

**Views of GRIDCO on Draft Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) (Third Amendment) Regulations, 2023**

CERC has published the draft “Central Electricity Regulatory Commission (Sharing of Inter-State Transmission Charges and Losses) (Third Amendment) Regulations, 2023 inviting comments/views from the stakeholders:

**1. Amendment to sub- clause (a) of Clause (1) of Regulation 6 :**

Following is the stipulation as per above Regulations:

*“Provided that where an interregional HVDC transmission system planned to supply power to a particular region is operated to carry power in reverse direction due to system requirements, the percentage Yearly Transmission Charges of such transmission system to be considered in the regional component and the National component shall be calculated as follows::*

**HVDCr (in %) =**

$$\sum_{k=1}^n \text{Maximum power flow in reverse direction (in MW) in any time block on kth day} \times 100$$

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**Capacity of HVDC transmission system in forward direction (MW) X number of days in a month**

*Where k, is a day of a month with total ‘n’ days*

*where HVDCr >30%, the Yearly Transmission charges corresponding to HVDCr shall be considered in the National component and the balance in the regional component.*

*where HVDCr is < 30%, 30% of Yearly Transmission Charges shall be considered in the National component and 70% in the Regional component.”*

**Comments:**

- i) As per Jha Committee Report 30% of the transmission charges of bulk transfer through HVDC transmission systems is considered under the National component as HVDC systems having control features provide flexibility and hence more stability to the overall Grid, and that bipole HVDC lines have been strategically planned for not only bulk power transfer but also to enhance the overall operational performance of the grid.
- ii) The present Amendment has been brought out considering only the bi-directional flow of the HVDC Raigarh-Pugalur-Thrissur HVDC Transmission System (WR -> SR corridor) for the period April 2022 to April 2023 as evident from clauses 1.8 to 1.11 of the explanatory memorandum to Sharing Regulations (Third Amendment), 2023.
- iii) Clause 1.14 of the explanatory memorandum stipulates the following –  
*“1.14 As discussed in the above paragraphs, a similar type of power flow pattern may be seen in other HVDC Bipole lines where there is power flow in both directions. In this regard, it is pertinent to mention here that all the HVDC Bipole lines are generally planned for the transfer of power to the power deficit region, but 30% of its tariff is already considered under the National Component as per the existing Sharing Regulations 2020, irrespective of utilization in the reverse direction, as they provide flexibility and stability to the grid.”*

From the above, it is clear that detailed analysis with regard to reverse flow has been carried out only for Raigarh-Pugalur-Thrissur HVDC Transmission System and study of the reverse flow in case of other HVDC lines such as Talcher–Kolar HVDC system have not been carried out. A general assumption is being made considering the flow of only on line which is not technically correct.

**Proposal:**

- i) It is proposed that the additional reverse flow i.e. HVDCr > 30 % should be added to the regional component of the supplying region instead of adding it to the National Component and the above proposed proviso should be modified as under :

*“Provided that where an interregional HVDC transmission system planned to supply power to a particular region is operated to carry power in reverse direction due to system requirements, the percentage Yearly Transmission Charges of such transmission system to be considered in the regional component and the National component shall be calculated as follows::*

**HVDCr (in %) =**

$$\sum_{k=1}^n \text{Maximum power flow in reverse direction (in MW) in any time block on kth day} \times 100$$

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**Capacity of HVDC transmission system in forward direction (MW) X number of days in a month**

*Where k, is a day of a month with total ‘n’ days*

*where HVDCr >30%, the Yearly Transmission charges (YTC) corresponding to **additional HVDCr in excess of 30 % shall be added to the Regional Component of the drawee region (region receiving the reverse flow), 30% to be considered in the National component and the balance in the regional component.***

*where HVDCr is ≤ 30%, 30% of Yearly Transmission Charges shall be considered in the National component and 70% in the Regional component.”*

**Justification:**

- i) The cost of additional reverse flow beneficial to one region cannot be transferred to other regions in form of National component.
- ii) The additional reverse flow for transfer from one region to other region in a bipolar HVDC line can easily be determined using the proposed formula and loading of the additional reverse component onto the supplying region will not be an issue.