

## **JUSTIFICATION FOR DISCOUNT RATE, ESCALATION RATES AND INFLATION RATES NOTIFIED BY CERC**

As per the MOP guidelines for determination of tariff by bidding process for procurement of power by distribution licensees, the CERC is required to notify the applicable discount rate, escalation rate for coal and gas and inflation rate, every six months, for the purpose of bid evaluation. Thus, the rates have been notified applicable for the period from 1<sup>st</sup> April, 2006 to 30<sup>th</sup> September, 2006. Since these rates are very sensitive and are to be notified regularly, these rates have been rationalized. The applicable discount rate and the inflation rate have been rationalized by considering latest three years average rate. The escalation rates have been rationalized by considering median escalation rate for the last 30 years in the case of coal and 15 years in the case of gas. The Commission has arrived at these rates based on the data sources available in India as well as international sources. Detailed justification for these rates is as given below:

- 1. Applicable discount rate:** As per the guidelines, the rate for discounting the combination of fixed and variable charges for computing the levelised tariff shall be the prevailing rate for 10 year GOI securities. The GOI securities rate has been taken from Reserve Bank of India (RBI) Bulletin published by RBI. Latest three years average rate (i.e. average rate of 2003-04, 2004-05 and 2005-06) has been considered.
  
- 2. Escalation rate for coal:** As per the guidelines, median escalation rate of the relevant fuel index in the international market for the last 30 years for coal shall be used for escalating the energy charge component quoted by the bidder. However, due to non-availability of data on coal, the median escalation rate has been computed taking the time series data for the last 26 years and not for 30 years. Sources of data and the methodology adopted for computing the escalation rate for both coal and gas are same and as such the justification for escalation rate for coal as well as gas is given in the following Para.

**3. Escalation rate for Gas/LNG:** As per the guidelines, median escalation rate of the relevant fuel index in the international market for the last 15 years for gas/LNG shall be used for escalating the energy charge component quoted by the bidder.

The price data for various commodities including Coal and Gas in the international market is being published by various international agencies. However, we have computed the median escalation rate for coal and gas, taking the commodity price data from the “International Financial Statistics” published by International Monetary Fund (IMF) and energy price data from the “Energy Prices and Taxes” published by International Energy Agency (IEA). Before computing the median escalation rate, the constructed price indices for coal and gas are compared with the indices published in the respective publications of IMF and IEA.

Using the **market price** published by IMF the median escalation rate for coal has been computed for Australia and South Africa. Using the same source, the median escalation rate for gas has been computed for Russian Federation, Indonesia and United States. Using the **end use price for industry** published by IEA the median escalation rate for coal and gas has been computed for OECD Countries, OECD-Europe, USA and Japan. Using **the end use price for electricity generation** published by IEA the median escalation rate for coal and gas has also been computed for US, UK, Total OECD and Chinese Taipei.

After computing the escalation rates based on various prices for various countries/group of countries, median escalation rate for coal and gas based on market price, which represent Australian Thermal Coal and Russian Natural Gas Border Price in Germany, have been considered for the following reasons:

- The market price has been considered for the reason that the end-use prices include (1) transport costs to the consumer; (2) prices actually paid (i.e. net of rebates); and (3) taxes which have to be paid by the consumer as part of the transaction and which are not refundable.
- For constructing the price index, the year 2000 has been chosen as the base year for the price stability during that year and due to proximity to the current period. This is in accordance with the indices published in International Financial Statistics.

- The rates based on market price are comparable in the international market.
  - The median escalation rate based on market price of Australian thermal coal (0.69%) is comparable with the median escalation rate based on end-use price of coal for industry in USA (-0.52%) and median escalation rate based on steam coal prices for electricity generation in UK (-0.90%).
  - The median escalation rate based on market price of Russian Natural gas border price in Germany (7.71%) is comparable with the median escalation rate based on market price i.e. U.S. Natural gas spot price at the Henry Hub terminal in Louisiana (7.91) and Indonesian Liquid Natural Gas price in Japan (8.27%).
- Australia and Russia are the major exporters of coal and gas, respectively, in the international market.

**4. Inflation rate to be applied to indexed capacity charge component:** It has been computed based on Wholesale Price Index (WPI) and Consumer Price Index (CPI). The data on WPI has been taken from WPI Division of Office of the Economic Adviser, Ministry of Commerce & Industry and the data on CPI has been taken from the website of Labour Bureau, Ministry of Labour.

Inflation rate to be applied to indexed capacity charge component has been computed separately for thermal and hydro. Latest three years average rate (i.e. average rate of 2003-04, 2004-05 and 2005-06) has been considered. To make it more appropriate, the inflation rate has been further rationalized by applying the weights to the inflation as applied by CERC for tariff purpose assuming indexed capacity charge component as O&M. These weights are (i) 0.6 x Inflation based on WPI + 0.4 x Inflation based on CPI for thermal; and (ii) 0.45 x Inflation based on WPI and 0.55 x Inflation based on CPI for hydro.

The latest three years average rate of inflation computed for thermal and hydro are 4.78% and 4.55%. These rates are comparable with the inflation rate assumed by 12<sup>th</sup> Finance Commission (5%) for its forecast on Central and State finances for the period 2005-06 to 2009-10 and the inflation rate assumed by Ministry of Finance for its forecast on GDP for the year 2006-07.