

**Procedure for  
Computation and sharing of Inter-State Transmission  
System Charges**

**in compliance of**

**Central Electricity Regulatory Commission  
(Sharing of Inter-State Transmission Charges and Losses  
Regulations, 2020) and First Amendment thereof**

**September,2023**



**The Implementing Agency  
(National Load Despatch Centre)**

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## Procedure for Computation and sharing of ISTS Charges

### 1.0 Outline

- 1.1 This Procedure is made in compliance with Regulation 23(4) of Central Electricity Regulatory Commission (Sharing of Inter State Transmission Charges and Losses) Regulations 2020 and amendments thereof herein after called as the “Sharing Regulations, 2020 and amendments thereof”.
- 1.2 This procedure provides the modalities followed by Implementing Agency for computation of Inter-State transmission charges for each DIC.

### 2.0 Scope

- 2.1 This procedure shall be applicable to the following:
  - A. Customers who use the ISTS as below:
    - (a) All Designated ISTS Customers (DICs)
    - (b) Generating Stations which are regional entities under the IEGC, 2023 and any subsequent amendments or reenactments .
    - (c) ISTS Licensees
    - (d) Intra-State Licensees whose assets have been approved by CERC as being used for inter-State transmission of electricity and to be considered under Sharing Regulations 2020 and amendments thereof
    - (e) Any distribution licensee or Bulk consumer directly connected with ISTS
    - (f) Any other designated entity representing a physically connected entity as per clauses (b), (d) and (e) above.
    - (g) Trading licensee involved in cross border trade of electricity
    - (h) Cross border drawing entities
  - B. Others
    - (a) Central Transmission Utility
    - (b) National Load Despatch Centre (NLDC), Regional Load Despatch Centres (RLDCs), State Load Despatch Centres (SLDCs) and Regional Power Committees (RPCs)

### 3.0 Notification of Peak Block by IA

- 3.1 As per Regulation 2 (1) (r) of the Sharing Regulations,2020, Peak block is the block in which sum of net ISTS draws by all States is maximum. For identifying peak block, negative net ISTS drawl of any State in a time block shall be treated as zero.
- 3.2 The processed Special Energy Metered (SEM) data of the billing period shall be considered for identification of Peak Block of the billing period. For the period for which SEM data is not available as on first day of the month following the billing period, NLDC SCADA data shall be considered for identifying Peak Block.

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- 3.3 As per Regulation 24(2) of the Sharing Regulations 2020, Peak block for the billing period shall be published by IA, on its website, on the first day of the month following the billing period.
- 3.4 The peak block once declared on first day of the month following the billing period shall be treated as final and shall not be reviewed later based on the SEM data available for the remaining period.
- 3.5 If in case any Grid Disturbance of category GD-5 had occurred during the peak block in any region(s), next peak block shall be considered by IA based on the severity of Grid Disturbance, for notification of peak block for the billing period.

### **4.0 Data Acquisition and Preparation of Base case for computations**

- 4.1 The Implementing Agency shall publish, on its website, the peak block for the billing period on the first day of the month following the billing period for each billing month.
- 4.2 As per Regulation (9) (1) of the Sharing Regulations 2020, Base Case shall be prepared by the IA corresponding to the peak block for each billing period comprising of:
  - a. Basic Network for the power system corresponding to the peak block of the billing period
  - b. Actual generation and actual demand, in MW, at each node of the Basic Network corresponding to the peak block
- 4.3 The basic network data pertaining to the network elements along with actual nodal generation and drawl data corresponding to peak block shall be submitted by all DICs. Yearly Transmission Charges (YTC) shall be submitted by inter-State transmission licensees, Deemed ISTS licensee and Non-ISTS licensees for which tariff have been approved by the Hon'ble CERC.
- 4.4 RLDCs /IA shall verify the injection/ drawl information furnished by the DICs with reference to available SEM data (captured in Special Energy Meters)/ SCADA data for the corresponding peak block. PSSE base case that is used for computation of TTC/ATC for peak scenario/ recently submitted updated base case data by the states may also be referred for verification of data submitted by DICs.
- 4.5 In case of major discrepancy of information provided by DICs with reference to SEM/ SCADA data, concerned DICs shall be informed for giving proper explanation for the discrepancy in a specific time period. If DIC fails to rectify the deficiency, IA shall consider the data as per the alternate sources.
- 4.6 The data provided by the DICs shall be as per the formats stipulated by the Implementing Agency. All drawee DICs shall also submit generation from their own generating stations for the peak block during the billing period to the Implementing Agency to prepare the Base Case for load-generation balance.

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- 4.7 The Basic Network shall contain all the power system elements including generating station and transmission line at 110 kV and above. Power flow into a lower voltage system from the voltage levels indicated in the definition of the Basic Network shall be considered as load at that sub-station. Power flow from a lower voltage system into the electricity systems at the voltage levels shall be considered as generation at that substation.
- 4.8 Dedicated transmission lines constructed, owned and operated by the inter-State transmission licensees shall be considered to be a part of the Basic Network. However, dedicated transmission lines constructed, owned and operated by generating stations shall not be considered as a part of the Basic Network and the generating station shall be deemed to be connected directly to the ISTS at the pooling point. Actual injection of such generating stations at the pooling station shall be taken as actual injection at the pooling point.
- 4.9 While preparing basic network, major transmission lines/ Generation outages for the peak block shall also be factored in basic network, provided the outage is prolonged for the entire period of peak block. The transmission lines, which are temporarily out of service shall be included in the Base Case.
- 4.10 The transmission system declared under commercial operation on or before the last day of a billing period shall be considered for computation of transmission charge for the billing period. However, Basic Network shall be considered as in the peak block of the billing period.
- 4.11 RLDCs shall prepare basic network of their respective region as per the network data, nodal injection/ drawl data submitted by the DICs under their jurisdiction in line with Para 4.0 of this procedure.
- 4.12 If any DIC fails to submit the data as required within the stipulated time frame, IA/ RLDCs shall prepare basic network by obtaining such information from other alternate sources. The alternate sources could be NLDC SCADA/ SEM data/ recent updated base case available/ recent TTC-ATC base case for the corresponding billing period.
- 4.13 In case part of network data is missing, reasonable assumptions shall be made by the Implementing Agency based on data available with it and/or reference to standards published on the Power System Studies, such as the CEA Transmission Planning Criteria.
- 4.14 RLDCs shall furnish the prepared basic network to IA in order to further prepare all India basic network for computation of ISTS charges and losses for each billing period by 12<sup>th</sup> day of each month following the billing period.
- 4.15 IA shall prepare the All India basic network and shall be made available to all DICs on 15<sup>th</sup> day of each month following the billing period for review and comment, if

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any, for 2 days, in order to finalize the all India basic network to be used for the computations for the billing period.

### **5.0 Computation of ISTS Monthly Transmission Charges (MTC) by IA**

- 5.1 All inter-State transmission licensees and intra-State Licensees whose charges have been determined by CERC shall furnish YTC to IA along with the details of bilateral billing, if any, for each billing period by the end of the billing period as per Para 6.4 of the “Procedure for collection of data and information for determination of ISTS charges and losses” published by IA.
- 5.2 IA shall check and compile the YTC data received from all entities as mentioned in Para 5.1 and shall compute Monthly Transmission Charges (MTC) by multiplying number of days in a billing period with YTC per day of the corresponding year for all the licensees in the sharing methodology.
- 5.3 In case of a new transmission element that has declared COD during the billing period, while considering the YTC of the element in the computations for that billing period, Monthly transmission charges on pro-rata basis for the total number of days that element has existed in the network shall be considered under the sharing methodology for the billing period.
- 5.4 Notwithstanding any provision to the contrary in the PPA entered into between the drawee DIC and the generating station or the seller, transmission charges for components identified under Regulations 5 to 8 of Sharing Regulations 2020 and amendments thereof shall be determined on drawl nodes. The bills for sharing of transmission charges shall be raised on the Drawee DICs and the settlement of the transmission charges inter se between the Drawee DICs and the generating station or the seller, wherever necessary, shall be made in terms of the PPA or as per the mutual agreement between the concerned.
- 5.5 As per Regulation 13(3) of Sharing Regulations,2020 and amendments thereof, where COD of a Connectivity grantee other than Renewable Power Park Developer is delayed on or before start date of Connectivity in terms of GNA Regulations, and the Associated Transmission System has achieved COD, which is not earlier than start date of Connectivity, the Connectivity grantee shall pay Yearly Transmission Charges for the Associated Transmission System corresponding to Connectivity capacity which has not achieved COD:

Provided that where a Connectivity grantee is Renewable Power Park Developer and the generation capacity within the Renewable Power Park has not declared COD on or before start date of Connectivity in terms of GNA Regulations, and the Associated Transmission System has achieved COD, which is not earlier than start date of Connectivity, the Renewable Power Park Developer shall pay Yearly Transmission Charges for the Associated Transmission System corresponding to generation capacity which has not achieved COD:

Provided that Yearly Transmission Charges in respect of Associated Transmission System corresponding to the Connectivity capacity which have achieved COD shall

be included for determination of transmission charges of DICs in accordance with Regulations 5 to 8 of Sharing Regulations 2020 and amendments thereof.

**Illustrative example:**

- a) The planned Installed capacity for a Connectivity grantee other than Renewable Power Park Developer is 2400 MW with Connectivity for 2400 MW. The station has 3 units. If Connectivity capacity is broken up unit wise it comes out to 800 MW corresponding to each unit. Suppose the Annual transmission charges are Rs. 300 Crore. Once first unit is declared COD Rs. 100 Crore shall be considered in Regulation 5 to 8 and Rs. 200 Crore shall be billed to the Connectivity grantee. Once 2nd unit is declared COD, Rs. 200 Crore will be included in Regulation 5 to 8 and Rs. 100 Crore shall be billed to Connectivity grantee and so on. The same principle shall be applied on corresponding Connectivity as well.
  - b) Where a Connectivity grantee is Renewable Power Park Developer, planned generation capacity within Renewable Power Park is 2400MW with Connectivity for 2400MW. If 2/3<sup>rd</sup> of generation capacity i.e. 1600MW is delayed. Suppose the Annual transmission charges are Rs. 300 Crore. Annual transmission charges of Rs. 100 Crore will be included in Regulation 5 to 8 and Rs. 200 Crore will be billed to the Renewable park developer and so on.
- 5.6 As per Regulation 13(4) of Sharing Regulations,2020 and amendments thereof, where one or more of the transmission elements of the Associated Transmission System have achieved COD before the COD of the Associated Transmission System and the Connectivity grantee seeks part effectiveness of its Connectivity as per Clause (a) of Regulation 22.4 of GNA Regulations, Yearly Transmission Charges in respect of such transmission elements of the Associated Transmission System shall be included for determination of transmission charges of DICs in accordance with Regulations 5 to 8 of Sharing Regulations,2020 and amendments thereof.
- 5.7 As per Regulation 13(5) of Sharing Regulations,2020 and amendments thereof, Where only some of the transmission elements of the Associated Transmission System have achieved COD before the COD of the Associated Transmission System and if such transmission elements are certified by the respective Regional Power Committee(s) as required for improving the performance, safety and security of the grid, the Yearly Transmission Charges for such transmission elements of the Associated Transmission System shall be included for determination of transmission charges of DICs. However, the YTC of such transmission elements shall only be considered for a billing period on furnishing the details of RPC certification of the transmission elements to IA as per the stipulated time lines for furnishing data by the ISTS licensees as per this procedure.
- 5.8 As per Regulation 13(6) of Sharing Regulations,2020 and amendments thereof, if any transmission element(s) of the Associated Transmission System is required by the Connectivity grantee prior to COD of the Associated Transmission System, the Yearly Transmission Charges for such transmission element(s) shall be payable by the Connectivity grantee from the COD of the said transmission element(s) of the

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Associated Transmission System till the Connectivity grantee achieves COD.

- 5.9 As per Regulation 13(7) of Sharing Regulations,2020 and amendments thereof Where Connectivity is granted to a Connectivity grantee other than Renewable Power Park Developer, on margins of existing system or on the augmented system with no ATS, and if the COD of such Grantee is delayed beyond start date of connectivity, the Connectivity grantee shall, corresponding to the capacity that is delayed, pay transmission charges from the start date of such Connectivity at the rate of Rs. 3000/MW/month:

Provided that where a Connectivity grantee is Renewable Power Park Developer and the generation capacity within the Renewable Power Park has not declared COD on or before start date of Connectivity in terms of GNA Regulations, the Renewable Power Park Developer shall pay transmission charges from the start date of such Connectivity at the rate of Rs. 3000/MW/month corresponding to generation capacity which have not achieved COD.

- 5.10 As per Regulation 13(8) of Sharing Regulations,2020 and amendments thereof, In case a generating station or unit(s) thereof has achieved COD and the Associated Transmission System is delayed, the concerned inter-State transmission licensee(s) shall make alternate arrangement at its own cost for despatch of power of the generating station or unit(s) thereof in consultation with the Central Transmission Utility:

Provided that till such alternate arrangement is made, the inter-State transmission licensee(s) shall pay to the generating station, the Yearly Transmission Charge corresponding to the quantum of Connectivity for the period for which the transmission system has got delayed.

- 5.11 As per Regulation 13(9) of Sharing Regulations,2020 and amendments thereof, where a dedicated transmission line has already been constructed or is under construction by an inter-State transmission licensee under coordinated transmission planning of the Central Transmission Utility, and the Connectivity grantee has not achieved COD on or before COD of the dedicated transmission line, the Yearly Transmission Charges for such dedicated transmission line shall be payable by the concerned Connectivity grantee to the inter-State transmission licensee from the COD of the dedicated transmission line till COD of such Connectivity grantee and after which Yearly Transmission Charge for the dedicated transmission line shall be considered in accordance with Regulations 5 to 8 of Sharing Regulations,2020 and amendments thereof.

- 5.12 Regional entity Generating station (a) drawing start-up power prior to COD or (b) drawing auxiliary power before or after COD through ISTS, shall pay transmission charges for such drawl, at T-GNA Rate for the State in which it is located and the amount so received in a billing month, shall be reimbursed to the drawee DICs in proportion to their share in the first bill in the following billing month.

- 5.13 Transmission deviation charges shall not be levied for injection of infirm power prior



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to COD of a generating station.

5.14 As per Regulation 13(12) of Sharing Regulations,2020 and amendments thereof, in case of a transmission system where COD has been approved in terms of proviso (ii) of Clause (3) of Regulation 4 of the Tariff Regulations, 2014 or Clause (2) of Regulation 5 of the Tariff Regulations, 2019 or where deemed COD has been declared in terms of Transmission Service Agreement under Tariff based Competitive Bidding, the Yearly Transmission Charges for the transmission system shall be:

- a) paid by the inter-State transmission licensee whose transmission system is delayed till its transmission system achieves COD, or
- b) paid by the generating company whose generating station or unit(s) thereof is delayed, till the generating station or unit thereof, achieves COD, or
- c) shared in the manner as decided by the Commission on case to case basis, where more than one inter-State transmission licensee is involved or both transmission system and generating station are delayed. In such case, MTC and line lengths (total & to be considered in MTC) would be furnished by ISTS Transmission Licensee accordingly along-with all the computations/ relevant orders etc.
- d) paid by the respective drawee DIC(s) of the State whose intra-state transmission system is delayed, till such intra-State transmission system achieves COD.
- e) paid by the Bulk consumer or distribution licensee granted approval to directly connect to ISTS, whose connecting transmission line to ISTS is delayed , till such line is connected to ISTS, or
- f) paid by the ESS whose project is delayed, till the ESS achieves COD.
- g) paid by the Renewable Power Park developer whose Park is delayed, till it is connected to ISTS.

5.15 As per Regulation 13(13) of Sharing Regulations,2020 and amendments thereof, intra-State transmission system for which tariff is approved by the Commission shall be included for sharing of transmission charges of DICs only for the period for which such tariff has been approved.

5.16 Monthly Transmission Charges (MTC) considered for computation of transmission charges for the billing period under Sharing Regulations 2020 and amendments thereof; shall be made available to all ISTS licensees (and Non-ISTS licensees having ISTS lines as approved by CERC) by 10<sup>th</sup> day of each month following billing period for review and comment, if any, for 2 days, in order to finalize MTC to be considered for the computations.

## 6.0 Computation of total GNA and $GNA_{RE}$ of DICs by IA

6.1 IA shall compute total GNA and  $GNA_{RE}$  (MW) of DICs based on the details received from CTU for the billing period. For Sharing of Transmission charges, GNA for the

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State shall be considered after reducing GNAd from GNA as per Annexure-II of CERC(Connectivity and General Network Access to the inter-State Transmission System)(First Amendment) Regulations,2023.

- 6.2 The computed details of total GNA and  $GNA_{RE}$  of DICs as per Para 6.1 shall be made available to RLDCs on 12<sup>th</sup> day of each month following billing period for review and comment, if any, for 2 days, in order to finalize the total GNA and  $GNA_{RE}$  of DICs.

### **7.0 Load Flows Studies on the Basic Network**

- 7.1 The Implementing Agency shall run AC load flow on the all India basic Network, based on the network data obtained from all the DICs, inter-State transmission licensees, intra-state transmission licensees tariff of whose assets have been approved by the Commission as being used for inter-State transmission including the NLDC, RLDCs and SLDCs.
- 7.2 The real power at the generator nodes and the withdrawal nodes in the Basic Network shall be as per actual demand and generation data obtained for peak block during billing period. In case of DIC fails to submit required node wise data, Para 6.3.3 of “Procedure for collection of data and information” shall be followed.
- 7.3 As per Regulation (9) (4) of the Sharing Regulations 2020 and amendments thereof, IA may make minor adjustment in nodal injection and withdrawal data so as to maintain load generation balance in the representative base case in consultation with NLDC/ RLDCs based on the historic injection and demand data available with them.

### **8.0 Methodology of sharing of Inter-State Transmission charges**

Total ISTS Monthly Transmission Charges (MTC) shall have the following components:

- a. National Component (NC)
- b. Regional Component (RC)
- c. Transformers Component (TC) and
- d. AC System Component (ACC)

### **8.1 Computation and sharing of National Component (NC) of transmission charges**

- 8.1.1 National Component shall comprise of the following components:

- a) National Component-Renewable Energy:

National Component- RE shall comprise of the Yearly Transmission Charges for transmission systems developed for renewable energy projects as identified by the Central Transmission Utility.

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### b) National Component-HVDC:

This component shall comprise of the following:

- i. 100% of Yearly Transmission Charges for “back-to-back HVDC” transmission system
- ii. 100% of Yearly Transmission Charges for Biswanath-Chariali/ Alipurdwar to Agra HVDC transmission system
- iii. Yearly Transmission Charges of Mundra–Mohindergarh 2500 MW HVDC transmission system corresponding to 1005 MW capacity
- iv. 30% of Yearly Transmission Charges for all other HVDC transmission systems except those covered under above sections.

8.1.2 Transmission Charges under National Component shall be shared by all drawee DICs in proportion to their quantum of GNA and GNA<sub>RE</sub>.

8.1.3 Proportionate transmission charges of HVDC Mundra-Mohindergarh towards 1495 MW is to be borne by M/s Adani Power (Mundra) Limited or its successor company.

## **8.2 Computation and sharing of Regional Component RC) of Transmission Charges**

8.2.1 Regional Component shall comprise of the following components:

- a) Regional Component of HVDC (RC-HVDC) comprising of 70% of Yearly Transmission Charges of HVDC transmission systems planned to supply power to the concerned region, except HVDC transmission systems covered under National HVDC Component.
- b) Yearly Transmission Charges for static compensators (STATCOMs), static VAR compensators (SVCs), bus reactors, spare transformers, spare reactors and any other transmission element(s) located in the concerned region and identified by the Central Transmission Utility as being critical for providing stability, reliability and resilience in the grid.

8.2.2 Transmission Charges under Regional Component of HVDC shall be shared by drawee DICs of the receiving region in the receiving region, in proportion to their quantum of GNA and GNA<sub>RE</sub>.

8.2.3 Transmission Charges of STATCOMs, SVCs and bus reactor etc. shall be shared by drawee DICs of the region in proportion to their quantum of GNA and GNA<sub>RE</sub>.

### 8.3 Computation and sharing of Transformer Component (TC) of Transmission Charges

8.3.1 Transformer Component for a State shall comprise of Yearly Transmission Charges for inter-connecting transformers (ICTs) along with their associated bays and downstream bays planned for drawl of power by the concerned State.

8.3.2 For transformers used for drawl requirement of more than one State, Yearly Transmission Charges shall be apportioned to such States in the ratio of number of feeders from such transformers emanating for each State.

8.3.3 Transformer Component for a State shall be borne and shared by the drawee DICs located in the concerned State in proportion to their quantum of GNA and GNA<sub>RE</sub>.

### 8.4 Computation and sharing of AC System Component (ACC) of Transmission Charges

8.4.1 AC System Component shall comprise of the remaining Yearly Transmission Charges which are not covered under National Component, Regional Component and Transformer Component.

8.4.2 AC System Component shall comprise of AC Usage-Based component and AC Balance component.

8.4.3 Computation of share of Transmission charges under AC usage-based component

- a) The transmission charge per circuit kilometer for a transmission line for each conductor configuration at each voltage level shall be made uniform.
- b) Total circuit kilometer for transmission lines for each conductor configuration at each voltage level shall be allocated uniform charges based on the indicative cost per circuit kilometer for a transmission line for each conductor configuration at each voltage level as furnished by CTU.
- c) The following illustration shall be followed to calculate uniform transmission charges type wise per circuit km.

Type	Cost (Rs Lakh)	Cost (Rs Lakh) /Circuit	Actual ckt-km Type Wise	Equivalent ckt km	Indicative Cost Type Wise per ckt-km
				w.r.t 400 kV D/C Quad Moose	(Rs Lakh/ckt-km)
765 kV - D/C – HEXA	a <sub>1</sub>	b <sub>1</sub> =a <sub>1</sub> /2	T <sub>1</sub>	K <sub>1</sub> =T <sub>1</sub> ×(b <sub>1</sub> /b <sub>3</sub> )	I <sub>1</sub> = <sup>T</sup> C <sub>M</sub> ×( K <sub>1</sub> /K)/T <sub>1</sub>
765 kV - S/C – HEXA	a <sub>2</sub>	b <sub>2</sub> =a <sub>2</sub>	T <sub>2</sub>	K <sub>2</sub> =T <sub>2</sub> ×(b <sub>2</sub> /b <sub>3</sub> )	I <sub>2</sub> = <sup>T</sup> C <sub>M</sub> ×( K <sub>2</sub> /K)/T <sub>2</sub>
400 kV - D/C - Quad Moose	a <sub>3</sub>	b <sub>3</sub> =a <sub>3</sub> /2	T <sub>3</sub>	K <sub>3</sub> =T <sub>3</sub> ×(b <sub>3</sub> /b <sub>3</sub> )	I <sub>3</sub> = <sup>T</sup> C <sub>M</sub> ×( K <sub>3</sub> /K)/T <sub>3</sub>
400 kV - D/C - Twin Moose	a <sub>4</sub>	b <sub>4</sub> =a <sub>4</sub> /2	T <sub>4</sub>	K <sub>4</sub> =T <sub>4</sub> ×(b <sub>4</sub> /b <sub>3</sub> )	I <sub>4</sub> = <sup>T</sup> C <sub>M</sub> ×( K <sub>4</sub> /K)/T <sub>4</sub>

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400 kV - S/C - Twin Moose	a <sub>5</sub>	b <sub>5</sub> =a <sub>5</sub>	T <sub>5</sub>	K <sub>5</sub> =T <sub>5</sub> ×(b <sub>5</sub> /b <sub>3</sub> )	I <sub>5</sub> = <sup>T</sup> C <sub>M</sub> ×( K <sub>5</sub> /K)/T <sub>5</sub>
220 kV - D/C -	a <sub>6</sub>	b <sub>6</sub> =a <sub>6</sub> /2	T <sub>6</sub>	K <sub>6</sub> =T <sub>6</sub> ×(b <sub>6</sub> /b <sub>3</sub> )	I <sub>6</sub> = <sup>T</sup> C <sub>M</sub> ×( K <sub>6</sub> /K)/T <sub>6</sub>
220 kV - S/C -	a <sub>7</sub>	b <sub>7</sub> =a <sub>7</sub>	T <sub>7</sub>	K <sub>7</sub> =T <sub>7</sub> ×(b <sub>7</sub> /b <sub>3</sub> )	I <sub>7</sub> = <sup>T</sup> C <sub>M</sub> ×( K <sub>7</sub> /K)/T <sub>7</sub>
132 kV - D/C -	a <sub>8</sub>	b <sub>8</sub> =a <sub>8</sub> /2	T <sub>8</sub>	K <sub>8</sub> =T <sub>8</sub> ×(b <sub>8</sub> /b <sub>3</sub> )	I <sub>8</sub> = <sup>T</sup> C <sub>M</sub> ×( K <sub>8</sub> /K)/T <sub>8</sub>
132 kV - S/C -	a <sub>9</sub>	b <sub>9</sub> =a <sub>9</sub>	T <sub>9</sub>	K <sub>9</sub> =T <sub>9</sub> ×(b <sub>9</sub> /b <sub>3</sub> )	I <sub>9</sub> = <sup>T</sup> C <sub>M</sub> ×( K <sub>9</sub> /K)/T <sub>9</sub>
400 kV - D/C - Triple Snowbird	a <sub>10</sub>	b <sub>10</sub> =a <sub>10</sub> /2	T <sub>10</sub>	K <sub>10</sub> =T <sub>10</sub> ×(b <sub>10</sub> /b <sub>3</sub> )	I <sub>10</sub> = <sup>T</sup> C <sub>M</sub> ×( K <sub>10</sub> /K)/T <sub>10</sub>
400 kV - D/C - Twin HTLS	a <sub>11</sub>	b <sub>11</sub> =a <sub>11</sub> /2	T <sub>11</sub>	K <sub>11</sub> =T <sub>11</sub> ×(b <sub>11</sub> /b <sub>3</sub> )	I <sub>11</sub> = <sup>T</sup> C <sub>M</sub> ×( K <sub>11</sub> /K)/T <sub>11</sub>
		Sum	T	K	

**<sup>T</sup>C<sub>M</sub> = Monthly Transmission Charge w.r.t. AC System Component**

d) The type wise indicative cost thus computed shall be multiplied with circuit kilometers of each transmission line in order to arrive at average MTC of the transmission line. The total MTC of all transmission lines under this sharing mechanism shall be adjusted to total AC system component by scaling up/ down in case of discrepancy.

e) Wherever lines belonging to an ISTS Licensee are Looped In Looped Out by an Intra-State Transmission Licensee, the entire length shall be considered for Load flow studies and length corresponding to original line shall be considered for recovery of the transmission charges.

The State portion of the line would only be included after approval of the Commission.

f) After load flow studies on the basic network, percentage usage of each line shall be computed by dividing the power flow on each line by Surge Impedance Loading (SIL) of the line. In case, power flow on any line is more than Surge Impedance Loading, percentage usage shall be capped at 100%.

g) Percentage usage of each transmission line shall be multiplied by line wise charges of such transmission line to obtain usage-based transmission line charges.

h) For the transmission lines covered under National RE-Component, circuit km of such transmission lines shall be considered as “zero”.

i) Where entire Yearly Transmission Charges are to be billed to a Connectivity grantee under sections 5.5, 5.8 and 5.11 of this procedure, Circuit Km of such transmission lines shall be considered as “zero”.

j) Where Yearly Transmission Charges are to be partly included for computation of AC usage-based transmission charges and partly to be billed to Connectivity grantee or any other entity covered under section 5 of this procedure, the circuit

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kilometers of such transmission lines shall be reduced pro rata corresponding to the Yearly Transmission Charges to be included for computation of AC usage-based transmission charges.

Example:

Suppose a transmission line has 500 circuit km and 50% of its Yearly Transmission Charges are to be billed to a connectivity grantee 'A' and 50% is to be included for computation of transmission charges in accordance with Regulations 5 to 8 of Sharing regulations 2020 and amendments thereof. For calculation of AC-UBC, circuit km for this transmission line shall be taken as 250 circuit km.

- k) The usage-based line cost shall then be attributed to various nodes as per their utilization factors of the line in proportion to the nodal load to arrive at the nodal transmission charges.
- l) The load flow results and usage-based cost of each line of the basic network corresponding to peak block during billing period shall form the basis of calculation of transmission charges and the input to the computation software. The output of the software shall be the computed nodal transmission charges.

Transmission charges (in Rs.) for billing towards GNA and GNA<sub>RE</sub> shall be calculated only on Withdrawal nodes (as Withdrawal charges).

- m) IA shall aggregate transmission charges at drawl nodes (excluding drawl nodes of a DIC having GNA other than distribution licensee of the state located within the state control area) to determine the transmission charges of the state under AC usage-based component. Same shall be applicable for the drawee DIC which is a regional entity.
- n) The demand zones shall normally be the State control areas.

### **8.5 Computation and sharing of AC Balanced Component of Transmission Charges:**

8.5.1 The Yearly Transmission Charges under AC-Balanced Component shall be the balance Yearly Transmission Charges for AC System Component after apportioning the charges for AC-Usage-Based Component.

8.5.2 Transmission charges under AC-Balanced Component shall be shared by all drawee DICs in proportion to their quantum of GNA and GNA<sub>RE</sub>.

### **9.0 Computation of Transmission Charges for T-GNA and T- GNA<sub>RE</sub>**

9.1 State-wise T-GNA rate shall be calculated as follows:

T-GNA Rate for the State (in Rs./MW/time-block)

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$$= \frac{1.10 \times \text{Transmission charges for all drawee DICs located in the State, for the billing month (in rupees)}}{\text{number of days in a month} \times 96 \times \{\text{GNA and GNARE quantum (in MW) for all such drawee DICs located in the State considered for billing, for the corresponding billing period}\}}$$

- 9.2 Transmission Charges for T-GNA or T-GNARE transactions shall be payable by entities located in the State, as per the last published T-GNA Rate for the State. In case of drawee entities that are users of RLDC which have no GNA or GNARE, T-GNA Rate of the state in which they are located shall be applicable.

### 10.0 Determination of Transmission Charges for DICs

- 10.1 Transmission charges for DICs shall be the sum of charges computed under National Component, Regional Component, Transformer Component and AC System Component.

Example: Transmission Charges (in Rs.) = NC + RC + TC + ACC where,

NC (National Component) = National Component-RE + National Component-HVDC

RC (Regional Component) = Regional Component-HVDC + Charges of STATCOM etc.

TC = Transformer Component

ACC (AC System Component) = AC usage-based component + AC Balance component

- 10.2 In case of under/over recovery of monthly transmission charges, transmission charges shall be scaled on pro-rata basis.

### 11.0 Calculation of waiver of transmission charges:

- 11.1 Calculation of waiver of transmission charges in respect of drawee DICs which have obtained GNA and GNARE.

- (i) Waiver of a drawee DIC other than a drawee DIC which has obtained “GNARE” shall be calculated based on the following formulae:

$$\text{Waiver(\%)} = 100 \times \frac{\sum_{n=1}^T \frac{SDRG}{SDTG}}{T}$$

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Where,

“SDRG” is the drawl schedule (in MW) through ISTS under GNA from the sources eligible for waiver under Regulation 13 of Sharing Regulations 2020 and amendments thereof in nth block;

“SDTG” is the total drawl schedule (in MW) under GNA through ISTS from all sources in nth block;

“n” is the nth time block

“T” is number of time blocks in a month = 96 X number of days in a month

Provided that in case the “SDTG” for a time block is less than 75% of the maximum schedule corresponding to GNA, the “SDTG” shall be taken as 75% of maximum schedule corresponding to GNA for a time block.

- Maximum schedule corresponding to GNA shall be considered same as the GNA quantum.

(ii) Waiver of a drawee DIC which has obtained “GNA<sub>RE</sub>” shall be calculated based on the following formulae:

$$\text{Waiver(\%)} = 100 \times \frac{\text{Sum of SDRG for all time blocks in the month}}{(\text{Total number of time blocks in the month} \times 0.3 \times \text{GNARE})}$$

Where,

“GNA<sub>RE</sub>” is the GNA to procure power only from the sources eligible for waiver under Regulation 13 of Sharing Regulations 2020 and amendments thereof;

“SDRG” is the drawl schedule (in MW) in a time block through ISTS under GNA<sub>RE</sub> from the sources eligible for waiver under Regulation 13 of Sharing Regulations 2020 and amendments thereof;

Provided that maximum waiver shall be limited to 100%:

Provided further that if such an entity draws power from any source other than the sources eligible for waiver under Regulation 13 (2) of Sharing Regulations 2020 and amendments thereof, except after obtaining additional GNA or T-GNA or converting GNA<sub>RE</sub> into GNA by making an application to CTU, it shall be charged @TDR of the State in which such an entity is located.

11.2 Amount of waiver for each drawee DIC shall be determined by multiplying Waiver % as calculated under para 11.1 (i) and (ii) with the transmission charges computed



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in accordance with Regulations 5 to 8 of Sharing Regulations 2020 and amendments thereof.

- 11.3 Transmission charges for each drawee DIC computed in accordance with Regulations 5 to 8 of Sharing Regulations 2020 and amendments thereof shall be reduced by amount of waiver calculated under para 11.2 of this procedure.
- 11.4 Total amount of waiver shall be calculated as sum of amount of waiver for all drawee DICs calculated under para 11.2 of this procedure.
- 11.5 The first bill shall be sum of transmission charges as calculated under para 11.3 of this procedure and amount arrived at by apportioning the total amount of waiver as arrived under para 11.4 in proportion to transmission charges of each drawee DIC calculated as per para 11.3, and shall be used for billing under sub clause (a) of Clause (2) of Regulation 15.
- 11.6 Calculation of waiver of transmission charges in respect of drawee DICs which have obtained T-GNA or T- GNA<sub>RE</sub>:
- (i) The transmission charges for ISTS for T-GNA and T- GNA<sub>RE</sub> shall be computed in accordance with Regulation 11 of Sharing Regulations 2020 and amendments thereof.
- (ii) Waiver of a drawee DIC other than a DIC which has obtained “T- GNA<sub>RE</sub>” shall be calculated based on the following formulae:

$$\text{Waiver(\%)} = 100 \times \frac{\sum_{n=1}^T \frac{SDRTG}{SDTTG}}{T}$$

Where,

“SDRTG” is the drawl schedule (in MW) through ISTS under T-GNA from the sources eligible for waiver under Regulation 13 of Sharing Regulations 2020 and amendments thereof in nth block;

“SDTTG” is the total drawl schedule (in MW) under T-GNA through ISTS from all sources in nth block; and

“n” is the nth time block

“T” is number of time blocks in a month = 96 X number of days in a month

Provided that in case the “SDTTG” for a time block is less than 75% of the maximum schedule corresponding to T-GNA, the “SDTTG” shall be taken as 75%

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of maximum schedule corresponding to T-GNA for a time block.

- Maximum schedule corresponding to T-GNA shall be considered same as the T-GNA quantum.

(iii) Waiver of a drawee DIC which has obtained “T- GNA<sub>RE</sub>” shall be calculated based on the following formulae

$$\text{Waiver(\%)} = 100 \times \frac{\text{Sum of SDRTG for all time blocks in the month}}{(\text{Total number of time blocks in the month} \times 0.3 \times \text{T} - \text{GNARE})}$$

Where,

“T- GNA<sub>RE</sub>” is the T-GNA to procure power only from the sources eligible for waiver under Regulation 13 of Sharing Regulations 2020 and amendments thereof;

“SDRTG” is the drawl schedule (in MW) through ISTS under T-GNA<sub>RE</sub> from the sources eligible for waiver under Regulation 13 of Sharing Regulations 2020 and amendments thereof in a time block;

Provided that maximum waiver shall be limited to 100%:

Provided further that if such an entity draws power from any source other than the sources eligible for waiver under Regulation 13 (2) of Sharing Regulations 2020 and amendments thereof, except after obtaining additional GNA or T-GNA or converting T-GNA<sub>RE</sub> into T-GNA by making an application to CTU, it shall be charged @TDR of the State in which such an entity is located.

- 11.7 Amount of waiver for each drawee DIC shall be determined by multiplying Waiver % calculated under para 11.6 (ii) and (iii) with the transmission charges computed under para 11.6(i).
- 11.8 Amount of waiver for each drawee DIC as calculated under para 11.7 shall be reimbursed by CTU from the already paid T-GNA or T- GNA<sub>RE</sub> charges on finalization of schedules, by 15th day of the next month.
- 11.9 In case of change in Schedule data subsequent to notification of Transmission charges, computation of waiver % as per para 11.1 and 11.6 will not be revised.
- 11.10 As per Regulation 14(1) to Sharing Regulations 2020 and amendments thereof, The Implementing Agency shall publish transmission charges payable by drawee DICs for the billing month in Rupee terms.
- 11.11 Implementing Agency shall provide the following information to RPC on

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completion of computation of transmission charges:

- a) Corresponding GNA and GNA<sub>RE</sub> (MW) data of each drawee DIC for each month based on the details received from CTU.
- b) Component-wise breakup of Transmission charges (in Rs) payable by each drawee DIC for the billing month.
- c) Direct drawl as specified in Annexure-II of GNA Regulations 2022 and amendments thereof; for preparation of Regional Transmission Deviation Account.

11.12 Based on the information furnished by the Implementing Agency, Secretariat of the respective Regional Power Committee shall issue Regional Transmission Accounts and shall publish the same on its website.

11.13 The Regional Transmission Deviation Account shall be prepared by RPC from the processed metered data of all SEMs furnished by RLDC to RPC on weekly basis for DSM account, Schedule drawl under GNA<sub>RE</sub> /T- GNA<sub>RE</sub> furnished by RLDC and direct drawl furnished by RLDC/IA as per para 11.11(c).

## 12 Time lines for various activities under this procedure

Sl.No.	Name of the Activity	Time line
1	Data and information of ISTS assets to be furnished by all ISTS licensees and Non-ISTS Licensees whose assets are approved by CERC as being used for Inter-state Transmission of electricity	By last day of each billing period
2	Data and information of any new ISTS assets achieved COD by last day of the billing period	On 1 <sup>st</sup> day of each month following billing period
3	Notification of Peak Block by IA	On 1 <sup>st</sup> day of each month following billing period
4	Data and information to be furnished by all DICs/ CTU to RLDCs/ IA	By 7 <sup>th</sup> day of each month following billing period
5	Availability of finalized MTC to be considered for computations of the billing period to all ISTS Licensees and Non-ISTS Licensees whose assets are approved by CERC as being used for Inter-state Transmission of electricity for review and comment	On 10 <sup>th</sup> day of each month following billing period
6	Comments to be sent by ISTS Licensees on finalized MTC to be considered for computations of the billing period	By 12 <sup>th</sup> day of each month following billing period
7	Preparation of basic network by each RLDC	By 12 <sup>th</sup> day of each month following billing period
8	Availability of finalized GNA and	On 12 <sup>th</sup> day of each month

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Sl.No.	Name of the Activity	Time line
	GNA <sub>RE</sub> profile to RLDCs for review and comment	following billing period
9	Furnishing feeder-wise SEM data and scheduled quantum for each time block by RLDC for computation of “Direct drawal” as per GNA Regulations.	On 12 <sup>th</sup> day of each month following billing period
10	Comments to be sent by all RLDCs on the details of GNA and GNA <sub>RE</sub> profile	By 15 <sup>th</sup> day of each month following billing period
11	Preparation of All India basic network for the billing period by IA and made available to all DICs for review and comment	By 15 <sup>th</sup> day of each month following billing period
12	Comments to be sent by all DICs on the all India basic network to IA	By 18 <sup>th</sup> day of each month following billing period
13	Notification of transmission charges payable by DICs by NLDC	By 25 <sup>th</sup> day of each month following billing period

### 13 Information to be published by IA in Public Domain

13.13 Implementing Agency shall provide following information in public domain:

- a) The Basic Network, generation at nodes and drawal at nodes considered for the Base Case and the load flow results, for each billing period and Assumptions if any;
- b) Details of transformers, list of transmission elements and corresponding transmission charges considered under Regional Component for the billing period;
- c) Details of transmission system covered under National Component;
- d) New transmission system added during billing period;
- e) YTC detail of transmission elements considered for billing period as submitted by the inter-State transmission licensees and intra-State transmission licensees covered under the Regulation and computation by Implementing Agency, besides confirming to CTU in writing for the purpose of disbursement of charges to Licensees;
- f) Details of GNA and GNA<sub>RE</sub> in respect of each DIC for the billing period;
- g) Detailed calculations for arriving at the average cost in respect of each transmission line using indicative cost;
- h) Transmission charges payable by each constituent for the billing month along with component-wise break-up.
- i) Detailed calculations of waiver of transmission charges as per Annexure –III of Sharing Regulations, 2020 and amendments thereof.

**Procedure for Computation and sharing of ISTS Charges**

13.14 The above information shall be made available for viewing as well as downloading in .xls/.csv formats on the website of IA only after logging in. The username and password for this purpose can be generated through registration on the website.

13.15 IA shall design and develop an interactive “query” to show case the results of computations includes:

- a) a given generator is meeting which loads and in what proportion
- b) a given load(s) is met by which generators and in what proportion
- c) a given DIC is using which transmission lines and in what proportion
- d) a given transmission is serving which DICs and in what proportion.
- e) and as required by DICs on time to time basis

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**Process Chart for Determination of Transmission Charges**

