

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 427/TT/2014**

**Coram:**

**Shri A.K. Singhal, Member  
Shri A.S. Bakshi, Member**

**Date of Hearing : 26.02.2016  
Date of Order :16.05.2016**

**In the matter of:**

Determination of tariff for fees and charges of Sub-Load Dispatch Centre at Modipuram under UPPCL for tariff block 2014-19 under Regulation 86 of Central Electricity Regulatory Commission (Conduct of Business) Regulation 1999 and Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations 2014.

**And in the matter of:**

Power Grid Corporation of India Limited  
"Saudamini", Plot No.2,  
Sector-29, Gurgaon -122 001

**.....Petitioner**

**Vs**

Uttar Pradesh Power Corporation Limited,  
(Formerly Uttar Pradesh State Electricity Board),  
Shakti Bhawan, 14, Ashok Marg,  
Lucknow-226 001

**..... Respondent**

**For petitioner :** Shri S.S Raju, PGCIL  
Shri Jasbir Singh, PGCIL  
Ms. Sangeeta Edwards, PGCIL  
Shri M.M. Mondal, PGCIL  
Ms. Trepti, PGCIL

**For respondents :** None



## **ORDER**

The petition has been filed by Power Grid Corporation of India Limited (PGCIL) under Regulation 86 of Central Electricity Regulatory Commission (Conduct of Business) Regulation 1999 and Central Electricity Regulatory Commission(Terms and Conditions of Tariff) Regulations, 2014 for determination of annual transmission charges for fees and charges of sub-load dispatch centre at Modipuram under UPPCL (hereinafter referred to as the "transmission asset")for the 2014-19 period.

### **Brief Background**

2. The Sub-Load Dispatch Centre (SLDC) at Modipuram under UPPCL was put under commercial operation on 1.9.2006. The Commission based on the capital cost of ₹353.21 lakh as on 31.3.2009, determined the fee and charges for SLDC Modipuram in its order dated 18.3.2009 in Petition No.87/2007 for the period from COD to 31.3.2009. Later on, the Commission, vide order dated 21.2.2014 in Petition No. 73/TT/2012, approved the fee and charges for the period 2009-14.

3. The Commission, in its orders, has approved the recovery of loan and equity based on the weighted average rate of interest & Return on Equity using the monthly Capital Recovery Factor concept. The Commission in its order dated 18.3.2009 in Petition No. 87/2007, approved the fees and charges for Sub-LDC in the same manner as in the case of the assets under the Unified Load Despatch and Communication Scheme (the Scheme) in the Regions. While approving fees and charges for the period ending 31.3.2009 in respect of the assets covered under the Scheme, the Commission had approved the recovery of loan and equity based on



the weighted average rate of interest and Return on Equity (RoE) using the Recovery Factor for loan and equity for 15 years as under:-

$$\text{Recovery Factor} = \frac{i \times (1+i)^n}{(1+i)^n - 1}$$

Where n = period of recovery, and i = rate of recovery

5. Based on the above Recovery Factor, installments of fees and charges computed on yearly basis were ordered to be recovered on monthly basis.

6. Further, the Commission vide order dated 8.12.2011, in Petition No.68/2010, specified the guidelines. The Commission had decided to continue with the levelised tariff for the existing assets in the absence of any provision in 2009 Regulations regarding determination of tariff of communication system and ULDC system of the petitioner. The relevant extract of the order is given below:-

“9.....Since the communication system and SLDC system form part of the assets of the CTU, there is a requirement to specify regulations for determination of tariff of these assets. We direct the staff of the Commission to undertake the exercise separately and include these assets of CTU in the tariff regulations applicable for the next tariff period i.e.2014-19. As regards the tariff of these assets for the period 2009-14, we are not inclined to determine the tariff of these assets by exercising our power to relaxation under Regulation 44 of the 2009 regulations since there is no provision for determination of tariff for the assets covered under the communication system and ULDC system. We are of the view that the tariff of these assets shall be determined under our general power of determination of tariff for inter-State transmission system under section 79(1)(d) of the Act.....”

“.....It clearly emerges from the above judgment that the Central Commission can specify the terms and conditions of tariff even in the absence of the regulations. Since no regulation was specified for determination of tariff of the communication system and the ULDC system, the Commission determined the tariff of these assets during the period 2004-09 on levelised basis by adopting some of the parameters of 2004 tariff regulations. We have decided to continue with the levelised tariff for the existing assets in the absence of any provision in 2009 regulations regarding determination of tariff of communication system and ULDC system of the petitioner. For the new assets, the tariff will be decided as per the regulations for communication systems to be framed. Accordingly we direct the staff of the Commission to take necessary action to prepare draft regulations for determination of tariff for the communication system and ULDC system of the petitioner.”



“21. We have considered the submission of the petitioner and the respondents. We are of the view that replacement of microwave links with fibre optic links should be implemented as agreed by the beneficiaries to ensure safe and reliable operation of the power system. Moreover, the petitioner has submitted that surrender of the microwave frequencies would save substantial cost and the fibre optic system would be beneficial in the long run as the fibre optic communication network is required for implementation of new technologies like Wide Area Measurement System (WAMS), Special Protection Schemes (SPS) etc. in view of fast development and complexity of the power system in the country. As regards the regulatory approval, we are of the view that since the project has been agreed to be implemented by the constituents of each of the regions, regulatory approval is not considered necessary. The petitioner is granted liberty to approach the Commission for determination of tariff for the fibre optic network being installed in lieu of microwave links for each of the region separately. As regards the submission of UPPTCL, it is clarified that if the state portion is not being implemented by it separately as proposed earlier, the same shall be implemented by the petitioner and UPPTCL would be required to share the tariff in proportion to the assets being utilised by it. It is however made clear that the timeline for replacement of the digital microwave by optical fibre should be strictly complied with.”

7. Subsequently, the existing digital microwave with optic fibre was completely replaced on 31.3.2012 as per the directions of Ministry of Communications & Information Technology. The Commission had considered the accelerated depreciation for the microwave links and capital was recovered completely up to 31.3.2012.

8. Accordingly, the Commission, vide order dated 21.2.2014 in Petition No. 73/TT/2012, had considered the following capital cost for the purpose of calculation of Fee and Charges for 2009-14 period in respect of the instant transmission asset:-

<b>Gross capital cost as on 1.4.2009</b>	<b>Microwave</b>	<b>Non-Microwave</b>	<b>Total</b>
Loan	12.35	234.93	247.28
Equity	5.29	100.64	105.93
<b>Total</b>	<b>17.64</b>	<b>335.57</b>	<b>353.21</b>
<b>Capital recovered up to 31.03.2009</b>	<b>Microwave</b>	<b>Non-Microwave</b>	<b>Total</b>
Loan	1.13	21.52	22.65
Equity	0.31	5.88	6.19
<b>Total</b>	<b>1.44</b>	<b>27.40</b>	<b>28.84</b>
<b>Retained Net Capital Cost as on 1.4.2009</b>	<b>Microwave</b>	<b>Non-Microwave</b>	<b>Total</b>
Loan	11.22	213.41	224.63
Equity	4.98	94.76	99.74
<b>Total</b>	<b>16.20</b>	<b>307.17</b>	<b>324.37</b>



9. Later on, the Commission vide order dated 1.9.2015 in Petition No. 240/TT/2013 has decided that the annual fees and charges of the optic fibre need to be determined as per the principles approved by the Commission vide order dated 8.12.2011 in Petition No 68/2010. The relevant extract of the order dated 1.9.2015 is given below:-

"As held in our order dated 8.12.2011 in Petition No.68/2010, we would like to continue with the levelised tariff for the existing assets in the absence of any provision in the 2009 Tariff Regulations regarding determination of tariff of communication system and ULDC system of the petitioner. Accordingly, the annual fees and charges of the optic fibre need to be determined as per the principles approved by the Commission vide order dated 8.12.2011 in Petition No 68/2010".

10. In the instant petition, the petitioner has claimed annual fee and charges for 2014-19 period in respect of 'Non-Microwave Portion' for Sub-Load Dispatch Centre (SLDC) at Modipuram under UPPCL. Further, the petitioner vide affidavit dated 24.2.2016 submitted that there was no additional capital expenditure as well as no change in rate of Interest during 2009-14 period, therefore trueing up is not required for 2009-14 period.

11. However, the provision for determining tariff of communication system and ULDC system of the petitioner have now been specified in the 2014 Tariff Regulations as an element of a transmission system. Accordingly, the annual transmission charges of the optic fibre have been determined as per the provisions of the 2014 Tariff Regulations in this order.

12. The annual transmission charges claimed by the petitioner based on the actual date of commercial operation are as hereunder:-



(₹ in lakh)

Particulars	Non-Micro-wave:State portion				
	2009-10	2010-11	2011-12	2012-13	2013-14
Annual capital recovery charges-loan	27.79	27.79	27.79	27.79	27.79
Annual capital recovery charges-equity	19.44	19.44	19.44	19.44	19.44
Annual capital recovery charges-Total	<b>47.23</b>	<b>47.23</b>	<b>47.23</b>	<b>47.23</b>	<b>47.23</b>
O & M Expenses	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Interest on Working Capital	<b>1.09</b>	<b>1.09</b>	<b>1.09</b>	<b>1.09</b>	<b>1.09</b>
<b>Total</b>	<b>48.31</b>	<b>48.31</b>	<b>48.31</b>	<b>48.31</b>	<b>48.31</b>

13. No comments or suggestions have been received from the general public in response to the notices published by the petitioner under Section 64 of the Electricity Act, 2003. None of the respondent has filed any reply.

14. Having heard the representatives of the respondents, the petitioner and perused the material on record, we proceed to dispose of the petition.

#### **SLDC Fees and Charges for the period from 1.4.2014 to 31.3.2019**

15. Clause (iii) of Regulation 6(1) of the 2014 Tariff Regulations provides as follows:-

(iii) the tariff of the existing communication system forming part of transmission system shall be as per the methodology followed by the Commission prior to 1.4.2014.

The methodology adopted by the Commission in its order dated 21.2.2014 in Petition No. 73/TT/2012 was similar to the guidelines given by the Commission vide order dated 8.12.2011 in Petition No 68/2010, and that applied in orders related with Fee and Charges of ULDC of various regions during 2009-14. Accordingly, the same methodology with associated assumptions has been continued to determine Annual



Fee & Charges for 2014-19 period in respect of 'Non-Microwave Portion' for instant transmission asset.

**Capital cost**

**(i) Capital Expenditure as on 1.4.2009:**

16. The Commission, vide order dated 21.2.2014 in Petition No. 73/TT/2012, has admitted the following capital cost for 'Non-Microwave Portion' as on 1.4.2009 and 1.4.2014:-

(₹ in lakh)

Particulars	Admitted capital cost as on 1.4.2009	Capital recovered during 1.4.2009 to 31.3.2014	Net capital cost as on 1.4.2014
Loan	213.41	60.65	152.76
Equity	94.76	19.05	75.71
<b>Total</b>	<b>308.17</b>	<b>79.70</b>	<b>228.47</b>

The Net capital cost as on 1.4.2014, has been considered for working out the fee and charges for 'Non-Microwave Portion' of SLDC for 2014-19 period.

17. Accordingly, capital Recovered in respect of capital cost for 'Non-Microwave Portion' for the period from 1.4.2014 to 31.3.2019 has been worked out by considering the recovery of loan and equity based on the weighted average rate of interest and return on equity using the monthly capital recovery factor concept. The details are as below:

(₹ in lakh)

Particulars	Capital Cost as on 1.4.2014	Capital Recovered during 1.4.2014 to 31.3.2019	Net Capital Cost as on 1.4.2019
Loan	152.76	92.21	60.55
Equity	75.71	41.15	34.55
<b>Total</b>	<b>228.47</b>	<b>133.36</b>	<b>95.11</b>



## Additional Capital Expenditure

18. The petitioner has not claimed any additional capital expenditure

## Debt-equityratio

19. Debt and equity considered for computation of fees and charges as on has been worked out as under:-

	(₹in lakh)	
Retained net capital cost for non-microwave portion	As on 1.4.2014	As on 1.4.2019
Loan	152.76	60.55
Equity	75.71	34.55
<b>Total</b>	<b>228.47</b>	<b>95.11</b>
<b>Debt-Equity Ratio</b>		
Debt	66.86	63.67
Equity	33.14	36.33
<b>Total</b>	<b>100.00</b>	<b>100.00</b>

## Rates for Recovery of loan and equity

20. The weighted average rate of interest works out to be 8.4457% per annum, which have been admitted vide order dated 21.2.2014 in Petition No. 73/TT/2012 has been applied for calculating the Capital Recovery Factor (CRF) for loan.

21. The Commission observed in the above said order that the grossing up concept applied in base rate of ROE was basically linked with the Tariff Regulations and these can not be applied in toto for working out the fee and charges which are based on CRF concept. The relevant extract of order is given below:-

" 21. The Commission in its order dated 18.3.2009 approved the fees and charges for the period up to 31.3.2009 by considering RoE at the rate of 14% per annum (post-tax) in accordance with the terms and conditions for determination of tariff applicable during 2004-09 period. The tariff regulations applicable for the period 2009-14 provide for recovery of RoE (pre-tax), calculated by grossing up the base rate (normally @15.5% per annum) with the Corporate Tax/MAT rate for the year 2008-09 and is to be trued up subsequently with reference to the actual tax rate applicable under the provisions of the relevant Finance Act each year during the tariff period. The grossing up concept is basically linked with the 2009-14 TariffRegulations and these cannot be applied in toto for working out the fee and charges,





which are based on CRF concept. A grossed-up value of RoE in working out the CRF would further distort the recovery factor because of tax component. Therefore, deviating from the practice of directly relating the CRF (corresponding to equity portion) to the RoE being allowed in the current tariff regulations, it is considered prudent to work out the CRF based on post-tax RoE of 15.50%, i.e. dispensing with the concept of grossing-up of RoE with the applicable tax rate. The rate of return on equity of 15.50% has been applied for calculating the Capital Recovery Factor for equity. The above rates being on annual basis, have been converted to monthly rates. While the base Order in Petition No 73/TT/2012 is as per 2009 Tariff Regulations, the post tax philosophy, for working out fee and charges, is as per the 2004-09 control period. Hence, return on equity @ 15.50% has been applied for calculating the Capital Recovery Factor for equity. This would mean that tax on the income streams shall be recovered from the beneficiaries separately."

Accordingly, in the instant petition rate of return on equity of 15.50% has been applied for calculating the Capital Recovery Factor for equity without grossing-up of RoE with the applicable tax rate. Similar, approach was adopted while working on ULDC petitions of 2009-14 period. The above rates being on annual basis, have been converted to monthly rates.

**Monthly Capital Recovery Charges**

22. Monthly Recovery factors, as on 1.4.2014, for State Portion for 'Microwave System' & 'Non-Micro-wave System' are as follows:-

<b>Monthly Capital Recovery factor</b>	<b>Non-Microwave</b>
Loan	0.015158
Equity	0.018970

While working out the capital recovery charges for loan, weighted average rate of interest and rate of return on equity, as mentioned above have been considered.

**Operation and Maintenance Expenses**

23. The petitioner has not claimed O&M expenses.



### Interest on working capital

24. The components of the working capital and the interest thereon are discussed hereunder:-

- (i) **Maintenance spares:** The petitioner has not claimed maintenance spares.
- (ii) **O & M Expenses:** The petitioner has not claimed O&M expenses.
- (iii) **Receivables:** The receivables, as a component of working capital, have been worked out on the basis of 2 months' of the annual fees and charges.
- (iv) **Rate of Interest:** In line with the 2014 Tariff Regulations, the SBI PLR of 13.50% as on 1.4.2014 has been considered as the rate of interest on working capital for Non-Micro Wave System.

25. Necessary computations in support of interest on working capital are as given under:-

(₹ in lakh)

Particulars	State portion				
	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	0.00	0.00	0.00	0.00	0.00
O & M expenses	0.00	0.00	0.00	0.00	0.00
Receivables	7.68	7.68	7.68	7.68	7.68
<b>Total</b>	<b>7.68</b>	<b>7.68</b>	<b>7.68</b>	<b>7.68</b>	<b>7.68</b>
Interest Rate	13.50%	13.50%	13.50%	13.50%	13.50%
<b>Interest</b>	<b>1.04</b>	<b>1.04</b>	<b>1.04</b>	<b>1.04</b>	<b>1.04</b>

### Annual Fee and charges

26. The transmission charges allowed for the instant transmission assets are summarized as follows:-



(₹ in lakh)

Particulars	State Portion				
	2014-15	2015-16	2016-17	2017-18	2018-19
Annual capital Recovery charge-Loan	27.79	27.79	27.79	27.79	27.79
Annual capital Recovery charge-Equity	17.23	17.23	17.23	17.23	17.23
<b>Annual capital recovery charges</b>	<b>45.02</b>	<b>45.02</b>	<b>45.02</b>	<b>45.02</b>	<b>45.02</b>
O&M expenses	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Interest on working capital	<b>1.04</b>	<b>1.04</b>	<b>1.04</b>	<b>1.04</b>	<b>1.04</b>
<b>Total Fee and charges</b>	<b>46.06</b>	<b>46.06</b>	<b>46.06</b>	<b>46.06</b>	<b>46.06</b>

27. The Commission is of the view that there is a need to review the Capital Recovery Factor methodology applied while determining fee and charges for Communication system. Accordingly, Commission directs the staff to examine the issue and submit to the Commission for appropriate directions.

#### **Filing Fee and the Publication Expenses**

28. The petitioner has sought reimbursement of fee paid by it for filing the petition and publication expenses, in terms of Regulation 52 of the 2014 Tariff Regulations. 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.

#### **Licence Fee and RLDC fees and Charges**

29. The petitioner has requested to allow the petitioner to bill and recover License fee and RLDC fees and charges, separately from the respondents. The petitioner shall be entitled for reimbursement of licence fee and RLDC fees and charges in accordance with Clause (2)(b) and (2)(a), respectively, of Regulation 52 of the 2014 Tariff Regulations.



### **Service Tax**

30. The petitioner has made a prayer to be allowed to bill and recover the service tax on transmission charges separately from the respondents, if at any time service tax on transmission is withdrawn from negative list at any time in future. The petitioner has further prayed that if any taxes and duties including cess etc. are imposed by any statutory/Government/municipal authorities, it shall be allowed to be recovered from the beneficiaries. We consider petitioner's prayer pre-mature and accordingly this prayer is rejected.

### **Sharing of Annual Transmission (Communication) Charges**

31. The fees and charges allowed herein for the sub-SLDC system shall be borne by Uttar Pradesh Power Corporation Limited, as prayed by the petitioner.

32. This order disposes of Petition No. 427/TT/2014.

-sd-  
**(A.S. Bakshi)**  
**Member**

-sd-  
**(A.K. Singhal)**  
**Member**



## Non Micro-wave state portion charges

(₹ in lakh)

Particulars	On Capital expenditure as on 1.4.2014	Additional Capital Expenditure				
		2014-15	2015-16	2016-17	2017-18	2018-19
Gross Capital Cost	228.47					
Gross Notional Loan	152.76					
Gross Equity	75.71					
O/S Capital Cost	228.47					
<b>O/S Notional Loan</b>	<b>152.76</b>					
<b>O/S Equity</b>	<b>75.71</b>					
Years	7.41667					
Months	89.00					
Weighted Average Rate of Interest p.a.	8.4457%					
Weighted Average Rate of Interest p.m.	0.7038%					
Monthly Recovery Factors -Loan	0.015158					
Monthly Capital Recovery Charge - Loan	2.3156					
<b>Annual Capital Recovery Charge - Loan</b>	<b>27.79</b>					
Rate of Return on Equity p.a.	15.500%					
Rate of Return on Equity p.m.	1.292%					
Monthly Recovery Factors -Equity	0.018970					
Monthly Capital Recovery Charge - Equity	1.4362					
<b>Annual Capital Recovery Charge - Equity</b>	<b>17.23</b>					
Monthly Capital Recovery Charge - Total	3.7518					
<b>Annual Capital Recovery Charge - Total</b>	<b>45.02</b>					
<b>(i) Annual Capital Recovery Charge - Total</b>		<b>45.02</b>	<b>45.02</b>	<b>45.02</b>	<b>45.02</b>	<b>45.02</b>
<b>(ii) Annual O&amp;M Expenses (As per claim of the petitioner)</b>		<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>(iii) Annual Interest on Working Capital<sup>†</sup></b>		<b>1.04</b>	<b>1.04</b>	<b>1.04</b>	<b>1.04</b>	<b>1.04</b>
<b>Total Annual Fee &amp; Charges (i+ii+iii)</b>		<b>46.06</b>	<b>46.06</b>	<b>46.06</b>	<b>46.06</b>	<b>46.06</b>



**Interest on Working Capital<sup>+</sup>**

Particular			2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares (As per claim of the petitioner)			0.00	0.00	0.00	0.00	0.00
O&M Expenses (1 Month)			0.00	0.00	0.00	0.00	0.00
Receivables (2 Months)			7.68	7.68	7.68	7.68	7.68
<b>Total</b>			<b>7.68</b>	<b>7.68</b>	<b>7.68</b>	<b>7.68</b>	<b>7.68</b>
Rate of Interest on Working Capital			13.50%	13.50%	13.50%	13.50%	13.50%
<b>Interest on Working Capital</b>			<b>1.04</b>	<b>1.04</b>	<b>1.04</b>	<b>1.04</b>	<b>1.04</b>

**Total Fee&Charges (2014-19)****Non-Microwave: State Portion - Charges**

Particulars			2014-15	2015-16	2016-17	2017-18	2018-19
Annual Capital Recovery Charge - Loan			27.79	27.79	27.79	27.79	27.79
Annual Capital Recovery Charge - Equity			17.23	17.23	17.23	17.23	17.23
<b>Annual Capital Recovery Charge - Total</b>			<b>45.02</b>	<b>45.02</b>	<b>45.02</b>	<b>45.02</b>	<b>45.02</b>
<b>O&amp;M Expenses</b>			<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
<b>Interest on Working Capital<sup>+</sup></b>			<b>1.04</b>	<b>1.04</b>	<b>1.04</b>	<b>1.04</b>	<b>1.04</b>
<b>Total Fee&amp;Charges</b>			<b>46.06</b>	<b>46.06</b>	<b>46.06</b>	<b>46.06</b>	<b>46.06</b>



**Weighted Average Rate of Interest**

(₹ in lakh)

<b>Loan</b>	<b>Actual Net Loan o/s as on 1.4.2014</b>	<b>Rate of interest as on 1.4.2014</b>	<b>Interest</b>	<b>Weighted average rate of interest</b>
Bond XVIII	83.42	8.15%	6.80	
Bond XIX	30.67	9.25%	2.84	
<b>Total Loan</b>	<b>114.09</b>		<b>9.64</b>	<b>8.4457%</b>

