

**Multi Year Tariff Order  
For  
Himachal Pradesh State Electricity Board  
Limited,  
Generation Business  
For the period  
FY 2014-15 to FY 2018-19**



**Himachal Pradesh Electricity Regulatory  
Commission  
10<sup>th</sup> June 2014**



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**Before the Himachal Pradesh Electricity Regulatory Commission  
At Shimla**

**Case No. 21 of 2014**

**CORAM**

**SUBHASH CHANDER NEGI**

**In the matter of:**

Filing of Multi Year Aggregate Revenue Requirements (ARR) for the Third Control Period (FY 2014-15 to FY 2018-19) and determination generation tariff under Section 62, 64 and 86 of the Electricity Act, 2003.

And

**In the matter of:**

Himachal Pradesh State Electricity Board Limited (HPSEBL)  
.....**Petitioner**

**ORDER**

Himachal Pradesh State Electricity Board Limited (hereinafter called 'HPSEBL' or 'The Board' or 'The Petitioner') has filed a Petition with the Himachal Pradesh Electricity Regulatory Commission (hereinafter referred to as 'the Commission' or the 'HPERC') for approval of its Aggregate Revenue Requirement (ARR) and determination of Generation Tariff for its own generating stations for the third MYT Control Period (FY2014-15 to FY2018-19) under Sections 62, 64 and 86 of the Electricity Act, 2003 (hereinafter referred to as 'the Act'), read with the HPERC (Terms and Conditions for Determination of Hydro Generation Supply Tariff) Regulations, 2011, HPERC (Terms and Conditions for Determination of Hydro Generation Supply Tariff) (first amendment) Regulations, 2011 and HPERC (Terms and Conditions for Determination of Hydro Generation Supply Tariff) (second amendment) Regulations, 2013. The Commission scheduled the public hearing for

interaction with the Petitioner, interveners, consumers, and representatives of various consumer groups on March 26, 2014 at Shimla, had formal interactions with the officers of HPSEBL and considered the documents available on record in the following Tariff Order.

The Commission has determined the ARR and fixed charge of each of the generating station owned by the HPSEBL except for which generic levelised generation tariff was already provided in the Commission's order Dated 15<sup>th</sup> January 2014, for each year of the third Control Period (FY 2014-15 to FY 2018-19), under the Multi Year Tariff (MYT) regime and approved the Aggregate Revenue Requirements for the Control Period.

The Commission, in exercise of the powers vested in it under Section 62 of the Act, Orders that the approved Tariffs for the generating stations shall come into force with effect from 1st April 2014 and would remain applicable during the Control period FY 2014-15 to 2018-19.

The Commission further directs the publication of the tariff in two leading newspapers, one in Hindi and the other in English, having wide circulation in the State within 7 days of the issuance of this Tariff Order. The publication shall include a general description of the tariff changes and its effect on consumers.

Shimla  
Dated 10<sup>th</sup> June 2014

(Subhash C. Negi)  
Chairman



# 1. Introduction

## **Himachal Pradesh Electricity Regulatory Commission**

1.1 The Himachal Pradesh Electricity Regulatory Commission (hereinafter referred to as 'HPERC' or 'the Commission') constituted under the Electricity Regulatory Commission Act, 1998 came into being in December 2000 and started functioning with effect from 6th January, 2001. After the enactment of the Electricity Act, 2003 on 26<sup>th</sup> May, 2003, the HPERC has been functioning as statutory body with a quasi-judicial and legislative role.

## **Functions of HPERC**

- 1.2 As per Section 86 of the Electricity Act, 2003, the State Commission shall discharge the following functions, namely
- a) determine the tariff for generation, supply, transmission and wheeling of electricity, wholesale, bulk or retail, as the case may be, within the State: Provided that where open access has been permitted to a category of consumers under section 42, the State Commission shall determine only the wheeling charges and surcharge thereon, if any, for the said category of consumers;
  - b) regulate electricity purchase and procurement process of distribution licensees including the price at which electricity shall be procured from the generating companies or licensees or from other sources through agreements for purchase of power for distribution and supply within the State;
  - c) facilitate intra-state transmission and wheeling of electricity;

- d) issue licences to persons seeking to act as transmission licensees, distribution licensees and electricity traders with respect to their operations within the State;
- e) promote co-generation and generation of electricity from renewable sources of energy by providing suitable measures for connectivity with the grid and sale of electricity to any person, and also specify, for purchase of electricity from such sources, a percentage of the total consumption of electricity in the area of a distribution licence;
- f) adjudicate upon the disputes between the licensees, and generating companies and to refer any dispute for arbitration;
- g) levy fee for the purposes of this Act;
- h) specify State Grid Code consistent with the Indian Electricity Grid Code specified with regard to grid standards;
- i) specify or enforce standards with respect to quality, continuity and reliability of service by licensees;
- j) fix the trading margin in the intra-state trading of electricity, if considered, necessary; and
- k) Discharge such other functions as may be assigned to it under this Act.

1.3 The State Commission shall advise the State Government on all or any of the following matters, namely

- a) promotion of competition, efficiency and economy in activities of the electricity industry;
- b) promotion of investment in electricity industry;
- c) reorganization and restructuring of electricity industry in the State;
- d) Matters concerning generation, transmission, distribution and trading of electricity or any other matter referred to the State Commission by State Government.

#### **Himachal Pradesh State Electricity Board Ltd. – Generation Function**

- 1.4 The Himachal Pradesh State Electricity Board was constituted on 1st September, 1971 in accordance with the provisions of Electricity Supply Act (1948). It functioned as Distribution, Generation as well as Transmission licensee for the state of Himachal Pradesh up to 10th June, 2010, when the Government of Himachal Pradesh, in exercise of the power conferred to it, by Section 131 (2), 132, 133 and other applicable provisions of the Electricity Act 2003, vide the 'Himachal Pradesh Power Sector Reforms Transfer Scheme, 2010' transferred the functions of generation, distribution and trading of electricity to Himachal Pradesh State Electricity Board Limited (HPSEBL). HPSEBL at present is engaged in electricity generation, distribution and related activities in the state of Himachal Pradesh.
- 1.5 The generation function of the HPSEBL is responsible for generation and supply of electricity through its hydroelectric plants situated in different parts of the State of Himachal Pradesh, which also includes several difficult and sometimes inaccessible terrains.

#### **Multi Year Tariff Framework**

- 1.6 The Commission follows the principles of Multi Year Tariff (MYT) determination, in line with the provision of Section 61 of the Act.
- 1.7 The MYT framework is also designed to provide predictability and reduce regulatory risk. This can be achieved by approval of a detailed capital investment plan for the Petitioner, considering the expected plant expansions and other major capital works during the Control Period. The longer time span enables the Petitioner to propose its investment plan in detail, with the possible sources of financing and the corresponding capitalization schedule for each investment.
- 1.8 The Commission had specified the terms and conditions for the determination of tariff in the year 2004, based on the principles as laid down under Section 61 of the Electricity Act 2003.

- 1.9 Thereafter, the Commission notified the HPERC (Terms and Conditions for Determination of Hydro Generation Tariff) Regulations in the year 2011. The MYT regulations notified in the year 2011 were amended as HPERC (Terms and Conditions for Determination of Hydro Generation Tariff) (First Amendment) Regulations, 2011 on 30th July 2011 and HPERC (Terms and Conditions for Determination of Hydro Generation Tariff) (Second Amendment) Regulations, 2013 on 1st November 2013.
- 1.10 The Commission issued the Multi-Year Tariff (MYT) Order for HPSEBL-Generation function along with the distribution for the period FY 2011-12 to FY 2013-14 on 19th July, 2011. The MYT period for generation tariff is aligned with MYT period for distribution tariff and therefore next MYT control period shall be for 5 years.

#### **Filing of ARR and Tariff Petition for MYT Control Period (FY 2014-15 – FY 2018-19)**

##### **Procedural Background**

- 1.11 The Petitioner has filed the Petition for approval of the Aggregate Revenue Requirement (ARR) and determination of Fixed Charges in respect of 14 out of the total 23 hydro generation plants, owned and operated by it, for the Third Control Period (FY 2014-15 to FY 2018-19), with the Commission on 17th February 2014 which was registered as MA No. 21 of 2014. Based on preliminary scrutiny of the petition, the Commission admitted the Petition vide the Interim Order dated 24th February 2014.
- 1.12 Deloitte Touche Tohmatsu India Pvt. Ltd. (Deloitte) was appointed as Consultant to assist the Commission in processing and analysis of the Petition and determination of ARR/ tariffs.

##### **Interaction with the Petitioner**

- 1.13 Since the submission of the Petition, there have been a series of interactions between the Petitioner and the Commission, both written and oral, wherein

the Commission sought additional information/clarifications and justifications on various issues, critical for the analysis of the Petition.

- 1.14 The Commission asked the Petitioner to remove various discrepancies in the petition and file additional information/clarification on the queries raised by the Commission through its letter No. HPERC/MYT3/HPSEBL/2013-14 /3361 dated 1st March 2014. The same was responded to by the Petitioner through an affidavit dated 21st March 2014 which was registered as MA No 75 of 2014.
- 1.15 The Commission conducted a Technical Validation Session (TVS) of the Petition on 24th February, 2014 in the office of the Commission during which the discrepancies and additional information requirements were highlighted to the Petitioner.

### Public Hearings

- 1.16 The Interim Order *inter alia* included direction to the Petitioner to publish the application in an abridged form and manner as per the “disclosure format” attached with the interim order for the information of all the stakeholders in the State. As per the direction, the Petitioner published the public notice in the following newspapers:

**Table 1: Newspapers in which salient features published**

Sl.	Name of News Paper	Edition	Date of Publication
1.	The Tribune (English)	Chandigarh	2 <sup>nd</sup> March 2014
2.	Punjab Kesari (Hindi)	Chandigarh	2 <sup>nd</sup> March 2014
3.	Himachal Dastak (Hindi)	Shimla	4 <sup>th</sup> March 2014
4.	Hindustan Times (English)		4 <sup>th</sup> March 2014

- 1.17 The Commission published a public notice inviting suggestions and objections from the public on the tariff petition filed by the Petitioner in accordance with Section 64(3) of the Act. The Commission also informed stakeholders about

the public hearing to be held on 26th March 2014 through same notice which was published in the following newspapers:

**Table 2: Newspaper in which Notice inviting objections published**

Sl.	Name of News Paper	Edition	Date of Publication
1.	The Tribune (English)	Chandigarh, Jalandhar and Bathinda	5 <sup>th</sup> March 2014
2.	Amar Ujala (Hindi)	Chandigarh and Dharamsala	5 <sup>th</sup> March 2014

1.18 The last date for receipt of suggestions/objections was given as 20th March 2014. The HPSEBL was required to submit replies to the suggestions/objections to the Commission by 27th March, 2014 with a copy to the objectors on which the objectors were required to submit rejoinder by 3rd April 2014.

1.19 The Commission did not receive any comments/ suggestions from the stakeholders by the due date.

## 2. Summary of the ARR petition for the Control Period

### Introduction

2.1 This chapter summarizes the highlights of the Petition filed by the HPSEBL for determination of the Aggregate Revenue Requirement (ARR) for the third MYT Control Period (FY 2014-15 to FY 2018-19).

### Generation from own plants

2.2 The Petitioner has submitted generation (MUs) from FY 2011 to FY 2013 as per the actual records and estimates of FY 2014 generation (MUs) is based on 8 months actual generation (Apr – Nov) and the rest 4 months' (Dec – Mar) projections on the basis of energy availability approved by the Commission or revised design energy proposed by HPSEBL, as applicable. The design energy of the plants varies significantly between winter and summer months. Hence, monthly projections of the generation (MUs) during the last 4 months are proposed using the historical trends of the respective 4 months only instead of simple extrapolation of previous 8 months.

2.3 Out of a total number of 23 plants as mentioned in Table given below, GoHP has a share of 12% free power in Ghanvi, Baner, Gaj, Larji, Uhl III and Ghanvi II HEPs. Hence, the HPSEBL receives 88% of the overall generation from these plants. The balance is received as free power.

**Table 3: Past Years' Generation from FY 2010-11 to FY 2013-14**

S.NO	Plant Name	FY 10-11	FY 11-12	FY 12-13	FY 13-14
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S.NO	Plant Name	FY 10-11	FY 11-12	FY 12-13	FY 13-14
1	Bhaba	537	537	537	537
2	Bassi	240	240	240	240
3	Giri	224	224	224	224
4	Andhra	81	81	81	81
5	Ghanvi	71	71	71	71
6	Baner	40	40	40	40
7	Gaj	39	39	39	39
8	Larji	523	523	523	523
9	Khauli	40	40	40	40
10	Binwa	22	22	22	22
11	Thirot	16	16	16	16
12	Gumma	0	0	0	0
13	Holi	9	9	9	9
14	Bhaba Aug	4	4	4	4
15	Nogli	6	6	6	6
16	Rongtong	2	2	2	2
17	Sal-II	7	7	7	7
18	Chaba	5	5	5	5
19	Rukti	3	3	3	3
20	Chamba	2	2	2	2
21	Killar	1	1	1	1
22	Uhl III - BVPCL	0	0	0	0
23	Ghanvi II	0	0	0	0
	<b>Total</b>	<b>1941</b>	<b>1908</b>	<b>1708</b>	<b>1872</b>

2.4 For the purpose of generation projections for the 3<sup>rd</sup> Control Period, the Petitioner has proposed to consider the Commission approved numbers for energy availability and net saleable energy for 17 Number of small hydroelectric plants (HEPs) as per the HPERC Order dated 15th Jan, 2014 in its Petition number 54 of 2013. As per the stated Order, out of 17 HEPs, the tariff for 8 HEPs was fixed by the Commission and accordingly no separate Petition has been filed by the Petitioner for these HEPs. The proposal for the remaining 9 small HEPs along with the 5 large HPEs is presented in the Petition. The details of the energy available (small HEPs) approved by the Commission in respect of 13 plants as stated above are given below:

**Table 4: Energy Availability in MUs for Hydro Plants**

S.NO	Plant Name	FY 10-11
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S.NO	Plant Name	FY 10-11
1	Bhaba	464.7
2	Bassi	346.83
3	Giri	289.55
4	Andhra	87.3
5	Baner	60.67
6	Gaj	38.31
7	Binwa	29.25
8	Nogli	9.86
9	Rongtong	7.64
10	Chaba	7.67
11	Rukti	6.54
12	Chamba	1.77
13	Larji	586.82

2.5 The 5 No. plants which are not covered under the HPERC Order dated 15th Jan, 2014 against petition no. 54 of 2013 are Larji, Ghanvi – II, Bassi, Bhaba and Giri. The Petitioner has proposed to consider the revised energy estimates for these 5 No. plants as per "Memorandum for the Proposal for revision of 'Design Energy' of existing Hydro Electric Plants of HPSEB Ltd". The energy availability projected by the HPSEBL for the 3<sup>rd</sup> Control period in respect of 23 HEPs is as given in the table below:-

**Table 5: Energy Availability Projection For 3rd MYT Period**

S.NO	Plant Name	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19
1	Bhaba	540	540	540	540	540
2	Bassi	345	345	345	345	345
3	Giri	219	219	219	219	219
4	Andhra	86	86	86	86	86
5	Ghanvi	81	81	81	81	81
6	Baner	53	53	53	53	53
7	Gaj	33	33	33	33	33
8	Larji	501	501	501	501	501
9	Khauri	40	40	40	40	40
10	Binwa	29	29	29	29	29
11	Thirot	18	18	18	18	18
12	Gumma	12	12	12	12	12
13	Holi	12	12	12	12	12
14	Bhaba Aug	18	18	18	18	18
15	Nogli	10	10	10	10	10
16	Rongtong	8	8	8	8	8

S.NO	Plant Name	FY 14-15	FY 15-16	FY 16-17	FY 17-18	FY 18-19
17	Sal-II	8	8	8	8	8
18	Chaba	8	8	8	8	8
19	Rukti	6	6	6	6	6
20	Chamba	2	2	2	2	2
21	Killar	1	1	1	1	1
22	Uhl III - BVPCCL	0	343	343	343	343
23	Ghanvi II	46	46	46	46	46
	<b>Total</b>	<b>2074</b>	<b>2417</b>	<b>2417</b>	<b>2417</b>	<b>2417</b>

### Determination of Annual Fixed Charges

2.6 HPSEBL, for the purpose of determination of Annual Fixed Charges and the tariff for sale of electricity from the generating stations, has considered the following elements as specified in the HPERC (Terms and Conditions for Determination of Hydro Generation supply Tariff) Regulations, 2011:

- a. Operation and Maintenance Expenses (O&M)
- b. Depreciation
- c. Interest on Loans
- d. Interest on Working Capital; and
- e. Return on Equity (RoE)

### Assumptions for Determination of Annual Fixed Charge

2.7 HPSEBL has estimated the AFC for each of the own generating plants based on the norms as per HPERC (Terms and Conditions for Determination of Hydro Generation supply Tariff), Regulations 2011 along with the respective Amendments thereon and the historical numbers.

2.8 HPSEBL has considered the following for determination of AFC:

- a. The completed cost of the projects as approved by the Commission in previous tariff orders.
- b. The ROE has been considered @ 15.50% as per the Commission's Hydro Generation Tariff Supply Regulations 2011 and subsequent amendments, except for Larji HEP wherein pre - tax ROE @ 19.38% was approved by the Commission in Tariff Order for 2011.

- c. The O&M expenses have been escalated as per the Amendment 2 of HPERC (Terms and Conditions for Determination of Hydro Generation Supply Tariff), 2011. The WPI and CPI considered for this purpose are 8.61% and 9.76% respectively, calculated as below:
- i. For the purpose of projecting R&M cost, the historical R&M cost as a percentage of the historical GFA has been escalated by the WPI factor 8.61% each year.
  - ii. The employee cost has been projected by escalating the historical employee cost by the CPI factor 9.76%. It was further escalated by the year-on-year growth rate in the employee number.
  - iii. For the purpose of projecting A&G cost, the historical A&G cost has been escalated by the WPI factor at 8.61% for each year.
- d. A depreciation rate of 5.28% has been considered for the first 12 years after capitalization. Thereafter, the balance net asset value is equally spread over the useful life of the plant.

2.9 The GoHP has 12% share in the generation of power from plants Gaj, Baner, Ghanvi, Khauli, Ghanvi II and Larji. The same has been reduced from total generation to arrive at the net saleable energy from these plants to recover the AFC.

#### **Annual Fixed Charges for BHABA HEP**

- 2.10 The Petitioner has filed an additional capitalization of INR 2.24 Cr. during the 2nd Control Period, and the same has been added to the Gross Fixed Assets (GFA) from FY 2011-12 onwards.
- 2.11 In addition to the opening GFA for FY 2015 which is at INR 224.43 Cr (INR 222.19 Cr + INR 2.24 Cr), the Petitioner has proposed a capital expenditure of INR 73.86 Cr to be capitalized during the 3rd MYT Control Period. Out of the proposed Capex, INR 56.69 Cr worth of capital expenditure is Projected to be funded through PFC loans, INR 3 Cr through short-term borrowings and INR 14.17 Cr through equity.

2.12 The Annual Fixed Charges for Bhaba HEP as submitted by the HPSEBL is as given in the table below:-

**Table 6: AFC for Bhaba as Submitted by HPSEBL**

S. No.	Particulars - Bhaba HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19
1	Gross Generation (Design Energy) (MU)	540.00	540.00	540.00	540.00	540.00
2	Total Auxiliary (MU)	0.03	0.02	0.02	0.02	0.02
3	Net Generation at Bus (MU)	539.97	539.98	539.98	539.98	539.98
4	Less: Free Power to GOHP (MU)	0.00	0.00	0.00	0.00	0.00
5	Energy Available for Sale (MU)	<b>539.97</b>	<b>539.98</b>	<b>539.98</b>	<b>539.98</b>	<b>539.98</b>
6	O&M expenses (INR Cr)	22.94	26.01	28.48	31.83	34.88
7	Depreciation @ 5.28% (INR Cr)	6.53	7.55	8.19	8.85	8.90
8	Interest & Finance Charges (INR Cr)	1.71	4.66	4.69	6.39	5.75
9	Return on Equity (INR Cr)	1.45	1.46	2.14	2.18	2.20
10	Interest on Working Capital (INR Cr)	1.47	1.73	1.89	2.13	2.28
11	Annual Fixed Charges (INR Cr)	<b>34.10</b>	<b>41.41</b>	<b>45.39</b>	<b>51.37</b>	<b>54.01</b>
12	Capacity Charges (INR Cr)	17.05	20.71	22.69	25.69	27.00
13	Fixed Charges (INR Cr)	17.05	20.71	22.69	25.69	27.00

#### Annual Fixed Charges for CHABA HEP

2.13 The Petitioner has not proposed any additional capitalization during the 2nd Control Period. Since it is a 94 year old plant, the initial cost of INR 1.21 Cr has been completely depreciated.

2.14 Apart from the opening GFA for FY 2015 of INR 1.21 Cr, the Petitioner has proposed a capital expenditure of INR 0.96 Cr to be capitalized during the 3rd MYT Control Period, all of which is projected to be funded through short-term borrowings.

2.15 The Annual Fixed Charges for Chaba HEP as submitted by the HPSEBL is as given in the table below:-

**Table 7: AFC for Chaba as Submitted by HPSEBL**

S. No.	Particulars - Chaba HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19
1	Gross Generation (Design Energy) (MU)	7.67	7.67	7.67	7.67	7.67
2	Total Auxiliary (MU)	0.08	0.08	0.08	0.08	0.08
3	Net Generation at Bus (MU)	7.59	7.59	7.59	7.59	7.59
4	Less: Free Power to GOHP (MU)	0.00	0.00	0.00	0.00	0.00
5	Energy Available for Sale (MU)	<b>7.59</b>	<b>7.59</b>	<b>7.59</b>	<b>7.59</b>	<b>7.59</b>

S. No.	Particulars - Chaba HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19
6	O&M expenses (INR Cr)	1.99	2.55	2.79	3.05	3.34
7	Depreciation @ 5.28% (INR Cr)	0.03	0.05	0.05	0.05	0.05
8	Interest & Finance Charges (INR Cr)	0.07	0.09	0.08	0.07	0.06
9	Return on Equity (INR Cr)	0.00	0.00	0.00	0.00	0.00
10	Interest on Working Capital (INR Cr)	0.11	0.14	0.15	0.17	0.18
11	Annual Fixed Charges (INR Cr)	<b>2.19</b>	<b>2.83</b>	<b>3.07</b>	<b>3.34</b>	<b>3.63</b>
12	Capacity Charges (INR Cr)	1.10	1.42	1.54	1.67	1.81
13	Fixed Charges (INR Cr)	1.10	1.42	1.54	1.67	1.81

### Annual Fixed Charges for NOGLI HEP

2.16 The Petitioner has not filed any additional capitalization during the 2nd Control Period.

2.17 Apart from the opening GFA for FY 2014-15 of INR 11.81 Cr, the Petitioner has proposed a capital expenditure of INR 5.20 Cr to be capitalized during the 3rd MYT Control Period and all of it is projected to be funded through PFC Loans.

2.18 The Annual Fixed Charges for Nogli HEP as proposed by the HPSEBL is as given in the table below:-

**Table 8: AFC for Nogli as Submitted by HPSEBL**

S. No.	Particulars - Nogli HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19
1	Gross Generation (Design Energy) (MU)	9.85	9.85	9.85	9.85	9.85
2	Total Auxiliary (MU)	0.10	0.10	0.10	0.10	0.10
3	Net Generation at Bus (MU)	9.75	9.75	9.75	9.75	9.75
4	Less: Free Power to GOHP (MU)	0.00	0.00	0.00	0.00	0.00
5	Energy Available for Sale (MU)	<b>9.75</b>	<b>9.75</b>	<b>9.75</b>	<b>9.75</b>	<b>9.75</b>
6	O&M expenses (INR Cr)	2.43	2.75	2.88	3.56	3.89
7	Depreciation @ 5.28% (INR Cr)	0.03	0.06	0.18	0.30	0.30
8	Interest & Finance Charges (INR Cr)	0.06	0.14	0.18	0.50	0.47
9	Return on Equity (INR Cr)	0.04	0.04	0.16	0.16	0.16
10	Interest on Working Capital (INR Cr)	0.13	0.15	0.17	0.22	0.23
11	Annual Fixed Charges (INR Cr)	<b>2.69</b>	<b>3.14</b>	<b>3.57</b>	<b>4.74</b>	<b>5.05</b>
12	Capacity Charges (INR Cr)	1.35	1.57	1.79	2.37	2.53
13	Fixed Charges (INR Cr)	1.35	1.57	1.79	2.37	2.53

### Annual Fixed Charges for RongTong HEP

- 2.19 The Petitioner has submitted an additional capitalization of Rs .04 Crs during the 2nd Control Period which has been added to the Gross Fixed Assets from FY 2011-12 onwards.
- 2.20 Apart from the opening GFA for FY 2014-15 of 16.43 Cr (INR 16.39 Cr + 0.04 Cr), the Petitioner has proposed a capital expenditure of INR 6.75 Cr to be capitalized during the 3rd MYT Control Period and all of it is intended to be funded through MNRE Grants. These grants were allocated as per the 13th Finance Commission Grant for strengthening of electricity infrastructure in Border Blocks of HP. Since this amount of INR 6.75 Cr is treated as a grant, no depreciation, Interest and finance charges and ROE have been charged on this amount.
- 2.21 The Annual Fixed Charges for RongTong HEP as submitted by the HPSEBL is as given in the table below:-

**Table 9: AFC for RongTong as Submitted by HPSEBL**

S. No.	Particulars - RongTong HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19
1	Gross Generation (Design Energy) (MU)	7.64	7.64	7.64	7.64	7.64
2	Total Auxiliary (MU)	0.08	0.08	0.08	0.08	0.08
3	Net Generation at Bus (MU)	7.56	7.56	7.56	7.56	7.56
4	Less: Free Power to GOHP (MU)	0.00	0.00	0.00	0.00	0.00
5	Energy Available for Sale (MU)	<b>7.56</b>	<b>7.56</b>	<b>7.56</b>	<b>7.56</b>	<b>7.56</b>
6	O&M expenses (INR Cr)	1.45	1.71	1.87	2.05	2.25
7	Depreciation @ 5.28% (INR Cr)	0.35	0.35	0.35	0.35	0.35
8	Interest & Finance Charges (INR Cr)	0.00	0.00	0.00	0.00	0.00
9	Return on Equity (INR Cr)	0.00	0.00	0.00	0.00	0.00
10	Interest on Working Capital (INR Cr)	0.09	0.10	0.11	0.12	0.13
11	Annual Fixed Charges (INR Cr)	<b>1.89</b>	<b>2.17</b>	<b>2.34</b>	<b>2.53</b>	<b>2.73</b>
12	Capacity Charges (INR Cr)	0.95	1.08	1.17	1.26	1.37
13	Fixed Charges (INR Cr)	0.95	1.08	1.17	1.26	1.37

#### **Annual Fixed Charges for RUKTI HEP**

- 2.22 The Petitioner has not filed any additional capitalization during the 2nd Control Period.

2.23 Apart from the opening GFA for FY 2014-15 of INR 1.59 Cr, the Petitioner has proposed a capital expenditure of INR 6.57 Cr to be capitalized during the 3rd MYT control period and all of it is intended to be funded through MNRE Grants. These grants were allocated as per the 13th Finance Commission Grant for strengthening of electricity infrastructure in Border Blocks of HP. Since this amount of INR 6.75 Cr is treated as a grant, no depreciation, Interest and finance charges and ROE have been charged on this amount.

2.24 The Annual Fixed Charges for Rukti HEP as submitted by the HPSEBL is as given in the table below:-

**Table 10: AFC for Rukti as Submitted by HPSEBL**

S. No.	Particulars - Rukti HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19
1	Gross Generation (Design Energy) (MU)	6.54	6.54	6.54	6.54	6.54
2	Total Auxiliary (MU)	0.07	0.07	0.07	0.07	0.07
3	Net Generation at Bus (MU)	6.47	6.47	6.47	6.47	6.47
4	Less: Free Power to GOHP (MU)	0.00	0.00	0.00	0.00	0.00
5	Energy Available for Sale (MU)	<b>6.47</b>	<b>6.47</b>	<b>6.47</b>	<b>6.47</b>	<b>6.47</b>
6	O&M expenses (INR Cr)	0.60	0.98	1.07	1.17	1.27
7	Depreciation @ 5.28% (INR Cr)	0.03	0.03	0.03	0.03	0.03
8	Interest & Finance Charges (INR Cr)	0.00	0.00	0.00	0.00	0.00
9	Return on Equity (INR Cr)	0.00	0.00	0.00	0.00	0.00
10	Interest on Working Capital (INR Cr)	0.03	0.05	0.06	0.06	0.07
11	Annual Fixed Charges (INR Cr)	<b>0.67</b>	<b>1.06</b>	<b>1.16</b>	<b>1.26</b>	<b>1.38</b>
12	Capacity Charges (INR Cr)	0.33	0.53	0.58	0.63	0.69
13	Fixed Charges (INR Cr)	0.33	0.53	0.58	0.63	0.69

#### **Annual Fixed Charges for ANDHRA HEP**

2.25 The Petitioner has not filed any additional capitalization during the 2nd Control Period.

2.26 Apart from the opening GFA for FY 2014-15 of INR 57.61 Cr, the Petitioner has estimated a capital expenditure of INR 26.08 Cr to be capitalized during the 3rd MYT Control Period, out of which, INR 19.44 Cr is projected to be funded through PFC loans, INR 4.86 Cr through equity and INR 1.78 Cr through short-term borrowings.

2.27 The Annual Fixed Charges for Andhra HEP as submitted by the HPSEBL is as given in the table below:-

**Table 11: AFC for Andhra as Submitted by HPSEBL**

S. No.	Particulars - Andhra HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19
1	Gross Generation (Design Energy) (MU)	87.30	87.30	87.30	87.30	87.30
2	Total Auxiliary (MU)	0.87	0.87	0.87	0.87	0.87
3	Net Generation at Bus (MU)	86.43	86.43	86.43	86.43	86.43
4	Less: Free Power to GOHP (MU)	0.00	0.00	0.00	0.00	0.00
5	Energy Available for Sale (MU)	<b>86.43</b>	<b>86.43</b>	<b>86.43</b>	<b>86.43</b>	<b>86.43</b>
6	O&M expenses (INR Cr)	7.05	7.76	8.51	10.02	10.97
7	Depreciation @ 5.28% (INR Cr)	1.28	1.33	2.02	2.71	2.75
8	Interest & Finance Charges (INR Cr)	0.20	0.40	0.61	2.36	2.26
9	Return on Equity (INR Cr)	0.05	0.06	0.71	0.71	0.75
10	Interest on Working Capital (INR Cr)	0.42	0.46	0.54	0.68	0.73
11	Annual Fixed Charges (INR Cr)	<b>8.99</b>	<b>10.01</b>	<b>12.39</b>	<b>16.47</b>	<b>17.45</b>
12	Capacity Charges (INR Cr)	4.50	5.01	6.20	8.23	8.72
13	Fixed Charges (INR Cr)	4.50	5.01	6.20	8.23	8.72

#### Annual Fixed Charges for GIRI HEP

2.28 The Petitioner has submitted an additional capitalization of Rs 5.28 Crs during the 2nd Control Period which has been added to the Gross Fixed Assets from FY 2011-12 onwards.

2.29 Apart from the opening GFA for FY 2014-15 of INR 41.50 Cr (INR 36.22 Cr + 5.28 Cr), the Petitioner has proposed a capital expenditure of INR 57.95 Cr to be capitalized during the 3rd MYT Control Period, out of which, INR 44.72 Cr is projected to be funded through PFC loans, INR 13.23 Cr through equity and INR 2.05 Cr through short term borrowings.

2.30 The Annual Fixed Charges for Giri HEP as submitted by the HPSEBL is as given in the table below:-

**Table 12: AFC for Giri as Submitted by HPSEBL**

S. No.	Particulars - Giri HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19
1	Gross Generation (Design Energy) (MU)	220.00	220.00	220.00	220.00	220.00
2	Total Auxiliary (MU)	1.10	1.10	1.10	1.10	1.10
3	Net Generation at Bus (MU)	218.90	218.90	218.90	218.90	218.90



S. No.	Particulars - Giri HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19
4	Less: Free Power to GOHP (MU)	0.00	0.00	0.00	0.00	0.00
5	Energy Available for Sale (MU)	<b>218.90</b>	<b>218.90</b>	<b>218.90</b>	<b>218.90</b>	<b>218.90</b>
6	O&M expenses (INR Cr)	20.84	22.10	24.97	41.05	44.77
7	Depreciation @ 5.28% (INR Cr)	1.09	1.23	2.90	4.47	4.50
8	Interest & Finance Charges (INR Cr)	0.25	0.86	1.63	5.44	5.09
9	Return on Equity (INR Cr)	0.04	0.16	1.70	1.70	1.73
10	Interest on Working Capital (INR Cr)	1.17	1.25	1.50	2.50	2.69
11	Annual Fixed Charges (INR Cr)	<b>23.39</b>	<b>25.59</b>	<b>32.69</b>	<b>55.14</b>	<b>58.78</b>
12	Capacity Charges (INR Cr)	11.70	12.80	16.35	27.57	29.39
13	Fixed Charges (INR Cr)	11.70	12.80	16.35	27.57	29.39

### Annual Fixed Charges for BANER HEP

2.31 The Petitioner has submitted an additional capitalization of Rs .20 Crs during the 2nd Control Period which has been added to the Gross Fixed Assets from FY 2011-12 onwards.

2.32 Apart from the opening GFA for FY 2015 of INR 55.87 Cr (INR 55.67 Cr+ 0.20 Cr), the Petitioner has proposed a capital expenditure of INR 2.90 Cr to be capitalized during the 3rd MYT control period, out of which, INR 1.45 Cr is projected to be funded through PFC loans, INR 0.30 Cr through equity and INR 1.15 Cr through short-term borrowings.

2.33 The Annual Fixed Charges for Baner HEP as submitted by the HPSEBL is as given in the table below:-

**Table 13: AFC for Baner as Submitted by HPSEBL**

S. No.	Particulars - Baner HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19
1	Gross Generation (Design Energy) (MU)	60.67	60.67	60.67	60.67	60.67
2	Total Auxiliary (MU)	0.61	0.61	0.61	0.61	0.61
3	Net Generation at Bus (MU)	60.06	60.06	60.06	60.06	60.06
4	Less: Free Power to GOHP (MU)	7.21	7.21	7.21	7.21	7.21
5	Energy Available for Sale (MU)	<b>52.85</b>	<b>52.85</b>	<b>52.85</b>	<b>52.85</b>	<b>52.85</b>
6	O&M expenses (INR Cr)	5.03	5.53	6.07	6.66	7.30
7	Depreciation @ 5.28% (INR Cr)	1.25	1.31	1.34	1.34	1.35
8	Interest & Finance Charges (INR Cr)	0.09	0.21	0.25	0.24	0.23
9	Return on Equity (INR Cr)	2.36	2.37	2.37	2.38	2.38
10	Interest on Working Capital (INR Cr)	0.36	0.39	0.42	0.45	0.49
11	Annual Fixed Charges (INR Cr)	<b>9.08</b>	<b>9.81</b>	<b>10.45</b>	<b>11.07</b>	<b>11.75</b>
12	Capacity Charges (INR Cr)	4.54	4.91	5.22	5.54	5.87
13	Fixed Charges (INR Cr)	4.54	4.91	5.22	5.54	5.87

**Annual Fixed Charges for Bassi HEP**

- 2.34 The Petitioner has claimed approved capital cost of INR 31.26 Cr in 1st MYT Order by the Commission as the original cost of the project, funded through 100% debt with no outstanding loan. In the 2nd MYT tariff order, the Commission had also considered an additional capitalization of INR 109.98 Cr, scaling up the GFA for FY 2011-12 to INR 141.24 Cr, for which PFC loan of INR 80 Cr had been considered with the rest of the amount of INR 29.98 being assumed to be met by state plan.
- 2.35 A cumulative additional capitalization till FY 2013-14 amounting to INR 155.42 Cr pertaining to a RMU scheme (including INR 109.98 Cr above) has been submitted by the Petitioner and added to the original GFA of INR 31.26 Cr, scaling up the opening GFA of FY 2014-15 to 186.67 Cr. Apart from the opening GFA, the Petitioner has projected a total capital expenditure of INR 13.77 Cr to be capitalized and added to the GFA during the 3rd MYT Control Period, out of which, INR. 10.98 Cr is projected to be funded through PFC loans, INR 2.20 Cr through equity and INR 2.79 Cr through short-term borrowings.
- 2.36 The Annual Fixed Charges for Bassi HEP as submitted by the HPSEBL is as given in the table below:-

**Table 14: AFC for Bassi as Submitted by HPSEBL**

S. No.	Particulars - Bassi HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19
1	Gross Generation (Design Energy) (MU)	346.00	346.00	346.00	346.00	346.00
2	Total Auxiliary (MU)	0.69	0.69	0.69	0.69	0.69
3	Net Generation at Bus (MU)	345.31	345.31	345.31	345.31	345.31
4	Less: Free Power to GOHP (MU)	0.00	0.00	0.00	0.00	0.00
5	Energy Available for Sale (MU)	<b>345.31</b>	<b>345.31</b>	<b>345.31</b>	<b>345.31</b>	<b>345.31</b>
6	O&M expenses (INR Cr)	16.13	17.97	19.70	21.59	23.65
7	Depreciation @ 5.28% (INR Cr)	3.60	3.90	3.98	4.04	4.07
8	Interest & Finance Charges (INR Cr)	12.90	12.78	11.79	10.70	9.52
9	Return on Equity (INR Cr)	0.29	0.33	0.37	0.40	0.41
10	Interest on Working Capital (INR Cr)	1.26	1.36	1.44	1.52	1.60
11	Annual Fixed Charges (INR Cr)	<b>34.17</b>	<b>36.35</b>	<b>37.28</b>	<b>38.25</b>	<b>39.25</b>
12	Capacity Charges (INR Cr)	17.08	18.18	18.64	19.13	19.62

S. No.	Particulars - Bassi HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19
13	Fixed Charges (INR Cr)	17.08	18.18	18.64	19.13	19.62

### Annual Fixed Charges for BINWA HEP

2.37 The Petitioner has submitted an additional capitalization of Rs .08 Crs during the 2nd Control Period which has been added to the Gross Fixed Assets from FY 2011-12 onwards.

2.38 Apart from the opening GFA for FY 2014-15 of INR 17.52 Cr (INR 17.44 Cr+ 0.08 Cr), the Petitioner has proposed a capital expenditure of INR 15.50 Cr to be capitalized during the 3rd MYT control period, out of which, INR 11.60 Cr is projected to be funded through PFC loans, INR 2.90 Cr through equity and INR 1 Cr through short-term borrowings.

2.39 The Annual Fixed Charges for Binwa HEP as submitted by the HPSEBL is as given in the table below:-

**Table 15: AFC for Binwa as Submitted by HPSEBL**

S. No.	Particulars - Binwa HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19
1	Gross Generation (Design Energy) (MU)	29.25	29.25	29.25	29.25	29.25
2	Total Auxiliary (MU)	0.20	0.20	0.20	0.20	0.20
3	Net Generation at Bus (MU)	29.05	29.05	29.05	29.05	29.05
4	Less: Free Power to GOHP (MU)	0.00	0.00	0.00	0.00	0.00
5	Energy Available for Sale (MU)	<b>29.05</b>	<b>29.05</b>	<b>29.05</b>	<b>29.05</b>	<b>29.05</b>
6	O&M expenses (INR Cr)	4.70	5.18	6.22	6.82	7.47
7	Depreciation @ 5.28% (INR Cr)	0.55	0.89	1.22	1.23	1.23
8	Interest & Finance Charges (INR Cr)	0.34	0.51	1.48	1.44	1.34
9	Return on Equity (INR Cr)	0.10	0.44	0.45	0.45	0.45
10	Interest on Working Capital (INR Cr)	0.28	0.32	0.41	0.44	0.47
11	Annual Fixed Charges (INR Cr)	<b>5.97</b>	<b>7.33</b>	<b>9.77</b>	<b>10.38</b>	<b>10.97</b>
12	Capacity Charges (INR Cr)	2.99	3.67	4.88	5.19	5.48
13	Fixed Charges (INR Cr)	2.99	3.67	4.88	5.19	5.48

### Annual Fixed Charges for Chamba HEP

2.40 The Petitioner has not filed any additional capitalization during the 2nd Control Period.

- 2.41 The Petitioner proposed total capital expenditure of INR 2 Cr to be spent on maintenance of the plant during the 3rd Control Period.
- 2.42 The Annual Fixed Charges for Chamba HEP as submitted by the HPSEBL is as given in the table below:-

**Table 16: AFC for Chamba as Submitted by HPSEBL**

S. No.	Particulars - Chamba HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19
1	Gross Generation (Design Energy) (MU)	1.77	1.77	1.77	1.77	1.77
2	Total Auxiliary (MU)	0.02	0.02	0.02	0.02	0.02
3	Net Generation at Bus (MU)	1.75	1.75	1.75	1.75	1.75
4	Less: Free Power to GOHP (MU)	0.00	0.00	0.00	0.00	0.00
5	Energy Available for Sale (MU)	<b>1.75</b>	<b>1.75</b>	<b>1.75</b>	<b>1.75</b>	<b>1.75</b>
6	O&M expenses (INR Cr)	0.36	0.39	0.43	0.47	0.51
7	Depreciation @ 5.28% (INR Cr)	0.01	0.00	0.00	0.00	0.00
8	Interest & Finance Charges (INR Cr)	0.00	0.00	0.00	0.00	0.00
9	Return on Equity (INR Cr)	0.00	0.00	0.00	0.00	0.00
10	Interest on Working Capital (INR Cr)	0.02	0.02	0.02	0.03	0.03
11	Annual Fixed Charges (INR Cr)	<b>0.39</b>	<b>0.41</b>	<b>0.45</b>	<b>0.49</b>	<b>0.54</b>
12	Capacity Charges (INR Cr)	0.19	0.21	0.23	0.25	0.27
13	Fixed Charges (INR Cr)	0.19	0.21	0.23	0.25	0.27

#### Annual Fixed Charges for GAJ HEP

- 2.43 The Petitioner has submitted an additional capitalization of Rs 1.06 Crs during the 2nd Control Period which has been added to the GFA from FY 2011-12 onwards.
- 2.44 Apart from the opening GFA for FY 2014-15 of INR 61.64 Cr (INR 60.58 Cr+ 1.06 Cr), the Petitioner has proposed a capital expenditure of INR 3.96 Cr to be capitalized during the 3rd MYT Control Period, out of which, INR 1.89 Cr is projected to be funded through PFC loans, INR .47 Cr through equity and INR 1.60 Cr through short-term borrowings.
- 2.45 The Annual Fixed Charges for Gaj HEP as submitted by the HPSEBL is as given in the table below:-

**Table 17: AFC for Gaj as Submitted by HPSEBL**

S. No.	Particulars - Gaj HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19

S. No.	Particulars - Gaj HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19
1	Gross Generation (Design Energy) (MU)	38.31	38.31	38.31	38.31	38.31
2	Total Auxiliary (MU)	0.38	0.38	0.38	0.38	0.38
3	Net Generation at Bus (MU)	37.93	37.93	37.93	37.93	37.93
4	Less: Free Power to GOHP (MU)	4.55	4.55	4.55	4.55	4.55
5	Energy Available for Sale (MU)	<b>33.38</b>	<b>33.38</b>	<b>33.38</b>	<b>33.38</b>	<b>33.38</b>
6	O&M expenses (INR Cr)	7.08	7.75	8.52	9.34	10.22
7	Depreciation @ 5.28% (INR Cr)	1.43	1.46	1.50	1.50	1.50
8	Interest & Finance Charges (INR Cr)	0.24	0.29	0.34	0.33	0.31
9	Return on Equity (INR Cr)	2.37	2.39	2.40	2.40	2.40
10	Interest on Working Capital (INR Cr)	0.48	0.52	0.56	0.60	0.65
11	Annual Fixed Charges (INR Cr)	<b>11.60</b>	<b>12.41</b>	<b>13.32</b>	<b>14.17</b>	<b>15.08</b>
12	Capacity Charges (INR Cr)	5.80	6.21	6.66	7.09	7.54
13	Fixed Charges (INR Cr)	5.80	6.21	6.66	7.09	7.54

### Annual Fixed Charges for Larji HEP

2.46 HPSEBL had initially proposed the capital cost of the Larji HEP at INR 1293.69 Cr to the Commission and subsequently as on March 31, 2008, HPSEBL proposed the cost of Larji HEP at INR 1461.33 Cr. As per the order of the Commission for determination of capital cost of Larji HEP (126 MW) and other related issues, dated July 2011, the capital cost was revised from INR 1461.33 Cr to INR 1340 Cr and then further to INR 1098.70 Cr. The Petitioner has considered this approved capital cost of INR 1098.70 Cr. in its proposals.

2.47 The Petitioner has proposed a total capital expenditure of INR 34.95 Cr to be capitalized and added to the GFA during the 3rd MYT Control Period, out of which, INR 22.73 Cr is projected to be funded through PFC loans, INR 5.68 Cr through equity and INR 6.54 Cr through short-term borrowings.

2.48 The Petitioner also submitted that it would file a detailed separate petition for Larji HEP.

2.49 The Annual Fixed Charges for Larji HEP as submitted by the HPSEBL is as given in the table below:-

**Table 18: AFC for Larji as Submitted by HPSEBL**

S. No.	Particulars - Larji HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19
1	Gross Generation (Design Energy) (MU)	570.00	570.00	570.00	570.00	570.00

S. No.	Particulars - Larji HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19
2	Total Auxiliary (MU)	1.14	1.14	1.14	1.14	1.14
3	Net Generation at Bus (MU)	568.86	568.86	568.86	568.86	568.86
4	Less: Free Power to GOHP (MU)	68.26	68.26	68.26	68.26	68.26
5	Energy Available for Sale (MU)	<b>500.60</b>	<b>500.60</b>	<b>500.60</b>	<b>500.60</b>	<b>500.60</b>
6	O&M expenses (INR Cr)	22.73	24.92	27.32	29.95	32.81
7	Depreciation @ 5.28% (INR Cr)	56.89	57.26	57.58	57.85	58.25
8	Interest & Finance Charges (INR Cr)	12.93	8.12	3.34	2.82	2.84
9	Return on Equity (INR Cr)	30.39	30.59	30.77	30.92	31.25
10	Interest on Working Capital (INR Cr)	3.51	3.53	3.57	3.71	3.88
11	Annual Fixed Charges (INR Cr)	<b>126.45</b>	<b>124.43</b>	<b>122.58</b>	<b>125.24</b>	<b>129.03</b>
12	Capacity Charges (INR Cr)	63.22	62.21	61.29	62.62	64.51
13	Fixed Charges (INR Cr)	63.22	62.21	61.29	62.62	64.51

### Annual Fixed Charges for Ghanvi II HEP

2.50 The Petitioner submitted that Ghanvi II project was expected to be commissioned in FY 2015. The project cost of INR 43.80 Cr has been considered as the capital cost of the project by the Petitioner. No further capital expenditure during the 3rd Control Period has been projected for Ghanvi II. The R&M expenditure has been derived @ 2.50% of the GFA while for the employee and the A&G expenses, the average employee cost / MU & A&G cost / MU for all other plants have been used for benchmarking.

2.51 The Annual Fixed Charges for Ghanvi II HEP as submitted by the HPSEBL is as given in the table below:-

**Table 19: AFC for Ghanvi II as Submitted by HPSEBL**

S. No.	Particulars - Ghanvi II HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19
1	Gross Generation (Design Energy) (MU)	52.27	52.27	52.27	52.27	52.27
2	Total Auxiliary (MU)	0.26	0.26	0.26	0.26	0.26
3	Net Generation at Bus (MU)	52.01	52.01	52.01	52.01	52.01
4	Less: Free Power to GOHP (MU)	6.24	6.24	6.24	6.24	6.24
5	Energy Available for Sale (MU)	<b>45.77</b>	<b>45.77</b>	<b>45.77</b>	<b>45.77</b>	<b>45.77</b>
6	O&M expenses (INR Cr)	3.54	3.77	4.04	4.32	4.64
7	Depreciation @ 5.28% (INR Cr)	2.61	2.91	2.91	2.91	2.91
8	Interest & Finance Charges (INR Cr)	7.64	6.22	4.71	3.71	2.79
9	Return on Equity (INR Cr)	2.23	2.23	2.23	2.23	2.23
10	Interest on Working Capital (INR Cr)	0.00	0.00	0.00	0.00	0.00
11	Annual Fixed Charges (INR Cr)	<b>16.02</b>	<b>15.14</b>	<b>13.89</b>	<b>13.18</b>	<b>12.57</b>
12	Capacity Charges (INR Cr)	8.01	7.57	6.95	6.59	6.29

S. No.	Particulars – Ghanvi II HEP	Control Period				
		2014-15	2015-16	2016-17	2017-18	2018-19
13	Fixed Charges (INR Cr)	8.01	7.57	6.95	6.59	6.29

### Total ARR/AFC

2.52 Total Annual Fixed Charges for 13 plants (Except for Ghanvi II) proposed by the petitioner is summarised in the table below :-

**Table 20: Total Generation ARR/AFC (Except Ghanvi II) as proposed by the Petitioner**

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
O & M Expenses	Rs Cr	113.32	125.60	138.84	167.54	183.32
R&M Expenses	Rs Cr	30.07	35.20	39.76	58.81	63.99
Employees Expenses	Rs Cr	82.06	89.10	97.68	107.21	117.67
A&G Expenses	Rs Cr	1.19	1.29	1.41	1.53	1.66
Depreciation	Rs Cr	73.07	75.45	79.35	82.73	83.30
Interest Charges	Rs Cr	32.43	32.70	30.69	30.29	27.85
Return on Equity	Rs Cr	37.09	37.84	41.07	41.28	41.73
Interest on Working Capital	Rs Cr	9.32	10.04	10.84	12.61	13.44
<b>Annual Fixed Charge</b>	<b>Rs Cr</b>	<b>261.59</b>	<b>276.98</b>	<b>294.48</b>	<b>334.47</b>	<b>349.64</b>





### 3. Objection filed and issues raised by Consumers during Public Hearing

#### Introduction

- 3.1 The interested parties/stakeholders were asked to file their objections and suggestions on the Petition by 20th March 2014. However, no comments and suggestions were received from any stakeholder including consumers/ consumer associations and general public by the given due date.
- 3.2 A Public Hearing was held on 26th March, 2014 at the Commission's Court Room in Shimla where none of the stakeholders appeared to make any objections or provide any comments/ suggestions.



## 4. Analysis of Aggregate Revenue Requirement (ARR) for the Third Control Period

### Background

4.1 The HPSEBL owns and operates 23 hydroelectric plants listed below along with their capacity and year of commissioning.

Table 21: Details of HPSEBL Hydro Electric Stations

S.NO	Plant Name	Commissioning Year	Units	Installed Capacity (MW)
1	Chaba	1913-14	2 x 0.5 + 3 x 0.25	1.75
2	Chamba	1938, 57, 85	3 x 0.15 MW	0.45
3	Nogli	1963, 69, 78	2 x 0.25 + 4 x 0.50 MW	2.50
4	Bassi	1970, 71, 81	4 x 15.00 MW	60.00
5	Giri	1978	2 x 30.00 MW	60.00
6	Rukti	1979, 80	3 x 0.50 MW	1.50
7	Binwa	1984	2 x 3.00 MW	6.00
8	Rong Tong	1986-87, 97	4 x 0.50 MW	2.00
9	Andhra	1987	3 x 5.65 MW	16.95
10	Bhaba	1989	3 x 40.00 MW	120.00
11	Killar	1995	3 x 0.10 MW	0.30
12	Thirot	1995	3 x 1.50 MW	4.50
13	Gaj	1996	3 x 3.50 MW	10.50
14	Baner	1996	3 x 4.00 MW	12.00
15	Sal – II	1999	2 x 1.00 MW	2.00
16	Gumma	2000	2 x 1.50 MW	3.00
17	Ghanvi	2000	2 x 11.25 MW	22.50
18	Holi	2004	2 x 1.50 MW	3.00
19	Khaulti	2006	2 x 6.00 MW	12.00
20	Larji	2006	3 x 42.00 MW	126.00
21	Bhaba Aug	N.C.	2 x 5.00 MW	10.00
22	Uhl III - BVPCL	N.C.	2 x 2.25 MW	4.50
23	Ghanvi II	N.C.	2 x 2.25 MW	4.50

### Commission Approach

- 4.2 The Commission has analysed the MYT Petition submitted by the Petitioner for approval of the ARR and determination of Generation Tariff for the Third Control Period (FY 2014-15 to FY 2018-19). This Chapter covers analysis on the proposed plant wise ARR for each year of the Third Control Period including Depreciation, O&M expenses, Interest and Finance Charges and Working Capital Requirement, etc.
- 4.3 The Commission has held several rounds of technical discussions to validate the data submitted by the Petitioner and sought further clarifications on various issues based on its scrutiny and analysis. The Commission has considered all information submitted by the Petitioner as part of the Tariff Petition including responses to various queries raised during the discussions.
- 4.4 The determination of plant wise tariffs for the Generation function of the HPSEBL is an essential step for furthering the Commission's initiative of bringing in functional independence and accountability. The generation function of the HPSEBL should function in an optimal and efficient manner so as to be a least cost generation source for the distribution function and be a source of income generation by way of selling surplus power in the open market.
- 4.5 For estimating the separate costs of generation plants the Commission had directed the board to maintain separate record of accounts, such as amounts of revenue, cost, asset, liability, and reserve for the generation business. During the various discussions with the HPSEBL it was revealed that the separation of accounts could not be prepared and the numbers related to expenses are not reliable. The Commission during various discussions asked the Petitioner to submit plant wise expenses for all the expenses head. The Commission found several discrepancies with the Petitioner's submission and reached at the conclusion that the plant wise data submitted by the Petitioner is not reliable and credible.

- 4.6 The Commission recognised that an exercise to determine plant-wise tariff in the absence of credible and reliable data is an exercise in futility. Though, the Petitioner has complied with the directions of the Commission and filed a separate Petition for its generation business which is a step forward in segregating its generation business and making it as a separate profit centre. Accordingly, as in the previous orders, the Commission has decided to go ahead with the exercise with the expectation of asserting the utility to treat each of its generating plant as a profit centre and revenue generation source.
- 4.7 The Commission noted that the Petitioner has filed its Petition for 14 hydro generation plants out of the total of 23 own generation plants. The Petitioner has submitted the various expenses of the plants separately, though it failed to submit the complete details of plant wise expenses. For example, the petitioner expressed its inability to submit details of R&M, A&G and Employees expenses for different plants.
- 4.8 The Petition did not include the AAR proposals for Eight (8) small plants as their respective tariffs had already been fixed by the Commission as per the HPERC order dated 15th January 2014 against the petition number 54 of 2013. However, the Commission noted that the Petitioner has given preliminary estimates for three large plants having generation capacity of above 25 MW i.e. Bhaba, Giri and Bassi and submitted that detailed Petition for these plants would be submitted subsequently. The Commission notes with concern that detailed Petition for these plants could not be submitted by the Petitioner despite Commission's repeated directions and reminders in this regard. Accordingly, the Commission has approved the annual fixed cost and ARR for these plants with the data available with the Commission through various submissions of the Petitioner.
- 4.9 The Commission through its order dated 15<sup>th</sup> January 2014 had fixed the tariff for the eight plants i.e. Ghanvi, Khauli, Thiroth, Bhaba Augmentation, Gumma, Holi, Sal-II, Killar. However, the Commission had not computed ARR of these plants; the Petitioner has also not included these plants in its tariff petition. In

view of this, the Commission has not covered AFC of these plants in this Order.

- 4.10 The Commission has also not approved any fixed cost or generation tariff for Ghanvi II Plant which is not commissioned yet. The Commission directs the Petitioner to file a separate Petition for approval of the capital cost and Annual fixed Charges for Ghanvi II plants on its commissioning.
- 4.11 The Commission noted that the Petitioner has included capitalization of assets carried out during previous MYT period for several plants. In the previous MYT Tariff Order the Petitioner was directed to file petitions for additional capitalisation towards schemes which it intended to undertake on the existing projects in accordance with the provisions of the HPERC Generation Tariff Regulations, for the approval of the Commission. During the tariff determination process, the Commission through several discussions and written queries asked the Petitioner to submit the proof regarding the capitalization of these assets including nature of asset added, any prior approval taken from Commission for the schemes therein and funding availed for the same. The Petitioner had shown its inability to submit such documentary evidence despite Commission's repeated reminders in this regard. Accordingly, the Commission has not approved any additional capitalization proposed by the Petitioner for previous control period for any of the plants. The Commission has considered the same asset base at the beginning of the Third Control period as was approved by the Commission during the previous MYT Tariff Order or during the true-up of first MYT period.
- 4.12 The Petitioner also proposed assets capitalized for the third control period for each plant but didn't file any capital expenditure plan and funding plan for the same. The Commission asked the Petitioner to file a business plan for Third Control period as per MYT regulations. As the Petitioner failed to submit any capital expenditure plan for MYT period, need of capital expenditure, funding and benefit accrued from such expenditure etc, the Commission has

disallowed any Capital expenditure or Capitalization of any of its plant for Third Control Period.

- 4.13 The Commission, for determination of ARR/ AFC for the stations owned and operated by the Petitioner, has followed the methodology adopted in the previous tariff orders and computed separate ARR and AFC for all the plants. The AFC for Larji HEP has been determined by the Commission separately through order dated 7th July 2011.

#### **Design Energy**

- 4.14 The Petitioner has also submitted the actual generation for previous three years which is very low as compare to design energy of the various plants. The Commission had directed the Petitioner to look on to the reasons for such large deviation and undertake studies to re-determine the design energy for all stations based on the latest hydrological data. The Petitioner has not file any such study report to the Commission. The Commission in its order dated 15<sup>th</sup> January 2014 had approved the design energy for each of the HPSEBL plant. The Petitioner also submitted that for the 5 plants Larji, Ghanvi – II, Bassi, Bhaba and Giri the revised design energy is estimated as per “Memorandum for the Proposal for revision of ‘Design Energy’ of existing Hydro Electric Plants of HPSEB Ltd” . Despite repeated enquires about the said memorandum the Petitioner could neither explain the memorandum nor produce any such memorandum before the Commission.
- 4.15 Design energy is linked with generation tariff and therefore, has wide repercussion in entire supply chain of power sector in the state. It is a benchmark power potential as per project design and an indicator for performance and efficiency. It is deduced with complete technical exercise and usually fixed for useful life of the plant. The actual energy generation varied from the design energy due to various reasons. The claim of reduction in design energy based on loss of generation for reasons including ecological reasons must not be encouraged and taken as the permanent loss of design

energy for life of the plant. The Commission also observed in its Order dated 15<sup>th</sup> January 2014

*"The matter regarding variation in actual generation vis-à-vis design energy fixed at the time of project execution had been under active review, both at HPSEBL and HPERC levels and series of joint consultations also had taken place between the HPSEBL and HPERC. Substantial reduction in generation may require looking into the issues of inefficiencies, both of installed equipment and the O&M. On the other hand, if design energy is reduced consequent to change in hydrology, inefficient investment has to be compensated by efficient O&M. Therefore, it is important to have station-wise diagnosis to identify the factors leading to under-performance and where it is fully established that there is substantial change in hydrology, either due to data inaccuracies at the time of designing the project or reduction over the period of time, only such cases merit review of design energy.*

*There could be various reasons, other than change in hydrology, for under performance of the powerhouses"*

- 4.16 The Commission also observed various reasons in loss of generation in individual plants ranging from damage of water conductor system, frequent problems in machinery and original Equipment etc. The Commission found that it is not always the issue of hydrology or the design energy but of deficiencies and inefficiencies in the project components and also O&M of projects which resulted in loss of generation in these plants. The Commission has repeatedly directed the petitioner to improve the design energy of its HEPs by carrying out necessary renovations and modernization works. Hence the Commission is of the view that approval of permanent shortfall in generation and hence restatement of design energy is not called for.
- 4.17 In the present Order, the Commission has considered the same Design Energy, as previously approved, for the purpose of computation of AFC for HPSEBL generation plants except for the plants for which design energy has



been approved in 15<sup>th</sup> January 2014 order . The Design Energy, Auxiliary consumption, free power and net saleable energy considered by the Commission for all the plants are reproduced in the table below:-

**Table 22: Approved Energy Availability for HPSEBL Plants**

S.NO	Plant Name	Design Energy (MUs)	Energy Availability (MUs)	Free Power	Auxiliary Con. (MUs)	Net Saleable Energy (MUs)
1.	Bhaba	464.7	464.7	Nil	0.93	463.77
2.	Bassi	346.83	346.83	Nil	0.69	346.14
3.	Giri	289.55	289.55	Nil	0.58	288.97
4.	Andhra	87.3	87.3	Nil	0.87	86.43
5.	Baner	60.67	60.67	7.21	0.61	52.85
6.	Gaj	38.31	38.31	4.55	0.38	33.38
7.	Binwa	29.25	29.25	Nil	0.2	29.05
8.	Nogli	9.86	9.86	Nil	0.1	9.75
9.	Rongtong	7.64	7.64	Nil	0.08	7.56
10.	Chaba	7.67	7.67	Nil	0.08	7.59
11.	Rukti	6.54	6.54	Nil	0.07	6.47
12.	Chamba	1.77	1.77	Nil	0.02	1.75
13.	Larji	586.82	586.82	70.41	1.17	515.23
14.	Ghanvi	93.34	93.34	11.07	1.12	81.15
15.	Khauri	49.95	49.95	5.95	0.35	43.65
16.	Thirot	23.44	17.74	Nil	0.16	17.58
17.	Gumma	18.11	11.83	Nil	0.12	11.71
18.	Holi	17.52	11.83	Nil	0.12	11.71
19.	Bhaba Aug.	23.44	17.74	2.12	0.16	15.4512
20.	Sal - II	12.52	7.88	Nil	0.09	7.79
21.	Killar	1.16	1.16	Nil	0.01	1.15
22.	<b>Total</b>	<b>2184.46</b>	<b>2148.37</b>	<b>101.33</b>	<b>7.92</b>	<b>2039.13</b>

#### Components of Annual Fixed Charge

4.18 The Commission, for determination of Annual Fixed Charges and the tariff for sale of electricity from the generating stations, has considered the following elements as specified by the HPERC (Terms and Conditions for Determination of Hydro Generation Tariff) (Second Amendment) Regulations, 2013

##### a. Operation and Maintenance Expenses (O&M)

- b. Depreciation
- c. Interest on Loans
- d. Interest on Working Capital; and
- e. Return on Equity (RoE)

4.19 The Commission has followed the same asset base, capital structure of each plant and the same methodology for computation Interest on Loans and Return on Equity and depreciation as approved by the Commission in the previous Order.

#### **Operation and Maintenance Expenses (O&M)**

4.20 The O&M Expenses are computed as specified in the Regulation 22 of the Himachal Pradesh Electricity Regulatory Commission (Terms and Conditions for determination of Hydro Generation Tariff) (Second Amendment) Regulations, 2013. As per the Regulations, O&M expenses for the existing generating stations which have been in operation for 3 years or more as on 31 March 2013, shall be derived on the basis of actuals for the years 2010-11 to 2012-13, based on the audited statement of accounts, excluding expenses, if any, after prudence check by the Commission.

4.21 The Petitioner submitted the actual O&M Expenses for the FY 2010-11 to FY 2012-13. The Commission noted that actual O&M expenses submitted by the Petitioner for FY 2011-12 and FY 2012-13 are much higher than that approved by the Commission for these years in the previous Tariff Order. A comparison of the same is provided in the table below:

**Table 23: Comparison of Actual and approved O&M expenses for FY 12 and FY 13**

Plant Name	Actual		Approved	
	FY 12	FY 13	FY 12	FY 13
Bhaba	17.53	18.87	14.92	14.92
Bassi	9.54	10.56	8.58	8.58
Giri	16.56	16.92	12.66	12.66
Andhra	5.28	6.56	4.45	4.45
Baner	4.60	4.28	4.14	4.14

Plant Name	Actual		Approved	
	FY 12	FY 13	FY 12	FY 13
Gaj	4.73	6.00	3.71	3.71
Binwa	4.02	4.24	3.45	3.45
Nogli	1.85	2.11	1.80	1.80
Rongtong	0.49	1.21	0.79	0.79
Chaba	1.34	1.59	1.31	1.31
Rukti	0.25	0.50	0.52	0.52
Chamba	0.22	0.30	0.33	0.33
Larji	16.05	18.97	15.00	16.25

4.22 In the previous Order, the Commission had approved total O&M expenses for each plant and had reminded the Petitioner that as per regulation 22(7) of the HPERC (Terms and Conditions for Determination of Hydro Generation Tariff) Regulations , 2011 at least 30% of the approved O&M expenses must be spent on repairs and maintenance activities. Additionally, the Commission had asked the Petitioner to rationalize the employee expenses as it was found to be on a higher side.

4.23 The Commission has analysed the actual employee expenses of each plant and found the same to be on a significantly higher side. There is substantial scope to reduce and rationalize the staffing at various HEPs of the HPSEBL. The proposed employee expenses and R&M expenses as a % of total of O&M expenses are as provided in the table below:

**Table 24: Proposed R&M and Employees Expenses as a % Of O&M expenses**

Plant Name	FY 12		FY 13	
	R&M	Employees	R&M	Employees
Bhaba	22%	76%	22%	77%
Bassi	2%	97%	8%	91%
Giri	40%	59%	33%	66%
Andhra	17%	82%	16%	84%
Baner	10%	89%	10%	89%
Gaj	7%	92%	26%	73%
Binwa	7%	92%	13%	86%
Nogli	36%	63%	34%	65%
Rongtong	33%	67%	19%	81%
Chaba	13%	87%	23%	76%
Rukti	44%	56%	12%	88%
Chamba	9%	91%	37%	63%
Larji	26%	73%	25%	74%

- 4.24 The Commission noticed that while 56% to 97% of the total O&M expenses were spent on employee expenses in FY 2011-12, the figures were 63% to 91% in FY 2012-13. Though the Petitioner has tried to reduce excessive employee expenses there is still substantial scope to further rationalize these expenses.
- 4.25 The Commission also noted that the Petitioner has included the arrears for past years in the employee expenses submitted for the FY 2012-13. The Commission has approved employee expenses for FY 2014-15 to FY 2018-19 based on the actual expenses incurred by the Petitioner after removing past arrears and have tried to rationalize these expenses provisionally while projecting for the Third Control Period based on parameters like location and capacity of the plant.
- 4.26 The proposed and approved employee expenses including provision for Pension Contributions for various plants of HPSEBL are enumerated below. It is to be noted that pension contribution is not part of Employees expenses and treated as a separate item under O&M expenses. The pension contribution is added in employee expenses in below given table just for comparison purpose as petitioner has not submitted the pension contribution separately for generation business. Out of total Employees expenses approved below the Commission has approved 8% Pension Contribution provisionally which is subject to true up based on the actual Pension Contribution filed by the petitioner at the time of true up.

**Table 25: Proposed Employees Expenses by the Petitioner**

(All Figures in Rs Crores)

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Bhaba	17.49	19.20	21.07	23.13	25.38
Bassi	10.15	11.14	12.23	13.42	14.73
Giri	13.19	13.51	14.83	16.28	17.86
Andhra	5.78	6.34	6.96	7.64	8.38
Baner	4.48	4.92	5.40	5.93	6.51
Gaj	5.08	5.58	6.12	6.72	7.38
Binwa	3.88	4.26	4.67	5.13	5.63
Nogli	1.56	1.72	1.77	1.94	2.13
Rongtong	1.18	1.30	1.42	1.56	1.71

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Chaba	1.54	1.69	1.85	2.03	2.23
Rukti	0.53	0.58	0.64	0.70	0.77
Chamba	0.23	0.25	0.28	0.30	0.33
Larji	16.96	18.62	20.43	22.43	24.62
<b>Total</b>	<b>82.06</b>	<b>89.10</b>	<b>97.68</b>	<b>107.21</b>	<b>117.67</b>

Table 26: Plant-wise Approved Employees Expenses

(All Figures in Rs Crores)

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Bhaba	15.68	17.21	18.89	20.74	22.76
Bassi	10.88	11.94	13.11	14.39	15.79
Giri	10.86	11.92	13.09	14.36	15.77
Andhra	6.23	6.84	7.51	8.24	9.04
Baner	4.34	4.77	5.23	5.74	6.30
Gaj	4.22	4.64	5.09	5.58	6.13
Binwa	3.72	4.09	4.49	4.93	5.41
Nogli	1.57	1.72	1.89	2.07	2.28
Rongtong	1.34	1.47	1.61	1.77	1.94
Chaba	1.10	1.21	1.33	1.46	1.60
Rukti	0.60	0.66	0.72	0.79	0.87
Chamba	0.22	0.24	0.26	0.29	0.31
Larji	16.01	17.57	19.29	21.17	23.23
<b>Total</b>	<b>76.78</b>	<b>84.28</b>	<b>92.50</b>	<b>101.53</b>	<b>111.43</b>

4.27 The Commission has projected the R&M expenses and A&G expenses on actual expenses as per Regulation 22 of the Himachal Pradesh Electricity Regulatory Commission (Terms and Conditions for determination of Hydro Generation Tariff) (Second Amendment) Regulations, 2013. The total plant-wise O&M expenses including pension contribution proposed by the petitioner and approved by the Commission are given in the table below:-

Table 27: Plant wise proposed O&amp;M expenses

(All figures in Rs Crores)

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Bhaba	22.94	26.01	28.48	31.83	34.88
Bassi	16.13	17.97	19.70	21.59	23.65
Giri	20.84	22.10	24.97	41.05	44.77
Andhra	7.05	7.76	8.51	10.02	10.97
Baner	5.03	5.53	6.07	6.66	7.30
Gaj	7.08	7.75	8.52	9.34	10.22
Binwa	4.70	5.18	6.22	6.82	7.47
Nogli	2.43	2.75	2.88	3.56	3.89
Rongtong	1.45	1.71	1.87	2.05	2.25

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Chaba	1.99	2.55	2.79	3.05	3.34
Rukti	0.60	0.98	1.07	1.17	1.27
Chamba	0.36	0.39	0.43	0.47	0.51
Larji	22.73	24.92	27.32	29.95	32.81
<b>Total</b>	<b>113.32</b>	<b>125.60</b>	<b>138.84</b>	<b>167.54</b>	<b>183.32</b>

Table 28: Plant-wise Approved O&amp;M Expenses

(All Figures in Rs Crores)

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Bhaba	22.85	22.58	24.72	27.06	29.63
Bassi	11.70	12.84	14.08	15.44	16.94
Giri	22.54	18.87	20.64	22.56	24.67
Andhra	7.31	8.01	8.78	9.62	10.54
Baner	4.91	5.38	5.90	6.46	7.09
Gaj	5.18	5.67	6.22	6.81	7.46
Binwa	4.18	4.58	5.03	5.51	6.04
Nogli	2.40	2.62	2.87	3.14	3.43
Rongtong	1.50	1.64	1.80	1.97	2.16
Chaba	1.40	1.53	1.68	1.84	2.01
Rukti	0.67	0.73	0.80	0.88	0.97
Chamba	0.27	0.29	0.32	0.35	0.38
Larji	20.84	22.82	24.98	27.36	29.96
<b>Total</b>	<b>105.75</b>	<b>107.57</b>	<b>117.80</b>	<b>129.01</b>	<b>141.29</b>

### Return on Equity

4.28 The proposed and approved Return on Equity for various plants of HPSEBL is enumerated below.

Table 29: Plant-Wise Proposed RoE

(All Figures in Rs Crores)

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Bhaba	1.45	1.46	2.14	2.18	2.20
Bassi	0.29	0.33	0.37	0.40	0.41
Giri	0.04	0.16	1.70	1.70	1.73
Andhra	0.05	0.06	0.71	0.71	0.75
Baner	2.36	2.37	2.37	2.38	2.38
Gaj	2.37	2.39	2.40	2.40	2.40
Binwa	0.10	0.44	0.45	0.45	0.45
Nogli	0.04	0.04	0.16	0.16	0.16
Rongtong	0.00	0.00	0.00	0.00	0.00
Chaba	0.00	0.00	0.00	0.00	0.00
Rukti	0.00	0.00	0.00	0.00	0.00
Chamba	0.00	0.00	0.00	0.00	0.00
Larji	30.39	30.59	30.77	30.92	31.25
<b>Total</b>	<b>37.09</b>	<b>37.84</b>	<b>41.07</b>	<b>41.28</b>	<b>41.73</b>

Table 30: Approved Plant-wise Return on Equity

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Bhaba	-	-	-	-	-
Bassi	-	-	-	-	-
Giri	-	-	-	-	-
Andhra	-	-	-	-	-
Baner	2.33	2.33	2.33	2.33	2.33
Gaj	2.33	2.33	2.33	2.33	2.33
Binwa	-	-	-	-	-
Nogli	-	-	-	-	-
Rongtong	-	-	-	-	-
Chaba	-	-	-	-	-
Rukti	-	-	-	-	-
Chamba	-	-	-	-	-
Larji	30.51	30.51	30.51	24.11	24.11
<b>Total</b>	<b>35.16</b>	<b>35.16</b>	<b>35.16</b>	<b>28.76</b>	<b>28.76</b>

### Depreciation

4.29 The Commission has used the same methodology as was used in previous MYT Order and followed HPERC (Terms and Conditions for Determination of Hydro Generation Supply Tariff) Regulations, 2011 for determining the depreciation for the each station. As per the regulations –

*“For generating station which are in operation for less than 12 years, the difference between the cumulative depreciation recovered and the cumulative depreciation arrived at by applying the depreciation rates specified in this regulations corresponding to 12 years, shall be spread over the period up to 12 years, and the remaining depreciable value as on 31st March of the year closing after a period of 12 years from date of commercial operation shall be spread over the balance useful life of the asset. For the project in operation for more than 12 years, the balance depreciation to be recovered shall be spread over the remaining useful life of the asset”*

4.30 The Commission has arrived at the accumulated depreciation from the previous MYT order wherein the accumulated depreciation was computed for individual projects considering a depreciation rate of 2.50% for each year post commercial operation date of the projects up to a maximum of 90% of the original cost of the asset. For project in operation for more than 12 years,

the balance depreciation has been spread over the remaining useful life of the project. The useful life of the project has been considered as 40 years.

4.31 The proposed and approved Depreciation for various plants of HPSEBL is enumerated below. The approved depreciation is more than proposed depreciation due to difference in proposed and approved depreciation in Bassi HEP. The petitioner has not given any explanation of different methodology used for computation of deprecation for Bassi HEP. The Commission has followed the same methodology as was used during previous MYT Order to compute the depreciation for Bassi HEP.

**Table 31: Proposed Depreciation for Third Control Period**

( All Figures in Rs Crores)

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Bhaba	4.42	4.42	4.42	4.42	4.42
Bassi	7.46	7.46	7.46	7.46	7.46
Giri	0.47	0.47	0.11	0.00	0.00
Andhra	1.10	1.10	1.10	1.10	1.10
Baner	1.19	1.19	1.19	1.19	1.19
Gaj	1.28	1.28	1.28	1.28	1.28
Binwa	0.30	0.30	0.30	0.30	0.30
Nogli	0.00	0.00	0.00	0.00	0.00
Rongtong	0.28	0.28	0.28	0.28	0.28
Chaba	0.00	0.00	0.00	0.00	0.00
Rukti	0.02	0.02	0.02	0.02	0.02
Chamba	0.00	0.00	0.00	0.00	0.00
Larji	56.69	56.69	56.69	56.69	56.69
<b>Total</b>	<b>73.22</b>	<b>73.22</b>	<b>72.85</b>	<b>72.74</b>	<b>72.74</b>

**Table 32: Approved Depreciation for Third Control Period**

( All Figures in Rs Crores)

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Bhaba	6.53	7.55	8.19	8.85	8.90
Bassi	3.60	3.90	3.98	4.04	4.07
Giri	1.09	1.23	2.90	4.47	4.50
Andhra	1.28	1.33	2.02	2.71	2.75
Baner	1.25	1.31	1.34	1.34	1.35
Gaj	1.43	1.46	1.50	1.50	1.50
Binwa	0.55	0.89	1.22	1.23	1.23
Nogli	0.03	0.06	0.18	0.30	0.30
Rongtong	0.35	0.35	0.35	0.35	0.35
Chaba	0.03	0.05	0.05	0.05	0.05
Rukti	0.03	0.03	0.03	0.03	0.03



Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Chamba	0.01	0.01	0.01	0.01	0.01
Larji	56.89	57.26	57.58	57.85	58.25
<b>Total</b>	<b>73.07</b>	<b>75.45</b>	<b>79.35</b>	<b>82.73</b>	<b>83.30</b>

#### **Determination of Annual fixed Charges**

4.32 The Commission, for the determination of Annual Fixed Charges for the individual plants has relied on the information available in Commission's records, information submitted by the Petitioner during the tariff determination process and additional information submitted during the course of various interactions held with the Petitioner during processing of current tariff petition.

4.33 The Commission has not considered any additional capital expenditure for past years or for future years while computing interest on loans and return on equity. The Commission has also considered the same asset base as approved by it in previous tariff Orders while computing depreciation for Third Control Period.

4.34 The Commission has also provisionally approved pension related expenses separately for each generation plant. The Petitioner is directed to submit pension related expenses separately for generation business in its subsequent petitions.

#### **Annual Fixed Charges for Andhra HEP**

4.35 Andhra HEP is a 16.95 MW (3 x 5.65 MW) project commissioned by the HPSEBL in the year 1987. It is a peaking, storage project with surface power station and static excitation.

4.36 The project was executed with a capital cost of Rs 57.61 Cr which was proposed by HPSEBL and the same was approved by the Commission in both the 1<sup>st</sup> and 2<sup>nd</sup> Control Period MYT tariff orders. The plant was executed with 100% debt (no equity) with no outstanding loan. No additional capitalization

(after COD) was proposed in the 1<sup>st</sup> and 2<sup>nd</sup> MYT Control Period for this plant. The Petitioner has proposed additional capitalization for the plant in its current Petition but has not submitted any capital expenditure plan as stipulated in applicable HPERC regulations. Accordingly, the Commission has not approved any additional capital expenditure for this plant for Third Control Period. The details of the approved Annual Fixed Charges for the Andhra HEP for the Third Control Period are provided in the table below:

**Table 33: Approved AFC for Andhra HEP**

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
Gross Generation (Design Energy)	MU	87.30	87.30	87.30	87.30	87.30
Total Auxiliary	MU	0.87	0.87	0.87	0.87	0.87
Net Generation at Bus	MU	86.43	86.43	86.43	86.43	86.43
Less: Free Power to GoHP	%	0.00	0.00	0.00	0.00	0.00
<b>Energy available for Sale</b>	MU	<b>86.43</b>	<b>86.43</b>	<b>86.43</b>	<b>86.43</b>	<b>86.43</b>
O & M Expenses	Rs Cr	7.31	8.01	8.78	9.62	10.54
R&M Expenses	Rs Cr	1.01	1.09	1.19	1.29	1.40
Employees Expenses	Rs Cr	5.77	6.33	6.95	7.63	8.37
Pension Contribution	Rs Cr	0.46	0.51	0.56	0.61	0.67
A&G Expenses	Rs Cr	0.07	0.08	0.08	0.09	0.10
Depreciation	Rs Cr	1.10	1.10	1.10	1.10	1.10
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.40	0.43	0.47	0.51	0.56
<b>Annual Fixed Charge</b>	Rs Cr	<b>8.83</b>	<b>9.57</b>	<b>10.38</b>	<b>11.27</b>	<b>12.24</b>
Sale Rate of Energy	Rs/KWh	1.01	1.10	1.19	1.29	1.40
Energy Charge Rate	Rs/KWh	0.51	0.55	0.60	0.65	0.71

#### **Annual Fixed Charges for Baner HEP**

4.37 Baner HEP is a 12 MW (3 x 4 MW) project commissioned by the HPSEBL in the year 1996.

4.38 HPSEBL had submitted a capital cost of INR 68.79 Cr during previous tariff proceedings, against which, the Commission, in its 1st MYT Tariff Order dated May 2008 and 2nd MYT Tariff Order dated July 2011, had approved a cost of INR 55.67 Cr. The financing of the capital cost of INR 55.67 Cr is through PFC, LIC and GoHP loan along with GOHP equity of INR 15 Cr on which an ROE @15.50% has been approved as per the applicable regulations. As all

the loans have already been repaid before Third Control Period, there is no interest approved for Baner generation plant.

4.39 The Commission has not approved any additional capital expenditure for Second and Third Control period for Baner HEP.

4.40 The details of the approved Annual Fixed Charges for the Baner HEP for the Third Control Period are provided in the table below:

**Table 34: Approved AFC for Baner HEP**

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
Gross Generation (Design Energy)	MU	60.67	60.67	60.67	60.67	60.67
Total Auxiliary	MU	0.61	0.61	0.61	0.61	0.61
Net Generation at Bus	MU	60.06	60.06	60.06	60.06	60.06
Less: Free Power to GoHP	%	12%	12%	12%	12%	12%
<b>Energy available for Sale</b>	MU	<b>52.86</b>	<b>52.86</b>	<b>52.86</b>	<b>52.86</b>	<b>52.86</b>
O & M Expenses	Rs Cr	4.91	5.38	5.90	6.46	7.09
R&M Expenses	Rs Cr	0.50	0.55	0.59	0.65	0.70
Employees Expenses	Rs Cr	4.02	4.41	4.84	5.32	5.84
Pension Contributions	Rs Cr	0.32	0.35	0.39	0.43	0.47
A&G Expenses	Rs Cr	0.06	0.06	0.07	0.08	0.08
Depreciation	Rs Cr	1.19	1.19	1.19	1.19	1.19
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	2.33	2.33	2.33	2.33	2.33
Interest on Working Capital	Rs Cr	0.33	0.35	0.38	0.41	0.44
<b>Annual Fixed Charge</b>	Rs Cr	<b>8.77</b>	<b>9.27</b>	<b>9.81</b>	<b>10.41</b>	<b>11.07</b>
Sale Rate of Energy	Rs/KWh	1.45	1.53	1.62	1.72	1.82
Energy Charge Rate	Rs/KWh	0.83	0.88	0.93	0.98	1.05

#### **Annual Fixed Charges for Gaj HEP**

4.41 Gaj HEP is a 10.50 MW (3 x 3.50 MW) project commissioned by the HPSEBL in the year 1996.

4.42 HPSEBL had submitted a capital cost for Gaj HEP of INR 75.49 Cr, against which, the Commission, in its 1st MYT Tariff Order dated May 2008 and 2nd MYT Tariff Order dated July 2011, had approved a cost of INR 60.58 Cr. The sources of funding for the capital cost of INR 60.58 Cr were considered to be PFC, LIC and GoHP loan along with GoHP equity of INR 15 Cr.

4.43 The Commission has not approved any additional capital expenditure for Second and Third Control period for Gaj HEP.

4.44 The details of the approved Annual Fixed Charges for the Gaj HEP for the Third Control Period are provided in the table below:

**Table 35: Approved AFC for Gaj HEP**

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
Gross Generation (Design Energy)	MU	38.31	38.31	38.31	38.31	38.31
Total Auxiliary	MU	0.38	0.38	0.38	0.38	0.38
Net Generation at Bus	MU	37.93	37.93	37.93	37.93	37.93
Less: Free Power to GoHP	%	12%	12%	12%	12%	12%
<b>Energy available for Sale</b>	MU	<b>33.38</b>	<b>33.38</b>	<b>33.38</b>	<b>33.38</b>	<b>33.38</b>
O & M Expenses	Rs Cr	5.18	5.67	6.22	6.81	7.46
<i>R&amp;M Expenses</i>	Rs Cr	<i>0.90</i>	<i>0.97</i>	<i>1.06</i>	<i>1.15</i>	<i>1.25</i>
<i>Employees Expenses</i>	Rs Cr	<i>3.91</i>	<i>4.29</i>	<i>4.71</i>	<i>5.17</i>	<i>5.68</i>
<i>Pension Contributions</i>	Rs Cr	<i>0.31</i>	<i>0.34</i>	<i>0.38</i>	<i>0.41</i>	<i>0.45</i>
<i>A&amp;G Expenses</i>	Rs Cr	<i>0.06</i>	<i>0.06</i>	<i>0.07</i>	<i>0.08</i>	<i>0.08</i>
Depreciation	Rs Cr	1.28	1.28	1.28	1.28	1.28
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	2.33	2.33	2.33	2.33	2.33
Interest on Working Capital	Rs Cr	0.35	0.37	0.40	0.43	0.46
<b>Annual Fixed Charge</b>	Rs Cr	<b>9.15</b>	<b>9.67</b>	<b>10.24</b>	<b>10.87</b>	<b>11.55</b>
Sale Rate of Energy	Rs/KWh	2.39	2.52	2.67	2.84	3.02
Energy Charge Rate	Rs/KWh	1.37	1.45	1.53	1.63	1.73

#### **Annual Fixed Charges for Binwa HEP**

4.45 Binwa HEP is a 6 MW (2 x 3 MW) project commissioned in the year 1984.

4.46 The project was executed with a capital cost of Rs 17.44 Cr which was proposed by HPSEBL and the same was approved by the Commission in both the 1st and 2nd MYT tariff orders. The plant was executed with 100% debt (no equity) and presently has no outstanding loan balance.

4.47 The Commission has not approved any additional capital expenditure for Second and Third Control period for Binwa HEP.

4.48 The details of the approved Annual Fixed Charges for the Binwa HEP for the Third Control Period are provided in the table below:

Table 36: Approved AFC for Binwa HEP

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
Gross Generation (Design Energy)	MU	29.25	29.25	29.25	29.25	29.25
Total Auxiliary	MU	0.20	0.20	0.20	0.20	0.20
Net Generation at Bus	MU	29.05	29.05	29.05	29.05	29.05
Less: Free Power to GoHP	%					
<b>Energy available for Sale</b>	MU	<b>29.05</b>	<b>29.05</b>	<b>29.05</b>	<b>29.05</b>	<b>29.05</b>
O & M Expenses	Rs Cr	4.18	4.58	5.03	5.51	6.04
<i>R&amp;M Expenses</i>	Rs Cr	<i>0.41</i>	<i>0.44</i>	<i>0.48</i>	<i>0.52</i>	<i>0.57</i>
<i>Employees Expenses</i>	Rs Cr	<i>3.45</i>	<i>3.79</i>	<i>4.15</i>	<i>4.56</i>	<i>5.01</i>
<i>Pension Contributions</i>	Rs Cr	<i>0.28</i>	<i>0.30</i>	<i>0.33</i>	<i>0.36</i>	<i>0.40</i>
<i>A&amp;G Expenses</i>	Rs Cr	<i>0.05</i>	<i>0.05</i>	<i>0.06</i>	<i>0.06</i>	<i>0.07</i>
Depreciation	Rs Cr	0.30	0.30	0.30	0.30	0.30
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.22	0.24	0.26	0.29	0.31
<b>Annual Fixed Charge</b>	Rs Cr	<b>4.71</b>	<b>5.14</b>	<b>5.60</b>	<b>6.11</b>	<b>6.67</b>
Sale Rate of Energy	Rs/KWh	1.62	1.77	1.93	2.10	2.30
Energy Charge Rate	Rs/KWh	0.81	0.88	0.96	1.05	1.15

#### Annual Fixed Charges for Nogli HEP

- 4.49 Nogli HEP is a 2.50 MW (2 x 0.25 + 4 x 0.50 MW) project commissioned in the years 1963, 1970 and 1974. It is a non-peaking, run of the river project with surface power station and static excitation.
- 4.50 The project was executed with a capital cost of Rs 11.81 Cr which was proposed by HPSEBL and the same was approved by the Commission in both the 1st and 2nd MYT tariff orders. It is a completely depreciated plant. The plant was executed with 100% debt (no equity) and presently has no outstanding loan balance.
- 4.51 The Commission has not approved any additional capital expenditure for Second and Third Control Period for Nogli HEP.
- 4.52 The details of the approved Annual Fixed Charges for the Nogli HEP for the Third Control Period are provided in the table below:

Table 37: Approved AFC for Nogli HEP

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
Gross Generation (Design Energy)	MU	9.86	9.86	9.86	9.86	9.86
Total Auxiliary	MU	0.10	0.10	0.10	0.10	0.10
Net Generation at Bus	MU	9.76	9.76	9.76	9.76	9.76
Less: Free Power to GoHP	%					
<b>Energy available for Sale</b>	MU	<b>9.76</b>	<b>9.76</b>	<b>9.76</b>	<b>9.76</b>	<b>9.76</b>
O & M Expenses	Rs Cr	2.40	2.62	2.87	3.14	3.43
R&M Expenses	Rs Cr	0.81	0.88	0.95	1.03	1.12
Employees Expenses	Rs Cr	1.45	1.59	1.75	1.92	2.11
Pension Contributions	Rs Cr	0.12	0.13	0.14	0.15	0.17
A&G Expenses	Rs Cr	0.02	0.03	0.03	0.03	0.03
Depreciation	Rs Cr	0.00	0.00	0.00	0.00	0.00
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.12	0.14	0.15	0.16	0.18
<b>Annual Fixed Charge</b>	Rs Cr	<b>2.53</b>	<b>2.77</b>	<b>3.03</b>	<b>3.31</b>	<b>3.62</b>
Sale Rate of Energy	Rs/KWh	2.59	2.83	3.10	3.39	3.71
Energy Charge Rate	Rs/KWh	1.30	1.42	1.55	1.70	1.85

#### Annual Fixed Charges for RongTong HEP

4.53 Rong Tong HEP is a 2 MW (4 x 0.50 MW) project commissioned in the year 1986-87.

4.54 The project was executed with a capital cost of Rs 16.39 Cr which was proposed by HPSEBL and the same was approved by the Commission in both the 1st and 2nd MYT tariff orders. The plant was executed with 100% debt (no equity) and presently has no outstanding loan balance.

4.55 The Commission has not approved any additional capital expenditure for Second and Third Control period for RongTong HEP.

4.56 The details of the approved Annual Fixed Charges for the RongTong HEP for the Third Control Period are provided in the table below:

Table 38: Approved AFC for RongTong HEP

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
Gross Generation (Design Energy)	MU	7.64	7.64	7.64	7.64	7.64
Total Auxiliary	MU	0.08	0.08	0.08	0.08	0.08
Net Generation at Bus	MU	7.56	7.56	7.56	7.56	7.56

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
Less: Free Power to GoHP	%					
<b>Energy available for Sale</b>	MU	<b>7.56</b>	<b>7.56</b>	<b>7.56</b>	<b>7.56</b>	<b>7.56</b>
O & M Expenses	Rs Cr	1.50	1.64	1.80	1.97	2.16
R&M Expenses	Rs Cr	0.16	0.18	0.19	0.21	0.22
Employees Expenses	Rs Cr	1.24	1.36	1.49	1.64	1.80
Pension Contributions	Rs Cr	0.10	0.11	0.12	0.13	0.14
A&G Expenses	Rs Cr	0.00	0.00	0.00	0.00	0.00
Depreciation	Rs Cr	0.28	0.28	0.28	0.28	0.28
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.08	0.09	0.10	0.11	0.12
<b>Annual Fixed Charge</b>	Rs Cr	<b>1.87</b>	<b>2.02</b>	<b>2.19</b>	<b>2.37</b>	<b>2.57</b>
Sale Rate of Energy	Rs/KWh	2.45	2.64	2.86	3.10	3.36
Energy Charge Rate	Rs/KWh	1.23	1.34	1.45	1.57	1.70

#### Annual Fixed Charges for Chaba HEP

4.57 Chaba HEP is a 1.75 MW (2 x 0.5 MW + 3 x 0.25 MW) project commissioned in the year 1913-14. It is a non-peaking run of the river project with surface water station and static excitation.

4.58 The project was initially executed with a capital cost of INR 1.21 Cr and was funded through 100% debt. The same cost was proposed by HPSEBL and approved by the Commission in both 1st MYT Tariff Order dated May 2008 as well as the 2nd MYT Tariff Order dated July 2011. There was 100% debt funding for the plant and there is no outstanding loan balance. Since it is a 94 year old plant, the initial cost of INR 1.21 Cr. has been completely depreciated.

4.59 The Commission has not approved any additional capital expenditure for Second and Third Control Period for Chaba HEP.

4.60 The details of the approved Annual Fixed Charges for the Chaba HEP for the Third Control Period are provided in the table below:

**Table 39: Approved AFC for Chaba HEP**

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
Gross Generation (Design Energy)	MU	7.67	7.67	7.67	7.67	7.67
Total Auxiliary	MU	0.08	0.08	0.08	0.08	0.08

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
Net Generation at Bus	MU	7.59	7.59	7.59	7.59	7.59
Less: Free Power to GoHP	%					
<b>Energy available for Sale</b>	MU	<b>7.59</b>	<b>7.59</b>	<b>7.59</b>	<b>7.59</b>	<b>7.59</b>
O & M Expenses	Rs Cr	1.40	1.53	1.68	1.84	2.01
<i>R&amp;M Expenses</i>	Rs Cr	<i>0.29</i>	<i>0.31</i>	<i>0.34</i>	<i>0.37</i>	<i>0.40</i>
<i>Employees Expenses</i>	Rs Cr	<i>1.02</i>	<i>1.12</i>	<i>1.23</i>	<i>1.35</i>	<i>1.48</i>
<i>Pension Contributions</i>	Rs Cr	<i>0.08</i>	<i>0.09</i>	<i>0.10</i>	<i>0.11</i>	<i>0.12</i>
<i>A&amp;G Expenses</i>	Rs Cr	<i>0.01</i>	<i>0.01</i>	<i>0.01</i>	<i>0.02</i>	<i>0.02</i>
Depreciation	Rs Cr	0.00	0.00	0.00	0.00	0.00
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.07	0.08	0.09	0.09	0.10
<b>Annual Fixed Charge</b>	Rs Cr	<b>1.48</b>	<b>1.62</b>	<b>1.77</b>	<b>1.94</b>	<b>2.12</b>
Sale Rate of Energy	Rs/KWh	1.94	2.13	2.33	2.55	2.80
Energy Charge Rate	Rs/KWh	0.97	1.06	1.17	1.28	1.40

#### Annual Fixed Charges for Rukti HEP

4.61 Rukti HEP is a 1.50 MW (3 x 0.50 MW) project commissioned in the year 1979 and 1980. It is a non-peaking plant run of the river and project with surface power station and static excitation.

4.62 The project was executed with a capital cost of Rs 1.59 Cr, which was proposed by HPSEBL and the same was approved by the Commission in both the 1st and 2nd MYT Control Period Tariff Orders. The plant was executed with 100% debt (no equity) and there is no outstanding loan balance.

4.63 The Commission has not approved any additional capital expenditure for Second and Third Control period for Rukti HEP.

4.64 The details of the approved Annual Fixed Charges for the Rukti HEP for the Third Control Period are provided in the table below:

**Table 40: Approved AFC for Rukti HEP**

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
Gross Generation (Design Energy)	MU	6.54	6.54	6.54	6.54	6.54
Total Auxiliary	MU	0.07	0.07	0.07	0.07	0.07
Net Generation at Bus	MU	6.47	6.47	6.47	6.47	6.47
Less: Free Power to GoHP	%					
<b>Energy available for Sale</b>	MU	<b>6.47</b>	<b>6.47</b>	<b>6.47</b>	<b>6.47</b>	<b>6.47</b>
O & M Expenses	Rs Cr	0.67	0.73	0.80	0.88	0.97
<i>R&amp;M Expenses</i>	Rs Cr	<i>0.07</i>	<i>0.07</i>	<i>0.08</i>	<i>0.09</i>	<i>0.09</i>



Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
<i>Employees Expenses</i>	Rs Cr	0.56	0.61	0.67	0.74	0.81
<i>Pension Contributions</i>	Rs Cr	0.04	0.05	0.05	0.06	0.06
<i>A&amp;G Expenses</i>	Rs Cr	0.00	0.00	0.00	0.00	0.00
Depreciation	Rs Cr	0.02	0.02	0.02	0.02	0.02
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.03	0.04	0.04	0.05	0.05
<b>Annual Fixed Charge</b>	Rs Cr	<b>0.73</b>	<b>0.79</b>	<b>0.87</b>	<b>0.95</b>	<b>1.04</b>
Sale Rate of Energy	Rs/KWh	1.12	1.23	1.34	1.47	1.61
Energy Charge Rate	Rs/KWh	0.56	0.61	0.67	0.73	0.80

#### Annual Fixed Charges for Chamba HEP

4.65 Chamba HEP is a 0.45 MW (3 X 0.15 MW) project commissioned in the years 1938, 1957 and 1985. It is a non-peaking run of the river project with surface power station and rotating exciters.

4.66 The project was executed with a capital cost of Rs 0.50 Cr which was proposed by HPSEBL and the same was approved by the Commission in both the 1st and 2nd MYT Control Period Tariff Orders. The plant was executed with 100% debt (no equity) and there is no outstanding loan balance.

4.67 The Commission has not approved any additional capital expenditure for Second and Third Control period for Chamba HEP.

4.68 The details of the approved Annual Fixed Charges for the Chamba HEP for the Third Control Period are provided in the table below:

**Table 41: Approved AFC for Chamba HEP**

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
Gross Generation (Design Energy)	MU	1.77	1.77	1.77	1.77	1.77
Total Auxiliary	MU	0.02	0.02	0.02	0.02	0.02
Net Generation at Bus	MU	1.76	1.76	1.76	1.76	1.76
Less: Free Power to GoHP	%					
<b>Energy available for Sale</b>	MU	<b>1.76</b>	<b>1.76</b>	<b>1.76</b>	<b>1.76</b>	<b>1.76</b>
O & M Expenses	Rs Cr	0.27	0.29	0.32	0.35	0.38
<i>R&amp;M Expenses</i>	Rs Cr	0.05	0.06	0.06	0.07	0.07
<i>Employees Expenses</i>	Rs Cr	0.20	0.22	0.24	0.26	0.29
<i>Pension Contributions</i>	Rs Cr	0.02	0.02	0.02	0.02	0.02
<i>A&amp;G Expenses</i>	Rs Cr	0.00	0.00	0.00	0.00	0.00
Depreciation	Rs Cr	0.00	0.00	0.00	0.00	0.00

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.01	0.02	0.02	0.02	0.02
<b>Annual Fixed Charge</b>	Rs Cr	<b>0.29</b>	<b>0.31</b>	<b>0.34</b>	<b>0.38</b>	<b>0.41</b>
Sale Rate of Energy	Rs/KWh	1.63	1.78	1.95	2.14	2.34
Energy Charge Rate	Rs/KWh	0.82	0.89	0.98	1.07	1.17

#### Annual Fixed Charges for Giri HEP

- 4.69 Giri HEP is a 60 MW (2 x 30 MW) project commissioned in the year 1978. It is a non-peaking run of the river project with semi-underground power station and rotating excitation.
- 4.70 HPSEBL, in its letter dated 17th April 2008, had submitted a capital cost of INR 40.02Cr, against which, the Commission, in its 1st MYT Control Period Tariff Order dated May 2008 and 2nd MYT Control Period Tariff Order dated July 2011 had approved a cost of INR 36.22 Cr. The Commission had considered 100% debt funding for the plant and there is no outstanding loans balance at present.
- 4.71 The Commission has not approved any additional capital expenditure for Second and Third Control period for Giri HEP.
- 4.72 The Commission has provisionally approved a sum of Rs 5.28 Crores as additional O&M expenses for Giri HEP for repair and maintenance activities of the plant. The amount is subject to true up and would be reviewed at the time of separate petition filed by the petitioner for Giri HEP.
- 4.73 The details of the approved Annual Fixed Charges for the Giri HEP for the Third Control Period are provided in the table below:

**Table 42: AFC for Giri HEP**

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
Gross Generation (Design Energy)	MU	289.55	289.55	289.55	289.55	289.55
Total Auxiliary	MU	2.03	2.03	2.03	2.03	2.03
Net Generation at Bus	MU	287.52	287.52	287.52	287.52	287.52
Less: Free Power to GoHP	%					

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
<b>Energy available for Sale</b>	MU	<b>287.52</b>	<b>287.52</b>	<b>287.52</b>	<b>287.52</b>	<b>287.52</b>
O & M Expenses	Rs Cr	22.54	18.87	20.64	22.56	24.67
R&M Expenses	Rs Cr	6.25	6.78	7.37	8.00	8.69
Employees Expenses	Rs Cr	10.06	11.04	12.12	13.30	14.60
Pension Contributions	Rs Cr	0.80	0.88	0.97	1.06	1.17
Additional O&M for R&M activities	Rs Cr	5.28				
A&G Expenses	Rs Cr	0.15	0.17	0.18	0.20	0.21
Depreciation	Rs Cr	0.47	0.47	0.11	0.00	0.00
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.90	0.99	1.07	1.17	1.28
<b>Annual Fixed Charge</b>	Rs Cr	<b>24.08</b>	<b>20.38</b>	<b>21.87</b>	<b>23.79</b>	<b>26.01</b>
Sale Rate of Energy	Rs/KWh	0.84	0.71	0.76	0.83	0.90
Energy Charge Rate	Rs/KWh	0.42	0.35	0.38	0.41	0.45

#### Annual Fixed Charges for Bhaba HEP

4.74 Bhaba HEP is a 120 MW (3 x 40 MW) project commissioned in the year 1989.

It is a peaking, storage based project with underground power station and static excitation.

4.75 HPSEBL, in its letter dated 17th April 2008, had submitted a capital cost of INR 239.78Cr, against which, the Commission, in both, 1st MYT Control Period Tariff Order dated May 2008 and the 2nd MYT Control period Tariff Order dated July 2011 had approved a cost of INR 222.19 Cr. The Commission had considered 100% debt funding for the plant and there is no outstanding loan balance at present.

4.76 The Commission has not approved any additional capital expenditure for Second and Third Control period for Bhaba HEP.

4.77 The Commission has provisionally approved a sum of Rs 2.24 Crores as additional O&M expenses for Bhaba HEP for repair and maintenance activities of the plant. The amount is subject to true up and would be reviewed at the time of separate petition filed by the petitioner for Bhaba HEP.

4.78 The details of the approved Annual Fixed Charges for the Bhaba HEP for the Third Control Period are provided in the table below:

Table 43: Approved AFC for Bhaba HEP

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
Gross Generation (Design Energy)	MU	464.70	464.70	464.70	464.70	464.70
Total Auxiliary	MU	5.58	5.58	5.58	5.58	5.58
Net Generation at Bus	MU	459.12	459.12	459.12	459.12	459.12
Less: Free Power to GoHP	%					
<b>Energy available for Sale</b>	MU	<b>459.12</b>	<b>459.12</b>	<b>459.12</b>	<b>459.12</b>	<b>459.12</b>
O & M Expenses	Rs Cr	22.85	22.58	24.72	27.06	29.63
R&M Expenses	Rs Cr	4.62	5.02	5.45	5.92	6.43
Employees Expenses	Rs Cr	14.52	15.94	17.49	19.20	21.08
Pension Contributions	Rs Cr	1.16	1.28	1.40	1.54	1.69
A&G Expenses	Rs Cr	0.32	0.35	0.38	0.41	0.44
Additional O&M for R&M activities	Rs Cr	2.24				
Depreciation	Rs Cr	4.42	4.42	4.42	4.42	4.42
Interest Charges	Rs Cr	0.00	0.00	0.00	0.00	0.00
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	1.16	1.26	1.37	1.49	1.62
<b>Annual Fixed Charge</b>	Rs Cr	<b>28.55</b>	<b>28.32</b>	<b>30.58</b>	<b>33.06</b>	<b>35.76</b>
Sale Rate of Energy	Rs/KWh	0.62	0.62	0.67	0.72	0.78
Energy Charge Rate	Rs/KWh	0.31	0.31	0.33	0.36	0.39

#### Annual Fixed Charges for Bassi HEP

- 4.79 Bassi HEP is a 60 MW (4 x 15 MW) project commissioned in the year 1970, 1971 and 1981. It is a peaking, storage based project with surface power station and rotating exciters.
- 4.80 The Commission in the 1st MYT Control Period Tariff Order had approved a capital cost of INR 31.26 Cr. as the original cost of the project, funded through 100% debt. There is no outstanding loan balance at present. In the 2nd MYT Control Period Tariff Order, the Commission had also considered an additional capitalization of INR 109.98 Cr, scaling up the GFA for FY 2011-12 to INR 141.24 Cr, for which PFC loan of INR 80 Cr had been considered with the rest of the amount of INR 29.98 Cr. was assumed to be met by state plan.
- 4.81 The Commission has not approved any additional capital expenditure for the Third Control period for Bassi HEP.

4.82 The details of the approved Annual Fixed Charges for the Bassi HEP for the Third Control Period are provided in the table below:

**Table 44: Approved AFC for Bassi HEP**

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
Gross Generation (Design Energy)	MU	346.83	346.83	346.83	346.83	346.83
Total Auxiliary	MU	2.43	2.43	2.43	2.43	2.43
Net Generation at Bus	MU	344.40	344.40	344.40	344.40	344.40
Less: Free Power to GoHP	%					
<b>Energy available for Sale</b>	MU	<b>344.40</b>	<b>344.40</b>	<b>344.40</b>	<b>344.40</b>	<b>344.40</b>
O & M Expenses	Rs Cr	11.70	12.84	14.08	15.44	16.94
R&M Expenses	Rs Cr	0.62	0.67	0.73	0.80	0.86
Employees Expenses	Rs Cr	10.08	11.06	12.14	13.32	14.62
Pension Contributions	Rs Cr	0.81	0.88	0.97	1.07	1.17
A&G Expenses	Rs Cr	0.20	0.22	0.24	0.26	0.28
Depreciation	Rs Cr	7.46	7.46	7.46	7.46	7.46
Interest Charges	Rs Cr	4.81	3.99	3.17	2.35	1.53
Return on Equity	Rs Cr	0.00	0.00	0.00	0.00	0.00
Interest on Working Capital	Rs Cr	0.87	0.91	0.95	1.00	1.06
<b>Annual Fixed Charge</b>	Rs Cr	<b>24.89</b>	<b>25.24</b>	<b>25.71</b>	<b>26.31</b>	<b>27.05</b>
Sale Rate of Energy	Rs/KWh	0.72	0.73	0.75	0.76	0.79
Energy Charge Rate	Rs/KWh	0.36	0.37	0.37	0.38	0.39

#### **Annual Fixed Charges for Larji HEP**

4.83 The Larji Hydro Electric Project is a 126 MW (3 X 42 MW) plant on river Beas in district Kullu which is about 190 km from Shimla. The plant was Commission in year 2006.

4.84 The Commission in the Tariff Order dated 7th July, 2011 had approved the capital cost of the Larji HEP project and Annual Fixed Charges for first and second Control period. HPSEBL had initially proposed the capital cost of the Larji HEP at INR 1293.69 Cr to the Commission and subsequently as on March 31, 2008, HPSEBL proposed the capital cost of Larji HEP as INR 1461.33 Cr. As per the Order of the Commission for determination of capital cost of Larji HEP (126 MW) and other related issues, dated July 2011, the capital cost was revised from INR 1461.33 Cr to INR 1340 Cr and then further to INR 1098.70 Cr. The Commission has considered this approved capital cost of INR 1098.70 Cr. for approval of AFC for Larji plant.

4.85 The Commission has maintained the same repayment schedule and interest charge for the Larji HEP as was approved in Tariff Order dated 7th July 2011. The Return on Equity for first three years is computed provisionally by adjusting for MAT. The Commission would true up the actual RoE based on the actual tax paid by the Petitioner for this period. The 10 years tax holiday period for Larji would end in FY 17, hence, from FY 2017-18 onwards the Commission has approved RoE at the rate of 15.5%, provisionally.

4.86 The details of the approved Annual Fixed Charges for the Larji HEP for the Third Control Period are provided in the table below:

**Table 45: Approved AFC for Larji HEP**

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
Gross Generation (Design Energy)	MU	586.82	586.82	586.82	586.82	586.82
Total Auxiliary	MU	7.04	7.04	7.04	7.04	7.04
Net Generation at Bus	MU	579.78	579.78	579.78	579.78	579.78
Less: Free Power to GoHP	%	12%	12%	12%	12%	12%
<b>Energy available for Sale</b>	MU	<b>510.20</b>	<b>510.20</b>	<b>510.20</b>	<b>510.20</b>	<b>510.20</b>
O & M Expenses	Rs Cr	20.84	22.82	24.98	27.36	29.96
R&M Expenses	Rs Cr	4.58	4.98	5.41	5.87	6.38
Employees Expenses	Rs Cr	14.82	16.27	17.86	19.60	21.51
Pension Contributions	Rs Cr	1.19	1.30	1.43	1.57	1.72
A&G Expenses	Rs Cr	0.25	0.27	0.29	0.32	0.34
Depreciation	Rs Cr	56.69	56.69	56.69	56.69	56.69
Interest Charges	Rs Cr	17.86	11.47	5.07	0.94	0.00
Return on Equity	Rs Cr	30.51	30.51	30.51	24.11	24.11
Interest on Working Capital	Rs Cr	3.44	3.40	3.36	3.25	3.36
<b>Annual Fixed Charge</b>	Rs Cr	<b>129.40</b>	<b>124.95</b>	<b>120.69</b>	<b>112.43</b>	<b>114.21</b>
Sale Rate of Energy	Rs/KWh	2.54	2.45	2.37	2.20	2.24
Energy Charge Rate	Rs/KWh	1.27	1.22	1.18	1.10	1.12

### Determination of various costs of Small 8 HEPs

4.87 The Commission had approved the tariff of following small Hydro electrical plants vide order dated 15<sup>th</sup> January 2014.

**Table 46: Approved Tariff for Small HEPs**

Plant Name	Tariff INR / Unit
Ghanvi	2.25
Khauli	2.25
Thirot	2.25
Bhaba Augmentation	2.25

Gumma	2.25
Holi	2.25
Sal - II	2.25
Killar	2.25

4.88 This tariff of Rs 2.25 per unit includes all the components of Annual Fixed Cost including the RoE, O&M Expenses including employees, R&M, A&G expenses and pension contributions. The normative RoE, O&M Expenses and pension contribution computed by the Commission for these plants are given below. It is to be noted that the below computed O&M expenses are part of the approved tariffs for these plants and are not to be considered as additional expenses.

4.89 The approved employees expenses excluding pension Contributions pertaining to 8 small HEPs are given in the table below:-

**Table 47: Approved Employees Expenses for 8 small HEPs**

**(All Figures in Rs Crores)**

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Ghanvi	4.90	5.37	5.90	6.47	7.10
Khauli	4.46	4.90	5.38	5.90	6.48
Thirot	0.68	0.75	0.82	0.90	0.99
Bhaba Augmentation	1.29	1.42	1.56	1.71	1.88
Gumma	0.41	0.45	0.49	0.54	0.60
Holi	0.21	0.23	0.25	0.28	0.31
Sal - II	0.46	0.51	0.56	0.61	0.67
Killar	0.08	0.09	0.10	0.11	0.12
<b>Total Employees Expenses</b>	<b>12.51</b>	<b>13.73</b>	<b>15.07</b>	<b>16.54</b>	<b>18.15</b>

4.90 The Commission has also computed pension contribution for these 8 small HEPs. The pension contribution shown below for these plants would remain part of approved tariff for these plants.

**Table 48: Approved Pension Contribution for 8 small HEPs**

**(All Figures in Rs Crores)**

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Ghanvi	0.39	0.43	0.47	0.52	0.57
Khauli	0.36	0.39	0.43	0.47	0.52
Thirot	0.05	0.06	0.07	0.07	0.08
Bhaba Augmentation	0.10	0.11	0.12	0.14	0.15
Gumma	0.03	0.04	0.04	0.04	0.05
Holi	0.02	0.02	0.02	0.02	0.02

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Sal - II	0.04	0.04	0.04	0.05	0.05
Killar	0.01	0.01	0.01	0.01	0.01
<b>Total Pension Contribution</b>	<b>1.00</b>	<b>1.10</b>	<b>1.21</b>	<b>1.32</b>	<b>1.45</b>

4.91 The approved R&M Expenses of 8 small plants are given in the table below:-

Table 49: Approved R&M Expenses for 8 small HEPs

(All Figures in Rs Crores)

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Ghanvi	1.86	2.02	2.20	2.39	2.59
Khauli	0.65	0.70	0.77	0.83	0.90
Thirot	0.43	0.47	0.51	0.55	0.60
Bhaba Augmentation	0.59	0.64	0.70	0.76	0.82
Gumma	0.21	0.23	0.25	0.27	0.30
Holi	0.25	0.27	0.29	0.32	0.34
Sal - II	0.14	0.15	0.16	0.18	0.19
Killar	0.14	0.15	0.17	0.18	0.20
<b>Total R&amp;M Expenses</b>	<b>4.28</b>	<b>4.64</b>	<b>5.04</b>	<b>5.48</b>	<b>5.95</b>

4.92 The approved A&G Expenses of 8 small plants are given in the table below:-

Table 50: Approved A&G Expenses for 8 small HEPs

(All Figures in Rs Crores)

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Ghanvi	0.07	0.08	0.08	0.09	0.10
Khauli	0.13	0.14	0.15	0.17	0.18
Thirot	0.01	0.01	0.01	0.02	0.02
Bhaba Augmentation	0.00	0.00	0.00	0.00	0.00
Gumma	0.01	0.01	0.01	0.02	0.02
Holi	0.00	0.00	0.00	0.00	0.00
Sal - II	0.01	0.01	0.01	0.02	0.02
Killar	0.00	0.00	0.00	0.00	0.00
<b>Total A&amp;G Expenses</b>	<b>0.24</b>	<b>0.26</b>	<b>0.28</b>	<b>0.30</b>	<b>0.33</b>

4.93 The approved O&M Expenses, including pension contributions for 8 small HEPs are given in the table below :-

Table 51: Approved O&M Expenses for 8 small HEPs

(All Figures in Rs Crores)

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Ghanvi	7.22	7.90	8.65	9.47	10.37
Khauli	5.60	6.14	6.73	7.37	8.08
Thirot	1.18	1.29	1.41	1.55	1.69
Bhaba Augmentation	1.99	2.18	2.38	2.61	2.85



Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Gumma	0.67	0.73	0.80	0.87	0.96
Holi	0.48	0.52	0.57	0.62	0.67
Sal - II	0.65	0.71	0.78	0.85	0.94
Killar	0.23	0.25	0.28	0.30	0.33
<b>Total Employees Expenses</b>	<b>18.02</b>	<b>19.73</b>	<b>21.60</b>	<b>23.64</b>	<b>25.88</b>

4.94 The Commission has also approved normative Return on Equity for the 8 HEPs as a surplus for future years. The RoE approved below is part of the tariff already approved by the Commission for these 8 Small HEPs. The Commission noted that except Khauli and Thiroth there is no equity contribution in these 8 plants. The equity infusion in Khauli and Thiroth were met through Government of HP funds transferred to HPSEBL. The Commission notes that the below computed RoE is, therefore, a surplus available to the Petitioner which it may use for future unforeseen events including emergency repair and maintenance activities etc.

Table 52: Approved RoE for 8 small HEPs

(All figures in Rs Crores)

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Ghanvi	4.68	4.68	4.68	4.68	4.68
Khauli	2.50	2.50	2.50	2.50	2.50
Thiroth	0.94	0.94	0.94	0.94	0.94
Bhaba Augmentation	0.62	0.62	0.62	0.62	0.62
Gumma	0.62	0.62	0.62	0.62	0.62
Holi	0.94	0.94	0.94	0.94	0.94
Sal - II	0.42	0.42	0.42	0.42	0.42
Killar	0.06	0.06	0.06	0.06	0.06
<b>Total Return On Equity</b>	<b>10.79</b>	<b>10.79</b>	<b>10.79</b>	<b>10.79</b>	<b>10.79</b>

### Determination of total ARR/AFC\*

Table 53: Total Generation ARR/AFC\*

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
Gross Generation (Design Energy)	MU	1936.91	1936.91	1936.91	1936.91	1936.91
Total Auxiliary	MU	19.47	19.47	19.47	19.47	19.47
Net Generation at Bus	MU	1917.44	1917.44	1917.44	1917.44	1917.44
Less: Free Power to GoHP	MU	81.33	81.33	81.33	81.33	81.33
<b>Energy available for Sale</b>	MU	<b>1836.10</b>	<b>1836.10</b>	<b>1836.10</b>	<b>1836.10</b>	<b>1836.10</b>
O & M Expenses	Rs Cr	105.75	107.57	117.80	129.01	141.29
R&M Expenses	Rs Cr	20.25	22.00	23.90	25.96	28.19
Employees Expenses	Rs Cr	71.10	78.03	85.65	94.01	103.18

Plant Name	Units	FY 15	FY 16	FY 17	FY 18	FY 19
<i>Pension Contributions</i>	Rs Cr	5.69	6.24	6.85	7.52	8.25
<i>A&amp;G Expenses</i>	Rs Cr	1.19	1.29	1.41	1.53	1.66
<i>Additional O&amp;M Expenses for R&amp;M</i>	Rs Cr	7.52				
Depreciation	Rs Cr	73.22	73.22	72.85	72.74	72.74
Interest Charges	Rs Cr	22.67	15.46	8.24	3.29	1.53
Return on Equity	Rs Cr	35.16	35.16	35.16	28.76	28.76
Interest on Working Capital	Rs Cr	8.29	8.64	9.02	9.37	10.00
<b>Annual Fixed Charge</b>	Rs Cr	<b>245.26</b>	<b>240.04</b>	<b>243.07</b>	<b>243.18</b>	<b>254.32</b>

\* Excluding 8 plants for which generation tariff has already been approved by the Commission vide Order dated 15<sup>th</sup> Jan 2014

## 5. Operational Independence and Accountability

- 5.1 As per the Electricity Act 2003, the generation function of HPSEBL, which is a distribution licensee, falls into the category of other business and therefore it is important that generation business and individual generating stations operate on commercial principles. It is imperative that the licensee shall maintain separate accounts and sub-balance sheets for each individual plant for regulatory oversight and performance accountability purposes. The generation function as a whole shall operate as an independent business as a profit centre, within the HPSEBL, and maintain its separate/ segregated accounts and plant level sub-balance sheets and profit and loss statements. The generation function should operate as an independently financially viable entity within HPSEBL.
- 5.2 The HPSEBL must put in place appropriate transfer pricing mechanisms between its distribution and generation functions for propagating independence and accountability. The Chief Engineer (Generation) shall raise the monthly bills to the distribution business for each generating station individually on the same principles and in the same way as any other generating station raises bill for sale of power to the distribution business of HPSEBL, in accordance with provisions of regulations and tariff determined for each station. Appropriate accounting entries need to be made for credit of payment from the distribution function to the generation function on clearance of such invoices/ bills.
- 5.3 Tariff for each generating station has been determined based on saleable energy from each station, as approved by the Commission in its Order dated

15.01.2014 and by this tariff order. Therefore, any gains arising due to sale of energy at such rate should be fully utilized and retained into the generation business of the HPSEBL. The profits and losses of the generation function should be maintained independently on an ongoing basis without any adjustments with the distribution/ licensed business of the HPSEBL, that is any profit and loss incurred at approved tariff would not be passed on to the consumers of distribution business through tariff adjustments on account of such profit and loss. However, plant wise losses and gains can be adjusted and set off against each other, which shall be deemed as an internal matter of generation function.

5.4 The depreciation surplus available to the generation business arises after retiring the debit that is depreciation surplus after subtracting repayments for a particular plant for each plant is as given in the table below:-

**Table 54: Depreciation Surplus after retiring debt Available to the Generation Business**

( All Figures in Crores)

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Bhaba	4.42	4.42	4.42	4.42	4.42
Bassi	-0.54	-0.54	-0.54	-0.54	-0.54
Giri	0.47	0.47	0.11	0.00	0.00
Andhra	1.10	1.10	1.10	1.10	1.10
Baner	1.19	1.19	1.19	1.19	1.19
Gaj	1.28	1.28	1.28	1.28	1.28
Binwa	0.30	0.30	0.30	0.30	0.30
Nogli	0.00	0.00	0.00	0.00	0.00
Rongtong	0.28	0.28	0.28	0.28	0.28
Chaba	0.00	0.00	0.00	0.00	0.00
Rukti	0.02	0.02	0.02	0.02	0.02
Chamba	0.00	0.00	0.00	0.00	0.00
Larji	-22.31	-22.31	-7.00	56.69	56.69
Ghanvi	2.72	2.72	2.72	2.72	2.72
Khauli	4.12	4.12	4.12	4.12	4.12
Thirot	1.03	1.03	1.03	1.03	1.03
Bhaba Augmentation	0.54	0.54	0.54	0.54	0.54
Gumma	1.58	1.58	1.58	1.58	1.58
Holi	-5.70	-5.70	-0.03	1.40	1.40
Sal - II	0.39	0.39	0.39	0.39	0.39
Killar	0.18	0.18	0.18	0.18	0.18
<b>Total Depreciation Surplus</b>	<b>-8.92</b>	<b>-8.92</b>	<b>11.69</b>	<b>76.70</b>	<b>76.70</b>

5.5 The surplus Return of Equity available to the generation function for each plant is as given in the table below. The RoE on the investment made by Government of Himachal Pradesh in the generation plants of Generation Business of HPSEBL is given separately. The RoE on the investment made by the State Government would be transferred to the distribution business as pension contribution for employees retired before June, 2010. The balance of the RoE shall be retained in the generation function as surplus.

**Table 55: Surplus Return on Equity to be kept by Generation Business**

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Bhaba	0.00	0.00	0.00	0.00	0.00
Bassi	0.00	0.00	0.00	0.00	0.00
Giri	0.00	0.00	0.00	0.00	0.00
Andhra	0.00	0.00	0.00	0.00	0.00
Baner	0.00	0.00	0.00	0.00	0.00
Gaj	0.00	0.00	0.00	0.00	0.00
Binwa	0.00	0.00	0.00	0.00	0.00
Nogli	0.00	0.00	0.00	0.00	0.00
Rongtong	0.00	0.00	0.00	0.00	0.00
Chaba	0.00	0.00	0.00	0.00	0.00
Rukti	0.00	0.00	0.00	0.00	0.00
Chamba	0.00	0.00	0.00	0.00	0.00
Larji	21.19	21.19	21.19	21.19	21.19
Ghanvi	4.68	4.68	4.68	4.68	4.68
Khauli	0.15	0.15	0.15	0.15	0.15
Thirot	0.00	0.00	0.00	0.00	0.00
Bhaba Augmentation	0.62	0.62	0.62	0.62	0.62
Gumma	0.62	0.62	0.62	0.62	0.62
Holi	0.94	0.94	0.94	0.94	0.94
Sal - II	0.42	0.42	0.42	0.42	0.42
Killar	0.06	0.06	0.06	0.06	0.06
<b>Total RoE Surplus Available to Generation Business</b>	<b>28.69</b>	<b>28.69</b>	<b>28.69</b>	<b>28.69</b>	<b>28.69</b>

**Table 56: Surplus GoHP Return on Equity**

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Bhaba	0.00	0.00	0.00	0.00	0.00
Bassi	0.00	0.00	0.00	0.00	0.00
Giri	0.00	0.00	0.00	0.00	0.00
Andhra	0.00	0.00	0.00	0.00	0.00
Baner	2.33	2.33	2.33	2.33	2.33
Gaj	2.33	2.33	2.33	2.33	2.33
Binwa	0.00	0.00	0.00	0.00	0.00

Plant Name	FY 15	FY 16	FY 17	FY 18	FY 19
Nogli	0.00	0.00	0.00	0.00	0.00
Rongtong	0.00	0.00	0.00	0.00	0.00
Chaba	0.00	0.00	0.00	0.00	0.00
Rukti	0.00	0.00	0.00	0.00	0.00
Chamba	0.00	0.00	0.00	0.00	0.00
Larji	9.32	9.32	9.32	9.32	9.32
Ghanvi	0.00	0.00	0.00	0.00	0.00
Khauli	2.35	2.35	2.35	2.35	2.35
Thirot	0.94	0.94	0.94	0.94	0.94
Bhaba Augmentation	0.00	0.00	0.00	0.00	0.00
Gumma	0.00	0.00	0.00	0.00	0.00
Holi	0.00	0.00	0.00	0.00	0.00
Sal - II	0.00	0.00	0.00	0.00	0.00
Killar	0.00	0.00	0.00	0.00	0.00
<b>Total GoHP RoE Surplus</b>	<b>17.26</b>	<b>17.26</b>	<b>17.26</b>	<b>17.26</b>	<b>17.26</b>

5.6 O&M expenses and interest on working capital are controllable items and therefore efficiency gains in the same shall be retained by generation function and would not be passed on to the distribution business.

5.7 Any gain on account of generation beyond net saleable energy determined for each station i.e. Secondary Energy shall be treated as efficiency gain and therefore such revenue from each station based on tariff for secondary energy for each station would be retained by the generation function.

### Summary of Utilization of Revenue Surplus

5.8 Revenue earned by way of efficiency gains i.e. secondary energy, O&M and working capital management efficiency and revenue from depreciation surplus shall be utilized by the generation function to meet any deficits on operation and maintenance activities, on staff welfare activities and up keeping of residential colonies etc during a year.

5.9 70% of the Depreciation surplus as computed in the table No. 54 must be used in debt servicing or any uncovered liability of the plants of generation wing or HPSEBL. The remaining 20% depreciation surplus would be retained by the generation wing.

- 5.10 50% of the Surplus RoE as computed in the tables No. 55 above shall be utilized by generation wing for renovation and modernization of plants, repair and maintenance activities, infrastructure up-gradation etc or for any other purpose mentioned in paragraph 5.8.
- 5.11 Remaining 50% of the surplus ROE as computed in the table 55 can be utilized by generation wing for survey and investigation, planning and pre-execution developments of projects, executing solar and hydro project for development and promotion including evacuation of renewable energy, as equity or normative loan. This is in addition to the surpluses from above paragraphs 5.8 and 5.9 and 5.10.
- 5.12 RoE on the amount invested by the GoHP, as computed in the table 56 above, is a net surplus available to generation function as explained in para 5.5. It shall be transferred to distribution business towards cost of pension of employees of the erstwhile Board, retired prior to June, 2010.
- 5.13 Pension contribution shall be paid to the distribution function account.





## 6. Directives

- 6.1 For ensuring accountability , effectiveness and incentivising operational efficiency in the generation function, the processes, procedures and actions as laid down in the chapter 5 “Operational Independence and Accountability” must be adhered and followed in letter and spirit by the HPSEBL.
- 6.2 The HPSEBL is directed to maintain segregated accounts for its generation and distribution functions. The HPSEBL may finalize its accounting policy and manual to address the various recommendations made by the Commission on the inter-function aspects. Such policy and manual may be sent to the Commission for its observations and consent.
- 6.3 The generation function must file segregated accounts i.e. balance sheets and profit and loss statements for each generation plant individually at the time of filing of true up of second control period or the next regulatory filing.
- 6.4 The generation function is an important asset and core strength of HPSEBL in carrying out distribution business. The HPSEBL shall delegate full powers for O&M activities from administrative, technical, procurement, and financial point of view to generation wing. Such power should be delegated to the Director, Chief Engineer (generation) including further delegations to Superintendent Engineer, Resident Engineer etc. The Chief Engineer (generation) should be allowed to operate working capital account. Structural framework of administration of generation wing may be made in such a manner that it functions as an independent, effective and vibrant set up like an independent generating company in the central sector.
- 6.5 The utility should initiate a study to identify capacity building requirements and undertake implementation efforts for staff training. A dedicated cadre of

employees for the generation function with respect to certain categories may be evaluated and set up accordingly.