

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 215/TT/2013

Coram:

**Shri Gireesh B. Pradhan, Chairperson
Shri A. K. Singhal, Member
Shri A. S Bakshi, Member**

**Date of Hearing : 04.06.2015
Date of Order : 11 .12.2015**

In the matter of:

Approval of tariff in respect of PTUCL owned transmission lines/system connecting with other states and intervening transmission lines incidental to inter-State transmission of electricity as per the Central Electricity Regulatory Commission's order dated 14.3.2012 in Petition No.15/Suo-Motu/2012, for inclusion in POC charges as provided in the Central Electricity Regulatory Commission (Sharing of inter-State Transmission Charges and Losses) Regulations, 2010 in accordance with Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009.

And in the matter of:

Power Transmission Corporation of Uttarakhand Limited (PTCUL)
Vasan Vihar Enclave, Vidyut Bhawan
Dehradun, Uttarakhand -248001

.....**Petitioner**

For petitioner : None

For respondents : None

ORDER

The petitioner, Power Transmission Corporation of Uttarakhand Limited (PTCUL) is a company registered under the Companies Act, 1956 and it has been declared as the State Transmission Utility (STU) by the Government of Uttarakhand. The instant petition has been filed by PTCUL for approval of the annual transmission



charges of the transmission assets covered in the petition under the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (hereinafter "2009 Tariff Regulations") in compliance of the Commission's order dated 14.3.2012 in Petition No.15/SM/2012.

2. The Commission vide order dated 14.3.2012 in Petition No. 15/SM/2012 gave 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. Six transmission lines of PTCUL were identified as inter-State transmission lines, on the basis of the inputs provided by Northern Regional Power Committee (NRPC). PTCUL was directed by the Commission to file tariff petition for the following six transmission lines for the purpose of inclusion in the POC charges, vide order dated 14.3.2012 in Petition No. 15/SM/2012. The details of the lines are as follows:-



Srl. No.	From	To	Voltage Level (kV)	Connecting States
1	Roorkee	Muzafarnagar	400	Uttarakhand - Uttar Pradesh
2	Khodri	Saharanpur 1	220	Uttarakhand - Uttar Pradesh
3	Khodri	Saharanpur 2	220	Uttarakhand - Uttar Pradesh
4	Kashipur	Muradabad	400	Uttarakhand - Uttar Pradesh
5	Panthnagar	Baikantpur (Bareilly)	220	Uttarakhand - Uttar Pradesh
6	Majri	Khodri	220	Himachal-Uttarakhand

4. However, PTCUL has submitted in the petition that it owns 11 inter-State lines and has claimed tariff for the 11 number of transmission lines. The details of these 11 lines are as follows:-

Srl. No.	Line name	Voltage (KV)	Length in Ckt.km.	COD
1	Puhana (Roorkee)-Muzzafarnagar	400	64.87	7.1.2005
2	Roorkee-Saharanpur	132	30.720	3.6.1967
3	Bhagwanpur-Saharanpur	132	25.618	3.6.1967
4	Kotdwar-Nazibabad	132	23.078	6.6.1995
5	Chilla-Nazibabad	132	53.034	31.3.1978
6	Kashipur-Moradabad	400	107.700	11.11.2006
7	Pantnagar-Bareilly	220	71.718	22.5.2002
8	Sitarganj-Pilibhit	132	61.660	25.8.2007
9	Khatima-Pilibhit	132	44.800	Jan-95
10	Kichha-Richha	132	22.480	19.11.1976
11	Mahuakheraganj-Thakurdwara	132	17.023	24.11.2011



5. The petitioner vide affidavit dated 18.9.2015 submitted that as per vide order dated 14.3.2012 in 15/SM/2012, out of six lines only three lines to be included. The petitioner further submitted that the PTCUL has filed for eleven numbers of transmission lines are physically crossing the territory of Uttarakhand to other states.

6. We have considered the submissions made by the petitioner and have perused the material on record. We proceed to determine the annual fixed charges in respect of the assets covered in the petition.

No. of assets to be covered

7. The instant petition has been filed in response to the Commission's directions for determination of tariff of transmission lines owned or controlled by the STU which carry inter-State power. Section 2(36) of the Electricity Act, 2003 defines the ISTS as under:-

"2(36) inter-State transmission system includes-

- (i) Any system for the conveyance of electricity by means of main transmission line from the territory of one State to another state;
- (ii) The conveyance of electricity across the territory of any intervening State as well as conveyance within the State which is incidental to such inter-State transmission of electricity;
- (iii) The transmission of electricity within the territory of a State on a system built, owned, operated, maintained or controlled by a Central Transmission Utility"

8. The STU lines used for carrying inter-State power can be considered for inclusion in the PoC charges only if it is certified by RPC in terms of para 2.1.3 of the Annexure-I to Central Electricity Regulatory Commission (Sharing of inter-State Transmission Charges and Losses) Regulations, 2010, which is extracted hereunder:-

"The line-wise YTC of the entire network shall be provided by the Transmission Licensees. In case a line is likely to be commissioned during the Application Period,



the data in respect of the same, along with the anticipated COD will be provided by the CTU/ Transmission Licensee to the Implementing Agency.

For the determination of the transmission charges based on Hybrid Methodology applicable in the next Application Period, all the above data shall be provided to the Implementing Agency as per the timelines specified by the Implementing Agency.

Overall charges to be allocated among nodes shall be computed by adopting the YTC of transmission assets of the ISTS licensees, deemed ISTS licensees and owners of the non-ISTS lines which have been certified by the respective Regional Power Committee (RPC) for carrying inter-State power. The Yearly Transmission Charge, computed for assets at each voltage level and conductor configuration in accordance with the provisions of these regulations shall be calculated for each ISTS transmission licensee based on indicative cost provided by the Central Transmission Utility for different voltage levels and conductor Page 17 of 21 configuration. The YTC for the RPC certified non-ISTS lines which carry inter-State power shall be approved by the Appropriate Commission.

In case line-wise tariff for the RPC certified non-ISTS lines has not been specified by the Appropriate Commission, the tariff as computed for the relevant voltage level and conductor configuration shall be used. The methodology for computation of tariff of individual asset shall be similar to the methodology adopted for the ISTS transmission licensees and shall be based on ARR of the STU as approved by the respective State Commission.

Certification of non-ISTS lines carrying inter-State power, which were not approved by the RPCs on the date of notification of the Central Electricity Regulatory Commission (Sharing of Transmission Charges and Losses) Regulations, 2009, shall be done on the basis of load flow studies. For this purpose, STU shall put up proposal to the respective RPC Secretariat for approval. RPC Secretariat, in consultation with RLDC, using Web Net Software would examine the proposal. The results of the load flow studies and participation factor indicating flow of Inter State power on these lines shall be used to compute the percentage of usage of these lines as inter State transmission. The software in the considered scenario will give percentage of usage of these lines by home State and other than home State. For testing the usage, tariff of similar ISTS line may be used. The tariff of the line will also be allocated by software to the home State and other than home State. Based on percentage usage of ISTS in base case, RPC will approve whether the particular State line is being used as ISTS or not. Concerned STU will submit asset-wise tariff. If asset wise tariff is not available, STU will file petition before the Commission for approval of tariff of such lines. The tariff in respect of these lines shall be computed based on Approved ARR and it shall be allocated to lines of different voltage levels and configurations on the basis of methodology which is being done for ISTS lines.”



9. The Commission vide order dated 14.3.2012 in Petition No. 15/SM/2012 considered only three lines under the jurisdiction of the petitioner. As regards the remaining eight lines under jurisdiction, the petitioner may approach NRPC which may consider it in accordance with Central Electricity Regulatory Commission (Sharing of inter-State Transmission Charges and Losses) Regulations, 2010. The petitioner may approach the Commission after obtaining the RPC approval, with a fresh petition for inclusion of YTC of these eight lines in computation of PoC transmission charges and losses. Hence, following three transmission lines YTC are being calculated in the instant petition

Srl. No.	From	To	Voltage Level(kV)	Connecting States
1	Roorkee	Muzafarnagar	400	Uttrakhand -Uttar Pradesh
2	Kashipur	Muradabad	400	Uttrakhand -Uttar Pradesh
3	Panthnagar	Baikantpur (Bareilly)	220	Uttrakhand -Uttar Pradesh

Capital Cost

10. The petitioner submitted in the main petition that the individual capital cost of assets is not known because these lines were part of larger projects and it is difficult to segregate capital cost individually for these assets. The petitioner further prayed for recovery of only O&M Expenses since it maintains the lines.

11. The Commission vide letter dated 17.6.2014 sought the details of the ARR approved by the State Commission for the 2009-14 period, funding pattern of the assets, repayment schedule and interest rates on loans and details of the O&M



Expenses besides other information. The petitioner has not submitted the said information.

12. The matter was heard on 4.6.2015. The petitioner was directed vide “Record of Proceedings” dated 4.6.2015 to submit the network configurations in the prescribed pro-forma and the details of ARR approved by the SERC for the years 2009-10 to 2013-14 separately including the total ARR approved for the respective years. The petitioner was directed to implead the respondents and file memo of parties.

13. In response, the petitioner, vide affidavit dated 3.7.2015 has submitted ARR for the 2009-14 tariff period as approved by the State Commission. However, the petitioner has not filed the “Memo of Parties”. The details of the approved ARR furnished by the petitioner are given below:-

(a) Details of ARR approved by the SERC for FY 2009-10, 2010-11, 2011-12, 2012-13 and 2013-14 are as under:-

Srl. No.	YEAR	ARR (₹ in crore)
1	2009-10	75.81
2	2010-11	101.74
3	2011-12	131.82
4	2012-13	159.54
5	2013-14	195.63

(b) Voltage-wise/Year wise length of line in ckt. km for the whole network of the petitioner are given below:-

Srl. No.	Line Type*	2009-10	2010-11	2011-12	2012-13	2013-14
1	400 kV D/C	119	119	119	119	119
2	400 kV S/C	269	269	269	269	269
3	220 kV D/C	0	64	103	103	107
4	220 kV S/C	596	632	632	667	667



5	132 kV D/C	56	56	72	207	224
6	132 kV S/C	1563	1595	1595	1595	1595

*Total length in ckt-km

Procedure for calculating YTC for the transmission lines

14. As the petitioner has submitted that the capital costs of the transmission lines are not available, the indicative cost of lines of various configurations owned and operated by PGCIL has been considered for the purpose of computation of capital cost of the inter-State transmission lines owned by other entities. Similar approach has been adopted in the instant case. Indicative cost of 400 kV D/C Quad Moose transmission line has been taken as base and indicative cost of lines with configurations other than 400 kV D/C Quad Moose have been made equivalent to indicative cost of 400 kV D/C Quad Moose (i.e. by dividing indicative cost of the 400 kV D/C Quad Moose line by the indicative cost of line of other configurations). The indicative cost of lines of various configurations owned and operated by PGCIL are as under:-

For FY 2011-12:

(₹ in lakh)

Type	Cost	Cost /Circuit	Coefficient	Ratio w.r.t. (d)
(a)	(b)	(c)	(d)	(e)
765 KV D/C	315.25	157.625(A)	a=D/A	0.64
765 KV S/C	159.25	159.25(B)	b=D/B	0.63
400 KV D/C Twin Moose	109.50	54.75(C)	c=D/C	1.84
400 KV D/C Quad. Moose	202.00	101(D)	d=D/D	1.00
400 KV S/C Twin Moose	74.25	74.25(E)	e=D/E	1.36
220 KV D/C	59.50	29.75(F)	f=D/F	3.39
220 KV S/C	37.00	37.00(G)	g=D/G	2.73
132 KV D/C	46.75	23.375(H)	h=D/H	4.32
132 KV S/C	28.50	28.50(I)	i=D/I	3.54

For FY 2012-13:



Type	Cost	Cost/Circuit	Coefficient	Ratio w.r.t. (d)
(a)	(b)	(c)	(d)	(e)
765 KV D/C	357.00	178.50	a	0.63
765 KV S/C	179.20	179.20	b	0.63
400 KV D/C Twin Moose	122.60	61.30	c	1.83
400 KV D/C Quad. Moose	224.80	112.40	d	1.00
400 KV S/C Twin Moose	84.20	84.20	e	1.33
220 KV D/C	67.80	33.90	f	3.32
220 KV S/C	41.40	41.40	g	2.71
132 KV D/C	53.00	26.50	h	4.24
132 KV S/C	32.40	32.40	i	3.47

For FY 2013-14:

Type	Cost	Cost/Circuit	Coefficient	Ratio w.r.t. (d)
(a)	(b)	(c)	(d)	(e)
765 kV D/C	412.00	206.00	a	0.56
765 kV S/C	179.80	179.80	b	0.65
400 kV D/C Twin Moose	130.40	65.20	c	1.78
400 kV D/C Quad Moose	232.60	116.30	d	1.00
400 kV S/C Twin Moose	87.00	87.00	e	1.34
220 kV D/C	61.40	30.70	f	3.79
220 kV S/C	37.80	37.80	g	3.08
132 kV D/C	48.40	24.20	h	4.81
132 kV S/C	30.00	30.00	i	3.88

15. After getting ratio with respect to 400 kV D/C Quad Moose, YTC per ckt. Km of 400 kV D/C Quad Moose transmission line has been calculated as follows:-

ARR for FY.....in ₹

$$\left. \begin{array}{l} \text{YTC per ckt km} \\ \text{400 kV D/C} \\ \text{Quad Moose} \end{array} \right\} \text{-----} \left\{ \begin{array}{l} (\text{Length of 765 kV DC/a}) + (\text{Length of 765 kV SC/b}) + (\text{Length of} \\ \text{400 kV DC TM/c}) + (\text{Length of 400 kV DC QM /d}) + \\ (\text{Length of 400 kV SC TM /e}) + (\text{Length of 220 kV DC /f}) \\ + (\text{Length of 220 kV SC /g}) + (\text{Length of 132 kV DC /h}) + \\ (\text{Length of 132 kV SC /i}) \end{array} \right\}$$



*value of a, b, c, d, e, f, g, h, & i are as given in para 14 and length in ckt km as given in para 13(b) above of this order.

DC-Double Circuit, SC-Single Circuit, QM-Quad Moose, TM-Twin Moose

16. We have not carried out any due diligence of the tariff of these lines (for consideration of PoC calculations) as the jurisdiction to determine the tariff of the lines owned by STU rests with the State Electricity Regulatory Commission. We have considered the ARR of the STU as approved by the State Electricity Regulatory Commission and have adopted the methodology as discussed in para 13 and 14 of this order for the purpose of calculation of PoC charges and apportionment of transmission lines and charges to the transmission system of different configurations of the STU. This methodology has been adopted uniformly for the lines owned by other STUs used for inter-State transmission of power duly certified by respective RPCs for the purpose of inclusion in the PoC mechanism. Since the Central Electricity Regulatory Commission (Sharing of inter-State Transmission Charges and Losses) Regulations, 2010 came into force with effect from 1st July, 2011, we have considered ARR of the period 2011-12, 2012-13 and 2013-14, accordingly Yearly Transmission Charges (YTC) for the three transmission lines have been calculated for the year 2011-12 (1.7.2011 to 31.3.2012), 2012-13 and 2013-14.

17. We have considered the submission of the petitioner. On the basis of the line length in ckt. km and the ARR approved by the State Commission for the years 2009-10, 2010-11, 2011-12, 2012-13 and 2013-14 and PoC cost data for the respective years, YTC for the instant transmission assets for the years 2011-12, 2012-13 and 2013-14 have been calculated as given hereunder:-



For FY 2011-12

Total ARR approved by the SERC ₹131,82,00,000.00

(in ₹)

Srl. No.	Asset	For entire system		
		Line Length (Ckt. km)	YTC (Per ckt. km)	YTC
1	400 kV D/C	119	7,21,157	8,58,17,731
2	400 kV D/C	269	9,78,008	26,30,84,149
3	220 kV D/C	632	4,87,358	30,80,09,950
4	220 kV S/C	103	3,91,862	4,03,61,764
5	132 kV D/C	72	3,07,891	2,21,68,181
6	132 kV S/C	1595	3,75,397	59,87,58,224
TOTAL				131,82,00,000

FY 2012-13:

Total ARR approved by the SERC ₹159,54,00,000.00

(in ₹)

Srl. No.	Asset	For entire system		
		Line length (ckt km)	YTC per ckt km	YTC
1	400 kV D/C	119	827300	98448691
2	400 kV S/C	269	1136357	305679901
3	220 kVD/C	667	558731	372673650
4	220 kV S/C	103	457512	47123706
5	132kV D/C	207	357642	74031872
6	132kV S/C	1595	437268	697442180
TOTAL				1,59,54,00,000

FY 2013-14

Total ARR approved by the SERC ₹195,63,00,000.000



(in ₹)

Srl. No.	Asset	For entire system		
		Line length (ckt km)	YTC per ckt km	YTC
1	400 kV D/C	119	1129466	134406508
2	400 kV S/C	269	1507110	405412630
3	220 kV D/C	667	654813	59604668
4	220 kV S/C	107	531819	436760522
5	132kV D/C	224	419219	93905089
6	132kV S/C	1595	519693	828910583
TOTAL				1,95,63,00,000

YTC of the three transmission lines

18. YTC per ckt. km for 400 kV S/C and 220 kV S/C line considered for PTCUL lines is as given overleaf -

(in ₹)

Year	2011-12	2012-13	2013-14
400 Kv (S/C)	9,78,008	11,36,357	1507110
200 kV (S/C)	4,87,358	55,8731	6,54813

19. YTC of the three transmission lines calculated on the methodology discussed above is as follows

(in ₹)

Srl. No.	Line Name	Length (Ckt. km)	2011-12*	2012-13	2013-14
1	400 kV S/C Roorkee- Muzafarnagar	64.87	4,75,82,534	7,3715447	9,77,66,235
2	400 kV S/C Kashipur – Muradabad	107.70	7,89,98,595	12,23,85596	16,23,15,763
3	220 kV S/C Panthnagar - Baikantpur	71.718	2,62,14,230	4,0071078	4,69,61,906
Total			15,27,95,359	23,61,72,120	30,70,43,904

*YTC for 9 months has been worked out as per Sharing Regulations, 2010 which came into force from 1.7.2011.



20. The annual transmission charges allowed for the assets covered in the instant petition shall be considered in the YTC as per the Sharing Regulations and shall be adjusted against the ARR of the petitioner approved by the State Commission.

21. This order disposes of Petition No. 215/TT/2013.

-sd-
(A.S. Bakshi)
Member

-sd-
(A. K. Singhal)
Member

-sd-
(Gireesh B. Pradhan)
Chairperson

