

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

1. **Shri Ashok Basu, Chairman,**
2. **Shri D.P. Sinha, Member**
3. **Shri G.S. Rajamani, Member**
4. **Shri K.N.Sinha, Member**

**Petition No.78/2000**

**In the matter of**

Petition for approval of final transmission tariff for 400/220 KV Auto Transformer at Hyderabad, 50 MVAR Reactor at Cuddapah and Special Energy Meters in Southern Region.

**And in the matter of**

Power Grid Corporation of India Ltd.

.... Petitioner

VS

1. Karnataka Power Transmission Corporation Ltd, Bangalore
  2. Transmission Corporation of Andhra Pradesh, Hyderabad
  3. Kerala State Electricity Board, Thiruvananthapuram
  4. Tamil Nadu Electricity Board, Chennai
  5. Electricity Department, Govt, of Pondicherry, Pondicherry
  6. Electricity Department, Govt, of Goa, Panaji
- .... Respondents

The following were present: R.K. Vohra, PGCIL S.S.

1. Shri Sharma, PGCIL S.K. Jain, Manager (Law),
2. Shri PGCIL Debashis Sen, Manager (CE), PGCIL
3. Shri U.K. Tyagi, PGCIL C. Kannan, PGCIL K.
4. Shri Krishnamurthy Naik,, KPTCL KV.
5. Shri Unninarayanan, CE (IPC & RD), KSEB Padma
6. Shri Kumar, EE (IPC & RD), KSEB
7. Shri
8. Shri
9. Shri

**ORDER**

(Date of Hearing: 9.5.2002)

In this petition, the petitioner, Power Grid Corporation of India Ltd seeks approval to transmission tariff in respect of the following assets with effect from dates shown against each:

- a) 400/220 KV Auto transformer at Hyderabad - 1.4.1995
- b) 50 MVAR Reactor at Cuddapah -1.4.1997
- c) Special Energy Meters in Southern Region -1.4.1998

2. In connection with Central Transmission Project Augmentation, the Board of Directors of the petitioner company in its meeting held on 18.3.1994 accorded its approval, under the powers delegated to the powers of public enterprises, for capital outlay of Rs.38.57 crores, including IDC of Rs.3.50 crores, for creation of the following assets:

- (a) Installation of 2 Nos 315 MVA, 400/220 KV transformers along with associated equipments, one each at Khammam and Hyderabad sub-stations.
- (b) Installation of 2 Nos 50 MVAR reactors, along with associated equipment, one each at Gazuwaka and Cuddapah.

3. In accordance with the approved implementation schedule, the assets were to be commissioned during 1995-96. The petitioner commenced commercial



operation of the assets associated with Central Transmission Project

Augmentation from different dates as shown below against each:

	<u>Asset</u>	<u>Date of commercial operation</u>
i)	One No 315 MVA, 400/220 KV Auto-transformer along with associated equipments at Hyderabad sub-station	1.4.1995
ii)	One No. 315 MVA, 400/220 KV Auto-transformer along with associated equipments at Khammam sub-station	1.1.1997
iii)	One No. 50 MVAR Reactor along with associated equipment at Gazuwaka sub-station	1.2.1997
iv)	One No. 50 MVAR Reactor along with associated equipment at Cuddapah sub-station	1.4.1997

4. The petitioner has also installed the Special Energy Meters in the Southern Region as agreed to in the 110<sup>th</sup> SREB meeting held on 23.2.1994. The Special Energy Meters are under commercial operation since 1.4.1998.

5. According to the petitioner, the transmission tariff for an auto-transformer at Khammam [Para 3(ii)] and one Reactor at Gazuwaka [Para 3(iii)] was notified by Ministry of Power on 14.5.1999. The respondents are remitting the transmission charges as approved by Ministry of Power. The petitioner in the present petition has sought approval to transmission tariff in respect of the auto transformer at Hyderabad sub-station and 50 MVAR Reactor at Cuddapah sub-station, in addition to transmission tariff for Special Energy Meters, from the respective date of commercial operation of these assets.

6. So far as the auto transformer at Hyderabad sub-station is concerned, the approval for tariff for the period from 1.4.1995 to 31.3.1997 has been sought based on Ministry of Power notification dated 30.4.1994 applicable for transmission tariff for the period 1.4.1992 to 31.3.1997 in the Southern Region and thereafter in accordance with Ministry of Power notification dated 16.12.1997. The tariff in respect of 50 MVAR Reactor at Cuddapah sub-station and the Special Energy Meters has been claimed based on the notification dated 16.12.1997, issued by Ministry of Power.

7. The replies to the petition have been filed on behalf of Karnataka Power Transmission Corporation (Respondent N0.1), Transmission Corporation of Andhra Pradesh (Respondent No. 2), Kerala State Electricity Board (Respondent No.3), Tamil Nadu Electricity Board (Respondent No.4).

## **CAPITAL COST**

### **(a) Central Augmentation Project**

8. The details of apportioned approved cost and the completion cost of the assets covered under the scheme for augmentation of Central Transmission Project are as given as under:

j	Description of the asset	Apportioned approved cost (Rs. in lakhs)	Final completion cost (Rs. in lakhs)	Remarks
!	(a) Installation of one No. 315 MVA 400/220 KV transformer along with associated equipment at Hyderabad sub-station	1,100.00	710.14	
j	(b) Installation of one No. 50 MVAR Reactor along with associated equipment at j Cuddapah	603.00	635.20	
i	(c) Installation of one No. 315 MVA 400/200 KV transformer along with associated equipment at Khammam sub-station	1,527.00	1,020.70	Tariff approved by Ministry of Power Notification dated 14.5.1999
	(d) Installation of one No. 50 MVAR Reactor along with associated equipment at Gazuwaka	485.00	183.93	-do-
(e)	Initial spares	142.00	-	
!		<b>3857.00</b>	<b>2549.97</b>	

9. The completion cost of 315 MVA, 400/220 KV transformer at Hyderabad sub-stations is within the apportioned approved cost, but the completion cost of 50 MVAR Reactor at Cuddapah has exceeded the apportioned approved cost. However, since the total completion cost of the assets covered under the Scheme for augmentation of Central Transmission Project is within the total approved cost, the final completion cost of the individual assets is being considered for the purposes of computation of tariff.

10. In respect of 315 MVA Transformer at Hyderabad, tariff for the period from 1.4.1995 to 31.3.1997 has been calculated based on the notification for transmission tariff for Southern Region dated 30.4.1994 issued by Ministry of Power. In the said notification dated 30.4.1994, the gross block has been notionally divided in the ratio of 50:50 and tariff has been calculated accordingly. In respect of this asset as also 50 MVAR Reactor at Cuddapah for the period from

1.4.1997 to 31.3.2001 tariff has been calculated keeping in view the provisions of Ministry of Power's notification dated 16.12.1997.

11. Kerala State Electricity Board, respondent No. 3, has stated that for 50 MVAR Reactor at Cuddapah, an amount of Rs.41.45 lakhs has been apportioned for the building and civil works. It is submitted that as the bus reactor is an outdoor equipment, the petitioner's claim on this account is unjustified. The petitioner has clarified that the cost of building and civil works claimed is on account of cost of associated civil works considered in the investment approval. We are satisfied with the clarification furnished on behalf of the petitioner.

12. It has been pointed out by the respondents that there was a delay of about one year in installation of reactor at Cuddapah. It is submitted that IDC on account of this delay should not be charged in tariff. It is noted that the installation of the reactor at Cuddapah was approved at SRE Board meeting held on 26.7.1996. The reactor was declared under commercial operation on 1.4.1997. We do not find any unreasonable delay in installation of the asset. Therefore, in our opinion, the petitioner is entitled to claim IDC up to the date of commercial operation.

13. It is next pointed out on behalf of the respondents that the petitioner has not employed debt and equity in the ratio of 80:20. It has been explained on behalf of the petitioner that for the purpose of investment approval, debt-equity ratio of 80:20 is considered. However, actual debt-equity mix is based on the

phasing of investments done during the construction period. The submissions made by the parties on this issue have been considered. The respondents' contention is that use of excess of equity over equity of 20% has the effect of increasing ROE. It is provided in Ministry of Power notification dated 16.12.1997, ROE is to be computed on the paid up and subscribed capital relating to the transmission system. In view of the provision, actual debt and equity are to be allowed. We, therefore, allow the actual debt and equity for computation of tariff in accordance with the notification.

**(b) Special Energy Meters**

14. The installation of special energy meters in the Southern Region was agreed to in 110<sup>th</sup> SREB meeting held on 23.2.1994. The assets have been commissioned at a total cost of Rs.263.03 lakhs and have been funded entirely through internal resources. The respondents have raised a preliminary objection that the cost of these assets should be apportioned notionally in the ratio of 80:20. However, as the investment is small and the proposal had been approved by the regional constituents at SREB Forum, we allow the deployment of 100% equity for the purpose of tariff for these assets.

**INTEREST ON LOAN**

15. The interest on loan has been considered based on interest rates contained in the petition. It is observed that the interest rates considered in





different petitions for the same loan are different. During the hearing it was explained by the petitioner that these loans are carrying floating rate of interest and the interest prevailing on the date of commercial operation has been considered in the tariff petition. Any resetting of the interest rates during the tariff period shall have to be settled mutually between the parties. However, in the event of their inability to settle the matter, either party may approach the Commission for a decision. Subject to the above observations, interest as claimed in the petitioner has been allowed.

#### **INTEREST ON WORKING CAPITAL**

16. The calculation of O&M expenses and maintenance spares for working capital has been worked out on the basis of relevant tariff notification.

17. In the tariff calculations, interest on working capital is based on interest rate of 16.5% for the years 1995-96 and 1996-97. For the years 1997-98, 1998-99, 1999-2000 and 2000-2001 annual average PLR of SBI of 14%, 13%, 12% and 11.5% respectively has been used instead of 15.84% interest claimed by the petitioner.

#### **DEPRECIATION**

18. It has been contended by the respondents that depreciation should be adjusted towards the loan repayment. According to the petitioner, depreciation is a recognised cost element and it does not have any bearing on repayment of

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loan. In this context, the petitioner has relied upon the accounting principle of the Institute of Chartered Accounts of India. It is contended on behalf of the petitioner that depreciation is charged for the purpose of replacement of assets at the end of useful life of the assets and therefore, cannot be linked with loan repayment. As the 16.12.1997 notification issued by Ministry of Power provides for charging of depreciation in the tariff, the same is being allowed in these petition. While approving tariff, the weighted average depreciation rate has been worked out on the basis of actual capital expenditure as per CA's certificates annexed to the petition.

19. In the light of above discussion, we approve the transmission charges as under:

	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001
<b>315 MVA transformer at Hyderabad</b>	<b>107.69</b>	<b>107.69</b>	<b>150.13</b>	<b>146.11</b>	<b>142.04</b>	<b>138.21</b>
<b>50 MVAR Bus Reactor at Cuddapah</b>	-	-	<b>136.03</b>	<b>139.13</b>	<b>138.88</b>	<b>138.43</b>
Special Hnrgy Meters	-	-	-	74.69	78.29	82.01

20. In addition to the transmission charges, the petitioner shall be entitled to other charges like foreign exchange rate variation, income tax, incentive, surcharge and other cess and taxes in accordance with the notifications issued by Ministry of Power.

21 The relevant details in support of tariff allowed by us are given in the Tables I, II & III below:

TABLE

315 MVA. 400/220 KV transformer along with associated equipments  
at Hyderabad sub-station

(Rs. in Lakhs)

Transmission Charges	1995-96	1996-97	1997-98	1998-99	1999-2000	2000-2001
i) Interest on Loan	27.84	27.84	24.28	19.76	15.24	10.71
ii) Depreciation	27.44	27.44	55.82	55.82	55.82	55.82
iii) O&M expenses	7.05	7.05	12.77	13.62	14.42	15.29
iv) Return on Equity	41.25	41.25	52.42	52.42	52.42	52.42
v) Interest on working car.	4.11	4.11	4.84	4.49	4.14	3.97
<b>TOTAL</b>	<b>107.69</b>	<b>107.69</b>	<b>150.13</b>	<b>146.11</b>	<b>142.04</b>	<b>138.21</b>

TABLE II

One No. 50 MVAR Reactor along with associated equipments at Cuddapah  
(Rs. in Lakhs)

Transmission Charges	1997-98	1998-99	1999-2000	2000-2001
i) Interest on Loan	23.52	23.33	22.32	21.34
ii) Depreciation	46.85	47.70	47.83	47.83
iii) O&M expenses	9.33	10.13	10.74	11.38
iv) Return on Equity	52.17	53.97	54.24	54.24
v) Interest on working capital	4.16	4.00	3.75	3.64
<b>TOTAL</b>	<b>136.03</b>	<b>139.13</b>	<b>138.88</b>	<b>138.43</b>

TABLE III SpecialEnergy Meters

(Rs. in Lakhs)

Transmission Charges	1998-99	1999-2000	2000-2001
i) Interest on Loan	0.00	0.00	0.00
ii) Depreciation	30.68	32.13	33.59
lii) O&M expenses	3.60	3.98	4.39
iv) Return on Equity	38.44	40.26	42.08
v) Interest on working capital	1.97		1.95
<b>TOTAL</b>	<b>74.69</b>	<b>1.92</b>	<b>82.01</b>
		<b>78.29</b>	

22. The petitioner is already charging provisional tariff in respect of the assets covered by this petition. The provisional tariff being presently charged shall be subject to adjustment in the light of final tariff now approved by us.

23. The transmission tariff approved by us shall be included in the regional transmission tariff for Southern Region and shall be shared by the regional beneficiaries in accordance with para 7 of notification dated 16.12.1997.

24. The petitioner has not placed on record a copy of the investment in respect of Special Energy Meters. This may be done within four weeks from the date of this order.

25. We find that the auditors' certificate furnished along with the petition certifies the transmission tariff calculations but does not disclose whether the capital expenditure, equity, loan, rate of interest, repayment schedule, O&M charges, etc. are as per the audited accounts of the petitioner company. **The petitioner is directed to file an affidavit within four weeks of the date of this order that all the tariff calculations and auditors' certificates are based on audited accounts of the petitioner company or in the alternative, the petitioner may file a revised auditor's certificate, in the format given below, failing which the transmission charges approved above shall not take effect and this order will automatically lapse without any further reference to the Commission.**

**A U D I T O R ' S    C E R T I F I C A T E**

We have verified the books of accounts, records and other documents of Power Grid Corporation of India Ltd and certify that the data used for transmission tariff calculations for \_\_\_\_\_ [name of the transmission system/line (s)] are in accordance with the audited books of accounts up to \_\_\_\_\_ (date) of the company. We have obtained all information and explanations which to the best of our knowledge and belief were necessary for the purpose of our examination and necessary approvals of the competent authority in respect of capital cost, foreign exchange, time and cost over-run, etc. as prescribed under law, have been obtained.

Signature with Auditor's seal and date

26. This order disposes of Petition No.78/2000.

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**MEMBER**

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**CHAIRMAN**

New Delhi dated the 26<sup>th</sup> July 2002