

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram

1. **Shri Bhanu Bhushan, Member**
2. **Shri R. Krishnamoorthy, Member**

Petition No. 137/2004

In the matter of

Approval of tariff in respect of Ramagundam -Hyderabad transmission line in Southern Region and Chandrapur HVDC back to back station (2 x 500MW) in Western Region and Southern Region for the period from 1.4.2004 to 31.3.2009.

And in the matter of

Power Grid Corporation of India Ltd., Gurgaon

.... Petitioner

Vs

1. Madhya Pradesh State Electricity Board, Jabalpur
2. Maharashtra State Electricity Board, Mumbai
3. Gujarat Electricity Board, Vadodara
4. Electricity Department, Govt of Goa, Panaji, Goa
5. Electricity Department, Admn. of Dadra and Nagar Haveli, Silvassa
6. Chhattisgarh State Electricity Board, Raipur
7. Electricity Department, Admn. of Daman & Diu, Daman
8. Karnataka Power Transmission Corporation Ltd, Bangalore
9. Transmission Corporation of Andhra Pradesh, Hyderabad
10. Kerala State Electricity Board, Thiruvananthapuram
11. Tamil Nadu Electricity Board, Chennai
12. Electricity Department, Govt. of Pondicherry, Pondicherry

.....Respondents

ORDER

In this petition, the petitioner, Power Grid Corporation of India Limited, had sought approval of tariff in respect of Ramagundam -Hyderabad transmission line in Southern Region and Chandrapur HVDC back to back station (2 x 500 MW) (the transmission system) between Western Region and 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) Regulation, 2004 (hereinafter referred to as “the 2004 regulations”).

2. On completion of pleadings and after hearing the parties, final tariff in respect of the transmission system was awarded vide the Commission's order dated 2.5.2006. While awarding tariff, the Commission adopted capital cost, loan, equity etc. considered for determination of tariff for the period 1.4.2001 to 31.3.2004. Also, FERV for the period up to 31.3.2004 was capitalized and apportioned between debt and equity in the same ratio as considered for the period 1.4.2001 to 31.3.2004. The details of capital cost, equity considered at the time of award of tariff and the summary of the tariff awarded are given hereunder.

(a) Computation of capital cost

(Rs. in lakh)

	400 KV S/C Ramagundam-Hyderabad Transmission line with extension of sub-stations at Ramagundam and Hyderabad	Chandrapur HVDC back to back (2x500MW)
Capital Expenditure up to 31.3.2001	8759.02	62082.01
Additional Capital Expenditure during 2001-04	0.00	0.00
FERV during 2001-04	292.07	7025.39
Capital Expenditure considered for determination of tariff for the period 2004-09	9051.09	69107.40

(b) Computation of equity

(Rs. in lakh)

	400 KV S/C Ramagundam-Hyderabad Transmission line with extension of sub-stations at Ramagundam and Hyderabad	Chandrapur HVDC back to back (2x500 MW)
Equity up to 31.3.2001	1157.74	8058.13
Notional equity arising out of additional capitalization during 2001-04	0.00	0.00
Notional equity arising out of FERV during 2001-04	292.07	7025.39
Total Equity	1449.81	15083.52

(c) Computation of interest on loan

(Rs. in lakh)

Details of loan	400 kV S/C Ramagundam-Hyderabad transmission line -2 with extension of sub stations at Ramagundam and Hyderabad						Chandrapur HVDC back to back (2x500 MW)					
	Up to 31.3.2004	2004-05	2005-06	2006-07	2007-08	2008-09	Up to 31.3.2004	2004-05	2005-06	2006-07	2007-08	2008-09
Interest on loan												
Gross Loan as on 1.4.2001	7601.28						54023.88					
Addition due to Additional Capitalisation	0.00						0.00					
Addition due to FERV	0.00						0.00					
Gross Loan	7601.28	7601.28	7601.28	7601.28	7601.28	7601.28	54023.88	54023.88	54023.88	54023.88	54023.88	54023.88
Cumulative Repayment up to Previous Year		4723.18	4969.83	5216.49	5463.14	5723.20		31273.25	35180.48	39201.09	43450.97	45893.29
Net Loan-Opening		2878.11	2631.45	2384.80	2138.14	1878.08		22750.63	18843.40	14822.80	10572.91	8130.59
Repayment during the year		246.66	246.66	246.66	260.06	279.73		3907.22	4020.61	4249.88	2442.33	2442.33
Net Loan-Closing		2631.45	2384.80	2138.14	1878.08	1598.35		18843.40	14822.80	10572.91	8130.59	5688.26
Average Loan		2754.78	2508.13	2261.47	2008.11	1738.21		20797.01	16833.10	12697.85	9351.75	6909.42
Weighted Average Rate of Interest on Loan		5.8000%	5.8000%	5.8000%	5.8000%	5.8000%		4.9867%	4.6803%	4.1972%	3.6608%	3.4203%
Interest		159.78	145.47	131.17	116.47	100.82		1037.09	787.85	532.95	342.35	236.32

(d) Summary of the transmission charges awarded

(Rs. in lakh)

	400 KV S/C Ramagundam-Hyderabad Transmission line with extension of sub-stations at Ramagundam and Hyderabad					Chandrapur HVDC back to back (2x500MW)				
	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09
Depreciation	246.66	246.66	246.66	246.66	246.66	2442.33	2442.33	2442.33	2442.33	2442.33
Interest on Loan	159.78	145.47	131.17	116.47	100.82	1037.09	787.85	532.95	342.35	236.32
Return on Equity	202.97	202.97	202.97	202.97	202.97	2111.69	2111.69	2111.69	2111.69	2111.69
Advance Against Depreciation	0.00	0.00	0.00	13.41	33.08	1464.90	1578.28	1807.56	0.00	0.00
Interest on working capital	25.38	25.96	26.60	27.51	28.57	285.06	292.00	301.38	277.05	286.22
O & M expenses	100.51	104.52	108.81	112.99	117.67	871.72	906.75	943.02	980.53	1019.90
Total	735.29	725.58	716.20	720.00	729.76	8212.79	8118.89	8138.93	6153.95	6096.46

3. Tamil Nadu Electricity Board (TNEB) filed Appeal No. 135/2005 in the Appellate Tribunal for Electricity against order dated 30.6.2006 of the Commission in Petition No 40/2002, vide which while fixing transmission tariff in respect of 400 kV D/C Kaiga-Sirsi transmission line along with associated bays for the period 1.4.2001 to 31.3.2004, the methodology similar to that adopted in respect of the various transmission assets was followed as regards

apportionment of FERV into debt and equity. TNEB had, *inter alia*, questioned the methodology of bifurcation of FERV into debt and equity for the purpose of tariff determination. This appeal, as also some other linked appeals were disposed of by the Appellate Tribunal through a common judgment dated 4.10.2006. The Tribunal vide its judgment dated 4.10.2006 held as under:

“16. According to Explanation 1 to clause 4.4 (c), the premium raised by the Transmission Utility while issuing share capital and investment of internal resources created out of free reserve of the existing utility, if any, for the funding of the project, shall also be reckoned as paid up capital for the purpose of computing the return on equity subject to fulfillment of certain conditions. Explanation also makes no provision for increasing the equity beyond 50% of the book value of the transmission system. Once the fixed cost has been agreed to be financed in a certain ratio of debt and equity, the equity can be affected by FERV only if the equity is in foreign exchange. The provision of FERV as a pass through has been kept to ensure that any liability or gain, if any, arising on account of any variation in foreign exchange rates (whether debt or equity) is passed on to the beneficiary. In case there is no FERV liability or gain, as the case may be, there will not be any FERV adjustment. In the instant case the additional liability arising on account of FERV shall have an impact only on the debt liability and not equity capital. In this view of the matter, we hold that FERV adjustment is to be made in respect of debt liability and not in respect of the equity. Accordingly, we hold that the CERC is only to make adjustment in respect of debt liability and not in respect of the equity.

17. In view of the aforesaid discussion, the appeal is partly allowed to the extent indicated above. The Central Electricity Regulatory Commission shall re-calculate the effect of FERV on the debt liability.”

4. In terms of judgment dated 4.10.2006 of the Appellate Tribunal in Appeal No 135 of 2005 and other related appeals, addition of notional equity on account of FERV is not to be considered for computation of return on equity. As a consequence, the entire amount of FERV forms part of loan.

5. The above decision was reiterated by the Appellate Tribunal in its judgment dated 22.12.2006 in Appeal No 161 Of 2006 (M.P. State Electricity Board Vs. Power grid Corporation of India and Others) which related to

transmission tariff for Vindhyachal Stage - I Additional Transmission System in Western Region for the period 1.4.2001 to 31.3.2004.

6. Further, North Eastern Electric Power Corporation Ltd. (NEEPCO) filed Appeal No. 159 of 2005 before the Appellate Tribunal for Electricity which was disposed of vide judgment dated 31.10.2007. The Appellate Tribunal vide the above judgment held, *inter alia*, that interest on loan capital should be determined based on normative debt repayment formula. A similar methodology has been decided by the Appellate Tribunal in some of the appeals filed by NTPC Ltd.

7. The above rulings of the Appellate Tribunal on the question of apportionment of FERV and computation of interest on loan have been considered to be judgments in *rem* and thereby have been applied in all cases of similar nature to re-calculate the transmission charges.

8. Accordingly, the transmission charges for the period 1.4.2001 to 31.3.2004 for the transmission system have been revised by order dated 17.1.2008 Petition No. 69/2002 as under:

(a) Equity as on 31.3.2004

(Rs. in lakh)						
	400 kV S/C Ramagundam-Hyderabad transmission line			Chandrapur HVDC back to back station (2X500 MW)		
	2001-02	2002-03	2003-04	2001-02	2002-03	2003-04
Equity	1045.45	1045.45	1045.45	7917.13	7917.13	7917.13

(b) Interest on notional loan

(Rs. in lakh)

	400 kV S/C Ramagundam-Hyderabad transmission line			Chandrapur HVDC back to back station (2X500 MW)		
Interest on Loan	2001-02	2002-03	2003-04	2001-02	2002-03	2003-04
Gross Loan –Opening	7713.57	7713.57	7713.57	54164.89	54164.89	54164.89
Cumulative Repayment up to Previous Year	1972.00	4303.39	4517.44	15999.18	23774.79	27467.80
Net Loan-Opening	5741.57	3410.18	3196.13	38165.70	30390.09	26697.08
Repayment during the year	2331.39	214.06	226.24	7775.61	3693.01	3880.84
Net Loan-Closing	3410.18	3196.13	2969.88	30390.09	26697.08	22816.24
Interest	413.58	200.81	187.22	2525.98	1810.53	1504.44

9. In the light of the foregoing discussion, the transmission charges for the transmission system forming subject-matter of the present order for the period 2004-09 are also being revised, and the revised transmission charges are summarized herein below. It is to be noted that there is no change in O & M components of the tariff because this was allowed on normative basis for per km line length and per bay. O & M charges already approved, therefore, hold good. Other components of tariff (except depreciation) including Advance Against Depreciation already allowed have been recalculated.

(a) Equity and return on equity

(Rs. in lakh)

	400 KV S/C Ramagundam-Hyderabad Transmission line with extension of sub-stations at Ramagundam and Hyderabad	Chandrapur HVDC back to back (2x500 MW)
Equity up to 31.3.2001 as per order dated 17.1.2008	1045.45	7917.13
Notional equity arising out of additional capitalization during 2001-04 (Not considered in the order dated 17.1.2008)	0.00	0.00
Notional equity arising out of FERV during 2001-04	0.00	0.00
Total Equity	1045.45	7917.13
Return on equity @ 14% of the above total for the period 2004-09	146.36	1108.40

(b) Interest on loan

(i) Computation of outstanding loan

(Rs. in lakh)

		400 kV S/C Ramagundam-Hyderabad transmission line -2 with extension of sub stations at Ramagundam and Hyderabad				Chandrapur HVDC back to back (2x500MW)			
		As per order dated 19.7.2004 in petition 69/2002 for tariff period 2001-04	As per order dated 2.5.2006 in petition 137/2004 for tariff period 2004-09	As per order dated 17.1.2008 petition 69/2002 for tariff period 2001-04	Revised tariff the for period 2004-09	As per order dated 19.7.2004 in petition 69/2002 for tariff period 2001-04	As per order dated 2.5.2006 in petition 137/2004 for tariff period 2004-09	As per order dated 17.1.2008 in petition 69/2002 for tariff period 2001-04	Revised calculation for the period 2004-09
(i)	Gross loan as on DOCO	6864.06	-	6864.06	-	53078.55	-	53078.55	-
(ii)	Loan against FERV capitalised upto 31.3.2001	737.22	-	849.51	-	945.33	-	1086.33	-
(iii)	Gross Loan considered for Tariff period 2001-04	7601.28	7601.28	7713.57	7713.57	54023.88	54023.88	54164.89	54164.89
(iv)	Loan against FERV capitalised during 2001-04	-	0.00	-	292.07	-	0.00	-	7025.39
(v)	Loan against ACE capitalised during 2001-04	-	0.00	-	0.00	-	0.00	-	0.00
(vi)	Gross Loan considered for tariff period 2004-09	-	7601.28	-	8005.64	-	54023.88	-	61190.28
Repayment									
(vii)	Upto 31.3.2001	1972.00	-	1972.00	-	15999.18	-	15999.18	-
(viii)	During 2001-04	2751.18	-	2771.69	-	15274.07	-	15349.46	-
(ix)	Repayment considered for tariff period 2001-04	4723.18	4723.18	4743.69	4743.69	31273.25	31273.25	31348.65	31348.65
(x)	Repayment against FERV capitalised during 2001-04	-	0.00	-	40.71	-	0.00	-	1784.77
(xi)	Repayment against ACE capitalised during 2001-04	-	0.00	-	0.00	-	0.00	-	0.00
(xii)	Total repayment considered for tariff period 2004-09	-	4723.18	-	4784.40	-	31273.25	-	33133.41
(xiii)	Outstanding as on 1 st April of the year	2878.11	2878.11	2969.88	3221.24	22750.63	22750.63	22816.24	28056.87

(ii) Computation of interest on loan

(Rs. in lakh)

Details of loan	400 kV S/C Ramagundam-Hyderabad transmission line -2 with extension of sub stations at Ramagundam and Hyderabad						Chandrapur HVDC back to back (2x500 MW)					
	Up to 31.3.2004	2004-05	2005-06	2006-07	2007-08	2008-09	Up to 31.3.2004	2004-05	2005-06	2006-07	2007-08	2008-09
Interest on loan												
Gross Loan per order dated 17.1.2008	7713.57						54164.89					
Addition due to Additional Capitalisation	0.00						0.00					
Addition due to FERV for the period 2004-09	292.07						7025.39					
Gross Loan	8005.64	8005.64	8005.64	8005.64	8005.64	8005.64	61190.28	61190.28	61190.28	61190.28	61190.28	61190.28
Cumulative Repayment up to Previous Year 17.1.2008		4784.40	5031.05	5287.77	5563.90	5860.89		33133.41	37951.94	42910.29	48111.61	50553.93
Net Loan-Opening		3221.24	2974.59	2717.87	2441.74	2144.75		28056.87	23238.34	18279.99	13078.67	10636.34
Repayment during the year		246.66	256.72	276.13	296.99	319.45		4818.53	4958.35	5201.32	2442.33	2442.33
Net Loan-Closing		2974.59	2717.87	2441.74	2144.75	1825.30		23238.34	18279.99	13078.67	10636.34	8194.02
Average Loan		3097.92	2846.23	2579.81	2293.25	1985.03		25647.60	20759.16	15679.33	11857.51	9415.18
Weighted Average Rate of Interest on Loan		5.8000%	5.8000%	5.8000%	5.8000%	5.8000%		4.9867%	4.6803%	4.1972%	3.6608%	3.4203%
Interest		179.68	165.08	149.63	133.01	115.13		1278.98	971.60	658.09	434.08	322.03

(c) Advance Against Depreciation

(Rs. in lakh)

	400 KV S/C Ramagundam-Hyderabad Transmission line with extension of sub-stations at Ramagundam and Hyderabad					Chandrapur HVDC back to back (2x500MW)				
	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09
Advance Against Depreciation										
1/10th of Gross Loan(s)	800.56	800.56	800.56	800.56	800.56	6119.03	6119.03	6119.03	6119.03	6119.03
Repayment of the Loan	246.66	256.72	276.13	296.99	319.45	4818.53	4958.35	5201.32	2442.33	2442.33
Minimum of the above	246.66	256.72	276.13	296.99	319.45	4818.53	4958.35	5201.32	2442.33	2442.33
Depreciation during the year	246.66	246.66	246.66	246.66	246.66	2442.33	2442.33	2442.33	2442.33	2442.33
(A) Difference	0.00	10.06	29.48	50.33	72.80	2376.20	2516.03	2758.99	0.00	0.00
Cumulative Repayment of the Loan	5031.05	5287.77	5563.90	5860.89	6180.34	37951.94	42910.29	48111.61	50553.93	52996.26
Cumulative Depreciation/ Advance against Depreciation	3017.29	3263.94	3520.66	3796.79	4093.78	30281.53	35100.05	40058.41	45259.72	47702.05
(B) Difference	2013.77	2023.83	2043.24	2064.10	2086.56	7670.41	7810.24	8053.20	5294.21	5294.21
Advance against Depreciation Minimum of (A) and (B)	0.00	10.06	29.48	50.33	72.80	2376.20	2516.03	2758.99	0.00	0.00

(d) Interest on Working Capital

(Rs. in lakh)

Interest on working capital	400 KV S/C Ramagundam-Hyderabad Transmission line with extension of sub-stations at Ramagundam and Hyderabad					Chandrapur HVDC back to back (2x500MW)				
	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09
Maintenance Spares	116.65	123.65	131.06	138.93	147.26	1339.65	1420.03	1505.23	1595.54	1691.27
O & M expenses	8.38	8.71	9.07	9.42	9.81	72.64	75.56	78.59	81.71	84.99
Receivables	116.32	116.36	117.90	119.47	121.19	1394.22	1373.19	1368.91	871.09	860.49
Total	241.35	248.72	258.03	267.81	278.26	2,806.51	2,868.78	2,952.73	2,548.34	2,636.75
Rate of interest	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%
Interest	24.74	25.49	26.45	27.45	28.52	287.67	294.05	302.65	261.21	270.27

(e) Annual Transmission charges

(Rs. in lakh)

	400 KV S/C Ramagundam-Hyderabad Transmission line with extension of sub-stations at Ramagundam and Hyderabad					Chandrapur HVDC back to back (2x500MW)				
	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09
Depreciation	246.66	246.66	246.66	246.66	246.66	2442.33	2442.33	2442.33	2442.33	2442.33
Interest on Loan	179.68	165.08	149.63	133.01	115.13	1278.98	971.60	658.09	434.08	322.03
Return on Equity	146.36	146.36	146.36	146.36	146.36	1108.40	1108.40	1108.40	1108.40	1108.40
Advance against Depreciation	0.00	10.06	29.48	50.33	72.80	2376.20	2516.03	2758.99	0.00	0.00
Interest on Working Capital	24.74	25.49	26.45	27.45	28.52	287.67	294.05	302.65	261.21	270.27
O & M Expenses	100.51	104.52	108.81	112.99	117.67	871.72	906.75	943.02	980.53	1019.90
Total	697.95	698.17	707.38	716.80	727.14	8365.29	8239.15	8213.48	5226.54	5162.92

10. The petitioner shall adjust the balance amount recoverable/refundable, as the case may be, against the future bills within six months, from the date of this order.

11. It is brought out that but for revision of debt and equity in line with the Appellate Tribunal's judgments dated 4.10.2006 and 31.10.2007, and computation of interest on loan in accordance with the methodology decided by the Appellate Tribunal in the judgment dated 31.10.2007 ibid generally the methodology considered for re-computation of the transmission charges is the same as originally considered.

12. The revision of tariff allowed is subject to decision of the Hon`ble Supreme Court in the appeals filed by the petitioner against the Appellate Tribunal's judgment dated 4.10.2006.

Sd/-
(R KRISHNAMOORTHY)
MEMBER
New Delhi dated 16th April 2008

sd/-
(BHANU BHUSHAN)
MEMBER