

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Coram:**

- 1. Shri Ashok Basu, Chairperson**
- 2. Shri K.N.Sinha, Member**
- 3. Shri Bhanu Bhushan, Member**

**Petition No. 133/2004**

**In the matter of**

Approval of transmission charges for 315 MVA ICT-III along with associated bay equipment at Nagarjunasagar sub-station in Southern Region for the period from 1.4.2004 to 31.3.2009.

**And in the matter of**

Power Grid Corporation of India Limited

....**Petitioner**

**Vs**

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

**The following were present:**

1. Shri U.K. Tyagi, PGCIL
2. Shri C. Kannan, PGCIL
3. Shri P.C. Pankaj, PGCIL
4. Shri Prasant Sharma, CM, PGCIL
5. Shri M.M. Mondal, CM (Fin), PGCIL
6. Shri R. Balachandran, KSEB
7. Shri N.Vijaya Bhaskar, KPTCL
8. Shri S. Sowmyanarayanan, TNEB

**ORDER  
(DATE OF HEARING: 15.9.2005)**

The petition has been filed for approval for transmission charges for 315 MVA ICT-III along with associated bay equipment at Nagarjunasagar sub-station (the transmission system) in Southern Region for the period from 1.4.2004 to 31.3.2009, based on the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2004, (hereinafter referred to as "the 2004 regulations"). The petitioner has also prayed that it be permitted to continue the billing of transmission charges on the same basis as charged on 31.3.2004, pending determination of tariff in the present petition. No other specific relief is prayed for.

2. Ministry of Power in terms of its letter dated 19.3.1998, conveyed to the petitioner its approval to establish, operate and maintain 315 MVA, 400/220 kV transformer-3 at Nagarjunasagar sub-station. In view of the emergent requirement, the project was put into commercial operation with effect from 1.8.1999 by taking the transformer on loan from APTRANSCO. Subsequently, the transformer on procurement was returned to APTRANSCO. Ministry of Power, later on by its letter dated 13.1.2000 accorded its approval for completion of the project at a cost of Rs. 8.81 crore, including IDC of Rs. 0.49 core.

3. The annual transmission charges for the period from 1.4.2001 to 31.3.2004 were decided by the Commission in its order dated 25.6.2003 in Petition No. 41/2002 at a gross block of Rs. 767.24 lakh including additional capitalization on account of FERV of Rs. 29.26 lakh for the period up to 31.3.2001.

4. The petitioner has claimed the transmission charges as under:

(Rs. in lakh)

	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>	<b>2007-08</b>	<b>2008-09</b>
Depreciation	26.80	26.80	26.80	26.80	26.80
Interest on Loan	10.44	9.87	9.31	8.75	8.18
Return on Equity	49.85	49.85	49.85	49.85	49.85
Advance against Depreciation	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	3.25	3.33	3.41	3.50	3.60
O & M Expenses	28.12	29.25	30.42	31.63	32.90
<b>Total</b>	<b>118.46</b>	<b>119.11</b>	<b>119.80</b>	<b>120.53</b>	<b>121.33</b>

5. The details submitted by the petitioner in support of its claim for interest on working capital are given hereunder:

(Rs. in lakh)

	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>	<b>2007-08</b>	<b>2008-09</b>
Maintenance Spares	9.62	10.19	10.80	11.45	12.14
O & M expenses	2.34	2.44	2.54	2.64	2.74
Receivables	19.74	19.85	19.97	20.09	20.22
Total	31.70	32.48	33.31	34.18	35.10
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
Interest	3.25	3.33	3.41	3.50	3.60

6. The replies to the petition have been filed by Karnataka Power Transmission Corporation Ltd. and Tamil Nadu Electricity Board. In response to the public notices published by the petitioner in accordance with the procedure specified by the Commission, no comments have been received from general public.

### **CAPITAL COST**

7. As per clause (2) of Regulation 52 of the 2004 regulations in case of the projects existing up to 31.3.2004, the project cost admitted by the Commission for determination of tariff prior to 1.4.2004 shall form the basis for determination of tariff.

8. The petitioner has considered the capital expenditure of Rs.767.24 lakh admitted by the Commission in the order dated 25.6.2003 *ibid*. The petitioner has not claimed additional capitalisation on works. The petitioner has considered de-capitalisation of Rs. 22.71 lakh on account of FERV for the period 1.4.2001 to 31.3.2004. Accordingly, gross block of Rs. 744.53 lakh has been claimed for the purpose of tariff.

### **Extra Rupee Liability during the years 2001-04:**

9. Regulation 1.13 (a) of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2001 provided as under:

- (a) Extra rupee liability towards interest payment and loan repayment actually incurred, in the relevant year shall be admissible; provided it directly arises out of foreign exchange rate variation and is not attributable to Utility or its suppliers or contractors. Every utility shall follow the method as per the Accounting Standard-11 (Eleven) as issued by the Institute of Chartered Accountants of India to calculate the impact of exchange rate variation on loan repayment

- (b) Any foreign exchange rate variation to the extent of the dividend paid out on the permissible equity contributed in foreign currency, subject to the ceiling of permissible return shall be admissible. This as and when paid, may be spread over the twelve-month period in arrears.

10. Regulation 1.7 of the 2001 further provided that recovery of foreign exchange rate variation would be done directly by the utilities from the beneficiaries without filing a petition before the Commission. In case of any objections by the beneficiaries to the amounts claimed on these counts, they may file an appropriate petition before the Commission.

11. As no objections are raised by the beneficiaries to the petitioner's claim for de-capitalization on account of FERV, and FERV worked out is matching with calculations submitted by the petitioner, the claim has been admitted for tariff calculations.

12. Based on the above, gross block of Rs. 744.53 lakh, including decapitalization of FERV of Rs. 22.71 lakh claimed, as on 1.4.2004 has been considered for the purpose of tariff.

### **DEBT- EQUITY RATIO**

13. Regulation 54 of the 2004 regulations *inter alia* provides that,-

(1) In case of the existing project, debt-equity ratio Considered by the Commission for fixation of tariff for the period ending 31.3.2004 shall be considered for determination of tariff.

(2) In case of the transmission system for which investment approval was accorded prior to 1.4.2004 and which is likely to be declared under commercial

operation during the period 1.4.2004 to 31.3.2009, debt-equity in the ratio of 70:30 shall be considered:

Provided that where deployment of equity is less than 30%, the actual equity deployed shall be considered for the purpose of determination of tariff.

Provided further that the Commission may in appropriate case consider equity higher than 30% for the purpose of determination of tariff, where the transmission licensee is able to establish to the satisfaction of the Commission that deployment of equity more than 30% was in the interest of general public;

(3) In case of the transmission system for which investment approval is accorded on or after 1.4.2004, debt-equity in the ratio of 70:30 shall be considered for the purpose of determination of tariff:

Provided that where deployment of equity is less than 30%, the actual equity deployed shall be considered for the purpose of determination of tariff.

(4) The debt and equity amount arrived at in accordance with above sub-clause (1), (2) or (3), as the case may be, shall be used for calculation of interest on loan, return on equity, advance against depreciation and foreign exchange rate variation.”

14. The petitioner has claimed tariff based on debt-equity of 52.17:47.83 as considered by the Commission in its order dated 25.6.2003 *ibid*. Accordingly, the petitioner has adjusted FERV amount against loan and equity as on 1.4.2004 on the basis of debt and equity ratio as per order dated 25.6.2003.

15. The petitioner in the petition has stated the approved debt-equity ratio as 80:20. Therefore, the entire amount of Rs. 22.72 lakh on account of decapitalization for FERV has been adjusted against equity so as to bring equity within the approved debt-equity ratio as far as possible. Based on this, Rs. 344.26 lakh has been considered as the equity for the purpose of determination of tariff in the present petition.

### **RETURN ON EQUITY**

16. As per clause (iii) of Regulation 56 of the 2004 regulations, return on equity shall be computed on the equity base determined in accordance with regulation 54 @ 14% per annum. Equity invested in foreign currency is to be allowed a return in the same currency and the payment on this account is made in Indian Rupees based on the exchange rate prevailing on the due date of billing.

17. The petitioner has claimed return on equity of Rs. 366.98 lakh as considered in the order dated 25.6.2003. However, after adjustment of Rs. 22.72 lakh on account of decapitalization of FERV, an amount of Rs. 344.26 lakh has been considered as equity. Accordingly, the petitioner shall be entitled to return on equity @ Rs. 48.20 lakh each year during the tariff period.

### **INTEREST ON LOAN**

18. As per clause (i) of Regulation 56 of the 2004 regulations,-

(a) Interest on loan capital shall be computed loan-wise on the loans arrived at in the manner indicated in regulation 54.

(b) The loan outstanding as on 1.4.2004 shall be worked out as the gross loan as per regulation 54 minus cumulative repayment as admitted by the

Commission for the period up to 31.3.2004. The repayment for the period 2004-09 shall be worked out accordingly on normative basis.

(c) The transmission licensee shall make every effort to swap the loan as long as it results in net benefit to the long-term transmission customers. The costs associated with such swapping shall be borne by the long-term transmission customers.

(d) The changes to the loan terms and conditions shall be reflected from the date of such swapping and benefits passed on to the beneficiaries.

(e) In case any moratorium period is availed of by the transmission licensee, depreciation provided for in the tariff during the years of moratorium shall be treated as repayment during those years and interest on loan capital shall be calculated accordingly.

19. The partitioner has claimed interest on loan in the following manner:

(i) Gross loans, cumulative loan repayment up to previous year as admitted by the Commission in the order dated 25.6.2003 *ibid* have been taken as the Opening Balance as on 1.4.2004.

(ii) On the basis of actual rate of interest on average loan as worked out in the debt-equity ratio as admitted in order dated 25.6.2003 *ibid*, the weighted average rate of interest on loan is worked out for various years.

(iii) Gross loans as admitted by the Commission in order dated 25.6.2003 has been considered as notional loan and the weighted average rate of interest on loan for respective years as per above has been multiplied to arrive at interest on loan.

(iv) In addition to above, Notional loan component of FERV up to 31.03.2001 as per para 3 as above have been considered separately and actual applicable rate of interest on Foreign Loan have been considered to workout the interest on this component.

20. In the calculation, the interest on loan has been worked as detailed below:

- (i) Details of net outstanding loan as on 31.03.2004, repayment schedule for the period 2004-09, rate of interest as on 01.04.2004 etc .have been taken as per loan details submitted by the petitioner under his letter dated 31.8.2005, based on which loan allocation approved for the year 2003-04 has been reset for the instalments for the period 2004-09 for working out weighted average rate of interest.
- (ii) Notional loan arising out of FERV has been worked out as per para 15 above, as nil.
- (iii) Repayment of notional loan up to 31.3.2004 has been considered in proportion to repayment up to that date of actual loan is nil .
- (iv) The repayment for the years 2001-02 to 2003-04 of the notional loan component of FERV has been considered in proportion to total actual loan repaid during 2001-04.
- (v) The repayment for the year 2004-05 to 2008-09 of the total notional loan has been worked out as per the following formula :

Maximum of depreciation or (Notional net loan at the beginning of the year x (actual repayment of the respective loan / actual net respective loan at the beginning of the year)).



- (vi) Weighted average rate of interest on actual loan worked out as per (i) above is applied on the notional average loan during the year to arrive at the interest on loan.
- (vii) Bank of India Foreign Currency Loan carries the floating rate of interest and rate of interest as applicable as on 1.4.2004 has been considered in the calculation, subject to mutual settlement between the parties in case of any change/resetting of the interest rate during the tariff period

21. The detailed calculations on interest on loan are given hereunder:

(Rs. in lakh)

Details of loan	Up to 31.3.2004	2004-05	2005-06	2006-07	2007-08	2008-09
<b>Interest on Loan</b>						
Gross Loan as per last Order	400.26					
Addition due to Additional Capitalisation	0.00					
Addition due to FERV	0.00					
Gross Normative Loan	400.26	400.26	400.26	400.26	400.26	400.26
Cumulative Repayment up to Previous Year		0.00	26.80	53.61	80.41	107.21
Net Loan-Opening		400.26	373.46	346.66	319.86	293.05
Repayment during the year		26.80	26.80	26.80	26.80	26.80
Net Loan-Closing		373.46	346.66	319.86	293.05	266.25
Average Loan		386.86	360.06	333.26	306.46	279.65
Weighted Average Rate of Interest on Loan		2.76%	2.76%	2.76%	2.76%	2.76%
Interest		10.68	9.94	9.20	8.46	7.72

### **DEPRECIATION**

22. Sub-clause (a) of clause (ii) of Regulation 56 of the 2004 regulations provides for computation of depreciation in the following manner, namely:

- (i) The value base for the purpose of depreciation shall be the historical cost of the asset.
- (ii) Depreciation shall be calculated annually based on straight line method over the useful life of the asset and at the rates prescribed in Appendix II to these regulations. The residual value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the

historical capital cost of the asset. Land is not a depreciable asset and its cost shall be excluded from the capital cost while computing 90% of the historical cost of the asset. The historical capital cost of the asset shall include additional capitalisation on account of Foreign Exchange Rate Variation up to 31.3.2004 already allowed by the Central Government/Commission.

- (iii) On repayment of entire loan, the remaining depreciable value shall be spread over the balance useful life of the asset.
- (iv) Depreciation shall be chargeable from the first year of operation. In case of operation of the asset for part of the year, depreciation shall be charged on pro rata basis.

23. The gross depreciable value of the asset, as per (ii) above, is 0.9 x Rs. 744.52 lakh=Rs. 670.07 lakh. Cumulative depreciation and AAD recovered in tariff up to 31.3.2004 is Rs.166.56 lakh. Remaining depreciable value as on 1.4.2004 is thus Rs. 503.91 lakh. The petitioner shall be entitled to claim an amount of Rs. 26.80 lakh each year during the tariff period on account of depreciation by applying rate or depreciation of 3.600%, as shown below:

		(Rs. in lakh)					
Details of Depreciation		Up to 31.3.2004	2004-05	2005-06	2006-07	2007-08	2008-09
As per order dated 5.8.2003		767.24					
Addition during 2001-04 due to Additional Capitalisation		0.00					
Addition during 2001-04 due to FERV		-22.72					
Gross Block as on 31.3.2004		744.52	744.52	744.52	744.52	744.52	744.52
Rate of Depreciation	3.600%						
Depreciable Value	90%		670.07	670.07	670.07	670.07	670.07
Balance Useful life of the asset	0						
Remaining Depreciable Value			503.91	477.11	450.31	423.51	396.70
Depreciation			26.80	26.80	26.80	26.80	26.80

## **ADVANCE AGAINST DEPRECIATION**

24. As per sub-clause (b) of clause (ii) of Regulation 56 of the 2004 regulations, in addition to allowable depreciation, the transmission licensee is entitled to Advance Against Depreciation, computed in the manner given hereunder:

AAD = Loan repayment amount as per regulation 56 (i) subject to a ceiling of 1/10th of loan amount as per regulation 54 minus depreciation as per schedule.

25. It is provided that Advance Against Depreciation shall be permitted only if the cumulative repayment up to a particular year exceeds the cumulative depreciation up to that year. It is further provided that Advance Against Depreciation in a year shall be restricted to the extent of difference between cumulative repayment and cumulative depreciation up to that year.

26. The petitioner has not claimed Advance Against Depreciation. Accordingly, the petitioner is not entitled to Advance Against Depreciation.

## **OPERATION & MAINTENANCE EXPENSES**

27. In accordance with clause (iv) of Regulation 56 the 2004 regulations, the following norms are prescribed for O & M expenses:

	Year				
	2004-05	2005-06	2006-07	2007-08	2008-09
O&M expenses (Rs in lakh per ckt-km)	0.227	0.236	0.246	0.255	0.266
O&M expenses (Rs in lakh per bay)	28.12	29.25	30.42	31.63	32.90

28. The petitioner has claimed O & M expenses for 1 bay, which has been allowed. Accordingly, the petitioner's entitlement to O & M expenses has been worked out as given hereunder:

(Rs. in lakh)

	Year				
	2004-05	2005-06	2006-07	2007-08	2008-09
O&M expenses for bays	28.12	29.25	30.42	31.63	32.90
<b>Total</b>	<b>28.12</b>	<b>29.25</b>	<b>30.42</b>	<b>31.63</b>	<b>32.90</b>

29. The petitioner has submitted that the wage revision of its employees is due with effect from 1.1.2007. Therefore, according to the petitioner, O & M expenses should be subject to revision on account of revision of employee cost from that date. In the alternative, it has been prayed that the increase in employee cost due to wage revision be allowed as per actuals for extra cost to be incurred consequent to wage revision. We are not expressing any view, as this issue does not arise for consideration at this stage. The petitioner may approach for a relief in this regard at an appropriate stage in accordance with law.

### **INTEREST ON WORKING CAPITAL**

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

**(i) Maintenance spares**

Regulation 56(v)(1)(b) of the 2004 regulations provides for maintenance spares @ 1% of the historical cost escalated @ 6% per annum from the date of commercial operation. In the present case, the capital expenditure on the date of commercial operation has been made available by the petitioner. The available capital expenditure of Rs. 280.50 lakh as on 1.8.1999 has been considered as the historical cost for the purpose of the present petition and maintenance spares have been worked out accordingly by escalating 1% of the historical cost @ 6% per annum. The value of maintenance spares as on 1.4.2004 works out to Rs. 3.68 lakh.

**(ii) O & M expenses**

Regulation 56(v)(1)(a) of the 2004 regulations provides for operation and maintenance expenses for one month as a component of working capital. The petitioner has claimed O&M expenses for 1 month of O&M expenses of the respective year as claimed in the petition. This has been considered in the working capital.

**(iii) Receivables**

As per Regulation 56(v)(1)(c) of the 2004 regulations, receivables will be equivalent to two months average billing calculated on target availability level. The petitioner has claimed the receivables on the basis 2 months' transmission charges claimed in the petition. In the tariff being allowed, receivables have been worked out on the basis 2 months' transmission charges.

**(iv) Rate of interest on working capital**

As per Regulation 56(v)(2) of the 2004 regulations, rate of interest on working capital shall be on normative basis and shall be equal to the short-term Prime Lending Rate of State Bank of India as on 1.4.2004 or on 1st April of the year in which the project or part thereof (as the case may be) is declared under commercial operation, whichever is later. The interest on working capital is payable on normative basis notwithstanding that the transmission licensee has not taken working capital loan from any outside agency. The petitioner has claimed interest on working capital @ 10.25% based on SBI PLR as on 1.4.2004, which is in accordance with the 2004 regulations and has been allowed.

31. The necessary computations in support of interest on working capital are appended hereinbelow.

(Rs. in lakh)

	2004-05	2005-06	2006-07	2007-08	2008-09
Maintenance Spares	3.68	3.90	4.14	4.39	4.65
O & M expenses	2.34	2.44	2.54	2.64	2.74
Receivables	19.40	19.47	19.55	19.64	19.73
Total	25.43	25.81	26.22	26.66	27.12
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%
<b>Interest</b>	2.61	2.65	2.69	2.73	2.78

**TRANSMISSION CHARGES**

32. A summary sheet showing basic details of capital cost and other related aspects is annexed to this order. The transmission charges being allowed for the transmission system are summarised below.

(Rs. in lakh)

	2004-05	2005-06	2006-07	2007-08	2008-09
Depreciation	26.80	26.80	26.80	26.80	26.80
Interest on Loan	10.68	9.94	9.20	8.46	7.72
Return on Equity	48.20	48.20	48.20	48.20	48.20
Advance against Depreciation	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	2.61	2.65	2.69	2.73	2.78
O & M Expenses	28.12	29.25	30.42	31.63	32.90
<b>Total</b>	<b>116.40</b>	<b>116.83</b>	<b>117.30</b>	<b>117.82</b>	<b>118.40</b>

33. In addition to the transmission charges, the petitioner shall be entitled to other charges like income-tax, incentive, surcharge and other cess and taxes in accordance with the 2004 regulations. These transmission charges shall be included in the regional transmission tariff for Southern Region and shall be shared by the regional beneficiaries in accordance with the 2004 regulations.

34. The petitioner is already billing the respondents on provisional basis in accordance with the Commission's interim directions. The provisional billing of tariff shall be adjusted in the light of final tariff now approved by us.

35. This order disposes of Petition No.133/2004.

Sd/-

**(BHANU BHUSHAN)**  
**MEMBER**

sd/-

**(K.N.SINHA)**  
**MEMBER**

Sd/-

**(ASHOK BASU)**  
**CHAIRPERSON**

**New Delhi dated the 4th January 2006**

Summary Sheet			
<b>Name of the Company:</b>		PGCIL	
<b>Name of the Element:</b>		315 MVA ICT-III along with associated bay equipments at Nagarjunasagar sub-station in Southern Region	
<b>Actual DOCO:</b>		01.08.1999	
<b>Petition No.:</b>		133/2004	
<b>Tariff setting Period:</b>		2004-09	
(Rs.in lakh)			
<b>1</b>	<b>Capital Cost of the Project</b>	<b>767.24</b>	
<b>2</b>	<b>Admitted Capital Cost as on 01.04.2004 for Calculation of Debt and Equity<sup>1</sup></b>	<b>767.24</b>	
<b>3</b>	<b>Additional Capitalization(works)</b>	<b>0.00</b>	
	For the year 2001-02	0.00	
	For the year 2002-03	0.00	
	For the year 2003-04	0.00	
	Total	0.00	
<b>4</b>	<b>Additional Capitalization(FERV)</b>	<b>-22.72</b>	
	For the year 2001-02	18.39	
	For the year 2002-03	-9.99	
	For the year 2003-04	-31.12	
	Total	-22.72	
<b>5</b>	<b>Total Capital Cost as on 01.04.2004(2+3+4)</b>	<b>744.52</b>	
<b>6</b>	<b>Means of Finance :</b>		
	Debt	53.76%	400.26
	Equity	46.24%	344.26
	Total	100.00%	744.52
<b>7</b>	<b>Gross Loan as on 01.04.2004</b>	<b>400.26</b>	
	<b>Cumulative Repayment up to 31.3.2009 :</b>	<b>134.01</b>	
	Repaid up to 31.03.2004	0.00	
	From 01.04.01 to 31.03.2004 (ACE & FERV)	0.00	
	From 01.04.2004 to 31.03.2009	134.01	
	Total	134.01	
<b>8</b>	<b>Balance Loan to be repaid beyond 31.03.2009 :</b>	<b>266.25</b>	
<b>9</b>	<b>Depreciation recovered up to 31.03.09 :</b>	<b>300.17</b>	
		<b>Dep</b>	<b>AAD</b>
	Recovered up to 31.03.2004	165.60	0.00
	From 01.04.01 to 31.03.2004 (ACE & FERV)	0.56	0.00
	From 01.04.2004 to 31.03.2009	134.01	0.00
	Total		300.17
<b>10</b>	<b>Balance Depreciation to be recovered beyond 31.03.2009 :</b>	<b>369.90</b>	
	Capital cost for the purpose of Depreciation	767.24	
	ACE + FERV	-22.72	
	Capital cost as 01.04.2004	744.52	
	Less: Land Cost	0.00	
		744.52	
	90% of Capital Cost as above	670.07	
	Cum. Depreciation to be recovered up to 31.03.09	300.17	
	Balance Depreciation to be recovered beyond 31.03.09	369.90	