CENTRAL ELECTRICITY REGULATORY COMMISSION
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NOTE

Competitive Bidding: Proposal on Applicability of Transmission Charges and their escalation and Transmission Losses under POC Regime

Background Narrative

With respect to the <u>inter-state transmission charges</u> to be used for <u>evaluation purpose</u> under case 1 competitive bidding, the RFP Document (SBD) provides that the injection point specified by the Bidder in its Financial Bid shall be used to add the applicable transmission charges. It further provides that, in case of injection point being a CTU Interface, applicable transmission charges as specified in Format 5.10 from such CTU Interface up to the Delivery Point with appropriate escalation shall be added to the escalated Quoted Tariff. Similarly, with respect to transmission losses in <u>inter-state network</u>, SBD provides that the applicable transmission loss (in %) shall comprise of the applicable normative transmission loss (in %) from the injection point to the Delivery Point for the regions involved and as provided in Format 5.11 of the RFP.

With the coming into being of CERC's Regulations for Sharing of Inter-State Transmission Charges based on Point of Connection (POC) tariff, procurers wishing to procure medium/long term power under competitive bidding have had several queries about how exactly the transmission charges and losses are to be applied for evaluation purpose. In the light of the queries from procurers, a proposal providing clarity regarding applicability of the transmission charges and loses was prepared by the Commission staff. The proposal was discussed by the Commission and the Commission has asked the Commission staff to take the proposal through wider stakeholder consultation process by posting the same on the Commission website. The proposal is elaborated in following sections.

SECTION I: Proposal on Applicable Transmission Charges, Transmission Charges Matrix and Escalation Rate for Normative Transmission Charges

For the purpose of evaluation:

1. Format 5.10 will have the following structure:

Transmission Charges Matrix

S.No.	Injection/Drawal Node	Applicable Transmission Charges (Rs/kWh)
1.	Rajasthan Injection	0.10
2	Gujarat Injection	0.10
.	J&K Drawal	0.10
.	……	….

The values for the applicable transmission charges (whether for injection or drawal node) for different nodes will be taken from the appropriate Order of the Commission as revised from time to time [e.g. for the current period, the same would be the per unit rates as mentioned in the column "short term slab rate (paise/unit)" in the Table in Annexure –I of the Commission Order **No. L-1/44/2010-CERC of 29.6.2011, In the matter of** Determination of POC rates and transmission losses in accordance with Regulation 17(2) of Central Electricity Regulatory Commission (Sharing of Inter State Transmission Charges and Losses) Regulations, 2010].

Based on the current Commission Order, the applicable Transmission Charge Matrix for the current period, as per the proposal in this note, would be as given in Annexure 1 to this note.

2. The normative transmission charges for the first/base year for a particular bidder to be the sum/addition of the applicable transmission charges for the node where that particular bidder is injecting his/her generation and the applicable transmission charges corresponding to the node from where the procuring entity is drawing the power.

3. In case of an embedded entity[1], no transmission charges to be added

4. The normative transmission charges calculated as per "2" or "3" above to be escalated at the rate Notified by CERC in its Escalation rate Notification.

5. Bidders to indicate their injection node/point (including region) in the bid/offer

SECTION II: Proposal on Applicable Transmission Losses

For the purpose of evaluation:

1. Format 5.11 will have the following structure, comprising of two Tables: Table (A), for identifying the loss category applicable to a particular injection or drawal node, and Table (B) for getting the actual loss figure (%) for this particular injection or drawal node.

Transmission Loss Matrix Table (A): Identifying Loss Category for Various Nodes

S.No.	Region	Injection/Drawal Node	Loss Category
1	Western	Maharashtra Injection	Low
2	Western	Vindhyachal (injection)	High
3	Western	Gujarat Drawal	Low
.	.	.	.
.	.	.	.

Transmission Loss Matrix Table (B): Loss Figure in Percentage

S.No.	Region	Low Loss Category (%)	Normal Loss Category (%)	High Loss Category (%)
1	Northern			
2	Western			
3	Eastern			
4	North-East			
5	Southern			

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[1] One who is only connected on STU network

Note: It may be noted that, if there is an increase in number of POC slabs (presently there are three slabs), the number of "category columns" will also commensurately increase

2. The basis for Table (A) and Table (B) above to be the appropriate Order of the Commission as revised from time to time [e.g. for the current period, the same would be the Annexure –II of the Commission Order **No. L-1/44/2010-CERC of 29.6.2011, In the matter of** Determination of POC rates and transmission losses in accordance with Regulation 17(2) of Central Electricity Regulatory Commission (Sharing of Inter State Transmission Charges and Losses) Regulations, 2010].

3. Based on the current Commission Order, the applicable Table (A) and Table (B) for the current period, as per the proposal in this note, would be as given in Annexure 2 to this note.

SECTION III: **Sample calculation of normative transmission charges and Losses**

Based on the Transmission Charges Matrix (Format 5.10) and Transmission Loss Matrix Table(A) and Table (B) (Format 5.11), a sample calculation of **normative transmission charges and Transmission Losses** has been shown in Annexure 3 to this note

ANNEXURE 1:

Transmission Charge Matrix for the current period, as per the proposal in this note

	Transmission Charges Matrix	
S.No.	**Injection/Drawal Node**	**Applicable Transmission Charges (Rs/kWh)**
1	Maharastra Inj	14
2	Rajasthan W	14
3	DVC Inj	14
4	Maharastra W	14
5	Haryana W	14
6	Chattisgarh Inj	14
7	Punjab W	14
8	Uttar Pradesh W	14
9	Sipat	14
10	Vindhyachal	14
11	Madhya Pradesh W	14
12	Uttarakhand W	14
13	Teesta	12
14	Kahalgaon	12
15	Rihand	12
16	NER W	12
17	Farakka	12
18	Singrauli	12
19	Delhi Inj	12
20	NER Inj	12
21	Korba	12
22	Orissa Inj	10
23	Gujarat W	10
24	Jharkhand W	10
25	Delhi W	10
26	Goa-WR W	10
27	Bhutan	10
28	Bihar W	10
29	HP Inj	10
30	Orissa W	10
31	Uttar Pradesh Inj	10
32	Nathpa Jhakri	10
33	Chamera 1	10
34	Haryana Inj	10
35	Chattisgarh W	10

S.No.	Injection/Drawal Node	Applicable Transmission Charges (Rs/kWh)
36	Chandigarh W	10
37	Sikkim W	10
38	West Bengal W	10
39	Gujarat Inj	10
40	DVC W	10
41	Jammu & Kashmir Inj	10
42	West Bengal Inj	10
43	Tehri	10
44	Jammu & Kashmir W	10
45	D&D W	10
46	Rajasthan Inj	10
47	DNH W	10
48	Dadri	10
49	HP W	10
50	Punjab Inj	10
51	Chandigarh Inj	10
52	Uttarakhand Inj	10
53	Bihar Inj	10
54	Jharkhand Inj	10
55	Sikkim Inj	10
56	Madhya Pradesh Inj	10
57	Goa-WR Inj	10
58	D&D Inj	10
59	DNH Inj	10
60	Andhra Pradesh Inj	15
61	Karnataka W	15
62	Tamil Nadu W	13
63	Karnataka Inj	13
64	Andhra Pradesh W	11
65	Tamil Nadu Inj	11
66	Kerala W	11
67	Goa-SR W	11
68	Ramagundam	11
69	Injection from Talcher	11
70	Pondicherry W	11
71	Kerala Inj	11
72	Pondicherry Inj	11
73	Goa-SR Inj	11

ANNEXURE 2

Applicable Table (A) and Table (B) for the current period, as per the proposal in this note

Transmission Loss Matrix: Table (A): Identifying Loss Category for Various Nodes

S.No.	Region	Injection/Drawal Node	Loss Category
1	Northern	Uttarakhand W	High
2	Northern	Rihand	High
3	Northern	Singrauli	High
4	Northern	UP W	High
5	Northern	Rajasthan W	High
6	Northern	Delhi W	Normal
7	Northern	UP Inj	Normal
8	Northern	Punjab W	Normal
9	Northern	Haryana W	Normal
10	Northern	Nathpa Jhakri	Low
11	Northern	Chandigarh W	Low
12	Northern	Chamera 1	Low
13	Northern	Rajasthan Inj	Low
14	Northern	HP Inj	Low
15	Northern	Dadri	Low
16	Northern	Delhi Inj	Low
17	Northern	J&K Inj	Low
18	Northern	Tehri	Low
19	Northern	HP W	Low
20	Northern	J&K W	Low
21	Northern	Haryana Inj	Low
22	Northern	Punjab Inj	Low
23	Northern	Chandigarh Inj	Low
24	Northern	Uttarakhand Inj	Low
25	Western	Vindhyachal	High
26	Western	Korba	High
27	Western	Chhatisgarh Inj	High
28	Western	Sipat	High
29	Western	Madhya Pradesh W	Normal
30	Western	Maharashtra W	Normal
31	Western	Goa W	Normal
32	Western	Madhya Pradesh Inj	Low
33	Western	Gujarat W	Low
34	Western	Maharashtra Inj	Low

S.No.	Region	Injection/Drawal Node	Loss Category
35	Western	D&D W	Low
36	Western	DNH W	Low
37	Western	Gujarat Inj	Low
38	Western	Chhatisgarh W	Low
39	Western	Goa Inj	Low
40	Western	D&D Inj	Low
41	Western	DNH Inj	Low
42	Eastern	Kahalgaon	High
43	Eastern	Teesta	High
44	Eastern	Farakka	High
45	Eastern	Bhutan	Normal
46	Eastern	Orissa Inj	Normal
47	Eastern	DVC Inj	Normal
48	Eastern	Bihar W	Normal
49	Eastern	West Bengal Inj	Normal
50	Eastern	Jharkhand W	Normal
51	Eastern	Sikkim W	Low
52	Eastern	West Bengal W	Low
53	Eastern	Orissa W	Low
54	Eastern	DVC W	Low
55	Eastern	Bihar Inj	Low
56	Eastern	Jharkhand Inj	Low
57	Eastern	Sikkim Inj	Low
58	Southern	Andhra Pradesh Inj	High
59	Southern	Tamilnadu W	High
60	Southern	Ramagundam	High
61	Southern	Karnataka W	Normal
62	Southern	Andhra Pradesh W	Normal
63	Southern	Kerala W	Normal
64	Southern	Karnataka Inj	Low
65	Southern	Goa W	Low
66	Southern	Taminadu Inj	Low
67	Southern	Injection at Talcher	Low
68	Southern	Pondy W	Low
69	Southern	Kerala Inj	Low
70	Southern	Pondy Inj	Low
71	Southern	Goa Inj	Low
72	North-Eastern	NER Inj	Normal
73	North-Eastern	NER W	Normal

Transmission Loss Matrix Table (B): Loss Figure in Percentage

S.No.	Region	Low Loss Category (%)	Normal Loss Category (%)	High Loss Category (%)
1	Northern	1.10	1.40	1.70
2	Western	1.58	1.88	2.18
3	Eastern	0.62	0.92	1.22
4	North-East	0.95	1.25	1.55
5	Southern	1.70	2.00	2.30

Note: The loss figures appearing in the above Table "Normal loss category" to be 50% of the underlined weighted average loss (WA Loss) for the respective region, to be applied separately for injecting and drawing entity. The loss figure appearing under the "low loss" category to be 0.3 less than the figure for "normal loss" category for the respective region, and the loss figure in the Transmission Matrix under the "high loss" category to be 0.3 more than the figure for "normal loss" category for the respective region.

The basis for the WA Loss figures for the various regions to be the appropriate Order of the Commission as revised from time to time [e.g. for the current period, the same for "normal loss" category would be 50% of the would be the consolidated Tables for each region in Annexure –II of the Commission Order No. L-1/44/2010-CERC of 29.6.2011, In the matter of Determination of POC rates and transmission losses in accordance with Regulation 17(2) of Central Electricity Regulatory Commission (Sharing of Inter State Transmission Charges and Losses) Regulations, 2010].

ANNEXURE 3

Sample Calculation of Normative Transmission Charges

Given:

- Let Procurer be from Punjab, Northern region
- Let Bidder 1 (B1) be from Andhra Pradesh, Southern region
- Let Bidder 2 (B2) be from Chhattisgarh, Western region
- Let Bidder 3 (B3) be an embedded bidder

- Applicable Transmission Charges at <u>Drawal Node:</u>

  - With respect to <u>both B1 and B2</u> would be the applicable transmission charges from the table in Annexure 1 corresponding to the node "Punjab drawal" = Rs. 0.14/kWh (S.No. 7 in Table in annexure 1)

  - With respect to B3, it would be Rs. 0.00, because B3 is an embedded bidder.

- Applicable Transmission at <u>Injection Node:</u>
  - For B1, it would be charges corresponding to node "Andhra Pradesh Injection" in the Table in Annexure 1 = Rs. 0.15/kWh (S.No.60 in Table in Annexure 1)

  - For B2, it would be charges corresponding to node "Chhattisgarh Injection" in the Table in Annexure 1 = Rs. 0.14/kWh (S.No.6 in Table in Annexure 1)

  - For B3, it would be Rs. 0.00 as B3 is an embedded bidder

- Applicable <u>Normative Transmission</u> Charges for <u>Various Bidders:</u>
  - For B1, it would be: Applicable Transmission Charges at <u>Drawal Node with respect to B1</u> +   Applicable Transmission charge at Injection node for B1
    - From above, this would be: Rs.0.14 + Rs. 0.15 = Rs. 0.29/kWh

  - For B2, it would be: Applicable Transmission Charges at <u>Drawal node with respect to B2</u> +   Applicable Transmission Charge <u>at injection node</u> for B2
    - From above, this would be: Rs.0.14 + Rs. 0.14 = Rs. 0.28/kWh

  - For B3, it would be: Applicable Transmission Charges at <u>Drawal node with respect to B3</u> +   Applicable Transmission Charge <u>at injection node</u> for B3
    - From above, this would be: Rs.0.00 + Rs. 0.00 = Rs. 0.00/kWh

- Table Below summarizes the Normative Transmission Charges for various Bidders

S.No	Bidder	Applicable Transmission Charge at Drawal Node (Rs/kWh)	Applicable Transmission Charge at Injection Node (Rs/kWh)	Normative Transmission Charge (Rs/kWh)
		(a)	(b)	(c) = (a) + (b)
1	B1	0.14	0.15	0.29
2	B2	0.14	0.14	0.28
3	B3	0.00	0.00	0.00

- **It is these normative transmission charges (as mentioned in column 'c' in the Table above) that then will be escalated with CERC Notified Escalation rates**

Sample Calculation of Applicable Transmission Losses

Given:

- Let Procurer be from Punjab, Northern region

- Let Bidder 1 (B1) be from Andhra Pradesh, Southern region

- Let Bidder 2 (B2) be from Chhattisgarh, Western region

- Let Bidder 3 (B3) be an embedded bidder

Identifying Loss Category under which Injection and Drawal Points Come

- Loss Category for Drawal Losses:

  o For Bidder B1 & B2, it would be the Loss Category Corresponding to 'Punjab Drawal" in Table (A) in Annexure 2 = Normal (S.No. 8 From Table (A) in Annexure 2)

  o For Bidder B3, it would not be applicable as B3 is an embedded bidder

- Loss Category for Injection Losses:

o For B1, it would be the Loss Category corresponding to "Andhra Pradesh

Injection" in Table (A) in Annexure 2 = High (S.No. 58 From Table (A) in

Annexure 2)

o For B2, it would be the Loss Category corresponding to "Chhattisgarh

Injection" in Table (A) in Annexure 2 = High (S.No. 27 From Table (A) in

Annexure 2)

o For B3, it would not be applicable as B3 is an embedded bidder

Allocating Losses

- Loss for Drawal:

  o For Bidder B1 it would be the Loss Corresponding to "Normal Loss" category

  against Northern Region in Table (B) in Annexure 2 = 1.40%

  o For Bidder B2, it would be the Loss Corresponding to "Normal Loss" category

  against Northern Region in Table (B) in Annexure 2 = 1.40%

  o For Bidder B3, it would Nil as B3 is an embedded bidder

- Loss for Injection:

  o For Bidder B1 it would be the Loss Corresponding to "High Loss" category

  against Southern Region in Table (B) in Annexure 2 = 1.70%

  o For Bidder B2, it would be the Loss Corresponding to "High Loss" category

  against Western Region in Table (B) in Annexure 2 = 1.58%

  o For Bidder B3, it would Nil as B3 is an embedded bidder

- The Final loss Would Be:

Bidder	Injection Losses (%)	Drawal Losses (%)
B1	1.709	1.40
B2	1.58	1.40
B3	0.00	0.00