

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Coram:**

1. **Shri Bhanu Bhushan, Member**
2. **Shri R. Krishnamoorthy, Member**

**Petition No. 56/2007**

**In the matter of**

Approval of provisional generation tariff of Omkareshwar Hydro Electric Project of Narmada Hydroelectric Development Corporation Limited, under Clause 79(1) of the CERC (Conduct of Business )Regulations 1999 and Section 79 (1) (a) of the Electricity Act, 2003.

**And in the matter of**

Narmada Hydroelectric Development Corporation Limited, Bhopal ...**Petitioner**

Vs

1. Narmada Valley Development Department, Bhopal
2. Madhya Pradesh State Electricity Board, Jabalpur . . . . . **Respondents**

**The following were present**

1. Shri. Harish Aggarwal, NHDC
2. Shri. Y. Narasimha Rao, NHDC
3. Shri. D.K.Srivastava, MPPTCL
4. Shri. S.K.Khiami, Govt. of Madhya Pradesh

**ORDER**

**(Date of Hearing: 25.9.2007)**

The petitioner has filed this petition seeking approval for provisional generation tariff in respect of power generated at Omkareshwar Hydroelectric Project (8x65 MW), for the period 1.5.2007 to 31.3.2008, in terms of the

Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations 2004 (hereinafter referred to as “the 2004 Regulations”).

2. This multi-purpose project is being constructed by the petitioner, which is a joint venture between NHPC and the State Govt. of Madhya Pradesh. It comprises of 520 MW (8x65 MW) of generating capacity for providing annual energy generation of 1167 MUs in a 90% dependable year. Unit I consists of Dam and appurtenant works, Unit-II consists of irrigation system of canals and distributaries, Unit-III includes power house and water conductor system along with allied works in power generation. Thus, Units I and III are essentially for power generation, named as power component and Unit II for irrigation system named as irrigation component. The State of Madhya Pradesh is the only beneficiary of the project.

3. The project is scheduled to be completed by February 2008. The petitioner has submitted that all civil works, hydro-mechanical works for Dam, HRC, TRC etc, have been completed. Three machines were commissioned till 11.9.2007. Though Machine No. I was scheduled to be commissioned on 1.5.2007, due to certain R& R related issues, the same could be commissioned only on 20.8.2007. The dates of commercial operation of all the machines are as under:

<b>Date of Commissioning</b>	<b>Actual</b>	<b>Anticipated</b>
Machine 1	20.8.2007	
Machine 2	25.8.2007	
Machine 3	11.9.2007	
Machine 4		27.9.2007
Machine 5		12.10.2007
Machine 6		24.10.2007
Machine 7		4.11.2007
Machine 8		15.11.2007

4. The petitioner has submitted during the hearing that Machine No. IV has been synchronized and is expected to be commissioned by October 2007 and Machine V to VIII are expected to be commissioned by November 2007.

5. In the present petition, the petitioner has claimed primary energy rate at Rs.55.48 paise /kWh and the provisional fixed charges for various periods from the date of commercial operation of Machines No. I to VIII are as follows:

(Rs in lakh)

Period	Provisional fixed charges
1.5.2007 to 31.5.2007	263
1.6.2007 to 30.6.2007	832
1.7.2007 to 31.7.2007	1171
1.8.2007 to 31.8.2007	1775
1.9.2007 to 30.9.2007	2011
1.10.2007 to 31.3.2008	17785
<b>Total</b>	<b>23838</b>

### **CAPITAL COST**

6. The cost of the power component at November 2002 price level as sanctioned by the Govt. of India works out to Rs.204193 lakh, including IDC, as per the following details:

Sl.No.	Description	Amount (in lakh)
1	Cost of works (1) Unit-I (Dam & appurtenant works) (2) Unit-III (Power house & water conductor system)	109132 90029
2	Total cost of works	199161
3	Irrigation component ( 16.75% of Unit-I)	18280
4	Net cost of power component	180881
5	Interest During construction on power component	23312
6	Total cost of the project (Power component)	<b>204193</b>

7. The petitioner by affidavit dated 19.9.2007 has submitted updated expenditure statement based on the audited balance sheet as on 31.3.2007 , the actual expenditure incurred up to 31.8.2007 and the anticipated expenditure for the period up to the date of commercial operation of Machine

No. VIII. The apportioned capital cost as on date of commercial operation of each machine submitted by the petitioner is as follows:

(Rs in lakh)		
<b>Nos of Machine</b>	<b>Period</b>	<b>Capitalised cost</b>
1	20.8.2007 to 24.8.2007	24593
2	25.8.2007 to 10.9.2007	49092
3	11.9.2007 to 26.9.2007	74847
4	27.9.2007 to 11.10.2007	100500
5	12.10.2007 to 23.10.2007	126125
6	24.10.2007 to 3.11.2007	153961
7	4.11.2007 to 14.11.2007	179365
8	15.11.2007 onwards	210232

8. Subsequently, based on the auditors certificate, the petitioner by affidavit dated 1.10.2007 submitted that the apportioned capital cost as on date of commercial operation of Machines No. I to III is Rs.74105.42 lakh and the actual capital expenditure incurred on all eight machines, as on 11.9.2007, is Rs.197353.19 lakh. Based on this, the provisional annual fixed charges have been worked out considering capital expenditure as on the date of commercial operation of the first three machines and expenditure actually incurred as on 11.9.2007, for the balance five machines.

9. At the hearing of the petition, it was submitted by the petitioner that on account of the ongoing court proceedings and the delay in shifting the project-affected families, the reservoir of the Omkareshwar project could be filled up to EL189.0M only, compared to the Full Reservoir Level at EL 196.60 M, as a result of which the maximum output achieved on continuous basis is 50 MW per machine after conducting the requisite tests, as against the installed capacity of 65 MW per machine.

10. As regards the reasons for delay in Rehabilitation & Resettlement (R&R) works causing loss of peak power, the petitioner has submitted that under R & R cost being charged to the project, they have provided sufficient funds to the Govt. of Madhya Pradesh, for making necessary payments to the affected families. It has been urged by the petitioner that the Govt. of Madhya Pradesh is responsible for implementing the various activities relating to the R & R and the petitioner should not be held responsible for the restricted filling of reservoir and consequent loss of peak power from the generating station.

11. It was submitted on behalf of the respondents that the machines cannot be said to be under commercial operation since, in accordance with the terms and conditions of tariff notified by the Commission on 29.3.2004, applicable from 1.4.2004, the date of commercial operation is reckoned only after the generating station has demonstrated the maximum continuous rating (MCR) of the machine. Accordingly, it was submitted by the respondents that power supplied from Omkareshwar project should be considered as infirm power, as MCR of machine has not been demonstrated by the petitioner.

12. We do not find any merit in the submission made on behalf of the respondents. The supply of infirm power is regulated during the short period after synchronization of the machine. In practical sense, commercial operation of a generating station or a unit is considered when it is operated according to the specified process of scheduling, starting with daily declaration of its capability to supply power followed by RLDC giving out its schedule, in consultation with beneficiaries and monitoring the output with reference to the

given schedule. In the present case, it appears that this process has already started for Machines No. I to III with effect from 20.8.2007, 25.8.2007 and 11.9.2007 respectively and the machines are continuously generating power for a long period of time. Accordingly, power generated cannot be considered as infirm power and provisional tariff needs to be determined. In terms of the 2004 regulations, the petitioner is entitled to receive capacity charge and energy charge for the generating units of the generating station.

13. The petitioner is not responsible for loss of peak power from the generating station (on account of delay in R&R work by the respondent) and therefore we consider this to be a fit case for relaxation of the provision under clause 13 of the 2004 regulations. The petitioner is entitled to recover full annual fixed charges on provisional basis. However, the petitioner is not entitled to claim incentive on account of capacity index until full maximum output of 65 MW per machine is achieved.

14. The petitioner has claimed an amount of Rs.4673 lakh, as incentive, to be recovered from the beneficiaries, towards reduction in IDC, on account of early commissioning of the generating station, in terms of clause 40(5) of the 2004 regulations. The petitioner may claim incentive at the time of determination of the final tariff for the generating station.

15. In the light of the above, the provisional annual fixed charges allowed are as follows:

(Rs in lakh)

<b>Machines</b>	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>V</b>	<b>VI</b>	<b>VII</b>	<b>VIII</b>
Anticipated COD	20.8.2007	25.8.2007	11.9.2007	27.9.2007	12.10.2007	24.10.2007	4.11.2007	15.11.2007
No of days	5	17	16	15	12	11	11	138
	366	366	366	366	366	366	366	366
<b>Approved capital cost as per Gol letter</b>								
Capital expenditure actually incurred as on DOCO	24563.82	49127.82	74105.42					
Unit wise capital expenditure as on 11.9.2007				24697.70	24643.67	24639.57	24635.46	24631.36
Capital cost considered for tariff	24563.82	49127.82	74105.42	98803.12	123446.79	148086.36	172721.82	197353.18
<b>Approved Debt-Equity ratio</b>								
Debt	70%	70%	70%	70%	70%	70%	70%	70%
Equity	30%	30%	30%	30%	30%	30%	30%	30%
Total	100%	100%	100%	100%	100%	100%	100%	100%
ROE	14%	14%	14%	14%	14%	14%	14%	14%
Depreciation rate as per petition	2.33%	2.33%	2.33%	2.33%	2.33%	2.33%	2.33%	2.33%
O&M	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%	1.50%
Rate of Interest on Working capital (SBIPLR)	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%
Spares for Working capital	1%	1%	1%	1%	1%	1%	1%	1%
Rate of Interest on loan	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%	7.00%
<b>Calculation of Annual Fixed Charges</b>								
Depreciation	572.34	1144.68	1726.66	2302.11	2876.31	3450.41	4024.42	4598.33
Interest on Loan	1203.63	2407.26	3631.17	4841.35	6048.89	7256.23	8463.37	9670.31
Return on Equity	1031.68	2063.37	3112.43	4149.73	5184.77	6219.63	7254.32	8288.83
Advance against Depreciation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
O&M expenses	368.46	736.92	1111.58	1482.05	1851.70	2221.30	2590.83	2960.30
Interest on Working capital	<b>100.75</b>	<b>201.51</b>	<b>303.96</b>	<b>405.27</b>	<b>506.35</b>	<b>607.41</b>	<b>708.46</b>	<b>809.49</b>
<b>Total</b>	<b>3276.86</b>	<b>6553.74</b>	<b>9885.79</b>	<b>13180.51</b>	<b>16468.02</b>	<b>19754.98</b>	<b>23041.39</b>	<b>26327.26</b>
<b>Calculation of Interest on Working capital</b>								
O&M expenses (1 month)	30.70	61.41	92.63	123.50	154.31	185.11	215.90	246.69
Spares (1% of capital cost)	245.64	491.28	741.05	988.03	1234.47	1480.86	1727.22	1973.53
Receivables(2 months of Annual fixed charges)	546.14	1092.29	1647.63	2196.75	2744.67	3292.50	3840.23	4387.88
Total Working Capital)	822.49	1644.98	2481.32	3308.29	4133.45	4958.47	5783.35	6608.10
Rate of Interest	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%	12.25%
Interest on Working capital	<b>100.75</b>	<b>201.51</b>	<b>303.96</b>	<b>405.27</b>	<b>506.35</b>	<b>607.41</b>	<b>708.46</b>	<b>809.49</b>

- Annual Fixed Charges as on date of commercial operation of each unit have been calculated on annual basis considering their actual /anticipated date of commercial operation as proposed by the petitioner. However, these charges shall be recovered from the beneficiaries proportionately in accordance with the actual date of commercial operation.

## **PRIMARY ENERGY RATE**

16. The petitioner has claimed tariff based on primary energy rate of 55.48 paise/kWh, equal to the energy charges of central sector thermal stations of

Western Region for the year 2005-06, as communicated by Western Regional Electricity Board. This is allowed.

17. With the above, the present petition for approval of provisional tariff stands disposed of. The annual fixed charges approved are subject to fresh scrutiny at the time for final determination of tariff as regards the factual details like capital expenditure, loans, etc. The petitioner is directed to file appropriate petition for approval of final tariff in accordance with the 2004 regulations, based on the actual audited accounts as on date of commercial operation of respective machines by 1.10.2008. Till then, the provisional tariff approved in this order shall apply.

18. Before parting, we wish to express our concern over the delay and consequent loss of peak power from the generating station. We earnestly hope that the Govt. of Madhya Pradesh will make all out efforts to solve the R&R problems of the project-affected families, in the interest of the consumers at large.

Sd/-

**(R.KISHNAMOORTHY)**  
**MEMBER**

Sd/-

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

New Delhi dated this 30<sup>th</sup> day of October 2007.