

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Coram**

1. Dr. Promod Deo, Chairperson
2. Shri Bhanu Bhushan, Member
3. Shri R. Krishnamoorthy, Member
4. Shri S.Jayaraman, Member

**Petition No.143/2005**

**In the matter of**

Approval of charges for Unified Load Despatch & Communication Scheme in Southern Region for the period from 1.4.2004 to 30.6.2017 and additional capitalization after the date of commercial operation during 2002-03 to 2004-05.

**And in the matter of**

Power Grid Corporation of India Limited, Gurgaon .....**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
6. Electricity Department, Govt. of Goa, Panaji, Goa ..**Respondents**

**The following were present:**

Shri U.K. Tyagi, PGCIL  
Ms. Sangeeta Edwaros, PGCIL  
Shri. M.M. Mondal, PGCIL  
Shri V V Sharma, PGCIL  
Shri Harmeet Singh, PGCIL

**ORDER**

**(DATE OF HEARING: 18.11.2008)**

The petition has been filed seeking approval of charges for Unified Load Despatch & Communication Scheme in Southern Region (hereinafter referred to as "the Scheme") for the period from 1.4.2004 to 30.6.2017 and

additional capitalization after the date of commercial operation during 2002-03 to 2004-05.

2. The Scheme, designed to strengthen the load despatch infrastructure in Southern Region, covers investment in the Southern Regional Load Despatch Centre (SRLDC), the State Load Despatch Centres ( SLDCs) in the Southern Region and the associated communication system.

3. Central Electricity Authority had accorded techno-economic clearance for the Scheme vide its letter dated 27.1.1994 at an estimated cost of Rs. 55234 lakh, including IDC of Rs. 7065 lakh based on 4<sup>th</sup> quarter 1992 price level. The investment approval and expenditure sanction was accorded by the Central Government in Ministry of Power by its letter dated 16.2.1995 at an estimated cost of Rs. 62157 lakh, including IDC of Rs. 12598 lakh. During execution of the Scheme there has been an increase in the cost on account of change in scope of approved items of work, Foreign Exchange Rate Variation and other reasons. As such, based on the recommendations of Public Investment Board, the Central Government vide its letter dated 5.2.2002, accorded its fresh approval to the Revised Cost Estimates of Rs. 68380 lakh, including IDC of Rs. 11809 lakh, consisting of (i) Power Grid's portion of Rs. 55904 lakh, including IDC of Rs. 9224 lakh and (ii) States' portion of Rs. 12475 lakh, including IDC of Rs. 2585 lakh, based on 2<sup>nd</sup> quarter 2001 price level. As per the revised approval, the Scheme was to be commissioned by June 2002 and was in fact declared under commercial operation on 1.7.2002.

4. Earlier, the Commission vide its order dated 9.5.2006 in Petition No. 139/2005 awarded the charges for the Unified Load Despatch and Communication Scheme in Northern Region for the period 1.4.2004 onwards. The petitioner filed review application No. 133/2006 seeking review of the above order on the ground that methodology for calculation of recovery of return on equity and interest on loan capital allowed by the Commission did not ensure full recovery of investment made during the life of the assets. The Commission, vide its order dated 11.4.2008 in Review Petition No 133/2006 in Petition No 139/2005 revised the methodology for calculation of the capital recovery factor for return of equity and interest on loan for the period from 1.4.2004 to 31.3.2009 after accounting for the additional capital expenditure incurred during 2001-04. Thereupon, the petitioner in the present petition was directed vide the Commission's order dated 18.6.2008 to submit the following information on affidavit with advance copy to the respondents, who were allowed to file their reply, if any:

(a) Revised calculations of the annual fees and charges for the Scheme in accordance with the methodology considered by the Commission in order dated 11.4.2008, *ibid*;

(b) "Right-of-way" charges, if any, for laying optic fibre cable underground, duly apportioned between the telecom business of the petitioner and the Scheme ; and

(c) Detailed year-wise O&M expenses attributable to the Scheme from the date of commercial operation till 31.3.2008, with details of

royalty and other charges, if any, paid to the Department of Telecommunications for optic fibre cable and their apportioning between the Scheme and the telecom business.

(d) Proposal for interest rate resetting in case of loans with floating rate of interest being considered by the Commission in the Scheme.

5. The petitioner filed the above vide its affidavit dated 30.9.2008, reply to which was filed by Respondent No. 4. The case was heard on 18.11.2008. Having heard the parties and gone through the pleadings, we proceed to dispose of the petition.

6. Before taking up the issue of determination of the charges, we propose to dispose of the issues raised by Respondent. No 4 which is as under:

(a) Details of additional capital expenditure have not been provided. Besides, payment has been released 2 years after declaration of commercial operation of the scheme for which no explanation has been provided.

(b) FERV is not to be apportioned between debt and equity after 1.4.2004.

(c) Additional capital expenditure is to be apportioned between debt and equity as per the Commission's order dated 13.9.2005 in Petition No. 83/2002, irrespective of the source of funding.

(d) As the entire capital cost together with interest and return is being recovered through the charges, the assets must be transferred to the beneficiaries without any cost.

(e) The petitioner be directed to clarify as to whether additional capitalization is due to addition of new equipment or replacement for the failed equipment. In the former event, the petitioner is to furnish sanction for the same and concurrence of the beneficiaries.

(f) Consequent to earmarking of 2.3-2.5 GHz frequency band to broad band Wireless Access, Digital Microwave System executed at the cost of Rs. 106.65 crore is to be removed from service in the next 6 months and additional investment in Fibre Optic Communication is required. Recovery of investment in respect of Digital Microwave system needs to be discontinued from the date its service was discontinued.

(g) The petitioner be directed to absorb the anticipated expenditure for upgradation of Fibre Optic system.

(h) As regards the royalty amounting to Rs. 1537.60 lakh reported to have been paid to Department of Telecommunication, the petitioner be directed to furnish details of apportionment between the Scheme and the telecom business.

7. We feel that the submissions of the respondent at para (d), (f) and (g) above are pre-mature and deserve to be taken up at the appropriate time. As

regards the remaining submissions the Commission has examined the justification for additional capitalization. Besides treatment of FERV and debt equity ratio are in accordance with the relevant statutory provisions. As O&M charges are being allowed on the basis of the expenditure allowed in the previous tariff period, we do not consider it necessary, at this stage, to go into the question of apportionment of royalty paid to the Department of Telecommunication.

8. The following principles, as considered in Petition No. 139/2005 pertaining to Northern Region have been adopted in this case. for calculation of fee and charges for the Scheme, namely -

(a) Annual capital cost recovery shall be based on the levelised fees and charges for 15 years through recovery factor =  $i(1+i)^n / [(1+i)^n - 1]$  where, i = weighted average rate of interest and rate of return on equity as the case may be, and n= period.

(b) IWC and O & M charges shall not be levelised.

(c) O&M charges shall be payable initially @ 7.5.% of the admitted capital cost.

(d) Actual O&M expenses incurred by the petitioner may, if found appropriate, be reimbursed with retrospective effect after a thorough scrutiny and prudence check.

(e) O&M expenses for State portion are not being considered as the expenses are being borne by the State utilities concerned, the respondents.

**CAPITAL COST**

9. Charges for the period up to 31.3.2004 were awarded vide the Commission's order dated 13.9.2005 in Petition No. 83/2002 wherein the following capital cost as on date of commercial operation was considered:

(Rs. in lakh)	
Central portion	11969.63
State portion	38578.57
<b>Total</b>	<b>50548.20</b>

10. Based on the audited accounts up to 31.3.2008, the petitioner has submitted the following details of capital expenditure:

(Rs. in lakh)	
Expenditure up to date of commercial operation (1.7.2002)	50548.20
Expenditure from date of commercial operation to 31.3.2003	1359.79
Expenditure from 1.4.2003 to 31.3.2004	424.85
Expenditure from 1.4.2004 to 31.3.2005	472.82
Expenditure from 1.4.2005 to 31.3.2006	116.10
Expenditure from 1.4.2006 to 31.3.2007	(-) 31.43
Expenditure from 1.4.2007 to 31.3.2008	0.00
Balance estimated expenditure	1091.55
<b>Total</b>	<b>53981.88</b>

11. The petitioner has claimed the charges based on the expenditure from the date of commercial operation to 31.3.2008. The following additional capital expenditure for 1.4.2005 to 31.3.2008 period is not being considered for computation of charges because justification has not been given:

Description	(Rs. in lakh)		
	1.4.2005 to 31.3.2006	to 1.4.2006 to 31.3.2007	to 1.4.2007 to 31.3.2008
Building & other civil works		0.62	
Auxiliary power supply	6.86		
EMS/SCADA System	109.24		
Fibre Optic system			
Digital microwave system			
PLCC/PABX			
Consultancy charges		(-)32.05	
Total	116.10	(-) 31.43	

12. Remaining additional capital expenditure amounting to Rs. 1359. 79 lakh from the date of commercial operation to 31.3.2003, 424.85 lakh during 2003-04 and 472.82 lakh during 2004-05 are allowed.

### **DEBT- EQUITY RATIO**

13. For the period 2002-03 and 2003-04, additional capital expenditure amount has been considered as 100% equity and the FERV as 100% loan. As regards the additional capital expenditure for the period after 1.4.2004, it has been decided to apply the debt-equity ratio of 70:30 in tune with regulation 54 of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2004 (hereinafter “the 2004 regulations”)

### **RETURN ON EQUITY**

14. Return on equity as applicable @ 14% has been considered in the present calculation for the period 2004-09, as was done in the case of Northern Region vide the Commission's order dated 9.5.2006 in Petition No. 139/2005.



### **INTEREST ON LOAN**

15. The petitioner has worked out year wise weighted average rate of interest as tabulated below after taking into consideration loans carrying floating interest rates for the years 2004-05 to 2007-08. The same has been used by the petitioner to workout the yearwise additional interest amount for Central as well as State portion. However, we have considered the weighted average rate of interest for the tariff period as 6.4847% as on 1.4.2004.

Weighted average rate of interest	
As on 1.4.2004	6.4703%
2004-05	6.51%
2005-06	6.72%
2006-07	7.17%
2007-08	7.33%

16. As regards the petitioner's request to adjust floating rate of interest on year-to-year basis, the Commission generally allows these to be settled between the parties themselves. We feel that the same procedure may be adopted in the case of charges in the present case also.

### **CAPITAL RECOVERY FACTOR**

17. Capital recovery factor corresponding to loan and equity up to 31.3.2004 as well as additional capital expenditure have been considered taking the period as 13.25 years and 12.25 years respectively. Further, weighted average rate of interest for loan capital has been considered based

on weighted rate of interest as on 1.4.2004. Recovery factor applied in the determination of charges awarded is as under:

Period	Annual Recovery Factor for loan	Annual Recovery Factor for equity
2002-03	0.114764	0.169945
2003-04	0.114764	0.169945
2004-05	0.120794	0.175191

18. Main reason for difference between the above figures and those adopted by the petitioner is that there is difference in outstanding loan of IBRD I as on 1.4.2004. In these calculations, outstanding loan as on date of commercial operation and repayment as per reconciliation for loan outstanding as on 31.3.2004 have been taken. Besides, the petitioner has worked out the weighted average rate of interest of loan by considering individual gross loans, whereas in these calculations, net loan as on 1.4.2004 has been considered.

### **OPERATION AND MAINTENANCE EXPENSES**

19. The Commission, vide its order dated 9.5.2005 in Petition No. 139/2005, has decided to retain the O&M charges allowed for the previous period. Accordingly, in these calculations also O&M charges amounting to Rs. 897.72 lakh per annum as approved in the previous tariff period, subject to adjustment based on actuals..

### **INTEREST ON WORKING CAPITAL**

20. 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, capital expenditure as on the date of commercial operation is Rs. 11969.63 lakh for the Powergrid portion, which has been considered as the historical cost for the purpose of the present petition and maintenance spares haven worked out accordingly by escalating 1% of the historical cost @ 6% per annum. The value of maintenance spares works out to Rs. 119.70 lakh as on date of commercial operation.

**(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 central sector 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' charges claimed in the petition. In the fees and charges being allowed, receivables have been worked out on the basis 2 months' 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 1.4.2005, which is in accordance with the 2004 regulations and has been allowed.

21. The detailed calculation in support of interest on working capital are as under:

CENTRAL PORTION

(Rs. in lakh)

	2004-05	2005-06	2006-07	2007-07	2008-09

Maintenance spares	119.70	126.88	134.49	142.56	151.11
O&M Expenses	74.81	74.81	74.81	74.81	74.81
Receivables	392.14	392.42	392.54	392.67	392.81
<b>Total</b>	<b>586.65</b>	<b>594.11</b>	<b>601.84</b>	<b>610.04</b>	<b>618.74</b>
Rate of Interest on Working Capital	10.25%	10.25%	10.25%	10.25%	10.25%
Interest on Working Capital	60.13	60.90	61.69	62.53	63.42

### STATE PORTION

(Rs. in lakh)

	2004-05	2005-06	2006-07	2007-07	2008-09
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	775.87	786.59	786.59	786.59	786.59
<b>Total</b>	<b>775.87</b>	<b>786.59</b>	<b>786.59</b>	<b>786.59</b>	<b>786.59</b>
Rate of Interest on Working Capital	10.25%	10.25%	10.25%	10.25%	10.25%
Interest on Working Capital	79.53	80.63	80.63	80.63	80.63

22. Based on the foregoing principles and methodologies, the annual fees and charges for the Scheme are calculated as under:

### CENTRAL PORTION

#### IMPACT OF ADDITIONAL CAPITAL EXPENDITURE

(Rs. in lakh)

Particulars	On Capital expenditure upto DOCO	On Capital expenditure from DOCO to 31.03.2003 (including FERV)	On Capital expenditure from 01.04.2003 to 31.03.2004 (including FERV)	Total (On the Capital expenditure upto 31.03.2004)	On Capital expenditure from 01.04.2004 to 31.03.2005
Capital Cost	11969.63	320.33	89.29	12379.25	11.83
Notional Loan	10964.74	174.02	-90.83	11047.92	8.28
Equity	1004.89	146.31	180.12	1331.32	3.55
O/S Loan as on 01.04.2004	10166.93	166.47	-90.83		
O/S Equity as on 01.04.2004	968.52	143.10	180.12		
Years	13.25000	13.250000	13.250000		12.25000
Recovery Factors –Loan	0.114764	0.114764	0.114764		0.120794
Annual Capital Recovery Charge - Loan	1166.80	19.10	-10.42	1175.48	1.00
Recovery Factors –Equity	0.169945	0.169945	0.169945		0.175191
Annual Capital Recovery Charge - Equity	164.59	24.32	30.61	219.52	0.62

Annual Capital Recovery Charge - Total	1331.40	43.42	20.19	1395.01	1.62
O&M Expenses	897.72	0.00	0.00	897.72	0.00
Interest on Working Capital <sup>†</sup>	59.03	0.75	0.35	60.13	0.03
<b>Total Tariff</b>	<b>2288.14</b>	<b>44.18</b>	<b>20.54</b>	<b>2352.86</b>	<b>1.65</b>

### ANNUAL CHARGES

	(Rs. in lakh)				
	2004-05	2005-06	2006-07	2007-07	2008-09
Annual Capital Recovery Charge - Total	1395.01	1396.63	1396.63	1396.63	1396.63
O&M Expenses	897.72	897.72	897.72	897.72	897.72
Interest on Working Capital <sup>†</sup>	60.13	60.90	61.69	62.53	63.42
<b>Total Tariff</b>	<b>2352.86</b>	<b>2355.24</b>	<b>2356.04</b>	<b>2356.88</b>	<b>2357.77</b>

### STATE PORTION

### IMPACT OF ADDITIONAL CAPITAL EXPENDITURE

	(Rs. in lakh)				
Particulars	On Capital expenditure upto DOCO	On Capital expenditure from DOCO to 31.03.2003 (including FERV)	On Capital expenditure from 01.04.2003 to 31.03.2004 (including FERV)	Total ( On the Capital expenditure upto 31.03.2004)	On Capital expenditure from 01.04.2004 to 31.03.2005
Capital Cost	38578.57	1774.34	-48.02	40304.90	460.99
Notional Loan	35339.76	560.86	-292.75	35607.88	322.693
Equity	3238.81	1213.48	244.73	4697.02	138.297
O/S Loan as on 01.04.2004	32884.35	536.54	-292.75		
O/S Equity as on 01.04.2004	3121.57	1186.84	244.73		
Years	13.25000	13.250000	13.250000		12.250000
Recovery Factors –Loan	0.114764	0.114764	0.114764		0.120794
Annual Capital Recovery Charge – Loan	3773.95	61.58	-33.60	3801.93	38.98
Recovery Factors –Equity	0.169945	0.169945	0.169945		0.175191
Annual Capital Recovery Charge – Equity	530.49	201.70	41.59	773.78	24.23
Annual Capital Recovery Charge - Total	4304.44	263.27	7.99	4575.71	63.21
O&M Expenses	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital <sup>†</sup>	74.81	4.58	0.14	79.53	1.10
<b>Total Tariff</b>	<b>4379.26</b>	<b>267.85</b>	<b>8.13</b>	<b>4655.24</b>	<b>64.31</b>

### ANNUAL CHARGES

	(Rs. in lakh)				
	2004-05	2005-06	2006-07	2007-07	2008-09
Annual Capital Recovery Charge - Total	4575.71	4638.92	4638.92	4638.92	4638.92
O&M Expenses	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital <sup>†</sup>	79.53	80.63	80.63	80.63	80.63
<b>Total Tariff</b>	<b>4655.24</b>	<b>4719.54</b>	<b>4719.54</b>	<b>4719.54</b>	<b>4719.54</b>

23. In addition to the above 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.

24. It is to be noted that as the full capital cost is being recovered over a period of 15 years with interest/return. After full recovery, the assets shall be transferred to the respective constituents at nominal value

25. This disposes of Petition No. 143/2005

<b>Sd/=</b> <b>(S. Jayaraman)</b> <b>Member</b>	<b>Sd/=</b> <b>(R. Krishnamoorthy)</b> <b>Member</b>	<b>Sd/=</b> <b>(Bhanu Bhushan)</b> <b>Member</b>	<b>Sd/=</b> <b>(Dr. Pramod Deo)</b> <b>Chairperson</b>
---	--	--	--

**New Delhi, dated 27<sup>th</sup> January 2009**