

**DECISION OF THE AUTHORITY REGARDING TARIFF OF  
EASTERN POWER COMPANY LTD. (EPCO)**

Petitioner:  
Eastern Power Company Limited (EPCO)

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Authority

Nasiruddin Ahmed  
Member

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Zafar Ali Khan  
Member

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Abdul Rahim Khan  
Member

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Let. General ( R ) Saeed uz Zafar  
Chairman

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**DECISION OF THE AUTHORITY REGARDING TARIFF OF  
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**Background**

Eastern Power Company (Pvt.) Limited (EPCO) has filed request for acceptance of Upfront Tariff (plus discount) determined by NEPRA for Reciprocating Engines Technology. Since the power plant is old therefore EPCO has offered a discount in the Upfront Tariff. The application has been forwarded on the instructions of PPIB pursuant to ECC decision allowing setting up of used power plants on fast track basis. EPCO has submitted that the capacity of the proposed used plant would be 150 MW (13 \* Vatsla 18B38B Engines each 11,075 kW + 8,500 MW steam turbine).

2. According to EPCO the company consists of leading industrial and power plant services conglomerates from Pakistan and Turkey who have the financial strength to undertake this project. The project will be situated 4 km south of Pasrur on the 132 kV grid in central Punjab. This zone has one of the highest industrial growths in the country and most of the industries contribute to the precious export sector of Pakistan. Power shortages in this zone can have very adverse effects on overall GDP and specifically on export earning of our country.

3. The estimated cost of the project is US\$ 118 million with an expected life of 25 years. With a notional plant factor of 60% and a name plate capacity of 150 MW gross at ISO conditions, annual sent out energy is anticipated to be 708 GWh. The primary fuel for this project will be RFO. The supply of fuel will be guaranteed through the Fuel Supply Agreement (FSA/OSA) with Shell/PSO/Total from their depots in Gujranwala or PARCO refinery in Multan.

4. The power produced will be sold to CPPA/NTDC through a guaranteed Power Purchase Agreement (PPA) in addition to the Implementation Agreement (IA) to be signed with Government of Pakistan. The tariff is structured in such a way that there is no risk to the power producer, especially with an experienced Operation and Maintenance operator i.e. GAMA Power Systems of Turkey.

5. Based on the Ministry of Commerce letter No: 2(8)/2006-A.C (Imp) dated August 18<sup>th</sup>, 2006, SGS conducted a detail inspection of the plant and gave the required clean bill of health.

6. The selection criteria of the land was based on close proximity to CPPA/NTDC 132 kV grid, suitable road access and availability of ground water; some of the advantages which can help in avoiding delays and cost overruns. The site has been finalized in consultation with

CPPA/NTDC in order to avoid any reservation or concerns of power purchaser. In addition, it is our intent that the proposed project should render a minimal transmission line cost to the Power Purchaser (CPPA/NTDC). The current 132 kV towers to the Pasrur have a single circuit and room for another circuit on the same tower thereby eliminating the cost of additional towers.

7. EPCO has based its tariff on the following assumptions;

**Financial Assumptions:**

Project Size:	150 MW gross at 132 kV bus bar at Reference Conditions
Project Cost:	US\$ 118.2 million
Debt/Equity Ratio:	80:20
Currency of Funding:	Pakistan Rupees
Interest Rate:	Base Rate plus 3.00% per annum (presently 12.05 <sup>^</sup> p.a.) The base rate is 6 month Karachi Inter Bank Offer Rate [KIBOR] being the Average rate, Ask Side, for the relevant tenure.
Number of Principal and Interest payment in a year:	Four Quarterly Payments
Tenor of Loan:	10 Years + 1 Year Grace Period
Reference Exchange Rate:	1 US\$ = PKR 60
NPV Discount Rate (for Levelized Tariff):	10%
Working Capital:	For keeping Residual Fuel Oil [RFO] Stock of 30 Days and Stores & Spares at the rate of 3 months KIBOR plus 2.00% per annum.
Period of Contract with Power Purchaser:	25 Years
Equity IRR:	15%

**Operational Assumptions:**

Reference RFO Prices:	Rs. 24.3781 per Kg(HHV) delivered at Site Rs. 25.5970 per Kg(LHV) using conversion factor of 1.05
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Thermal Efficiency:	Efficiency of 45% on RFO at Reference Conditions
Heat Rates:	7,937 BTU/kWh (LHV) at full load on RFO
Capacity:	152.475 MW Gross output (ISO) 147.5 MW Gross output (Reference Conditions) 144 MW Net output (Reference Conditions)
Capacity Factor:	60% Notional
Degradation:	As per heat rate/performance curves from the genset manufacturer
Backup Fuel:	The plant shall be designed for operation on residual fuel oil (RFO) which will be the main fuel. Backup fuel would be HSD in case of disruption in RFO supply.
Reference Conditions:	Ambient temperature 30 degree C Relative humidity 60% Site altitude ft a.s.l Charge air coolant temp 40 C

**Indexation, Escalations and Cost Adjustment Assumptions:**

Inflation Factor:	
Variable O&M – Local	Local CPI
Variable O&M – Foreign	United States CPI
Escalable Component – Local	Local CPI
- Foreign	Unites States CPI
Currency Indexation Factors:	
Variable O&M – Foreign	US\$/PKR indexation
Escalable Component – Foreign	US\$/PKR indexation
Price Factors:	Changes in the prices of RFO and/or HSD maintaining the guaranteed Heat Rate Changes in 3 month KIBOR, quarterly (no foreign debt financing assumed. If availed, would be indexed to US\$/PKR exchange and reference interest rate charges). This change also applies to working capital requirement.

In case the equity has foreign component, the ROE will be indexed to US\$/PKR exchange variation

Fuel Cost Factors:

The fuel cost component will be adjusted with respect to increase in heat rate as per heat rate curves provided by the genset Manufacturer:

- ❖ To compensate for the effects of efficiency degradation between the scheduled maintenance cycles due to aging and fouling;
- ❖ To compensate for efficiency decrease due to partial loading;
- ❖ To compensate for non-recoverable degradation after Commercial Operation Date (COD); and
- ❖ Compensation for sludge removal from RFO

**Other General Assumptions:**

8. The following has been assumed while calculating the Tariff. Changes to any of these assumptions will result in a change to the Tariff:

- i). Duties and taxes on the import of plant and equipment as well as on the imports of spare parts after COD have been included in the project cost.
- ii). No tax on any income of the Company including sales proceeds from NTDC. General Sales Tax and all other taxes will be treated as pass through items.
- iii). Withholding tax of 5% on local construction services; no withholding tax of EPC/offshore contractor has been considered in tariff calculations.
- iv). 100% local debt. If foreign debt is procured, repayment terms shall be affected.
- v). The equipment is quoted with standard manufacturer's environment control equipment. Any additional equipment requirement will be added to the Project Cost.
- vi). NTDC shall make payments to the Company to cover all Energy Cost Component of the Complex up to COD for all electricity delivered to the Grid.
- vii). NTDC shall be solely responsible for the construction of Interconnection and Transmission facilities and all financing cost is to be borne by NTDC in this respect.
- viii). No Maintenance Reserve Account or Contingency Reserve Account shall be kept.
- ix). RFO storage for 30 days.

- x). Actual Interest During Construction [IDC] and Return on Equity [ROE] during construction has been considered and will be adjusted in tariff on actual basis at COD.
- xi). As the actual timing of debt draw-downs and equity injection may vary from estimated timings during the construction period, these figures will be updated at COD to come up with new base tariff table.
- xii). O&M cost based on 60% Plant Factor. For operation and maintenance of Plant, Equivalent Operating Hours (EOH) will be considered as per Manufacturer's standard practice on different load conditions and fuel.
- xiii). Tolerance of +/-3% in Dispatch is assumed.
- xiv). Average site conditions used for net output and heat rate (efficiency) are: ambient temperature of 30 C, 60% relative humidity, altitude 250 masl, charge air coolant temperature of 40 C.
- xv). Auxiliary consumption of the plant is estimated at 2.5% (3.7 MW)
- xvi). Thirty days (30) Schedule Outage for maintenance per year per genset; Sixty days (60) for Major Overhauling; Five Hundred (500) hours for Forced Outages per year are assumed during which full capacity payment would be received.
- xvii). Number of Cold, Warm and Hot start ups will be considered as per Manufacturer's recommendation and prudent utility practices. The cost of all such start ups shall be pass through to the Power Purchaser.
- xviii). No letter of credit cost or advance payment to Fuel Supplier assumed.
- xix). Hedging cost during construction on EPC payment is part of the Project cost or otherwise final cost debt amount at COD would be based on actual exchange rates used by the banks to make payments to EPC contractor
- xx). In case of simple cycle mode (including during startups or peaking operation), heat rate and efficiency will be different; accordingly energy component will be different.
- xxi). Withholding tax on dividends (currently at 7.5%) as required to be deducted under Income Tax Ordinance, 2001 or any other law for the time being in force at the time of such payments is considered as pass through.
- xxii). No Zakat Deduction has been assumed on payment of dividends to the shareholders.

- xxiii). The cost of initial fill of RFO/LFO has not been charged upfront. The working capital requirement starts at the time of first fill prior to start of commissioning.
- xxiv). No Working Capital for bridge financing is accounted for in the Tariff Model; any time gap as per NTDC/Fuel Supplier payment terms may result in Working Capital Requirement. Cost of L/C for power purchase has not been included in tariff calculations.
9. All other assumptions not expressly stated herein are taken as per 1994 Standard PPA. In case there are any changes to the 1994 PPA having implications on the operational and financial cost, the tariff components would be revised accordingly.
10. In case of any unintentional errors or omissions, typographical errors, and any genuine assumption overlooked, the same will be corrected / incorporated and advised to NEPRA as soon as the Company becomes aware of it.

**Authority's Determination**

11. The petitioner has offered a discount in the Upfront Tariff approved by the Authority for Reciprocating Engines Technology on September 14, 2006. In the absence of Upfront Tariff for Old/Refurbished Plants, a workable Adjustment Formula for calculating the tariff for Old/Refurbished Plants was required. Accordingly the Authority in its meeting RM-375 dated December 14, 2006, approved the following formula for determining tariff of Old/Refurbished plants;

$$CC_{(UP)} = CC_{(NP)} \times \{1 - (0.08 \times Y_U) \times (0.81 \times 0.70)\}$$

Where;

$CC_{(UP)}$  = Capacity Charges for used plant.

$CC_{(NP)}$  = Reference upfront Capacity Charges comprising of Insurance, Return on Equity, Return on Equity During Construction, Withholding Tax, Loan Repayment and Interest for new plant of similar technology.

$Y_U$  = Number of years from the date of commissioning of a plant or number of years worked out by dividing the operated hours by 3154 hours whichever is higher.

*81% factor is the cost share of EPC in the Total Project Cost while 70% is the share of used plant & equipment in the EPC Cost.*

12. The petitioner in its application has indicated the plant operation hours of 12000, which according to the above formula translate into 2.80 years. After incorporating 2.80 years in the

above formula, a discount factor of 17.26% has been assessed. In order to determine the tariff for EPCO different components of reference Upfront Tariff for similar technology are being adjusted as follows;

**i) Insurance Charges**

Ins Charges (Discounted) =  $0.0750 * 82.74\% = \text{Rs. } 0.0620$  per kW per hour

**ii) Return on Equity**

ROE (Discounted) =  $0.2131 * 82.74\% = \text{Rs. } 0.1763$  per kW per hour

**iii) Return on Equity During Construction**

ROEDC (Discounted) =  $0.0235 * 82.74\% = \text{Rs. } 0.0194$  per kW per hour

**iv) Debt Servicing**

DS (Discounted) =  $1.0017 * 82.74\% = \text{Rs. } 0.8288$  per kW per hour

**ORDER**

13. Pursuant to Rule 6 of the NEPRA Licensing (Generation) Rules 2000, Eastern Power Company Limited (EPCO) is allowed to charge, subject to adjustment of Capacity Purchase Price on account of net dependable capacity as determined by test jointly carried out by Central Power Purchasing Agency (CPPA) and the petitioner, the following is approved as specified tariff for delivery of electricity to CPPA of NTDC for procurement on behalf of Ex-WAPDA Distribution Companies:

**Reference Tariff**

Tariff Components	Year 1 to 10	Year 11 to 25	Indexation
<b>Capacity Charge PKR/kW/Hour)</b>			
O&M Foreign	0.0700	0.0700	US\$ /PKR
O&M Local	0.0700	0.0700	WPI
Cost of Working Capital	0.0494	0.0494	KIBOR
Insurance	0.0620	0.0620	US\$ /PKR
Debt Service	0.8288	-	KIBOR
Return on Equity	0.1763	0.1763	NIL
ROE during Construction	0.0194	0.0194	NIL
<b>Total Capacity Charge</b>	<b>1.2759</b>	<b>0.2088</b>	
<b>A) Energy Charge on Operation on Furnace Oil Rs./kWh</b>			
Fuel Cost Component	4.7593	4.7593	Fuel Price
Variable O&M	0.4319	0.4319	\$ to Rupee

Note: i) Capacity Charge Rs./kW/hour applicable to dependable capacity at the delivery point.



### III. Adjustment due to Custom Duties and Interest During Construction

Debt Service, Return on Equity and ROE during construction shall be adjusted on account of actual variation in custom duties and Interest During Construction with reference to the estimated figures of US\$ 6.2391 million and US\$ 8.8035 million respectively. Adjustment shall be according to the following mechanism;

#### i) Debt Servicing:

$$DS_{(Adj)} = DS_{(Ref)} + \left\{ -PMT \left( \frac{IR}{4}, 40, (IDC_{(Act)} + C \& T_{(Act)}) - (IDC_{(Ref)} + C \& T_{(Ref)}) \right) \times ER \times DP \right\} / \left\{ PC_{(Net)} \times \frac{8760}{4} \right\}$$

$DS_{(Adj)}$	=	Adjusted Debt Servicing for Actual IDC
$DS_{(Ref)}$	=	Reference Debt Servicing
IR	=	Interest Rate
$IDC_{(Act)}$	=	Actual Interest During Construction for the project in million US\$
$C \& T_{(Act)}$	=	Actual Custom Duties and Taxes for the project in million US\$
$IDC_{(Ref)}$	=	Reference Interest During Construction for the project (8.8035 million US\$)
$C \& T_{(Ref)}$	=	Reference Custom Duties and Taxes for the project (6.2391 million US\$)
ER	=	Exchange Rate Rs. 60.5 per US\$
DR	=	Debt Percentage
$PC_{(Net)}$	=	Net Plant Capacity in million kW

#### ii) Return on Equity

$$ROE_{(Adj)} = ROE_{(Ref)} + \left\{ -PMT(15\%, 25, (IDC_{(Act)} + C \& T_{(Act)}) - (IDC_{(Ref)} + C \& T_{(Ref)})) \times ER \times EP \right\} / \left\{ PC_{(Net)} \times 8760 \right\}$$

$ROE_{(Adj)}$	=	Adjusted Return on Equity for Actual IDC
$ROE_{(Ref)}$	=	Reference Return on Equity
$IDC_{(Act)}$	=	Actual Interest During Construction for the project in million US\$
$C \& T_{(Act)}$	=	Actual Custom Duties and Taxes for the project in million US\$
$IDC_{(Ref)}$	=	Reference Interest During Construction for the project (8.8035 million US\$)
$C \& T_{(Ref)}$	=	Reference Custom Duties and Taxes for the project (6.2391 million US\$)
ER	=	Exchange Rate Rs. 60.5 per US\$
EP	=	Equity Percentage
$PC_{(Net)}$	=	Net Plant Capacity in million kW

#### iii) ROEDC

$ROEDC_{(Adj)}$	=	$ROEDC_{(Act)} / ROEDC_{(Ref)} \times \text{Rs. } 0.0194 / \text{kW/hour}$
$ROEDC_{(Adj)}$	=	Adjusted ROEDC component of Tariff in Rs./kW/hour
$ROEDC_{(Act)}$	=	Actual ROEDC in million US\$

$ROEDC_{(Ref)} = \text{Reference ROEDC (3.3832 million US\$)}$

EPCO shall submit the relevant documents to NEPRA within 7 days of COD for adjustment of relevant tariff components.

**IV. Adjustment in project cost due to variation in Dollar/Rupee parity**

Any variation in project cost during construction period on account of variation in dollar/Rupee parity shall be allowed through adjustment in the project cost. For the purpose of this adjustment petitioner shall provide payment schedule along with the exchange rate prevalent on the date of particular transaction. EPCO's final reference tariff table shall be revised on COD to incorporate all the permissible adjustment during construction period.

**V. Pass-Through Items**

- i) No provision for income tax has been accounted for in the tariff. If EPCO is obligated to pay any tax on its ROE, the exact amount paid by the company may be reimbursed by CPPA to EPCO on production of original receipts. This payment may be considered as pass-through (as Rs./kW/hour) hourly payment spread over a 12 months period in addition to the capacity purchase price proposed in the Reference Tariff. Furthermore, in such a scenario, EPCO may also submit to CPPA details of any tax shield savings and CPPA will deduct the amount of these savings from its payment to EPCO on account of taxation.
- ii) Withholding tax is also a pass through item just like other taxes as indicated in the government guidelines for determination of tariff for new IPPs. In a reference tariff table withholding tax number is indicated as reference and CPPA (NTDC) shall make payment on account of withholding tax at the time of actual payment of dividend subject to maximum of 7.5% of 15% reference equity i.e. hourly payment (Rs./kW/hour) spread over a 12 month according to the following formula:

$$\text{Withholding Tax Payable} = [ \{ 15\% * (E_{(Ref)} - E_{(Red)}) \} + ROEDC_{(Ref)} ] * 7.5\%$$

Where:

$E_{(Ref)} = \text{Reference Equity (US\$ 30.693 million x 60.5)}$

$E_{(Red)} = \text{Equity Redeemed}$

$ROEDC_{(Ref)} = \text{Reference Return on Equity During Construction}$

- iii) In case Company does not declare a dividend in a particular year or only declares a partial dividend, then the difference in the withholding tax amount (between what is paid in that year and the total entitlement as per the Net Return on Equity) would be carried

forward and accumulated so that the Company is able to recover the same in hourly payments spread over 12 months period as a pass through from the Power Purchaser in future on the basis of the total dividend pay out.

**VI. Indexations:**

The following indexation shall be applicable to the reference tariff as follows;

**a) Indexation applicable to O&M**

The Fixed O&M local component of Capacity Charge will be adjusted on account of Inflation (WPI) and Fixed O&M foreign component on account of variation in US CPI and dollar/Rupee exchange rate. Quarterly adjustment for local inflation, foreign inflation and exchange rate variation will be made on 1<sup>st</sup> July, 1<sup>st</sup> October, 1<sup>st</sup> January and 1<sup>st</sup> April based on the latest available information with respect to WPI notified by the Federal Bureau of Statistics (FBS), US CPI issued by US Bureau of Labor Statistics and revised TT & OD selling rate of US Dollar notified by the National Bank of Pakistan. The mode of indexation will be as under:

**i) Fixed O&M**

$$F O\&M_{(LREV)} = \text{Rs. } 0.0700/\text{kW}/\text{Hour} * WPI_{(REV)} / 117.80$$

$$F O\&M_{(FREV)} = \text{Rs.} 0.0700/\text{kW}/\text{Hour} * \text{US CPI}_{(REV)} / 199.8 * ER_{(REV)} / 60.5$$

Where:

$F O\&M_{(LREV)}$  = the revised applicable Fixed O&M Local Component of the Capacity Charge indexed with WPI

$F O\&M_{(FREV)}$  = the revised applicable Fixed O&M Foreign Component of the Capacity Charge indexed with US CPI and Exchange Rate variations

$WPI_{(REV)}$  = the revised wholesale Price Index (manufactures)

$WPI_{(REF)}$  = 117.80 wholesale price index (manufactures) of April 2006 notified by Federal Bureau of Statistics

$US CPI_{(REV)}$  = the revised US CPI

$US CPI_{(REF)}$  = 199.8 US CPI for the month of March 2006 as notified by the US Bureau of Labor Statistics

$ER_{(REV)}$  = the Revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan

Note: The reference numbers indicated above shall be replaced by the revised numbers after incorporating the required adjustments at COD.

**ii) Variable O&M**

The formula for indexation of variable O&M component will be as under:

$$V O\&M_{(REV)} = \text{Rs. } 0.4319 \text{ per kWh} * US CPI_{(REV)}/199.8 * ER_{(REV)}/60.5$$

Where:

$V O\&M_{(REV)}$  = The revised applicable Variable O&M Component of Energy Charge indexed with US CPI and Exchange Rate variations.

$US CPI_{(REV)}$  = the revised US CPI

$US CPI_{(REF)}$  = 199.8 US CPI for the month of March 2006 as notified by the US Bureau of Labor Statistics

$ER_{(REV)}$  = the Revised TT & OD selling rate of US dollar as notified by the National Bank of Pakistan

Note: The reference Variable O&M indicated above shall be replaced with the revised number at COD after incorporating the required adjustment based upon the IDC Test.

**iii) Adjustment for KIBOR variation**

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

$$\Delta I = P_{(REV)} * (KIBOR_{(REV)} - 10.45\%) / 4$$

Where:

$\Delta I$  = the variation in interest charges applicable corresponding to variation in KIBOR.  $\Delta I$  can be positive or negative depending upon whether  $KIBOR_{REV} >$  or  $< 10.45\%$ . The interest payment obligation will be enhanced or reduced to the extent of  $\Delta I$  for each quarter under adjustment applicable on quarterly

$P_{(REV)}$  = is the outstanding principal (as indicated in the attached debt service schedule to this order) on a quarterly basis on the relevant quarterly calculations date. Period 1 shall commence on the date on which the 1<sup>st</sup> installment is due after availing the grace period.

**iv) Fuel Price Variation**

The Variable Charge Part of the tariff relating to fuel cost shall be adjusted on account of the fuel price variations according to the mechanism given below:

$$FC_{(Rev)} = \text{Rs. 4.7593 per kWh} * FP_{(Rev)} / \text{Rs. 25,597.07 per ton}$$

Where:

$$FC_{(Rev)} = \text{Revised fuel cost component of Variable Charge on RFO.}$$

$$FP_{(Rev)} = \text{The new price of RFO per Metric Ton adjusted for NHV/GHV factor as per the following table.}$$

The reference fuel price is as indicated in Upfront Tariff for Reciprocating Engines Technology. Since RFO pricing is not notified by any Agency and it is deregulated therefore the following mechanism has been provided for adjusted in fuel cost component for variation in fuel price for EPCO:

Description	US\$/Ton	Rs./Ton
HSFO Arab Gulf Average Price for applicable Fortnight (From Platts Oilgram Report)	309.50	19679.96
Black Premium (From OGRA)	19.20	1158.82
C & F Price – A	328.70	19838.78
Crude Handling and Incidental charges (7.282% of C&F Price)*		1444.63
<b>Sub-Total – B</b>		<b>1444.63</b>
EX Refinery Price – (C=A+B)		21283.41
GST (15% of EX Refinery Price)		3192.51
Selling Price – D		24475.92
OMC Margin (3.5% of Selling Price)		856.66
GST (15% on OMC Margin)		128.50
Sub Total – E		985.16
Market Price – (F=D+E)		25461.08
<b>Cost of RFO excluding GST (GHV)</b>		<b>22140.07</b>

US\$ Pak Rupee Exchange Rate-NBP Selling TT/OD = 60.5

\* This charge shall vary with market supply/demand position but shall not exceed 8% of C&F price, to be uniformly charged to all customers including EPCO.

Taking in to account the price for RFO as Rs. 25597.07/ton and net efficiency of 45% (Heat rate of 7584.4 Btu/kWh) the fuel cost component works out as Rs. 4.7593 per kWh. The fuel cost component will be adjusted after the commercial operation date, according to revision in RFO price on fortnightly basis as per above mechanism.

Adjustment on account of local inflation, foreign inflation, foreign exchange rate variation, KIBOR variation and fuel price variation will be approved and announced by the Authority for immediate application within seven working days after receipt of

EPCO's request for adjustment in accordance with the requisite indexation mechanism stipulated herein.

**VII. Terms and Conditions of Tariff:**

- 1) This option shall be available to those IPPs who have obtained all necessary approvals from PPIB and Power Purchaser (CPPA) has agreed to procure power from intending IPP.
- 2) If according to the prescribed formula, the usage period is assessed more than the number of years indicated by the intending IPP then assessed number of years shall be replaced with the actual number of years and the capacity charge shall be adjusted with the revised discount factor as follows;

$$CC_{(Rev.)} = CC_{(Orig)} \times \frac{1 - 0.464 \times Y_{ua}}{1 - 0.464 \times Y_u}$$

Where;

CC<sub>(Rev)</sub> = Revised Capacity Charge;  
CC<sub>(Orig)</sub> = Original Capacity Charge.

Additionally the period (1) shall be revised as 10 – Y<sub>ua</sub> years where Y<sub>ua</sub> is the actual number of years plant has remained in operation. The usage shall be verified by CPPA.

- 3) For Combined Cycle Reciprocating Engines Technology plant availability shall be as agreed by the Power Purchaser in the PPA.
- 4) The sponsor shall be required to provide fitness certificate indicating all relevant/necessary plant details including the following;
  - (i) Operation hours of equipment;
  - (ii) Year(s) since first operation;
  - (iii) Verification of name plate (specification) data;
  - (iv) Verification of maintenance records with reference to manufacturers standard maintenance data.

The above certification shall be required from any of the following pre-shipment companies or any company approved/authorized by the Ministry of Commerce;

- a) Messer Lloyds;
- b) Messer Quality Tech, LLC;
- c) Messer ABS;
- d) Messer Bureau Veritas;
- e) Messer SGS; and

- f) Messer IMTECH.
- 5) Dispatch criterion will be based on the Energy Charge.

The above tariff and terms and conditions be incorporated as the specified tariff approved by the Authority pursuant to Rule 6 of the Licencing (Generation) Rules, in a Power Purchase Agreement between EPCO and CPPA.

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**EASTERN POWER COMPANY LIMITED**  
**Tariff for Reciprocating Engines Technology Old/Refurbished Power Plants**

Year	Variable Charge (Rs./kWh)			Capacity Charge (Rs./kW/Hour)									Capacity		Total
	Fuel	Variable O&M	Total	Fixed O&M	Cost of Working Capital	Insurance	ROE	ROEDC	Withholding Tax * @7.5%	Loan Repayment	Interest Charges	Total	Rs. per kWh	Rs. per kWh	¢ per kWh
1	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	0.2321	0.5966	1.2891	2.1485	7.3397	12.2329
2	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	0.2650	0.5638	1.2891	2.1485	7.3397	12.2329
3	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	0.3025	0.5263	1.2891	2.1485	7.3397	12.2329
4	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	0.3452	0.4835	1.2891	2.1485	7.3397	12.2329
5	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	0.3941	0.4347	1.2891	2.1485	7.3397	12.2329
6	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	0.4498	0.3790	1.2891	2.1485	7.3397	12.2329
7	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	0.5134	0.3154	1.2891	2.1485	7.3397	12.2329
8	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	0.5860	0.2427	1.2891	2.1485	7.3397	12.2329
9	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	0.6689	0.1599	1.2891	2.1485	7.3397	12.2329
10	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	0.7635	0.0652	1.2891	2.1485	7.3397	12.2329
11	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	-	-	0.4603	0.7672	5.9585	9.9308
12	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	-	-	0.4603	0.7672	5.9585	9.9308
13	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	-	-	0.4603	0.7672	5.9585	9.9308
14	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	-	-	0.4603	0.7672	5.9585	9.9308
15	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	-	-	0.4603	0.7672	5.9585	9.9308
16	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	-	-	0.4603	0.7672	5.9585	9.9308
17	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	-	-	0.4603	0.7672	5.9585	9.9308
18	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	-	-	0.4603	0.7672	5.9585	9.9308
19	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	-	-	0.4603	0.7672	5.9585	9.9308
20	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	-	-	0.4603	0.7672	5.9585	9.9308
21	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	-	-	0.4603	0.7672	5.9585	9.9308
22	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	-	-	0.4603	0.7672	5.9585	9.9308
23	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	-	-	0.4603	0.7672	5.9585	9.9308
24	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	-	-	0.4603	0.7672	5.9585	9.9308
25	4.7593	0.4319	5.1912	0.1400	0.0494	0.0620	0.1763	0.0194	0.0132	-	-	0.4603	0.7672	5.9585	9.9308
<b>Levelized Tariff (1-25Years)</b>			<b>5.1912</b>	<b>0.1400</b>	<b>0.0494</b>	<b>0.0620</b>	<b>0.1763</b>	<b>0.0194</b>	<b>0.0132</b>	<b>0.2761</b>	<b>0.2849</b>	<b>1.0214</b>	<b>1.7023</b>	<b>6.8935</b>	<b>11.4892</b>

\* Withholding Tax shall be paid as per the actual at the time of actual payment