

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 55/2010

Coram:

1. Dr. Pramod Deo, Chairperson
2. Shri S.Jayaraman, Member
3. Shri V.S.Verma, Member
4. Shri M.Deena Dayalan, Member

DATE OF HEARING: 19.8.2010

DATE OF ORDER: 18.10.2010

In the matter of

Revision of transmission tariff due to de-capitalization and additional capital expenditure incurred during 2008-09 for NLC stage-I transmission system in Southern Region.

And

In the matter of

Power Grid Corporation of India Limited, Gurgaon **..Petitioner**
Vs

1. Karnataka Power Transmission Corporation Limited, Bangalore
2. Transmission Corporation of Andhra Pradesh Ltd., Hyderabad
3. Kerala State Electricity Board, Thiruvananthapuram
4. Tamil Nadu Electricity Board, Chennai
5. Electricity Department, Government of Goa, Panaji
6. Department, Govt. of Pondicherry, Pondicherry
7. Eastern Power Distribution Company of Andhra Pradesh Limited, Vishakhapatnam
8. Southern Power Distribution Company of Andhra Pradesh Limited, Tirupati
9. Central Power Distribution Company of Andhra Pradesh Limited, Hyderabad
10. Northern Power Distribution Company of Andhra Pradesh Limited, Warangal
11. Bangalore Electricity Supply Company Ltd., Bangalore
12. Gulbarga Electricity Supply Company Ltd. Gulbarga
13. Hubli Electricity Supply Company Ltd., Hubli

14. MESCOM Corporate office, Mangalore
15. Chamundeswari Electricity Supply Corporation Ltd., Mysore.

.Respondents

The following were present:

1. Shri U.K.Tyagi, PGCIL
2. Shri M.M.Mondal, PGCIL
3. Shri Mohd. Mohsin, PGCIL
4. Shri R.Krishnawwami, TNEB

ORDER

This petition has been filed for revision of transmission tariff on account of de-capitalisation and additional capital expenditure in respect of NLC stage-I Transmission System (the transmission system in Southern Region for the period from 1.4.2008 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 for reimbursement of the petition filing fee, licence fee and other expenditure .in connection with the filing of the petition.

2. The techno-economic clearance for the transmission system for evacuation of power from NLC Thermal Power Station, Stage-I in Southern Region was accorded by Central Electricity Authority at an estimated cost of ₹7784.00 lakh.

3. The transmission charges for the transmission system were approved by the Commission in its order dated 3.11.2005 in Petition No. 134/2004 for the period 1.4.2004 to 31.3.2009. Subsequently, the transmission charges were revised vide order dated 24.1.2008 in terms of the judgment dated 4.10.2006 of the Appellate Tribunal in Appeal No. 135 of 2005 and other related appeals. The summary of the revised transmission charges approved by the said order dated 24.1.2008 is extracted hereunder:

(₹ in lakh)

	2004-05	2005-06	2006-07	2007-08	2008-09
Depreciation	90.91	90.91	90.91	90.91	90.91
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	559.59	559.59	559.59	559.59	559.59
Advance against Depreciation	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	36.41	37.84	39.35	40.94	42.64
O & M Expenses	151.59	157.63	164.17	170.37	177.53
Total	838.51	845.97	854.03	861.82	870.68

4. The relevant details of the capital expenditure of the transmission assets claimed by the petitioner are as under:

(₹ in lakh)

Capital cost as on 1.4.2004 (As per order dated 24.1.2008)	Additional capital expenditure during 2008-09		Capital cost as on 1.4.2009
	De- capitalization during	Additional capital expenditure	
7994.16	(-)256.89	440.23	8177.50

5. Based on the above additional capital expenditure, the petitioner has claimed the revised transmission charges for the year 2008-09 as under:

(₹ in lakh)	
	2008-09
Depreciation	234.61
Interest on Loan	0.00
Return on Equity	563.44
Advance against Depreciation	0.00
Interest on Working Capital	45.21
O & M Expenses	177.53
Total	1,020.79

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

(₹ in lakh)	
	2008-09
Maintenance Spares	256.11
O & M expenses	14.79
Receivables	170.13
Total	441.03
Rate of Interest	10.25%
Interest	45.21

7. Tamil Nadu Electricity Board (TNEB) in its reply dated 17.8.2010 has submitted that the petitioner has filed the present petition for additional capital expenditure 2008-09 only on 16.2.2010 that too after filing tariff petition No. 92/2009 for the tariff period 2009-14 on 17.4.2010 without indicating the same in the tariff petition. Therefore, filing of the present petition seeking revision of the transmission charges by considering De-cap/Add-cap for the period 2008-09 is an after thought. Therefore, the

Commission needs to take a view on the maintainability of petition before proceeding further. Secondly, TENB has requested to negate the request of the petitioner for reimbursement of filing fees in the light of the Commission's order dated 11.9.2009 in Petition No. 129/2005. Thirdly, TNEB has also requested for rejection of the revision of O & M expenses on account of wage revision as the petitioner had filed a separate petition for the purpose.

8. We have considered the issues raised by the respondent as also the replies submitted by the petitioner. As regards the maintainability of the petition, it is pertinent to mention that the petitioner after filing Petition No. 92/2009 had sought time to amend the said petition to take on into account the impact of additional capitalisation/de-capitalization. The Commission in order dated 13.8.2010 has allowed time till 30.11.2010 to file the amended petition. Therefore, the petition is maintainable. Other issues raised by the respondent (TNEB) are being dealt in following paragraph of the order.

CAPITAL COST

9. The details submitted by the petitioner in support of its claim for de-capitalization are given hereunder:

(₹ in lakh)		
Year	Nature and details of expenditure	Amount
2008-09	Sub-station- De-capitalization of circuit breakers, surge arrestors	(-)256.89
2008-09	Sub-station- Additional capital expenditure of circuit breakers, surge arrestors	440.23
	Net Additional capital expenditure	183.34

10. During the hearing, the representative of the petitioner submitted that these circuits breakers and lightening arresters have been commissioned during 1987-1988. Hence, these assets have completed life of around 20 years during the year 2008-09. The petitioner has submitted that the centralized air distribution system has been used in the air-blast circuit breakers which involve extensive piping, joints etc. Air leakage was a major problem leading to frequent outage of the equipment causing unreliability and insecurity to the system. On an average around 6 outages per year per breaker were recorded during 5 years prior to the replacement meaning at least 2 breakers per sub-station would have to be attended every month. The restoration on many occasions required dismantling of breaker poles which takes around 2 to 4 days.

11. The petitioner has submitted that the circuits breakers at Sriperumbudur (Madras) sub-station and Salem sub-station were installed in

the 400 kV Neyveli-Madras S/C line and 400 kV Neyveli-Salem S/C line respectively and these lines evacuate the generation of NLC. The other breakers were installed in the 400 kV bus section bay and were also critical for power evacuation from NLC. Any simultaneous outage of these due to breaker problem would pose severe congestion for the evacuation of power from NLC. The replacements of these circuit breakers enhance the grid security and stability thereby improves the reliability of the grid because of lesser maintenance. The petitioner has further submitted that the gapped type surge arresters are prone to failure due to ageing of silicon carbide blocks and deterioration of gaps over-time. The gapped type surge arresters have also become obsolete and have been phased out by major manufacturers.

12. According to petitioner, on many occasions it was found that the gapped surge arrestors were not able to discharge successive surges due to limitations in handling higher energies resulted due to ageing. The gapless zinc oxide type surge arresters improves the efficiency and performance against surges due to inherent superiority due to their fast response, high energy handling capabilities, absence of series/spark gap and superior performance under polluted environment. It is noticed that IEEE paper on assessment of the reliability of in-service gapped silicon-carbide distribution surge arrestors concludes that "most gapped silicon carbide distribution

lightning arresters of age in excess of 13 to 15 years have characteristics which render them no longer suitable for service."

13. The petitioner has furnished the details of numbers and location of circuit breakers and surge arresters replaced as under:

S.No.	Name of bays	Number of circuit breakers	Number of surge arresters
1.	400 kV S/C Neyveli-Madras line	2	3
2.	Bus-section breakers	2	00
3.	400 kV S/C Neyveli-Salem line	2	3
4.	Bus section breakers	2	00
		8	6

14. In view of the above, the replacements of the gapped surge arresters with gapless arrestors are allowed for better system safety and reliability. As per the 2004 regulations, the life of the switchgear is 25 years.

15. It is found that the additional capital expenditure claimed is for replacement of old circuit breakers and surge arresters after more than 20 years of operations and is justified as the earlier circuit breakers and surge arresters have now become obsolete and the petitioner is facing problem in maintaining them as the original manufactures have stopped manufacturing them. Therefore, the additional expenditure of ₹440.23 lakh sought to be capitalised and de-capitalization of ₹(-)256.89 lakh

aggregating to net additional capital expenditure of ₹183.34 lakh is allowed under clauses (1) and (2) of Regulation 53 of the 2004 regulations.

TOTAL CAPITAL COST

16. Based on the above, capital cost for the purpose of tariff for transmission line as on 31.3.2009 works out as under:

(₹ in lakh)			
Capital cost as on 1.4.2004 (As per order dated 24.1.2008)	Additional capital expenditure during 2008-09		Capital cost as on 1.4.2009
	De-capitalization during	Additional capital expenditure	
7994.16	(-)256.89	440.23	8177.50

DEBT- EQUITY RATIO

17. The petitioner has considered the amount of additional capitalization and de-capitalization in the debt-equity ratio of 70:30. This has been found to be in order. Accordingly, for the purpose of tariff, equity considered for the transmission assets is as under:

(₹ in lakh)					
Equity as on 1.4.2004	Notional equity due to additional capital expenditure during 2004-07	Average equity for 2004-08	Notional equity due to additional capital expenditure during 2008-09	Total equity considered as on 31.3.2009	Average equity for 2008-09
3997.08	0.00	3997.08	55.00	4,052.08	4024.58

RETURN ON EQUITY

18. 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.

19. Equity as given the table under para 17 above has been considered. The tariff for the year 2008-09 has been allowed on average equity. Accordingly, revised return on equity of ₹563.44 lakh has been allowed for the year 2008-09.

INTEREST ON LOAN

20. Clause (1) of regulation 56 of the 2004 regulations *inter alia* provides that,-

"(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 in accordance with Regulation 54 minus cumulative repayment as admitted by the Commission or any other authority having power to do so, up to 31.3.2004. The repayment for the period 2004-09 shall be worked out on a normative basis.

(c) The transmission licensee shall make every effort to re-finance the loan as long as it results in net benefit to the beneficiaries. The

costs associated with such re-financing shall be borne by the beneficiaries.

(d) The changes to the loan terms and conditions shall be reflected from the date of such re-financing and benefit passed on to the beneficiaries.

(e) In case of dispute, any of the parties may approach the Commission with proper application. However, the beneficiaries shall not withhold any payment ordered by the Commission to the transmission licensee during pendency of any dispute relating to re-financing of loan.

(f) 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.

(g) The transmission licensee shall not make any profit on account of re-financing of loan and interest on loan.

(h) The transmission licensee may, at its discretion, swap loans having floating rate of interest with loans having fixed rate of interest, or vice versa, at its own cost and gains or losses as a result of such swapping shall accrue to the transmission licensee:

Provided that the beneficiaries shall be liable to pay interest for the loans initially contracted, whether on floating or fixed rate of interest."

21. All the actual loans and normative loans have been repaid before 31.3.2004. The petitioner has not claimed interest on loan on account of the expenditure sought to be capitalized. Therefore, we have not considered interest on loan for the purpose of tariff. The petitioner has funded the additional capital expenditure out of equity. Net Additional Capital expenditure of ₹183.34 lakh incurred during 2008-09 was serviced in

the normative debt-equity ratio of 70:30 for which there is normative loan of ₹128.34 lakh. This normative loan is being repaid by the depreciation amount of ₹118.87 lakh. However, depreciation has been considered as repayment and as a result closing balance is ₹9.5 lakh. As weighted average rate of interest of actual loan is not available in the petition, therefore, interest on loan has been calculated by applying the interest rate of latest loan drawn by the petitioner during the year 2008-09.i.e. Bond XXIX which is 9.20% . Based on the above, the year-wise details of interest worked out are given hereunder:

(₹ in lakh)	
Details of loan	2008-09
Gross Normative Loan	3997.08
Cumulative Repayment up to Previous Year	3997.08
Net Loan-Opening	0.00
Addition due to Additional Capitalisation	128.34
Repayment during the year	118.78
Net Loan-Closing	9.55
Average Loan	4.78
Weighted Average Rate of Interest on Loan	9.20%
Interest	0.44

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:

"(a) The value base for the purpose of depreciation shall be the historical cost of the asset.

(a) 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.

(b) On repayment of entire loan, the remaining depreciable value shall be spread over the balance useful life of the asset.

(c) 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. Net of de-capitalisation and additional capitalisation has been added to the gross block as on 1.4.2008 for workout the depreciation for the year 2008-09.

24. In the present case, as noticed above, there was no outstanding loan as on 31.3.2009. As such, the remaining depreciable value was spread over from 2004-05 onwards during the tariff period. Despite the fact that 70% of additional capital expenditure has been apportioned to loan, the spread over of the remaining depreciable value in the balance useful life has not been re-set. Depreciation amount of ₹118.78 lakh has been recovered in the year 2008-09 and the balance amount will be recovered over the life of the asset as per the 2004 regulations.

25. Cumulative depreciation of ₹224.08 lakh due to de-capitalisation of ₹(-)256.89 lakh during 2008-09 had been deducted from the cumulative

depreciation recovered up to 31.3.2008 for working out the remaining depreciable value as on 1.4.2008.

26. Depreciation allowed has been worked out as below:

(₹ in lakh)	
	2008-09
Gross block as on 1 st April of the year	7994.16
Addition due to Additional Capitalisation	183.34
Gross Block	8177.50
Average gross block	8085.83
Rate of Depreciation	2.9015%
Depreciable Value	7122.45
Balance Useful life of the asset	11
Remaining Depreciable Value	1306.63
Depreciation	118.78

ADVANCE AGAINST DEPRECIATION

27. 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."

28. 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.

29. The petitioner has not claimed Advance Against Depreciation and, thereafter, Advance Against Depreciation has not been considered.

OPERATION & MAINTENANCE EXPENSES

30. 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 (₹ in lakh per ckt-km)	0.227	0.236	0.246	0.255	0.266
O&M expenses (₹ in lakh per bay)	28.12	29.25	30.42	31.63	32.90

31. O&M expenses as taken for the tariff calculations as per order dated 3.11.2005 in Petition No. 134/2004 have been considered, since line length and number of bays remain unchanged.

INTEREST ON WORKING CAPITAL

32. 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. The petitioner has claimed

maintenance spares after accounting for additional capital expenditure. For the purpose of computation of maintenance spares, the historical cost is being taken as the cost on the date of commercial operation. Maintenance spares on additional capital expenditure are not being considered for the present. Therefore, the petitioner's claim in this regard is not being allowed. Accordingly, maintenance spares have been worked as per the order dated 3.11.2005 in Petition No. 134/2004.

(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. O&M expenses as considered in the order dated 3.11.2005 in Petition No. 134/2004 have been considered.

(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. Accordingly, 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.

33. The necessary computations in support of revised interest on working capital, as revised, are appended herein below:

(₹ in lakh)

	2008-09
Maintenance Spares	256.10
O & M expenses	14.79
Receivables	150.57
Total	421.46
Rate of Interest	10.25%
Interest	43.20

TRANSMISSION CHARGES

34. The revised transmission charges being allowed for the transmission assets for the year 2008-09 are summarised below:

	(₹ in lakh)
	2008-09
Depreciation	118.78
Interest on Loan	0.44
Return on Equity	563.44
Advance Against Depreciation	0.00
Interest on Working Capital	43.20
O & M Expenses	177.53
Total	903.40

35. The petitioner shall recover from the respondent the additional transmission charges in one monthly instalment and these charges shall be shared in accordance with the 2004 regulations. The petitioner has also sought reimbursement of filing fee paid. The Commission by its separate general order dated 11.9.2008 in Petition No. 129/2005 (Suo-motu) has decided that the petitioner shall not be allowed reimbursement of the petition filing fee.

36. 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

37. This order disposes of Petition No. 55/2010.

sd/-
(M.DEENA DAYALAN)
MEMBER

sd/-
(V.S.VERMA)
MEMBER

sd/-
(S.JAYARAMAN)
MEMBER

sd/-
(Dr. PRAMOD DEO)
CHAIRPERSON