

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 286/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 : 15.02.2016

In the matter of:

Approval of transmission tariff for (i) 400 kV Roorkee-Muzaffarnagar (ii) 220 V Khodri-Saharanpur-1 Line (iii) 220 kV Khodri-Saharanpur-2 Line (iv) 400 kV Moradabad-Kashipur Line (v) 220 kV Bareilly-Pantnagar Line (vi) 220 kV Sahibabad-Patarganj Line (vii) 220 kV Noida Sector 62-Gazipur Line (viii) 220 kV Bharatpur-Agra Line (ix) 220 kV Noida Sector 20-Gazipur Line (x) 220 kV Noida Sector 20-BTPS Line (xi) 220 kV Sahupuri-Pasauli Line under inter state transmission lines connecting between Uttar Pradesh and other neighboring states (Natural inter-state transmission lines) pertaining to Uttar Pradesh Power transmission corporation Limited (UPPTCL) in Northern Region.

And in the matter of:

Uttar Pradesh Power Transmission Corporation Limited (UPPTCL)
Shakti Bhavan, 14 Ashok Marg
Lucknow -226 001

.....**Petitioner**

Vs

1. Uttar Pradesh Power Corporation Limited (UPPCL)
Shakti Bhavan, 14 Ashok Marg
Lucknow -226 001
2. Dakshinanchal Vidyut Vitran Nigam Limited (DVVNL)
Galina Road, Agra
3. Madyanchal Vidyut Vitran Nigam Limited (DVVNL)
4A- Gokhale Marg, Lucknow
4. Paschimanchal Vidyut Vitran Nigam Limited (DVVNL)
Urja Bhawan, Victoria Park, Meerut-250001



5. Purvanchal Vidyut Vitran Nigam Limited (PUVVNL)
Vidyut Nagar Hydrel colony, Bhikharipur
P.O. DLW, Varanasi
6. Kanpur Electricity Supply Company Limited (KESCO)
14/71 Kesa house, Civil lines, Kanpur- 208 001
7. Noida Power Company Limited (NPCL)
Commercial Complex, H Block Alpha-II Sector
Greater Noida City-201308
8. Delhi Transco Ltd.,
Shakti Sadan, Kotla Road,
New Delhi-110 002
9. Uttarakhand Power Corporation Ltd.,
Urja Bhawan, Kanwali Road,
Dehradun
10. Rajasthan Rajya Vidyut Prasaran Nigam Ltd.,
Vidyut Bhawan, Vidyut Marg,
Jaipur- 302 005
11. Bihar State Power Transmission Company Limited
Vidyut Bhawan
Bailey Road, Patna- 800001

.....Respondents

For Petitioner : Shri Shailendra Gaur, UPPTCL
Shri P.G. Khandelwal, UPPTCL

For Respondent : Shri Sanket Srivastava, NPCL

ORDER

In pursuance of the reforms and restructuring, Uttar Pradesh Power Corporation Limited (UPPCL) was formed as a successor entity of the erstwhile Uttar Pradesh State Electricity Board (UPSEB) through the first statutory transfer scheme notified by the State Government of Uttar Pradesh on 14.1.2000 to manage the transmission and distribution business within the state. Subsequently, the State Government notified the second transfer scheme on 12.8.2003 wherein UPPCL retained the transmission, SLDC



and Bulk Supply business of the state with itself, while transferring the distribution and retail supply of the state to the four distribution companies. Under this scheme, the role of UPPCL was specified as "Bulk Supply Licensee" as per the licence granted by the Uttar Pradesh Electricity Regulatory Commission (UPERC) and as "State Transmission Utility". Subsequently, the Uttar Pradesh Power Transmission Corporation Limited (UPPTCL), was incorporated under the Companies Act, 1956. Further, Government of Uttar Pradesh vide notification dated 18.7.2007 notified UPPTCL as STU of Uttar Pradesh. Subsequently, on 23.12.2010, the Government of Uttar Pradesh notified the Uttar Pradesh Electricity Reforms Scheme, 2010 which provided for the transfer of assets and liabilities from UPPCL to UPPTCL. The UPPTCL is entrusted with the business of transmission of electrical energy to various utilities within the state of Uttar Pradesh. The instant petition has been filed by UPPTCL in compliance of the Commission's order dated 14.3.2012 in Petition No. 15/SM/2012 for approval of the annual transmission charges of the transmission assets for inclusion in the Point of Connection charges the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (hereinafter "2009 Tariff Regulations")

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

"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"



4. Under the above provision, the conveyance of electricity from territory of one state to another State is also considered to be a part of inter-State transmission system. In terms of Section 79(1)(d) of the Act, the tariff of these lines are also required to be determined by the Central Commission.

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. Eleven regional transmission lines (11) and three (3) inter-regional lines were identified by the Commission in its order dated 14.3.2012 in Petition No. 15/SM/2012 for inclusion in the PoC transmission charges computation. These lines were identified based on the inputs provided by Northern Regional Power Committee (NRPC) and UPPTCL was directed to file tariff petition for the following transmission lines:-

SI. No.	Name of Line	Connecting States
1	400 kV line from Roorkee-Muzaffarnagar	Uttarakhand-Uttar Pradesh
2	220 kV line from Khodri-Saharanpur-1 Line	Uttarakhand-Uttar Pradesh
3	220 kV line from Khodri-Saharanpur-2 Line	Uttarakhand-Uttar Pradesh
4	400 kV line from Kashipur -Moradabad Line	Uttarakhand-Uttar Pradesh
5	220 kV line from Pantnagar- BareillyLine	Uttarakhand-Uttar Pradesh
6	220 kV line from Patarganj -Sahibabad	Delhi- Uttar Pradesh
7	220 kV line from Gazipur Line -Noida Sec 62	Delhi- Uttar Pradesh
8	220 kV line from Bharatpur-Agra Line	Rajasthan- Uttar Pradesh



9	220 kV line from Noida Gazipur-BTPS Line	Uttar Pradesh -Delhi
10	400 kV line from Mandaula -Bawana 1	Uttar Pradesh -Delhi
11	400 kV line from Mandaula- Bawana 2	Uttar Pradesh -Delhi
12.	220 kV line from Pusuali-Sahupuri Line	Power Grid(ER) - Uttar Pradesh
13.	220 kV line from Malanpur-Auraiya Line	Madhya Pradesh - Uttar Pradesh
14	220 kV line from Meghgaon-Auraiya Line	Madhya Pradesh - Uttar Pradesh

4. The petitioner has submitted the details of instant transmission lines like basic features and description of lines i.e. line-length, details of bays, voltage level etc, covered in this petition are as follows:-

Sl. No.	Name of the line	Type of line	S/C or D/C	Voltage (kV)	No. of bay maintained by UPPTCL	Line Length (ckt-km)	Remarks (Ownership with UPPTCL)
1	400 kV Roorkee-Muzaffarnagar	AC	S/C	400	1	70.80*	----
2	220 kV Khodri-Saharanpur-1 Line	AC	S/C	220	1	83.33	83.33 km
3	220 kV Khodri-Saharanpur-2 Line	AC	S/C	220	1	81.05	81.05 km
4	400 kV Moradabad-Kashipur Line	AC	S/C	400	1	110.885*	-----
5	220 kV Bareilly-Pantnagar Line	AC	S/C	220	1	5.501	5.501 km
6	220 kV Sahibabad-Patarganj Line	AC	D/C	220	2	7.002	7.002 km
7	220 kV Noida Sec 62-Gazipur line	AC	S/C	220	1	3.00	3.00 km
8	220 kV Bharatpur-Agra Line	AC	S/C	220	1	49.00**	-----
9	220 kV Noida Sec 20-Gazipur Line	AC	S/C	220	-	4.354	4.354 km
10	220 kV Noida Sec 20-BTPS Line	AC	S/C	220	1	13.303	13.303 km
11	220 kV Sahupuri-Pasauli Line	AC	S/C	220	1	72	36.7 km

5. The petitioner has also claimed additional capital expenditure of ₹3920 lakh under Regulation 9 (2) (V) of the 2009 Tariff Regulations separately in respect of 220 kV Noida Sector 20- BTPS line towards underground cabling in densely populated



commercial area of Noida. UPPTCL has submitted that work was completed in 2011-12 and the line was energized on 18.12.2011

6. Replies have been filed by Uttar Pradesh Power Corporation Limited (UPPCL), Respondent No. 1, vide affidavit dated 22.3.2014, Noida Power Company Limited (NPCL), Respondent No. 7, vide affidavit dated 10.7.2015 and Rajasthan Rajya Vidyut Prasaran Nigam Limited (RRVPL), Respondent No. 9, vide affidavit dated 16.7.2015.

7. UPPCL has submitted that as per the 2009 Tariff Regulations the petitioner is required to submit the certificate of the statutory Auditor in respect of the capital cost of the asset for which transmission tariff is to be determined. Hence, the petitioner should have asked for relaxation in respect of Regulation 5(2) of the 2009 Tariff Regulations. UPPCL has further submitted that calculation of depreciation may be allowed strictly as per 2009 Tariff regulations and Return on Equity should have been calculated on the method of reducing balance after considering repayment of equity through depreciation since the loans have already been paid.

8. NPCL has submitted that it is presently receiving power at 132 kV Surajpur sub-station and at 2 No.s of 220 kV bays at 400 kV Greater Noida (Pali) Sub-station of the petitioner. NPCL as of now is not directly connected with any of the assets mentioned by the petitioner in tariff petition but any augmentation in the instant assets may change the availability of total transfer capacity (TTC) and Available Transfer Capacity (ATC) of the State. NPCL, if used the above mentioned assets, will pay proportionate transmission charges to UPPTCL provided that UPPTCL shall grant non-discriminatory



open access as per the requirement of the NPCL to utilize assets on Inter-State transmission capacity to evacuate power to its licensed area.

9. RRVPNL has submitted that UPPTCL has claimed the YTC of 220 kV Bharatpur-Agra line, however the same was constructed by RVPNL in 1982 and since then its complete maintenance is also being carried out by RVPNL. The Commission vide order dated 18.3.2015 in Petition No. 213/TT/2013 determine the YTC of the above mentioned line. Accordingly, the petitioner may be directed to delete the 220 kV Bharatpur-Agra transmission line from its assets.

10. The petitioner, vide affidavit dated 29.12.2015 has submitted that 220 kV Muzaffarnagar (Nara)-Roorkee line is natural inter-state line, however the same was not included in the order dated 14.3.2012 in Petition No. 15/SM/2012. The petitioner requested to allow tariff for the said line as it is an active line and involved in transmission of energy between Uttar Pradesh and Uttarakhand.

11. We have considered the submission of the petitioner and respondents. In the instant petition the STU lines used for carrying inter-State power has been considered for inclusion in the PoC charges in accordance with 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 hereinafter:-

“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 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.”

12. The certificate of NRPC is available in terms of the above said provision in respect of fourteen (14) transmission lines which were included in the Commission's order dated 14.3.2012 in Petition No. 15/SM/2012. The Commission vide letter dated



2.1.2014 sought the reason from the petitioner for not including the Malanpur-Auraiya 220 kV line (MP-UP), Mehgaon-Auraiya 220 kV line and Mandaula-Bawana 400 kV Line 1 and 2 in the instant tariff petition. In response, the petitioner vide affidavit dated 7.2.2014 clarified that Malanpur-Auraiya 220 line and Mehgaon-Auraiya 220 kV line both between Madhya Pradesh and Uttar Pradesh are maintained by Madhya Pradesh. The bays of these lines at Auraiya is maintained by NTPC. The petitioner has further submitted that Mandaula-Bawana 400 kV line 1 & 2 between Uttar Pradesh and Delhi are owned by PGCIL. The petitioner has further submitted that these assets are not included in the present petition as they are not owned by it. Since the NRPC certification is not available for 220 kV Muzaffarnagar (Nara)-Roorkee line, we direct the petitioner to approach NRPC for the required certification of this line for inclusion in the PoC Charges and file a suitable application before the Commission after obtaining the certification from NRPC.

13. The 400 kV Roorkee-Muzaffarnagar and 400 kV line from Kashipur -Moradabad Line are maintained by Uttarakhand, hence they are not considered in the instant tariff petition. 220 kV Bharatpur-Agra line is maintained by Rajasthan and the Commission already has given the YTC of this line in Petition No. 213/TT/2013, hence this line has also not been considered in the instant tariff petition.

14. Accordingly, following eight transmission lines are being considered in this petition for grant of annual transmission charges whose ownership is with UPPTCL:-



Sl. No.	Name of the line	Type of line	S/C or D/C	Voltage (kV)	No. of Bay maintained by UPPTCL	Line Length (ckt-km)	Remarks (Ownership with UPPTCL)
1	220 kV Khodri-Saharanpur-1 Line	AC	S/C	220	1	83.33	83.33 km
2	220 kV Khodri-Saharanpur-2 Line	AC	S/C	220	1	81.05	81.05 km
3	220 kV Bareilly-Pantnagar Line	AC	S/C	220	1	5.501	5.501 km
4	220 kV Sahibabad-Patarganj Line	AC	D/C	220	2	7.002	7.002 km
5	220 kV Noida Sec 62-Gazipur line	AC	S/C	220	1	3.00	3.00 km
6	220 kV Noida Sec 20-Gazipur Line	AC	S/C	220	-	4.354	4.354 km
7	220 kV Noida Sec 20-BTPS Line	AC	S/C	220	1	13.303	13.303 km
8	220 kV Sahupuri-Pasauli Line	AC	S/C	220	1	72	36.7 km

Further, 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, Yearly Transmission Charges (YTC) for these eight transmission lines have been calculated for the year 2011-12 (1.7.2011 to 31.3.2012), 2012-13 and 2013-14 and 2014-15.

Capital cost

15. The petitioner has submitted that the instant transmission lines have been constructed at different time. For considering cost of these lines, proportionate cost of line is taken as per portion of line length considered. The capital cost of the transmission lines considered under the instant petition, as given by the petitioner, is as follows:-



(₹ in lakh)

S. No.	Transmission Line	Capital cost of line	Capital cost of bay
1.	220 kV Khodri-Saharanpur-1 Line	674.99	050.00
2.	220 kV Khodri-Saharanpur-2 Line	689.77	058.00
3.	220 kV Bareilly-Pantnagar Line	088.02	146.00
4.	220 kV Sahibabad- Patarganj Line	075.00	124.00
5.	220 kV Noida Sec 62-Gazipur line	030.09	180.00
6.	220 kV Noida Sec 20-Gazipur Line	043.67	NA
7.	220 kV Noida Sec 20-BTPS Line	4029.36	110.00
8.	220 kV Sahupuri-Pasauli Line	092.78	021.64

16. The petitioner was directed vide letter dated 19.8.2014 to submit the capital cost of the assets certified by an Auditor, the funding pattern of the assets, repayment schedule and the interest rate of loans, cumulative depreciation against the assets as on 31.3.2012, details of the ARR approved by the State Commission for the 2009-14 period and details of the O&M expenses.

17. The matter was heard on 4.6.2015 and the petitioner was directed to submit the ARR and network configurations in the prescribed pro-forma and details of ARR approved by the SERC for 2009-14 separately for the respective years containing total amount approved for the respective years. In response, the petitioner vide affidavit dated 26.6.2015, has submitted that the above information has already been submitted vide affidavit dated 5.9.2014.

18. The petitioner vide affidavit dated 26.6.2015, has submitted that the ARR and the O&M norms for the 2009-14 tariff periods have been approved by the State Commission. The details of the approved ARR furnished by the petitioner are given hereunder:-



SI.No	YEAR	₹ in lakh
1	2009-10	68051
2	2010-11	91418
3	2011-12	110545
4	2012-13	124138
5	2013-14	148462
6	2014-15	163382

19. Voltage-wise length of line in ckt. kms as submitted vide affidavit dated 18.9.2013

are as follows:-

SI.No	Line Type	2010-11	2011-12	2012-13	2013-14
1	765 kV D/C 765 kV S/C	409	410.93	410.93	410.93
2	400 kV D/C TM 400 kV D/C quad 400 kV S/C	4275	4275	4259.415	4777.727
3	220 kV D/C 220 kV S/C	7432	7690	8118	8183.207
4	132 kV D/C 132 kV S/C	13542	13844	13941	14231.673

20. The petitioner has earlier submitted combined length for 765 kV D/C& S/C, 400 kV D/C & S/C, 220 kV D/C & S/C and 132 kV D/C & S/C lines. The separate length for above voltage class has been sought by the Commission , in response the petitioner vide affidavit dated 18.1.2016 submitted that the segregated voltage wise length of EHV lines pertains to the petitioner. The modified network details is as follows:-

SI.No	Line Type	2010-11	2011-12	2012-13	2013-14	2014-15
1	765 kV D/C	-	-	-	-	-
2	765 kV S/C	409.00	406.38	406.38	406.38	406.38
3	400 kV D/C	1.50	1.50	1.50	519.81	591.51
4	400 kV D/C quad	-	-	-	-	-
5	400 kV S/C	3964.98	3964.98	3964.98	3964.98	3967.57
6	220 kV D/C	2213.11	2344.97	2358.43	2379.28	2769.89
7	220 kV S/C	5210.81	5545.38	5620.40	5662.98	5956.58
8	132 kV D/C	3135.32	3170.13	3305.59	3398.46	3726.71
9	132 kV S/C	9470.49	9867.18	10263.82	10546.37	11257.37



Procedure for calculating YTC for the transmission lines

21. The petitioner has submitted that the capital costs of the instant transmission lines are not available. Hence, the 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 expressed with reference 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 configuration).

22. The yearly break-up of indicative cost of various configurations owned and operated by PGCIL is as hereunder:-

For 2011-12

Type	Cost (₹ in lakh)	Cost (₹ in lakh/ckt.)	Co-efficient
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	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	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 2012-13

Type	Cost (₹ in lakh)	Cost (₹ in lakh/ckt.)	Co-efficient
765 KV D/C	357.00	178.5 (A)	a= D/A 0.63
765 KV S/C	179.20	179.20 (B)	b=D/B 0.63
400 KV D/C	122.60	61.3 (C)	c=D/C 1.83
400 KV D/C Quad. Moose	224.80	112.4 (D)	d=D/D 1.00
400 KV S/C	84.20	84.20 (E)	e=D/E 1.33
220 KV D/C	67.80	33.9 (F)	f=D/F 3.32
220 KV S/C	41.40	41.40 (G)	g=D/G 2.71
132 KV D/C	53.00	26.5 (H)	h=D/H 4.24
132 KV S/C	32.40	32.40 (I)	i=D/I 3.47



For F/Y 2013-14

Type	Cost (₹ in lakh)	Cost (₹ in lakh/circuit)	Co-efficient	
765 kV D/C	412.00	206 (A)	a= D/A	0.56
765 kV S/C	179.80	179.80 (B)	b=D/B	0.65
400 kV D/C Twin Moose	130.40	65.2 (C)	c=D/C	1.78
400 kV D/C Quad Moose	232.60	116.3 (D)	d=D/D	1.00
400 kV S/C Twin Moose	87.00	87.00 (E)	e=D/E	1.34
220 kV D/C	61.40	30.7 (F)	f=D/F	3.79
220 kV S/C	37.80	37.80 (G)	g=D/G	3.08
132 kV D/C	48.40	24.2 (F)	h=D/H	4.81
132 kV S/C	30.00	30.00 (G)	i=D/I	3.88

For F/Y 2014-15

Type	Cost (₹ in lakh)	Cost (₹ in lakh/circuit)	Co-efficient	
765 kV D/C	450	225 (A)	a= D/A	0.53
765 kV S/C	180	180.00 (B)	b=D/B	0.67
400 kV D/C Twin Moose	135	67.5 (C)	c=D/C	1.78
400 kV D/C Quad Moose	240	120.00 (D)	d=D/D	1.00
400 kV S/C Twin Moose	88	88.00 (E)	e=D/E	1.36
220 kV D/C	56	28 (F)	f=D/F	4.29
220 kV S/C	35	35.00 (G)	g=D/G	3.43
132 kV D/C	44	22 (H)	h=D/H	5.45
132 kV S/C	28	28.00 (I)	i=D/I	4.29

23. 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 ₹

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

*value of a, b, c, d, e, f, g, h & i are as given in para 20 and length in ckt km as given in para 19 of this order.



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

24. We have not carried out any due diligence of the tariff of these lines (for consideration of PoC calculations) as the tariff of the lines owned by STU has already been determined by 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 21 to 23 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.

25. Further, 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 transmission lines have been calculated for the year 2011-12 (1.7.2011 to 31.3.2012), 2012-13 and 2013-14. Based on the ARR and line length provided by the petitioner i.e. line length in ckt. km as on March 2009, March 2010, March 2011, March 2012, March 2013 and March 2014 and ARR approved by UPERC for the 2009-10 to 2013-14 and PoC cost data for the corresponding year, YTC for the assets for 2011-12, FY 2012-13 and FY 2013-14 has been calculated as under:-



2014-15

Total ARR approved by the UPERC for 2014-15 is ₹ **16,33,82,00,000**

(in ₹)

S. No	Asset	For entire system		
		Line length (ckt km)	YTC per ckt km	YTC
1	765 kV S/C	406.38	2,567,435.60	1,043,354,478.57
2	400 kV D/C TM	591.51	962,788.35	569,498,936.00
3	400 kV S/C	3967.57	1,255,190.74	4,980,057,112.80
4	220 kV D/C	2769.89	399,378.87	1,106,235,540.71
5	220 kV S/C	5956.58	499,223.59	2,973,665,243.50
6	132 kV D/C	3726.71	313,797.98	1,169,432,967.97
7	132 kV S/C	11257.37	399,378.87	4,495,955,719.86
	Total			16,338,200,000.00

2013-14

Total ARR approved by the UPERC for 2013-14 is ₹ **14,84,62,00,000**

(in ₹)

S. No	Asset	For entire system		
		Line length (ckt km)	YTC per ckt km	YTC
1	765 kV S/C	406.38	2,346,368.30	953,517,149.77
2	400 kV D/C TM	519.81	850,852.13	442,281,446.24
3	400 kV S/C	3964.98	1,135,339.50	4,501,598,410.78
4	220 kV D/C	2379.28	400,631.29	953,214,027.17
5	220 kV S/C	5662.98	493,285.44	2,793,465,569.34
6	132 kV D/C	3398.46	315,807.08	1,073,257,726.77
7	132 kV S/C	10546.37	391,496.38	4,128,865,669.93
	Total			14,846,200,000.00

2012-13

Total ARR approved by the UPERC for 2012-13 is ₹ **12,41,38,00,000**



(in ₹)

S. No	Asset	For entire system		
		Line length (ckt km)	YTC per ckt km	YTC
1	765 kV S/C	406.38	1,952,136.59	793,309,267.32
2	400 kV D/C TM	1.50	667,778.87	1,001,668.30
3	400 kV S/C	3964.98	917,242.75	3,636,849,160.07
4	220 kV D/C	2358.43	369,293.70	870,953,332.35
5	220 kV S/C	5620.40	450,995.84	2,534,777,028.10
6	132 kV D/C	3305.59	288,680.91	954,260,739.53
7	132 kV S/C	10263.82	352,953.27	3,622,648,804.34
	Total			12,413,800,000.00

2011-12

Total ARR approved by the UPERC for 2011-12 is ₹11,05,45,00,000

(in ₹)

S. No	Asset	For entire system		
		Line length (ckt km)	YTC per ckt km	YTC
1	765 kV S/C	406.38	1,776,577.799	721,965686
2	400 kV D/C TM	1.50	611,746.1289	917,619.1934
3	400 kV S/C	3964.98	829,628.3119	3,289,459,664
4	220 kV D/C	2344.97	332,409.997	779,491470.7
5	220 kV S/C	5545.38	413,417.4753	2,292,556999
6	132 kV D/C	3170.13	261,179.2834	827,972281.6
7	132 kV S/C	9867.18	318,443.1904	3,142,136280
	Total			11,054,500,000.00

YTC of the eight (8) transmission lines

26. YTC per ckt. km, total ARR for the transmission system in Karnataka is matching with the ARR approved by the Uttar Pradesh Electricity Regulatory Commission and it is as follows:-

(in ₹)

Voltage level	2011-12	2012-13	2013-14	2014-15
220 kV (S/C)	413417.48	450995.84	493285.44	499223.59
220 kV (D/C)	332410.00	369293.70	400631.29	399378.87



27. YTC of the eight (8) transmission lines calculated on the methodology discussed above is given below:-

(in ₹)

Sl. No	Asset	For entire system (UPPTCL)				
		Line length (ckt. km)	YTC 2011-12	YTC 2012-13	YTC 2013-14	YTC 2014-15
1	220 kV SC Khodri-Saharanpur-1 Line	83.33	34450078.21	37581483.48	41105475.54	41600301.64
2	220 kV SC Khodri-Saharanpur-2 Line	81.05	33507486.37	36553212.96	39980784.74	40462071.86
3	220 kV SC Bareilly-Pantnagar Line	5.501	2274209.531	2480928.125	2713563.194	2746228.96
4	220 kV DC Sahibabad-Patarganj Line	7.002	2327534.82	2585794.462	2805220.326	2796450.85
5	220 kV SC Noida Sec 62-Gazipur line	3	1240252.426	1352987.525	1479856.314	1497670.76
6	220 kV SC Noida Sec 20-Gazipur Line	4.354	1800019.687	1963635.894	2147764.797	2173619.50
7	220 kV SC Noida Sec 20-BTPS Line	13.303	5499692.674	5999597.681	6562176.181	6641171.39
8	220 kV SC Sahupuri-Pasauli Line	36.70	15172421.34	16551547.39	18103575.57	18321505.70
	Total	234.24	96271695.07	105069187.50	114898416.66	116239020.66

28. The Central Electricity Regulatory Commission (Sharing of inter-State Transmission Charges and Losses) Regulations, 2010 came into force from 1st July, 2011. Therefore, YTC for the lines have been calculated from 1.7.2011 to 31.3.2012, 2012-13 and 2013-14.

29. The annual transmission charges allowed for the assets covered in the instant petition shall be considered in the YTC as per the Sharing of Inter-State Transmission



Charges and Losses Regulations, 2010 and shall be adjusted against the ARR of the petitioner approved by the State Commission.

30. This order disposes of Petition No. 286/TT/2013.

Sd/-
(A.S. Bakshi)
Member

Sd/-
(A.K. Singhal)
Member

Sd/-
(Gireesh B. Pradhan)
Chairperson

