



# Whistleblower Pakistan

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Ref: \_\_\_\_\_

Dated: 13<sup>th</sup> October, 2017

The Chairman,  
National Electric Power  
Regulatory Authority (NEPRA),  
Attaturk Avenue (East), NEPRA Tower,  
Sector G-5/1, Islamabad.

TRUSTEES

Mr. Yasmeen Tariq

Justice (R) Nasma Iqbal

Mrs. Shahana Farid  
(Secretary General)

Mr. Sobail Khanfar

Justice (R) Zia Perwaiz  
(Vice Chairman)

Justice (R) Dr. Ghous  
Muhammad  
(Chairman)

Subject: Information with regard to Power Plants approved by  
NEPRA under NCPP Regime.

Dear Sir,

The attention of the Authority is drawn towards the Decisions through which it has determined the 'Tariff' and approved the 'Terms and Conditions' for various Power Plants set up under the New Captive Power Plants (NCP) regime. NEPRA did not determine the Tariff for these Plants under the NEPRA Tariff Standards and Procedure Rules, 1998 but determined the Tariff under NEPRA Interim Power Procurement (Procedure & Standards) Regulations, 2005. Power Acquisition Requests for these Power Plants were submitted by the Distribution Companies.

2. It is the understanding of Whistleblower Pakistan (WBP) that NEPRA has determined the Tariff and approved the same terms and conditions for all these Power Plants. However, from the data submitted by CPPA (G) before NEPRA in the matter of monthly fuel charges adjustments, WBP has noted that the per unit fuel costs of these Power Plants are different.

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3. Without prejudice to WBP's view point in the matter of NCPPs, WBP would like to have some information with regard to efficiency and fuel cost component of these Power Plants. But before raising its queries, WBP would like to reproduce the deliberation and decision with regard to 'Fuel Cost Component' recorded in NEPRA's Decision made in the matter of PAR of HESCO in respect of Omni Power (Private) Limited:

"15 Fuel Cost Component

15.1 This is the major cost constituent of a thermal power plant and accounts for 60% to 80% of the overall 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. In the PPA HESCO agreed the fuel cost component of Rs. 2.89/kWh on HHV gas price of Rs. 238.38/MMBUs.

15.2 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 signed under the Policy; 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) It has no information about the actual thermal efficiency of the plant.



iii) 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.

iv) The fuel cost component depends upon the cost of fuel (HHV or LHV as applicable) and the heat rate of the plant under consideration. According to CPPA the heat rate of the reciprocating engines have remained significantly the same over a period of time. The engine manufacturers are quoting the same heat rate as they were quoting 16 years ago as apparent from the contracts signed recently and in 1994. CPPA stated that the efficiency of engines if maintained and overhauled according to manufacturers' guidelines can be maintained at the same level. Similarly the efficiency and heat loss of the unit and auxiliary transformers, other major constituents of the heat loss cycle, also hardly deteriorate over a period of time. HESCO did not have any information; therefore the Power Producers were directed to provide Manufacturers' Brochures, which were provided accordingly.

v) 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.

vi) The fuel cost component of NCPPs is part of a negotiated upfront tariff for either "take it" or "leave it" under a package deal. According to CPPA all the tariff



components and its underlying terms & conditions have been considered in totality; therefore any comparison of individual upfront tariff component or its terms/conditions with any tariff component or terms/conditions approved by NEPRA for GENCO or IPP tariff would give a false and misleading view.

15.3 The Authority examined and considered the above response of CPPA and noted that CPPA's response was misconceived and misinterpreted. In the NEPRA's 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 there were no directives regarding fuel efficiency agreed by the CPPA/DISCOs. 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.

15.4 It is evident from the response provided by CPPA that no benchmark efficiency was adopted in the Policy 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.

15.5 From the available information it is observed that there has been great improvement in the plant efficiency over the period and contrary to the CPPA's statement more efficient plants are available in the market. The Authority considers that the justification for accepting lower efficiency than the actual on the ground that APTMA did not agree to the actual efficiency level is not acceptable.



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This becomes even more important when the fuel cost component is subject to adjustment on account of fuel price variation. In Authority's opinion such an adjustment can only be considered if the thermal efficiency is determined at actual.

15.6 According to the M/s IS. ZA. AD Associates the inappropriate allocation of scarce gas to less efficient generating units and consequential non-generation by IPPs is a matter of great concern. The intervener suggested that the Efficiency for such plants to be at least 42% based on gas engines combined cycle modes. Similar comments have been forwarded by MoW&P. Approval of Power Acquisition Request in respect of Omni Power (Pvt) Limited. The Ministry submitted that the utilization of gas allocation may not be wasted on single cycle, low efficiency plants rather it is advisable to use this pipeline quality gas allocation in more efficient, bigger plants like Orient, Sapphire or Halmore. The ministry further commented that the criterion for fuel cost component should be based upon brand new machinery. The Ministry's concerns regarding utilization of scarce gas in less efficient power plants are although valid but these should have been considered while endorsing the said Policy by the Ministry. The Authority is of the view that while allocating the gas priority should be given the most efficient plants over the less efficient plants like Captive, New Captive or Small power plants and state owned GENCOs.

15.7 The Authority considers that the each tariff component has to be based on reasonable assumptions particularly fuel cost component because it has to be adjusted for variation in fuel prices. In Authority's opinion in the instant case agreeing to the same fuel cost component as was applicable to old captive power plants cannot be considered a prudent decision; particularly when brand new machinery is required to be installed and the end-consumers have to pay the debt servicing which is the substantial portion of the total project cost. In view thereof



CPPA's response being without any basis is not accepted. This becomes even more important when seen in the context of financial impact due to fuel cost variation, which in the case of lower efficiency can be much higher thus affecting end-consumer adversely.

15.8 The Authority has also noted that according to the terms of generation license, OPPL will set up combined cycle plant consisting of 4 Jenbacher 620 F GS. NL F01 gas engines each of 3.332 MW and a steam turbine of 0.8 MW. Keeping in view the concerns raised by M/s IS. ZA. AD Associates as well as MoW&P's comments, **OPPL is directed to set up combined cycle power plant as specified in the Schedule I of the Generation License as early as possible but not later than 30th November 2013 in order to ensure efficient utilization of scarce gas.**

15.9 In order to assess the actual efficiency of the power plants, technical information including Brochures/Catalogues of manufacturers of the equipment was sought from OPPL. Based thereon NEPRA technical professionals suggested the following efficiency levels:

- GE Jenbacher 620F GS. NL F01 43% on Combined Cycle
- GE Jenbacher 620F GS. NL F01 37.5% on Simple Cycle

15.10 Having considered the above recommendation, the Authority has decided to determine the reference fuel cost component in the instant case. Accordingly on the basis of HHV gas price of Rs. 238.38/MMBtu, LHV-HH Factor of 1.1076 and 37.5% thermal efficiency (HR 9,101 Btu/kWh), the reference fuel cost component works out Rs. 2.4030/kWh on simple cycle. On the basis of current applicable gas price of Rs. 510/MMBtu including Gas Infrastructure Development Cess, the fuel cost component will be Rs. 5.1411/kWh."



15.11 The applicable reference fuel cost component effective from 1st December 2013 or completion of the combined cycle power plant, whichever is earlier, will be Rs. 2.0957/kWh (calculated on the basis of heat rate of 9,736 Btu/kWh or thermal efficiency of 43%). In future the reference fuel cost component will be subject to adjustment for gas price variation as notified by OGRA or any other competent authority from time to time according to the following mechanism:

$$GCC(Rev) = GCC(Ref) \times GP(Rev) / GP(Ref)$$

Where:

GCC (Rev) = Revised gas cost component amount applicable for the billing cycle

GCC (ref) = Reference gas cost component

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

GP (Ref) = Reference gas price i.e. Rs. 238.38/MMBtu(HHV)

15.12 Degradation will be allowed as per manufacturers' degradation curves.

4. WBP is in the process of certain analyses and therefore would like to know the following from the Authority:

- a) whether NEPRA has confirmed that the Gas allocated to these Power Plants was as Independent Power Plants (IPPs) or as Captive Power Plants (CPPs)?
- b) Under the approved Gas Allocation Policy, whether any Captive Power Plant can sell the generated electric power to any other entity or it can use the generated electricity only for its own industrial undertaking?



- c) Can any Captive Power Plants commission a Power Plant surplus to the demand of its own industrial undertaking?
- d) Whether these Power Plants (NCPPs) while submitting their Generation License application have submitted the figures of total installed Capacity and the Surplus Capacity (Capacity intended to be sold to CPPA/DISCOs)?
- e) What was the total load of their own industrial taking and how much was the surplus capacity available with these NCPPs for sale?
- f) Whether NEPRA has informed the Ministry of Petroleum and Natural Resources and DG (Gas) and obtained comments on this issue?
- g) Whether the sale of electricity by these NCPPs is in line with the provisions of the Gas Allocation Policy?
- h) Does the fixing of Plant Availability Factor by NEPRA mean that Gas Allocation to these Power Plants is being treated as for the IPPs rather than CPPs?
- i) To avoid inefficient burning of the pipe line quality Gas, whether it was not required of NEPRA to ask the Applicant to opt for another technology which is more efficient?
- j) What is the Net efficiency of these Power Plants on HHV?
- k) What is the Net efficiency of these Power Plants on LHV?
- l) Whether the LHV to HHV conversion factor (1.1076) taken for NCPPs is the same as is being allowed to IPPs?
- m) Whether any degradation of efficiency, over the life period of these Projects, is allowed by NEPRA?
- n) Whether the Gas prices charged by Gas Distribution Companies to IPPs and CPPs are the same or different?





- o) The Authority gave its decision on January 09, 2013 wherein it has directed the setting up of combined Cycle Power Plant as early as possible but not later than 30th November 2013 in order to ensure efficient utilization of scarce Gas. This means the Authority has given 11 months time to commission Steam Turbine. The Authority has further decided that the applicable Reference Fuel Cost Component effective from 1st December 2013 or completion of the Combined Cycle Power Plant, whichever is earlier, will be Rs. 2.0957/kWh (calculated on the basis of heat rate of 9,736 Btu/kWh or thermal efficiency of 43%). Has the Authority revised the Fuel Cost Component on the basis of efficiency of 43%?
- p) Whether the Authority is making adjustment of Fuel Cost Component on the basis of revised Gas prices notified by OGRA?
- q) Whether adjustment given by NEPRA with regard to revised Fuel Cost Component has been notified in the official Gazette?
- r) Whether these Power Plants are achieving the Plant Availability Factor of 75%?
- s) NEPRA has approved the annual Plant Availability Factor to 75% from the requested 95%; WBP would like to know the impact on Tariff of lowering the Plant Availability Factor from 95% to 75%?
- t) What was the annual Plant Utilization Factor of these Power Plants during the last 5 years?
- u) Whether the Capacity Charge Component is given to these Power Plants on Energy Delivered basis?
- v) What is the position of debt servicing payment by these Power Plants?



- w) What is the mechanism of adjustment of Calorific Value in the cases of NCPPs?
- x) What is the mechanism of observing the Economic Merit Order in the cases of NCPPs?
- y) What would be the impact of different Gas prices on observance of Economic Merit Order?
- z) whether NEPRA has inquired into the matter of collection of GIDC by the NCPPs and onward payment thereof by the NCPPs? If so, what is the result of the inquiry? (Para 15.10 of the decision refers).
- aa) Optimal utilization of primary Energy sources depends upon prompt and effective coordination amongst the concerned stakeholders especially NEPRA, OGRA, DG(Gas) etc. WBP understands that the very objective of establishing the Energy Ministry was to ensure the use of natural resources to their optimal value. How is NEPRA ensuring that primary energy like RFO, Gas, HSD, RLNG, Coal, imported Coal, etc., being used to generate electricity is utilized to its best optimal value? Whether NEPRA is carrying out this analysis for all Power Plants generating and supplying electricity to the CPPA (G) basket? Whether NEPRA is sharing its analysis with all stakeholders like ECC, CCI, Federal Government, relevant Ministries/Departments/Divisions and publishing the same in its annual State of Industry Report?
5. Although the experience of WBP is not positive about receiving of requested information from NEPRA, but WBP again requests NEPRA to provide the above requested information in order to assist the



Authority in a more effective and concrete manner. WBP again submits that it is not a Power Sector expert but, as a part of its social responsibility, it is trying to assist the Authority by highlighting the issues. WBP's assistance is in the interest of the Public, general electricity consumers, the National Economy and the State.

With best regards.

Yours faithfully,

(Justice (R) Zia Perwez)

Copy forwarded to the:

1. The Human Rights Cell of the Supreme Court of Pakistan, Constitution Avenue, Islamabad.
2. The Auditor General of Pakistan, Constitution Avenue, Islamabad. By TCS & Email [agp@agp.gov.pk](mailto:agp@agp.gov.pk)
3. The Registrar, National Electric Power Regulatory Authority (NEPRA), Attaturk Avenue (East), NEPRA Tower, Sector G-5/1, Islamabad.
4. Mr. Anwar Kamal, Senior Advocate Supreme Court, 1-Turner Road, Lahore Email: [aklaw@lhr.comsats.net.pk](mailto:aklaw@lhr.comsats.net.pk)
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