



**BIHAR ELECTRICITY REGULATORY COMMISSION**  
Ground Floor, Vidyut Bhavan-II  
Jawahar Lal Nehru Marg  
Patna – 800 021

## **TARIFF ORDER**

**Passed in Case No. TP- 01 of 2009**

**on**

**22<sup>nd</sup> December, 2009**

**In the matter of :**

**Determination of Aggregate Revenue Requirement (ARR) And  
Generation Tariff for the FY 2009-10 for  
Bihar State Hydroelectric Power Corporation Ltd.**

**Bihar State Hydroelectric Power Corporation Ltd. - Petitioner**  
**Sone Bhavan**  
**Birchand Patel Marg**  
**Patna**

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Conditions for Determination of Tariff) Regulations, 2007 and all other powers enabling in this behalf and after taking into consideration the submissions made by the BHPC, objections/suggestions received from the stakeholders and the response of BHPC thereon and perusal of other relevant materials and facts placed on the record, issues this order, determining the ARR and generation tariff for electricity generated by small/mini hydroelectric powers plants of BHPC for the financial year 2009-10. It has been observed that the annual accounts of BHPC have not been audited by the Statutory auditors/ Accountant General, being a mandatory requirement and number of discrepancies noticed in the accounts and therefore, **the generation tariff determined in this order is provisional.**

The Commission to ensure transparency in the process of tariff determination conducted Public Hearing on 11<sup>th</sup> December, 2009 at Patna providing platform to the stakeholders and members of the public to discuss the issues raised and response of the BHPC thereon.

The order is in 5 (Five) Chapters which include detailed analysis of the ARR, determination of ARR and generation tariff for the financial year 2009-10. The order is based on the revenue requirement and also the corresponding expenditure of the BHPC for the whole year 2009-10. Though usually tariff should have been made applicable from the beginning of the financial year but due to belated submission of tariff petition by Bihar State Hydroelectric Power Corporation Ltd., it could not be implemented in time. Hence **this order would be effective w.e.f 1<sup>st</sup> December 2009.** The Bihar State Hydroelectric Power Corporation Ltd. should ensure implementation of the order from effective date after issuance of a Public Notice in leading newspaper of the State on or before 29<sup>th</sup> December 2009.

The Commission directs the Bihar State Hydroelectric Power Corporation Ltd. to take all necessary steps for implementation of this order, so that order is made applicable strictly in terms of the approved **provisional** tariff. The directions contained in the Chapter – 5 should be strictly adhered to and compliance thereof, as ordered by the Commission must be placed before it within the stipulated time.

This order shall remain in force till 31<sup>st</sup> March 2010 or till the next tariff order of the Commission.

**Sd/-**  
**(S.K. JAYASWAL)**  
**MEMBER**

**Sd/-**  
**(B.K. HALDER)**  
**CHAIRMAN**

# Chapter-1

## Introduction

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### **1.1 BACKGROUND**

**1.1.1** The Bihar Electricity Regulatory Commission (hereinafter referred to as 'Commission' or 'BERC') has been established by the Government of Bihar under Section 17 of the Electricity Regulatory Commissions Act, 1998 vide Government of Bihar Notification no. 1284 dated 15<sup>th</sup> April, 2002. The Electricity Regulatory Commissions Act, 1998 along with the Indian Electricity Act, 1910 and Electricity (Supply) Act, 1948 was repealed by Section 185 of the Electricity Act, 2003. The first proviso of Section 82 (1) has ensured continuity of the Commission along with that of State Electricity Regulatory Commission by laying down that the State Regulatory Commission established by the State Govt. under Section 17 of Electricity Regulatory Commissions Act, 1998, and functioning as such immediately before the appointed date shall be the State Commission for the purpose of the Electricity Act, 2003.

**1.1.2** The functions of State Regulatory Commission have been specified under Section 86 of the Electricity Act, 2003. One of the major functions of the State Commission is determination of tariff of generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail as the case may be in the State. Further Section 62 (1) of the Act also stipulates that the Commission shall determine the tariff in accordance with the provisions of the Act for supply of electricity by a generating company to a distribution licensee, transmission of electricity, wheeling of electricity and also retail sale of electricity.

**1.1.3** The Bihar State Hydroelectric Power Corporation Ltd (herein after referred to as 'BHPC' or 'Corporation') is an undertaking of Government of Bihar registered under Companies Act vide Regn. No. 1627 of 1981-82 and is working since its incorporation in 1982 with the following objects viz (a) to plan, promote, organize, undertake, coordinate, finance, establish, develop, operate and engage in the business of setting up of electrical power projects particularly hydro electric power.

### **1.2 AGGREGATE REVENUE REQUIREMENT (ARR) AND TARIFF FILING**

BHPC filed ARR and tariff petition before the Commission on 31.03.2009 for approval of Aggregate Revenue Requirement (ARR) of Rs. 2335.48 lakhs for the year 2009-10 and seeking revision of tariff to meet the aforesaid ARR of Rs. 2335.48 lakhs. On scrutiny of the tariff petition, it was observed that it does not contain necessary supporting information / particulars / data in respect of project wise details of loans

outstanding and corresponding interest thereon; project wise item wise details of gross fixed assets and depreciation worked out as per the revised CERC rates on straight line method and subsidy, if any, received and audited accounts. The Commission communicated its observations and deficiencies in the petition to BHPC vide letter No. 124 dated 09.04.2009 and letter No. 177 dated 28.05.2009.

In response to the above letters, the BHPC furnished some information vide letter no. 2744 dated 12.08.2009. It did not contain all the required information called for by the Commission.

The Commission nevertheless took the tariff petition filed on 31.03.2009 on record on 02.09.2009 and marked as case No. TP - 01/2009. BHPC was also asked separately to furnish the remaining required information. The BHPC instead of making this information submitted a revised ARR on 23.09.2009.

### **1.3 PUBLICATION OF TARIFF PROPOSAL FOR NOTICE OF THE PUBLIC**

In accordance with the provisions under Section 64(2) & 64(3) of Electricity Act 2003, the Commission with a view to ensure transparency in the process took a decision to call objections / suggestions from public and also hold public hearing. As communicated by the Commission, the BHPC published the tariff petition, in abridged form, in the leading daily newspapers of the state having wide circulation and also posted it on BHPC website inviting objections and suggestions from stakeholders / consumers. The public notice was published in the newspapers as detailed below.

	<b><u>Name of the Newspaper</u></b>	<b><u>Language</u></b>	<b><u>Date of Publication</u></b>
1.	The Hindustan Times	English	12.09.2009
2.	Dainik Jagran	Hindi	12.09.2009

Written objections / suggestions / comments on the petition in question were received from the Bihar State Electricity Board (BSEB), deemed licensee expressing concern over the proposed increase in tariff rates and the working of BHPC raised some objections. No other objection was received. These objections / comments have been discussed in brief, in Chapter No. 3 of this order.

### **1.4 PUBLIC HEARING**

After receiving response from BHPC on the objections / comments raised by BSEB, a public notice was published in the following leading newspapers on 06.12.2009 giving due information to the general public, Interested parties, objectors and the consumers for conducting public hearing at Patna on 11.12.2009.

Sl.	<b><u>Name of the Newspaper</u></b>	<b><u>Language</u></b>	<b><u>Date of Publication</u></b>
1.	The Hindustan Times	English	06.12.2009
2.	Dainik Jagran	Hindi	06.12.2009

Public hearing was conducted as scheduled on 11<sup>th</sup> December 2009 in the Commission's office at Patna.

The following participated in the public hearing

- (1) Bihar State Electricity Board represented by
  - (i) Shri V.K. Sinha, Chief Advisor,
  - (ii) Shri Rakesh, Executive Engineer
  
- (2) Bihar State Hydroelectric Power Corporation Ltd. represented by
  - (i) Shri Kapildeo Prasad, Advisor (Finance)
  - (ii) Shri Manan Thapar, Consultant
  - (iii) Shri Ghanashyam Mallik, Superintending Engineer
  - (iv) Shri Kamlesh Chandra Thakur, Secretary to MD
  - (v) Shri P. Puneet, Consultant

# Chapter-2

## Operational Performance of BHPC Power Stations

### 2.1 GENERAL

The Aggregate Revenue Requirement (ARR) and tariff proposal for the year 2009-10 filed by BHPC has been examined and the operational and financial performance levels of BHPC analyzed.

### 2.2 A BRIEF OVERVIEW OF BHPC

The BHPC is a generating company responsible for generation of hydel power, in the state of Bihar. BHPC owns and operates small and mini hydel power projects in the state. One of the main functions is to set up hydroelectric power stations in the State of Bihar and their operation and maintenance. Presently there are nine hydroelectric power stations in operation with a total capacity of 51.10 MW.

### 2.3 GENERATION

2.3.1 The installed generation capacity and other details of the hydroelectric power stations in operation being operated by BHPC are given in Table 1 below :

**Table – 1**  
**Installed Generation Capacity of Power Stations**

S.No	Project Name	Capacity	Date of Commissioning	Date of commercial operation	Designed Energy (MU)
1	Eastern Gandak Canal HEP, Valmikinagar	3x5=15 MW	9/95, 6/96, 11/97	9/95, 6/96, 11/97	98.00
2	Sone Western Link Canal HEP, Dehri-on-sone	4x1.65=6.6 MW	1/93, 3/93, 4/93,8/93	1/93, 3/93, 4/93, 8/93	41.00
3	Sone Eastern Link Canal HEP, Barun	2x1.65=3.3 MW	3/96,6/96	3/96, 6/96	19.45
4	Kosi HEP, Birpur	4x4.8=19.20 MW	1970-75	1970-75	98.00
5	Agnoor SHP	2x0.5=1 MW	6/2006	6/2006	4.48
6	Dhelabagh SHP	2x0.5=1 MW	8/2006	8/2006	8.15
7	Nasriganj SHP	2x0.5=1 MW	7/07	7/2007	8.15
8	Jainagara SHP	2x0.5=1 MW	12/08	Dec. '08 (Under Trial Run)	7.20
9	Triveni SHP	2x1.5=3 MW	2/09	2/09	14.94
	<b>Total</b>	<b>51.1 MW</b>			<b>299.37MU</b>

2.3.1 Project-wise actuals generation during the last three years as per subsequent filing with affidavit vide letter no. 4540 dated 15.12.2009 and estimated generation for FY 2009-10 are furnished in Table 2 below :

**Table – 2**  
**Project wise generation**

S.No	Name of the Power Station	Installed Capacity (MW)	Actual Generation (MU)			As per ARR 2009-10 (projected) (MU)
			2006-07	2007-08	2008-09	
1	Eastern Gandak Canal HEP, Valmikinagar	3x5=15 MW	25.35	19.62	21.17	22.50
2	Sone Western Canal HEP, Dehri-on-sona	4x1.65=6.6 MW	16.70	16.46	16.94	15.15
3	Sone Eastern Canal HEP, Barun	2x1.65=3.3 MW	8.89	8.79	9.77	10.00
4	Kosi HEP, Birpur	4x4.8=19.20 MW	16.86	16.08	3.45	6.00
5	Agnoor SHP	2x0.5=1 MW	0.81	0.94	0.96	10.00
6	Dhelabagh SHP	2x0.5=1 MW	0.00	0.89	1.21	
7	Nasriganj SHP	2x0.5=1 MW	-	1.12	1.53	
8	Jainagara SHP	2x0.5=1 MW	-	-	0.01	
9	Triveni SHP	2x1.5=3 MW	-	-	0.39	
	<b>Total</b>	51.1	68.61	63.90	55.43	63.65 or say 64.00

The project-wise generation details as submitted by BHPC are summarized below :

- 2.3.2 Eastern Gandak Canal HEP, Valmikinagar consisting of 3 units of 5MW each was commissioned during the years 1995-96 to 1997-98. The annual designed energy as per DPR is 98 MU. BHPC has estimated the generation for FY 2009-10 at 22.50 MU against designed energy of 98 MU based on the discharge of water to the canal depending on irrigation requirement and also availability of BSEB network for evacuating power. The highest generation achieved was 27.86 MU during 2005-06.
- 2.3.3 Sone Western Link Canal HEP, Dehri consisting of 4 units of 1.65MW each was commissioned during the year 1993-94. The annual designed energy as per DPR is 41 MU. BHPC has estimated the generation for FY 2009-10 at 15.15 MU. The highest generation achieved was 18.57 MU during FY 2005-06. BHPC has estimated generation of 15.15 MU during FY 2009-10 on the basis of discharge of water into canal depending upon irrigation requirement and also availability of BSEB network to evacuate power.
- 2.3.4 Sone Eastern Link Canal HEP, Barun consisting of 2 units of 1.65MW each was commissioned during the year 1996-97. The BHPC has estimated the generation at 10.00 MU for the year FY 2009-10, against the designed energy of 19.45MU on the basis of discharge of water to the canal depending on irrigation requirement and

availability of BSEB network for evacuating power. The highest generation achieved was 11.41 MU during 2005-06.

- 2.3.5 Kosi Hydro Power Station (Kataiya) Birpur consisting of 4 units of 4.8MW each was commissioned during the year 1970-75. This project was transferred from BSEB to BHPC on 16/11/2003 vide Government of Bihar notification No. 11 dated 21/06/2003. BHPC has mentioned that the asset value is totally depreciated and no loan is outstanding against this project and the residual value of the asset is not taken into the books of account relating to BHPC so far.

BHPC has estimated the generation from this project at 6.00 MU for the year 2009-10 as against designed energy of 98.00 MU. It is stated that the project is closed since 18/08/2008 due to breach of main Kosi embankment and is likely to start operation from the month of November 2009 after repair of breached embankment. Therefore, the target for five months has been taken into account and estimated the generation at 6.00 MU for the year 2009-10 on the basis of availability of BSEB network and availability of water in canal depending upon irrigation requirement. The highest generation achieved was 16.86 MU during the year 2006-07.

- 2.3.6 The Agnoor Small Hydro Project consists of 2 units of 0.5MW each commissioned in June, 2006. The highest generation is 0.96 MU during 2008-09 against the designed energy of 4.48 MU.
- 2.3.7 The Dhelabagh Small Hydro Project consists of 2 units of 0.5MW each commissioned in August 2006. The highest generation is 1.21 MU during 2008-09 against the designed energy of 8.15 MU.
- 2.3.8 Nasriganj Small Hydro Project consists of 2 units of 0.5MW each commissioned in July, 2007. The highest generation is 1.53 MU during 2008-09 against the designed energy of 8.15 MU.
- 2.3.9 Jainagara Small Hydro Project consists of 2 units of 0.5MW each commissioned in December, 2008. It is still under trial run. It has generated 0.01 MU during 2008-09 as against the designed energy of 7.20 MU.
- 2.3.10 Triveni Small Hydro Project, Valmikinagar consists of 2 units of 1.5MW each commissioned in February, 2009. It has generated 0.39 MU during 2008-09 (Two months) as against designed energy of 14.94 MU.
- 2.3.11 BHPC has estimated generation from the above five projects namely Agnoor, Dhelabagh, Nasriganj, Jainagara and Triveni at 10.00 MU for the year 2009-10 on the basis of availability of water in canal depending upon irrigation requirement and availability of BSEB network.

2.3.12 All the nine projects under operation are nowhere near the normative capacity index prescribed under Regulation 49(1) of the BEREC (Terms and Conditions of Tariff), Regulations, 2007. BHPC stated that this is mainly due to control on water release to meet irrigation requirements and non-availability of BSEB network to evacuate power.

## 2.4 Estimated Generation during FY 2009-10

2.4.1 The BHPC has estimated the generation from all the nine projects in operation at 64.00 MU for the FY 2009-10 as detailed under Table-2 above.

2.4.2 The details of generation targets fixed by CEA and achieved by BHPC during the last 3 years 2006-07, 2007-08 and 2008-09 are summarized in the Table 3 below :

**Table - 3**  
**Generation Target & Achievement – Last 3 years**

Year	Target fixed by CEA (MU)	Achieved (MU)	% Achieved
2006-07	62.00	68.61	110.66%
2007-08	71.00	63.90	90.00%
2008-09	71.00	55.43	78.10%

2.4.3 BHPC has mentioned that the generation achieved vis-à-vis targets fixed by the Central Electricity Authority (CEA) during the last 3 years is 90% on an average. BHPC initially in January, 2009 proposed generation targets of 77.00 MU for FY 2009-10 to CEA. However in the ARR petition BHPC has proposed 64.00 MU generation by reducing generation from 12.00 MU to 6.00 MU at Kosi SHP due to breach in main Kosi embankment. BHPC has now projected to achieve 90% of the estimated target of 71MU as per the proposals submitted to CEA for the year 2009-10 as detailed in the Table - 4 below :

**Table - 4****Project wise Target and Estimated Generation- 2009-10 (Achievement)**

(In MU)

S.No	Project Name	CEA Target & Actual Generation for 2009-2010					
		Upto September 2009		October 2009- March 2010		Total Target	Projected
		Target	Actual	Target	Projections		
1	Eastern Gandak canal HEP, Valmikinagar	14.00	8.26	11.00	14.24	25.00	22.50
2	Sone Western Link canal HEP, Dehri - on - Sone	8.50	6.45	8.50	8.70	17.00	15.15
3	Sone Eastern Link canal HEP, Barun	6.00	4.10	5.00	5.90	11.00	10.00
4	Kosi HEP, Birpur			6.00	6.00	6.00	6.00
5	Agnoor SHP						
6	Dhelabagh SHP						
7	Nasriganj SHP	6.00	3.00	6.00	7.00	12.00	10.00
8	Jainagara SHP						
9	Triveni SHP						
	<b>Total</b>	<b>34.50</b>	<b>21.81</b>	<b>36.50</b>	<b>41.84</b>	<b>71.00</b>	<b>63.65 say 64</b>

BHPC has proposed generation at 64 MU against the target of 71.00 MU for the year 2009-10.

**2.5 Net Generation**

BHPC has proposed auxiliary consumption of 0.5% and transformation loss of 0.5% and energy available for sale as 63.36 MU for FY 2009-10 as detailed below :

S.N	Particulars	MU
(a)	Target proposed for 2009-10	71.00
(b)	Proposed generation for 2009-10	64.00
(c)	Auxiliary consumption (0.5%)	0.32
(d)	Transmission loss (0.5%)	0.32
(e)	Energy available for sale	63.36

## Chapter-3

# Objections/Suggestions from the Consumers/ Stakeholders on the Tariff Petition and Response of BHPC

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### 3.1 INVITING OBJECTIONS/ COMMENTS ON TARIFF PETITION

The salient features of the Aggregate Revenue Requirement (ARR) and Tariff Petition for financial year 2009-10 filed by the BHPC was published on 12.09.2009 in the leading newspapers of the state inviting objections/ suggestions/ comments on the tariff proposals from the public and stakeholders by 06.10.2009 which was further extended upto 22.10.2009. The newspapers in which public notice was published are given in Chapter- 1. Only BSEB has submitted objection/comments on the tariff petition.

### 3.2 PUBLIC HEARING

In order to ensure transparency in the process of determination of tariff as envisaged in the Electricity Act, 2003, public hearing was conducted at Patna on 11<sup>th</sup> December 2009.

### 3.3 OBJECTIONS/ SUGGESTIONS OF PUBLIC AND RESPONSE OF BHPC

The objections/comments submitted by BSEB on the tariff petition are discussed below:

BSEB in its letter No. 1914 dated 22.10.2009, has stated that norms shall be as per CERC (Terms and Conditions for Tariff Determination from Renewable Energy Sources) Regulations 2009.

1. Normative Capital Costs for small hydro projects as per above regulations are as follows :

	<b>Project Size</b>	<b>Capital Cost (Rs. Lakhs / MW)</b>
(a)	Below 5 MW	550
(b)	5 MW – 25 MW	500

Capital Cost for the subsequent years shall be determined on the basis of the indexation formula as outlined in the clause 29 of above CERC Regulations.

2. O&M Expenses for the first year of control period (2009-10) shall be

	<b>Project Size</b>	<b>O&amp;M Cost (Rs. Lakhs / MW)</b>
(a)	Below 5 MW	17.00
(b)	5 MW – 25 MW	12.00

These normative O&M expenses allowed by CERC in the above regulations are to be escalated at the rate of 5.72% P.A for the tariff period for determination of levelised tariff.

3. Normative capacity utilization factor 30%.

4. Normative Auxiliary Consumption 1%

5. **Tariff Structure & design**

Tariff for the renewable energy technologies shall be single part tariff and consist of the following fixed cost component.

(a) Return on equity

(b) Depreciation

(c) Interest on loan capital

(d) Interest on working capital

(e) Operation & Maintenance expenses

The generic tariff shall be determined on levelised basis for the tariff period.

6. Dispatch principles for electricity generated from Renewable Energy sources:

As per provision of clause 11 of CERC (Terms and Conditions for Tariff Determination from Renewable Energy Sources) Regulation, 2009, small hydro electric plant shall be treated as “Must Run” power plant and shall not be subjected to “Merit Order Dispatch” principles.

7. The petitioner has not submitted any information regarding capital cost and financing plan, expected expenditure and full details of subsidy / incentive received or due to be received.

8. Power Purchase Agreement (PPA) not yet concluded.

9. Kataiya project (KHPS) earlier under BSEB was transferred to BHPC as per BSEB notification No. 46 dt. 31.07.2003 in compliance of the Energy Department, Govt. of Bihar Notification No. 11 dated 21<sup>st</sup> June, 2003 and circumstantial approval of BSEB under the following conditions.

“The generation of power from KHPS equal to the power generated in the last one year shall be made available to BSEB free of cost and the generation higher than the power generated in last one year and after R&M of the unit shall be made available to BSEB at the rate decided by Govt or BERC.”

BSEB has stated that as per the agreement signed between India and Nepal in respect of the Kosi hydel power station under which Bihar has committed to supply 50% (10 MW) of the power corresponding to the installed capacity to Nepal at the subsidized rate (i.e. 14/10 of the applicable power exchange rate) and supply of power beyond 50% will be applicable rate decided by Indo-Nepal power exchange committee.

10. Tariff for central sector Hydel power station Rangit is Rs. 1.80/KWH and Teesta V is Rs. 1.62 / KWH and that of Chukka is Rs. 1.59/ KWH and Tala HEP is Rs. 1.84 / KWH. Hence requested to consider the above rates while finalizing tariff to BHPC.
11. Dehri-on-Sone and Valmikinagar have no suitable export / import meters resulting in discrepancies.

### **BHPC Response**

BHPC in its reply dt. 4.11.09 has stated that –

1. CERC (Terms and Conditions for Tariff Determination from Renewable Energy Sources) Regulations, 2009 shall not be applicable to small hydro power projects of BHPC as the energy from these projects is meant for intra state generation and the tariff for such purpose shall be determined by the BEREC under section 62 read with section 86 of the Act.
2. All the required data including subsidy received and due to be paid are furnished.
3. PPA preparation is under process
4. Kosi Hydel (KHPS) though transferred to BHPC from BSEB as per GOB notification No. 11 dt. 21.6.2003, the assets are not yet transferred.

BHPC submitted that BSEB has been supplying the committed power (50% of installed capacity) to Nepal even before the transfer of Kosi hydel power station to BHPC. That there was inadequate generation of power from KHPS even when the plant was transferred to BHPC. The transfer notification of Govt. of Bihar and subsequent notification of BSEB also does not mention that BHPC shall be responsible to supply requisite power to Nepal neither does the notification mention that BHPC shall be held liable to provide or compensate for the shortage of power from plant.

5. It is not correct to compare with central sector hydro projects like Chukka, Rangit etc as they are on perennial river with high water head, whereas BHPC projects are at low water head on irrigation canal where flow of water is regulated as per irrigation requirement.
6. Export / import meters at Valmikinagar have already been tested by BSEB and Joint meter readings are being taken.

### **3.4 PROCEEDINGS OF PUBLIC HEARING**

BSEB during the public hearing has reiterated the comments/objections what have been furnished in writing. So also the response of BHPC.

#### **Commission's view**

All the objections/suggestions raised by BSEB and the response of BHPC are considered while finalizing the tariff.

As regards issue raised regarding Kosi Hydel Power Station, Kataiya it concerns with the Governments.

## Chapter-4

# Aggregate Revenue Requirement for FY 2009-10 Commission's analysis and decisions

### Proposed Aggregate Revenue Requirement (ARR)

- 4.1 The BHPC originally filed ARR and tariff petition on 31<sup>st</sup> March, 2009 proposing revenue requirement at Rs. 2335.48 lakhs and generation of 64MU for the year 2009-10 as detailed in Table 5 below :

**Table - 5**  
**Summary of ARR for the year 2009-10**

S.No	Project Name	Depreciation	Int. on Loans	Rs. lakhs	
				O&M Expenses	Total
1	EGHEP Valmikinagar	233.67	299.07	279.81	812.55
2	SWL Canal Dehri	115.84	135.39	218.59	469.82
3	SEL Canal Barun	61.13	72.24	127.75	261.12
4	Kosi Hydrel	–	–	131.09	131.09
5	Dhelabagh SHP	37.99	45.55	50.05	133.59
6	Agnoor SHP	69.11	112.17	46.94	228.22
7	Nasriganj SHP	33.51	30.02	22.32	85.85
8	Jainagara SHP	–	41.59	50.06	91.65
9	Triveni SHP	59.39	48.35	13.85	121.59
	Total	610.64	784.38	940.46	2335.48

Further the BHPC has proposed saleable energy at 63.36MU with an auxiliary consumption of 0.5% and transmission (transformation) loss of 0.5% as detailed in Table 6 below :

**Table – 6**  
**Energy Available for Sale 2009-10**

Sl. No.	Particulars	MU
(a)	Target proposed for 2009-10	71.00
(b)	Proposed generation for 2009-10	64.00
(c)	Auxiliary consumption (0.5%)	0.32
(d)	Transmission loss (0.5%)	0.32
(e)	Energy available for sale	63.36

- 4.2 Subsequently, while replying to the queries of the Commission, BHPC furnished additional data along with revised ARR on 23.09.2009 as detailed in Table 7 below :

**Table - 7**  
**Summary of ARR for the year 2009-10 (Revised)**

Rs. lakhs

S.No	Project Name	Depreciation	Int. on Loans	O&M Expenses	Total
1	EGHEP Valmikinagar	263.69	299.07	328.88	891.64
2	SWL Canal Dehri	143.83	135.40	261.64	540.87
3	SEL Canal Barun	57.00	72.24	138.38	267.62
4	Kosi Hydrel	-	-	148.71	148.71
5	Dhelabagh SHP	50.24	52.80	38.69	141.73
6	Agnoor SHP	80.66	112.17	65.47	258.30
7	Nasriganj SHP	44.45	48.66	33.92	127.03
8	Jainagara SHP	-	47.43	15.60	63.03
9	Triveni SHP	83.99	21.12	28.87	133.98
	<b>Total</b>	<b>723.86</b>	<b>788.89</b>	<b>1060.16</b>	<b>2572.91</b>

### 4.3 GENERATION

#### Commission's Analysis

- 4.3.1 BHPC is operating 9 Nos. small hydro electric projects. Four out of the nine projects are old as detailed below :

S.N	Project Name	Capacity	COD
1.	Eastern Gandak Canal HEP	3X5 = 15 MW	9/95, 6/96 & 11/97
2.	Sone Western Link Canal HEP	4X1.65 = 6.6 MW	1992-93, 1993-94
3.	Sone Eastern Link Canal HEP	2X1.65 = 3.3 MW	9/96 & 3/96
4.	Kosi Hydrel Power Station	4X4.8 = 19.20 MW	1970-75

As stated by BHPC the operational performance is very low, as it depends on availability of water and its discharge depending upon the irrigation requirement and availability of BSEB network for evacuation of power. The generation during the last 3 years is much lower than the designed energy. The other five projects viz Agnoor, Dhelabagh, Nasriganj, Jainagara and Triveni SHP are mini hydrel projects with an installed capacity of 1.0 to 3.0MW. These projects also contribute very low generation depending upon the availability of water and release of water based on irrigation requirement and availability of BSEB network to evacuate power.

CEA is fixing generation targets for the power plants in the country. BHPC initially in January, 2009 proposed generation target of 77.00 MU for FY 2009-10 to CEA. However in the ARR petition BHPC has proposed 64.00 MU generation by reducing generation from 12.00 MU to 6.00 MU at Kosi Hydrel Power Station due to breach in main Kosi embankment. BHPC has stated that it expects to achieve 90% of the proposed target i.e. 64 MU.

- 4.3.2 The Commission considers that the estimated target of 71.00 MU proposed itself is very low. The five projects viz Agnoor, Dhelabagh, Nasriganj, Jainagara and Triveni

SHP can operate at a higher PLF. Hence Commission is of the opinion that all the projects put together should generate at least to the extent of target proposed by BHPC to CEA as detailed in the Table 8 below :

**Table - 8**  
**Generation for the year 2009-10**

S.No	Project Name	Generation	
		Projected by BHPC (MU)	Approved by the Commission (MU)
1	Eastern Gandak Canal HEP Valmikinagar	22.50	25.00
2	Sone Western Link canal HEP, Dehri	15.15	17.00
3	Sone Eastern Link Canal HEP Barun	10.00	11.00
4	Kosi Hydel Power Station Birpur	6.00	6.00
5	Agnoor SHP	10.00	12.00
6	Dhelabagh SHP Dhelagagh		
7	Nasriganj SHP		
8	Jainagara SHP		
9	Triveni SHP, Valmikinagar		
	<b>Total</b>	63.65 or 64.00	71.00

**The Commission accordingly approves the generation of 71.00 MU against 64.00 MU projected by BHPC for the year 2009-10.**

#### **4.4 Auxiliary Consumption**

**The Commission approves auxiliary consumption at 0.5% as proposed by BHPC for the year 2009-10.**

#### **4.5 Transmission (Transformation) Loss**

BHPC has proposed the transmission (transformation) loss at 0.5% from generation terminals to injection points of BSEB Grid.

**The Commission approves transmission (transformation) loss at 0.5% as proposed by BHPC for the year 2009-10.**

#### **4.6 Available Energy for Sale**

The energy available for sale for the year 2009-10 after auxiliary consumption and transmission (transformation) loss as proposed by BHPC and approved by the Commission is detailed in the Table 9 below :

**Table - 9**  
**Saleable energy for the year 2009-10**

S.N	Particulars	Energy (MU)	
		As projected by BHPC	As approved by the Commission
(a)	Generation	64.00	71.00
(b)	Auxiliary consumption @0.5%	0.32	0.35
(c)	Transmission losses @ 0.5%	0.32	0.35
(d)	Energy available for sale	63.36	70.30

**The Commission approves the energy available for sale at 70.30 MU against 63.36 MU proposed by BHPC for the year 2009-10.**

#### **4.7 ANNUAL FIXED CHARGES**

4.7.1 The annual fixed charges consist of

- (a) Interest on capital loan
- (b) Depreciation including Advance Against Depreciation (AAD), if any
- (c) Return on equity
- (d) Operation and maintenance expenses
- (e) Interest on working capital

4.7.2 BHPC has mentioned that uniform tariff for the small hydel projects was determined by a tariff committee constituted by Government of Bihar in August, 1997. The tariff is Rs. 2.00 per kWh which was fixed for the year 1998-99 and it is not revised since then. The BHPC has requested for revision of tariff from Rs. 2.00 per kWh to Rs. 4.06 per kWh based on the actual expenses upto the year 2008-09 and projection for the year 2009-10. BHPC has also requested the Commission to take into consideration the guide lines issued by the Ministry of Non-Conventional Energy Sources vide communication No. 66/221/94-WE/PC dated 25/11/1994 in which the base electrical energy purchase price valid for 1994-95 was a minimum of Rs. 2.25 per kWh with 5% escalation per annum for a period of 10 years which amounts to Rs. 3.67 per kWh by 2004-05.

4.7.3 BHPC has sought tariff revision based on the actual expenditure incurred over the years towards operating expenses for running these projects. Accordingly BHPC has projected expenses towards (1) Interest charges (2) Depreciation and (3) Operation and maintenance (O&M) and has not claimed return on equity and interest on working capital. Taking into consideration all these factors, the expenses projected by BHPC in the ARR are examined and analyzed by the Commission as detailed below.

#### **4.8 CAPITAL INVESTMENT**

BHPC has not proposed any capital investment in the ARR and tariff petition for the year 2009-10. BHPC has simply submitted the 11<sup>th</sup> plan document for the years 2008-

2012 which is annexed under Annexure V to the ARR and tariff petition. The 11<sup>th</sup> Plan envisages an outlay of Rs. 1240 lakhs towards capital investment on the existing projects during the year 2009-10. In addition to the above capital investment, it also envisages Rs. 945 lakhs towards renovation and modernization of Valmikinagar and Kosi (Katiya) projects. BHPC has stated that it is expecting to get budgetary support from Government of Bihar and Government of India to some extent and is planning to approach domestic as well as international funding agencies towards long term loans for the balance other than Government of Bihar and Government of India assistance.

The scheme wise allocation of outlay for the years 2007-08, 2008-09 and 2009-10 as provided in the 11<sup>th</sup> plan document is furnished in Table 10 below.

**Table - 10**  
**Project wise capital outlay**

(Rs. Lakhs)

S.N	Project Name	2007-08	2008-09	2009-10
<b>I</b>	<b>Capital Investment</b>			
1.	Valmikinagar	500.00	700.00	600.00
2.	Dehri	475.00	570.00	150.00
3.	Barun	100.00	100.00	110.00
4.	Kosi	150.00	150.00	200.00
5.	Agnoor	50.00	50.00	60.00
6.	Dhelgabagh	50.00	50.00	60.00
7.	Nasriganj	50.00	50.00	60.00
8.	Jainagara	28.00		
9.	Triveni	47.00		
	<b>Total I</b>	<b>1450.00</b>	<b>1670.00</b>	<b>1240.00</b>

<b>II</b>	<b>Renovation and modernization</b>			
1.	Dehri	100	495	-
2.	Valmikinagar	200	700	245
3.	Kosi	700	2000	700
	<b>Total II</b>	<b>1000</b>	<b>3195</b>	<b>945</b>

#### **Commission's Analysis**

BHPC has neither identified any specific funding agency for drawal of loans nor any concrete plan for funding. The BHPC has also not furnished any justification for such investment.

**The Commission therefore has not taken into consideration the capital investment and the corresponding interest charges on any loans drawn for the year 2009-10.**

#### **4.9 LOANS**

BHPC has availed loans from three agencies (viz.) (1) Power Finance Corporation (PFC) (2) National Bank for Agriculture and Rural Development (NABARD) and (3)

Government of Bihar (GoB). PFC loan is fully repaid. BHPC has stated that NABARD and GoB have released loans for a group of projects and they could not segregate loans project wise. Hence the interest worked out on total loan is being allocated project wise in proportion to the capacity of each project. The loans outstanding as on 31.03.2009 as per Balance Sheet are furnished as follows :

Rs. In Lakhs		
	<b>Agency</b>	<b>2008-09</b>
1	NABARD	5422.00
2	GoB	16342.56
	Total	21764.56

The rates of interest for NABARD and GoB loans are as follows.

1. NABARD – 6.5% P.A
2. GoB – Loans availed upto 1984-85 – 7% P.A  
– Loans availed after 1984-85 – 13% P.A on GoB Loan Interest.  
– Further if interest is not paid within the due date penal interest of 2.5% P.A will be levied

#### **Commission's observation**

As seen from the annual accounts for the year 2002-03 onwards there was operating surplus during all the years. This should have been utilized for repayment of loans during certain years even after meeting the interest charges on loans. However, there was no repayment of loan by BHPC. Prompt debt servicing would have reduced the outstanding loans and interest charges thereon. The actual loans outstanding as on 31/03/2009 are stated at Rs. 21764.56 lakhs while this is depicted at Rs. 44036 lakhs in the balance sheet. It appears unpaid interest is adjusted as loan by adding it to the outstanding loan.

**BHPC appears to have not paid either interest on loan or principal amount. Hence interest is getting accumulated year by year besides penal interest on GoB loans.**

#### **4.10 INTEREST ON LOAN (CAPITAL)**

BHPC has furnished project wise interest charges for the years 2005-06 to 2008-09 (actuals) and projections for the year 2009-10 at Rs. 788.89 lakhs as detailed in Table No. 11 below :

**Table - 11****Interest on Loan projected by BHPC for the year 2009-10**

Rs in Lakhs

S.No	Project Name	2005-06	2006-07	2007-08	2008-09	2009-10
1	Eastern Gandak HEP Valmikinagar	299.07	299.07	299.07	299.07	299.07
2	Sone Western Link Canal HEP Dehri Sone	135.40	135.40	135.40	135.40	135.40
3	Sone Eastern link canal HEP Barun	72.24	72.24	72.24	72.24	72.24
4	Kosi Hydrel	-	-	-	-	-
5	Agnoor SHP	-	112.17	112.17	112.17	112.17
6	Dhelabagh SHP		32.24	45.55	52.80	52.80
7	Nasriganj SHP		-	42.52	48.66	48.66
8	Jainagara SHP				47.43	47.43
9	Triveni SHP				21.12	21.12
	<b>Total</b>	<b>506.71</b>	<b>651.12</b>	<b>706.95</b>	<b>788.89</b>	<b>788.89</b>

**Commission's Analysis**

As verified from the annual accounts, certain omissions are noticed in the data furnished in Table 11 above. Project-wise interest charges as per annual accounts are furnished in Table 12 below :

**Table - 12****Interest on Loan (Capital) – As per Annual Accounts**

Rs in Lakhs

S.No	Project Name	2005-06	2006-07	2007-08	2008-09	2009-10
1	Eastern Gandak HEP Valmikinagar	299.07	299.07	299.07	299.07	299.07
2	Sone Western Link Canal HEP Dehri Sone	135.40	135.40	135.40	135.40	135.40
3	Sone Eastern link canal HEP Barun	72.24	72.24	72.24	72.24	72.24
4	Kosi Hydrel	-	-	-	-	-
5	Agnoor SHP	112.17	112.17	112.17	112.17	112.17
6	Dhelabagh SHP	20.61	32.24	45.55	52.80	52.80
7	Nasriganj SHP	17.80	30.03	42.52	48.66	48.66
8	Jainagara SHP	15.93	28.59	41.58	47.43	47.43
9	Triveni SHP	22.13	66.13	113.03	126.73	21.12
	<b>Total</b>	<b>695.35</b>	<b>775.87</b>	<b>861.56</b>	<b>894.40</b>	<b>788.89</b>

On verification of loans taken from NABARD and GOB, it is observed that loans sanctioned by NABARD is accounted for GOB loan account and vice versa as detailed below.

- 1) Rs. 493 lakhs sanctioned by NABARD vide L.No 1333 dt. 20.3.2007 is accounted for in GOB loan account.
- 2) Rs. 143.06 lakhs sanctioned by GOB vide L.No 34 dt. 18.3.2008 is accounted for in NABARD loan account.

These loans are readjusted and interest calculated.

As a result excess interest calculated on all the 27 projects works out to Rs. 22.74 lakhs and for the projects under operation is Rs. 7.32 lakhs which is disallowed. Further 2.5% penal interest on GoB loans works out to Rs. 52.44 lakhs on all the 27 projects and for the projects under consideration is Rs. 16.89 lakhs for the year 2009-10. The Commission is of the view that the penal interest payable shall not be passed on to the consumers. BHPC may approach the Government of Bihar for waiver of penal interest. As such penal interest of Rs. 16.89 lakhs is disallowed.

The penal interest of Rs. 16.89 lakhs and excess interest of Rs. 7.32 lakhs, claimed totaling to Rs. 24.21 lakhs is deducted in proportion to the interest claimed project-wise by the BHPC. Further as per information made available, the following loans are drawn after the dates of commissioning of the projects.

(Rs. in lakhs)

S.N	Project Name	Date of commissioning	Date of drawl of loan	Amount drawn	Agency	Rate of interest	Interest amount
1	EGHEP Valmikinagar	11/97	24.3.99 30.3.99	150 150	GOB GOB	13%	39.00
2	SWELC HEP Dehri-on-sona	08/93	30.3.99	100	GOB	13%	13.00
3	SELCH HEP Barun	06/96	30.3.99	150	GOB	13%	19.50
<b>Total</b>				<b>550</b>			<b>71.50</b>

Drawal of loans after commissioning of projects is not admissible particularly in the absence of segregation of the loans project wise. Hence interest on the above loans are also disallowed and the balance interest allowed is furnished in Table 13 below.

**Table - 13**

**Interest on Loan (Capital) – (Considered) for the year 2009-10**

Rs. Lakhs

S. No	Project Name	Claimed by the Petitioner	Interest Disallowed	Interest Considered
1	EGHEP Valmikinagar	299.07	48.17	250.90
2	SWL Canal Dehri	135.4	17.16	118.24
3	SEL Canal Barun	72.24	21.72	50.52
4	Kosi Hydel	-	-	-
5	Dhelabagh SHP	52.8	1.62	51.18
6	Agnoor SHP	112.17	3.44	108.73
7	Nasriganj SHP	48.66	1.49	47.17
8	Jainagara SHP	47.43	1.46	45.97
9	Triveni SHP	21.12	0.65	20.47
<b>Total</b>		<b>788.89</b>	<b>95.71</b>	<b>693.18</b>

As discussed earlier the BHPC could not identify the loans drawn project-wise. It has worked out interest on total loans and allocated the interest project-wise (Projects in

operation and under construction) in proportion to installed capacity of each project. The calculation of interest and its allocation project-wise is not made available by BHPC.

**The Commission therefore provisionally considers the interest charges at Rs. 693.18 Lakhs for the year 2009-10 for the projects in operation.**

#### 4.11 DEPRECIATION

BHPC has projected the depreciation charges at Rs. 723.86 Lakhs for the year 2009-10. The project wise actuals for the years 2005-06 to 2008-09 and projection for 2009-10 are given in the Table 14 below.

**Table – 14**  
**Depreciation Projected by BHPC for the year 2009-10**

							(Rs. lakhs)
S. No	Project Name	2005-06	2006-07	2007-08	2008-09	2009-10	Average rate of Dep
1	EGHEP Valmikinagar	170.53	129.15	129.45	263.69	263.69	4.61%
2	SWL Canal Dehri	103.53	70.71	70.74	143.83	143.83	4.51%
3	SEL Canal Barun	30.59	30.58	30.56	57.00	57.00	4.04%
4	Kosi Hydel	-	-	-	-	-	-
5	Dhelabagh SHP		-	25.25	50.24	50.24	4.49%
6	Agnoor SHP			41.16	80.66	80.66	4.15%
7	Nasriganj SHP		-	22.31	44.45	44.45	4.51%
8	Jainagara SHP		-	-	-		-
9	Triveni SHP		-	-	83.99	83.99	3.59%
	<b>Total</b>	<b>304.65</b>	<b>230.44</b>	<b>319.47</b>	<b>723.86</b>	<b>723.86</b>	

#### Commission's Analysis

It is observed that the depreciation furnished by BHPC is not in conformity with those in annual accounts. The depreciation as per annual accounts is as detailed in Table 15 below :

**Table – 15**  
**Project-wise Depreciation as per Annual Accounts**  
**Rs. In lakhs**

S. No	Project Name	2005-06	2006-07	2007-08	2008-09
1	EGHEP Valmikinagar	232.56	232.92	233.67	233.95
2	SWL Canal Dehri	116.06	115.92	115.84	115.84
3	SEL Canal Barun	53.76	53.81	53.84	53.99
4	Kosi Hydel	No loans are stated to be outstanding			
5	Dhelabagh SHP	-	-	38.04	38.04
6	Agnoor SHP	-	67.37	69.11	69.69
7	Nasri ganj SHP	-	-	33.52	33.54
8	Jainagara SHP	-	-	-	-
9	Triveni SHP	-	-	-	78.37
	<b>Total</b>	<b>402.38</b>	<b>476.02</b>	<b>544.02</b>	<b>623.42</b>

As verified from the above particulars, depreciation during 2008-09 (Actuals) and 2009-10 (Projections) are on higher side.

The gross fixed assets as per annual accounts for the years 2004-05 to 2008-09 are shown in Table 16 below :

**Table - 16**  
**Gross Fixed Asset (GFA) as per Annual Accounts (Schedule No. 4)**

Rs. In Lakhs						
S.No	Project Name	1.4.05	31.3.06	31.3.07	31.3.08	31.3.09
1	EGHEP Valmikinagar	5345.65	5692.45	5702.99	5713.40	5726.74
2	SWL Canal Dehri	3147.29	3187.60	3187.76	3188.93	3189.29
3	SEL Canal Barun	1480.18	1492.88	1493.48	1500.96	1501.95
4	Kosi Hydel	-	-	-	-	-
5	Dhelabagh SHP	-	-	-	1118.85	1118.85
6	Agnoor SHP	-	-	1918.87	1940.98	1948.39
7	Nasrganj SHP	-	-	-	985.83	986.43
8	Jainagara SHP	-	-	-	-	-
9	Triveni SHP	-	-	-	-	2356.78

The value of gross fixed assets projected by the BHPC and GFA furnished in schedule No. 4 of annual accounts and Capital Work in Progress (CWIP) capitalized vide schedule No. 5 are not tallying. Further the revised cost on Date of Commissioning (COD) of some of the projects is not approved by the competent authority, and the subsidy paid by GOI is not deducted from GFA for purpose of calculation of depreciation.

**Project-wise depreciation allowed is discussed below :**

**(i) Eastern Gandak HEP Valmikinagar**

BHPC has claimed depreciation of Rs. 263.69 lakhs for the year 2009-10 on GFA of Rs. 5722.35 lakhs as on 31.3.09 at an average rate of 4.61%. Approved original cost of the project is Rs. 1740 lakhs. The project construction was commenced in the year 1984-85. The installed capacity of the project is 3x5=15 MW and the 3<sup>rd</sup> unit was commissioned on 12.11.97 after 12 years. The BHPC has not furnished the reasons for the delay in completion of the project. Owing to the delay, the cost of the project has abnormally increased. However the cost has been revised to Rs. 6600 lakhs vide resolution No 60/341/97 of the proceedings of the Board meeting held on 14.3.1997. The cost of GFA as on 31.3.2009 is furnished as 5722.35 lakhs, but as per annual accounts 2008-09 the GFA is Rs. 5726.74 lakhs and hence the same is considered and depreciation of Rs. 232.96 at an average rate of 4.52% on 90% of Rs. 5726.74 lakhs is considered on straight line method.

**(ii) Sone Western Link canal HEP – Dehri-on-Sone**

BHPC has claimed depreciation of Rs. 143.83 lakhs for the year 2009-10. Approved cost of this project is Rs. 1300 lakhs. The project work was commenced in the year 1983-84. The installed capacity of the project is 4x1.65=6.6 MW. The 4<sup>th</sup> unit was commissioned on 11.4.93 after 9 years. BHPC has not furnished the reasons for the

delay in completion of the project. Owing to the delay the cost of the project has increased abnormally. However cost has been revised to Rs. 3420 lakhs vide resolution No. 60/341/97 of the proceedings of the Board meeting held on 14.3.1997. The GFA as on 31.3.08 is furnished as Rs. 3188.93 lakhs but as per annual accounts 2008-09 GFA is Rs. 3189.29 lakhs and the same is considered. But the cost of other fixed assets of Rs. 111.06 lakhs include cost of land of Rs. 53.51 lakhs on which depreciation is not admissible. Further the rate of depreciation for this item as per CERC rate is 3.34% but not 5.28%. Considering the above depreciation of Rs. 126.00 lakhs is allowed on this project at an average rate of 4.39% on 90% of GFA of Rs. 3189.29 lakhs on straight line method.

**(iii) Sone Eastern Link Canal HEP Barun**

Approved cost of the project is Rs. 727 lakhs. The project work was commenced in the year 1983-84. The installed capacity of the project is  $2 \times 1.65 = 3.3$  MW. The last unit was commissioned in June 1996 after 12 years. The BHPC has not furnished the reasons for the delay in completion of the project. Owing to delay in completion of the project the capital cost has increased abnormally and the cost has been revised to Rs. 1589 lakhs vide resolution 60/341/97 of the proceedings of the Board meeting held on 14.3.1997. The BHPC has furnished the GFA of the project as on 31.3.09 as Rs. 1410.85 lakhs but as per annual accounts 2008-09 GFA is Rs. 1501.95 lakhs and depreciation of Rs. 53.66 lakhs on an average rate of 3.97% on 90% of GFA of Rs. 1501.94 lakhs is considered on straight line method.

**(iv) Koshi Hydro Power Station**

This project was transferred from BSEB to BHPC on 16.11.2003 vide GoB Notification No. 11 dated 21.06.2003. BHPC has stated that the assets are not yet transferred by BHPC hence the asset value is not taken into books of account relating to BHPC. BHPC has also not claimed any depreciation on this project. Hence depreciation is not considered for this project.

**Depreciation on the following five projects is deferred for the present due to the following reasons:**

**(v) Agnoor SHP**

The project is originally approved at a cost of Rs. 751.07 lakhs. The installed capacity of the project is  $2 \times 0.5$  MW = 1 MW. Board in its meeting held on 23.11.93 accorded administrative approval for execution of the work on turn key basis availing subsidy as announced by GOI vide MNES circular No. IV-6/1/36/92/ SHP dt 11.11.93 for all small hydro project (SHP) projects upto 3 MW capacity.

Though the administrative approval for the project is accorded on 23.11.93 to get the work executed on turnkey basis, the work is stated to have been commenced during the year 1998-99 and the project was commissioned in June 2006 after 7 years. The BHPC has not furnished reasons for belated commencement of work and abnormal delay of more than 6 years for completion of the project. The abnormal delay in completion of the project resulted in increase in capital cost. The BHPC has furnished the GFA of the project as on 31.3.09 as Rs. 1948.39 Lakhs. But as per schedule No. 4 of Annual accounts 2006-07 GFA of the project is Rs. 1918.87 lakhs and as per schedule 5 of the same year's annual accounts CWIP of Rs 1129.20 lakhs has been capitalized. Subsequently Rs. 29.53 lakhs worth furniture and fixtures added during the year 2007-08 and 2008-09 totaling to Rs. 1158.73 lakhs. Thus the discrepancies in the capital cost as on 31.03.2009 needs to be reconciled. Also the Annual Accounts are not audited as yet.

- (vi) **Dhelabagh SHP,**
- (vii) **Nasriganj SHP,**
- (viii) **Triveni SHP and**
- (ix) **Jainagara SHP**

Government of Bihar in letter No. 8/03-3383 dt. 10.10.2003, while sanctioning loan for 17 Mini Hydel projects including the above projects, the period of completion of the projects is indicated as two years from the date of commencement. The original sanctioned amounts and the date of commencement and commissioning of the above projects are furnished as below :

S.No	Project Name	Sanctioned Amount (Rs. In Lakhs)	Capacity (MW)	Actual date of commencement of work	Date of commissioning	Subsidy received (Rs. In Lakhs)	
						Sanctioned	Received
1	Dhelabagh	719.85	(2x0.5)=1	2003-04	Aug 2006	162.50	121.875
2	Nasriganj	607.65	(2x0.5)=1	2002-03	July 2007	150	112.500
3	Triveni	1345.65	(2x1.5)=3	2001-02	Feb 2009	200	150.000
4	Jainagra	577.44	(2x0.5)=1	2002-03	Dec 2008	150	112.500
	<b>Total</b>	<b>3250.59</b>				<b>662.50</b>	<b>496.875</b>

Subsidy of Rs. 496.875 lakhs was received from MNES during the years 2004-05 to 2008-09 against sanctioned amount of Rs. 662.50 lakhs and balance subsidy due is Rs. 165.625 lakhs on the above four projects. BHPC stated that the balance subsidy (fourth instalment) will only be released after performance test of the above projects which was entrusted to AHECIIT, Roorkee which is expected during the year 2010-11. Hence balance subsidy due is not considered for the year 2009-10.

The BHPC has not furnished reasons for belated commissioning of the above projects. Further the GFA is also not tallying as discussed below.

### **Dhelabagh SHP**

BHPC has claimed GFA of Rs. 1118.85 lakhs as on 31.3.08 as per schedule No. 4 of annual accounts 2007-08. But as per schedule No. 5 of the same year annual accounts CWIP of Rs. 985.90 lakhs was capitalized during the year. GFA as on 31.03.2009 has not been made available.

### **Nasriganj SHP**

GFA of Rs. 986.43 lakhs is claimed by BHPC as on 31.3.08. But as per the schedule No. 5 of the annual accounts for the year 2007-08 CWIP of Rs. 808.41 lakhs capitalized and Rs. 0.60 Lakhs added during the year 2008-09 totaling to Rs. 809.01 (808.41+0.60) as on 31.03.09. GFA as on 31.03.2009 has not been made available.

### **Triveni SHP**

BHPC has claimed GFA of Rs. 2345.67 lakhs. As per schedule No. 4 of annual accounts 2008-09 GFA is Rs. 2356.78 lakhs and as per the schedule No.5 of the annual account of the year 2006-07 CWIP of Rs. 1.61 lakhs is capitalized during the year 2006-07 and Rs. 1751.37 lakhs capitalized during the year 2008-09, totaling to Rs. 1752.98 lakhs (1751.37+1.61). GFA as on 31.03.2009 has not been made available.

### **Jainagara SHP**

The cost of original sanction of the project is Rs. 577.44 lakhs. The project is stated to be commissioned during December, 2008 but it is still under trial run. Hence BHPC has not capitalized the project cost and not claimed any depreciation on it.

The installed capacity and the capital cost of the projects as furnished by BHPC in the ARR for FY 2009-10 are detailed in the Table 17 below :

**Table – 17**  
**Installed Capacity and the Capital Cost**

Rs. Lakhs

S.No	Project Name	Capacity (MW)	Date of Commissioning	Original cost	Cost of the project as on 01/04/09	Cost per MW
1.	Eastern Gandak Canal HEP, Valmikinagar	3x5=15	9/95, 6/96, 11/97	1740	5722.35	381.49
2.	Sone Western Canal HEP, Dehri-on -sone	4x1.65=6.6	1/93, 3/93, 4/93,8/93	1300	3188.93	483.17
3.	Sone Eastern Canal HEP, Barun	2x1.65=3.3	3/96,6/96	727	1410.85	427.53
4.	Kosi HEP, Birpur	4x4.8=19.20	NA		-	-
5.	Agnoor SHP	2x0.5=1	6/2006	750.17	1948.39	1948.39
6.	Dhelabagh SHP	2x0.5=1	8/2006	719.95	1118.85	1118.85
7.	Nasriganj SHP	2x0.5=1	7/2007	607.65	986.44	986.44
8.	Jainagara SHP	2x0.5=1	12/2008	577.44	Not capitalized – Trial run	-
9.	Triveni SHP	2x1.5=3	2/09	1395.65	2345.67	781.90

The above are small / mini hydel projects. The capital cost per MW is ranging from Rs. 381.49 lakhs to as high as Rs. 1948.39 lakhs while the cost adopted in other States is generally about Rs. 350 to Rs. 400 lakhs. Even as per recent CERC (Terms and Conditions for Tariff determination from Renewable Energy Sources) Regulations, 2009 the cost per MW is Rs. 500 to 550 lakhs.

There was delay in execution of almost all the projects involving cost overrun. The reasons for the delay and cost overrun have not been explained in the ARR petition. This in turn has resulted in increase in the capital cost and debt servicing.

There are differences in the capital cost of the projects as per ARR and as per annual accounts and between schedule 4 and 5 of the annual accounts in respect of Agnoor SHP, Dhelabag SHP, Nasriganj and Triveni SHP. The annual accounts are only audited by the Internal Auditor and the accounts of the company are not audited by Statutory Auditor and Accountant General.

The Commission is of the opinion that the capital cost of the above projects executed, needs to be audited by a Statutory Auditor thoroughly scrutinizing the accounts and records. As mentioned above, the capital cost of these four projects is ranging from Rs. 782 to 1948 lakhs per MW and this is considered to be very high. **This requires thorough investigation for establishing the capital cost of these projects which invariably affects the generation cost. Till such time the statutory audit is conducted and the capital cost is determined the Commission is not in favour of considering the depreciation on these four projects viz. Agnoor, Dhelabagh SHP, Nasriganj SHP and Triveni Projects in the ARR for 2009-10.**

**The depreciation of Jainagara project is not claimed by BHPC as the project cost is yet to be capitalized and hence not considered.**

The project-wise details of asset value considered, depreciation amount and the average rate of depreciation for FY 2009-10 are given in the Table 18 below.

**Table - 18**  
**Depreciation Considered for the year 2009-10**

Rs. Lakhs

S.No	Project Name	Claimed by Petitioner			Considered by Commission		
		GFA as on 31.3.09	Average rate of Depreciation	Dep. Amount	GFA as on 31.3.09	Average rate of Depreciation	Dep. Amount
1	EGHEP Valmikinagar	5722.35	4.61	263.69	5726.74	4.52%	232.96
2	SWL Canal Dehri	3188.93	4.51	143.83	3189.29	4.39%	126.00
3	SEL Canal Barun	1410.85	4.04	57	1501.95	3.97%	53.67
4	Kosi Hydel	–	–	–	–	–	–
5	Dhelabagh SHP	1118.85	4.49	50.24			
6	Agnoor SHP	1948.39	4.15	80.66			
7	Nasrganj SHP	986.44	4.51	44.45			
8	Jainagara SHP	–	–	–			
9	Triveni SHP	2345.67	3.59	83.99			
				<b>723.86</b>			<b>412.63</b>

**The Commission provisionally considers the depreciation charges at Rs. 412.63 lakhs for the year 2009-10 as against Rs. 723.86 lakhs projected by BHPC.**

#### **4.12 RETURN ON EQUITY**

Regulation 55(3)(a) of Terms and Conditions for Determination of Tariff Regulations, 2007 provides return on equity @ 14% per annum. However, BHPC has not claimed any return on equity in the ARR and tariff petition but claimed interest on all the loans outstanding. The Commission therefore has not considered return on equity while interest charges are considered on the outstanding loans.

#### **4.13 INTEREST ON WORKING CAPITAL**

The interest on working capital is not claimed by BHPC and hence not considered.

#### **4.14 OPERATION AND MAINTENANCE (O&M) EXPENSES**

The O&M expenses generally comprise Employee expenses, Repairs and Maintenance (R&M) and Administration and General (A&G) expenses including insurance charges. In addition, BHPC included O&M contract costs as a separate item.

Disposition of employee cadre strength is furnished in Table 19 below

**Table - 19**

**Disposition of Cadre Strength of BHPC as on 31.3.09**

S.No	Particulars of Unit	Managerial Cadre	Technical	Adm	Accounts	O&M	Total
A)	Corporate Office	2	8	16	28	18	72
B) 1	EGHEP Valmikinagar	-	3	-	4	2	09
2	SWL Canal Dehri	-	2	-	5	6	13
3	SEL Canal Barun	-	1	-	5	1	07
4	Kosi Hydrel	-	2	-	2	2	06
5	Dhelabagh SHP	-	1	-	-	1	02
6	Agnoor SHP	-	2	-	-	-	02
7	Nasriganj SHP	-	2	-	-	-	02
8	Jainagara SHP	-	1	-	-	1	02
9	Triveni SHP	-	-	-	-	2	02
	<b>Sub-Total</b>	-	<b>14</b>	-	<b>16</b>	<b>15</b>	<b>45</b>
	<b>Total</b>	<b>2</b>	<b>22</b>	<b>16</b>	<b>44</b>	<b>33</b>	<b>117</b>

There are four pay units in projects viz. EGHEP Valmikinagar, SWLCHEP Dehri-on-Sone, SELC HEP Barun and Kosi Hydrel. Triveni is under administrative and pay control of EGHEP Valmikinagar and Agnoor under the control of SELC HEP Barun and Dhelabagh and Nasariganj, Jainagara are under the control of SWLC HEP Dehri-on-Sone.

During validation of data, BHPC stated that O&M of all projects is outsourced and the Project-wise contract details as furnished by BHPC for 9 projects are given in Table 20 below.

**Table – 20**

**Project Wise O&M Contract Details**

		Rs. in Lakhs
S.No	Project Name	Rate per month
1	EGHEP Valmikinagar	4.30
2	SWL Canal Dehri	2.92
3	SEL Canal Barun	2.45
4	Kosi Hydrel	a.10 P/KWH Min Rs. 5500 per day 20.08 b.0.35
5	Dhelabagh SHP	1.50
6	Agnoor SHP	1.00
7	Nasriganj SHP	1.00
8	Jainagara SHP	0.125
9	Triveni SHP	2.00
		Taxes Extra

BHPC has projected the O&M expenses at Rs. 1060.16 lakhs for the year 2009-10 for all the nine projects under operation. The actual O&M expenses for the years 2002-03 to 2008-09 and the projection for the year 2009-10 submitted by BHPC are given in Table 21 below :

**Table - 21**

**O & M Expenses projected by BHPC for the year 2009-10**

**Rs. Lakhs**

S. No	Project Name	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10
1	EGHEP Valmikinagar	182.22	232.57	180.68	472.60	243.34	223.95	298.88	328.88
2	SWL Canal Dehri	132.94	128.69	130.35	178.17	172.35	157.65	244.61	261.64
3	SEL Canal Barun	77.05	85.53	86.71	77.13	98.49	106.47	124.21	138.38
4	Kosi Hydrel	111.28	111.28	111.28	73.86	88.47	111.28	135.18	148.71
5	Dhelabagh SHP					18.72	38.45	35.18	38.69
6	Agnoor SHP					26.68	36.65	59.51	65.47
7	Nasriganj SHP						10.59	30.83	33.92
8	Jainagara SHP							14.19	15.60
9	Triveni SHP							7.95	28.87
	<b>Total</b>	<b>503.49</b>	<b>558.07</b>	<b>509.02</b>	<b>801.76</b>	<b>648.05</b>	<b>685.04</b>	<b>950.54</b>	<b>1060.16</b>

The O&M expenses as per Annual Accounts for FY 2002-03 to 2008-09 are given in Table 22 below :

**Table - 22**

**O & M Expenses as per Annual Accounts**

**Rs. Lakhs**

S. No	Project Name	2002-03	2003-04	2004-05	2005-06	2006-07	2007-08	2008-09
1	EGHEP Valmikinagar	182.22	232.56	180.68	188.67	243.34	223.94	298.88
2	SWL Canal Dehri	132.91	128.68	129.98	178.03	172.47	157.65	244.58
3	SEL Canal Barun	77.06	76.55	86.71	77.14	98.49	106.46	124.21
4	Kosi Hydrel		88.07	116.65	73.87	88.47	111.28	135.18
5	Dhelabagh SHP					18.73	32.14	35.18
6	Agnoor SHP				26.51	36.16	36.65	59.51
7	Nasriganj SHP					8.51	16.91	41.48
8	Jainagara SHP							
9	Triveni SHP							7.96
	<b>Total</b>	<b>392.19</b>	<b>525.86</b>	<b>514.02</b>	<b>517.71</b>	<b>666.17</b>	<b>685.03</b>	<b>946.98</b>

**Commission's Analysis**

Some of the O&M expenses furnished by the BHPC for the year 2002-03 to 2008-09 are not in accordance with respective annual accounts. For example, Kosi Hydrel Project was taken over by BHPC from BSEB on 16.11.2003, but O&M expenses for the preceding year 2002-03 are included. O&M expenses of EGHEP Valmikinagar for the year 2005-06 as per annual accounts is Rs. 188.67 lakhs but the same are furnished as Rs. 472.60 lakhs. There are several inconsistencies in figures. This clearly indicates that O&M expenses are not compiled from annual accounts. As such

O&M expenses compiled as per annual accounts given in Table No. 22 above are considered for computation of O&M expenses for the year 2009-10 as per BERC Tariff Regulation No. 55(4).

The projects under Sl. 1 to 4 viz (1) Eastern Gandak canal HEP, Valmikinagar (2) Sone Western Link Canal HEP Dehri (3) Sone Eastern Link Canal HEP, Barun and (4) Kosi Hydel power station are in existence for more than 5 years. The O&M expenses including insurance have to be considered in accordance with the provisions under Regulations 55(4) (a) of BERC (Terms and Conditions for Determination of Tariff) Regulation. In terms of these provisions the base year is 2007-08 and the O&M expenses for base year shall be arrived at on the basis of O&M expenses for the years 2002-03 to 2006-07 based on the audited balance sheet excluding the abnormal O&M expenses, if any, after prudent check by the Commission, The average of such normalized O&M expenses after prudent check for the years 2002-03 to 2006-07 considered as O&M expenses for the year 2004-05 and shall be escalated at the rate of 4% p.a to arrive at O&M expenses for the base year. The base O&M expenses shall be further escalated at the rate of 4% p.a to arrive at the permissible O&M expenses for the relevant year i.e. 2009-10.

The O&M expenses (actuals) for the years 2002-03 to 2006-07 are taken into consideration after excluding the non O&M nature expenses as detailed in Table 23 below and arrears of electricity charges included in Adm & Genl. expenses as detailed in Table 24 below :

**Table - 23**

**Non – O&M nature expenses included in O&M Expenses**

**Rs. Lakhs**

S.No	Project Name	2002-03	2003-04	2004-05	2005-06	2006-07	Remarks
1	SWL Canal Dehri				0.16	0.04	Survey & Investigation
2	Kosi Hydel		62.75	66.71			Compensation paid to BSEB
				0.88			Testing & Commissioning
					15.41	0.1	DPR expenses

**Table - 24**

**Arrears of electricity charges included in Adm & Genl. Expenses**

**Rs. Lakhs**

S.No	Project Name	2002-03			2003-04			2005-06		
		Amt. Accounted for	Actual for the year	Difference Disallowed	Amount Accounted for	Actual for the year	Difference Disallowed	Amount Accounted for	Actual for the year	Difference Disallowed
1	EG HEP Valmikinagar	9	3.99	5.01	32.89	3.99	28.90			
2	SELC HEP Dehri on Sone							46.11	3.82	42.29

Thus the O&M expenses in respect of the above four projects which are in existence for more than 5 years are arrived at as per BERC Tariff Regulations as given in Table - 25 below.

**Table - 25**  
**O&M Expenses of projects in existence above 5 years**

Rs. Lakhs

S.No	Project Name	2002-03	2003-04	2004-05	2005-06	2006-07	Average Expenses for year 2004-05	2007-08 base year	2009-10
1	EGHEP Valmikinagar	177.21	203.66	180.68	188.67	243.34	198.71	223.52	241.76
2	SWL Canal Dehri	132.91	128.68	129.98	135.58	172.43	139.92	157.39	170.23
3	SEL Canal Barun	77.06	76.55	86.71	77.14	98.49	83.19	93.58	101.21
4	Kosi Hydel		25.32	49.06	58.46	88.37	55.30	62.21	67.28
	<b>Total</b>	<b>387.18</b>	<b>434.21</b>	<b>446.43</b>	<b>459.85</b>	<b>602.63</b>	<b>477.12</b>	<b>536.70</b>	<b>580.48</b>

\* Average expenses escalated @ 4% P.A to arrive at base year expenses and for the year 2009-10

In accordance to Regulation 55(4)(b) of BERC (Terms and Conditions for Determination of Tariff) Regulations, the O&M expenses in respect of the new projects which are not in existence for a period of 5 years, shall be fixed at 1.5% of the capital cost and escalated at the rate of 4% per annum from the subsequent years to arrive at the O&M expenses for the base year. The base O&M expenses shall be further escalated at the rate of 4% per annum to arrive at the permissible O&M expenses for the relevant year.

As there are certain discrepancies in capital cost as on COD as discussed supra, the original sanctioned cost of the projects is adopted to compute the O&M expenses as per above Regulations. Accordingly the O&M expenses for the remaining five new projects viz (a) Agnoor (2) Dhelabagh (3) Nasriganj (4) Jainagara and (5) Triveni are computed as detailed in the Table 26 below :

**Table – 26**  
**O&M Expenses of Projects in Existence below 5 years**

(Rs in Lakhs)

S. No	Project Name	Date of Commission-ing	Original sanctioned cost	1.5% Capital cost of original sanction	Base Year 2008-09	2009-10
1	Agnoor SHP	6/2006	751.07	11.27	12.19	12.68
2	Dhelabagh SHP	8/2006	719.85	10.80	11.68	12.15
3	Nasriganj SHP	7/2007	607.65	9.12	9.49	9.86
4	Jainagara SHP	12/2008	577.44	8.66	8.66	9.01
5	Triveni SHP	2/2009	1345.65	20.18	20.18	21.00
	<b>Total</b>		<b>3424.22</b>			<b>64.70</b>

The O&M expenses for the year 2009-10 as claimed by BHPC and as considered by the Commission are detailed in Table 27 below.

**Table - 27**  
**O&M Expenses Considered for the year 2009-10**

		Rs. in Lakhs	
S. No	Project Name	Claimed by the BHPC	Considered by Commission
1	EGHEP Valmikinagar	328.88	241.76
2	SWL Canal Dehri	261.64	170.23
3	SEL Canal Barun	138.38	101.21
4	Kosi Hydel	148.71	67.28
5	Dhelabagh SHP	38.69	12.15
6	Agnoor SHP	65.47	12.68
7	Nasriganj SHP	33.92	9.86
8	Jainagara SHP	15.6	9.01
9	Triveni SHP	28.87	21.00
	<b>Total</b>	<b>1060.16</b>	<b>645.18</b>

The Commission provisionally considers the O&M expenses at Rs. 645.18 lakhs against Rs. 1060.16 lakhs projected by BHPC for the year 2009-10.

#### 4.15 REVENUE FROM EXISTING TARIFF

BHPC has projected the revenue from existing tariff at Rs. 1267.20 lakhs at the rate of Rs. 2.00 per kWh on the sale of estimated energy of 63.36 MU. The Commission has analyzed the project-wise generation and approved the energy available for sale at 70.30 MU vide para 4.6 and the revenue at existing tariff works out to Rs. 1406 lakhs. **Accordingly the revenue at existing tariff works out to Rs. 1406 lakhs for the year 2009-10.**

The summary of revenue requirement for the year 2009-10 as projected by BHPC and as analyzed and considered in the preceding paragraphs is given in the Table 28 below :

**Table - 28**  
**ARR for the year 2009-10**

		Rs. in Lakhs	
S.No	Particulars	Projected by BHPC	Considered by Commission
1	Interest on loans (capital)	788.89	693.18
2	Depreciation	723.86	412.63
3	O&M Expenses	1060.16	645.18
4	<b>Total</b>	<b>2572.91</b>	<b>1750.99</b>

Gap for the year 2009-10 is furnished in Table 29 below :

**Table - 29**  
**Revenue Gap**

		Rs. in Lakhs
1	ARR	1750.99
2	Revenue at Existing Tariff	1406.00
3	Revenue Gap	344.99

#### 4.16 Uniform Generation Tariff for All Projects

Normally two-part tariff is applied to recover the fixed and variable cost separately. However, for the reasons as discussed in the preceding para regarding discrepancies in figures and identification of loans project-wise etc. as submitted by BHPC and hence single part uniform tariff has been considered for all the projects as proposed by the BHPC in the ARR and tariff petition for the FY 2009-10.

#### 4.17 ARR and Generation Tariff

The Commission provisionally approves the operational and financial parameters as discussed in preceding paras and the generation tariff of Bihar State Hydroelectric Power Corporation Ltd. for the year 2009-10 as detailed below.

**Rs. Lakhs**

S.No	Project Name	Interest	Depreciation	O&M	Total
1	EGHEP Valmikinagar	250.90	232.96	241.76	725.62
2	SWL Canal Dehri	118.24	126.00	170.23	414.47
3	SEL Canal Barun	50.52	53.67	101.21	205.40
4	Kosi Hydel	-	-	67.28	67.28
5	Dhelabagh SHP	51.18	-	12.15	63.33
6	Agnoor SHP	108.73	-	12.68	121.41
7	Nasriganj SHP	47.17	-	9.86	57.03
8	Jainagara SHP	45.97	-	9.01	54.98
9	Triveni SHP	20.47	-	21.00	41.47
	<b>Total</b>	<b>693.18</b>	<b>412.63</b>	<b>645.18</b>	<b>1750.99</b>
	Saleable Energy				70.30MU
	Average cost per KWH				Rs. 2.49/kWh

The Commission provisionally approves the ARR at Rs. 1750.99 lakhs and uniform generation tariff at Rs. 2.49 per kWh applicable for the nine projects in operation of BHPC pending statutory audit which is mandatory, investigation into the capital cost, identification of loans drawn for each project and establishment of reasons for non-repayment of loans and non-payment of interest on loans in spite of generating operational surplus every year.

It appears that the Managing Director, BHPC has written to the Dy. Accountant General (Commercial) vide letter dated 22.10.2009 to appoint statutory auditor as it is mandatory for the organization.

#### 4.18 Rebate

- (1) When payment of bills are made through letter of credit, a rebate of 2% shall be allowed.
- (2) Where payments are made other than through letter of credit within a period of one month of presentation of bills by the BHPC, a rebate of 1% shall be allowed.

#### **4.19 Late payment surcharge**

In case of delayed payment of any bill beyond a period 60 days from the date of bill, a late payment surcharge at the rate of 1.25% per month shall be levied by the BHPC.

#### **4.20 Power Purchase Agreement**

BHPC is presently selling power to BSEB without any Power Purchase Agreement (PPA). This is essential instrument for resolving any issues/disputes arising between parties. Accordingly BHPC shall enter into Power Purchase Agreement (PPA) with BSEB. A directive in this regard is also being issued.

#### **4.21 Effective Date**

This order shall come into force **from 1<sup>st</sup> December, 2009** and shall remain in force till 31<sup>st</sup> March, 2010 or till the next tariff order of the Commission.

## Chapter-5

# Directives

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It is observed from the ARR and tariff petition for the year 2009-10 filed by BHPC that the operational and financial performance requires considerable improvement at all levels in order to reduce costs. In this context, the Commission issues the following directives to BHPC within the parameters of section 61 of the Electricity Act 2003, which stipulates that the Commission shall be guided by the factors which would encourage competition, efficiency, economical usage of resources, good performance and optimum investment in specifying the terms and conditions for determination of tariff.

### **Directive 1: Project-wise segregation of loans**

The BHPC is directed to segregate the loans drawn project-wise based on original sanction and correct allocation made to each project and report compliance to Commission **by June, 2010**.

### **Directive 2: Concluding Power Purchase Agreement (PPA) with BSEB**

The BHPC is directed to conclude PPA with BSEB as per provisions of tariff regulations **before March, 2010**.

### **Directive 3: Asset Register**

The BHPC is directed to maintain separate asset register for each project and calculate the depreciation as per CERC rates of depreciation item-wise on straight line method till 90% asset value is depreciated. Such registers duly updated shall be submitted to the Commission **by June 2010** for perusal.

### **Directive 4: Annual Accounts of BHPC**

The Annual Accounts of BHPC are not audited by Accountant General of Bihar from 1996-97 onwards which is mandatory. It is observed from the correspondence that Accountant General has asked BHPC to get the previous years' accounts approved by Annual General Meeting (AGM) for taking up audit. BHPC is directed to explain why AGM is not conducted for the last 12 years.

Further BHPC shall take immediate steps to get the annual accounts audited by the statutory auditor / Accountant General within a time bound programme and the progress filed before the Commission on quarterly basis. The first such report shall be submitted **by March, 2010**.

As discussed earlier number of discrepancies has been observed in the Accounts and also the Annual Accounts not audited by Statutory Auditor/ AG, the tariff has been decided on the

provisional basis. In future the Commission will accept ARR and tariff petition when the same is supported with Annual Accounts duly audited by the statutory auditor/AG.

#### **Directive 5: Accounting Process of BHPC**

BHPC is directed to ensure that separate agency is engaged for preparation of Annual Accounts and audit of accounts. Internal audit team may be created within the organization as is done in other organization for ensuring periodic check of accounts. Action taken in this regard shall be reported to the Commission **by June, 2010**.

#### **Directive 6: Project-wise and item-wise segregation of Capital Work in Progress (CWIP) schedule 5 of Annual Accounts**

The BHPC is directed to segregate the CWIP in schedule 5 of annual accounts project wise and item-wise and account for preoperative expenditure of the projects under construction under CWIP for making correct accounting of GFA after completion of the project and allowing depreciation there on. This work shall be completed and reported to the Commission **by March 2010**.

#### **Directive 7: Employee Costs**

The expenditure on employee cost is on higher side, and needs to be reduced by implementing the following measures.

1. Reduce top level posts of SE & EE in project O&M and establishment staff at corporate level.
2. There are four pay units in projects at Valmikinagar, Dehri-on-sone, Barun and Kataiya. All payments should be made from those pay units only. Corporate office shall allot budgeted amounts for three months only at a time to pay units. Corporate office of BHPC shall ensure there should not be any surplus amount lying in these pay units unutilized.
3. Since the operation of all stations have been outsourced, the maintenance could be carried out by maintenance unit(s) headed by an Asst. Engineer or equivalent with supporting staff under overall supervision of an Executive Engineer for a group of stations. The unit can visit the stations periodically to attend periodic maintenance and emergencies on call. The compliance shall be reported **by June, 2010**.

#### **Directive 8: Delay in execution of projects and cost overruns**

It is observed that there is abnormal delay in the execution of all projects resulting in cost overruns by 3 to 4 times of the original project cost. The BHPC shall investigate the reasons for abnormal delay in the execution of projects and factors that contributed for cost overruns. The revised project cost of all projects shall be got approved by the competent authority and

reported to the Commission along with the results of investigations on cost overruns **by March, 2010.**

#### **Directive 9: O&M costs**

It is understood that O&M of the stations is outsourced. The costs appear to be very high. The terms and conditions of outsourcing, the responsibility / scope of works of the agency to whom the O&M is outsourced, number of persons working in the power stations, the costs etc shall be furnished to the Commission **by March, 2010.**

#### **Directive 10: Performance of the Power Stations**

The operational performance (generation) of the power stations is very low i.e. less than 20% against a norm of 30 to 35% adopted in most of the other states. One of the reasons stated is non-availability of BSEB network to evacuate power as the lines are often interrupted. BHPC shall take up the matter with BSEB regarding availability of network for evacuation of power generated by BHPC.

It is observed from the data made available that four projects connected at 11 kV voltage only experience major interruptions, four (4) projects connected at 33 kV voltage and one project connected at 132 kV voltage are not normally interrupted. BHPC is directed to examine the feasibility of connecting these four stations at 11 kV, pool the energy at a 33/11 kV substation (to be constructed) and connect to BSEB 33 kV system after duly working out the cost benefit analysis.

BHPC is also directed to furnish the details of daily water discharge to the canal for one year 2007-08 or earlier year when Kosi project was in operation to study the availability of the machines and the performance of this project.

#### **Directive – 11: Execution of Projects**

It is observed that BHPC has taken up a number of projects (19) with an installed capacity ranging from 0.2 MW to 2.5 MW. They are stated to be under construction. In view of past experience of time and cost over runs in execution of projects, BHPC should have taken up few projects of 1.00 MW and above based on the time likely to be taken for execution and the benefits thereon instead of spreading out the resource on all projects resulting in time and cost overruns.

The BHPC shall also examine and entrust some of the projects to private sector as being done by a number of states as it is found that execution and operation of such projects to be a

drain on the state exchequer. Action taken in the matter may be reported to the Commission **by June, 2010.**

**Directive-12 : Fixed Deposits**

It is observed from the balance sheet and profit and loss account for the year 2008-09 that the BHPC is having about Rs.34.00 crores in fixed deposits. These deposits are being carried over from last few years. BHPC is directed to explain why it is holding such large amount in deposits and not repaying the loans to the lenders resulting in heavy interest burden. The details of deposits with various Banks shall be furnished to the Commission **by March, 2010.**

**Directive-13 : Import / Export Meter**

BHPC is directed to ensure that import / export meter are provided and maintained in working condition at all the power plants and meter readings be taken by BHPC and BSEB jointly.