EXPLANATION (GENERAL) – REVISED IN NOVEMBER 2006

Background

The Ministry of Power (MOP), vide its Notification dated, 19.01.2005, issued *Guidelines for Determination of Tariff by Bidding Process for Procurement of Power by Distribution Licensees.* These guidelines have been amended dated 30.3.2006 and 18.8.2006. **These guidelines provide that the CERC shall notify and update the Escalation Rate for Coal and Gas, Inflation Rate based on WPI and CPI, Discount Rate and Exchange Variation Rate, for the purpose of bid evaluation as well as for payment.** The relevant provisions of the MOP guidelines read as under:

Clause 4.11 of guidelines provides as follows:

" *4.11 Where applicable, the energy charges payable during the operation of the contract shall be related on the base energy charges specified in the bid with suitable provision for escalation. In case the bidder provides firm energy charge rates for each of the years of the contract term, the same shall be permitted in the tariffs.*

(i) In cases other than the cases where captive fuel source is offered or cases where the procurer mandates use of imported fuels in case 2 queries, the energy charges shall be payable in accordance with fuel escalation index used for evaluation of the bid. In case of bids based on net heat rate, the price of fuel shall be taken as stipulated under para 4.2. However, the fuel escalation will be subject to any administered price mechanism of Government or independent regulatory price fixation in case of fuel produced within the country. The applicable indices for relevant fuels shall be identified in the RFP documents.

(ii) The energy charges may feature separate non-escalable (fixed) and escalable (indexed) components in case of a procurement query where the procurer offers a captive fuel source (such as a captive coal mine) for concurrent development and production of power. The ratio of minimum and maximum energy charges (including both the non-escalable component and escalable component incorporating escalation as per index being used for evaluation) over the term of PPA shall not be less than 0.5 to avoid excessive frontloading or backloading. The index for escalable component of energy charge in such a case would be as notified by the CERC under para 5.6(vi).

(iii) In cases where the procurer mandates use of imported fuel for use in a coastal power station in case-2 procurement query, the bids may be invited for base energy charge for the first year to be escalated as per the indices identified in the RFP. Such energy charge would have following three components:

a) Imported fuel component in US Dollars/unit.

b) Transportation of fuel component in US Dollars/unit.

c) Inland fuel handling component in Indian Rupees/unit

Each of these components may have separate non-escalable (fixed) and escalable (indexed) sub-components. The escalation indices for escalable sub-components of these three components would be as notified by the CERC under para5.6(vi).

It is clarified that the bidders would have option to quote firm energy charge rates for each of the years of the contract."

Sub-clause (iv) of clause 5.6 is as follows:

"The bids shall be evaluated for the composite levellised tariffs combining the capacity and energy components of the tariff quoted by the bidder. In case of assorted enquiry for procurement of base load, peak load and seasonal power, the bid evaluation for each type of requirement shall be carried out separately. The capacity component of tariffs may feature separate non–escalable (fixed) and escalable (indexed) components. The index to be adopted for escalation of the escalable component shall be specified in the RFP.

For the purpose of bid evaluation in cases other than where a captive fuel source is offered, median escalation rate of the relevant fuel index (as identified in the RFP) in the international market or domestic market for the last 30 years for coal and 15 years for gas/LNG (as per CERC's notification in (vi) below) shall be used for escalating the energy charge (or the derived energy charge in cases referred to in para 4.2) quoted by the bidder. If data of 30/15 years are not available, the same shall be taken for maximum number of available years. The provisions of para 4.11 (iii) would also apply to evaluation of bids in cases where procurer mandates use of imported fuel for coastal power stations. However, in cases where the bidder quotes firm energy charges for each of the years of proposed supply, the energy charges proposed by the bidder shall be adopted for bid evaluation.

Where the procurer offers a captive fuel source (such as a captive coal mine) for concurrent development and production of power, the provisions of para 4.11 (ii) would apply.

The rate for discounting the combination of fixed and variable charges for computing the levellised tariff shall be as notified by CERC keeping in view prevailing rate for 10 year Government of India securities. This rate is to be specified in the RFP."

2. The clause 5.6(vi) of the guidelines provide for following escalation rates to be notified by CERC every six months separately for the purpose of bid evaluation and payment:

(i) Escalation rate for domestic coal. (Separately for evaluation and payment)
(ii) Escalation rate for domestic gas. (Separately for evaluation and payment)
(iii) Escalation rates for different escalable sub-components of energy charge for plants based on imported coal. (Separately for evaluation and payment)
(iv) Escalation rate for different escalable sub-components of energy charge for plants based on imported gas. (Separately for evaluation and payment)
(v) Inflation rate to be applied to indexed capacity charge component.
(vi) Inflation rate to be applied to indexed energy charge component in cases of captive fuel source.
(vii) Discount rate to be used for bid evaluation.
(viii) Dollar-Rupee exchange variation rate. (For the purpose of evaluation)

3. The Commission had published the draft escalation rates on 29.9.2006 on its website seeking comments/suggestions of the stakeholders including state regulatory commissions in respect of the above rates excluding (i), (ii) & (iv). In response, comments from the following have been received.

S.No	Name of the Entity/Stakeholder
1	The Tata Power Company Ltd
2	Reliance Energy Ltd
3	DSP Merrill Lynch
4	CLP Power India
5	Bangalore Chamber of Industry & Commerce
6	L&T
7	Integrated Coal mining Ltd
8	Lanco Group Ltd
9	AES India
10	Gujarat Electricity Regulatory Commission

4. The stakeholders had not made any comments on the proposal of the Commission in respect of Inflation rate to be applied to indexed capacity charge component, Discount Rate, and Dollar-Rupee exchange variation rate and appeared to be comfortable with the rates proposed. Accordingly, the above mentioned rates as proposed in the draft notification were retained in the final notification and the details of the calculation were explained in the explanation issued along with the notification on October 26 2006.

Reasons for amendment to the notification

5. Subsequent to publication of the Notification dated October 26, 2006, M/S Tata Power vide their letter dated November 9, 2006 have given certain observations with regard to computation of escalation rates for imported coal. It has been pointed out that in the consultants' report (revised) giving explanation for escalation rates for imported coal and captive coal mine based thermal power stations, API4 is stated to be published on monthly basis, whereas in actual practice this index is published on weekly basis. This was verified and it was found that while this index is worked out on weekly basis, it is published on weekly as well as monthly basis; the monthly values being derived from weekly values. Since, the other two data series used in calculation of escalation rate for imported coal, namely C2 (BJI index) and C3 (GlobalCOAL Newcastle index) are both published on weekly basis, suggestion of using weekly published data series of API4 is readily acceptable. However, while working out revised escalation rate for imported coal, a marked difference was noticed between the escalation rates computed using weekly data series and monthly data series, which was not expected since monthly data series is worked out on the basis of weekly data series only. This indicated that the methodology used for computation lacks robustness. The method used so far was to calculate percentage variation in the value of index of one week/month over the previous week/month and obtain annual escalation by summing up of all such weekly/monthly percentage variations over the period of one year. Analysis reveals that this method leads to aberration because the base value shifts from week (/month) to week (/month). This aberration is common to computation of all escalation rates and inflation rates for the purpose of payment. The escalation rates used for the purpose of evaluation are free from this aberration. One way to remove the aberration in the computation of escalation/inflation rates for payment is to compute escalation/inflation rate for application in the current year by comparing variation in the average annual value of the relevant index over the preceding two years. However, using average annual value of indices for preceding two years as mentioned above would lead to considerable time lag between capturing price trend and its application for payment, which may not be desirable. Therefore, an alternative has been worked out in which averaging of index can be done on semester (half-yearly) basis rather than on annual basis. Thus, escalation/inflation rate can be computed by finding variation in average value of an index for say July-Dec 2006 as compared to average value of the index for Jan-June 2006 for working out future payments. However, since the Commission is required to notify annual escalation/inflation rates, the rates worked out based on half yearly average values will have to be doubled. A sample calculation of computation of escalation rates and simulation of results obtained from their application is enclosed as Annex. This revised methodology of computation shall be applied uniformly for all escalable components and sub-components of charges including:

(a) Indexed capacity charge component
(b) Imported Coal subcomponent of energy charge
(c) Transportation subcomponent of energy charge
(d) Inland handling subcomponent of energy charge
(e) Indexed energy charge component in case of captive mine based projects

6. Date of announcements and corresponding data points

6.1 There will be no change in so far as date of publication of annual escalation rate is concerned. The date of publications for all escalation /inflation rates shall continue to be as under:

Date of announcement	**Application period**
1st week of April	1st April to 30th September
1st week of October	1st October to 31st March

6.2 The data points for inflation rate for indexed capacity charge and escalation rates for inland handling subcomponent of energy charge & indexed energy charge for captive mine project shall be as under:

Data set for announcements to be made in 1st week of April	**Data set for announcements to be made in 1st week of October**
Average of relevant index for the preceding period of 1st Jan to 30th June and 1st July to 31st December	Average of relevant index for the preceding period of 1st July to 31st Dec and 1st Jan to 30th June

6.3 In order to utilize most recent information to the extent feasible, the data points for escalation rates of imported coal and bunker fuel shall be as under:

Data set for announcements to be made in 1st week of April	**Data set for announcements to be made in 1st week of October**
Average of relevant index for the preceding period of 1st March to 31st August and 1st September to 28/29th February	Average of relevant index for the preceding period of 1st September to 28/29th February and 1st March to 31st August

7. Calculation of Inflation rate for payment

7.1 Based on the above methodology, the inflation rate w.e.f. 1st October 2006 is worked out as under:

Period	WPI	CPI
Jul-05	194.6	116.2
Aug-05	195.3	116.6
Sep-05	197.2	117.1
Oct-05	197.8	118.4
Nov-05	198.2	119.4
Dec-05	197.2	118.8
Avg (Jul-Dec 05)	**196.7**	**117.7**
Jan-06	196.3	119.0
Feb-06	196.4	119.0
Mar-06	196.8	119.0
Apr-06	199.0	120.0
May-06	201.3	121.0
Jun-06	203.1	123.0
Avg (Jan-Jun 06)	**198.8**	**120.2**
Half-yearly Inflation	1.07	2.06
Annual Inflation	**2.14**	**4.11**
Annual Inflation Rate = (0.6 x InflWPI+ 0.4 x InflCPI)		**2.93**

7.2 Application of inflation rate for payment: The annual inflation rate applicable for the six months period would be converted to a monthly rate by dividing by 12. It will then be applied on a simple basis (not compounding) for the following sixth months period on the base value for the financial year. This is illustrated in the example given below:

Example:

October Announcement (Financial Year 2006-07)

Annual Inflation rate: 2.93%

Monthly Rate = 2.93/ 12 = 0.2442%

Base Value for the month of September 2006 = 100 (say)

Starting Base Value for the six month period of the year = 100

Escalated Value for Month N (N=1 to 6) = Starting Base Value + N*(Base Value for the Financial year *Monthly Rate)

= 100+N*(100*0.2442%)

Thus, escalated values for the months of October 2006 to March 2007 will be 100.2442, 100.4883, 100.7325, 100.9767, 101.2208 and 101.4650 respectively. The last value i.e. 101.4650 shall become base value for the period of April-September 2007 and so on.

8. As mentioned earlier, the method of comparing average values of index for two semesters for capturing the trend of price change and applying the same for future payments shall also be applied for various sub-components of energy charges for imported coal based projects and escalable energy charge component of captive coal mine based projects. The details of the same are provided in the revised consultant's report, which is also available on Commission's website.

9. There will be no change in the escalation rates for bid evaluation notified vide Notification dated October 26, 2006.

Annexure

Sample Calculations for Escalation Rates and Resultant Payment Index through its Application									
A	B	C	D	E	F	G	H	I	J
Year	Month	Sample Price Series For Escalation	Average Price During the Six Month Period	% Escalation between the Six Month Periods (Mean Values)	Annual Escalation Rate to be Announced (Applicable for the following 6 months)	Monthly Escalation to be applied for next six months	Escalation Applied respective month	Index Value for Payment (Assumed Starting at 100)	Remarks
					(E * 2)	(F / 12)	(B * G)		
1	1	50							
	2	46							
	3	48							
	4	50							
	5	52							
	6	54							
			50.00						
	1	52.5							
	2	53.5							
	3	51.5							
	4	49.5							
	5	48.5							
	6	35						100.0000	Starting Index Value
			48.42	-3.17%	-6.33%	-0.5278%			
2	1	40					-0.5278%	99.4722	
	2	42.5					-1.0556%	98.9444	
	3	44					-1.5833%	98.4167	
	4	48.5					-2.1111%	97.8889	
	5	50					-2.6389%	97.3611	
	6	62.5					-3.1667%	96.8333	Base for next semester
			47.92	-1.03%	-2.07%	-0.1721%			
	1	54					-0.1721%	96.6667	
	2	54					-0.3442%	96.5000	
	3	60					-0.5164%	96.3333	
	4	70					-0.6885%	96.1667	
	5	55					-0.8606%	96.0000	
	6	55					-1.0327%	95.8333	Base for next semester
			58.00	21.04%	42.09%	3.5072%			
3	1	52.5					3.5072%	99.1944	
	2	55.5					7.0145%	102.5556	
	3	56					10.5217%	105.9167	
	4	57.5					14.0290%	109.2778	
	5	56.5					17.5362%	112.6389	
	6	56.5					21.0435%	116.0000	Base for next semester
			55.75	-3.88%	-7.76%	-0.6466%			
	1	57					-0.6466%	115.2500	
	2	25					-1.2931%	114.5000	
	3	57.5					-1.9397%	113.7500	
	4	57.5					-2.5862%	113.0000	
	5	58					-3.2328%	112.2500	
	6	58					-3.8793%	111.5000	Base for next semester
			52.17	-6.43%	-12.86%	-1.0713%			
4	1	55					-1.0713%	110.3056	
	2	57.5					-2.1425%	109.1111	
	3	60					-3.2138%	107.9167	
	4	62.5					-4.2850%	106.7222	
	5	65					-5.3563%	105.5278	
	6	70					-6.4275%	104.3333	Base for next semester
			61.67	18.21%	36.42%	3.0351%			
	1	72.5					3.0351%	107.5000	
	2	67.5					6.0703%	110.6667	
	3	62.5					9.1054%	113.8333	
	4	57.5					12.1406%	117.0000	
	5	52.5					15.1757%	120.1667	
	6	47.5					18.2109%	123.3333	Base for next semester
			60.00	-2.70%	-5.41%	-0.4505%			

5	1	53					-0.4505%	122.7778	
	2	55					-0.9009%	122.2222	
	3	56					-1.3514%	121.6667	
	4	58					-1.8018%	121.1111	
	5	56					-2.2523%	120.5556	
	6	56.5					-2.7027%	120.0000	Base for next semester
			55.75	-7.08%	-14.17%	-1.1806%			
	1	72.5					-1.1806%	118.5833	
	2	67.5					-2.3611%	117.1667	
	3	62.5					-3.5417%	115.7500	
	4	57.5					-4.7222%	114.3333	
	5	52.5					-5.9028%	112.9167	
	6	47.5					-7.0833%	111.5000	Base for next semester
			60.00	7.62%	15.25%	1.2706%			
6	1	49.5					1.2706%	112.9167	
	2	49.5					2.5411%	114.3333	
	3	50					3.8117%	115.7500	
	4	50					5.0822%	117.1667	
	5	50.5					6.3528%	118.5833	
	6	50.5					7.6233%	120.0000	Base for next semester
			50.00	-16.67%	-33.33%	-2.7778%			
	1	52.5					-2.7778%	116.6667	
	2	53.5					-5.5556%	113.3333	
	3	51.5					-8.3333%	110.0000	
	4	49.5					-11.1111%	106.6667	
	5	48.5					-13.8889%	103.3333	
	6	35					-16.6667%	100.0000	Base for next semester