

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 22/GT/2017**

**Coram:**  
**Shri P.K. Pujari, Chairperson**  
**Shri A.K.Singhal, Member**  
**Dr. M.K. Iyer, Member**

**Date of Hearing: 8.8.2018**  
**Date of Order: 19.9.2018**

**In the matter of**

Petition under 79 (1) and 86 of the CERC (Conduct of Business) Regulations, 1999, Section 62 (1)(a) of the Electricity Act, 2003 and Regulation 7 (3) and 14 of CERC (Terms and Condition of Tariff) Regulations, 2014 for determination of Tariff for the period 2014-19 in respect of BBMB Power Stations.

**And**

**In the matter of**

Bhakhra-Beas Management Board  
Sector 19-B Madhya Marg,  
Chandigarh-160019

**...Petitioner**

Vs

1. Punjab State Power Corporation Limited,  
The Mall, Patiala-147 001
2. Haryana Vidyut Prasaran Nigam Limited,  
Shakti Bhawan, Sector 6,  
Chandigarh
3. Rajasthan Rajya Vidyut Prasaran Nigam Limited,  
Vidyut Bhawan, Janpath,  
Jaipur, Rajasthan-302 005
4. Himachal Pradesh State Electricity Board,  
Vidyut Bhawan, Shimla 171 004,  
Himachal Pradesh
5. Union Territory of Chandigarh,  
Sector 9D, UT Secretariat  
Chandigarh

**...Respondents**



**Parties present:**

Shri Anil Gautam, BBMB

Ms. Hardeep Kaur, BBMB

Shri Sanjay Sidana, BBMB

Ms. Akshi Seem, Advocate, PSPCL

Ms. Swapna Seshadri, Advocate, PSPCL, HPPC, Rajasthan Discoms

Shri M.G.Ramachandran, Advocate

**ORDER**

This petition has been filed by the petitioner, Bhakra Beas Management Board (BBMB) for approval of tariff of its generating stations for the period 2014-19 in accordance with the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as the 2014 Tariff Regulations).

2. Background of the case is as under:

- a) The Bhakra Beas Management Board (hereinafter referred to as BBMB or the Petitioner) is a statutory body constituted under the provisions of the Punjab Reorganization Act 1966, on the reorganization of the erstwhile State of Punjab on 1.11.1966.
- b) BBMB has been engaged in the activities of regulation of supply of water and generation of power from Bhakra Nangal and Beas Projects and the power is being made available to the States of Punjab, Haryana, Rajasthan, Himachal Pradesh and Union Territory of Chandigarh.
- c) As per the Indus Water Treaty, 1960 signed between India and Pakistan, the waters of three Eastern rivers, namely, Sutlej, Beas and Ravi were allotted to India for exclusive use. A master plan was then drawn to harness the potential of these rivers for irrigation, power generation and also to achieve flood control.



- d) Bhakra – Beas Project form major part of the above scheme and were established as a Joint Venture of the State of Rajasthan and the erstwhile State of Punjab.
- e) On reorganization of the erstwhile State of Punjab, BBMB was constituted and the administration, maintenance and operation of Bhakra Nangal Projects were handed over to the Bhakra Management Board with effect from 1.11.1966.
- f) The Beas Project works, on completion were transferred by the Government of India from the Beas Construction Board to BMB and it was renamed as BBMB as per the provisions of Section 80 of the Punjab Reorganization Act.
- g) In pursuance of the above, BBMB has been engaged in the activities of regulation of supply of water, generation and transmission of power from Bhakra Nangal and Beas Projects and the power being made available to the States of Punjab, Haryana, Rajasthan, Himachal Pradesh and Union Territory of Chandigarh in the defined ratio.
- h) The status of generation and transmission assets, their ownership, interest of the participating States (the Respondents herein), role of BBMB and all matters connected therewith are statutorily provided for under Sections 78 to 80 of the Punjab Reorganization Act 1966.
- i) The Petitioner operates three (3) hydroelectric power projects which have a total installed capacity of 2918.72 MW. The details of installed capacity and date of commissioning of various generating stations operated by the Petitioner is summarized in the following table:



**Table 1: Details regarding Hydro Generating Stations**

Generating Station	Category	Installed Capacity	COD	1st Stage RMU	2nd Stage RMU
		MW	Year		Year
Unit 1	Bhakra Left Bank	108.00	Nov-60	Mar-85	-
Unit 2	Bhakra Left Bank	126.00	Feb-61	Mar - 84	Jul-13
Unit 3	Bhakra Left Bank	108.00	Jul-61	Apr-83	-
Unit 4	Bhakra Left Bank	126.00	Nov-61	Feb-82	Sep -15
Unit 5	Bhakra Left Bank	126.00	Dec-61	Jan -81	Dec -13
Unit 6	Bhakra Right Bank	157.00	May-66	Jun-97	
Unit 7	Bhakra Right Bank	157.00	Dec-66	Feb-01	
Unit 8	Bhakra Right Bank	157.00	Mar-67	Apr-98	
Unit 9	Bhakra Right Bank	157.00	Nov-67	Feb-96	
Unit 10	Bhakra Right Bank	157.00	Dec-68	Jun-00	
Unit 1	Ganguwal	76.39	Jan-62	Oct-06	
Unit 2	Ganguwal		Jan-55	Jan-88	
Unit 3	Ganguwal		Jan-55	Sep-00	
Unit 1	Kotla	77.33	Jul-61	Apr-07	
Unit 2	Kotla		May-56	May-01	
Unit 3	Kotla		Aug-56	Oct-98	
<b>Total Bhakra</b>		<b>1532.72</b>			
Unit 1	Pong	66.00	Jan-78	Feb-02	
Unit 2	Pong	66.00	Mar-78	Apr-02	
Unit 3	Pong	66.00	Oct-78	Feb-98	
Unit 4	Pong	66.00	Mar-79	Feb-01	
Unit 5	Pong	66.00	Sep-82	Jan-03	
Unit 6	Pong	66.00	Feb-83	Feb-04	
<b>Total Pong</b>		<b>396.00</b>			
Unit 1	Dehar	165.00	Nov-77	Jul-85	
Unit 2	Dehar	165.00	Mar-78	Sep-93	
Unit 3	Dehar	165.00	Jun-79	Jun-07	
Unit 4	Dehar	165.00	Jun-79	Apr-09	
Unit 5	Dehar	165.00	Jul-83		
Unit 6	Dehar	165.00	Nov-83		
<b>Total Dehar</b>		<b>990.00</b>			
<b>Total</b>		<b>2918.72</b>			



- j) The Central Electricity Regulatory Commission (hereinafter referred to as CERC or the Commission) by its order dated 15.9.2011 in Petition No. 181/2011 (suo motu) held that the regulation and determination of tariff for generation and inter-State transmission of electricity by BBMB are vested in the Commission by virtue of the provisions of Section 174 of the Electricity Act, 2003 (the 2003 Act).
- k) The Commission, vide order dated 15.9.2011, directed the BBMB to file appropriate applications for approval of tariff of its generating stations and transmission systems, in accordance with the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 for the period 2009-14.
- l) Aggrieved by the said order dated 15.9.2011, BBMB filed Appeal No.183/2011 before the Appellate Tribunal for Electricity (hereinafter referred to as 'the Tribunal' or 'APTEL') challenging the jurisdiction of the Commission to determine the tariff of its generating stations and transmission systems.
- m) The Tribunal by its judgment dated 14.12.2012 in Appeal No.183/2011 dismissed the said appeal on merits and upheld the jurisdiction of CERC to determine the tariff of the generating stations and transmission systems of BBMB.
- n) Against the said order dated 14.12.2012, BBMB filed Civil Appeal before the Hon'ble Supreme Court of India and the same is pending.
- o) Thereafter, the Commission by order dated 10.1.2013 in Petition No.181/2011 (suo motu) directed BBMB to file the tariff petitions in accordance with the provisions of the 2009 Tariff Regulations, separately for the generating stations and for the transmission systems.



- p) In compliance with the aforesaid order dated 10.1.2013 in Petition No.181/2011 (suo motu), the Petitioner filed Petition No.251/GT/2013 for determination of tariff of generation and transmission activities for the tariff period 2009-14.
- q) The Commission by Order dated 21.3.2016 approved O&M expenses of the generation stations of BBMB for the period 2009-14.
- r) The O&M expenses allowed vide order dated 21.3.2016 in Petition No.251/GT/2013 to various generating stations of the petitioner are as given below:

**Quote**

25. Based on the above data, the year-wise Normative O&M expenditure worked out for the various hydro generating stations of the petitioner, in terms of Regulation 19(f) of the 2009 Tariff Regulations, is as under:

(Rs. in Lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14	Total
Bhakra (including GWL & KTL)	5217.80	5516.26	5831.79	6165.37	6518.03	29249.25
Dehar	3738.63	3952.48	4178.56	4417.58	4670.26	20957.51
Pong	1607.14	1699.07	1796.25	1899.00	2007.62	9009.08
<b>Total</b>	<b>10563.57</b>	<b>11167.81</b>	<b>11806.60</b>	<b>12481.95</b>	<b>13195.91</b>	<b>59215.84</b>

**Unquote**

- s) The Commission in Paragraph 34 of the aforesaid Order Stated:

*“The submissions have been considered. In the absence of any specific and clear details / information being made available, the issues raised by the parties as above cannot be looked into, at this stage. The Commission in para 31 of this order has directed the petitioner to develop a fixed Asset Register and submit schedule of fixed Assets. However, keeping in view that tariff for the generating stations and inter-State transmission elements of the petitioner are required to be determined by the Commission for the period 2014-19 in terms of the 2014 Tariff Regulations, we deem it fit to issue the following directions:*

- (i) *The petitioner shall commence the scheduling of power from its generating units/transmission assets under ABT from 1.6.2016.*



*(ii) The petitioner is directed to file appropriate application for determination of tariff of the generating and inter-State transmission systems for the period 2014-19 in terms of the 2014 Tariff Regulations, within two months from the date of this order. The said petition shall also contain, in addition to the information sought in paras 20 and 31, the following information:*

*(a) Details of the capital base of its individual assets, billing pattern for all beneficiaries and methodology for deciding rates for charging to the Common Pool customers;*

*(b) Auxiliary Energy Consumption for past five years for all of its generating stations;*

*(c) Annual Design Energy for generating stations as approved by CEA, with details of 10-daily average discharge and 10-daily design energies, efficiency of turbine and generator, net head etc;*

*(d) Month-wise average peaking capacity of storage based hydro stations as approved by CEA for the purpose of arriving at NAPAF of these stations.*

*(e) Details of PAF achieved during last five years, if available, for all of its generating stations.*

**Instant petition:**

3. Based on the directions of the Commission in order dated 21-03-2016 in Petition No.251/GT/2013 and in terms of 2014 Tariff Regulations, the petitioner has filed the instant petition for approval of tariff for its generating stations for the period 2014-19 with following prayers:

- a. Examine the proposals submitted by the petitioner for a favorable consideration as detailed in the enclosed petition, along with any clarifications submitted in this regard;
- b. Grant exemptions as sought by the Petitioner in regard to the norms and information required in some formats as specified by the Hon'ble Commission, for which relevant data could not be provided;
- c. Pass suitable orders towards approving the proposed AFC and determine tariff for the BBMB's Hydro Generation Projects for FY 2014-15, FY 2015-16, FY2016-17, FY 2017-18, and FY 2018-19
- d. Condone any inadvertent omissions/errors/shortcomings and permit BBMB to make further submissions as may be required at a future date to support this petition in terms of modification / clarification;
- e. Pass such further orders, as the Hon'ble Commission may deem fit and proper, keeping in view of the facts and circumstances of the case;



4. The annual fixed charges as claimed by the petitioner for its generating stations namely Bhakara, Dehar and Pong are as follows:

**a) Annual Fixed Charges claimed (Bhakra)**

(Rs. in Lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	6142.70	6778.91	7503.45	9390.75	12914.06
Interest on Loan	2810.10	2339.20	1865.65	1702.34	1628.68
Return on Equity	5696.97	5935.24	6166.99	6667.49	7409.26
Interest on Working Capital	1460.45	1631.47	1842.42	2704.96	3126.01
O & M Expenses	20332.85	23260.42	26877.76	41564.48	47439.85
<b>Total</b>	<b>36443.07</b>	<b>39945.24</b>	<b>44256.26</b>	<b>62030.01</b>	<b>72517.87</b>

**b) Annual Fixed Charges claimed (Dehar)**

(Rs. in Lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	1711.81	1773.87	1979.73	2312.65	2639.83
Interest on Loan	217.58	65.48	0.00	0.00	0.00
Return on Equity	3124.58	3150.53	3225.31	3327.94	3410.79
Interest on Working Capital	1184.83	1310.05	1466.37	2107.30	2347.77
O & M Expenses	19341.72	21635.28	24375.17	35795.81	39977.89
<b>Total</b>	<b>25580.52</b>	<b>27935.21</b>	<b>31046.58</b>	<b>43543.70</b>	<b>48376.28</b>

**c) Annual Fixed Charges claimed (Pong)**

(Rs. in Lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	110.64	125.71	147.34	188.55	273.55
Interest on Loan	86.8	86.06	91.09	108.11	149.26
Return on Equity	361.27	370.84	383.39	405.03	444.99
Interest on Working Capital	197.24	225.95	263.13	396.15	456.42
O & M Expenses	3337.56	3847.33	4504.04	6878.76	7900.41
<b>Total</b>	<b>4093.51</b>	<b>4655.89</b>	<b>5388.99</b>	<b>7976.60</b>	<b>9224.63</b>

**Submissions of the Petitioner and Respondents**

5. During the hearing dated 23.5.2017, the representative of the respondent, Rajasthan Rajya Vidyut Prasaran Nigam Limited submitted that it has filed an affidavit praying for impleadment of Rajasthan Urja Vikas Nigam Limited (RUVNL) as a party respondent since RUVNL is a necessary party to the proceedings. The Commission accepted the prayer of the respondent, RRVPNL and directed the impleadment of RUVNL as respondent in the petition.





The Commission accordingly directed the petitioner to serve copy of the petition on RUVNL and also to file revised 'Memo of parties.'

6. The Commission also directed the petitioner to file the following information on affidavit, on or before 23.6.2017 with copy to the respondents;

- a) Month wise average peaking capacity of storage based hydro stations as approved by the CEA for the purpose of arriving at NAPAF of these stations;
- b) Annual design energy for generating stations as approved by CEA, with details of 10-daily average discharge and 10-daily design energy, efficiency of turbine and generator, net head, etc. in respect of Dehar hydro station;
- c) The audited actual O & M expenses for the years 2008-09 to 2012-13 for working out the O & M expenses for the period 2014-19;
- d) It is noticed that many of the units of BBMB which had undergone RMU have not completed their useful life. The reasons for the same along with useful life/ extended life of all the units as on date to be submitted;
- e) Certification to the effect that the expenditure claimed under RMU has not been included in the proposed additional capital expenditure for the period 2014-19;
- f) In respect of additional capital expenditure claimed towards assets on replacement basis, the de- capitalization value of the old assets to be replaced shall be furnished in Form 9B(i) and shall be linked to the particular additional capital expenditure claimed on replacement;
- g) The details of the norms of the petitioner company based on which expenditure has been claimed on the assets shall be furnished

7. Hearing dated 20.2.2018

- i) Petitioner informed that it has submitted the additional information as directed vide ROP of the hearing dated 23.5.2017 vide affidavit dated 22.6.2017.
- ii) The learned counsel for respondent PSPCL, HPPC and Rajasthan discoms submitted as under:
  - (a) Since, substantial portion of the period 2014-19 is over, the Commission may determine the tariff on a prospective date, thereby providing the transition period for BBMB;
  - (b) Return on Equity may not also be considered in terms of the Tariff Regulations, since it is the participating States who contributed to the capital cost of BBMB;
  - (c) The claim of the petitioner in respect of additional capital expenditure may be examined since major portion of the tariff period 2014-19 is also over;
  - (d) Relaxation of operational norms may be granted only if the same is proved to be in public interest;
  - (e) Reply filed by respondent, Rajasthan discoms may be adopted for the



respondent, PSPCL.

iii) Shri M.G. Ramachandran, Advocate, as friend of the court made submissions highlighting the unique features in respect of the BBMB Project and submitted that the Commission may consider the grant of the O&M expenses for the generating station and inter-State transmission assets of BBMB as per the 2014 Tariff Regulations. The Commission however, pointed out that these issues have been considered by the Commission and the Tribunal in its orders/ judgment while deciding the jurisdiction of BBMB in favour of the Central Commission.

iv) The Commission after hearing the parties directed the petitioner to file additional information, on affidavit, with advance copy to the respondents, on or before 19.3.2018 on the following:

As per the books of the Beneficiary States following shall be submitted:

(a) Beneficiary-wise, Plant-wise and asset-wise Gross Block and net Block as on 31.3.2014 and remaining useful life of the plants as on 31.3.2014;

(b) Total amount of Loan as on 31.3.2014 as per the books of the beneficiary States along with repayment schedule and applicable rate of interest as well as the copy of the Loan Agreements.

Additional Capital Expenditure (2014-19)

(c) Plant-wise and Asset-wise actual capital expenditure incurred during the period from 2014-15 to 2016-17 and projected additional capital expenditure for the years 2017-18 and 2018-19 with calculation of weighted average rate of depreciation as per rates and methodology prescribed under the 2014 Tariff Regulations;

(d) Actual rate of interest on loan borrowed, if any, by the beneficiary States to fund the additional capital expenditure incurred after 1.4.2014.

8. Hearing dated 23.5.2018

i) During the hearing the learned counsel for respondents PSPCL, HPPC and Rajasthan discoms submitted that the respondents have filed replies in the matter and the same may be considered for determination of tariff for the generation and transmission activities of the petitioner for the tariff period 2014-19.

ii) The representative of the petitioner submitted that SLDC charges have been claimed in these petitions and the same may be considered in terms of the Central Electricity Regulatory Commission (Fees and Charges of Regional Load Despatch Centre and other related matters) Regulations, 2015. The representative of the petitioner further submitted that it has filed rejoinders to the said replies and pleadings are complete.

iii) As regards claim for SLDC charges, the Commission, however, observed that the petitioner may file separate petition in terms of the direction given in order dated 12.11.2015 in Petition No. 251/GT/2013.

### **Tariff for the period 2014-19:**

9. Before, we discuss the admissibility of tariff elements as claimed by the petitioner, it is to point out that Availability Based Tariff combined with cost plus cum normative approach



as adopted by CERC while framing the Tariff Regulations requires hydro generators to achieve Normative Annual Plant Availability Factor (NAPAF), Normative AEC and energy generation corresponding to site specific Design Energy.

10. In turn, the capital cost incurred by the generator is serviced in terms of adequate normative return on equity and interest on loan. For this purpose, CERC requires that the capital base on which tariff is claimed by the generator is certified by the Auditors, as defined in the 2014, Tariff Regulations.

11. Other components of tariff i.e O&M, IWC and Depreciation are also provided to the generator to meet the recurring expenditure and for recovering 90% of capital cost over the useful life of the plant, respectively. Further, provision of incentive/disincentive for exhibiting performance above/below the normative performance parameters has been made in the 2014 Tariff Regulations to keep the generators vigilant in overall interest of the consumer.

12. In the above backdrop, it is considered necessary to bring out and deliberate on the deviations/exemptions with respect to 2014 Tariff Regulations as claimed by the petitioner. Accordingly, deviations as claimed by the petitioner, reply of the respondents on the same and our analysis and decision are discussed as follows:

**Deviation 1:**

13. The original value of BBMB assets including generating, irrigation and transmission assets put together has been assessed at Rs.3037 crore. This original value of assets is based on the "Fixed Asset Register" prepared by a private firm named "Protocol Insurance Surveyors & Loss Assessors" based at Noida, U.P, in place of regular procedure of maintaining a FAR indicating actual expenditure incurred in resonance with Books of Accounts certified by the Auditors.



**Deviation 2: Apportionment of expenditure between irrigation component and power component:**

14 (a) Based on the assessed original value of generating assets and irrigation assets, the petitioner has arrived at the GFA of its generating stations as on 31.3.2014 by following the methodology of apportionment of expenditure on assets common to power and irrigation functions. This methodology of apportionment of expenditure on common assets between generating assets and irrigation assets is as follows:

**Apportionment methodology of expenditure between Irrigation and Power functions**

S. No.	Name	Power		Irrigation	
		Share of Power	Share of Irrigation	Share of Power	Share of Irrigation
1.	Bhakra Power Project	100%	0%	Unit 1, 2 and 3: 50%	50%
				Unit 4: 100%	0%
2.	Dehar Power Project	94%	6%	94%	6%
3.	Pong Power Project	23.50%	76.5%	23.50%	76.5%

\*Applicable for capital as well revenue expenditure

(b) Based on the above methodology, the opening value of the gross fixed assets for each of the hydro generation project is as follows:

**Table 2: Computed opening GFA for Bhakra Generation Project (Rs. in lakhs)**

S.	Name of Hydro Generation Project	Bhakra
1.	GFA for Irrigation function as on 31.03.2014	82,594.94
2.	Transfer to Power (50%)	41,297.47
3.	GFA for Power function as on 31.03.2014	71,517.27
4	Transfer to Irrigation ( 0%)	-
<b>5</b>	<b>Net GFA for Power function (Row 2 + Row 3- Row 4)</b>	<b>112,814.73</b>



**Table 3: Computed opening GFA for Dehar Generation Project (Rs. in lakhs)**

S.	Name of Hydro Generation Project	Dehar
1.	GFA for Irrigation function as on 31.03.2014	47,371.44
2.	Transfer to Power (94%)	44,529.16
3.	GFA for Power function as on 31.03.2014	19,459.65
4.	Transfer to Irrigation ( 6%)	1,167.58
<b>5</b>	<b>Net GFA for Power function (Row 2 + Row 3- Row 4)</b>	<b>62,821.23</b>

**Table 4: Computed opening GFA for Pong Generation Project (Rs. in lakhs)**

S.	Name of Hydro Generation Project	Pong
1.	GFA for Irrigation function as on 31.03.2014	23,678.77
2.	Transfer to Power (23.5%)	5,564.51
3.	GFA for Power function as on 31.03.2014	7,106.81
4.	Transfer to Irrigation (76.50%)	5,436.71
<b>5</b>	<b>Net GFA for Power function (Row 2 + Row 3- Row 4)</b>	<b>7,234.61</b>

**Views of Respondents on GFA of generating assets and methodology of apportionment of expenditure on common assets:**

15. Respondents vide their replies have not raised any doubt/objection on the GFA of generating assets as arrived at by the petitioner based on the assessment of the private assessor and methodology of apportionment. However, with respect to methodology of apportionment, respondents vide their replies have submitted as follows:

*“With regard to the apportionment of costs between the power and irrigation works, there is no dispute on the same and all the participating States have agreed to the same for the past several decades”*

**Analysis and decision with respect to Deviation 1 and Deviation 2:**

16.1 The opening capital cost of generating assets of BBMB as claimed in the petition is acceptable in terms of its comparison to NHPC stations with same kind of remaining



useful life as on 31.03.2014. However, it is expected that while switching over to the tariff to be determined by CERC, the capital base in the books of participating States put together shall be equal to the capital base on which CERC determines the tariff. As such, opening capital cost as considered by the petitioner is acceptable subject to its reconciliation with books of accounts of the participating States as discussed in the following paras.

- 16.2 Regarding methodology of apportionment of expenditure on common assets between irrigation and power function based on which the GFA as on 01.4.2014 has been calculated for individual stations, it is observed that all the participating States have agreed to the same and as such, there is no dispute in this regard. Further, it has been brought out by the petitioner that this apportionment methodology has the approval of Ministry of Power. Accordingly, Commission accepts the methodology of apportionment of common expenditure between power and irrigation functions.

**Deviation 3: Non-reconciliation of the GFA as per FAR prepared by the assessor and GFA in the books of participating States.**

- 17.(a) In view of the fact that tariff of BBMB assets was being claimed by the participating States as a part of ARR from their respective State Electricity Regulatory Commissions (SERCs), it is expected that while switching over to the tariff to be determined by CERC, the capital base in the books of participating States put together shall be equal to the capital base on which CERC determines the tariff.
- (b) However, the capital base based on the assessor's report on which the tariff has been claimed by the petitioner after loading the agreed irrigation components, is not reconciling with the GFA booked in the books of the participating States and hence not acceptable for the purpose of tariff.



- (c) It is observed from the books of the participating States that only two State utilities i.e Punjab State Power Corporation Limited (PSPCL) and Haryana Vidyut Power Nigam Limited (HVPNL) have shown gross block corresponding to BBMB assets and further, out of these two, only HVPNL has stated the net block corresponding to BBMB assets. As such, it is not possible to arrive at the cumulative depreciation i.e the capital expenditure recovered by the State utilities who have shown GFA corresponding to BBMB assets. Rajasthan Vidyut Power Nigam Limited (RVPNL) and Himachal Pradesh State Electricity Board Limited (HPSEBL), without making any distinction between the capital and revenue expenditure, recover the money paid to the BBMB from consumers on annual basis by charging the same to ARR. As such, capital expenditure as recovered by these State utilities on annual basis, does not qualify to be part of the capital base for the purpose of tariff. Chandigarh has not provided any information despite reminders in this regard.
- (d) Further, it is observed that loan amount corresponding to capital base on which tariff has been claimed is at variance with the sum of loans shown in the books of participating States. As such, loan amount and IOL as claimed by the petitioner cannot be granted in absence of reconciliation with the books of participating State.
- (e) In view of the fact that capital base for the purpose of tariff as claimed by the petitioner has not been found to be acceptable, the ROE as claimed by the petitioner cannot be granted. Even participating States have objected to the grossed up ROE as claimed by the petitioner.

**Deviation 4: Relaxation in NAPAF:**

18. With regard to NAPAF norms , petitioner has submitted as follows:

- (a) *The Regulation 37 of CERC Tariff Regulation, 2014 specifies the norms to be applied to determine the Normative Annual Plant Availability Factor (NAPAF) for various types of*



hydro generating stations. Based on the norms mentioned, the Regulation also specifies the NAPAF (%) of hydro generating plants depending on the type of plant as Storage, Pondage, ROR etc.

(b) The hydro projects managed by BBMB are multi-purpose in nature wherein both irrigation and power generation activities are being undertaken simultaneously. The multi-purpose nature of each of the hydro projects i.e Bhakra Project, Dehar Project and Pong Project presents a unique challenge with respect to the scheduling and availability of the hydro-electric plants as these plants can only be operated when release of water is approved by the irrigation authorities of downstream partner States. Therefore the availability of each of the power generation unit at the BBMB's hydro-electric projects depends primarily on the quantum of release of water for irrigation purpose as approved by downstream partner States on daily basis. As such, BBMB cannot operate the units in case downstream partner States do not approve the release of water from the hydro projects.

(c) Hence it is a normal practice in BBMB wherein even if all units of the power projects are technically available, the declaration of capacity and plant availability is dependent on the constraints and requirements of irrigation. The data highlighting the generation corresponding to capacity available versus actual energy generated during the month for the three hydro projects has been provided in Annexure – XII to this Petition.

(d) The above mentioned issue is evident by an analysis of Plant Availability Factor for the Month (PAFM) data for the period FY 2010-11 to FY 2014-15 for Bhakra, Dehar and Pong power projects which have achieved an average PAFM of 69.21%, 55.44% and 71.65% for the three plants respectively.

(e) It can be observed from the calculation of PAFM over a period of three years that due to the typical operating requirement of the hydro projects of BBMB, the calculated PAFM of the plants are significantly lower than the norms specified in Regulation 37 of CERC Tariff Regulation, 2014. The PAFM achieved has only occasionally reached the values of around 85-90% as specified in the Regulations and overall has been on the lower side. The same trend is likely to continue during the control period 2014-19.

(f) The Petitioner submits that determination of capacity charges as per NAPAF norms as specified in the Regulation 37 (a), (b), (c) and (d) will make it impossible for the





*Petitioner to recover the actual costs as such norms are more appropriate for hydro projects dedicated for the power generation function. However in case of BBMB the usage of available water is decided upon by the irrigation requirements of partner States and this is uncontrollable in nature for the power generation function.*

*(g) The Petitioner further submits that Dehar project is a unique project interlinking the Himalayan rivers of Beas and Sutlej through a network of tunnels and open channels. The Dehar project faces a significant challenge in continuous operation of the power generation units due to excessive silt concentration in the river water which leads to problems in the hydro-mechanical and generation equipment which necessitates frequent maintenance of units.*

*(h) The Petitioner further submits that only five out of the six units of Dehar Project can be operated at any given time due to hydraulic constraints of the project. It is submitted that the sixth unit essentially acts as a back-up capacity which is used when another unit is under maintenance. This allows for reduction in risk of loss of power generation if technical issues constrain the operation of any unit. Therefore in light of the unique challenges of the Dehar project, considering the installed capacity of all six units while setting NAPAF norms shall be unfair to the Petitioner as simultaneous operation of all six units is not feasible. A brief note explaining the hydraulic constraints in Dehar Project has been attached as Annexure XIII to this Petition*

*(i) Regulation 37(2) of the CERC Tarff Regulations 2014 provides the Hon'ble Commission the power to make a further allowance in NAPAF determination under special circumstances:*

*“37 (2) A further allowance may be made by the Commission in NAPAF determination under special circumstances, e.g. abnormal silt problem or other operating conditions, and known plant limitations”*

*(j) Regulation 54 of the CERC Tarff Regulations 2014 provides the Hon'ble Commission the power to relax the provisions of the Regulations:*

*“54. Power to Relax. The Commission, for reasons to be recorded in writing, may relax any of the provisions of these regulations on its own motion or on an application made before it by an interested person”*



(k) In view of the aforesaid unique operational constraints, the Petitioner prays to the Hon'ble Commission to consider setting the norms for NAPAF for the three plants of BBMB based on achievable PAFM as evidenced from data of previous five years submitted as part of this Petition considering Regulation 37(2) and Regulation 54 of the CERC Tariff Regulations 2014 empowers the Hon'ble Commission to do so.

(l) The Petitioner also prays to the Commission to amend the definition of Declared Capacity DCi for calculation of PAFM specified in Regulations 31 (3) for the three Hydro Power Projects of BBMB viz Bhakra Complex, Dehar and Pong. The definition of DCi in the Regulation 31(3) specifies that DCi shall be the declared capacity (in ex-bus MW) for the ith day of the month which the station can deliver for at least three 3 (hours), as certified by the nodal load dispatch centre after the day is over. The Petitioner proposes that this definition may be relaxed for BBMB as follows:

*DCi = Declared capacity (in ex-bus MW) for the ith day of the month which the station can deliver for **at least one (1) hour**, as certified by the nodal load dispatch centre after the day is over.*

(m) Alternatively the Annual Fixed Charges approved by the Hon'ble Commission may be allowed to be recovered by the Petitioner without linking the same to the PAFM as the PAFM is not under the control of the Petitioner.

#### **Views of Respondents on Relaxation in NAPAF (Deviation 4)**

19. Respondents in this regard have stated as follows:

*"BBMB has claimed a relaxation in the determination of NAPAF mainly on the ground that the power generation depends on the release of water for irrigation and based on actual PAFM/NAPAF achieved for the period from 2010-2011 to FY 2014-15. For Dehar project, the relaxation has been claimed on high silt content*

20. The Hon'ble Tribunal has held that a relaxation can be granted in operating norms if the same is proved to be in public interest. (REF: **Indraprastha Power Generation Company Limited v. Delhi Electricity Regulatory Commission & Ors** (Judgment dated 12/12/2013 in Appeal No. 168 of 2012 & **Haryana Power Generation Corporation Limited**



v. **Haryana Electricity Regulatory Commission** (Judgment dated 18/09/2015 in Appeal No. 196 of 2014 & 326 of 2013).

21. Therefore, a simpliciter relaxation cannot be sought by BBMB. If BBMB wishes to get the Fixed Charges as per the Tariff Regulation, 2014, then the operating norms prescribed should also be adhered to.

**Analysis and decision in respect of relaxation in NAPAF (Deviation 4) as claimed by the petitioner:**

22.1 It is observed that respondents have not objected to the assertion of the petitioner that these plants can only be operated when release of water is approved by the irrigation authorities of downstream partner States and therefore the availability of each of the power generation unit at the BBMB's hydro-electric projects depends primarily on the quantum of release of water for irrigation purpose as approved by downstream partner States on daily basis.

22.2 In our view, the relaxation as sought by the petitioner needs to be approved by the participating States in view of the fact that such under-utilization of the generating assets is a direct result of constraints imposed by the downstream participating States.

**Deviation no. 5: O&M expenses/sale of power to common pool customers:**

23. The methodology of calculating allowable O&M expenses for the period 2014-19 as adopted by the petitioner is based on application of actual escalation rates and also considers the impact of wage revision due to implementation of recommendations of Seventh Pay Commission claimed during 2017-18. As such, it is at variance with the methodology as indicated in the 2014 Tariff Regulations which adopt normative escalations



for arriving at the O&M expenditure allowable for the period 2014-19 based on the actual O&M expenditure of the stations for past five years.

24. Further, it is observed that petitioner sells some of the power generated to common pool customers. As on date, BBMB have the following four common pool consumers:

S. No.	Name of Consumer	Load	LUs/day
1	Nangal Fertilizer Factory	5 MW at 85 % LF	1.02
2.	Rajasthan Fertilizer Factory	25 MW at 85 % LF	5.0
3.	Old Himachal Pradesh	10 MW at 50 % LF	1.2
4.	U.T. Chandigarh	Adhoc allocation	1.0
		Special Assistance	10.0

The power to these customers is sold at at the rates finalized by the BBMB board. Generally these rates are on higher side as compared to the cost of production of electricity at BBMB stations in view of the fact that in the shortage scenario participating States have to buy costlier power from the grid in lieu of the power being supplied to these common pool customers.

25. Petitioner has submitted:

*"That revenue derived from these common pool consumers is passed on to the participating States including UT Chandigarh in proportion to their shares in BBMB Projects. Net O&M expenditure (i.e after adjustment of credit of Revenue receipts from Common Pool Consumers) is being reimbursed by partner States for its scheduled allocation of power from BBMB Projects. As such, BBMB has no revenue source and does not have any Profit or Loss in the operation."*

**Views of Respondents on the O&M expenses claimed by the petitioner and on sale of power to common pool customers:**

26. Respondents have submitted as follows in respect of O&M expenses claimed by the petitioner:



*"With regard to O&M expenses BMB has proposed a methodology. It is however submitted that the O&M Expenses claimed are very high and even the escalation proposed is excessive.*

*It is submitted that the Hon'ble Commission had already determined the O&M Expenses for the period 2009-2014 vide the Orders dated 12.11.2015 and 21.03.2016. The same figures should be taken and the normative escalation of 5.72% ought to be applied on the same.*

27. Further with regard to sale of power to common pool customers at rates as decided by the BBMB board, respondents have submitted as follows:

***Common Pool Customers***

*There are certain common pool consumers who have been paying tariff as mutually decided between BBMB & the respective consumers. It is Stated that in view of this Hon'ble Commission deciding the tariff, the same tariff should be charged even to the common pool consumers.*

*The Hon'ble Commission is entered into the determination of tariff for the entire capacity of BBMB and therefore the tariff that is decided ought to be applied uniformly to all the purchasers of electricity, which includes the distribution licensees and also the common pool consumers.*

*RUVNL craves leave to file additional reply / submission in the matter to assist the Hon'ble Commission.*

**Analysis and decision on O&M expenses (Deviation 5) claimed by the petitioner and on sale of power to common pool customers:**

28.1 The methodology adopted by the petitioner of using actual escalation rates is at variance with the methodology as indicated in the 2014 Tariff Regulations which adopts normative escalations for arriving at the O&M expenditure allowable for the period 2014-19 based on the actual O&M expenditure of the stations for past five years i.e from 2008-09 to 2012-13.

28.2 Further, revenue derived from the sale of power being variable in nature has not been considered for the purpose of arriving at the allowable O&M expenditure for the purpose of tariff.



28.3 With respect to the impact of wage revision on O&M, Commission has decided in all other cases of generating stations under the purview of CERC that the wage revision impact would be allowed separately. Accordingly, in the instant case also, wage revision impact has not been considered for the present.

28.4 As such, after following the methodology as indicated at the Regulation 29(3)(b) of the 2014 Tariff Regulations {applicable for stations which have been in commercial operations for more than three years as on 1.4.2014 and whose normative O&M expenditure has not been indicated at Table of Regulation 29(3)(a) }, the allowable O&M expenses for the period 2014-19 works out as follows without considering wage revision impact and revenue earned from sale of power to common pool customers:

(Rs. in lakhs)

	2014-15	2015-16	2016-17	2017-18	2018-19
Bhakra	16481.13	17575.47	18742.49	19986.99	21314.12
Dehar	16338.68	17423.56	18580.49	19814.23	21129.90
Pong	2494.99	2660.66	2837.33	3025.72	3226.63

Comparison of actual and allowed O&M expenses for the years 2014-15 and 2015-16:

(Rs. in lakhs)

	2014-15			2015-16		
	Allowed	Actual	Difference	Allowed	Actual	Difference
Bhakra	16481.13	15386.49	1094.63	17575.47	17802.78	-227.30
Dehar	16338.68	16651.64	-312.96	17423.56	17643.81	-220.25
Pong	2494.99	2527.52	-32.53	2660.66	2922.68	-262.02
<b>Total</b>	<b>35314.79</b>	<b>34565.65</b>	<b>749.14</b>	<b>37659.70</b>	<b>38369.27</b>	<b>-709.57</b>

28.5 With respect to sale of power to common pool customers, it is observed that BBMB offsets a reasonable percentage of its O&M expenses by way of sale of power to common pool customers and also passes the revenue earned to the participating States. Since, BBMB board derives its power from the participating States, the Board's decision to sell power at certain rates to common pool customers has implied



agreement of all participating States. However, this practice is in contravention to the provisions of the 2014 Tariff Regulations according to which all power must be sold at the single tariff as determined by the Commission. It is also observed that respondents have also submitted that tariff which is decided ought to be applied uniformly to all the purchasers of electricity, which includes the distribution licensees and also the common pool consumers.

**Deviation 6: Design energy:**

29. Petitioner has claimed the following design energies for its hydel generating stations.

**(MUs)**

Name of the power house	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14
<b>Bhakra Complex</b>	332	339	523	418	507	518	490	438	450	464	423	380	<b>5282</b>
<b>Dehar</b>	271	394	382	394	394	381	272	142	117	105	97	161	<b>3110</b>
<b>Pong</b>	11	92	57	92	114	207	174	125	56	55	49	91	<b>1123</b>
<b>Total BBMB Complex</b>	614	825	962	904	1015	1106	936	705	623	624	569	632	<b>9515</b>

30. The basis of arriving at these values has not been indicated. Traditionally and as per the 2014 Tariff Regulations also, the design energy of a hydel station is to be based on the flows of design year (90% dependable year) worked out from the hydrological series of past years, rated head, rated discharge, overall efficiency etc. and corresponding to 95% machine availability. The Design Energy of hydel sites is approved by CEA based on the hydrological data of the site as provided by the CWC. However, in the instant case design energies as claimed by the petitioner has not been approved by the CEA.



## **Deviation 7: Transition period:**

31. Petitioner in this respect has submitted as follows:

(a) In line with the provisions of the Punjab Re-Organization Act 1966, the Central Government notified the rules specifying the methodology for preparation and approval of budget estimates of BBMB and the recovery of expenses incurred by the BBMB.

(b) In accordance with such rules, the BBMB has been undertaking its statutory responsibilities including preparation and approval of budget estimates of BBMB and the recovery of expenses incurred by the power generation function of BBMB from partner States and common pool consumers since its inception which is a period of almost fifty years.

(c) The Petitioner submits that after operating for almost fifty years under the regime promulgated under the Punjab Re-Organization Act 1966, the Petitioner has now undertaken the process of making the transition to the regulatory regime as per the directions of the Hon'ble Commission and has filed this Petition. However even as this transition is under process, the Petitioner shall require sufficient time to establish systems and processes to viably operate under the regulated regime.

(d) As the first two years of the control period 2014-19 i.e FY 2014-15 and FY 2015-16 are already over and the third year FY 2016-17 is under progress, the Petitioner shall not be able to retrospectively comply with the norms specified under the CERC Tariff Regulations 2014 as well as make adjustments (if necessary) on account of the Annual Fixed Charges (AFC) approved by the Commission for these years.

(e) Moreover the CERC Tariff Regulations 2014 in their current form do not provide for certain norms such as O&M expenses for the hydro-electric power projects of BBMB. Further the BBMB hydro projects being multi-purpose in nature, with power generation function constrained by the requirements of the irrigation function shall require certain relaxations to norms so as to operate viably.

(f) It is also important to note that the budget estimates for FY 2014-15 to FY 2016-17 have already been approved by the BBMB. The expenses incurred during this period have already been or are under the process of recovery from the partner States and common pool consumers of BBMB. Further these expenses may have been recovered by the partner States via the Aggregate Revenue Requirements (ARR) of the relevant power





utilities in each of the partner States. As such it shall become extremely challenging to reconcile such expenditure with Annual Fixed Charges (AFC) approved by the Hon'ble Commission if such approved AFC varies from the expenditure already incurred by the BBMB during this period.

(g) The Petitioner submits that the Hon'ble Commission has in the past allowed a period of transition to the Damodar Valley Corporation (DVC) and other CPSUs. In its Tariff Order dated 3rd October 2006 the Hon'ble Commission had Stated:

*“36. Accordingly, **the petitioner Corporation has prayed that without prejudice to other contentions, a transition period may be allowed to enable the petitioner Corporation to get into the new dispensation.** The petitioner Corporation has requested for continuation of the existing Tariff till the year 2007-08. The petitioner Corporation has further prayed that the Plant Operational Norms for the year 2004-05 and 2005-06 as fixed by the one-member bench of the Commission for the existing units be made applicable from the years 2007-08 and 2008-09 respectively and onwards. According to the petitioner, requisite improvement will be possible only from the year 2007-08, after the augmentation and improvement of the existing thermal units which has been initiated during the current year 2006-07.*

*37. We appreciate the need for such a transition period. In the past, the Commission had recognized the need for such transition for Central Sector Utilities such as NTPC Limited, NHPC, Power Grid Corporation Limited for the period till 31.3.2001. Though this Commission was established in 1998 and started exercising jurisdiction, the norms as earlier applied by the Central Government was continued to be applied. It is also noteworthy that the above mentioned companies were commercial entities and were not carrying any social and other activities as is the case with the petitioner Corporation in the instant case.*

*38. We are also seized of the matter that the petitioner Corporation requires an overall Extension & Improvement of the old generating station. Under this situation, adoption of tariff based on the 2004 regulations since 1.4.2004 will unsettle the position already settled. We are therefore, convinced that the petitioner Corporation should be allowed to continue with the existing tariff for*



*a reasonable period to readjust itself with the tariff norms before enforcement of generation and inter-State transmission tariff under the prevailing norms. In the absence of such a special dispensation, the petitioner Corporation is likely to suffer substantial loss and this is not considered to be in public interest, especially in the light of the socio-economic activities entrusted to the petitioner Corporation. 39. We have given our thoughtful consideration to the issue. We find some merit in the contentions of the petitioner. Firstly, we are in agreement that it would not be possible for the petitioner Corporation to rationalize O&M expenses from the back date or to improve norms from the back date. These are possible only prospectively. Further, in the light of the sudden change in the approach and methodology of tariff setting by applying the Commission's Regulations, with effect from 1.4.2004, it would not be possible for the petitioner Corporation to make amends for the loss in revenue if any, by cutting costs. However, we are not convinced that the prevailing tariff should be allowed to continue till 2007-08. As early as in June 2005, the petitioner Corporation was aware that it would be regulated by Commission so far as its generating stations and transmission system are concerned. The norms applicable, being contents of public documents, were also known. We also observe that the petitioner Corporation has already initiated steps to bring about improvements in operational norms. This is evident by the improvement in norms suggested by it in its own submission which were considered by the one-member Bench. In view of above, we allow the petitioner Corporation to continue the prevailing tariff till 2005-06....."*

(h) Regulation 54 of the CERC Tariff Regulations 2014 provides the Hon'ble Commission the power to relax the provisions of the Regulations:

*"54. Power to Relax. The Commission, for reasons to be recorded in writing, may relax any of the provisions of these regulations on its own motion or on an application made before it by an interested person"*

(i) The Petitioner prays to the Commission to consider the aforesaid challenges faced by the Petitioner in transitioning to the regulatory regime, past precedence of such challenges faced by entities entering the regulatory dispensation as well as the above provisions specified in the CERC Tariff Regulations 2014 and allow the Petitioner a



transition period and consider applicability of approved Annual Fixed Charges (AFC) from the next financial year or from the date of the issue of Order.

**Views of Respondents on Transition period as claimed by the petitioner:**

32. All respondents have supported the methodology proposed by BBMB on the issue.

**Analysis and Decision:**

33. The participating States have adopted different methodologies in respect of treatment of capital and revenue expenditure in their books of accounts. The capital base on which the tariff has been claimed by the petitioner is not reconciling with the GFA booked in the books of the participating States. The GFA of the generating stations as claimed by the petitioner being on the higher side in comparison to the GFA in books of participating States, it is not possible to determine the tariff components based on capital base i.e ROE, IOL and Depreciation. However, allowable O&M expenses for generating assets of BBMB as calculated as per the 2014 Tariff Regulations, are very close to the actual O&M expenditures of BBMB. As such, agreeing to the request of petitioner for suitable transition period or in other words agreeing to maintain status-quo till 31.03.2019 would be the most prudent option. This would allow time to the petitioner and participating States to come to a common platform with respect to capital base of generating assets (i.e gross block, cumulative depreciation already recovered and net block), gross loan, cumulative repayment, Interest on Loan, performance parameters of NAPAF, design energies and rate/volume of power to be sold to common pool customers.

34. In terms of the above, the Petition No. 22/GT/2017 is disposed off with direction to the petitioner and participating States to continue the existing methodology till 31.3.2019.

**Sd/-**  
**(Dr. M.K.Iyer)**  
**Member**

**Sd/-**  
**(A. K. Singhal)**  
**Member**

**Sd/-**  
**(P. K. Pujari)**  
**Chairperson**

