

**CENTRAL ELECTRICITY REGULATORY COMMISSION**

**NEW DELHI**

**Coram**

**Petition No 179/2009  
(Suo-motu)**

**In the matter of**

Ceiling of tariff for sale and purchase of electricity through bi-lateral agreements and on power exchanges pursuant to the proviso to Section 62 (1)(a) read with Section 66 of the Electricity Act of 2003.

**DRAFT ORDER**

The Commission has been constantly monitoring prices of electricity traded in the bi-lateral markets and the day ahead transactions in the power exchanges. The following facts have transpired consequent to the above monitoring by the Commission: -

a) The Short term power prices have witnessed a steep increase as may be seen from the following:-

(i) Between 9:00 AM to 10:00 AM, the prices of electricity traded in the Indian Energy Exchange Ltd (IEX) have increased from Rs. 6.11 per kWh as on 3.8. 2009 to Rs 14.50 per kWh as on 13.8.2009. Thus there is a 2.37 times increase in prices in IEX. Similarly the prices have increased by 3.22 times from Rs. 4.50 per kWh to Rs 14.50 per kWh during the said period in the Power Exchange India Ltd (PXIL).

(ii) Between 6:00 PM to 7:00 PM, the prices have increased by 2.89 times from Rs. 5.00 per kWh to Rs. 14.50 per kWh during the above span in IEX. Corresponding data in respect of PXIL is 2.91 times from Rs. 4.05 per kWh to Rs 11.80 per kWh.

b) The volume of electricity cleared at the high prices were in the range of 650 MWh to 850 MWh during the week 10.8.2009 to 16.8 2009.

c) Abnormally high prices were prevailing for all the 24 hours.

d) The weekly price volatility calculated by IEX based on the formula and the graph given in the Annexure to this order had increased from 13.15% during the week starting from the 3.8.2009 to 40.67 % during the week starting from the 10.8.2009.

2. The situation has been further aggravated as a result of near drought-like conditions in the Northern India coupled with the prevailing high temperature in Northern and Western parts of India, all resulting in the increased use of the weather beating load in urban areas and pumping loads in agricultural areas. Although, the fuel prices of coal, diesel, Naptha, RLNG etc. have remained moderately stable during the above period, the power price behaviour has become disjoint from the fuel price and the overall real costs. Considering that the short term power market structure is still imperfect with supply deficit, low level of competition in the market may not necessarily serve its designated purpose.

3. It is also noticed that the distribution companies, for reasons best known to them, are refraining from load shedding as much as possible and are endeavouring to buy power at high cost so as to maintain standards of performance. Such buying decisions, apart from affecting the financial health of the distribution companies, are also likely to get reflected in the retail tariff payable by the consumers.

4. It is noticed that on account of unforeseen bad monsoons and drought-like conditions, the prices and volatility have risen significantly. Needless to add that such abnormally high prices, even for a short period, is not only harmful to the consumers but also erode the buyer's confidence in the market's credibility.

5. The Commission cannot ignore these stark realities which are apparently contrary to the stated objectives of the Electricity Act, 2003 (the Act) which includes protecting interest of consumers. Under conditions of shortage of supply of electricity such as the prevailing one, the Commission has been empowered under the proviso to clause (a) of sub-section (1) of section 62 of the Act, to fix minimum and maximum ceiling of tariff for sale and purchase of electricity in pursuance of agreements entered between the generating companies and the licensees or between licensees for a period not exceeding one year to ensure reasonable prices of electricity. The Commission has been further mandated under section 66 of the Act to promote the development of market in power.

6. In the light of the above mentioned statutory responsibilities, the Commission is of the view that there is an urgent need to intervene and prescribe a cap on the maximum and minimum prices in the day ahead market so as to protect the interests of consumers.

7. The Commission is equally conscious of its statutory obligation to ensure reasonable return for the investors in the sector and assures that their long term interests, future investment plans and reasonable rate of return are among the other considerations kept in mind while arriving at the above mentioned caps.

8. Reasonable rate of return being the moot criteria, the maximum price could be worked out based on Naptha and High Speed Diesel ( HSD) fuel prices as under:

Type of Fuel	Fuel Price	Variable Charge Rs /Kwh *	Fixed Charge at 60 % availability ( Rs / Kwh	Total Rs/Kwh
Naptha	49611 Rs /MT	9.24	1.70	10.94
High Speed Diesel	30601 Rs / KL	7.26	1.70	8.96

\*HSD GCV of 9015 Kcal/ L & Gross Heat rate of 2075 Kcal/ Kwh considered

\*Naptha GCV of 11332 kcal/ L & Gross Heat rate of 2075 Kcal/ kwh considered.

\* Fixed charge of Rs / Kwh 1.20 at 85 % Availability considered

8. This shall ensure that high cost liquid fuel generation capacity still remains fully operational and the price cap does not deprive the consumers of any generation capacity. Alternatively, based on the prevailing rates of UI prices the following figures have been arrived at :

<b>UI Price Rs/Kwh</b>	<b>Additional UI charge @ 40 % of UI rate Rs/ Kwh</b>	<b>Transmission Charge Rs/ Kwh</b>	<b>Transmission Loss @ 4 % of (UI + penalty) Rs/ Kwh</b>	<b>Total Rs / Kwh</b>
7.35	2.94	0.33	0.41	11.03

9. Minimum price has been taken on the basis of the Hydro power generation for which the variable cost is negligible.

10. In our decision to introduce price caps, we are also fortified by the Load generation balance report of CEA. As per the said report relating to the deficient scenario forecast for 2009-10, the estimated energy shortage in the country will be about 8.8% and peak shortage will be about 18.1%. The peak shortage in Northern region is expected to be 19.4%, for Western region 27.4% and for Southern region (18.8%).

11. The above circumstances during shortage of supply of electricity in the country further justify the fixation of caps for the minimum and maximum prices for sale or purchase of electricity in the bilateral markets and the power exchanges.

12. Therefore, to ensure reasonable prices of electricity, we direct that, with immediate effect, for day ahead transactions, the minimum tariff or bidding price, as the case may be, shall be **Rs. 0.10/ Kwh** and the maximum ceiling of tariff or bidding price, as the case may be, shall be capped at **Rs. 11/ Kwh**. This shall be applicable for both power exchanges and bilateral markets .The minimum and maximum ceiling of tariff as aforesaid shall apply for a period of 45 days from the date of this order, and thereafter this would be reviewed.

New Delhi, dated the     September 2009

## Historic Volatility Calculation

Volatility = Standard deviation of daily prices returns.

**Historical Volatility Formula:**

$$\sigma = \sqrt{\frac{1}{(n-1)} \sum_{y=1}^n \left( \ln \frac{y_i}{y_{i-1}} - \mu \right)^2}$$

where 
$$\mu = \frac{1}{n} \sum_{y=1}^n \left( \ln \frac{y_i}{y_{i-1}} \right)$$

1. Daily prices returns =  $\ln (y_i / y_{i-1})$ .
2.  $y_i$  is price today;  $y_{i-1}$  is price on previous day.
3.  $\ln$  is natural logarithm
4.  $n$  is the number of observations
5.  $\mu$  is the average daily returns

Daily Prices at IEX 1<sup>st</sup> June to 16<sup>th</sup> Aug 09

