

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 155/TT/2017

Coram:

**Shri P. K Pujari, Chairperson
Shri A. K. Singhal, Member
Shri A. S. Bakshi, Member
Dr. M. K. Iyer, Member**

Date of Order: 22.06.2018

In the matter of:

Petition for approval of tariff of two ISTS lines for inclusion in the computation of Point of Connection (PoC) Charges and Losses as per order dated 12.5.2017 in Petition No. 07/SM/2017 for inclusion in PoC charges in accordance with Central Electricity Regulatory Commission (Sharing of Inter-state Transmission Charges and Losses) Regulations, 2010.

And in the matter of:

Odisha Power Transmission Corporation Limited (OPTCL),
Janpath, Bhubaneswar-751022,
Odisha.

.....Petitioner

Vs

1. Jharkhand State Electricity Board,
HEC Engineering Building, Dhurwa,
Ranchi – 834009.
2. Damodar Valley Corporation (DVC),
DVC Headquarters, DVC Towers,
VIP Road, Kolkata-700054
3. Power Grid Corporation of India Limited,
Soudamini, Plot No-02, Sector-29,
Gurugram, Haryana

.....Respondents



For Petitioner : Shri Raj Kumar Mehta, Advocate, OPTCL
Ms. Himanshi Andley, Advocate, OPTCL

For Respondents : Shri Vivek Kumar Singh, PGCIL
Shri S. K. Venkatesan, PGCIL
Shri S. S. Raju, PGCIL
Shri AmitYadav, PGCIL
Shri Rakesh Prasad, PGCIL
Shri V.P. Rastogi, PGCIL

ORDER

The present petition has been filed by Odisha Power Transmission Corporation Limited (OPTCL) for approval of transmission tariff Asset-1: 220 kV S/C Joda-Ramachandrapur line and Asset-2: 220 kV S/C Jindal-Jamshedpur line 220 kV S/C Jindal-Jamshedpur line, inter-State transmission lines for the period 2014-19, for inclusion in the computation of Point of Connection (PoC) transmission charges in accordance with the Central Electricity Regulatory Commission (Terms and Condition of Tariff) Regulations, 2014 (hereinafter referred to as "2014 Tariff Regulations"). The petitioner has submitted that said assets were put into commercial operation on 1985 and the length of Assets-1 and 2 is 15.50 km and 32.00 km respectively.

2. The Commission vide order dated 14.3.2012 in Petition No. 15/SM/2012 had given the following directions:-

"5. It has come to the notice of the Central Commission that the some of the owners/developers of the inter-State transmission lines of 132 kV and above in North Eastern Region and 220 kV and above in Northern, Eastern, Western and Southern regions as mentioned in the Annexure to this order have approached the Implementing Agency for including their transmission assets in computation of Point of Connection transmission charges and losses under the Central Electricity Regulatory Commission (Sharing of inter-State Transmission Charges and Losses) Regulations, 2010 (hereinafter "Sharing Regulations").

6. As a first step towards inclusion of non-ISTS lines in the PoC transmission charges, the Commission proposes to include the transmission lines connecting two States, for computation of PoC transmission charges and losses. However, for the disbursement of



transmission charges, tariff for such assets needs to be approved by the Commission in accordance with the provisions of Sharing Regulations. Accordingly, we direct the owners of these inter-State lines to file appropriate application before the Commission for determination of tariff for facilitating disbursement.

7. We direct the respondents to ensure that the tariff petition for determination of tariff is filed by the developers/owners of the transmission line or by State Transmission Utilities where the transmission lines are owned by them in accordance with the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009, by 20.4.2012."

3. The petitioner has submitted that the Commission directed the petitioner to file a tariff petition claiming tariff for the following ISTS lines.

Sl. No.	From	To	Voltage Level (kV)	Connecting States
1	Budhipadar	Raigarh	220	Odisha-Chhattisgarh
2	Budhipadar	Korba 2	220	Odisha-Chhattisgarh
3	Budhipadar	Korba 3	220	Odisha-Chhattisgarh
4	Joda	Ramachandrapur	220	OPTCL-JSEB
5	Jindal	Jamshedpur	220	OPTCL-DVC

4. In compliance of the directions in order dated 14.3.2012, the petitioner filed Petition No. 203/TT/2013 claiming tariff for 22 lines for the 2011-14 period. The Commission, taking into consideration the certificates issued by RPC, granted tariff for only two lines vide order dated 23.12.2015 in Petition No. 203/TT/2013. The relevant portions of order dated 23.12.2015 is extracted hereunder:-

"7. The petitioner has submitted that OPTCL has claimed AFC for 220 kV Budhipadar-Korba (Chhattisgarh) D/C line (both for Odisha portion lines and bays owned by OPTCL). As regards the 220 kV Budhipadar-Korba PGCIL S/C line (i.e. 220 kV Budhipadar-Raigarh line), owned by PGCIL, OPTCL has claimed AFC only for OPTCL owned bay at Budhipadar end. The transmission tariff for 220 kV Budhipadar-Korba (i.e. 220 kV Budhipadar-Raigarh line) was granted vide commission order dated 29.5.2015 in Petition No. 185/TT/2013 and in respect of 400 kV Kolaghat-Baripada transmission line the tariff was granted vide order dated 8.6.2015 in Petition No.259/TT/2013. Accordingly, the 220 kV Rourkela-TarkeraBudhipadar-Korba line and 220 kV Budhipadar-Raigarh line of PGCIL are not considered for grant of tariff in this order. The 220 kV Joda-Ramachandrapur line and the 220 kV Jindal-Jamshedpur line are allowed tariff in the instant order. The line



length in ckt km and date of commercial operation of the two transmission lines which are as follows:-

Srl. No.	Name of Line	Connecting States	Length of Line in ckt-km	COD
1.	220 kV S/C Joda - Ramachandrapur line	OPTCL-JSEB	15.50	1985
2.	220 kV S/C Jindal - Jamshedpur line	OPTCL-DVC	32.00	1985

“9. As regards the remaining 17 lines, the petitioner may approach ERPC for necessary certification as provided in the above mentioned Regulations. After getting approval from RPC, the petitioner may approach the Commission with a fresh petition for inclusion of these lines in PoC methodology for sharing of transmission charges and losses.”

5. In the present petition OPTCL has prayed for approval of YTC for 220 kV Joda-Ramchandrapur S/C line and 220 kV Jindal-Jamshedpur S/C line for the 1.4.2014 to 31.3.2019 period and recovery of the same under PoC Regulations.

6. The petitioner has submitted that the said transmission lines are very old and were commissioned in the regime of erstwhile Orissa State Electricity Board (OSEB). Therefore, the capital cost data of these lines are not available with the petitioner and has prayed to approve the YTC for the said ISTS lines, as per the ARR methodology adopted by the Commission in order dated 23.12.2016 in Petition No. 203/TT/2013, for determining the YTC charges for 2014-19 period.

7. The petitioner has claimed following YTC for the instant assets, for period 2014-19:-

							(in ₹)	
Sl. No.	Asset	Length (Ckt. km)	2014-15	2015-16	2016-17	2017-18	2018-19	
1	Asset-1	15.5	9510368	8355230	8651587	9331114	9331114	
2	Asset-2	32.0	19634309	17249507	17861341	19264236	19264236	
Total			29144677	25604737	26512928	28595350	28595350	



8. We have considered the submissions of the petitioner. The Commission in order dated 14.3.2012 in Petition No.15/SM/2012, taking into consideration the request of the State utilities, observed that it proposes to include the transmission lines connecting two States in the PoC charges and accordingly directed the States owning ISTS connecting two States to file appropriate petitions for determination of tariff for the 2011-14 period as per the provisions of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (2009 Tariff Regulations). Further, the Commission vide order dated 12.5.2017 in Petition No. 7/SM/2017 directed the State utilities to file tariff petitions for the ISTS lines connecting two States, along with the certificate from the concerned RPC, for the 2014-19 tariff period as per the 2014 Tariff Regulations. The relevant portion of the order dated 12.5.2017 is extracted hereunder:-

“7. Further, Statement of Reason (SOR) dated 26.10.2015 of Sharing Regulations (Third Amendment) provides as follows:-

15.21 A question arises for consideration is whether to fix a minimum percentage figure to consider a STU line as an ISTS line or not. As per Electricity Act and Tariff Policy, all lines which are incidental to Inter-state flow of power are to be considered as ISTS. In a meshed transmission system, many intra-State transmission lines carry inter-State power and therefore become incidental to inter-State transmission system. However, as Electricity Grid is being operated in a cooperative manner, for a minor fraction of ISTS power, it is expected that STU would not insist on considering its line(s) to be inter-State as on the one hand it will receive payment for its own lines, on the other it has to pay for usage of other States' lines. If a STU puts up a proposal for considering its line as ISTS and it is found that it is being utilized to a large extent by its own drawee nodes, then it would be merely an academic exercise as major part of tariff would be allocated to home State only. So keeping in view the regulatory process involved in getting a line certified as carrying ISTS power, getting its tariff approved and then adjustment from STU's ARR, it is expected that this claim will be raised judiciously. An interesting situation happened during 2011 when in Eastern and Northern Regions, many lines were submitted to RPCs for approval as ISTS, Southern States realizing that they all are using each other State's line, decided that they will not put up any line for certification by RPC as ISTS. While Commission wants to consider legitimate claims but this must not result in making process too complex. The RPC may therefore uniformly decide a percentage below which (say 10%) such a line would not be considered as an ISTS. Further, it is intended that for assessment of a particular line being used for carrying inter-State power, technical knowhow and tools will be provided by Secretariat of RPCs and NLDC/ RLDCs shall provide all necessary support to States in this regard.



8. In view of the above, State utilities whose lines have been certified by respective RPCs to be considered under PoC should also file the tariff petition under the 2014 Tariff Regulations.”

Accordingly, OPTCL has filed the instant petition on the basis of the directions of the Commission in order dated 12.5.2017.

9. Some of the other State Utilities have filed similar petitions claiming tariff of inter-State transmission lines connecting two States for the 2014-19 tariff periods as per the directions of the Commission. The information submitted by some State Utilities were incomplete and inconsistent. Further, some of the lines were more than 25 years old and the States were not having the details of the capital cost, funding, etc. To overcome these difficulties, the Commission evolved a methodology for allowing transmission charges for such transmission lines connecting two States in orders dated 19.12.2017 in Petition Nos. 88/TT/2017, 173/TT/2016 and 168/TT/2016 filed by Madhya Pradesh Power Transmission Corporation Limited, Maharashtra State Electricity Regulatory Commission and Uttar Pradesh Power Transmission Corporation Limited respectively. The Commission adopted the same methodology in order dated 4.5.2018 in Petition No.112/TT/2017, while granting tariff for ISTS connecting Rajasthan with other States and owned by Rajasthan Rajya Vidyut Prasaran Limited. The Commission derived the benchmark cost on the basis of the transmission lines owned by PGCIL. The useful life of the transmission line was considered as 25 years and for lines more than or equal to 25 years, only O & M Expenses and Interest on Working Capital (IWC) has been decided to be allowed as per the existing Tariff Regulations. For assets put into commercial operation on or after 1.4.2014, tariff has been decided to be allowed on the



basis of the audited financial capital cost. The relevant portion of the order dated 4.5.2018 is extracted hereunder:-

“13. It is observed that the information submitted by the petitioner States for computation of transmission charges for the deemed ISTS lines are not uniform, thereby causing divergence in working out the tariff. In some cases, the data related to funding and depreciation was not available and in some cases the assets have already completed, or nearing, their useful life. In most of the petitions, the states have expressed their inability to furnish the audited capital cost of transmission lines as the lines are old. As a result, tariff workings for old assets are ending in skewed results. It is further observed that the YTC figures emerging out by the existing ARR methodology are on the higher side. Considering these facts, we have conceptualized a modified methodology for determining the tariff of the inter-State transmission lines. The methodology is broadly based on the following:-

- (a) PGCIL's Annual Report data has been used as the reference data; based on which, year wise benchmark cost has been derived.
- (b) Useful life of Transmission Line has been considered as 25 years. Thus, if life is more than or equal to 25 years as on 1.4.2014, only O & M Expenses and Interest on Working Capital (IWC) shall be allowed as per the existing Tariff Regulations, in lieu of complete tariff.
- (c) It is expected that the States do have the audited financial data of recently commissioned (i.e. on or after 1.4.2014) lines.

Tariff Methodology

14. As per the petitions filed by the states, their ISTS lines generally have the configuration of 132 kV, 220 kV or 400 kV. In the absence of an established tariff data base, in order to develop this methodology Annual Reports of PGCIL from 1989-90 to 2013-14 have been referred to. The Annual Reports depict, inter alia, the information pertaining to year wise total length of transmission lines in ckt-km and corresponding Gross Block. This pan-India data represents all the five transmission regions and is a composite mix of parameters like terrains, wind-zones, tower and conductor type etc. +/- 500 kV HVDC and 765 kV and above voltage level AC lines too have come up in between and the data also includes those lines. Voltage level-wise data as on 30th April 2017, obtained from PGCIL indicates that the percentage of 220 kV, 132 kV and 66 kV Transmission Line taken together makes it around 8.3 % of the total line length owned by PGCIL. Further, 132 kV Transmission Lines were established in NER prior to 1990, and Transmission Lines of 220 kV voltage levels were last commissioned in around the year 2004 in NR. Majority of the transmission lines consist of 400 kV which corresponds to 66% of the total transmission line lengths. Thus, the 400 kV and lesser voltage levels account for approximately 75% of the transmission lines. Assuming the above referred spread of voltage wise percentages for earlier years too, it can be said that the year wise average Transmission Line cost figures derived from PGCIL data, when further reduced by 25%, fairly represent the average transmission line capital cost corresponding to a 400 kV S/C line. Considering 400 kV S/C transmission line cost as reference cost, analysis of PGCIL's indicative cost data (P/L Feb 2017) suggests the following:-



	Reference cost of 400 kV S/C TL	₹X lakh/km
1.	400 kV D/C TL	1.39 X
2.	220 kV D/C TL	0.57 X
3.	220 kV S/C TL	0.36 X
4.	132 kV D/C TL	0.43 X
5.	132 kV S/C TL	0.31 X

15. Therefore, for arriving at the costs of transmission lines of other voltage levels and circuit configurations, the average transmission line cost data shall be multiplied by the factors illustrated in the above table. Lower voltage levels can be treated as part of 132 kV. The above table contemplates *Twin Moose* conductor which is widely used in State transmission lines.

16. Based on respective year end data, average transmission line length during the year has been worked out. Difference between a particular year's average transmission line length figures and that for the immediate preceding year provides us the transmission line length added during that year. Average gross block corresponding to transmission lines has been divided by the average transmission line length to arrive at the Average Cost of transmission line (in ₹ lakh per ckt-km) during the year. Thus, considering the year of COD of a State's ISTS line and its ckt-km, its cost would be worked out by relating it to PGCIL's transmission line cost during that year. Although the Commission has relied on PGCIL's Annual Reports, there are certain deviations in the cost data worked out. The year 1989-90 was the year of incorporation for PGCIL, and the transmission assets of NTPC, NHPC, NEEPCO etc. were taken over by PGCIL by mid 1991-92. Thus, as the base data for these years was not available, the corresponding average cost of transmission line could not be worked out. The average cost from 1992-93 onwards up to 2013-14 shows an increasing trend at a CAGR of 5.17%. Therefore, for the years 1989-90, 1990-91 and 1991-92, the average cost of transmission line has been back derived considering the 1992-93 average cost. Similarly, abnormal dip/spikes in the transmission line cost for the years 1996-97, 2001-02 and 2004-05 has been corrected by considering the average values of the transmission line costs in the immediate preceding and succeeding years.

17. While calculating tariff, the following has been considered:-

(i) Useful life of the transmission line shall be deemed to be 25 years.

(ii) Prevailing depreciation rates as per the 2014 Tariff Regulations shall be considered uniformly for all the previous tariff periods so as to do away with the Advance Against Depreciation which was in vogue during earlier tariff periods. Notwithstanding the depreciation considered as recovered earlier, for the purpose of these tariff calculations, remaining depreciable value shall be spread over the remaining useful life of the transmission line, where the elapsed life is more than or equal to 12 years.

(iii) Normative Debt-Equity ratio shall be 70:30.



(iv) Normative loan repayment during a year shall be deemed to be equal to the depreciation allowed for that year.

(v) Rate of Interest on normative loan shall be the weighted average rate of interest as derived on the basis of PGCIL's Balance Sheet.

(vi) In order to avoid complexity, grossing up of rate of Return on Equity with tax rate is being dispensed with.

(vii) Bank rate as defined in 2014 Tariff Regulations, 2014 as on 1.4.2014 shall be applied for calculating the rate of interest on working capital on normative basis.

(viii) O & M Expenses as per the 2014 Tariff Regulations shall be considered.

(ix) Where the life of transmission line is more than or equal to 25 years as on 1.4.2014, only O & M Expenses and IWC shall be allowed in lieu of complete tariff.

18. Thus, in effect, this is a normative tariff working methodology which shall be applied in those cases where the audited capital cost information is not available."

10. The petitioner has not been able to provide the audited capital cost certificates for the instant assets. In line with the methodology explained in foregoing paragraphs, we now proceed to determine the tariff for the transmission lines.

11. Assets-1 and 2 have already completed twenty five years of their useful lives. Therefore, as per the Commission's methodology, only IWC and O & M Expenses of tariff are allowed for the said assets.

12. The allowed transmission charges for the instant assets for period 2014-19 are as follows:-

	(₹ in lakh)				
Asset-1	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	0.00	0.00	0.00	0.00	0.00
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	0.00	0.00	0.00	0.00	0.00
IWC	0.35	0.36	0.37	0.38	0.39
O & M Expenses	6.26	6.48	6.70	6.91	7.15
Total	6.61	6.84	7.07	7.29	7.54



Asset-2	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	0.00	0.00	0.00	0.00	0.00
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	0.00	0.00	0.00	0.00	0.00
IWC	0.71	0.74	0.76	0.79	0.81
O & M Expenses	12.93	13.38	13.82	14.27	14.75
Total	13.64	14.11	14.59	15.06	15.57

Filing Fee and Publication Expenses

13. The petitioner shall be entitled for reimbursement of the filing fees and publication expenses in connection with the present petition, directly from the beneficiaries on pro-rata basis in accordance with clause (1) of Regulation 52 of the 2014 Tariff Regulations.

Sharing of Transmission Charges

14. The transmission charges shall be recovered on monthly basis in accordance with Regulation 43 of Central Electricity Regulatory Commission (Terms and Condition of Tariff) Regulations, 2014 and shall be shared by the beneficiaries and long term transmission customers in Central Electricity Regulatory Commission (Sharing of Inter State Transmission Charges and Losses) Regulations, 2010 as amended from time to time. Further, the transmission charges allowed in this order shall be adjusted against the ARR approved by the SERC.

15. Accordingly, Petition No. 155/TT/2017 is disposed of.

Sd/-
(Dr. M. K. Iyer)
Member

Sd/-
(A.S. Bakshi)
Member

Sd/-
(A.K. Singhal)
Member

Sd/-
(P.K. Pujari)
Chairperson

