APP Comments on CERC Staff Paper on "Methodology for Computing the Escalation Factors and other Parameters for the Purpose of Bid Evaluation and Payment for Procurement of Power from Renewable Energy Projects Complemented with Firm Power from any other source through Competitive Bidding", dated 23.02.2021

A. Clause 8.1 - Escalation Rate for domestic coal (for Evaluation):

Relevant extract from the Staff Paper:

> *'.… Due to non-availability of the time series data on CERC coal price index (being available only from April 2018 onwards), it is proposed to use Wholesale Price Index (WPI) for non-coking coal to compute escalation rate of domestic coal for evaluation. In the past also CERC had used WPI of non-coking coal for computing the escalation rate for domestic coal for evaluation.*
>
> *………………………………………………….*
>
> *The annual escalation rate computed in the above table (7.51%) is to be notified as escalation rate for domestic coal for evaluation.'*

APP Suggestion:

It is suggested that the escalation rate for domestic coal should be computed based on the time series data for WPI of non-coking coal for the period from 2012 onwards.

Rationale:

As per the Staff Paper, the escalation rate for domestic coal has been computed as 7.51%, based on time series data on WPI for non-coking coal for the period from 2008 to 2019. Recent trends and market projections indicate that this value is on the higher side.

Auction of coal mines to private players for sale of coal is likely to significantly increase supply of coal in the future. In addition, the increasing share of renewables in our energy mix is expected to keep domestic coal demand stagnant/stable. Both of these factors taken together are expected to lead to lower escalation in prices than currently prescribed.

Thus, considering that bid evaluation is done by taking the fuel escalation over next 25 years period, it is imperative to adopt a holistic view and capture the long-term impact of recent policy developments on the coal price escalation. The methodology outlined in the Staff Paper goes contrary to this principle, as using time series data for previous 12 years has a basic flaw of taking into account the impact of historical variations which may not happen again and give lower weightage to latest developments and its impact on the fuel industry.

From January 2012 onwards, CIL changed its pricing methodology from UHV to GCV. Accordingly, time series data prior to 2012 has little relevance for the purpose of determining escalation rates and therefore, it is suggested that the escalation rate for domestic coal should be computed based on the time series data for the period from 2012 onwards, as per the Table below:

Year No. (t)	Year	WPI for Non-Coking Coal	$Y_t / Y_1 = R_t$	$\log_e(R_t)$	year-1 (t-1)	Product [(t-1) x $\log_e(R_t)$]
1	2012	107.92				
2	2013	105.4	0.98	-0.02	1	-0.02
3	2014	109.6	1.02	0.02	2	0.03
4	2015	109.6	1.02	0.02	3	0.05
5	2016	110.2	1.02	0.02	4	0.08
6	2017	110.7	1.03	0.03	5	0.13
7	2018	118.8	1.10	0.10	6	0.58
8	2019	119	1.10	0.10	7	0.68
A = Sum of "product" column						1.52
B = 6 times (6 x A)						9.15
C = (n-1) x n x (2n-1)						840.00
D = B/C						0.01
g (Exponential Factor) = Exponential (D) -1						0.011
e = Annual Escalation Rate (%) = g x 100						**1.10%**

Note: Apart from our suggestion above, it may be noted that sufficient details are not provided to understand the methodology of calculation to arrive at the conversion factor used by CERC to convert WPI data from 2004-05 Base to 2011-12 Base.

For example, for calendar year 2016, the WPI of non-coking coal with base as 2011-12 was 110.24 and with base as 2004-05, was 179.68. Based on this, the conversion factor for 2004-05 data to 2011-12 data is 0.61 (i.e. 110.24 divided by 179.68). However, as per CERC's staff paper the conversion factor is arrived to be as follows:

Year	As per CERC Staff Paper after Conversion of 2004-05 base to 1011-12 base	WPI of Non-Coking Coal with 2004-05 base	Conversion Factor used by CERC
	A	b	c=a/b
2008	62.57	112.70	0.56
2009	64.70	116.53	0.56
2010	72.84	131.20	0.56
2011	89.60	161.38	0.56

This is just to highlight the above noticed difference in computations.

B. Clause 8.3 – Escalation rate for inland transportation charges of coal (For Evaluation)

Relevant extract from the Staff Paper:

'The transportation of coal to power plants takes place mainly by rail. ………..'

APP's Suggestion:

We recommend CERC to prescribe escalation rate with due consideration of transportation via road mode for domestic coal for bid evaluation as well as for payment purposes during actual take-off. For this, diesel prices can be taken as the index for calculation of escalation rate of inland transportation of coal via road mode.

Rationale:

Coal transportation by road mode is a reality for many power plants, either due to lack of available rail infrastructure at remote locations or due to insistence by the coal companies themselves to deliver coal on Rail-cum-Road basis. Currently, transportation component escalation has not been prescribed for road mode and this creates uncertainty for power plants sourcing coal mostly via road mode.

C. Clause 8.2 – Escalation rate for domestic gas (For Evaluation)

Relevant extract from the Staff Paper:

> *'Since the consumer price of gas for North-Eastern States is different from the consumer price for the rest of India, hybrid index of consumer price of gas (allocating the weights based on production) is proposed to be used for computing the escalation rate for domestic gas. CERC has been using this hybrid index to compute the escalation rate for domestic gas for payment.*
>
> *Name of the Index: Hybrid index of consumer price of gas (based on 10% weightage to Consumer Price of gas applicable for North-Eastern States and 90% weightage to Consumer Price of gas applicable for rest of India).'*

APP's Suggestion:

The power sector or any industrial sector consumes either APM or Deepwater gas. Price for APM gas and deep water gas is fixed by the Government. Therefore, it is ideal for CERC to move towards calculating the escalation rate based on the price arrived for industrial users / power sector.

D. Clause 8.7 – Escalation rate for Imported Gas (For Evaluation)

Relevant extract from the Staff Paper:

> *'CERC has been using Japan JCC LNG CIF price for computing the escalation rate for imported gas for payment. Therefore, the same is proposed to be used for computing the escalation rate for imported gas for evaluation.'*

APP's Suggestion:

We request CERC to consider deriving escalation rate linked with JKM prices or the West India Marker (WIM) as published by Platts, and converted into INR per MMBTU using SBI TT Selling rate applicable for the period, for both bid evaluation as well as payment purposes.

Rationale:

a. The indices recommended for imported gas has become some-what outdated and may no longer be reflecting the current market practices followed by gas suppliers. The imported gas indices recommended by CERC is based on the crude price linked JCC index which represents the average price of crude oil imported to Japan and reported by the Japanese Custom (Ministry of Finance), whereas the LNG prices in international market have started moving independent of crude oil *(Source - Global Gas Security Review 2020" by International Energy Agency (IEA) under "Slowly but surely: Pricing developments" heading).* In fact, LNG prices are now moving based on demand & supply in the region. India is located in Asia-Pacific region and many of the LNG supply contracts are signed linking to Japan-Korea Marker ("JKM") and deliveries into these locations equate to the majority of global LNG demand. It may also be noted that recently, Reliance-BP also awarded Indian domestic gas tenders on JKM-linked basis.

b. Paragraph-2 on page-11 of the Staff Paper says that - *"In February 2009, Platts has launched Asian LNG spot prices under the benchmark name Japan/ Korea Market (JKM). Once the time series data is available, JKM can be used as proxy for price of imported LNG in India in place of Japan JCC LNG CIF price."*

In this regard, it may be noted that the JKM prices are available from last 12 years (since February 2009). Thus, there is sufficient time series data available for the JKM prices.

c. As an alternative to the JKM prices, CERC may also consider the West India Marker (WIM) price which is also published by Platts (since 2012) and reflects the imported gas price specifically for India. While the JKM reflects cargoes delivered into the trading hub of Japan, Korea, Taiwan and China, or JKTC, the West India Marker (WIM) reflects the cargoes delivered into the trading hub of India and the Middle east.

d. In order to account for variation in exchange rate, the times series data for JKM or West India Marker (WIM) ($per MMBTU) may be converted into INR/MMBTU using SBI TT Selling rate applicable for the period.

e. JKM and WIM prices are on DES basis. Hence, there is no need for separate escalation index for transportation of imported gas.

f. **Therefore, we recommend that JKM or West India Marker (WIM) prices may be considered by CERC for payment of fuel charges and evaluation.**

E. Clause 8.6 – Escalation rate for Transportation of Imported Coal and Imported Gas (For Evaluation)

Relevant extract from the Staff Paper:

> *'The escalation rate for transportation of imported coal/ gas shall be computed based on the time series data on FOB prices of Singapore 380 CST bunker fuel for the latest 12 years.'*

APP's Suggestion:

It is clarified here that for imported gas, if JKM or WIM prices are accepted as requested in our comments against Clause 8.7, for payment & bid evaluation, there is no need to separately compensate for sea transportation/shipping component of the JKM or WIM price. This is because JKM & WIM prices represents price of LNG delivered ex-ship (DES) basis.

F. Clause 8.4 – Escalation rate for inland transportation charges of gas (For Evaluation)

Relevant extract from the Staff Paper:

> *'The Escalation Rate for Inland Transportation Charges of Gas shall be computed based on the time series data for transportation charges of gas applicable for HVJ pipeline charged by GAIL for the latest 12 years'*

APP's Suggestion:

Transportation charges of all the pipelines should be considered to arrive at the escalation rate. Weightage may be given based on the length of the respective pipeline.

Further, it may be considered by CERC that PNGRB is evaluating a new unified tariff structure applicable throughout the country and therefore may provide a suitable mechanism for smooth change over so that gas inland transportation costs are correctly passed through in tariff.

Rationale:

The Escalation Rate for inland transportation charges for gas has been computed based on the data on transportation charges of gas along HVJ pipeline charged by GAIL. However, it may be noted that there are other gas-pipelines in use and their tariffs are also approved by PNGRB. It may be accurate to provide sufficient weightage to escalation of transportation charges of other pipelines as well.

We understand PNGRB is evaluating a new unified tariff structure applicable through-out the country and as & when approved same will be applicable to all the users. The CERC may consider this aspect and provide suitable mechanism for smooth change over so that gas inland transportation costs are correctly pass-through to tariff.

G. Clause 9 – Discount rate for bid evaluation

Relevant extract from the Staff Paper:

'Weighted Average Cost of Capital (WACC) has been considered as discount rate and computed as under:

WACC = Cost of Debt + Cost of Equity

Where,

Cost of Debt = 0.70 (Market Rate of Interest) X (1-Corporate Tax Rate)

Cost of Equity= 0.30 (Risk Free Rate + b (Equity Market Risk Premium))

The computation of WACC can be seen in the following table.

……………………………….

For the calculation of cost of equity, the market risk premium is assumed as the difference between the expected market return and the risk free rate. Accordingly, the market risk premium in this Notification has been arrived at by subtracting the average risk-free rate for the last 10 years from the average rate of return on market portfolio over the past 10 years. Sensex values for the past eleven years have been used to arrive at rate of return on the market portfolio for the past 10 years. Historical approach has been adopted for arriving at the expected market return assuming the expected future return to be the same as past returns. The beta value has been computed based on the data on Bombay Stock Exchange (BSE) Indices for Power Sector and Sensex for the year 2019.'

APP's Suggestion:

a) There is an error in the computation table which shows weighted value of Cost of Debt which may be corrected (weighted value of Cost of Debt should be corrected to 6.92) and accordingly Discount Rate should be revised.

b) Risk Free rate of 15.5% should be considered for the purpose of computation of Cost of Equity.

c) Since Cost of Equity is being considered as pre-tax, Cost of Debt should also be considered on pre-tax basis.

Rationale:

Cost of Debt:

- There appears to be a mistake in the table showing computation of WACC. Using the given formula of weighted value of Cost of Debt = 0.70 (Market Rate of Interest) x (1 – Corporate Tax Rate), where Market Rate of Interest has been taken as 12.67 and Corporate Tax Rate of 22%, the weighted value of Cost of Debt comes out to be 6.92 and accordingly, the Discount Rate may be revised.

- Further, the Staff Paper has proposed 'Cost of Debt' as Post-tax and 'Cost of Equity' as Pre-tax. For calculating the discount rate, the principle adopted for tax treatment should be same for both Cost of Debt and Cost of Equity. Since Tariff's are derived inclusive of Direct Taxes, Discounting rate used for Bid Evaluation should also be inclusive of Tax i.e. Pre-Tax, and therefore the Cost of Debt should be considered on pre-tax basis.

Cost of Equity:

- CERC has arrived at a cost of equity of 8.75% which is lesser than the cost of Debt at 12.67%. This goes against the basic principal of finance. The cost of equity should be such that the investor may be able to earn at least the prevailing rate of interest being offered by the banks and additional component to counter the risk factor.

- It should also be noted that the project developer does not receive any return on equity during the construction stage of the project and hence the consideration of taking 10 years GOI securities rate as risk free rate is wrong. To take care of loss of ROE during the construction period, approx. 3% margin should be added.

- Rate of return on equity may be linked with SBI base rate added with a premium which should also cover the cost of equity forgone during gestation period.

- The Beta value has been computed based on the data on BSE Indices for Power Sector. Since very few power companies are listed, and for each category (generation, transmission, etc), we don't have number of listed companies. Most of the PSUs and IPPs from power sector are not listed. Therefore, it would be appropriate to list a large number of comparable firms from other countries, calculate Beta values for them, and take their median as a global estimate for Beta. This can be then adjusted based on factors relevant for India.

- CERC itself has determined much higher normative Return on Equity in its recently notified below regulations:
  o CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2020 enforced on 1.7.2020 mentions the normative Return on Equity of 14%.
  o In CERC (Terms and Conditions of Tariff) Regulations, 2019 enforced on 1.4.2019 and valid for 5 years, return on equity is computed at the base rate of 15.50% for thermal generating station, transmission system including communication system and run-of river hydro generating station, and at the base rate of 16.50% for the storage type hydro generating stations including pumped storage hydro generating stations and run-of river generating station with pondage.

H. Clause 6 – Escalation rates for the purpose of payment

Relevant extract from the Staff Paper:

> *'CERC has been notifying the escalation rates for the purpose of payment under the Guidelines dated 19.1.2005 issued by the Ministry of Power. The same escalation rates shall be used for meeting the requirement under Paragraphs 2.1, 5.1, 5.4, 5.5 and 6.4 of the amended 2020 MOP Guidelines.'*

APP Comments:

We have the following comments related to the escalation rates for the purpose of payment:

1. Escalation Rate for imported gas (For the purpose of payment):

Current escalation index published has a lag of six months. As the international prices of the LNG are quite volatile, the gas suppliers find it a major risk to link their supply prices to CERC index that has a lag of six months.

It is therefore suggested to publish the index on monthly basis based on JKM / WIM prices OR alternatively for the payment purposes, CERC can specify a formula based on daily JKM / WIM prices published by Platts. Based on this formula, contracting counterparties to PPA shall settle their billing without waiting for publishing of new escalation rates.

2. Escalation Rate for inland handling of imported gas (For the purpose of payment):

Currently the escalation rate for inland handling of imported gas has been computed based on the data on WPI-all commodities and CPI-IW. In this WPI has been provided with 60% weightage and CPI-IW with 40% weightage.

We would like to highlight that certain costs such as regasification charges (Boil off losses and gas heating charges) are the major components of inland handling for imported gas. This cost depends upon the cost of imported gas. The CPI/WPI based indexation will not be able to account for the impact of regassification charges. Hence it is suggested to provide suitable weightage for

regassification charges. This can be based on regassification charges of major Indian RLNG terminals.

3. Escalation Rate for Exchange Rate (For the purpose of payment):

The purchase of imported gas (LNG) and its delivery to India must be settled in US Dollars. As of now, CERC has not recommended linkages any index to consider for variation in the USD/INR exchange rate.

In this context, we request CERC to provide a mechanism so that escalation rate for exchange rate variation can be used for payment. CERC may consider recommending linkages to SBI TT selling rate for the purpose of payment.

I. Suggested New Clauses

1. 'Additional Premium for 'Mine Specific Source' by WCL

With an effort to provide linkage coal to consumers, several mines have been identified as 'mine specific source' by WCL with additional premium to be paid per tonne over the notified price and several power plants are opting for this option for lifting their coal based on overall optimization of landed costs considering freight charges (For e.g. WCL had identified 11 out of its total 66 mines in November 2019 as 'mine specific source' specially for use of power plants at an additional add-on price of Rs 450 per tonne over the notified price). This condition should also be captured in the current escalation rate calculations.

Suggestion:

We recommend CERC to consider the premium paid for 'mine specific sources' while calculating the escalation rates for bid evaluation as well as for payment purposes during actual off-take.

2. Escalation rate for FGD reagents

Current CERC methodology does not include escalation rates for FGD reagents such as limestone and ammonia.

Suggestion:

CERC may prescribe escalation rate for FGD reagents separately.