

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Coram:**

1. **Shri A.K.Basu, Chairperson**
2. **Shri K.N.Sinha, Member**
3. **Shri Bhanu Bhushan, Member**
4. **Shri A.H.Jung, Member**

**Petition No.105/2005**

**In the matter of**

Approval of transmission charges for Hiriyr sub-station (including 315 MVA Auto Transformer), LILO of Davangere-Hoody 400 kV D/C line at Hiriyr and additional bays at Kolar and Hosur sub-station for 2<sup>nd</sup> circuit of Kolar-Hosur 400 kV D/C transmission line under System Strengthening Scheme-II in Southern Region for the period from 1.4.2004 to 31.3.2009.

**And in the matter of**

Power Grid Corporation of India Limited

**..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

**Respondents**

**The following were present:**

1. Shri P.C. Pankaj, PGCIL
2. Shri U.K. Tyagi, PGCIL
3. Shri C. Kannan, PGCIL
4. Shri M.M.Mandol, PGCIL
5. Shri Rakesh Prasad, PGCIL
6. Shri S.Sowmyanarayanan, TNEB

**ORDER**

**(DATE OF HEARING: 30.3.2006)**

The petition has been filed for approval for transmission charges for the Hiriyr sub-station (including 315 MVA Auto Transformer), LILO of Davangere-Hoody 400 kV D/C transmission line at Hiriyr and additional bays at Kolar and Hosur sub-station for 2<sup>nd</sup> circuit of Kolar-Hosur 400 kV D/C line under System Strengthening Scheme-II (the transmission system) in 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) Regulations, 2004, (hereinafter referred to as "the 2004 regulations"). The petitioner had also prayed for approval of additional capital expenditure incurred during 2003-04 and also the reimbursement of expenditure by the beneficiaries towards publishing of notices in newspapers and filing fee. No other specific relief is prayed for.

2. The investment approval for the transmission system was accorded by The Board of Directors of the petitioner company vide its letter dated 23.10.2001 at an estimated cost of Rs. 7761.00 lakh, including IDC of Rs. 722.00 lakh. The scope of work included:

**Transmission line**

LILO of both circuits of Davangere-Hoody 400 kV D/C line at Hidiyur

**Sub-stations**

(i) Establishment of new 1x315 MVA, 400/220 Sub-station at Hiriyyur, with provision for the following bays:

**400 kV bays**

- a) 4 nos. bays for terminating the LILO of both circuits of Davangere-Hoody 400 k V D/C line
- b) 1 no. bay for 1x315 MVA, 400/220 kV auto transformer

**220 kV bays**

- a) 1 no bay for 1x315 MVA, 400/220 kV auto transformer
  - b) 2 nos. bays for 220 kV feeders
  - c) 2 nos. bays for Bus transfer and Bus coupler
- (ii) Terminal bays for Kolar-Hosur 400 2<sup>nd</sup> circuit, being constructed under Talcher-II
- a) Extension for Kolar 400/220 k V sub-station
  - 1no. 400 k V line bay for terminating the Kolar-Hosur 400 kV 2<sup>nd</sup> circuit
  - b) Extension of Hosur 400/220 kV sub-station
  - 1 no. 400 kV line bay for terminating the Kolar-Hosur 400 kV 2<sup>nd</sup> circuit

3. The annual transmission charges for the period ending 31.3.2004 were decided by the Commission in its order dated 5.7.2005 in petition No.182/2004 at a total cost of Rs.4008.94 lakh. The date of commercial operation of the respective transmission asset which form the subject matter of the present petition, and the line length and admitted capital cost are as stated below:

S. No.	Name of the transmission line	Date of commercial operation	Line length in Ckt-km ( for O & M)	Admitted capital cost as on the date of commercial operation ( Rs. in lakh)
(i)	Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line	1.9.2003	-	515.79
(ii)	400 kV Hiriya sub-station including 315 MVA Auto Transformer and LILO of Davangere-Hoody 400 k V D.C line at Hiriya	1.2.2004	1.892	3493.15
	<b>Total</b>		<b>1.892</b>	<b>4008.94</b>

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

(Rs.in lakh)

	Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line					400 kV Hiriya sub-station including 315 MVA Auto Transformer and LILO of Davangere-Hoody 400 k V D.C line at Hiriya				
	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09
Depreciation	21.95	21.98	21.98	21.98	21.98	123.69	128.63	128.63	128.63	128.63
Interest on Loan	39.27	38.26	36.46	33.37	29.81	208.11	202.35	191.99	175.02	156.00
Return on Equity	14.88	15.00	15.00	15.00	15.00	190.10	211.98	211.98	211.98	211.98
Advance against Depreciation	0.00	0.00	0.00	0.00	12.52	0.00	0.00	0.00	0.00	66.17
Interest on Working Capital	3.42	3.50	3.57	3.62	3.89	18.99	19.99	20.32	20.57	21.95
O & M Expenses	56.24	58.50	60.84	63.26	65.80	225.39	234.45	243.83	253.52	263.70
<b>Total</b>	<b>135.76</b>	<b>137.24</b>	<b>137.85</b>	<b>137.23</b>	<b>149.00</b>	<b>766.28</b>	<b>797.40</b>	<b>796.75</b>	<b>789.72</b>	<b>848.43</b>

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

(Rs.in lakh)

	Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line					400 kV Hiriyyur sub-station including 315 MVA Auto Transformer and LILO of Davangere-Hoody 400 kV D.C line at Hiriyyur				
	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09
Maintenance Spares	6.03	6.40	6.78	7.19	7.62	38.74	42.62	45.18	47.89	50.77
O & M expenses	4.69	4.88	5.07	5.27	5.48	18.78	19.54	20.32	21.13	21.98
Receivables	22.63	22.87	22.98	22.87	24.83	127.71	132.90	132.79	131.62	141.40
<b>Total</b>	<b>33.35</b>	<b>34.15</b>	<b>34.83</b>	<b>35.33</b>	<b>37.93</b>	<b>185.23</b>	<b>195.06</b>	<b>198.29</b>	<b>200.64</b>	<b>214.15</b>
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%
Interest	3.42	3.50	3.57	3.62	3.89	18.99	19.99	20.32	20.57	21.95

6. The replies to the petition have been filed by Tamil Nadu Electricity Board and Karnataka Power Transmission Corporation Ltd. 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.

#### **Additional capitalization –2003-04**

7. The petitioner has claimed an additional capitalization for the year 2003-2004. The details submitted by the petitioner in support of its claim for additional capital expenditure are given here under:

Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line				400 kV Hiriyyur sub-station including 315 MVA Auto Transformer and LILO of Davangere-Hoody 400 kV D.C line at Hiriyyur		
Sl. No.	Year	Amount (Rs. in lakh)	Nature and details of expenditure	Year	Amount (Rs. in lakh)	Nature and details of expenditure
	2003-04	Sub-station=53.75 PLCC=12.90	Retention payments, erection payments, procurement of spares, supply payments	2003-04	Land=1.12 Building=125.06 Sub-station=42.33 Transmission loss=14.74 PLCC=4.30	Supply payments, erection payments, procurement of spares, final payments.
	<b>Total</b>	<b>66.65</b>			<b>188.45</b>	

8. The above expenditure was not considered by the Commission in its order dated 5.7.2005 ibid while approving tariff for the period ending 31.3.2004. The capital expenditure claimed is found to be in order as it is against the committed liability. Therefore, the additional capital expenditure of Rs. 66.65 lakh and Rs. 188.45 lakh in respect of Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line and 400 kV Hiriyyur sub-station including 315 MVA Auto Transformer and

LILO of Davangere-Hoody 400 kV D/C line at Hiriyr, respectively has been approved.

9. Based on the above, the capital cost as on 1.4.2004 works out to Rs. 582.44 lakh and Rs. 3681.60 lakh after taking into account capital expenditure considered in the order dated 5.7.2005 ibid and additional capitalization for the period up to 31.3.2004..

**Additional capitalization-2004-05**

10. The petitioner has also claimed an additional capitalization for the period 2004-05. The details submitted by the petitioner in support of its claim for additional capital expenditure are given here under:

Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line				400 kV Hiriyr sub-station including 315 MVA Auto Transformer and LILO of Davangere-Hoody 400 k V D.C line at Hiriyr		
Sl. No.	Year	Amount (Rs. in lakh)	Nature and details of expenditure	Year	Amount (Rs. in lakh)	Nature and details of expenditure
	2004-05	Sub-station=1.72	Retention payments, procurement of spares.	2003-04	Building= 105.81 Sub-station=182.51 Transmission loss=1.31 PLCC=22.89	Supply retention payment, erection payment, price variation payment, rehabilitation action plan payments and final payments.
	<b>Total</b>	<b>1.72</b>			<b>312.52</b>	

11. The additional capital expenditure claimed by the petitioner is within the original scope of work. The capital expenditure claimed is found to be in order as it is against the committed liability. Therefore, the additional capital expenditure of Rs. 1.72 lakh and Rs. 312.52 lakh in respect of Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line and 400 kV Hiriyr sub-station including 315 MVA Auto Transformer and LILO of Davangere-Hoody 400 kV D/C line at Hiriyr, respectively for the year 2004-05 has been found to be admissible. The petitioner has not submitted the loan reconciliation details for the year 2004-05. Therefore, the additional capital expenditure for the year 2004-05 has not been considered for the

purpose of tariff. Liberty is, however, granted to the petitioner to seek revision of tariff after the loan reconciliation details have been finalised.

### **CAPITAL COST**

12. As per clause (2) of Regulation 52 of the 2004 regulations in case of the projects existing up to 31.3.2004, the project cost admitted by the Commission for determination of tariff prior to 1.4.2004 shall form the basis for determination of tariff.

13. The petitioner has claimed tariff based on the capital expenditure as on 1.4.2004 after accounting for additional capitalization on works for the period 1.4.2003 to 31.3.2004 and 2004- 05 over the capital expenditure admitted by the Commission in the order dated 5.7.2005 *ibid*. The petitioner has not claimed additional capitalisation on account of FERV as there are no foreign loans. The additional capital expenditure considered by the petitioner for tariff purpose are given hereunder:

(Rs.in lakh)

<b>Name of the Element</b>	<b>Capital cost as per order dated 18.5.2004</b>	<b>Additional Capitalization up to 31.3.2004</b>	<b>Additional Capitalization during 1.4.2004 to 31.3.2005</b>	<b>Balance estimated expenditure</b>	<b>Capital expenditure claimed</b>
Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line	515.79	66.65	1.72	2.06	586.22
400 kV Hiriyyur sub-station including 315 MVA Auto Transformer and LIL0 of Davangere-Hoody 400 kV D/C line at Hiriyyur	3493.15	188.45	312.52	28.96	4023.08
<b>Total</b>	<b>4008.94</b>	<b>255.10</b>	<b>314.24</b>	<b>31.02</b>	<b>4609.30</b>

14. As noted at para 11 above, the expenditure incurred during 2004-05 is not being considered for tariff. The balance estimated expenditure also cannot be taken into account for the purpose. Therefore, the following capital cost has been considered:

(Rs. in lakh)

Name of the Element	Capital cost as per order dated 18.5.2004	Additional Capitalization up to 31.3.2004	Total
Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line	515.79	66.65	582.44
400 kV Hiriya sub-station including 315 MVA Auto Transformer and LILLO of Davangere-Hoody 400 k V D.C line at Hiriya	3493.15	188.45	3681.60

### **DEBT- EQUITY RATIO**

15. Regulation 54 of the 2004 regulations *inter alia* provides that,-

- (1) In case of the existing project, debt–equity ratio Considered by the Commission for fixation of tariff for the period ending 31.3.2004 shall be considered for determination of tariff.
- (2) In case of the transmission system for which investment approval was accorded prior to 1.4.2004 and which is likely to be declared under commercial operation during the period 1.4.2004 to 31.3.2009, debt-equity in the ratio of 70:30 shall be considered:

Provided that where deployment of equity is less than 30%, the actual equity deployed shall be considered for the purpose of determination of tariff.

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

- (3) In case of the transmission system for which investment approval is accorded on or after 1.4.2004, debt-equity in the ratio of 70:30 shall be considered for the purpose of determination of tariff:

Provided that where deployment of equity is less than 30%, the actual equity deployed shall be considered for the purpose of determination of tariff.

(4) The debt and equity amount arrived at in accordance with above sub-clause (1), (2) or (3), as the case may be, shall be used for calculation of interest on loan, return on equity, advance against depreciation and foreign exchange rate variation.”

16. The petitioner has claimed tariff based on debt-equity ratio as considered by the Commission in its order dated 5.7.2005 *ibid*, i.e. 92.48:7.52 and 71:29, respectively. Further, it has adjusted the entire amount on additional capitalization during 2003-04 and 2004-05 against equity.

17. The petitioner has stated in the petition that the approved debt-equity ratio for the transmission system is 70:30. Therefore, in order to bring debt and equity close to the approved debt-equity ratio, the entire amount of additional capitalization on account of works in respect of additional bays at Kolar and Hosur has been treated as equity. As regards 400 kV Hiriyr sub-station, additional capitalization has been segregated into debt and equity to arrive at the approved debt-equity ratio of 70:30. Accordingly, for the purpose of tariff, an amount of Rs. 105.44 lakh and Rs.1104.48 lakh in respect of Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line and 400 kV Hiriyr sub-station including 315 MVA Auto Transformer and LILO of Davangere-Hoody 400 kV D/C line at Hiriyr, respectively have been considered as equity as on 1.4.2004 and onwards. Therefore, debt-equity ratio and equity considered for tariff in each case are as under:

<b>Name of the Element</b>	<b>Equity as per order dated 5.7.2005 (Rs. in lakh)</b>	<b>Equity on account of additional capitalization during 2003-04 (Rs. in lakh)</b>	<b>Total equity (Rs. in lakh)</b>	<b>Debt-equity ratio considered</b>
Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line	38.79	66.65	105.44	81.90:18.10
400 kV Hiriyr sub-station including 315 MVA Auto Transformer and LILO of Davangere-Hoody 400 k V D.C line at Hiriyr	1013.15	91.33	1104.48	70.00:30.00



## **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. The petitioner has claimed return on equity of Rs. Rs. 107.16 lakh and Rs.1514.12 lakh in respect of additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line and 400 kV Hiriyur sub-station, etc, respectively after accounting for additional capitalization on works for the year 2003-04 and 2004-05 over equity considered in the order dated 5.7.2005 *ibid*. For the reasons given at para 17 above, the petitioner full claim for equity has not been allowed. The equity considered and the return on equity each year during the tariff period are given hereunder:

(Rs. in lakh)

<b>Name of the Element</b>	<b>Equity claimed</b>	<b>Equity allowed</b>	<b>Return on equity</b>
Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line	107.16	105.44	14.76
400 kV Hiriyur sub-station including 315 MVA Auto Transformer and LILO of Davangere-Hoody 400 k V D.C line at Hiriyur	1514.12	1104.48	154.63

## **INTEREST ON LOAN**

20. 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 as per regulation 54 minus cumulative repayment as admitted by the

Commission for the period up to 31.3.2004. The repayment for the period 2004-09 shall be worked out accordingly on normative basis.

(c) The transmission licensee shall make every effort to swap the loan as long as it results in net benefit to the long-term transmission customers. The costs associated with such swapping shall be borne by the long-term transmission customers.

(d) The changes to the loan terms and conditions shall be reflected from the date of such swapping and benefits passed on to the beneficiaries.

(e) 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.

21. The petitioner has claimed interest on loan in the following manner:

(i) Gross loans, cumulative loan, repayment up to previous year as admitted by the Commission in petition No. 182/2004 have been taken as the opening balance as on 1.4.2004.

(ii) 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.

(iii) Gross loans as admitted by the Commission in petition No. 182/2004 have been considered as notional loan and the weighted average rate of interest on loan for the year 2004-05 as per above has been multiplied with average notional loan to work out interest on loan.

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

(i) Details of net outstanding loan as on 31.3.2004, repayment schedule for the period 2004-09, rate of interest as on 1.4.2004, exchange rate as on

31.3.2004 etc. have been taken from the loan reconciliation statement submitted by the petitioner for working out weighted average rate of interest.

- (ii) Gross notional loan and cumulative repayment up to 31.3.2004 as submitted by the petitioner have been taken from the order dated 5.7.2005.
- (iii) Notional loan arising out of additional capitalization during the years 2001-04 has been considered.
- (iv) Tariff is worked out considering normative loan and normative repayments. Once the normative loan is arrived at, it is considered for all purposes in the tariff. Normative repayment is worked out by the following formula:

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

- (v) 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 during the year, it is considered as moratorium and depreciation during the year is deemed as normative repayment of loan during the year.
- (vi) Weighted average rate of interest on actual loan worked out as per (i) above is applied on the notional average loan during the year to arrive at the interest on loan.

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

(Rs. in lakh)

Details of loan	Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line						400 kV Hiriyur sub-station including 315 MVA Auto Transformer and LILO of Davangere-Hoody 400 k V D.C line at Hiriyur					
	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	477.00						2480.00					
Addition due to Additional Capitalisation	0.00						97.12					
Addition due to FERV	0.00						0.00					
Gross Normative Loan	477.00	477.00	477.00	477.00	477.00	477.00	2577.12	2577.12	2577.12	2577.12	2577.12	2577.12
Cumulative Repayment up to Previous Year		8.20	30.12	52.04	77.20	115.82		47.00	165.75	284.49	434.87	645.12
Net Loan-Opening		468.80	446.88	424.96	399.80	361.18		2530.12	2411.37	2292.63	2142.25	1932.00
Repayment during the year		21.92	21.92	25.16	38.62	38.62		118.75	118.75	150.38	210.25	210.25
Net Loan-Closing		446.88	424.96	399.80	361.18	322.55		2411.37	2292.63	2142.25	1932.00	1721.76
Average Loan		457.84	435.92	412.38	380.49	341.86		2470.75	2352.00	2217.44	2037.13	1826.88
Weighted Average Rate of Interest on Loan		8.45%	8.38%	8.31%	8.24%	8.19%		8.64%	8.57%	8.49%	8.42%	8.37%
<b>Interest</b>		<b>38.69</b>	<b>36.54</b>	<b>34.25</b>	<b>31.35</b>	<b>28.00</b>		<b>213.398</b>	<b>201.45</b>	<b>188.19</b>	<b>171.55</b>	<b>152.91</b>

## **DEPRECIATION**

24. 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.

25. The petitioner has claimed the depreciation on the capital expenditure on the basis of the capital cost and additional capital expenditure incurred from the date of the commercial operation to 31.3.2004 and 1.4.2004 to 31.3.2005 for each asset. We have, however, considered capital expenditure up to 31.3.2004. The calculations in support of depreciation allowed on the basis of capital cost as per para 14 above, are appended below:

(Rs. in lakh)

	Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line							400 kV Hiriyyur sub-station including 315 MVA Auto Transformer and LILO of Davangere-Hoody 400 k V D.C line at Hiriyyur						
	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		
As per order dated 6.8.2003	515.79						3493.15							
Addition during 2001-04 due to Additional Capitalization	66.65						188.45							
Addition during 2001-04 due to FERV	0.00						0.00							
Gross Block as on 31.3.2004	582.44	582.44	582.44	582.44	582.44	582.44	3681.60	3681.60	3681.60	3681.60	3681.60	3681.60		
Rate of Depreciation	3.76%						3.23%							
Depreciable value	90%	524.20	524.20	524.20	524.20	524.20	90%	3281.85	3281.85	3281.85	3281.85	3281.85		
Balance useful life of the asset		-	-	-	-	-		-	-	-	-	-		
Remaining Depreciable value		512.99	491.06	469.14	446.99	408.37		3262.80	3144.05	3025.31	2874.93	2664.68		
<b>Depreciation</b>		<b>21.92</b>	<b>21.92</b>	<b>21.92</b>	<b>21.92</b>	<b>21.92</b>		<b>118.75</b>	<b>118.75</b>	<b>118.75</b>	<b>118.75</b>	<b>118.75</b>		

## **ADVANCE AGAINST DEPRECIATION**

26. 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

27. 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.

28. In our calculation, the Advance Against Depreciation has been worked out as under:

- (i) 1/10th of gross loan is worked out from the gross notional loan.
- (ii) Cumulative loan as well as repayment of notional loan during the year have been considered as at para 23 above.
- (iii) Depreciation as worked out as per para 25 above.
- (iv) In addition to cumulative depreciation up to 2003-04 (including Advance Against Depreciation), depreciation on FERV for the period 2001-04 has been added to arrive at total cumulative depreciation amount as on 31.03.2004.

29. The details of Advance Against Depreciation allowed for each element are given hereunder:

(Rs. in lakh)

	Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line					400 kV Hiriyur sub-station including 315 MVA Auto Transformer and LILO of Davangere-Hoody 400 k V D.C line at Hiriyur				
<b>Advance against Depreciation Up to 31.3.2004</b>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>	<b>2007-08</b>	<b>2008-09</b>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>	<b>2007-08</b>	<b>2008-09</b>
1/10th of Gross Loan(s)	47.70	47.70	47.70	47.70	47.70	257.71	257.71	257.71	257.71	257.71
Repayment of the Loan	21.92	21.92	25.16	38.62	38.62	118.75	118.75	150.38	210.25	210.25
Minimum of the above	21.92	21.92	25.16	38.62	38.62	118.75	118.75	150.38	210.25	210.25
Depreciation during the year	21.92	21.92	21.92	21.92	21.92	118.75	118.75	118.75	118.75	118.75
(A) Difference	0.00	0.00	3.24	16.70	16.70	0.00	0.00	31.63	91.50	91.50
Cumulative Repayment of the Loan	30.12	52.04	77.20	115.82	154.45	165.75	284.49	434.87	645.12	855.36
Cumulative Depreciation/ Advance against Depreciation	33.13	55.05	76.97	99.12	137.75	137.80	256.54	375.29	525.66	735.91
(B) Difference	-3.01	-3.01	0.23	16.70	16.70	27.95	27.95	59.58	119.45	119.45
<b>Advance against Depreciation Minimum of (A) and (B)</b>	<b>0.00</b>	<b>0.00</b>	<b>0.23</b>	<b>16.70</b>	<b>16.70</b>	<b>0.00</b>	<b>0.00</b>	<b>31.63</b>	<b>91.50</b>	<b>91.50</b>

### **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 (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

31. The petitioner has claimed O & M expenses for 1.892 ckt- km of line length and 10 bays (1 each at Kolar and Hosur sub-stations and 8 at Hiriyur sub-station), which have been allowed. Accordingly, the petitioner's entitlement to O & M expenses has been worked out as given hereunder:

	(Rs. in lakh)									
	Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line					400 kV Hiriyur sub-station including 315 MVA Auto Transformer and LILO of Davangere-Hoody 400 k V D.C line at Hiriyur				
	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>	<b>2007-08</b>	<b>2008-09</b>	<b>2004-05</b>	<b>2005-06</b>	<b>2006-07</b>	<b>2007-08</b>	<b>2008-09</b>
O&M expenses for line length	0.00	0.00	0.00	0.00	0.00	0.43	0.45	0.47	0.48	0.50
O&M expenses for bays	56.24	58.50	60.84	63.26	65.80	224.96	234.00	243.36	253.04	263.20
<b>TOTAL</b>	<b>56.24</b>	<b>58.50</b>	<b>60.84</b>	<b>63.26</b>	<b>65.80</b>	<b>225.39</b>	<b>234.45</b>	<b>243.83</b>	<b>253.52</b>	<b>263.70</b>

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

33. 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, element wise capital expenditure on the date of commercial operation which has been considered as the historical cost for the purpose of the present petition and maintenance spares have been worked out accordingly by escalating 1% of the historical cost @ 6% per annum. The necessary details are given hereunder:

<b>Name of the Element</b>	<b>Date of Commercial Operation</b>	<b>Capital Expenditure (Rs. in lakh) on the date of commercial operation</b>	<b>Escalated spares Cost as on 1.4.2004 (Rs. in lakh)</b>
Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line	1.9.2003	515.79	5.34
400 kV Hiriyyur sub-station including 315 MVA Auto Transformer and LILO of Davangere-Hoody 400 kV D/C line at Hiriyyur	1.2.2004	3493.15	35.29

#### **(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 @ 10.25% based on SBI PLR as on 1.4.2004, which is in accordance with the 2004 regulations and has been allowed.

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

(Rs.in lakh)

	Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line					400 kV Hiriyyur sub-station including 315 MVA Auto Transformer and LILO of Davangere-Hoody 400 kV D/C line at Hiriyyur				
	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09
Maintenance Spares	5.34	5.66	6.00	6.36	6.74	35.29	37.41	39.65	42.03	44.55
O & M expenses	4.69	4.88	5.07	5.27	5.48	18.78	19.54	20.32	21.13	21.98
Receivables	22.49	22.52	22.57	25.30	25.17	121.70	121.26	126.02	135.04	133.67
Total	32.52	33.05	33.64	36.93	37.39	175.77	178.20	185.98	198.20	200.19
Rate of Interest	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%	10.25%
Interest	3.33	3.39	3.45	3.78	3.83	18.02	18.27	19.06	20.32	20.52

### TRANSMISSION CHARGES

35. A summary sheet showing basic details of capital cost and other related aspects is annexed to this order. The transmission charges being allowed are summarized below.

(Rs.in lakh)

	Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line					400 kV Hiriyyur sub-station including 315 MVA Auto Transformer and LILO of Davangere-Hoody 400 kV D/C line at Hiriyyur				
	2004-05	2005-06	2006-07	2007-08	2008-09	2004-05	2005-06	2006-07	2007-08	2008-09
Depreciation	21.92	21.92	21.92	21.92	21.92	118.75	118.75	118.75	118.75	118.75
Interest on Loan	38.69	36.54	34.25	31.35	28.00	213.40	201.45	188.19	171.55	152.91
Return on Equity	14.76	14.76	14.76	14.76	14.76	154.63	154.63	154.63	154.63	154.63
Advance against Depreciation	0.00	0.00	0.23	16.70	16.70	0.00	0.00	31.63	91.50	91.50
Interest on Working Capital	3.33	3.39	3.45	3.78	3.83	18.02	18.27	19.06	20.32	20.52
O & M Expenses	56.24	58.50	60.84	63.26	65.80	225.39	234.45	243.83	253.52	263.70
Total	134.95	135.11	135.45	151.78	151.02	730.18	727.54	756.09	810.26	802.00

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. These transmission charges shall be included in the regional transmission tariff for Southern Region and shall be shared by the regional beneficiaries in accordance with the 2004 regulations.

37. The petitioner by an affidavit dated 29.11.2005 has sought approval for the reimbursement of expenditure of Rs.60,918/- incurred on publication of notices in the newspapers. The petitioner shall claim reimbursement of the said expenditure directly from the respondents in one instalment in the ratio applicable for sharing of

transmission charges. The petitioner has also sought reimbursement of filing fee of Rs.5.00 lakh paid. A final view on reimbursement of filing fee is yet to be taken by the Commission for which views of the stakeholder have been received. The view taken on consideration of the comments received shall apply in the present case as regards reimbursement of filing fee.

**Impact of additional capitalization for the years 2001-04**

38. In the petitions filed by NTPC for approval of revised fixed charges for additional capitalization for the period 1.4.2001 to 31.3.2004, the Commission has decided that additional capital expenditure be added to the gross block as on 1.4.2001 to arrive at gross block as on 1.4.2004 for the purpose of fixation of tariff for the period 2004-05 to 2008-09. The Commission has further ordered that NTPC would be entitled to earn return on equity @ 16% on equity portion of additional capitalization approved and interest on loan at the rate as applicable during 2001-02 to 2003-04. The return on equity and interest on loan are payable on additional capitalization from 1<sup>st</sup> April of the financial year following the financial year to which additional capital expenditure relates. The additional capitalization for the year 2003-04 has no impact on return on equity and interest on loan during that year.

39. The petitioner is already billing the respondents on provisional basis in accordance with the Commission's interim directions. The provisional billing of tariff shall be adjusted in the light of final tariff now approved by us.

40. This order disposes of Petition No.105/2005.

Sd-/

sd-/

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**(A.H.JUNG)**  
**MEMBER**

**(BHANU BHUSHAN)**  
**MEMBER**

**(K.N.SINHA)**  
**MEMBER**

**(ASHOK BASU)**  
**CHAIRPERSON**

**New Delhi dated the 5<sup>th</sup> May 2006**

## SUMMARY SHEET

Name of the Company:		PGCIL								
Name of the Element:		Additional bays at Kolar and Hosur for second circuit of Kolar-Hosur 400 kV D/C line			400 kV Hiriyr sub-station including 315 MVA Auto Transformer and LILO of Davangere-Hoody 400 kV D./ C line at Hiriyr					
Actual DOCO:		1.9.2003			1.2.2004					
Petition No.:		105/2005			105/2005					
Tariff setting Period:		2004-09			2004-09					
				(Rs.in lakh)					(Rs.in lakh)	
1 Capital Cost of the Project					515.79			3493.15		
4 Admitted Capital Cost as on 1. 4.2004 for Calculation of Debt and Equity					515.79			<b>3495.15</b>		
5 Additional Capitalisation(works)					66.65			<b>188.458</b>		
2001-02					0.00			0.00		
2002-03					0.00			0.00		
2003-04					66.65			188.45		
Total					66.65			188.45		
6 Additional Capitalisation(FERV)					0.00			<b>0.006</b>		
2001-02					0.00			0.00		
2002-03					0.00			0.00		
2003-04					(0.00)			0.00		
Total					0.00			0.00		
7 Total Capital Cost as on 1. 4.2004(2+3+4)					582.445			<b>3681.60</b>		
8 Means of Finance :										
Debt		81.90%			477.00			70.00% 2577.122		
Equity		18.10%			105.44			30.00% 1104.48		
Total		100.00%			582.44			100.00% 3681.60		
9 Gross Loan as on 1. 4.2004					477.00			<b>2577.12</b>		
Cumulative Repayment up to 31.3.2009 :		8.20			154.45			<b>855.36</b>		
Repaid up to 31. 3.2004					0.00			47.00		
1. 4.2001 to 31. 3.2004 (ACE & FERV)					35.07			0.00		
From 1. 4.2004 to 31. 3.2009					146.25			808.36		
Total					154.45			855.36		
10 Balance Loan to be repaid beyond 31. 3.2009 :					322.55			<b>1721.76</b>		
11 Depreciation recovered up to 31. 3.09 :					154.45			<b>827.41</b>		
		Dep			AAD			Total		
Recovered up to 31. 3.2004		11.21			0.00			11.21		
1. 4.2001 to 31. 3.2004 (ACE & FERV)		0.00			0.00			0.00		
1. 4.2004 to 31. 3.2009		109.61			33.63			143.24		
Total					154.45			593.73 214.64 808.36		
12 Balance Depreciation to be recovered beyond 31. 3.2009 :					369.75			<b>2454.44</b>		
Capital cost for the purpose of Depreciation					515.79			3493.15		
ACE + FERV					66.65			188.45		
Capital cost as 1. 4.2004					582.44			3681.60		
Less: Land Cost					0.00			35.10		
					582.44			3646.50		
90% of Capital Cost as above					524.206			3281.85		
Cum. Depreciation to be recovered up to 31. 3.2009					154.45			827.41		
Balance					369.75			2454.44		