

**CENTRAL ELECTRICITY REGULATORY COMMISSION**  
**New Delhi**

**Petition No. 242/TT/2021**

**Subject :** Petition for transmission tariff for the 2019-24 tariff period for Asset-1:  $\pm 800$  kV 1500 MW (Pole-IV) HVDC terminals each at Raigarh (HVDC Station) & Pugalur (HVDC Station) under “HVDC Bipole link between the Western Region (Raigarh, Chattisgarh) and the Southern Region (Pugalur, Tamil Nadu) -North Trichur (Kerala)-Scheme 1: Raigarh-Pugalur 6000 MW HVDC System” in the Southern Regional grid.

**Petitioner :** Power Grid Corporation of India Limited.

**Respondents :** Tamil Nadu Generation and Distribution Corporation Ltd. and 23 others

**Petition No. 243/TT/2021**

**Subject :** Petition for transmission tariff for the 2019-24 tariff period for Asset-1: Pugalur HVDC station–Edayarpalayam (TANTRANSCO) 400 kV (Quad) D/C transmission line along with associated bays at Pugalur HVDC Station & Edayarpalayam (TANTRANSCO) - Udumalpet 400 kV (Quad) D/C transmission line along with associated bays at Udumalpet S/S (Pugalur HVDC-Edayarpalayam line and Edayarpalayam-Udumalpet line are bypassed at Edayarpalayam Sub-station to make Pugalur HVDC- Udumalpet line as an interim arrangement) and Asset-2: Pugalur (HVDC Station)-Thiruvallam 400 kV (Quad) D/C Transmission line along with associated bays and equipments at both ends and 2 nos. 80 MVAR line Reactors at Pugalur (HVDC Station) & 2 nos. 63 MVAR line reactors at Thiruvallam (existing 63 MVAR Bus reactor at Thiruvallam shall be utilized as line reactor in one circuit and second circuit shall have new 63 MVAR Line Reactor) under “HVDC Bipole link between Western Region (Raigarh, Chattisgarh) and Southern Region (Pugalur, Tamil Nadu)-North Trichur (Kerala)-Scheme 2 AC System strengthening at Pugalur end” in the Southern Regional Grid.

**Petitioner :** Power Grid Corporation of India Limited.

**Respondents :** Tamil Nadu Generation and Distribution Corporation Limited. and 17 others



**Petition No. 685/TT/2020**

**Subject :** Petition for transmission tariff for the 2019-24 tariff period for  $\pm$  800 kV 6000 MW Raigarh (HVDC Station)-Pugalur (HVDC Station) HVDC Link along with  $\pm$  800 kV 1500 MW (Pole-I) HVDC terminals each at Raigarh (HVDC Station) & Pugalur (HVDC Station) under “HVDC Bipole link between Western Region (Raigarh, Chattisgarh) and Southern Region (Pugalur, Tamil Nadu)-North Trichur (Kerala)-Scheme 1: Raigarh-Pugalur 6000 MW HVDC System” in the Southern Regional grid.

**Petitioner :** Power Grid Corporation of India Limited.

**Respondents :** Tamil Nadu Generation and Distribution Corporation Limited. and 23 others

**Petition No. 693/TT/2020**

**Subject :** Petition for transmission tariff for the 2019-24 tariff period for a) 400 kV Pugalur (HVDC Station)-Pugalur (Existing) (Quad) D/C Transmission line along with associated bays at Pugalur (HVDC Station) & Pugalur (Existing) Sub-station and b) 400 kV Pugalur (HVDC Station)-Arasur (Quad) D/C Transmission line along with associated bays at Pugalur (HVDC Station) & Arasur station under “HVDC Bipole link between the Western Region (Raigarh, Chattisgarh) and the Southern Region (Pugalur, Tamil Nadu)-North Trichur (Kerala)-Scheme 2 AC System strengthening at Pugalur end” in the Southern Regional grid.

**Petitioner :** Power Grid Corporation of India Limited.

**Respondents :** Tamil Nadu Generation and Distribution Corporation Limited. and 17 others

**Petition No. 172/TT/2021**

**Subject :** Petition for transmission tariff for the 2019-24 tariff period for 5 no. of assets under “HVDC Bipole link between Western Region (Raigarh, Chattisgarh) and Southern Region (Pugalur, Tamil Nadu)-North Trichur (Kerala)-Scheme 3: Pugalur-Trichur 2000 MW VSC based HVDC System”

**Petitioner :** Power Grid Corporation of India Limited.



**Respondents** : Tamil Nadu Generation and Distribution Corporation Limited. and 17 others

**Petition No. 173/TT/2021**

**Subject** : Petition for transmission tariff for the 2019-24 tariff period for Asset-1:  $\pm 800$  kV 1500 MW (Pole-II) HVDC terminals each at Raigarh (HVDC Station) & Pugalur (HVDC Station) and Asset-2:  $\pm 800$  kV 1500 MW (Pole-III) HVDC terminals each at Raigarh (HVDC Station) & Pugalur (HVDC Station) under "HVDC Bipole link between Western Region (Raigarh, Chattisgarh) and Southern Region (Pugalur, Tamil Nadu)-North Trichur (Kerala)-Scheme 1: Raigarh-Pugalur 6000MW HVDC System" in the Southern Regional grid.

**Date of Hearing** : 11.2.2022

**Coram** : Shri I. S. Jha, Member  
Shri Arun Goyal, Member  
Shri P. K. Singh, Member

**Petitioner** : Power Grid Corporation of India Limited.

**Respondents** : Tamil Nadu Generation and Distribution Corporation Limited. and 23 others

**Parties Present** : Ms. Swapna Seshadri, Advocate, PGCIL  
Shri Aditya H. Dubey, Advocate, PGCIL  
Shri S. Vallinyagam, Advocate, TANGEDCO  
Shri Sri Harsha Peechara, Advocate, TSSPDCL & TSNPDCL  
Shri Diptiman Acharyya, Advocate, TSSPDCL & TSNPDCL  
Shri Prabhas Bajaj, Advocate, KSEBL  
Shri S.S Raju, PGCIL  
Shri Anshul Garg, PGCIL  
Shri D.K. Biswal, PGCIL  
Shri Ved Rastogi, PGCIL  
Dr. R. Kathivaran, TANGEDCO  
Shri R. Ramalakshmi, TANGEDCO  
Shri R. Srinivasan, TANGEDCO  
Shri Anindya Khare, MPPMCL

**Record of Proceedings**

Cases were called out together for virtual hearing.



2. Six petitions with several inter-linked issues having financial implications on one another filed for determination of transmission tariff from COD to 31.3.2024 in respect of transmission assets under HVDC Bipole link between the Western Region (Raigarh, Chattisgarh) and the Southern Region (Pugalur, Tamil Nadu) – North Trichur (Kerala) were heard together.

3. The learned counsel for the Petitioner referring to a Note detailing the assets covered in the transmission project and the issues involved, made the following submissions:

- a. Details of the various Schemes, transmission assets, SCOD, COD and time over-run covered in the instant petitions are as follows:

Petition No.	Name of Asset	Scheme	Part of schemes involved	SCOD	COD	Time over-run
685/TT/2020	± 800 kV 6000 MW Raigarh (HVDC Station)- Pugalur (HVDC Station) HVDC Link along with ± 800 kV 1500 MW (Pole-I) HVDC terminals each at Raigarh (HVDC Station) & Pugalur (HVDC Station)	Scheme-1	Pole-I	5.11.2019	6.9.2020	9 months 25 days
693/TT/2020	a) 400 kV Pugalur (HVDC Station) - Pugalur (Existing) (Quad) D/C Transmission line along with associated bays at Pugalur (HVDC Station) & Pugalur (Existing) Sub-station. b) 400 kV Pugalur (HVDC Station) - Arasur (Quad) D/C Transmission line along with associated bays at Pugalur (HVDC Station) & Arasur	Scheme-2	AC System at Pugalur end (Tamil Nadu)	16.2.2020	6.9.2020	6 months 13 days



Petition No.	Name of Asset	Scheme	Part of schemes involved	SCOD	COD	Time over-run
	station.					
173/TT/2021	±800kV 1500 MW (Pole-II) HVDC terminals each at Raigarh (HVDC Station) & Pugalur (HVDC Station)	Scheme-1	Pole-II	5.11.2019	9.3.2021	16 months 4 days
	±800kV 1500 MW (Pole-III) HVDC terminals each at Raigarh (HVDC Station) & Pugalur (HVDC Station) under		Pole-III	5.11.2019	13.7.2021	20 months 8 days
172/TT/2021	±320 kV VSC based 2000 MW Pugalur(HVDC) - North Trichur HVDC(Kerala) HVDC link along with ±320 kV 1000 MW (Mono Pole-II) HVDC terminals each at Pugalur (HVDC Station) & North Trichur (HVDC Station, Kerala)	Scheme-3	HVDC System at North Trichur (Kerala)	9.4.2020	9.3.2021	11 months
	±320 kV 1000 MW (Mono Pole-I) HVDC terminals each at Pugalur (HVDC Station) & North Trichur (HVDC Station, Kerala)		HVDC System at North Trichur (Kerala)	9.4.2020	8.6.2021	14 months
	LILO of North Trichur-Cochin 400 kV (Quad) D/C line at North Trichur HVDC station along with associated bays & equipment		AC system at Kerala end	9.4.2020	9.3.2021	11 months



Petition No.	Name of Asset	Scheme	Part of schemes involved	SCOD	COD	Time over-run
	(GIS) at North Trichur HVDC station					
	2 X 315 MVA 400/220/33 kV 3 Ph Auto Transformer along with its associated bays & equipment (GIS) at North Trichur HVDC station		AC system at Kerala end	9.4.2020	9.3.2021	11 months
	2 Nos. additional 220 kV line bays (GIS) at North Trichur HVDC for implementation of 220 kV feeder of Kerala		AC system at Kerala end	9.4.2020	9.3.2021	11 months
242/TT/2021	±800kV 1500 MW (Pole-IV) HVDC terminals each at Raigarh (HVDC Station)	Scheme-1	Pole-IV	5.11.2019	25.10.2021	23 months 20 days
243/TT/2021	Pugalur HVDC Station- Edayarpalayam (TANTRANSCO) 400kV (quad) D/c line along with associated bays at Pugalur HVDC station and Edayarpalayam (TANTRANSCO) substation and 2 nos. 80 MVAR line reactors at Pugalur HVDC station and Edayarpalayam (TANTRANSCO)- Udumulpet 400kV (quad) D/c line	Scheme-2	AC System at Pugalur (Tamil Nadu)	16.2.2020	13.7.2021	16 months 27 days



Petition No.	Name of Asset	Scheme	Part of schemes involved	SCOD	COD	Time over-run
	(Pugalur-Edayarpalyam line and Edayarpalayam - Udumalpet line are bypassed at Edayarpalyam Sub-station to make Pugalur-Udumalpet line)					

- b. The reasons for time over-run in respect of transmission assets have been submitted in detail along with supporting documents in the respective petitions.
- c. The scope of the scheme was discussed and agreed to in various meetings of the Standing Committees and Regional Power Committees of Southern and Western Region which are as follows:

Srl. No.	Date	Particulars
1	4.1.2013	35th meeting of Standing Committee on Power system planning in Southern Region
2	29.8.2013	36th meeting of Standing Committee on Power system planning in Western Region
3	4.9.2013	36th meeting of Standing Committee on Power system planning in Southern Region
4	9.10.2013	24th meeting of Western Regional power committee
5	26.10.2013	23rd Meeting of Southern Regional Power Committee
6	15.3.2014	24th Meeting of Southern Regional Power Committee
7	31.7.2014	37th meeting of Standing Committee on Power system planning in Southern Region
8	26.7.2014	25th Meeting of Southern Regional Power Committee
9	5.9.2014	37th meeting of Standing Committee on Power system planning in Western Region
10	30.9.2014	33rd meeting of Empowered committee on Transmission
11	20.12.2014	26th Meeting of Southern Regional Power Committee
12	7.3.2015	38th meeting of Standing Committee on Power system planning in Southern Region
13	13.4.2015	34th meeting of Empowered committee on Transmission
14	20.4.2015	Joint Meeting of Standing Committee on Power system planning in Southern Region and Western Region
15	12.5.2015	27th Meeting of Southern Regional Power Committee
16	28.5.2015	Joint Meeting of Standing Committee on Power system planning in Southern Region
17	28.5.2015	Corrigendum-Joint Meeting of Standing Committee on Power system planning in Southern Region and Western Region
18	29.9.2015	Prior Approval Letter of the Government under section-68(1) of EA, 2003





- d. Besides above, meetings were convened by CEA on 21.8.2020, 30.12.2020 and 5.7.2021 where CEA, the Petitioner and Respondents from Southern Region were present and the issue of part commissioning of Raigarh-Pugalur-Trichur HVDC Transmission System was discussed. As discussed in the aforesaid CEA meetings and with the consent of beneficiaries, COD of the assets were declared.

4. The learned counsel for TANGEDCO made the following submissions:

- a. In the 35<sup>th</sup> meeting of the Western Regional Standing Committee on Power System Planning, it was decided to shift the termination of  $\pm 600$  kV, 4000 MW HVDC bipolar link from Raigarh (Kotra) to suitable location in Southern Region, instead of Dhule in Western Region due to planned parallel additional corridors in Dhule-Nashik-Malegaon area and non-firming up of beneficiaries for the IPPs in Chhattisgarh and projected deficit in Southern Region at the end of 12<sup>th</sup> Plan.
- b. The project was deliberated in the 35<sup>th</sup>, 36<sup>th</sup> and 39<sup>th</sup> meeting of Southern Regional Standing Committee on Power System planning and it is evident from the deliberations that the subject transmission corridor was evolved based on the anticipated deficit scenario in Southern Region at the end of 12<sup>th</sup> Plan period under the circumstances of non-firming up of beneficiaries with IPPs in Chhattisgarh State. Since there was no identified generator in Raigarh and beneficiary tie-up in Southern Region, the scheme was evolved as a system strengthening scheme. The techno-economical aspects were not deliberated and not brought on record by the Petitioner/ CTUIL as suggested by CEO, POSOCO.
- c. The Petitioner/ CTU did not carry out any study with regard to requirement and user of the Raigarh-Pugalur HVDC corridor considering the enhanced capacity of 6000 MW from the initially proposed 4000 MW in the absence of identified generators and end beneficiaries.
- d. It was decided to conduct a joint study to decide the requirement of the proposed schemes in the 42<sup>nd</sup> Standing Committee meeting held at Ernakulam, Kerala on 27.4.2018. It was concluded in the joint study that utilization of the Raigarh-Pugalur HVDC corridor needs to be explored further. Subsequently, in the first meeting of SRSC held on 7.9.2018, it was stated that constraints were observed in Raigarh end during export of more than 2000 MW from Southern Region. It was planned to connect Karur RE Pooling Station with 2500 MW RE capacity to the Pugalur HVDC Station. However, in the subsequent study report, it has been stated that the Raigarh-Pugalur HVDC corridor would be used for export of 3000 MW (surplus RE) to Western Region in the projected surplus scenario in Southern Region.
- e. Under these surplus conditions and in the absence of any generator tie-up with Discoms in Southern Region, the redundant/ stranded Raigarh-Pugalur-Trissur HVDC system would be economically viable only if it is beneficially used for transfer of RE power instead of creating parallel corridors for export of power from SR to other Western and other regions.





- f. Referring to the treatment of similar HVDC Transmission systems of  $\pm 800$  kV Biswanath Chariali-Agra HVDC by the Commission in Petition No. 67/TT/2015 and Petition No.184/TT/2016; treatment of  $\pm 500$  kV HVDC Mundra-Mohindergarh HVDC in Petition No. 44/TL/2012; provisions of the 2010 Sharing Regulations; Bakshi Committee Report; and provisions of the 2020 Sharing Regulations, it was submitted that since the Raigarh-Pugalur-Trissur HVDC was not put into commercial operation at the time of notification of the 2020 Sharing Regulations, the Commission may consider sharing of transmission charges based on bidirectional flow of power as and when the assets are put to beneficial use.
- g. Based on the resolution during the 36<sup>th</sup> meeting of SRPC, the Chairperson SRPC vide letter dated 30.7.2019 had requested Ministry of Power to declare the Raigarh-Pugalur-Trissur HVDC system as asset of "Strategic and National importance" in line with Biswanath-Chariali-Agra HVDC system and Mundra-Mohindergarh HVDC system. Subsequently, the CM, Tamil Nadu also raised the issue with Minister for Power, Government of India in a meeting. During discussions, Ministry of Power was of the view that the Commission has the power to declare an asset as national asset and, therefore, it has to pass through the regulatory process/ mechanism.
- h. In view of the above submissions, learned counsel for TANGEDCO prayed to declare the Raigarh-Pugalur-Trissur HVDC system, which has become the key element of National Grid in terms of providing flexibility, stability and RE integration, as an asset of strategic and national importance.
- i. Detailed replies have been filed in the matters which may be considered.

5. The learned counsel of KSEB made the following submissions:

- a. Adopted the submission made by the learned counsel of TANGEDCO on how and why the system must be treated as a system of national importance for the purpose of the sharing of transmission charges.
- b. As the system is serving the National Grid, the Commission may examine and declare the system, in terms of the 2020 Sharing Regulations, as National Component for the purpose of sharing of transmission charges.
- c. CTU also informed that this system will deal with the bi-directional flow between the Southern and the Western Region. CTU is also of the view that the transmission charges for all HVDC links in the country except for some specific generation schemes may be shared on all India basis. TCC recommended to SRPC to take the matter (with Ministry of Power) of declaring the transmission system as assets of national importance. The Ministry of Power, in response, vide letter dated 18.3.2021 has stated that since this is an issue dealing with the sharing of transmission charges, this is under the jurisdiction of the Commission and, therefore, the matter may be taken up with the Commission.
- d. The proposed scheme is designed to increase ATC (available transfer capability) of Kerala (S3 Region) by 2000 MW. KSEBL has already strengthened the intra-



State transmission network in consonance with the proposed increase. The 220 kV Madakkathara-Malaparmaba-Nallalam D/C line was commissioned to match the HVDC scheme. However, as per the combined study of SRLDC, SRPC and KSEBL, it has been indicated that with the commissioning of the 320 kV VSC HVDC Pugalur-Thrissur line, effective import of Kerala will get reduced to around 500 MW in view of N-1 security violation of Kochi ICTs. As per the studies, loading of 400/220 kV ICTs (2\*315 MVA) at Cochin, Thrissur (3 x 315 MVA) and Palakkad (2 x 315 MVA) (both forming part of ISTS) are very high and violating N-1 security criteria with import at HVDC Trichur and this would result in reduction of the Total Transfer Capability from the existing TTC of 3300 MW to 2800 MW (reduction of 500 MW). This is a grave situation which shows that the Petitioner has not done proper study and planning before making such a huge investment, the result of which is that the State of Kerala is not at all benefitted by this investment, rather the existing import capability is getting reduced, and a huge cost becomes payable by KSEBL as transmission charges of the system. In the 2<sup>nd</sup> meeting of SRPC (Transmission Planning) held on 1.10.2020 the proposal for augmentation of 1x500 MVA, 400/220 kV 3<sup>rd</sup> ICT at Kochi substation was agreed for implementation as regional system strengthening scheme. In the view of the reduction in TTC of Kerala with the commissioning of the instant asset and delay in commissioning of ICT at Kochi, a proposal for making an interim arrangement was included as an agenda in the 3<sup>rd</sup> meeting of SRPC on Transmission Planning. It was proposed that one of the regional spare ICTs may be commissioned at Kochi Sub-station as early as possible. Accordingly, till the capacity of the ICTs at Kochi are enhanced and the beneficiaries are benefitted from this system, the transmission charges of the system may not be recovered from the beneficiaries.

6. In response to the Commission's query regarding the specific objections raised by TANGEDCO on the instant project, the representative of the Respondent submitted that minutes of the relevant meeting(s) will be filed.

7. The learned counsel for the Petitioner, in response to KSEB's submission with regard to Kochi ICTs submitted that issues such as N-1, total transfer capability and loading of sub-stations are real time grid issues which need to be resolved through discussions and deliberations. The practical grid issues being faced by KSEBL cannot be a ground to challenge the entire discussion in earlier SRPC and WRPC meetings where the instant schemes were approved. The Petitioner has extensively consulted the beneficiaries at each level and obtained their consent for declaration of COD for individual assets involved in all three schemes. The Respondent's reliance on the Commission (Planning, Coordination and Development of Economic and Efficient Inter-State Transmission System by CTU and other related matters) Regulations, 2018 is misplaced. KSEBL cannot complicate the role of the Petitioner as CTU and that of an ISTS licensee. Based on the SRLDC report, at the second meeting of SRPC (transmission planning) held on 1.10. 2020, the proposal for augmentation of a third ICT at Cochin has been agreed to be implemented as a regional system strengthening scheme. The Petitioner is making all efforts to commission one regional spare ICT at Cochin Sub-station as an interim arrangement. However, to suggest that till the ICT at Cochin is augmented, the transmission charges for the instant assets should not be recovered from the beneficiaries may be rejected. If such objections are accepted, the Petitioner even after successfully planning, funding and implementing the challenging



transmission schemes such as the present one will not be in a position to recover tariff since there will be other practical issues in the downstream grid.

8. In response to the Commission's query, the Petitioner submitted that the assets are in use.

9. In response to the Commission's query regarding COD of Edayarpalayam System, the Petitioner submitted that the same is yet to be achieved.

10. In response to the Commission's query as to why the cost has been loaded heavily on Pole-I and not proportionately between all the Poles, the Petitioner submitted that it has been done as per the Regulations and as all the petitions are being dealt together, the Commission may take an overall view.

11. The representative of the Petitioner prayed to allow interim tariff to the Petitioner until a decision is taken on the sharing of transmission charges.

12. Learned counsel for KSEB prayed for time to file replies to the Petition No. 242/TT/2021 and Petition No. 243/TT/2021.

13. The representative of the Petitioner sought time to file additional information and Revised Cost Estimates in respect of Scheme-2 and Scheme-3.

14. After hearing the parties at length, the Commission directed the Respondents to file their replies, if any, by 7.3.2022 with an advance copy to the Petitioner and the Petitioner to file its rejoinder and/or additional information, if any, by 21.3.2022. The Commission observed that due date for filing the reply, rejoinder and additional information should be strictly adhered to and no extension of time shall be granted.

15. The Commission further directed the Petitioner to submit the following information, on affidavit, by 28.2.2022 with an advance copy to the Respondents:

- a. Power flow details of Pole-I, Pole-II, Pole-III and Pole-IV of +- 800 kV 6000 MW Raigarh (HVDC Station)-Pugalur (HVDC Station);
- b. Minutes of the meeting regarding specific objections raised by TANGEDCO on the instant project

16. Subject to above, the Commission reserved the order in the matter.

**By order of the Commission**

sd/-  
(V. Sreenivas)  
Joint Chief (Law)

