

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Coram:**

- 1. Shri Ashok Basu, Chairperson**
- 2. Shri Bhanu Bhushan, Member**
- 3. Shri. A.H. Jung, Member**

**Petition No. 36/2006**

**In the matter of**

Implementation of dynamic inflow forecasting and hydro scheduling in respect of Chamera – I HE project in pursuance of the directions of the Commission vide Order dated 8.12.2000 in Review Petition No. 17/2000

**And in the matter of**

National Hydroelectric Power Corporation Ltd.	<b>...Petitioner</b>
Vs	
1. Punjab State Electricity Board, Patiala	
2. Haryana Vidyut Prasaran Nigam Ltd., Panchkula	
3. Delhi Transco Ltd, New Delhi	
4. Uttar Pradesh Power Corporation Ltd., Lucknow	
5. BSES Rajdhani Power Ltd., New Delhi	
6. Rajasthan Rajya Vidyut Prasaran Nigam Ltd., Jaipur	
7. BSES Yamuna Power Ltd., New Delhi	
8. North Delhi Power Ltd., Delhi	
9. Jaipur Vidyut Vitaran Nigam Ltd., Jaipur	
10. Power Transmission Corporation of Uttaranchal Ltd., Dehradun	
11. Jodhpur Vidyut Vitaran Nigam Ltd., Jodhpur	
12. Himachal Pradesh State Electricity Board, Shimla	
13. Ajmer Vidyut Vitaran Nigam Ltd., Ajmer	
14. Chief Engineer & Secy, Engineering Deptt. Chandigarh	
15. Power Development Deptt. Govt of Jammu & Kashmir, Jammu	
	<b>...Respondents</b>

**The following were present:**

1. Dr. PC Jose, NHPC
2. Shri Naresh Kumar, NHPC
3. Shri P Kumar, NHPC

4. Shri Ansuman Ray, NHPC
5. Shri. S D Tripathi, NHPC
6. Shri TPS Bawa, PSEB
7. Dr. Trifgsy Oberon, Synexus Global, Canada
8. Shri Nishish Jha, Synexus Global, Canada
9. Shri. Naresh Goel, Sutron Corporation, USA

**ORDER**  
**(DATE OF HEARING: 1.8.2006)**

The petition has been filed by the petitioner seeking approval for the expenditure to be incurred in implementation of the comprehensive scheme for dynamic inflow forecasting and scheduling proposed to be installed in Chamera Hydro Electric Project Stage I as a pilot scheme. The petition is stated to be in pursuance of the Commission's directions vide order dated 8.12.2000 in Review Petition No. 17/2000.

2. The petitioner had filed a review petition No. 17/2006 seeking review of certain aspects of the order dated 4.1.2000 in Petition No. 2/99, in relation to their applicability to hydro generating stations. While disposing off the review petition, the Commission, vide its order dated 8.12.2000 directed as follows:

“During the hearing, on review petition we had asked NHPC to devise a system by which the inflows likely to be available within the next 24 hours and particularly during the next 3-4 hours should be forecast. We had desired that NHPC should intimate to the Commission about the estimated time frame for the implementation of such scheme. NHPC is directed to prepare a comprehensive scheme, with associated costs involved for forecasting /measurement of inflows for all the projects and submit the same for the approval of Commission.”

3. The petitioner has submitted that it proposes to install the system at Chamera Hydro Electric Project Stage I as a pilot project and will implement the

same at other generating stations in a phased manner. The petitioner has made the following prayers:

(a) The Hon'ble Commission may consider the expenditure to be incurred on the implementation of the comprehensive scheme for dynamic inflow forecasting and hydro scheduling for the purpose of tariff for which a separate petition shall be filed by the petitioner after completion and implementation of the system.

(b) The actual expenditure incurred on implementation of the comprehensive scheme as certified by the statutory auditors may be considered for determination of tariff of the relevant years by the Hon'ble Commission.

4. According to the petitioner, the proposed system comprises two major components viz. inflow measurement arrangement and Decision Support System software which consists of inflow forecast module as well as the short-term hydro optimization module for generation scheduling. The petitioner has summarised the advantages of the proposed system as under:

(a) Real-time information on river flows and watershed weather (precipitation and temperature) will help to determine the optimum energy generation profile for the day ahead and also to help in reducing the extent and magnitude of next day/time corrections for deficits and also anticipate the surplus availability in advance.

(b) Optimization process considers the effect of channel lag time to determine the timing of the planned generation commitment.

(c) Unit commitment can be planned for optimum generation by making maximum use of water availability.

(d) The vista software has advanced features to manage an evolving competitive market scenario in future.

(e) For the case of reservoir schemes, optimum usage of the reservoir storage can be achieved by considering the reservoir characteristics of the entire basin including upstream storages and plants, other system constraints, etc.

5. The petitioner has intimated the estimated total financial implication of the proposed scheme as Rs. 320.12 lakh including annual recurring charges for one year ( US\$ 7,06,000 towards the cost of the total system including AMC for one year plus Rs. 9,48,300/- towards cost of computer and annual satellite license charges), but excluding taxes.

6. On behalf of the beneficiaries, PSEB desired to know the benefits accruing to the respondents through the introduction of the proposed system. It also wanted to know what benefits have accrued to other agencies like CWC who have installed the system.

7. The dynamic inflow system is proposed to be introduced in pursuance of the order issued six years ago by this Commission. There is not any noticeable difference between the scheduled and actual generation by the petitioner. Besides, the proposed system is not likely to result in any monetary benefit to the SEBs, although it may give them some operational advantages. Under these circumstances it may not be fair to impose the cost of the proposed system on the beneficiaries.

8. Accordingly, we direct that the petitioner may go ahead with the installation of the proposed system if it is convinced about the utility of the system for improving its functional efficiency. The question of including the cost of the system in the tariff will be considered based on cost - benefit analysis.

9. This order disposes off petition No. 36/2006

Sd/-  
**(A H Jung)**  
**MEMBER**

Sd/-  
**(BHANU BHUSHAN)**  
**MEMBER**

Sd/-  
**(ASHOK BASU)**  
**CHAIRPERSON**

**New Delhi dated the 29<sup>th</sup> August 2006**