

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Coram:**

- 1. Dr. Pramod Deo, Chairperson**
- 2. Shri R.Krishnamoorthy, Member**
- 3. Shri S.Jayaraman, Member**

**Petition No. 143/2008**

**In the matter of**

Determination of revised transmission tariff due to 2nd additional capitalization incurred during 2006-07 and 2007-08 for Integration of Sikkim Transmission System with Eastern Region by LILO of Siliguri- Gangtok section of 132 kV Rangit- Siliguri transmission line at Melli in Eastern Region.

**And in the matter of**

Power Grid Corporation of India Ltd., Gurgaon ..... **Petitioner**

**Vs**

1. Bihar State Electricity Board, Patna
2. West Bengal State Electricity Board, Calcutta
3. Grid Corporation of Orissa Ltd., Bhubaneswar
4. Damodar Valley Corporation, Calcutta
5. Power Department, Govt. of Sikkim, Gangtok
6. Jharkhand State Electricity Board, Ranchi

**Respondents**

**The following were present:**

1. Shri U.K.Tyagi, PGCIL
2. Shri V.V.Sharma, PGCIL
3. Shri A.K.Nagpal, PGCIL
4. Shri B.C.Pant, PGCIL
5. Shri Harmeet Singh, PGCIL
6. Shri Mohd. Mohsin, PGCIL
7. Shri R.B.Sharma, Advocate, BSEB

**ORDER**

**(DATE OF HEARING: 19.2.2009)**

This petition has been filed for revision of transmission tariff on account of additional capital expenditure incurred during 2006-07 and 2007-08 for Integration of Sikkim Transmission System (the transmission system) with Eastern Region by LILO of Siliguri-Gangtok section of 132 kV Rangit-Siliguri transmission line at Melli (hereinafter referred to as "the transmission assets") in Eastern Region, based on the Central Electricity Regulatory Commission (Terms

and Conditions of Tariff) Regulations, 2004, (hereinafter referred to as “the 2004 regulations”).

2. The investment approval for execution of the transmission assets was accorded by Board of Directors of the petitioner company vide letter dated 22.10.2002 at an estimated cost of Rs. 511.00 lakh, which included IDC of Rs. 36.00 lakh. The transmission assets were declared under commercial operation on 1.10.2005.

3. The transmission charges for the transmission assets were approved by the Commission in its order dated 15.2.2008 in Petition No. 21/2007 for the period 1.10.2005 to 31.3.2009 based on capital cost of Rs. 280.16 lakh as on the date of commercial operation and Rs. 295.83 lakh as on 31.3.2006, after considering additional capital expenditure of Rs. 15.67 lakh for the period 1.10.2005 to 31.3.2006. The summary of the transmission charges approved by the said order dated 15.2.2008 is extracted hereunder:

	(Rs. in lakh)			
	2005-06 (Pro-rata)	2006-07	2007-08	2008-09
Depreciation	5.21	10.62	10.62	10.62
Interest on Loan	7.21	14.25	13.52	12.52
Return on Equity	5.43	11.18	11.18	11.18
Advance against Depreciation	0.00	0.00	0.00	7.69
Interest on Working Capital	1.23	2.55	2.62	2.82
O & M Expenses	29.84	62.07	64.54	67.13
<b>Total</b>	<b>48.92</b>	<b>100.67</b>	<b>102.48</b>	<b>111.97</b>

4. The relevant details of the approved cost, completion cost etc. of the transmission assets claimed by the petitioner are as under:

(Rs.in lakh)									
Approved apportioned cost	Capital expenditure up to 1.10.2005	Additional Capitalization during 2005-06	Capital expenditure as on 1.4.2006	Additional Capitalization during 2006-07	Capital expenditure as on 1.4.2007	Additional Capitalization during 2007-08	Capital expenditure as on 1.4.2008	Balance estimated expenditure	Estimated completion cost
511.00	280.16	15.67	295.83	13.68	309.51	15.80	325.31	9.88	335.19

5. Based on the above additional capital expenditure, the petitioner has claimed the revised transmission charges for the period 2006-07 to 2008-09 as under:

	(Rs.in lakh)		
	<b>2006-07</b>	<b>2007-08</b>	<b>2008-09</b>
Depreciation	10.80	11.18	11.38
.Interest on Loan	14.69	14.77	14.12
Return on Equity	11.47	12.09	12.42
Advance against Depreciation	0.00	0.00	7.55
Interest on Working Capital	2.59	2.70	2.93
O & M Expenses	62.07	64.54	67.13
<b>Total</b>	<b>101.62</b>	<b>105.28</b>	<b>115.53</b>

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

	(Rs. in lakh)		
	2006-07	2007-08	2008-09
Maintenance Spares	3.11	3.45	3.73
O & M expenses	5.17	5.38	5.59
Receivables	16.94	17.55	19.26
Total	25.22	26.38	28.58
Rate of Interest	10.25%	10.25%	10.25%
Interest	<b>2.59</b>	<b>2.70</b>	<b>2.93</b>

7. The reply to the petition has been filed by Bihar State Electricity Board (BSEB).

### **CAPITAL COST**

8. The details submitted by the petitioner in support of its claim for additional capital expenditure are given hereunder:

Sl. No.	Year	Amount (Rs. in lakh)	Nature and details of expenditure
1.	2006-07	13.68	Retention/final payments
2.	2007-08	15.80	Retention/final payments

9. It is found that the additional capital expenditure claimed is in respect of retention/ final payments. These are part of the deferred liabilities relating to

works/services which have since materialised, and are within the original scope of work. Therefore, the additional expenditure sought to be capitalised is allowed under clauses (1) and (2) of Regulation 53 of the 2004 regulations.

### **TOTAL CAPITAL COST**

10. Based on the above, capital cost for the purpose of tariff for each of the transmission asset, works out as under, which is within the approved cost estimate:

(Rs.in lakh)						
Admitted capital cost as on 1.7.2005	Additional Capitalization during 2005-06	Capital expenditure as on 1.4.2006	Additional Capitalization during 2006-07	Capital expenditure as on 1.4.2007	Additional Capitalization during 2007-08	Capital expenditure as on 1.4.2008
280.16	15.67	295.83	13.68	309.51	15.80	325.31

### **DEBT- EQUITY RATIO**

11. The petitioner has considered the amount of additional 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:

(Rs. in lakh)								
Equity as on 1.10.2005 (As per order dated 15.2.2008)	Notional additional equity up to 31.3.2006 (As per order dated 15.2.2008)	Equity as on 1.4.2006 (As per order dated 15.2.2008)	Notional additional equity during 2006-07	Average equity during 2006-07	Equity as on 1.4.2007	Notional additional equity during 2007-08	Average equity for 2007-08	Equity as on 1.4.2008
75.16	4.70	79.86	4.10	81.91	83.97	4.74	86.34	88.71

### **RETURN ON EQUITY**

12. 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.

13. For the reasons already recorded, equity as given the table under para 11 above has been considered. The tariff for the years 2006-07 and 2007-08 has been allowed on average equity. Accordingly, revised return on equity allowed each year is given as under:

(Rs. in lakh)		
Return on equity		
2006-07	2007-08	2008-09
11.47	12.09	12.42

### **INTEREST ON LOAN**

14. 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.”

15. The petitioner has claimed interest on loan in the following manner:
- (a) Gross loan opening is from the year 2005-06.
  - (b) On the basis of actual rate of interest on actual average loan, the weighted average rate of interest on loan is worked out for various years.
  - (c) Entire loan has been raised through Bonds redeemable at different points of time.
  - (d) Gross loan have been considered along with the loan utilised after DOCO and the weighted average rate of interest on loan for respective years as per above has been multiplied to arrive at interest on loan, considering depreciation as repayment. Depreciation Advance Against Deprecation has been considered as repayment.
16. In our calculation, the interest on loan has been worked out as detailed below:
- (a) Gross amount of loan, repayment of instalments and rate of interest and weighted average rate of interest on actual loan as per earlier order dated 15.2.2008 in Petition No. 21/2007 have been considered.
  - (b) Notional loan arising out of additional capital expenditure up to 31.3.2008 has been added in loan amount as on 1.4.2006 to arrive at total notional loan. This adjusted gross loan is considered as normative loan for tariff calculations.
  - (c) Tariff has been worked out considering normative loan and normative repayments. Normative repayments are worked out by the

following formula :

$$\frac{\text{Actual repayment of actual loan during the year}}{\text{Opening balance of actual loan during the year}} \times \frac{\text{Opening balance of normative loan during the year}}{\text{Opening balance of actual loan during the year}}$$

(d) Moratorium in repayment of loan is considered with reference to normative loan and if the normative repayment of loan during the year is less than the depreciation including Advance Against Depreciation during the year, then depreciation including Advance Against Depreciation during the year is deemed as normative repayment of loan during the year.

(e) Weighted average rate of interest on actual loan worked out as per (i) above has been applied on the notional average loan during the year to arrive at the interest on loan.

17. Based on above, revised year-wise interest on loan has been worked out as under:

Details	(Rs. in lakh)		
	2006-07	2007-08	2008-09
Gross Normative Loan-Opening	215.97	225.55	236.61
Cumulative Repayment up to Previous Year/date of commercial operation	5.21	16.01	27.18
Net Loan-Opening	210.76	209.54	209.42
Addition due to Additional Capitalisation	9.58	11.06	
Repayment during the year	10.80	11.18	18.93
Net Loan-Closing	209.54	209.42	190.49
Average Loan	210.15	209.48	199.96
Weighted Average Rate of Interest on Loan	6.99%	7.05%	7.06%
Interest	14.69	14.77	14.12

18. The detailed calculations in support of the weighted average rate of interest are contained in Annexure attached.

### **DEPRECIATION**

19. 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.

(b) 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.

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

(d) 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.

20. Depreciation allowed has been worked out as below:

(Rs. in lakh)

	2006-07	2007-08	2008-09
Rate of Depreciation	3.5673%	3.5210%	3.4979%
Depreciable Value	272.40	285.67	292.78
Balance Useful life of the asset	-	-	-
Remaining Depreciable Value	267.19	269.66	265.60
<b>Depreciation</b>	<b>10.80</b>	<b>11.18</b>	<b>11.38</b>



## **ADVANCE AGAINST DEPRECIATION**

21. 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

22. 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.

23. Accordingly, in our calculation the Advance Against Depreciation has been worked as detailed below:

(a) 1/10th of gross loan is worked out from the Gross Notional Loan as per para 17 above.

(b) Repayment of notional loan during the year is considered as per para 17 above.

(c) Depreciation is worked out as per para 20 above.

(d) In the calculation of Advance Against Depreciation, cumulative depreciation/Advance Against Depreciation up to the preceding year along with the depreciation of the current year have been considered for working out the Advance Against Depreciation. Therefore the figure of cumulative

depreciation/ Advance Against Depreciation is different from the figure appearing under the similar head elsewhere in tariff calculations where Advance Against Depreciation for the current year is also included for 90% restriction of the depreciation.

24. Details of the Advance Against Depreciation being allowed are given hereunder:

	(Rs. in lakh)		
	2006-07	2007-08	2008-09
1/10th of Gross Loan(s)	21.60	22.55	23.66
Repayment of the Loan	10.80	11.18	18.93
Minimum of the above	10.80	11.18	18.93
Depreciation during the year	10.80	11.18	11.38
(A) Difference	0.00	0.00	7.55
Cumulative Repayment of the Loan	16.01	27.18	46.12
Cumulative Depreciation/ Advance against Depreciation	16.01	27.18	38.56
(B) Difference	0.00	0.00	7.55
Advance against Depreciation Minimum of (A) and (B)	<b>0.00</b>	<b>0.00</b>	<b>7.55</b>

### **OPERATION & MAINTENANCE EXPENSES**

25. 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

26. O&M expenses as taken for the tariff calculations as per order dated 15.2.2008 in Petition No. 21/2007 have been considered, since line length and number of bays remain unchanged.

### **INTEREST ON WORKING CAPITAL**

27. 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 out on the historical cost and providing escalation from the 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. O&M expenses as considered in the order dated 15.2.2008 in Petition No. 21/2007 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 1.4.2005, which is in accordance with the 2004 regulations and has been allowed.

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

(Rs. in lakh)

	2006-07	2007-08	2008-09
Maintenance Spares	2.89	3.06	3.24
O & M expenses	5.17	5.38	5.59
Receivables	16.93	17.54	19.25
Total	24.99	25.98	28.08
Rate of interest	10.25%	10.25%	10.25%
Interest	<b>2.56</b>	<b>2.66</b>	<b>2.88</b>

### **TRANSMISSION CHARGES**

29. The revised transmission charges being allowed for the transmission assets for the period 2006-07 to 2008-09 are summarised below:

(Rs. in lakh)

	2006-07	2007-08	2008-09
Depreciation	10.80	11.18	11.38
Interest on Loan	14.69	14.77	14.12
Return on Equity	11.47	12.09	12.42
Advance against Depreciation	0.00	0.00	7.55
Interest on Working Capital	2.56	2.66	2.88
O & M Expenses	62.07	64.54	67.13
<b>Total</b>	<b>101.59</b>	<b>105.24</b>	<b>115.48</b>

30. The petitioner shall recover from the beneficiaries the additional transmission charges in three monthly instalments. 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 has decided that the petitioner shall not be allowed reimbursement of the petition filing fee.

31. 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 Eastern Region and shall be shared by the regional beneficiaries in accordance with the 2004 regulations.

32. This order disposes of Petition No.143/2008.

sd/-  
**(S.JAYARAMAN)**  
**MEMBER**

sd/-  
**(R.KRISHNAMOORTHY)**  
**MEMBER**

sd/-  
**(DR.PRAMOD DEO)**  
**CHAIRPERSON**

**New Delhi dated the 1<sup>st</sup> April 2009**

**Annexure**  
**CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN**  
(Rs. in lakh)

	Details of Loan	2005-06	2006-07	2007-08	2008-09
<b>1</b>	<b>Bond-XV</b>				
	Gross Loan opening	80.00	80.00	80.00	80.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	6.67
	Net Loan-Opening	80.00	80.00	80.00	73.33
	Additions during the year	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	6.67	6.67
	Net Loan-Closing	80.00	80.00	73.33	66.67
	Average Loan	80.00	80.00	76.67	70.00
	Rate of Interest	6.68%	6.68%	6.68%	6.68%
	Interest	5.34	5.34	5.12	4.68
	Repayment Schedule		12 Annual instalments from 23-02-2008		
<b>2</b>	<b>Bond- XVI</b>				
	Gross Loan opening	125.00	125.00	125.00	125.00
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00
	Net Loan-Opening	125.00	125.00	125.00	125.00
	Additions during the year	0.00	0.00	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	12.50
	Net Loan-Closing	125.00	125.00	125.00	112.50
	Average Loan	125.00	125.00	125.00	118.75
	Rate of Interest	7.10%	7.10%	7.10%	7.10%
	Interest	8.88	8.88	8.88	8.43
	Repayment Schedule		10 Annual instalments from 18-2-2009		
<b>3</b>	<b>Bond-XXII ( For ACE 2006-07)</b>				
	Gross Loan opening	0.00	0.00	13.68	13.68
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	0.00
	Net Loan-Opening	0.00	0.00	13.68	13.68
	Additions during the year	0.00	13.68	0.00	0.00
	Repayment during the year	0.00	0.00	0.00	0.00
	Net Loan-Closing	0.00	13.68	13.68	13.68
	Average Loan	0.00	6.84	13.68	13.68
	Rate of Interest		8.68%	8.68%	8.68%
	Interest		0.59	1.19	1.19
	Repayment Schedule		12 annual inatalsments from 7.12.2010		
	<b>Total Loan</b>				
	Gross Loan opening	205.00	205.00	218.68	218.68
	Cumulative Repayment upto DOCO/previous year	0.00	0.00	0.00	6.67
	Net Loan-Opening	205.00	205.00	218.68	212.01
	Additions during the year	0.00	13.68	0.00	0.00
	Repayment during the year	0.00	0.00	6.67	19.17
	Net Loan-Closing	205.00	218.68	212.01	192.85
	Average Loan	205.00	211.84	215.35	202.43
	Rate of Interest	6.94%	6.99%	7.05%	7.06%
	<b>Interest</b>	14.22	14.81	15.18	14.29