



Registrar

National Electric Power Regulatory Authority

Islamic Republic of Pakistan

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No NEPRA/PAR-83 2590-2592
March 22, 2013

Subject: Approval of the Authority in the matter of Power Acquisition Request filed by Hyderabad Electric Supply Company Ltd. (HESCO) for Purchase of 3.4 MW from Fateh Textile Mills Limited (FTML) under NEPRA Interim Power Procurement (Procedures and Standards) Regulations, 2005 [Case # PAR-83]

Dear Sir,

Please find enclosed herewith the subject Approval of the Authority (11 pages) in Case No. NEPRA/PAR-83

2 The Approval is being intimated to the Federal Government for the purpose of notification in the official gazette in accordance with the provisions of 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 at para 15 of the Approval relating to the reference tariff, adjustments & indexations etc. needs to be notified in the official Gazette

Enclosure: As above

(Syed Safer Hussain)

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

CC

1. Secretary, Cabinet Division, Cabinet Secretariat, Islamabad.
2. Secretary, Ministry of Finance, Islamabad

National Electric Power Regulatory Authority
(NEPRA)

Approval of

Power Acquisition Request filed by

Hyderabad Electric Supply Company Limited (HESCO)

For Purchase of 3.4 MW from Fateh Textile Mills Limited (FTML)

under

Interim Power Procurement (Procedures & Standards) Regulations 2005

(NO: NEPRA/PAR-83)

Islamabad



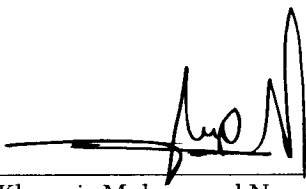
Approval of the Authority in the Matter of Power Acquisition Request filed by Hyderabad Electric Supply Company Limited (HESCO) for Purchase of 3.4 MW from Fateh Textile Mills Limited (FTML) under Interim Power Procurement (Procedures & Standards) Regulations 2005


CASE NO. NEPRA/PAR-83

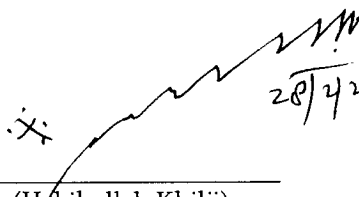
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Hyderabad Electric Supply Company Limited (HESCO)

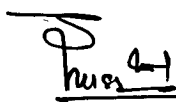
Authority

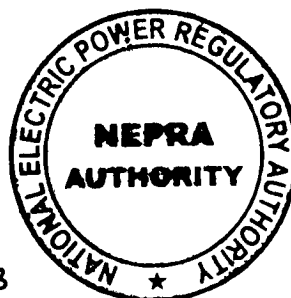

(Khawaja Muhammad Naeem)
Member


(Maj (R) Haroon Rashid)
Member


(Habibullah Khilji)
Chairman

∴ observations recorded in Minutes of RM-13-038.


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28/2/2013

1. Background and Brief History

- 1.1 The captive power producers having capacity less than 50 MW were allowed to sell surplus power to the distribution companies on mutually agreed rates by National Electric Power Regulatory Authority (NEPRA) vide advertisement dated 15-6-2007.
- 1.2 Subsequently NEPRA issued guidelines vide letter dated 28-4-2008 in respect of sale of power by the generation companies having less than 50 MW capacity. According to the guidelines, a person or a generation company desirous to sell its power (surplus or installed) was required to possess a generation license under Section 15 of the NEPRA Act.
- 1.3 Under the guidelines, CPPA/DISCOs were required to file power acquisition request to NEPRA under NEPRA Interim Power Procurement (Standards & Procedure) Regulations 2005 (hereinafter "the IPPRs").
- 1.4 The permission granted through above referred advertisement dated 15-6-2007 and subsequent communications was modified through advertisement dated 1-2-2012 to the extent that all SPPs/CPPs who intend to sell electric power to DISCOs/CPPA/BPCs will need to either approach NEPRA directly for determination of tariff under NEPRA Tariff Rules 1998 or through DISCOs/CPPA under NEPRA Interim Power Procurement (Procedure & Standards) Regulations, 2005.

2. Filing of the Power Acquisition Request

- 2.1 Hyderabad Electric Supply Company Limited (hereinafter "HESCO") filed Power Acquisition Request (PAR) dated 4th May 2012 in respect of purchase of 3.4 MW gas based power from Fateh Textile Mills Limited (hereinafter "FTML") under NEPRA's Interim Power Procurement (Procedures & Standards) Regulations 2005 along with copy of the signed Power Purchase Agreement (PPA). FTML and MESPO entered into a Power Purchase Agreement dated 6th February 2009 for purchase of 3.4 MW gas based power for a term of two years on take and pay basis.


3. Facts of the Case

- 3.1 The application of FTML for grant of generation license for its captive power plant of 3.60 MW is under process with NEPRA.

4. Admission of the Power Acquisition Request

- 4.1 The Power Acquisition Request was admitted by the Authority on 31st May 2012. Although the IPPRs do not provide for holding a public hearing but for the purpose of transparency through participation of the stakeholders in the tariff setting process and in order to meet the ends of natural justice the Authority decided to hold public hearing. Accordingly Notice of Admission/public hearing along with salient features was made public in the leading national newspapers on 7th June 2012 inviting comments/participation from the general public and other stakeholders. Individual letters were also sent to all concerned.




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5. Agreed Tariff

5.1 According to the PPA, FTML and HESCO agreed following tariff on *Take & Pay* basis:

Components	Tariff (Rs./kWh)
Gas Cost Component (Ref. HHV gas price Rs. 238.38/MMBtu)	2.89
Fixed Cost Component	1.53
Total	4.42

5.2 As per the terms agreed in the PPA, fuel cost component is subject to gas price indexation in accordance with the following adjustment mechanism:

$$GCC_{(Rev)} = GCC_{(Ref)} \times GP_{(Rev)} / GP_{(Ref)}$$

Where:

$GCC_{(Rev)}$ = Gas cost component applicable for the billing cycle

$GP_{(Rev)}$ = Revised gas price, excluding General Sales Tax applicable for the billing cycle as notified by OGRA for new captive power

$GP_{(Ref)}$ = Rs. 238.38/MMBtu(HHV)

$GCC_{(Ref)}$ = Rs. 2.89/kWh

5.3 Further it was also agreed that the fixed cost component will remain at par with fixed cost component allowable to other generation facilities already supplying power to distribution companies through bilateral agreements.

6. Filing of objections/comments

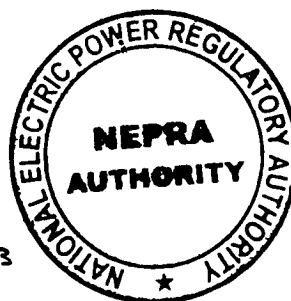
6.1 In response to the notices of admission and advertisement thereof, no intervention request/comments were filed.

7. Powers to Determine Tariff

7.1 The Authority has considered the PAR and is of the view that under Section 7(3)(a) of the NEPRA Act, determination of tariff, rates and charges for supply of electric power is the sole responsibility of the Authority. Under NEPRA Act, the powers to determine tariff, rates and charges for supply of electric power to any other agency/person cannot be delegated its. Although the DISCOs were allowed to purchase power from CPPs on mutually agreed rates, , its prior approval from the Authority was mandatory under the IPPRs which was not sought by the power purchasers (DISCOs) before entering into the power purchase agreements with CPPs. The Authority also noted that the power purchasers, DISCOs in the instant case, did not even know the underlying assumption/basis of the agreed tariff.

7.2 The Authority considers that entering into a Power Purchase Agreement by the power purchaser and power seller without prior approval of the Authority cannot bar the Authority to exercise its powers and perform its functions as required by the NEPRA Act.

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Under Rule 17(3) of the Tariff Standards & Procedure Rules 1998, tariffs should allow licensees the recovery of any and all costs prudently incurred to meet the demonstrated needs of their customers. The burden of proof that the agreed tariff is based on prudent costs lies on the power purchasers filing the PARs, however, in the instant cases, the applicants could not explain the basis/assumptions of the agreed tariff.

- 7.3 In view of the above the Authority in exercise of its powers under the NEPRA Act decided to carry out due diligence of the terms and conditions contained in the Power Purchase Agreement.

8. Hearing

- 8.1 The hearing in respect of PAR filed by HESCO regarding purchase of 3.4 MW power from FTML was held on 21st June 2012. The representatives from HESCO, FTML, CPPA, Ministry of Water & Power and media participated in the hearing.

9. Issues

- 9.1 Certain issues were framed for the hearing which were also sent to the stakeholders. The issues are discussed in the succeeding paragraphs.

10 Issue No. 1 to 3

- 10.1 What is the underlying assumption regarding thermal efficiency while agreeing the fuel cost component?

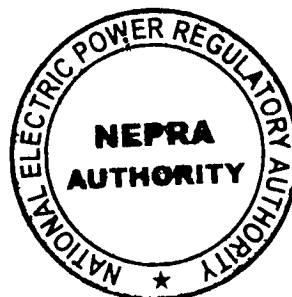
Whether it is justified that the agreed fuel cost component is based on a thermal efficiency level far below than the actual thermal efficiency of the power plant?

Whether it is justified that CPPA approved RFO based tariff of SPPs/CPPs with thermal efficiency of 36.15%, however with gas based SPPs/CPPs, the efficiency level is 31.15% whereas gas is a more efficient fuel?

- 10.2 Since the Issue Nos. 1 to 3 pertain to the thermal efficiency for determining the fuel cost component of the power plant; therefore, these issues have been discussed under the head of fuel cost component.

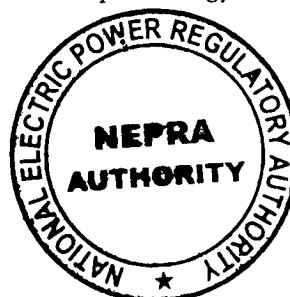
11 Fuel Cost Component

- 11.1 Fuel cost is the major cost constituent of a thermal power plant. It accounts for 60% to 80% of the total electricity cost depending upon the type of fuel used. Fuel cost component of tariff is a function of heat rate (thermal efficiency) of the power plant, price of gas and LHV-HHV factor to convert HHV gas price to LHV gas price. Since the price of gas is expressed in MMBtu, therefore, calorific value of gas in calculation of gas cost component is not considered.
- 11.2 In order to assess the reasonability of the fuel cost component, HESCO was asked to explain the basis of the fuel cost component. Since HESCO had no information/basis of the tariff and the terms and conditions agreed in the PPA; therefore CPPA on behalf of HESCO stated that;





- i) The reference benchmark fuel cost component of Rs. 2.89/kWh was negotiated and agreed between APTMA members and WAPDA Authority as per NEPRA's directives based on pipeline quality natural gas at a reference price of Rs. 238.38/MMBTU with GCV (Btu/Scf) of 899 HHV and plant heat rate of 12,124 Btu/kWh which corresponds to an efficiency of 28.15%.
- ii) In the first instance a fuel cost component of Rs. 2.31/kWh and fixed cost component of Rs. 1.16/kWh was offered to CPPs/SPPs to lessen the power shortage in the country. No gas based CPP/SPP offered power on these rates. Consequent upon meetings and negotiations of APTMA's members with Member (Power) WAPDA, these rates were enhanced to Rs. 2.89/kWh as fuel cost component and Rs. 1.26/kWh as fixed cost component. Later on the fixed cost component was enhanced from Rs. 1.26/kWh to Rs. 1.53/kWh upon demand of APTMA's members keeping in view the increase in inflation rate.
- iii) Upfront tariff comprising fuel cost component of Rs. 2.31/kWh (at thermal efficiency of 39%) and fixed cost component of Rs. 1.16 / kWh was offered to SPPs / CPPs to lessen power shortage in the country. No gas based SPP / CPP offered power on these rates. Consequent upon meetings and negotiations of APTMA's member with Member (Power) WAPDA, these rates were enhanced to Rs. 2.89/kWh (at thermal efficiency of 31.18%) as fuel cost component and Rs. 1.26/kWh as fixed cost component. Later on the fixed cost component of Rs. 1.26/kWh was enhanced to Rs. 1.53/kWh upon demand of APTMA's members keeping in view the increase in inflation rate.
- 11.3 The Authority examined and considered the above response of CPPA and noted that CPPA's response was misconceived and misinterpreted. The permission granted through advertisement dated 15-06-2007 with respect to procurement of surplus power from Captive Power Plants (CPPs) and letter No. NEPRA/R/TRF-100/APTMA/2481-82 dated 06-06-2007 does not mean waiver of all the legal requirements. Despite the advertisement allowing procuring power at agreed rates, the power purchaser was required to comply with the relevant laws, rules and regulations, which were however not complied with. Furthermore, it appears from CPPA's response that the reference fuel cost component was negotiated without proper working and analysis.
- 11.4 It is evident from the response provided by CPPA that no benchmark efficiency was adopted and the impact of low underlying efficiency was not evaluated while agreeing the fuel cost component. Thermal efficiency is one of the most important factors in evaluation of a thermal power plant. Efficient utilization of the scarce gas needs to be ensured through prescribing minimum efficiency benchmarks. Priority in utilization of gas should be given to the existing IPPs with maximum thermal efficiency, which are either underutilized or are being operated on HSD.
- 11.5 In the instant cases no basis regarding thermal efficiency was provided. The captive power plants were in fact the industrial units having surplus power generation capacity to their use. It was decided at that time in 2007 to purchase surplus energy from the captive power



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plants and the negotiated tariff agreed between Member (Power) WAPDA and APTMA members was comprised of fuel cost component of Rs. 2.89/kWh on Reference gas price of Rs. 238.38/MMBtu and fixed cost component of Rs. 1.26/kWh on unit delivered basis which was enhanced to Rs. 1.53/kWh with effect from January 2009.

- 11.6 It has been stated in issue No. 3 that CPPA approved RFO based tariff of SPPs/CPPs with thermal efficiency of 36.15%, however with gas based SPPs/CPPs, the efficiency level is 31.15% whereas gas is a more efficient fuel. While deciding the cases of NCPPs, the Authority has determined benchmark efficiency of 37.5% for gas engines on simple cycle operation. In view thereof the Authority has decided to adopt the same efficiency level of 37.5% for all gas based CPPs operating in simple cycle mode.
- 11.7 Accordingly on the basis of HHV gas price of Rs. 238.38/MMBtu, LHV-HH Factor of 1.1076 and 37.5% thermal efficiency (9101.33 Btu/kWh), the fuel cost component works out Rs. 2.4030/kWh on unit delivered basis as against the agreed 2.89/kWh. The fuel cost component will be subject to gas price variation as notified by OGRA from time to time according to the following mechanism:

$$FCC_{(Rev)} = FCC_{(Ref)} \times GP_{(Rev)} / GP_{(Ref)}$$

Where:

- $FCC_{(Rev)}$ = Fuel cost component applicable for the billing cycle
 $GP_{(Rev)}$ = Revised gas price, excluding General Sales Tax applicable for the billing cycle as notified by OGRA for new captive power
 $GP_{(Ref)}$ = Rs. 238.38/MMBtu(HHV)
 $FCC_{(Ref)}$ = Rs. 2.4030/kWh

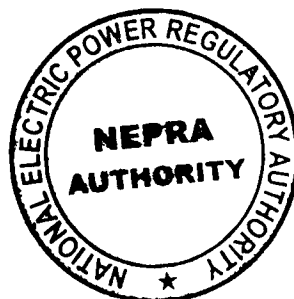
12 Issue 4, Fixed Cost Component

12.1 What are the bases of fixed cost of Rs. 1.53/kWh?

- 12.2 The second component of agreed tariff is fixed cost component of Rs. 1.53/kWh. No basis, assumption or composition of Fixed cost component of Rs. 1.53/kWh is available in the PPA. However, Fixed Cost Component has been defined in the PPA as *"the tariff component payable @ Rs. 1.53 per kWh delivered, by the company which includes but not limited to O&M cost, tax on income of the company, insurance cost, return on investment, duties etc."* As explained by CPPA, it was negotiated back in 2006/2007 with APTMA members that in addition to fuel cost component, Rs. 1.26/kWh will be paid as fixed cost component on unit delivered basis. The fixed cost component was later enhanced to Rs. 1.53/kWh w.e.f. 1st January 2009.

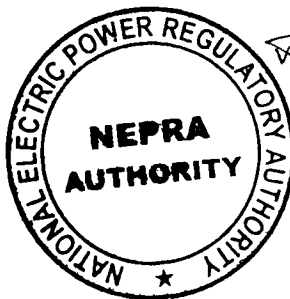
- 12.3 Under Issue No. 4, CPPA has stated that the fixed cost component is at par with the IPP M/s Attock Gen (AGL). CPPA provided the Reference Tariff Table of AGL and calculation of fixed cost component of Rs. 1.53/kWh. As per CPPA calculation, fixed cost component of AGL comprises of levelized variable O&M of Rs. 0.4319/kWh and levelized capacity charge of Rs. 1.1029/kW/Hour. The statement made by CPPA is not logical and in fact is incorrect because:





- i) The levelized tariff is worked out on the basis of discounted cash flow method over the life of the project with assumed 10% discount rate and will always differ significantly with the actual applicable tariff.
 - ii) The major constituent of capacity charge is debt servicing. In case of AGL, out of capacity charge of Rs. 1.3891/kW/Hour for 1st 10 years, Rs. 0.8857/kW/Hour is for debt servicing which if levelized over the life of 25 years of the project works out Rs. 0.5996/kW/Hour. The capacity charge for the next 15 years is Rs. 0.5034/kW/Hour and the levelized capacity charge over the life of 25 years of the project is Rs. 1.1029/kW/Hour.
 - iii) The applicable tariff excluding debt servicing in case of AGL as referred by CPPA is Rs. 0.93/kWh. This tariff is subject to quarterly indexation/adjustment.
 - iv) The indexed actual applicable tariff of AGL for Jan-March 2013 quarter excluding debt servicing is Rs. 1.71 per unit (Variable O&M Rs. 0.82/kWh and Capacity charge excl. Debt Servicing Rs. 0.89/kW/Hour).
 - v) O&M cost of reciprocating engines operating on gas is significantly on lower side as compared to RFO based reciprocating engines. O&M cost of gas turbines operating on gas will even be lesser than the reciprocating engines operating on gas.
- 12.4 In the absence of details of the fixed cost component, it can be assessed only on the basis of already determined benchmarks available in the cases of IPPs. In case of NCPPs, fixed cost component has been assessed on the basis of benchmarks established in the cases of IPPs. Since the technology used in CPPs is similar to NCPPs, it is justified to use similar basis for assessment of fixed cost component.
- 12.5 It is generally accepted that engines running on gas require less variable O&M expenses as compared to engines running on furnace oil and the ratio is 1 : 2.5 respectively. It means that furnace oil based engines requires 2.5 times higher maintenance costs as compared to gas based engines. In order to assess reasonable level of variable O&M expenses for gas based engines of CPPs, variable O&M cost allowed to reciprocating engines operating on RFO may be used as benchmark. The highest O&M cost allowed to IPPs on RFO based Reciprocating Engines is for Liberty Power Tech Limited (LPTL) which is Rs. 0.7643/kWh for the quarter April-June 2011. Considering the smaller size of the plant, if the ratio of variable O&M is reduced to 1:2, it would be reasonable to allow 50% of the variable O&M cost of RFO based reciprocating engines to gas based engines. Subject to the approval of the Authority, Rs. 0.3822/kWh is assessed on account of variable O&M for NCPP plants on unit delivered basis.
- 12.6 Fixed O&M expenses are fixed in nature and have to be incurred even if the plant is shutdown due to maintenance or gas supply cut offs. Fixed O&M includes part of O&M operator's fees, Salaries & Wages of own staff and other office expenses. In case of LPTL fixed O&M cost of Rs. 0.2232/kW/hr. is allowed as a capacity based fixed payment. For CPPs in a take & pay arrangement, on the basis of 9 months operation, fixed O&M cost has been assessed as Rs.0.2976/kWh on unit delivered basis. The total O&M cost is thus worked



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out Rs. 0.6798/kWh (Rs. 0.3822/kWh+Rs. 0.2976/kWh) and will be paid to power producers on unit delivered basis. The total O&M cost will be subject to indexation every two years with CPI as published by Federal Bureau of Statistics, Pakistan.

- 12.7 Insurance cost allowed to IPPs is within the range of Rs. 0.08/kW/hr. On the basis of 9 months operation, Insurance cost has been assessed as Rs. 0.1067/kWh on unit delivered basis.
- 12.8 Fixed Cost Component also includes return on investment. In the absence of basis/assumptions of return on investments, reliance has been made on the return on equity assessed in the case of NCPPs. In case of NCPPs, the Authority has established a benchmark of Rs. 14,960/kW (US\$ 187/kW) as equity investment. The Authority has adopted 17% return to assess the ROE. Accordingly ROE works out Rs. 0.2903/kWh on yearly basis. On the basis of 9 months plant operation, adjusted ROE will be Rs. 0.3871/kWh on unit delivered basis.
- 12.9 The summary of the Fixed Cost Component is provided hereunder:

Description	Rs./kWh	Indexation
O&M	0.6798	CPI every two years
Insurance	0.1067	-
ROE	0.3871	-
Total	1.1736	

13 Reference Tariff

- 13.1 On the basis of discussion in the preceding paragraphs, the assessed reference tariff on unit delivered basis is summarized as under:

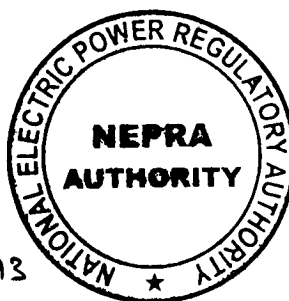
Description	Rs./kWh
Fuel Cost Component (Gas Price Rs. 238.38/MMBTU)	2.4030
Fixed Cost Component	1.1736
Total Generation Cost of delivered unit	3.5766

14 Participation by DISCOs

- 14.1 The Authority noted with concern that the Chief Executive Officers of the DISOCs were invited to attend the hearing but they did not participate and the teams representing DISCOs were not prepared and unable to satisfy the Authority. The teams were unable to explain the basis/assumptions of tariff agreed with the power producers.

15. Order

- 15.1 In pursuance of the Regulation(4(1) of the NEPRA Interim Power Procurement (Procedure & Standards) Regulations 2005, Hyderabad Electric Supply Company Limited (HESCO) is granted permission for power acquisition from Fateh Textile Mills Limited (FTML) on take



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and pay basis. In pursuance of Regulation 5 of the Regulation of IPPR-2005, the power acquisition contract is hereby approved subject to the amendments / changes in the relevant section as per the decision of the Authority.

Reference Tariff

Description	Rs./kWh
Fuel Cost Component (Gas Price Rs. 238.38/MMBTU)	2.4030
Fixed Cost Component	1.1736
Total Generation Cost of delivered unit	3.5766

15.2 Tariff Adjustments / Indexations

The reference tariff is subject to following adjustments / indexations:

15.2.1 Adjustment on account of Gas Price Variation

In future the fuel cost component will be subject to gas price variation as notified by OGRA or any other body for new captive power producers from time to time according to the following mechanism:

$$FCC_{(Rev)} = FCC_{(Ref)} \times GP_{(Rev)} / GP_{(Ref)}$$

Where:

$FCC_{(Rev)}$ = Fuel cost component applicable for the billing cycle

$GP_{(Rev)}$ = Revised gas price, excluding General Sales Tax applicable for the billing cycle as notified by OGRA for captive power

$GP_{(Ref)}$ = Rs. 238.38/MMBTu(HHV)

$FCC_{(Ref)}$ = Rs. 2.4030/kWh

15.2.2 Adjustment on Account of Inflation

The total O&M cost will be subject to indexation every two years in the month of April with CPI (General) as published by Pakistan Bureau of Statistics as per the following mechanism:

$$O\&M_{(Rev)} = O\&M_{(Ref)} \times CPI_{(Rev)} / CPI_{(Ref)}$$

Where:

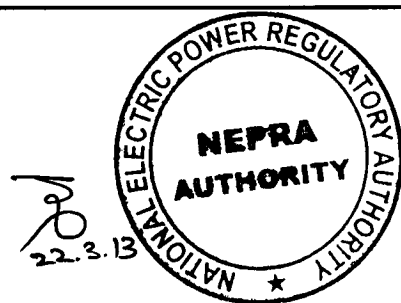
$O\&M_{(Rev)}$ = Revised O&M component of tariff

$O\&M_{(Ref)}$ = Reference O&M component of tariff of Rs. 0.6798/kWh

$CPI_{(Rev)}$ = Revised CPI (General) index as published by Pakistan Bureau of Statistics

$CPI_{(Ref)}$ = Reference CPI (General) of 150.99 for April 2011

15.3 HESCO is directed to adjust payments, if any, made to FTML in the light of the above order of the Authority from the date of supply of electricity.





- 15.4 Fixed cost has been assessed on the basis of 9 month plant operation, in case of plant operating in three non-gas months; the power producer will be entitled only the fuel cost component and variable O&M.
- 15.5 The above Order is to be notified in the official gazette in accordance with the provisions of Section 31(4) of the Regulation of Generation, Transmission and Distribution of Electric Power Act 1997.

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