

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Coram:**

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

**Petition No. 96/2008**

**In the matter of**

Determination of final transmission tariff for 400 kV D/C RAPP-Kankroli transmission line along with associated bays and 400/220 kV 315 MVA ICT-II along with associated bays and two nos. 220 kV line bays at Kankroli sub-station under RAPP 5 & 6 transmission system in Northern Region from 1.4.2008 to 31.3.2009.

**And in the matter of**

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

1. Rajasthan Rajya Vidyut Prasaran Nigam Limited, Jaipur
2. Ajmer Vidyut Vitaran Nigam Ltd., Ajmer
3. Jaipur Vidyut Vitaran Nigam Ltd, Jaipur
4. Jodhpur Vidyut Vitaran Nigam Ltd, Jodhpur
5. Himachal Pradesh State Electricity Board, Shimla
6. Punjab State Electricity Board, Patiala
7. Haryana Power Purchase Centre., Panchkula
8. Power Development Department, Govt. of J&K, Jammu
9. Uttar Pradesh Power Corporation Ltd, Lucknow
10. Delhi Transco Ltd, New Delhi
11. BSES Yamuna Power Limited, New Delhi
12. BSES Rajdhani Power Ltd., New Delhi
13. North Delhi Power Ltd., New Delhi
14. Chief Engineer, Chandigarh Administration, Chandigarh
15. Uttarakhand Power Corporation Ltd, Dehradun
16. North Central Railway, Allahabad     **.....Respondents**

**The following were present:**

1. Shri U.K. Tyagi, PGCIL
2. Shri V.V.Sharma, PGCIL
3. Shri C.Kannan, PGCIL
4. Shri B.C.Pant, PGCIL
5. Ms. Sangeeta Edwards, PGCIL
6. Shri M.M.Mondal, PGCIL
7. Shri A.K.Nagpal, PGCIL
8. Shri S.S.Raju, PGCIL

**ORDER**  
**(DATE OF HEARING: (27.11.2008))**

The application has been made for approval of tariff for 400 kV D/C RAPP-Kankroli transmission line along with associated bays and 400/220 kV 315 MVA ICT-II along with associated bays and two nos. 220 kV line bays at Kankroli sub-station ( the transmission asset) under RAPP 5 & 6 transmission system (the transmission system) in Northern 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”) after accounting for additional capitalization of Rs.20.39 lakh during 2006-07. The petitioner has also prayed for the reimbursement of expenditure from the beneficiaries incurred towards publishing notices in the newspapers and the petition filing fee.

2. The administrative approval and expenditure sanction for the transmission system was accorded by Ministry of Power vide its letter dated 3.6.2005 at an estimated cost of Rs. 49945 lakh which includes IDC of Rs. 2238 lakh. Subsequently, the approval of revised cost estimate was accorded by the Board of Directors of the petitioner company vide Memorandum dated 29.12.2008 at an estimated cost of Rs. 62665 lakh including IDC of Rs. 4088 lakh. The transmission asset has been declared under commercial operation w.e.f.1.4.2008.

3. The apportioned approved cost and other details of cost submitted by the petitioner are as under:

(Rs. in lakh)

Apportioned approved cost (As per revised cost estimate)	Expenditure up to the date of commercial operation	Balance estimated expenditure	Total estimated cost
30496.89	26590.85	3670.69	30261.54

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

(Rs. in lakh)

	<b>2008-09</b>
Depreciation	732.15
Interest on Loan	1703.83
Return on Equity	1117.32
Advance against Depreciation	0.00
Interest on Working Capital	116.79
O & M Expenses	303.08
<b>Total</b>	<b>3973.17</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>2008-09</b>
Maintenance Spares	265.91
O & M expenses	25.26
Receivables	662.19
Total	953.36
Rate of Interest	12.25%
<b>Interest</b>	<b>116.79</b>

6. Petition was heard after notice to the parties. None of the respondents has filed reply. No comments or suggestions have been received from the general public in response to the notices published by the petitioner under section 64 of the Electricity Act, 2003.

### **CAPITAL COST**

7. As per clause (1) of Regulation 52 of the 2004 regulations, subject to prudence check, the actual expenditure incurred on completion of the project shall form the basis for determination of final tariff. The final tariff shall be determined based on the admitted capital expenditure actually incurred up to the date of commercial operation of the transmission system and shall include capitalised

initial spares subject to a ceiling norm as 1.5% of original project cost. The regulation is applicable in case of the transmission system declared under commercial operation on or after 1.4.2004.

8. The petitioner has claimed tariff based on capital expenditure of Rs. 26590.85 lakh which has been considered for the purpose of tariff.

**Cost over-run**

9. As per original approval, the actual expenditure on the date of commercial operation was higher than the apportioned approved cost. The petitioner has explained following reasons for the cost over-run:

- (i) Price variation;
- (ii) Certain new items, which were not included in FR, that is, water supply arrangement, auxilliary power supply, shifting of 33 kV/11 kV transmission line, etc.;
- (iii) High awarded cost of items, mainly reactors, ICTs, 40 kV circuit breakers, current transformers and lightning arrestor; and
- (iv) 220 kV CT/CVT/LA, C and R panels, bus-bar materials, equipment foundations, sub-station auxiliaries and transmission line stringing, etc.

10. As the cost on date of commercial operation is less than the apportioned approved cost based on the revised cost estimates approved by the Board of Directors, cost of Rs. 26590.85 lakh as on the date of commercial operation has been considered for the purpose of tariff.

## **DEBT- EQUITY RATIO**

11. Clause (2) of Regulation 54 of the 2004 regulations *inter alia* provides that,-

“(2) In case of the transmission system for which investment approval was accorded prior to 1.4.2004 and which are likely to be declared under commercial operation during the period 1.4.2004 to 31.3.2009, debt and equity in the ratio of 70:30 shall be considered:

Provided that where equity actually employed to finance the project is less than 30%, the actual debt and equity shall be considered for determination of tariff:

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

12. Note 1 below Regulation 53 lays down that any expenditure on account of committed liabilities within the original scope of work is to be serviced in the normative debt-equity ratio specified in Regulation 54.

13. The petitioner has considered debt-equity ratio of 69.99:30.01 as actually deployed on the date of commercial operation. We have considered the debt-equity ratio of 70:30. Accordingly, for the purpose of tariff, an amount of Rs. 7977.26 lakh has been considered as equity as on 1.4.2008.

## **RETURN ON EQUITY**

14. 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.

15. The petitioner has claimed return on equity of Rs.7980.85 lakh. For the reason given at para 13 above, equity of Rs. 7977.26 lakh has been considered. Accordingly, the petitioner shall be entitled to return on equity of Rs. 1116.82 lakh during 2008-09.

### **INTEREST ON LOAN**

16. Clause (i) 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.”

17. The petitioner has claimed interest on loan in the following manner:
- (i) Gross loan opening has been considered from 2008-09.
  - (ii) On the basis of actual rate of interest on actual average loan, the weighted average rate of interest on loan is worked out.
  - (iii) Bonds whose payment starts after 2008-09 have been utilised.
  - (iv) Gross loan at (i) above have been considered and weighted average rate of interest on loan for respective year as per above has been has been multiplied to arrive at interest on loan considering depreciation as repayment.

18. In our calculation, the interest on loan has been worked out as detailed below:

- (i) Gross amount of loan, repayment of instalments and rate of interest submitted by the petitioner has been used to work out weighted average rate of interest on actual loan;
- (ii) Tariff has been worked out considering normative loan and normative repayments. Once the normative loan has been arrived at, it has been considered for all purposes in the tariff. Normative repayment has been worked out by the following formula:

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

- (iii) Moratorium in repayment of loan has been considered with reference to normative loan and if the normative repayment of loan during the year is less than the depreciation during the year, it has been

considered as moratorium and depreciation during the year has been deemed as normative repayment of loan during the year.

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

19. Based on the above, the year-wise details of interest worked out are given hereunder:

(Rs. in lakh)

<b>Details of loan</b>	<b>2008-09</b>
Interest on Loan	
Opening Gross Loan	18613. 60
Cumulative Repayment up to date of commercial operation/previous year	0.00
Net Loan-Opening	18613. 60
Additions due to Additional Capitalisation	0.00
Repayment during the year	732.15
Net Loan-Closing	17881. 44
Average Loan	18247. 52
Weighted Average Rate of Interest on Loan	9.3392 %
<b>Interest</b>	1704.1 7

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

### **DEPRECIATION**

21. 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.

22. Depreciation allowed has been worked out as calculated below:

(Rs. in lakh)

<b>Details of Depreciation</b>	<b>2008-09</b>
Gross block on the date of commercial operation	26590.85
Additional Capitalisation during the period	0.00
Gross Block at the end	26590.85
Rate of Depreciation	2.7534%
Depreciable Value (90%)	23886.26

Balance Useful life of the asset	-
Remaining Depreciable Value	23886.26
<b>Depreciation</b>	<b>732.15</b>

**ADVANCE AGAINST DEPRECIATION**

23. 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

24. 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.

25. The petitioner has not claimed Advance Against Depreciation and accordingly, Advance Against Depreciation has not been considered.

**OPERATION & MAINTENANCE EXPENSES**

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

	<b>Year</b>
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	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

27. The petitioner has claimed O & M expenses for 397.28 ckt km and 6 bays which have been allowed. Accordingly, the petitioner's entitlement to O & M expenses has been worked out as given hereunder:

(Rs. in lakh)	
	Year
	<b>2008-09</b>
O&M expenses for 397.28 ckt kms line length	105.68
O&M expenses for 6 bays	197.40
<b>Total</b>	<b>303.08</b>

28. The petitioner has submitted that the wage revision of its employees is due with effect from 1.1.2007. Therefore, 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**

29. 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 is Rs.26590.85

lakh, which has been considered as the historical cost for the purpose of the present petition and maintenance spares have been worked out accordingly @ 1% of the historical cost. In this manner, the value of maintenance spares works out to Rs. 265.91 lakh as on 1.4.2008.

**(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 @ 12.25%

based on SBI PLR as on 1.4.2008, which is in accordance with the 2004 regulations and has been allowed.

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

(Rs. in lakh)

	<b>2008-09</b>
Maintenance Spares	265.91
O & M expenses	25.26
Receivables	662.17
Total	953.33
Rate of Interest	12.25%
<b>Interest</b>	<b>116.78</b>

### **TRANSMISSION CHARGES**

31. The transmission charges being allowed for the transmission asset are summarised below:

(Rs. in lakh)

	<b>2008-09</b>
Depreciation	732.15
Interest on Loan	1704.17
Return on Equity	1116.82
Advance against Depreciation	0.00
Interest on Working Capital	116.78
O & M Expenses	303.08
<b>Total</b>	<b>3973.00</b>

32. 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. .

33. The petitioner has sought approval for the reimbursement of expenditure of Rs.2,14,881/- incurred on publication of notices in the newspapers. The

petitioner shall claim reimbursement of the said expenditure directly from the respondent in one installment. The petitioner has also sought reimbursement of filing fee of Rs.5 lakh 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.

34. This order disposes of Petition No.96/2008.

<b>Sd/-</b>	<b>sd/-</b>	<b>sd/-</b>	<b>sd/-</b>
<b>(S.JAYARAMAN)</b>	<b>(R.KRISHNAMOORTHY)</b>	<b>(BHANU BHUSHAN)</b>	<b>(DR. PRAMOD DEO)</b>
<b>MEMBER</b>	<b>MEMBER</b>	<b>MEMBER</b>	<b>CHAIRPERSON</b>

New Delhi dated the 23<sup>rd</sup> January 2009

**Annexure**  
**CALCULATION OF WEIGHTED AVERAGE RATE OF INTEREST ON LOAN**

(Rs. in lakh)

	Details of Loan	2008-09
<b>1</b>	<b>Bond-XX</b>	
	Gross Loan opening	2200.00
	Cumulative Repayment up to DOCO/previous year	0.00
	Net Loan-Opening	2200.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	2200.00
	Average Loan	2200.00
	Rate of Interest	8.93%
	Interest	196.46
	Repayment Schedule	12 Annual instalments from 7. 9.2010
<b>2</b>	<b>Bond- XXI</b>	
	Gross Loan opening	1400.00
	Cumulative Repayment up to DOCO/previous year	0.00
	Net Loan-Opening	1400.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	1400.00
	Average Loan	1400.00
	Rate of Interest	8.73%
	Interest	122.22
	Repayment Schedule	12 Annual Instalments from 11.10.2010
<b>3</b>	<b>Bond- XXII</b>	
	Gross Loan opening	3800.00
	Cumulative Repayment up to DOCO/previous year	0.00
	Net Loan-Opening	3800.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	3800.00
	Average Loan	3800.00
	Rate of Interest	8.68%
	Interest	329.84
	Repayment Schedule	12 annual inatalments from 7.12.2010
<b>4</b>	<b>Bond- XXIV</b>	
	Gross Loan opening	3000.00
	Cumulative Repayment up to DOCO/previous year	0.00
	Net Loan-Opening	3000.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	3000.00
	Average Loan	3000.00
	Rate of Interest	9.95%
	Interest	298.50

Repayment Schedule	12 annual instalments from 26.03.2011
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<b>5</b>	<b>Bond- XXV</b>	
	Gross Loan opening	3440.00
	Cumulative Repayment up to DOCO/previous year	0.00
	Net Loan-Opening	3440.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	3440.00
	Average Loan	3440.00
	Rate of Interest	10.10%
	Interest	347.44
	Repayment Schedule	12 annual instalments from 12. 6.2011
<b>6</b>	<b>Bond- XXVI</b>	
	Gross Loan opening	4670.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	4670.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	4670.00
	Average Loan	4670.00
	Rate of Interest	9.30%
	Interest	434.31
	Repayment Schedule	12 annual instalments from 7. 3.2012
<b>7</b>	<b>Bond- XIX</b>	
	Gross Loan opening	100.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	100.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	100.00
	Average Loan	100.00
	Rate of Interest	9.25%
	Interest	9.25
	Repayment Schedule	12 annual instalments from 24. 7.2010
	<b>Total Loan</b>	
	Gross Loan opening	18610.00
	Cumulative Repayment upto DOCO/previous year	0.00
	Net Loan-Opening	18610.00
	Additions during the year	0.00
	Repayment during the year	0.00
	Net Loan-Closing	18610.00
	Average Loan	18610.00
	Rate of Interest	9.3392%
	<b>Interest</b>	1738.02



