

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Coram

1. **Shri Ashok Basu, Chairman**
2. **Shri D.P. Sinha, Member**
3. **Shri G.S. Rajamani, Member**
4. **Shri K.N. Sinha, Member**

Petition No. 79/2001

In the matter of

Transmission tariff for 400 KV S/C of Hissar-Bhiwani Ckt-I with associated bays at Hissar and Bhiwani substations, One no. bay at Bhiwani sub-station for termination of one circuit of 400 KV Bawana-Bhiwani line and 400 KV S/C of Hissar-Bawana line up to Bhiwani along with associated bay at Hissar under Moga-Hissar-Bhiwani Transmission System.

And in the matter of

Power Grid Corporation of India Limited

...Petitioner

Vs

1. Rajasthan Rajya Vidyut Prasaran Nigam Ltd, Jaipur
2. Himachal Pradesh State Electricity Board, Shimla
3. Punjab State Electricity Board, Patiala
4. Haryana Vidyut Prasaran Nigam Ltd., Panchkula
5. Power Development Department, Govt. of J&K, Jammu
6. Uttar Pradesh Power Corporation Ltd., Lucknow
7. Delhi Vidyut Board, New Delhi
8. Chief Engineer, Chandigarh Administration, Chandigarh
9. Uttranchal Power Corporation Ltd., Dehradun ... Respondents

The following were present:

1. Shri D.D. Chora, Advocate, UPPCL
2. Shri Mahendra Kumar, EE, UPPCL
3. Shri U.K. Tyagi, Chief Manager, PGCIL
4. Shri P.C. Pankaj, DGM, PGCIL
5. Shri C. Kannan, Chief Manager, PGCIL
6. Shri Garuav, PGCIL
7. Shri S.C. Mehta, XEN (ISP), RRVPNL
8. Shri T.P.S Bawa, Addl. SE, PSEB
9. Shri R.K. Arora, XEN, HVPNL

ORDER
(DATE OF HEARING : 25.6.2002)

Petition No. 79/2001 was filed by PGCIL, the petitioner for approval of transmission charges for (i) 400 KV S/C of Hissar-Bhiwani Ckt-I line with associated bays at Hissar and Bhiwani sub-stations, (ii) One no. bay at Bhiwani sub-station for termination of one circuit of 400 KV Bawana-Bhiwani line (iii) 400 KV S/C of Hissar-Bawana line up to Bhiwani along with associated bay at Hissar under Moga-Hissar-Bhiwani Transmission System.

2. The assets in respect of which approval of transmission charges is prayed for are the components of Moga-Hissar-Bhiwani Transmission System. The approval for transmission charges sought by the petitioner was from the respective date of commercial operation and up to 31.3.2002 based on the terms and conditions of tariff contained in the Ministry of Power notifications dated 14.6.1996 and 16.12.1997. The Commission notified the terms and conditions of tariff on 26.3.2001, which have come into force w.e.f. 1.4.2001. Therefore, the petitioner sought approval of transmission charges up to 31.3.2001. The petitioner has filed separate petition for approval of transmission charges for the period from 1.4.2001 to 31.3.2004.

3. The Central Government in Ministry of Energy, Department of Power accorded its approval for 400 KV Moga-Bhiwani Transmission System in Northern Region vide letter dated 20.9.1988 at an estimated cost of Rs.95.16 crores,

including IDC of Rs.7.48 crores. However, subsequently there were changes made in the scope and structure of the Transmission System. Accordingly, Ministry of Power vide its letter dated 15.5.2001, accorded the administrative approval and expenditure sanction to the Revised Cost Estimate of Rs.150.90 crores (including IDC of Rs.19.75 crores) for 400 KV Moga-Hissar-Bhiwani Transmission System, with the revised scope of work as under:

(a) Transmission Lines

- (i) 400 KV D/C Moga-Hissar-Bhiwani Transmission Line (Moga-Hissar as D/C Section and Hissar-Bhiwani line as 2 x S/C)
- (ii) 220 KV D/C Hissar (Power grid) – Hissar (BBMB) line (Temporarily terminated at Hissar)

(b) Sub-stations

- (i) 400/220 KV sub-station at Hissar (2x315 MVA Auto-transformer)
- (ii) Extension of sub-stations at Moga and Bhiwani (BBMB)

4. The date of commercial operation of different components of the Moga-Hissar-Bhiwani Transmission System, forming the subject matter of this petition, their apportioned approved cost and the completion cost as furnished by the petitioner are given hereunder:

(Rs. in lakhs)

Sl. No.	Details of the Assets	Date of commercial operation	Apportioned Approved cost (Rs. in lakhs)	Completion cost (Rs. in lakhs)
1.	400 KV S/C of Hissar-Bhiwani Ckt-I line with associated bays at Hissar and Bhiwani sub-stations	1.7.1995	1390.00	1258.99
2.	One no. bay at Bhiwani sub-station for termination of one circuit of 400 KV Bawana-Bhiwani line	1.9.1997	1221.00	1249.52
3.	400 KV S/C of Hissar-Bawana line, up to Bhiwani along with associated bay at Hissar under Moga-Hissar-Bhiwani Transmission System	1.2.1998	925.00	810.93
TOTAL			3536.00	3319.44

5. Based on the above, the petitioner has claimed asset-wise transmission charges as under from the date of commercial operation of the respective asset and up to 31.3.2001.

(Rs. in lakhs)

Sl. No.	Details of the Assets	1995-96 (1.7.1995 to 31.3.1996)	1996-97	1997-98	1998-99	1999-2000	2000-2001
1.	400 KV S/C of Hissar-Bhiwani Ckt-I line with associated bays at Hissar and Bhiwani sub-stations	183.06	244.09	292.85	281.84	270.71	259.71
2.	One no. bay at Bhiwani sub-station for termination of one circuit of 400 KV Bawana-Bhiwani line	-	-	179.75 (1.9.1997 to 31.3.1998)	308.98	310.30	309.94
3.	400 KV S/C of Hissar-Bawana line, up to Bhiwani along with associated bay at Hissar under Moga-Hissar-Bhiwani Transmission System	-	-	32.23 (1.2.1998 to 31.3.1998)	191.13	173.82	171.50

TRANSMISSION CHARGES FOR PERIOD PRIOR TO 1.4.1997

6. Ministry of Power notification dated 16.12.1997 came into force w.e.f. 1.4.1997. 400 KV S/C Hissar-Bhiwani Ckt-I line with associated bays at Hissar and Bhiwani sub-stations was put under commercial operation w.e.f 1.7.1995. Therefore, the transmission charges from the date of commercial operation and up to 31.3.1997 in respect of this line have been calculated based on Ministry of Power notification dated 14.6.1996 and are based on average values of the different components of tariff.

TRANSMISSION CHARGES FROM 1.4.1997 ONWARDS

CAPITAL COST

7. Ministry of Power had notified transmission charges in respect of 400 KV D/C Moga-Hissar line, 220 KV D/C Hissar (Powergrid) – Hissar (BBMB) line and 400/220 KV sub-station at Hissar (New) which form part of Moga-Hissar-Bhiwani Transmission System, at a completion cost of Rs.113.13 crores. The completion cost of these assets already under commercial operation and that of the assets covered under this petition add up to Rs.146.32 crores and is well within the RCE of Rs.150.90 crores approved by Ministry of Power. Therefore, for the purpose of tariff calculations, the actual completion cost has been considered.

8. As per original investment approval dated 20.9.1988, the transmission system was to be commissioned within a period of 39 months from that date. Thus, the project was to be completed by December 1991. However, actual

commissioning of the different components has not kept pace with the prescribed schedule. It has been explained on behalf of the petitioner that originally the project was to be implemented by NHPC matching with time frame of Chamera Hydroelectric Project. However, the funding for the project was not tied up with the World Bank at the time of investment approval by the Central Government. World Bank loan was ultimately tied up in October 1990 and NHPC awarded packages for the works during December 1990 and January 1991. Meanwhile, in April 1989, the establishment of new sub-station at Bhiwani was approved as part of Nathpa - Jhakri Transmission System to be executed by NHPC. As 400/220 KV sub-station was already existing, the location of Bhiwani sub-station was shifted to Hissar by LILO of Moga-Bhiwani line. 220 KV Hissar (new) – Hissar (BBMB) line was also added to scope of work. The above narration of facts reveals that scope of Moga-Bhiwani line was revised and the revised scope was finalised in February 1991, after which tender activities were initiated by NHPC for construction of Hissar sub-station. With the formation of the petitioner company, the project was transferred to it on 1.4.1992. The petitioner company awarded contract for Hissar sub-station in April 1994. It is stated that the configuration of Hissar-Bhiwani-Bawana transmission line was finalised in October 1994 and consequently related work was executed. Notwithstanding the delay as explained above, the transmission project was completed to match with commissioning of Chamera HE Project and no bottle-neck in evacuation of power generated from Chamera HE Project was experienced. It is further explained that before the approval of Revised Cost Estimate of Moga-Hissar-Bhiwani Transmission Line by CCEA delays were duly

analysed by the Standing Committee. However, responsibility for delay was not attributed to the petitioner. We notice that the Revised Cost Estimate was approved by Ministry of Power vide its letter dated 15.5.2001 wherein it has taken note of the fact that the transmission system was already commissioned. In view of this, we are of the opinion that reasons for delay of execution of project, if any, are not attributable to the petitioner company.

DEBT-EQUITY

9. As per the original approval of the Central Government, Ministry of Power dated 5.4.1989, the total capital investment was to be met by debt and equity in the ratio of 50:50. However, the petitioner has employed debt and equity in the ratio varying from 42:58 to 53:47 for different assets covered by the present petition and commissioned after 1.4.1997. For the purpose of computation of tariff, we allow notional debt and equity in the ratio of 50:50 for assets commissioned before 1.4.1997 and actual debt and equity for assets commissioned after 1.4.1997 as per the Govt. of India notification dated 16.12.1997.

INTEREST ON LOAN

10. The interest on loan has been considered based on the loan amount, the repayment schedule and the interest rates contained in the petition. It is observed that the interest rates considered in different petitions for the same loan are different. It has been explained by the petitioner that these loans are carrying

floating rates of interest and the interest prevailing on the date of commercial operation has been considered in the tariff petitions. Any resetting of the interest rates during the tariff period shall have to be settled mutually between the parties. However, in the event of their inability to settle the matter, either party may approach the Commission for a decision. Subject to the above observations, actual interest rates as claimed in the petition on the loan amount indicated therein have been allowed.

O&M EXPENSES

11. As provided in Ministry of Power notification dated 16.12.1997, operation and maintenance expenses, including expenses on insurance, if any, for the first full year after commissioning of the transmission utility are to be calculated as percentage of actual expenditure @ 1.5% of actual expenditure at the time of commissioning of the transmission system in the plain area and @ 2% of such expenditure in the hilly area. The expenditure on O&M in each subsequent year is to be revised as per weighted price index taking into account 60 percentage of weightage for wholesale price index and 40 percentage of weightage for consumer price index.

12. O&M expenses for 400 KV line bay at Bhiwani under Bawana-Bhiwani line and 400 KV Hissar-Bawana line, covered by this petition have been calculated @ 1.5% of the capital expenditure in accordance with Ministry of Power notification dated 16.12.1997 by taking the actual expenditure incurred on the date of

declaration of commercial operation, that is, the year 1997-98, subject to the limit of apportioned cost of the respective assets. In respect of 400 KV S/C Hissar-Bhiwani Transmission Line (Ckt-I), O&M expenses for the period up to 31.3.1997 have been calculated @ 1.4.% of the capital expenditure as per the Ministry of Power notification dated 14.6.1996 and thereafter @ 1.5% as per Govt. of India notification dated 16.12.1997.

INTEREST ON WORKING CAPITAL

13. It has been provided in the Ministry of Power notification dated 16.12.1997 that interest on working capital shall cover

- (a) Operation and Maintenance expenses (cash) for one month
- (b) Maintenance spares at a normative rate of 1% of the capital cost. Cost of maintenance spares for each subsequent years shall be revised at the rate applicable for revision of expenditure on O&M of transmission system; and
- (c) Receivables equivalent to two months' average billing calculated on normative availability level.

14. The above methodology has been considered while computing working capital. The details of computation of working capital are given here under:

COMPUTATION OF WORKING CAPITAL

400 KV S/C OF HISSAR-BHIWANI TRANSMISSION LINE (CKT-I)

(Rs. in lakhs)

	1995-96 (on average basis)	1996-97 (on average basis)	1997-98	1998-99	1999- 2000	2000- 2001
O&M expenses	1.53	1.53	1.86	1.99	2.10	2.23
Maintenance Spares	12.59	12.59	12.59	13.43	14.22	15.07
Receivables	39.17	39.17	48.52	46.58	44.62	42.73
TOTAL	53.29	53.29	62.97	62.00	60.94	60.03

ONE NO. BAY AT BHIWANI SUB-STATION FOR TERMINATION OF ONE CIRCUIT OF 400 KV BAWANA-BHIWANI LINE

(Rs. in lakhs)

	1997-98	1998-99	1999-2000	2000-2001
O&M expenses	1.56	1.62	1.72	1.82
Maintenance Spares	12.50	12.99	13.75	14.58
Receivables	51.15	51.18	51.16	50.52
TOTAL	65.21	65.79	66.63	66.92

400 KV S/C OF HISSAR-BAWANA LINE UP TO BHIWANI ALONG WITH ASSOCIATED BAY AT HISSAR

(Rs. in lakhs)

	1997-98	1998-99	1999-2000	2000-2001
O&M expenses	1.02	1.02	1.08	1.15
Maintenance Spares	8.11	8.20	8.68	9.20
Receivables	32.10	31.65	28.68	28.26
TOTAL	41.23	40.87	38.44	38.61

15. In the petitioner's tariff calculations, interest on working capital is based on interest rate of 16.50% for the years 1995-96 and 1996-97 and the interest rate of 15.84% thereafter. We have, however, allowed the annual average SBI PLR of 16.50% for the years 1995-96 and 1996-97 and 14%, 13%, 12% and 11.50% respectively applicable during the financial years 1997-98, 1998-99, 1999-2000 and 2000-01, instead of the interest rates claimed by the petitioner in the petition.

DEPRECIATION

16. It has been contended by the respondents that depreciation should be adjusted towards the loan repayment. According to the petitioner, depreciation is a recognised cost element and it does not have any bearing on repayment of loan. In this context, the petitioner has relied upon the accounting principle of the Institute of Chartered Accountants of India. It is contended on behalf of the petitioner that depreciation is charged for the purpose of replacement of assets at the end of useful life of the assets and, therefore, cannot be linked with loan repayment. As the notification dated 16.12.1997 issued by Ministry of Power provides for charging of depreciation in the tariff, the same is being allowed in this petition. While allowing depreciation component of tariff, the weighted average depreciation rate of 6.25%, 6.20% and 5.37% for 400 KV S/C Hissar-Bhwani Transmission line (Ckt-I), 400 KV line bay at Bhiwani under Bawana-Bhiwani line (Ckt-I) and 400 KV S/C Hissar-Bawana line (Ckt-II) Transmission line respectively have been applied, and have been worked out on the basis of actual capital expenditure as per CA's Certificates annexed to the petition.

17. Based on the above discussion, the transmission charges approved by us are given below:

400 KV S/C OF HISSAR-BHIWANI TRANSMISSION LINE (CKT-I) WITH ASSOCIATED BAYS AT HISSAR AND BHIWANI SUB-STATIONS

(Rs. in lakhs)

	1995-96@	1996-97	1997-98	1998-99	1999-2000	2000-2001
Interest on Loan	97.50	97.50	86.86	74.45	62.04	49.64
Depreciation	44.97	44.97	78.69	78.69	78.69	78.69
O&M Charges	18.38	18.38	22.34	23.84	25.24	26.75
Return on equity	74.19	74.19	94.43	94.43	94.43	94.43
Interest on Working Capital	8.79	8.79	8.82	8.06	7.31	6.90
TOTAL	243.83	243.83	291.14	279.47	267.71	256.40

@ These figures are for the whole year. For part of the year, transmission charges are payable on pro-rata basis.

ONE NO. BAY AT BHIWANI SUB-STATION FOR TERMINATION OF ONE CIRCUIT OF 400 KV BAWANA-BHIWANI LINE

(Rs. in lakhs)

	1997-98 (1.9.1997 to 31.3.1998)	1998-99	1999-2000	2000-2001
Interest on Loan	50.16	85.99	85.29	80.50
Depreciation	45.17	77.44	77.44	77.44
O&M Charges	10.93	19.47	20.61	21.85
Return on equity	67.44	115.62	115.62	115.62
Interest on Working Capital	5.33	8.55	8.00	7.70
TOTAL	179.03	307.07	306.96	303.11

**400 KV S/C OF HISSAR-BAWANA LINE UP TO BHIWANI ALONG WITH
ASSOCIATED BAY AT HISSAR**

(Rs. in lakhs)

	1997-98 (1.2.1998 to 31.3.1998)	1998-99	1999- 2000	2000-2001
Interest on Loan	11.74	68.11	50.23	47.09
Depreciation	7.26	43.55	43.55	43.55
O&M Charges	2.03	12.29	13.01	13.79
Return on equity	10.11	60.66	60.66	60.66
Interest on Working Capital	0.96	5.31	4.61	4.44
TOTAL	32.10	189.92	172.06	169.53

18. In addition to the transmission charges, the petitioner shall be entitled to other charges like foreign exchange rate variation, income tax, incentive, surcharge and other cess and taxes in accordance with the notification dated 16.12.1997 issued by Ministry of Power.

19. The petitioner is already charging provisional tariff in respect of the assets covered by this petition. The provisional tariff being presently charged shall be subject to adjustment in the light of final tariff now approved by us.

20. The transmission tariff approved by us shall be included in the regional transmission tariff for Northern Region and shall be shared by the regional beneficiaries in accordance with para 7 of notification dated 16.12.1997.

21. This order disposes of Petition No. 79/2001.

Sd/-	Sd/-	Sd/-	Sd/-
(K.N. SINHA) MEMBER	(G.S. RAJAMANI) MEMBER	(D.P. SINHA) MEMBER	(ASHOK BASU) CHAIRMAN

New Delhi dated the 30th October 2002