **Auxiliary Consumption**

The auxiliary power consumption factor shall be 9%.

vi. **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.

vii. **Capital Cost including EPC Cost**

a. 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.

b. 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

c. 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.

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.

e. In case of variation in installed capacity to standard modules assumed above, the capital cost will be adjusted accordingly on a pro rata basis.

viii. **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 |

ix. **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.

x. **Construction Period**

Construction period for the generation facility shall be 40 months.

xi. **Financing of Coal Projects**

- 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.
- The upfront tariff has been determined on the basis of debt equity ratio of 75:25;
- 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;

xii. **Financial Charges**

- For the purpose of determination of upfront tariff loan tenure of 10 years plus grace period equivalent to construction period has been considered.
- Interest Rate
 - The reference Karachi Inter Bank Offer Rate (KIBOR) of 11.91% plus 350 basis points has been used for calculating the financial charges.
 - The reference London Inter Bank Offer Rate (LIBOR) of 0.45% plus 450 basis



points has been used for calculating the financial charges.

- C. 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.
- D. 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.
- E. The repayment of loan shall be considered from the first year of commercial operation.

xiii. **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.

xiv. **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.

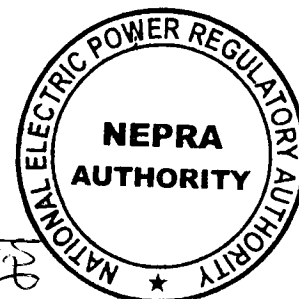
xv. **Interest During Construction (IDC)**

- a. Interest During Construction (IDC) has been calculated 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% |

- b. IDC shall not be adjusted for any variation on account of actual expenditure percentage during the construction period.
- c. 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.

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- d. In case of more than one financing plans, separate IDC shall be calculated for each plan on reference parameters.
- e. 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.

xvi. **Summary of Project Cost**

The following project costs has been assumed for 330 MW on foreign financing in the upfront Thar coal tariff, which will be subject to adjustments at the time of COD in accordance with the methodology prescribed in the preceding paragraphs:

| Description | US\$ Million |
|--------------------------|--------------|
| Capital Cost | 408.2 |
| Custom Duties & Cess | 16.2 |
| Sub-Total | 424.5 |
| Financial Charges: | |
| Financing Fees & Charges | 11.1 |
| Sinosure Fee | 33.2 |
| IDC | 28.9 |
| Sub-Total | 73.3 |
| Total | 497.7 |

xvii. **Return on Equity (ROE)**

The Return on Equity shall be:

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

xviii. **Thermal Efficiency**

- 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% |

xix. **Price of Coal**

- a. 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 |

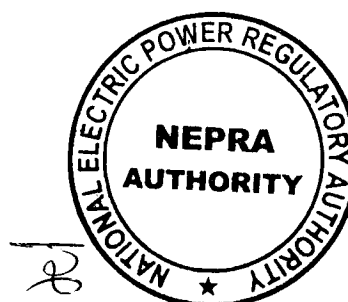
- b. The actual coal price of each block of Thar Coal will be determined by Thar Coal Energy Board (TCEB)/Competent Authority and the reference fuel cost components will be adjusted accordingly.
- c. The basis of coal price shall be provided in the Power Purchase Agreement.

xx. **Water Charges**

- 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 CPI or US CPI as the case may be, at the time of COD along with timing and mode of indexation.

xxi. **Insurance Cost During Operation**

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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 the insurance component of tariff is Rs. 248.21 million.

xxii. **Interest on Working Capital**

- a. The Working Capital requirement has been worked out in accordance with the following:
 - A. 30 days coal inventory at 100% plant load.
 - B. 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.

xxiii. **Operation and Maintenance (O & M) Expenses**

- a. Operation and Maintenance or O&M expenses comprises of repair and maintenance, establishment including employee expenses, administrative & general expenses.
- b. Reference O&M expenses shall be Rs.421 per MWh for a plant of 330MW
- c. The following shall be the breakup of O&M expenses:

| Plant Size | Fixed O&M | Variable O&M |
|------------|---------------|--------------|
| 330 MW | Rs.0.307/kW/h | Rs.0.114/kWh |

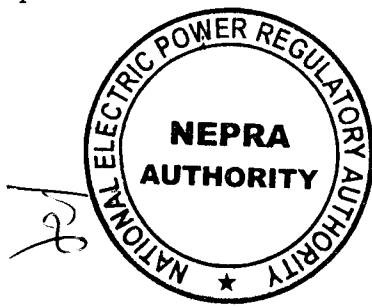
- d. 50% of the fixed O&M expenses shall be indexed with local CPI whereas 50% shall be indexed with USCPI and Exchange rate (PKR/US\$) variation.
- e. 40% of the variable O&M shall be indexed with local CPI whereas 60% shall be indexed with USCPI and exchange rate (PKR/US\$) variation.
- f. The reference CPI and US CPI will be of June 2014.
- g. 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 |

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

xxiv. **Fuel Price Adjustment Mechanism**

- a. During the tariff period, the fuel cost component 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.
- b. 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.

III. 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 -

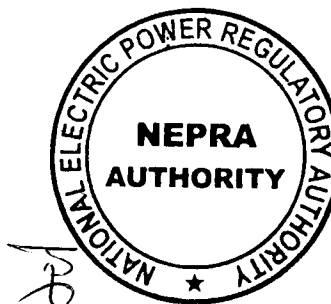
- i. Quantity of fuel (tons) consumed and procured along with a heating value during the month for power generation purposes,
- ii. Cumulative quantity (tons) of coal consumed and procured till the end of that month during the year,
- iii. Actual (gross and net) energy generation (denominated in units) during the month,
- iv. Cumulative actual (gross and net) energy generation (denominated in units) until the end of that month during the year,
- v. Opening fuel stock quantity (tons),
- vi. Receipt of fuel quantity (tons) at the power plant site and
- vii. Closing fuel stock quantity (tons) for available at the power plant site.

IV. Tariff Structure

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

- i. **Energy Purchase Price**
 - a. Fuel Cost Component Variable;
 - b. Fuel Cost Component Fixed;
 - c. Variable O&M Local;
 - d. Variable O&M Foreign;
 - e. Cost of Lime Stone; and

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- f. Cost of Ash Disposal
- ii. **Capacity Purchase Price**
 - a. Fixed O&M (Local);
 - b. Fixed O&M (Foreign);
 - c. Insurance Cost
 - d. Cost of Working Capital;
 - e. Return on equity; and
 - f. Debt Service (Principal Repayment and Interest Charges);

V. Tariff Design

- i. 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.
- ii. For the purpose of comparison, levelized tariff assuming 10% discount factor has also been worked out.
- iii. Levelization has been carried out for the “useful life” of the project which in the instant case is equivalent to “Tariff Period”.

VI. Dispatch Criteria:

- i. The sole criterion for dispatch of all the coal based power plants shall be the “merit order dispatch”.
- ii. Variable fuel cost component will be the basis of dispatch.
- iii. The coal based generation facility shall be subjected to scheduling and dispatch code as specified under NEPRA Grid Code.
- iv. 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.

VII. Plant Availability

The guaranteed availability of the plants will be 85%.

VIII. General Conditions

- i. In case of mix financing, separate debt service schedules shall be developed using the annuity method at COD;
- ii. 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.

- iii. 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 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) | US\$/Euro/Yen/Pound to Pak Rupees (based on borrowing by the Company) |
| Interest/Mark-up Payments (Foreign Currency Loan) | <ul style="list-style-type: none"> Adjustments for relevant LIBOR or other applicable Interest Rate benchmark Adjustment for variation in Rs./Foreign Currency (US\$/Euro/Yen/Pound/Yuan) rates as applicable |
| Interest/Mark-up Payments* (Local Currency Loan) | Adjustments for relevant KIBOR variations |

IX. Scope and extent of application

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

X. Eligibility Criteria

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

XI. Definitions and Interpretations

- i. "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;

- ii. "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;
- iii. "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.
- iv. "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;
- v. "Grace Period" means a period equivalent to the construction period of the coal project.
- vi. "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;
- vii. "Inter-connection Point" shall mean interface point of energy generating facility with the transmission system or distribution system, as the case may be;
- viii. "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;
- ix. "Project" means a generating facility or the evacuation system up to inter-connection point;
- x. "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.
- xi. '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;
- xii. "Year" means a period of 12 months.

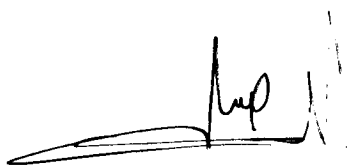
4. The provisions of the Order of the Authority notified vide SRO No. 15(I)/2015 Dated 13-01-

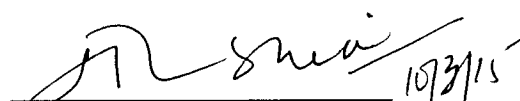


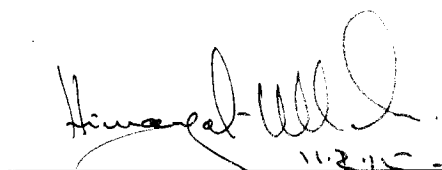
2015 will also apply in the matter as and where applicable.

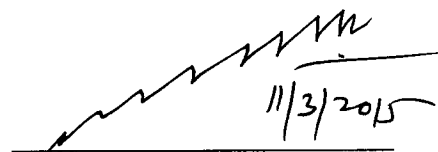
5. The clarifications issued vide letter No. NEPRA/SAT-I/TRF-100/UTC/1099 dated January 23, 2015 is an integral part of this determination and is attached as Annex-III.
6. The above order along with Annex-I & II will be notified in the Official Gazette in accordance with Section 31(4) of the NEPRA Act.

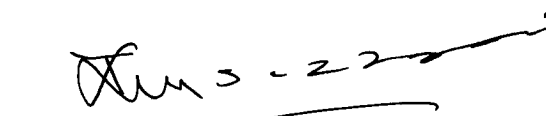
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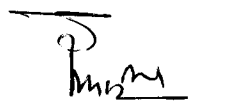

(Khawaja Muhammad Naeem)
Member

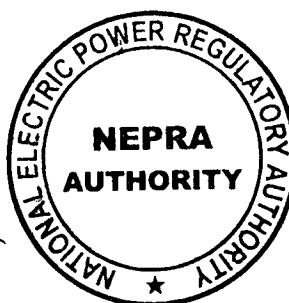

(Maj (R) Haroon Rashid)
Member


(Himayatullah Khan)
Member


(Habibullah Khilji)
Vice Chairman


(Brig (R) Tariq Sadozai)
Chairman


13.03.15



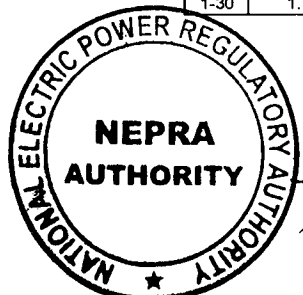
Engro Powergen Thar (Private) Limited (EPTPL)
Reference Tariff Table

| Year | Energy Purchase Price (Rs./kWh) | | | | | | | Fixed FCC | | Capacity Purchase Price (PKR/kW/Hour) | | | | | | | | Capacity | Total | 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 Repaymen | Interest Charges | Total CPP | Charge@ 85% | Tariff Rs./kWh | Tariff 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 | 1.4075 | 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



Engro Powergen Thar (Private) Limited (EPTPL)
Debt Servicing Schedule

| | | | | | |
|---------------------|--------|-----|--------------------|-----------|--------------|
| 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 | | | |





ANNEX - III

National Electric Power Regulatory Authority
Islamic Republic of Pakistan

NEPRA Office Building, G-5/1, Attaturk Avenue (East), Islamabad
Phone: 051-9206500, Fax: 051-2600026
Website: www.nepra.org.pk, Email: registrar@nepra.org.pk

**OFFICE OF THE
REGISTRAR**

No. NEPRA/R/SAT-I/TRF-100/UTC /1099

January 23, 2015

Mr. Shamsuddin A. Shaikh
Chief Executive Officer
Engro Powergen Thar Limited
4th Floor, The Harbor Front Building,
HC-3, Marine Drive, Block 4,
Clifton, Karachi 75600

Subject: Comments on Decision Announced by NEPRA on November 21, 2014

This is with reference to your letter dated December 09, 2014 and January 09, 2015 wherein you have sought certain clarifications in the review decision of the Authority dated November 21, 2014 with respect to decision on the Upfront Tariff of Coal (dated 26.06.2014) hereinafter referred as "the Decision". The Authority has considered contents of your referred letters and issued the following clarifications:

(1) Availability

It is clarified that the Authority has determined annual availability of 85%, over the term of contract i.e. 30 years. Annual availability may vary from year to year due to teething problems in the early years (routine maintenance, and outage, less major overhaul however, should be structured in the PPA in a manner that overall availability of 85% is achieved).

(2) Capacity Payments for first unit in a PPA of 2 X 660 Units

Allowance of multi-unit COD will benefit consumer by providing access to low cost electricity of 660 MWs for many months prior to complex's COD. Therefore, capacity payment for first unit needs to be included in the PPA of multi-unit projects. Pre-COD sale of electricity to the power purchaser, if any, will be allowed subject to the terms and condition of the PPA, at the applicable tariff excluding principal repayment of debt component, interest component and ROE component. The payment during this period will be on "take and pay" basis on single part/energy based tariff (per KWh). While determining energy based tariff, capacity payments excluding the above components will be assumed at 100% plant factor.

(3) Monthly Demand Charge in case of Interconnection/Testing Delays

This issue needs to be addressed in the PPA by both the parties to not only compensate the power producer from interconnection/testing delays but also to compensate the power purchaser from the risk of non-availability of mine. In case of any dispute, the parties can approach NEPRA in the manner prescribed in law.

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P - 1/2

(4) Average Exchange Rate for Project Cost determination

It is clarified that conversion of for the project cost into Pak Rs would not only be from US dollars, but also in respect of projects cost incurred in other permitted currencies as GBP, EUR, CNY and JPY or any other foreign currency as may be permitted by GoP.

(5) Construction Timelines

It is clarified that for the purpose of upfront tariff determination, the Authority has allowed 40 months construction time for 220MW/330MW/350MW categories, regardless of the number of units that will constitute a complex.

- sd -

(Iftikhar Ali Khan)
Deputy Registrar

No. NEPRA/R/SAT-I/TRF-100/UTC//00

Forwarded for information and necessary action, please.

January 23, 2015
23/1/15
Deputy Registrar

Sr. Advisor (Tariff)-I

Master File [w.r.t ATC/CM # 492 dated 23.01.2015 and ARM 15-41]

CC:

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

P-0/2