

**EXPLANATION FOR THE NOTIFICATION
ON
ESCALATION FACTORS AND OTHER PARAMETERS
FOR
TARIFF BASED COMPETITIVE BIDDING FOR TRANSMISSION SERVICE
BASED ON OLD SBDs, DATED 9.1.2023**

In pursuance of the "Tariff based Competitive-bidding Guidelines for Transmission Service", amended up to 10th October, 2008 issued by the Ministry of Power (MOP), Schedule-7 of the Standard Transmission Service Agreement documents, and the "Revised Guidelines and Standard Bidding Documents (SBDs) for procurement of Inter-State Transmission Services (ISTS) through Tariff Based Competitive Bidding (TBGB) process" dated 6th August 2021 issued by MOP, the CERC vide Notification dated 30th September, 2022 had notified the escalation rate for the period from 01.10.2022 to 31.03.2023 for the purpose of payment as per the Transmission Service Agreement and the Discount rate as required under Schedule-9 of the Standard Transmission Service Agreement of the Revised Guidelines.

2. Paragraph 14 of the MOP Resolution dated 10th August 2021 on 'Tariff Based Competitive-bidding Guidelines for Transmission Service' provides as under:

"14. Repeal and Saving

14.1. The "Tariff based Competitive-bidding Guidelines for Transmission Service" issued on 13th April, 2006 as amended from time to time, are hereby repealed.

14.2. Provided, however, that any agreement signed or action taken prior to the date hereof shall not be affected by such repeal of the said Guidelines of 2006 and shall continue to be governed by the Guidelines repealed hereunder."

3. PFC Consulting Ltd. (Bid process coordinator appointed by MOP) vide letter dated 3rd January 2023 has informed that in one of its projects, RFP bidding process has been initiated on 24.01.2020 in terms of the old SBDs and Guidelines notified by MOP in 2006, which has been extended from time to time and the last date for RFP bid submission is 12.01.2023. In this regard, CERC is required to notify annual escalation rate and discount rate for the purpose of bid evaluation for the period from 01.10.2022 to 31.03.2023.

4. In accordance with paragraph 14.2 of MOP Resolution dated 10th August 2021 referred above and keeping in view the request received from PFC Consulting Ltd. for notifying escalation factors for the purpose of the bid evaluation as per old SBDs, the annual escalation rates and discount rate for the purpose of bid evaluation for projects based on old SBDs and Guidelines have been computed for the period from 01.10.2022 to 31.03.2023. The computation of the escalation factors for payment and the Discount rate is provided in the following paras.

5. Escalation Factors and other parameters for the purpose of evaluation

5.1 Escalation rate for escalable transmission charges for evaluation

The escalation rate to be applied to the quoted escalable transmission charges has been computed based on the time series data on Wholesale Price Index (WPI) and Consumer Price Index- Industrial Workers (CPI-IW) for the past 12 years, i.e., for the period from 2010 to 2021. The data on WPI and CPI has been used as published by the Ministry of Commerce & Industry and Labour Bureau, respectively. Composite series has been developed assigning 45% weight to WPI and 55% weight to CPI, which then has been used for computing the escalation rate. Formula used for computing the escalation rate and computation of the escalation rate is as under:

e: annual escalation rate in percentage = $g \times 100$, where:

g: escalation factor = $[exp\{\{(6 \times \sum_{t=2}^n (t-1) \times \ln R_t\} / \{(n-1) \times n \times (2n-1)\}\}] - 1$

$R_t = (Y_t / Y_1)$

$Y_t =$ "t"th observation

$Y_1 =$ initial observation

$n =$ number of observations

Composite Series: Average Index for Escalable Transmission Charges					
Year	WPI for All Commodities (Base 2011-12=100)	CPI for Industrial Workers (Base 2016=100)	Proportion of WPI Component in Total Cost	Proportion of CPI Component in Total Cost	Composite Series
2010	89.7	61.1	45%	55%	73.98
2011	98.2	66.5	45%	55%	80.78
2012	105.7	72.7	45%	55%	87.52
2013	111.1	80.6	45%	55%	94.33
2014	114.8	85.7	45%	55%	98.81

2015	110.3	90.8	45%	55%	99.56
2016	110.3	95.3	45%	55%	102.03
2017	114.1	97.6	45%	55%	105.03
2018	118.9	102.4	45%	55%	109.83
2019	121.2	110.2	45%	55%	115.15
2020	121.8	116.3	45%	55%	118.81
2021	135.0	122.0	45%	55%	127.84

ANNUAL ESCALATION RATE FOR ESCALABLE TRANSMISSION CHARGES FOR EVALUATION						
Year No. (t)	Year	Composite Series	Rt = Yt/Y1	Ln Rt	Year-1 (t-1)	Product [(t-1) x (Ln Rt)]
1	2010	73.98				
2	2011	80.78	1.09	0.09	1	0.09
3	2012	87.52	1.18	0.17	2	0.34
4	2013	94.33	1.28	0.24	3	0.73
5	2014	98.81	1.34	0.29	4	1.16
6	2015	99.56	1.35	0.30	5	1.48
7	2016	102.03	1.38	0.32	6	1.93
8	2017	105.03	1.42	0.35	7	2.45
9	2018	109.83	1.48	0.40	8	3.16
10	2019	115.15	1.56	0.44	9	3.98
11	2020	118.81	1.61	0.47	10	4.74
12	2021	127.84	1.73	0.55	11	6.02
A = Sum of "product" column						26.08
B = 6 times (6 x A)						156.46
C = [(n-1) x n x (2n-1)]; n = Number of Years of data = 12						3036.00
D = [B/C]						0.05
g (Exponential Factor) = Exponential (D) -1						0.0529
e = Annual Escalation Rate (%) = (g x 100)						5.29

The annual escalation rate computed in the above table (**5.29%**) is notified as escalation rate for escalable transmission charges for evaluation.

5.2 Discount rate for computation of levelized transmission charges for evaluation

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

$$\text{WACC} = [\text{Cost of Debt} + \text{Cost of Equity}]$$

Where,

$$\text{Cost of Debt} = [0.70 (\text{Market Rate of Interest}) \times (1 - \text{Corporate Tax Rate})]$$

$$\text{Cost of Equity} = [0.30 \{ \text{Risk Free Rate} + b (\text{Equity Market Risk Premium}) \}]$$

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

DISCOUNT RATE TO BE USED FOR BID EVALUATION		
Weighted Values	Cost of Debt/Equity	WACC (%)
1. Cost of Debt		
[0.70(Cost of Debt)x(1-CTR)]	5.28	
2. Cost of Equity		
[0.30{(RF+b(ERP))}]	2.82	
Discount Rate (1+2)		8.09
Assumptions used for computing the Discount Rate		
Components of Debt/Equity		Assumptions (%)
Debt		70.00
Equity		30.00
Corporate tax rate for the assessment year 2022-23 (Effective tax rate, i.e., inclusive of cess and surcharge)		25.17
Risk Free Rate (RF)		6.26
Beta Value (b)		0.76
Equity Market Risk Premium (ERP)		4.15
Cost of Debt		10.07
Cost of Equity		9.39

The Debt and Equity of 70:30 has been assumed based on CERC norms on Debt and Equity in its Tariff Regulations 2019-24. The effective corporate tax rate (i.e. inclusive of surcharge and cess) proposed in the GOI Budget for the year 2022-23 has been used as corporate tax rate while computing the cost of debt.

While calculating the cost of debt, the market rate of interest is being linked to the marginal cost of funds-based lending rate (MCLR) that refers to the minimum interest rate of a bank below which it cannot lend, except in some cases allowed by the RBI. The market rate of interest for the year 2021 is taken as the MCLR (8.07%, i.e., average of MCLR of five major banks) + 200 basis points. The 200 basis points have been considered as per the methodology used for the notification dated 31.05.2021 (*in the context of Escalation Rates for the purpose of Evaluation as per the competitive bidding guidelines dated 22.7.2020 read*

with amendment dated 3.11.2020). Accordingly, the market rate of interest has been taken as 10.07%.

10-year GOI securities rate for 2021 is being considered as the risk-free rate.

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 12 years from the average rate of return on market portfolio over the past 12 years. Sensex values for the past thirteen years have been used to arrive at the rate of return on the market portfolio for the past 12 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 2021.

The WACC computed in the above table (8.09%) is notified as discount rate for bid evaluation.

6. Explanation for the notifications dated 1.2.2012 and 31.05.2021 (see CERC website www.cercind.gov.in) provides further details like date of announcement of the notification, methodology used, sources of the data used for computing the escalation factors, etc.
