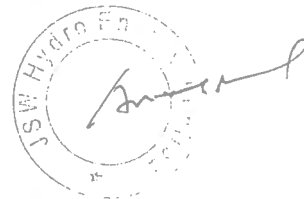


APPLICATION FOR DETERMINATION OF TARIFF FOR FY 2019-20 TO FY 2023-24 FOR SALE OF POWER FROM BASPA II HEP TO HPSEB LIMITED.

Filing No. 136 of 2018

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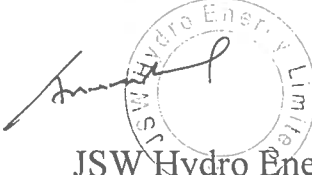


TARIFF FOR FY 2019-20 TO FY 2023-24 FOR SALE OF POWER FROM  
BASPA II HEP TO HPSEB LIMITED.

Filing No. 136 of 2018

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JSW Hydro Energy Limited

Filed by:

JSW Hydro Energy Limited

(formerly Himachal Baspa Power Company Limited)

Karcham Wangtoo H.E. Project,  
Sholtu Colony, PO. Tapri -172104,  
Dist. Kinnaur (H.P)

BEFORE THE HIMACHAL PRADESH ELECTRICITY REGULATORY COMMISSION, SHIMLA, HIMACHAL PRADESH

Filing No. 136 of 2018

IN THE MATTER OF

APPLICATION FOR DETERMINATION OF TARIFF FOR FY 2019-20 TO FY 2023-24 FOR SALE OF POWER FROM BASPA II HEP TO HPSEB LIMITED.

AND

IN THE MATTER OF

JSW Hydro Energy Limited (Formerly Himachal Baspa Power Company Limited) Karcham Wangtoo H.E. Project, Sholtu Colony, PO. Tapri -172104, Dist. Kinnaur (H.P) ... Petitioner

Versus

HPSEB Ltd. Vidyut Bhawan, Shimla – 171004

The State of Himachal Pradesh Through Principal Secretary (MPP & power), Government of Himachal Pradesh, Shimla- 171002, H.P

Respondent No 1 [Handwritten: Presented on 21/11/2019 at 4.15 PM]

RECEIVING OFFICER HPERC, Kasumpti, Shimla-171009 [Handwritten: 21/11/2019]

Respondent No 2

[Handwritten: received] [Stamp: Des. Officer, P/O CE (SO), HPSEB, Block No. 4, Vidyut Bhawan]

MOST RESPECTFULLY SHOWETH:

[Stamp: H.P. Secretary, Central Registry Section, Date: 21/11/2019, Computer No. 54588803]

1. In the matter of determination of tariff for FY 2019-20 to FY 2023-24 for sale of power from Baspa II HEP to HPSEB Limited, this Hon'ble Commission



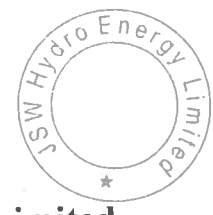
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vide its Letter No. HRERC/-F(1)-8/2018/2406 dated 12.12.2018 has directed the petitioner M/s JSW Hydro Energy Limited, to submit its reply to the shortcomings / discrepancies observed by the Hon'ble Commission on aforesaid petition.

2. In compliance of the above communication, the petitioner is herewith submitting its response.



Place: New Delhi

For JSW Hydro Energy Limited

Dated: 19.1.19



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**JSW Hydro Energy Limited**

**Determination of tariff for FY 2019-20 to FY 2023-24  
for sale of power from Baspa II HEP to HPSEB Ltd.**

Paragraph-wise reply to the shortcomings / discrepancies observed by the Hon'ble Commission on aforesaid Application

**Reply to para 1**

As desired by Hon'ble Commission, we herewith submit the point wise and detailed justification for additional capital expenditure projected in Annexure B to the tariff application dated 29.11.2018, along with necessary supporting documentary evidence:

- a. All the relevant provision of PPA and HPERC (Terms & conditions for determination of Hydro Generation Tariff) Regulation 2011, which allows additional expenditure during FY 2018-19 and MYT Control Period 2019-24 for each individual item, are mentioned in Annexure-A1, Annexure-A4 and Annexure-A5.
- b. Tentative cost claimed under additional capital expenditure for each individual item has been derived from the commercial / budgetary offers received from OEM / equivalent suppliers. Relevant Sub-Annexures carrying details of Commercial offers received from OEM / equivalent suppliers are enclosed along with Annexure-A1, Annexure-A4 and Annexure-A5.
- c. Detailed justification for additional capitalization claimed under Obsolescence along with correspondences held with OEM / equivalent supplier confirming system / equipment obsolescence are provided in **Annexure –A1**. Hon'ble CERC, on similar grounds has allowed additional capital expenditures, in generation tariff orders of various Hydro Electric



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Plants, considering system / equipment obsolescence. (Relevant tariff orders are enclosed as sub annexures to Annexure-A1).

Apart from above, as directed by Hon'ble HPERC, following details of assets proposed to be replaced are enclosed as **Annexure A2**:

- i) Originally expected life of assets
- ii) Current operational status of assets
- iii) Residual value of assets

It is also kindly submitted that plant technical committee on capital expenditure at Baspa II HEP has already submitted its recommendation for additional capital expenditure during the period 2018-19 to 2022-23, to the Board of Directors of JSW Hydro Energy Limited. Copy of recommendation is enclosed and marked as **Annexure A3**.

Third party assessment regarding need assessment of such replacement was not done earlier, however the same shall be submitted in due course of time before hearing of this petition at Hon'ble Commission.

- d. Petitioner herewith submits **Annexure A4** for details of change in law occurred which mandates or requires it to incur additional capital expenditure. To substantiate the above, petitioner has enclosed 5<sup>th</sup> amendment to the Indian Electricity Grid Code (IEGC) Regulation 2010 and Hon'ble CERC orders dated 13.1.2016 & 31.7.2017, as Sub-Annexure 1.3 to 1.5 of Annexure-A4.
- e. Petitioner herewith submits **Annexure A5** with detailed justification for plant efficiency improvement, by introduction of proposed equipment's / systems claimed under upgradation in technology.
- f. A request letter for consent, to incur additional capitalization expenditure during FY 2018-19 & Multi Year Tariff Period 2019-24, has been submitted to the Respondent no. 1 and addressed to "The Chief Engineer (System Operations), HPSEBL" vide letter No. JSWHEL / BASPA / PPA / 2018-9395,



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dated 29<sup>th</sup> October 2018. Copy of the letter is enclosed and marked as **Annexure-A6** for ready reference please. Revert from the Respondent no. 1 to the said letter is still awaited.

**Reply to para 2**

As directed by Hon'ble Commission, Petitioner kindly submits that purchase / service orders worth Rs. 2.20 crore have been issued by Baspa II HEP and offers from OEM/ equivalent supplier are received for Rs. 0.57 crore (pending issuance of purchase / service orders), against capital expenditure committed of Rs. 2.75 crore in FY 2018-19. (Summary of purchase /service orders placed is enclosed as **Annexure B** and copy of respective purchase/ service orders is enclosed as Annexure-B1 to Annexure-B13).

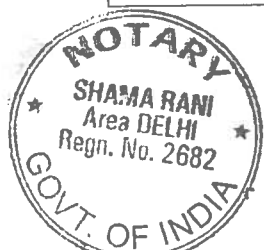
**Reply to para 3**

It is kindly submitted that Plant availability factor (PAFY) of 97% for the 4<sup>th</sup> control period is an own internal assessment by the technical team of Baspa II HEP.

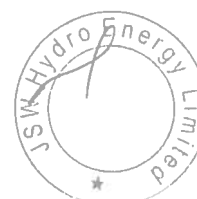
**Reply to para 4**

Petitioner herewith submits that gross energy generated during the last 3 years of the previous tariff cycle, is as under:

Year	Gross Generation (Mus)
2016-17	1342.75
2017-18	1336.65
2018-19 (Estimated)	1265.84
Average of 3 years	1315.08
Average net saleable energy (net of losses @ 1.65% and free energy to GoHP @ 12%)	1138.18



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Net saleable design energy as per PPA	1050.06
Secondary Energy (Net saleable design energy – Net saleable energy)	88.12

From the above it is evident that average 1315 Mus were generated during last 3 years, and going by most conservative approach same is considered for annual gross generation for tariff cycle of FY 2019-24. This may facilitate Hon'ble Commission to approve incentive on account of secondary energy in the MYT order itself for FY 2019-24.

#### **Reply to para 5**

Average interest rate of 9.10% assumed for normative loan of additional capitalisation, has been arrived based on actual borrowing cost being born by the petitioner for its current term loans.

Detailed working sheet for calculation of interest rate is enclosed and marked as **Annexure C**.

#### **Reply to para 6**

As directed by Hon'ble Commission, detailed calculation for arriving at the O & M cost towards additional capitalisation during 4<sup>th</sup> control period in enclosed and marked as **Annexure D**.

#### **Reply to para 7**

Petitioner respectfully submits that it has relied on Regulation 74 of the The Himachal Pradesh Electricity Regulatory Commission (Conduct of Business) Regulations, 2005 & Regulation 52 (1) of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations 2014 for its claim with respect to tariff filing fee in each year of the control period.



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Relevant part of the said regulations is reproduced herein below:

Regulation 74 of the Himachal Pradesh Electricity Regulatory Commission  
(Conduct of Business) Regulations, 2005:

**74. Costs.-**

(1) Subject to such conditions and limitation as may be directed by the Commission, the cost of all proceedings shall be awarded at the discretion of the Commission and the Commission shall have full power to determine by whom or out of what funds and to what extent such costs are to be paid and give all necessary directions for the aforesaid purposes.

(2) The costs shall be paid within 30 days from the date of the order or within such time as the Commission may, by order, direct. The order of the Commission awarding costs shall be executed in the same manner as the decree/order of a civil court.

Regulation 52 (1) of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations 2014:

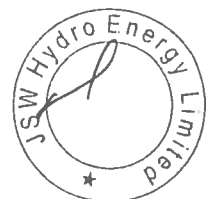
**52. Application fee and the publication expenses:**

The following fees, charges and expenses shall be reimbursed directly by the beneficiary in the manner specified herein:

(1) The application filing fee and the expenses incurred on publication of notices in the application for approval of tariff, may in the discretion of the Commission, be allowed to be recovered by the generating company or the transmission licensee, as the case may be, directly from the beneficiaries or the long term transmission customers /DICs, as the case may be:



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Earlier also, based on the application made by the petitioner, Hon'ble Commission had approved tariff filing fee as part of ARR for the 2<sup>nd</sup> control period vide its MYT order dated 15.7.2011 and for the 3<sup>rd</sup> control period vide its MYT order dated 6.6.2014.

Petitioner vide its affidavit dated 27.8.2018 under M.A. no. 114/2018 had requested Hon'ble Commission to recover Rs. 9,00,460 from HPSEBL towards the filing fee for true up of generation tariff and expenditure towards the publication in the newspapers as per the provisions of The Himachal Pradesh Electricity Regulatory Commission (Conduct of Business) Regulations, 2005. The Hon'ble Commission vide its true up order dated 31.10.2018 had stated as under:

The petitioner vide M.A. no. 114/2018 dated 28.8.2018 has also submitted additional claim to recover filing fees of present true up petition and charges for publication of advertisement with respect to the petition in the newspaper. It is observed that the amount towards petition and advertisement have been paid during FY 2018-19. Since the Commission has not revised the ARR for FT 2017-18 and 2018-19, these amounts may be considered at the time of truing up for the respective years based on prudence check.

Relying on the above paragraph in true up order dated 31.10.18, the petitioner has added said Rs. 9,00,460 in the ARR of FY 2018-19 along with the tariff filing fee of Rs. 5 lakh.

### Reply to para 8

The petitioner has worked out depreciation and advance against depreciation in accordance with the clause 8.6.5 of the Power Purchase agreement (PPA) dated 4.6.1997.



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### 8.6.5 Depreciation and advance against depreciation

8.6.5.1 During the period when the debt is outstanding as per the approved financial package, the payment on this account will be equal to the amount of principal required to be paid in the relevant tariff period / tariff year subject to the condition that the amount payable for a full tariff year shall not be more than an amount equal to 1/12<sup>th</sup> of the loan component of the capital cost as per the approved financial package.

Out of the amount as paid on account of depreciation / advance against depreciation for debt redemption period, an amount worked out @ 4.3% of the capital cost for each such full period of 12 months, shall be treated as payment made on account of depreciation and balance amount shall be treated as advance against depreciation.

After the expiry of debt redemption period, the total amount already paid/ payable by the Board to the Company on account of advance against depreciation shall be adjusted against the depreciation payable by the Board for the future period at a per annum rate of 4.3% of the capital cost.

No further payments on account of depreciation shall be made by the Board to the Company after the debt redemption period until the entire amount of advance against depreciation is fully adjusted against the amount that would have otherwise been payable by the Board on this account i.e. at a per annum rate of 4.3% of the capital cost.

After the full adjustment of the advance against depreciation, further payments on account of depreciation shall be made at an annual rate of 4.3% of capital cost as per the approved financial package, subject to the condition that the total payment on account of depreciation shall not exceed 90% of the capital cost as per the approved financial package.



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For the purpose of computing the capital cost, the capital cost will be reduced by the value of leased assets as on the scheduled date for commercial operation of the unit (s)/ project as per the approved financial package. The amount of depreciation/ advance against depreciation, for a part of the year shall be worked out, if necessary, on pro-rata basis.

*(clause 8.6.5.1 is broken up in 6 paras as above, for ease of understanding)*

Year wise detailed working for depreciation from the COD is enclosed and marked as **Annexure E**.

From the said annexure, it may be observed that advance against depreciation approved till 2015-16 of Rs. 239.63 crore is being adjusted against the depreciation, in terms of para 3 supra of para 8.6.5.1 of PPA. Till the year 2018-19, Rs. 201.38 crore can be adjusted and balance of Rs. 38.25 crore only can be adjusted in the FY 2019-20. Therefore, in subsequent years FY 2020-21 onwards, Nil amount of advance against depreciation has been considered.

Further in terms of para 5 supra of para 8.6.5.1 of PPA, total cumulative depreciation shall not exceed 90% of the admitted capital cost of Rs. 1632.41 crore and projected additional capital expenditure of Rs 11.05 crore (pending approval from Hon'ble Commission), i.e. maximum ceiling for depreciation would be 1479.11 crore. It may kindly be noted that cumulative depreciation as on 31.3.2024 reaches the mark of Rs.1446.70 crore only as per Annexure 4 to the tariff forms.

### Reply to para 9

As desired by Hon'ble Commission we submit herein below the proposed capacity charge, energy charge and incentives & taxes for each year as per the proposed ARR for the 4<sup>th</sup> control period:



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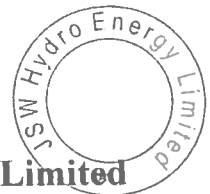
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Particulars	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
Capacity Charges					
Interest on outstanding loans	0.18	0.32	0.37	0.45	0.51
Depreciation/Advance against Depreciation	32.06	70.43	70.49	70.58	70.67
Application fee	0.05	0.05	0.05	0.05	0.05
<b>Sub-total Capacity Charges</b>	<b>32.29</b>	<b>70.81</b>	<b>70.92</b>	<b>71.07</b>	<b>71.23</b>
Primary Energy Charges					
O&M Charges	43.75	45.54	47.42	49.38	51.37
Return on Equity	78.63	78.70	78.79	78.89	78.89
Interest on Working Capital	6.23	7.52	7.62	7.73	7.83
<b>Sub-total Primary Charges</b>	<b>128.61</b>	<b>131.75</b>	<b>133.83</b>	<b>136.00</b>	<b>138.09</b>
Incentives and Taxes					
Incentive for Secondary Energy	27.94	27.96	28.00	28.03	28.03
Incentive for Higher Plant Availability	9.83	9.84	9.85	9.86	9.86
Income tax	25.97	39.39	39.43	39.48	39.51
<b>Sub-total Incentives and Taxes</b>	<b>63.74</b>	<b>77.19</b>	<b>77.28</b>	<b>77.37</b>	<b>77.40</b>
<b>Total Annual Fixed Charges</b>	<b>224.64</b>	<b>279.75</b>	<b>282.02</b>	<b>284.44</b>	<b>286.72</b>

Place: New Delhi

Date: 19.1.19

For JSW Hydro Energy Limited



*[Signature]*



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*[Signature]*  
 Notary Public Delhi (India)

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BEFORE THE HIMACHAL PRADESH ELECTRICITY REGULATORY  
COMMISSION, SHIMLA, HIMACHAL PRADESH

Filing no. 136 of 2018

IN THE MATTER OF

APPLICATION FOR DETERMINATION OF TARIFF FOR FY 2019-20 TO FY  
2023-24 FOR SALE OF POWER FROM BASPA II HEP TO HPSEB LIMITED.

AND

IN THE MATTER OF

JSW Hydro Energy Limited

(Formerly Himachal Baspa Power Company Limited)

Karcham Wangtoo H.E. Project,

Sholtu Colony, PO. Tapri -172104,

Dist. Kinnaur (H.P)

...

Petitioner

Versus

HPSEB Ltd.

Vidyut Bhawan, Shimla – 171004

...

Respondent No 1

The State of Himachal Pradesh

Through Principal Secretary (MPP & power),

Government of Himachal Pradesh,

Shimla- 171002, H.P

...

Respondent No 2



THIS COPY  
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*[Signature]*  
Notary Public Delhi (India)  
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**AFFIDAVIT**

I, Anurag Agarwal, son of Shri Kamal Kishore Agarwal, aged 38 years residing at Panchsheel Pratishtha, Sector 75, Noida 201301, do solemnly affirm and say as follows:

1. I am Senior Manager (F&A) of JSW Hydro Energy Limited and am duly authorized to make this affidavit on behalf of JSW Hydro Energy Limited.
2. that the contents of the above reply along with the annexures filed are based on the information available and on the records of the Petitioner maintained in the normal course of business and believed by me to be true.

  
DEPONENT

**VERIFICATION**

I, the deponent above-named, do hereby verify the contents of the above affidavit to be true to the best of my knowledge, no part of it is false and nothing material has been concealed therefrom.

Verified at New Delhi on this 19<sup>th</sup> January, 2019

  
DEPONENT



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**JSW Hydro Energy Limited (Baspa II HEP)**

ANNEXURE  
**A/**

**Justification towards expenditure on account of Additional Capitalisation due to Obsolescence**

SI No. (As Per Annexure -B to MYT application)	Name of Assets	Justification along with information sought by the Hon'ble Commission	Relevant HPEI Clause
1	<p align="center"><b>Upgradation of Excitation System for Unit-1, Unit-2, Unit-3</b></p>	<p>The Excitation system (Model: Symadyn-D) of Baspa-II HEP supplied &amp; commissioned by M/s Siemens currently Known as Voith Hydro Pvt. Ltd., is in continuous operation since its commissioning in 2003. This system, in each unit, has two Simadyn-D AVR controllers. However, only one is operational at a time and other acts as back-up in case of failure of other.</p> <p>In April 2016, it was observed that AVR channel 1 of unit 2 excitation system has started malfunctioning causing intermittent tripping of the unit. In spite of various attempts to set this right, this behavior is still persisting. As of now, we are running the unit with only other available channel. (i.e. Channel No.-2).</p> <p>As such, market survey, visit to Nathpa-Jhakri Power House of M/s SJVNL and discussions with OEM (M/s Voith) revealed that the existing Excitation system (Symadyn-D) is now obsolete and is currently replaced by new PLC based version having latest features and user friendly interface. Hence, OEM is unable to do the maintenance for this system. However, after upgradation of Unit-2 Excitation System, we can have this system operational on redundant topology, as before, and also will have operational support for spares and technical services from OEM. This will ensure successful and efficient operation of plant.</p> <p>Service Order for upgradation of Unit-2 Excitation has been place to M/s ABB India Limited on 21.11.2018.</p> <p>Reliance in this regard has been placed on the tariff order of Hon'ble CERC dated 13.1.2016 in Petition No. 42/GT/2015 for Khandong HEP of M/s NEEPCO (enclosed as Sub annexure 1.5 to Annexure A4)</p> <p><b>In support to above submission, following annexures are enclosed:</b>                      Annexure-12.1: Copy of E-Mail correspondence held with OEM (Original Equipment Manufacturer), M/s Voith Hydro Private Limited which confirms System Obsolescence                      Annexure-12.2: Commercial offer having tentative price received from M/s ABB India Limited for upgradation of Excitation system                      Annexure-12.3: Copy of Minutes of Meeting held between M/s JSW Hydro Energy Ltd. and M/s ABB India Ltd.</p>	<p>HPERC (terms conditions for determination of hydro generation tariff) Regulation 2011-2011- Regulation 13 (2) &amp; Regulation 14</p>

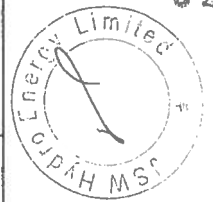




SI No. (As Per Annexure -B to MYT application)	Name of Assets	Justification along with information sought by the Hon'ble Commission	Relevant HPERI Clause
8	(a) Upgradation of Position Sensors for Pelton Turbine Nozzles (Temposonic Sensors) for Unit-1 and Unit-3	<p>Four deflectors and four nozzles are installed in each unit to control the water input to the runner. The position of these deflectors and needles is controlled through the feedback received from Temposonic sensors installed in servo motor assembly. This sensor is coupled with connector, cable and analog card. In this context, analog card provides 4-20 mA as output to the Electronic Governor for feedback signal.</p> <p>Our systems are working since commissioning in 2003. As per OEM, M/s MTS Udambag, Belgaum, Karnataka the originally commissioned analog cards are now Obsolete and ints maintenance is very difficult due to non-availability of spare cards. OEM, MTS has recommended to use its upgraded version of Temposonic sensor having integrated cable and inbuilt analog card. These new integrated cable sensors have IP68 protection which avoids moisture ingress at connector. However, a little modification in the hardware is required to infuse the upgraded sensors with our existing system.</p>	<p>HPERC (terms conditions for determination c hydro generatio tariff) Regulatio 2011- Regulation 13 (2) &amp; Regulation 14</p>
	(b) Upgradation of Position Sensors for Pelton Turbine Deflectors (Temposonic Sensors) for Unit-1, and Unit-3	<p>It is pertinent to mention here that the upgraded version requires only sensor and cable. No Temposonic card is required in existing system.</p> <p>We have already received the budgetary offer from the OEM i.e. M/s MTS for twelve nozzle sensors and twelve deflector sensors together with one no. programming KIT and work execution process is under progress. Purchase Order of MTS Make Position Sensors for Nozzle and deflector have been placed on 25.06.2018.</p> <p>Reliance in this regard is placed on the Hon'ble CERC Order dated 29.3.17 in Petition No. 178/GT/2015 for Tehri HEP of M/s THDC.</p> <p><b>In support to above submission, following annexures are enclosed:</b> Annexure-13.1: Copy of E-Mail correspondence held with OEM, M/s MTS which, confirms system obsolescence Annexure-13.2: CERC order dated 29.3.17 for Tehri HEP of M/s THDC Limited.</p>	



Sl No. (As Per Annexure -B to MYT application)	Name of Assets	Justification along with information sought by the Hon'ble Commission	Relevant HPEI Clause
9	<p>Upgradation of Alstom Make EPAC 3000 Series, Distance Protection Relays for 400 kV Outgoing Feeders</p>	<p>Distance Protection Relay is used to protect the outgoing 400 kV Power Evacuation Feeders from external line faults and tripping / de-energizing the transmission Lines under fault conditions.</p> <p>We have two-line protection relays installed for one feeder (Four protection relays for two feeders). In existing scenario P442 (Make-Alstom) is Main-1 protection and EPAC-3000 (Make-Alstom) is used as Main-2 protection. Line Protection relays were commissioned in 2003 by its OEM, M/s GE T&amp;D India Ltd. (Formerly Known as ALSTOM) and are in operation since then.</p> <p>It's pertinent to mention here that at present we are not getting maintenance support from the OEM for existing EPAC-3000 Relay (Main-2 protection). <b>To our query OEM replied that, installed protection relay (i.e. EPAC-3000) is OBSOLETE and the same cannot be supplied any more.</b></p> <p>Further with these relays Windows 2000 based interface / PG station were provided which are not functional any more because of which we can't extract Disturbance Records (DR Report) from the relay in event of any faulty condition / tripping. Due to which we are not able to re-produce DR reports to OEM experts, regulatory bodies (i.e. NRLDC, NRPC, SLDC etc.) if/ when required by them for further fault analysis. Moreover, change in technology of existing relays is also a challenge which we face in our day to day operational activity.</p> <p>Section 5.2(r) on System Security Aspects as per 1st Amendment to IEGC Regulations, 2010 dated 5.3.2012 is reproduced as verbatim:  <b>"All the Users, STU/SLDC and CTU shall send information/data including disturbance recorder/ sequential event recorder output to RLDC within 24 hours for purpose of analysis of any grid disturbance/event. No Users, SLSC/STU or CTU shall block any data/information required by the RLDC and RPC for maintaining reliability and security of the grid and for analysis of an event".</b> (IEGC 1st amendment is enclosed as sub annexure 9.3 to Annexure A5)</p> <p>Based on OEM's recommendation and because of having different working principle to existing P-442 Relay (Main-1 Feeder Protection), D60 Protection Relay has been procured and installed in place of existing EPAC-3000 Relay as Main-2 Protection.</p> <p>The similar expenditure for Khandong HEP of M/s NEEPCO was allowed by Hon'ble CERC vide its Order dated 13.1.2016 in Petition No. 42/GT/2015 (enclosed as Sub annexure 1.5 to Annexure A4) at sl. no. 8 of page 14 &amp; 15</p> <p><b>In support to above submission, following annexures are enclosed:</b>  Annexure-14.1: Copy of E-mail correspondence held with OEM M/s GE T&amp;D India Limited which confirms system obsolescence  Annexure-14.2: Conv. of Minutes of meeting held between Supplier and M/s ISW Hydro Energy Limited</p>	<p>HPERC (terms, conditions for determination of hydro generation tariff) Regulation 2011- Regulation 13 (2) &amp; Regulation 14</p>



SI No. (As Per Annexure -B to MYT application)	Name of Assets	Justification along with information sought by the Hon'ble Commission	Relevant HPERC Clause
13	Procurement of Uninterrupted Power Supply for Plant Auxiliaries (15 KVA Inverter)	<p>UPS provide power supply to a load in the case of a power outage or when the power input fails. It differs from an auxiliary or emergency power system or standby generator in that a UPS device provides instantaneous (or very nearly instantaneous) protection from power outages. This UPS provide power supply to GIS (for monitoring important parameters), Power House Emergency Lighting and Computers.</p> <p>The existing 15 kVA UPS of Baspa Power Station was supplied and commissioned by M/s UNILINE (OEM). This system was in continuous operation since its commissioning in 2003. It is pertinent to mention that this system is completing its useful life and is getting obsolete year by year. Further, ageing effects of UPS is causing malfunctioning of electronic cards, which eventually is leading to intermittent trips of common DC Supply.</p> <p>As per OEM, M/s UNILINE the originally commissioned UPS cards are now Obsolete and no further operational support of spares and technical services can be provided from there end.</p> <p>The similar expenditure for Kopili HEP of M/s NEEPCO was allowed by Hon'ble CERC vide its Order dated 13.1.16 in Petition No. 46/GT/2015 at sl. no. 9 of page 13</p> <p><b>In support to above submission, following annexures are enclosed:</b> Annexure-15.1: Copy of Service Report of M/s UNILINE for 15 KVA Inverter Annexure-15.2: CERC order dated 13.1.16 for Kopili HEP of M/s NEEPCO.</p>	<p>HPERC (terms &amp; conditions for determination of hydro generation tariff) Regulation 2011- Regulation 13 (2) (c) &amp; Regulation 14</p>
15	Upgradation of CCTV Surveillance System	<p>A stand out amongst the most well known and financially savvy methods for giving security in the work environment is with CCTV cameras. CCTV cameras can go about as an extremely useful for monitoring paint functions and also serves purpose of countering robberies &amp; sabotage.</p> <p>Surveillance is not just to keep an eye on O&amp;M staff, it is also meant to keep them safe from any potential threat. We can ensure that no unauthorized person enters office premises hence create a safe environment for them. It also helps our staff against any false accusations by giving them evidence on their side.</p> <p>At Baspa-II HEP Samsung Make CCTV Surveillance System are in continuous operation since its installation in 2003. Most of the Cameras and its controls are not working properly. Further, we are also facing shortage of spares because of Obsolescence.</p> <p>During Condition monitoring of CCTV Surveillance System by M/s SRA Info solutions (Official Service Partner for Samsung CCTV Product) &amp; M/s Bosch Ltd., it was recommended that " Existing Samsung make CCTV Cameras are analog-low resolution type and the same technology is obsolete now". In view of this, OEM service Partner has recommended to install latest technology CCTV Camera with high resolution i.e. IP based system which will enhance the safety of the plant.</p> <p>The similar expenditure for Tehri HEP of M/s THDC Limited was allowed by Hon'ble CERC vide its Order dated 29.3.17 in Petition No. 178/GT/2015 (enclosed as Sub annexure 13.2 to Annexure A1) at sl. no. 14 of page 11</p> <p><b>In support to above submission, following annexures are enclosed:</b> Annexure-16.1: Copy of E-mail correspondence held with OEM which confirms system obsolescence Annexure-16.2: Commercial Offer having tentative price received from supplier for upgradation of CCTV Surveillance System</p>	<p>HPERC (terms &amp; conditions for determination of hydro generation tariff) Regulation 2011- Regulation 13 (2) (c) &amp; Regulation 14</p>



SI No. (As Per Annexure -B to MYT application)	Name of Assets	Justification along with information sought by the Hon'ble Commission	Relevant HPERC Clause
17	Upgradation of DCS (Data Acquisition and Control) System)	<p>Data acquisition systems measures, stores, displays and analyze information collected from a variety of measuring devices. Most measurements require a transducer or a sensor, a device that converts a measurable physical quantity into an electrical signal. Sensors come in numerous shapes, sizes, and specifications. They connect between the measured physical device and the signal conditioner's input. Signal conditioners accept sensor output signals and convert them into a form that the data acquisition system can manipulate. Signal conditioners typically amplify, filter, isolate, and linearize these signals.</p> <p>An optocoupler (which is a vital component of Data Acquisition System), is an electronic component that transfers electrical signals between two isolated circuits by using light. These optocoupler receives soft signals from field instrument and transmit theme to respective PLC for further signal processing.</p> <p>At Baspa-II HEP approx. 1000 numbers of "MURR" make optocouplers (Module-536126) are installed in Unit Control Boards, Local Control Board, GIS Control Board and Station Service Control Board. These optocouplers are supplied and installed by SIEMENS and are in continuous service since commissioning of the plant. <b>At current scenario many of the optocouplers are malfunctioning due to their ageing.</b> As such we are facing shortage of optocoupler due to discontinuation of production from OEM. In veiw to this obsolescence, its recommended to upgrade / replace the old optocouplers of one of unit control board &amp; local control board with upgraded din rail mounting optocouplers. It is pertinent to mention here that, the replaced old optocouplers will be kept as spares for other units control boards for future requirements.</p> <p>The similar expenditure for Rangit HEP of M/s NHPC was allowed by Hon'ble CERC vide its Order dated 6.1.16 in Petition No. 232/GT/2014 at Sl. no. 5 of page 14 &amp; 15</p> <p><b>In support to above submission, following annexures are enclosed:</b> Annexure-17.1: Copy of E-mail correspondence held with OEM which confirms system obsolescence Annexure-17.2: CERC order dated 6.1.16 for Rangit HEP of M/s NHPC.</p>	<p>HPERC (terms &amp; conditions for determination of hydro generation tariff) Regulation 2011- Regulation 13 (2) (c) &amp; Regulation 14</p>

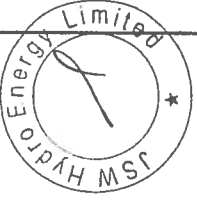


Sl No. (As Per Annexure -B to MYT application)	Name of Assets	Justification along with information sought by the Hon'ble Commission	Relevant HPERC Clause
18	Upgradation of Emulsifier System	<p>The Emulsifier system of Baspa-II HEP was designed, manufactured, supplied and commissioned by M/s Technico (India) Private Ltd. (OEM) in 2003, since then this system is in continuous operation. The emulsifier fire protection system is meant for protecting 10 Nos. of 13.84 / 400 KV, 41 MVA, oil direct water force (ODWF) cooled single phase Generator -Transformers. This high velocity water spray system (HWWS) consists of following components: Quartzoid Bulb Heat detectors, High velocity water spray nozzles (Projectors), Deluge Valve etc. The Deluge Valve is provided to act as main control valve which automatically operates on operation of any detector.</p> <p>Presently, leakage from various section of Deluge valves are being observed. The main cause for these leakages is excessive erosion of valve body, probably because of ageing and completion of its useful life. Continuous leakage from deluge valves of common hydrant system initiated high severity alarm and can also result in generating unit tripping.</p> <p>As per technical guideline of manufacturer, Deluge valve's header pressure and control pressure should be maintained equally at all times for ensuring its operational healthiness. To resolve this issue we approached OEM (M/s Technico India Pvt. Ltd.) for procurement of new sets of Deluge Valves. <b>On our requirement OEM informed that these Deluge valves are now obsolete and can not be reinstated.</b></p> <p>In view of above and in agreement to OEM recommendations, upgradation of existing emulsifier system is proposed for ensuring efficient and successful plant operation.</p> <p>The similar expenditure for Tehri HEP of M/s THDC Limited was allowed by Hon'ble CERC vide its Order dated 29.3.17 in Petition No. 178/GT/2015 (enclosed as Sub annexure 13.2 to Annexure A1) at sl. no. 42 of page 21 &amp; 22</p> <p><b>In support to above submission, following annexures are enclosed:</b> Annexure-18.1: Letter received from OEM (M/s Technico India Pvt. Ltd.) which confirms system obsolescence Annexure-18.2: Commercial offer having tentative price received from OEM for upgradation of Emulsifier System</p>	<p>HPERC (terms &amp; conditions for determination of hydro generation tariff) Regulation 2011- Regulation 13 (2) (c) &amp; Regulation 14</p>



SI No. (As Per Annexure -B to MYT application)	Name of Assets	Justification along with information sought by the Hon'ble Commission	Relevant HPERC Clause
19	Upgradation of HVAC System (Ventilation System and Air Conditioning System)	<p>At Baspa-II HEP proper Ventilation system has been provided, to ensure required air changes as per industrial norms and standards in order to cater essential requirements of man and machinery. Baspa-II is sub divided in three areas namely Power House Cavern, GIS/ Transformer Hall Cavern and Surge Shaft Gate chamber. The entire ventilation system including three sets of packaged Air Conditioning system were supplied and commissioned by M/s S K System Private Limited in the year 2003, since then these systems are in continuous operation.</p> <p>Over past few years, unceasingly breakdown has been experienced due to excessive wear-tear and non-availability of relevant spare parts for Power House Ventilation System.</p> <p>Moreover, frequent breakdowns in Blue Star Make Air Conditioning Units have been experienced due to failure of their electronic controll parts, which are causing temperature raise in Control Room block and is leading to tripping of sensitive electronic devices (such as video wall screen, server panel etc.).</p> <p>To resolve this technical issue we approached M/s Blue Star (OEM). In reply of our query they, recommended us to upgrade the existing Air Conditioning Units with latest technology as their electronic controls has been obsoleted.</p> <p>As ventilation system is the lifeline of any underground Power House, therefore upgradation of ventilation system is very much essentially required to keep the existing plant systems healthy.</p> <p>The similar expenditure for Chamera-I HEP of M/s NHPC was allowed by Hon'ble CERC vide its Order dated 12.7.11 in Petition No. 84/GT/2010 at page 9</p> <p><b>In support to above submission, following annexures are enclosed:</b>  Annexure-19.1: Copy of E-mail correspondence held with OEM, M/s Blue Star which confirms system obsolescence  Annexure-19.2: Commercial offer having tentative price received from OEM for upgradation of Air conditioning system  Annexure-19.3: Commercial offer having tentative price received from supplier for upgradation of Power House Ventilation System  Annexure-19.4: CERC order dated 12.7.11 for Chamera-I HEP of M/s NHPC.</p>	<p>HPERC (terms &amp; conditions for determination of hydro generation tariff) Regulation 2011- Regulation 13 (2) (c) &amp; Regulation 14</p>



SI No. (As Per Annexure -B to MYT application)	Name of Assets	Justification along with information sought by the Hon'ble Commission	Relevant HPERC Clause
20	Upgradation of Smoke and Fire Detection System	<p>Baspa II HEP has Honeywell Notifier Make AFP Series Fire Detection System with 120 Nos. of Smoke detectors for detection of fire inside Power House cavern. This system was supplied and Installed by M/S Technico India Pvt. Ltd. Recently a problem has been observed in Smoke detectors viz. D-104,105,142,116,136 which are not functioning properly and are generating intermittent false alarm annunciations.</p> <p>To resolve this discrepancy, OEM service provider M/s DQAP Systems representatives were asked to visit the Plant. <b>Consequent to the visit, M/s DQAP recommends for Upgradation of Fire Detection System with NFS Series or latest available upgraded versions as existing system is now obsolete.</b></p> <p>Reliance in this regards is placed on the tariff order of Hon'ble CERC dated 13.1.16 in Petition No. 46/GT/2015 for Kopili HEP of M/s NEEPCO (enclosed as Sub annexure 15.2 to Annexure A1)</p> <p><b>In support to above submission, following annexures are enclosed:</b></p> <p>Annexure-20.1: Copy of Minutes of meeting held with M/s DQAP System and M/s JSW Hydro Energy Limited which, confirms system obsolescence</p> <p>Annexure-20.2: Commercial offer having tentative price received from supplier for upgradation of Smoke and Fire Detection System</p>	<p>HPERC (terms &amp; conditions for determination of hydro generation tariff) Regulation 2011- Regulation 13 (2) (c) &amp; Regulation 14</p>
22	Upgradation of Power House Lift	<p>One Passenger lift supplied and Installed by M/s OTIS Elevator company India Pvt ltd is in operation at Baspa Power House, since its commissioning in 2003. OTIS Make Lift was installed, erected &amp; commissioned during the period from 2000 to 2003, it is evident that the design &amp; technology used was that prevailing during 1995 to 2000. Installed Lift at Bapsa Power house is being maintained by its original supplier M/s OTIS Elevator company Limited on AMC basis, since 2003. It is pertinent to mention here that frequent breakdown of lift has been observed since last two year due failure of electronic drive for the controller.</p> <p>To resolve this technical issue we approached our Service provider M/s OTIS Elevator Company, to our query OEM replied that " Your Elevator is equipped with Traditional "G5" Variable voltage - Variable frequency (VVVF) Drive for the controller, <b>since the G5 Drive is now obsolete, therefore we strongly recommend you to get upgraded to latest available L-1000VVVF Drive".</b></p> <p>Due to obsolescence of certain spares parts of OTIS Lift, we are unable to maintain its healthiness. in view of this, its proposed to upgrade the power house lift for successful and efficient operation.</p> <p>As per "CEA Regulation-2010 (Technical Standard for Construction of Electrical Plants and Electric Lines), Notification No. CEA/TETD/MP/R/01/2010, Chapter III, Section (6) Power house lift- <b>The lift and its associated equipment shall comply with the requirements of latest versions of relevant IS. A minimum of one lift shall be provided in the power house besides two sets of staircase for the movement of persons/ goods."</b></p> <p>Reliance in this regards is placed on the tariff order of Hon'ble CERC dated 26.5.16 in Petition No. 264/GT/2014 for Omkareshwar HEP of M/s NHDC.</p> <p><b>In support to above submission, following annexures are enclosed:</b></p> <p>Annexure-21.1: Intimation Letter from OEM which confirms system Obsolescence</p> <p>Annexure-21.2: Commercial offer having tentative price received from OEM for New Drive</p> <p>Annexure-21.3: CERC order dated 26.5.16 for Omkareshwar HEP of M/s NHDC Limited.</p>	<p>HPERC (terms &amp; conditions for determination of hydro generation tariff) Regulation 2011- Regulation 13 (2) (c) &amp; Regulation 14</p>
			

Details of assets proposed to be replaced due to obsolescence

Sl. No. as per Annexure-B	Description of Asset / Works as per Annexure-B	Name of Equivalent Old Asset as per Agreement between JHPL & OEM/Supplier	Quantity (A)	Depreciated Value of Assets as on 31.3.18	Current operational status	Usefull life of assets (in years) as considered in books
1	Upgradation of Excitation System for Unit-1, Unit-2, Unit-3	Design, Manufacture, shop-testing, packing, forwarding and delivery of Static Excitation and Voltage Regulation Equipment as per technical specifications	3 Sets (For Three Units)	1,73,21,627		40
4	Procurement of High Pressure Unit Compressor (Two sets of High Compressors (Main and Standby) are common for Unit-1, Unit-2 and Unit-3)	Motor driven air compressor complete with motor, drive and base, gaskets, packings: including Potentiometers solenoid coils/diodes/safety transistor valve of each type used, along with Fractional HP Motors used in governing system, of each type, etc.	2 Set (For Three Units)	11,12,561	Assets are malfunctioning due to aging and getting obsolete year on year	40
7	Procurement of Cooling Water Pump Sets (Vertical Turbine Pump)	Wound stator assembly of each type of motor and set of impeller assembly for one pump	1 Set (For One Unit)	10,477		10



Sl. No. as per Annexure-B	Description of Asset / Works as per Annexure-B	Name of Equivalent Old Asset as per Agreement between JHPL & OEM/Supplier	Quantity (A)	Depreciated Value of Assets as on 31.3.18	Current operational status	Usefull life of assets (in years) as considered in books
8	(a) Upgradation of Position Sensors for Pelton Turbine Nozzles (Temposonic Sensors) for Unit-1 and Unit-3	Feedback Transducers	1 Set (For One Unit)	71,100		15
	(b) Upgradation of Position Sensors for Pelton Turbine Deflectors (Temposonic Sensors) for Unit-1, and Unit-3					
9	Upgradation of Alstom Make EPAC 3000 Series, Distance Protection Relays for 400 kV Outgoing Feeders	Simplex type Monitoring and protection panel comprising Main-I and Main-II and other protections for 400kV Transmission line feeder as per specification (clause 3.08.11 & 3.27.1), Distance Recorder, Disturbance to fault locator, tripping relays, auxiliaries relays, transducers, Digital metering instruments, etc	1 Nos	12,289	Assets are malfunctioning due to aging and getting obsolete year on year	5
13	Procurement of Uninterrupted Power Supply for Plant Auxiliaries (15 KVA Inverter)	15 KVA UPS	1 Set (Common System)	2,326		15
14	Upgradation of Generator and Transformer Protection relays	Unit Protection Module 7 UM 511, Unit Protection Module 7 UM 516, Unit Protection Module 7 UT 513, Unit Protection Module 7 SJ 511	3 Sets (For Three Units)	71,100		3
15	Upgradation of CCTV Surveillance System	Supply and Delivery of CCTV System	Lot (Common System)	59,152		5

Sl. No. as per Annexure-B	Description of Asset / Works as per Annexure-B	Name of Equivalent Old Asset as per Agreement between JHPL & OEM/Supplier	Quantity (A)	Depreciated Value of Assets as on 31.3.18	Current operational status	Usefull life of assets (in years) as considered in books
17	Upgradation of DCS (Data Acquisition and Control) System)	Relay Module, 2 Chan. 1N0. 250V DC: MU:MIS-2 R DI/250V and Relay Module, 2 Chan. 1N0. 24V DC: MU:MIS-2 R DI/250V	400 Set (For One Unit)	1,52,957		30
18	Upgradation of Emulsifier System	Emulsifier Fire Protection for 41MVA, 41MVA, 13.8/400 kV, ODWF Cooled, Single phase generator-transformer along-with Deluge valves, projectors, detectors, drain valve, piping, fitting	10 Set (Common System))	4,90,300		30
19	Upgradation of HVAC System (Ventilation System and Air Conditioning System)	Air Conditioning, Ventilation and Air Handling System for Baspa-II Underground Project	Lot (Common System)	5,96,120	Assets are malfunctioning due to aging and getting obsolete year on year	30
20	Upgradation of Smoke and Fire Detection System	Design, Manufacturing, Supply, Erection, Testing & Commissioning of the Fire/Smoke Detection & Alarm System(FDAS)	Lot (Common System)	2,97,590		30
21	Upgradation of Public Address System	Public Address system with fire alarm panel interface and amplifire	1 Set (Common System)	39,954		30
22	Upgradation of Power House Lift	Passenger Elevator	1 Set (Common System)	59,375		40
				<b>2,02,96,929</b>		