

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 97/GT/2020

Coram:

Shri P.K. Pujari, Chairperson

Shri I.S. Jha, Member

Shri Pravas Kumar Singh, Member

Date of Order: 13th May 2022

IN THE MATTER OF

Determination of tariff of Tehri Hydroelectric Power Project, Stage-I (1000 MW) for the period from 1.4.2019 to 31.3.2024

AND

IN THE MATTER OF

THDC India Limited,
Bhagirath Puram,
Rishikesh-249001, Uttarakhand

.... Petitioner

Vs

1. Punjab State Power Corporation Limited,
The Mall,
Patiala – 147001 (Punjab)
2. Haryana Power Utilities,
Shakti Bhawan, Sector 6,
Panchkula – 134 109 (Haryana)
3. Uttar Pradesh Power Corporation Limited,
Shakti Bhawan, 14 Ashok Marg,
Lucknow – 226001 (UP)
4. BSES Rajdhani Power Limited,
BSES Bhawan, Nehru Place,
Behind Nehru Place Bus Terminal,
New Delhi-110019



5. BSES Yamuna Power Limited,
3rd Floor, Shakti Kiran Building,
Karkardooma, Near Court,
New Delhi-110092
6. Tata Power Delhi Distribution Limited,
33 KV Grid Sub-Station Building, Hudson Lane,
Kingsway Camp, Delhi-110009
7. Chandigarh Administration,
1st Floor, UT Secretariat, Sector 9-D,
Chandigarh-160009
8. Uttarakhand Power Corporation,
Limited, Urja Bhawan, Kanwali Road,
Dehradun-248001
9. Himachal Pradesh State Electricity Board Limited,
Vidyut Bhawan, Shimla-171004
10. Jaipur Vidyut Vitran Nigam Limited,
Vidyut Bhawan, Janpath, Jyotinagar,
Jaipur-302005 (Rajasthan)
11. Ajmer Vidyut Vitran Nigam Limited,
Old Powerhouse, Hatthi Bhatta, Jaipur road,
Ajmer-305001 (Rajasthan)
12. Jodhpur Vidyut Vitran Nigam Limited,
New Powerhouse, Industrial Area,
Jodhpur-342003 (Rajasthan)
13. Power Development Department,
Government of J&K, Civil Secretariat,
Jammu -180001 (J&K)

....Respondents

Parties present:

Ms. Anushree Bardhan, Advocate, THDCIL
Ms. Srishti Khindaria, Advocate, THDCIL
Shri Ravi Nair, Advocate, THDCIL
Shri Rajesh Sharma, THDCIL
Shri Mukesh Kumar Verma, THDCIL
Shri Ajay Vaish, THDCIL
Shri Rakesh Singh, BRPL
Shri Brijesh Kumar Saxena, UPPCL
Shri Raunak Jain, Advocate, TPDDL



Shri Ravindra Khare, MPPMCL
Ms. Megha Bajpeyi, BRPL
Shri R.B. Sharma, Advocate, BRPL
Shri Mohit Moudgal, Advocate, BYPL

ORDER

This petition has been filed by the Petitioner THDC, for determination of the tariff of Tehri Hydroelectric Power Project, Stage-I (4x250 MW) (the generating station) for the period from 1.4.2019 to 31.3.2024 in accordance with the provisions of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 (in short 'the 2019 Tariff Regulations').

Background

2. The generating station located in the State of Uttarakhand is a storage type hydro power generating station, providing peaking power and is designed to produce annual energy generation of 2797 MUs. The Tehri Hydro Power Complex comprises of the generating station (1000 MW), Tehri Pumped Storage Generating station (1000 MW) and downstream power station at Koteshwar (400 MW). The entire generating station is scheduled to have an aggregate capacity of 2400 MW. The generating station comprises of four units with a capacity of 250 MW each. The date of commercial operation of the units of the generating station are as under:

Unit-IV	22.9.2006
Unit-III	9.11.2006
Unit-II	30.3.2007
Unit- I/ Generating station	9.7.2007

3. The Commission vide its order dated 29.3.2017 in Petition No. 178/GT/2015 had determined the tariff of the generating station for the 2014-19 tariff period. Thereafter, the Commission vide its order dated 5.12.2017 in Review Petition No.



20/RP/2017 (in Petition No. 172/GT/2015), revised the capital cost and annual fixed charges for the 2014-19 tariff period. Further, the Commission vide its order dated 2.5.2022 in Petition No. 98/GT/2020 revised the tariff of the generating station for the 2014-19 tariff period after truing-up exercise. Subsequently, the Commission vide corrigendum order dated 10.5.2022 in Petition No. 98/GT/2020, after rectification of certain clerical/arithmetical errors, revised the tariff of the generating station for the 2014-19 tariff period, as under:

Capital Cost allowed

	<i>(Rs. in lakh)</i>				
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	705372.64	708741.89	712806.14	716361.33	721586.93
Add: Additional capital expenditure allowed	3369.25	4064.25	3555.19	5225.59	390.89
Closing Capital Cost as on 31 st March of the year	708741.89	712806.14	716361.33	721586.93	721977.82

Annual Fixed Charges allowed

	<i>(Rs. in lakh)</i>				
	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	37094.91	37214.35	37339.57	37484.21	37578.38
Interest on Loan	24423.09	20270.90	16134.27	9630.35	6042.95
Return on Equity	53355.92	53614.07	53614.07	53614.07	53754.64
Interest on Working Capital	3823.08	3814.48	3805.63	3748.27	3766.03
O&M Expenses	21340.78	22757.81	24268.93	25880.39	27598.84
Total	140037.79	137671.61	135162.47	130357.29	128740.84

4. The Petitioner vide affidavit dated 28.10.2019 has filed the present petition for determination of tariff of the generating station for the 2019-24 tariff period in terms of the provisions of the 2019 Tariff Regulations. The capital cost and the annual fixed charges claimed by the Petitioner for the 2019-24 tariff period are as follows:



Capital Cost claimed

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Capital Cost	724349.05	729791.21	733529.56	734321.36	735619.16
Add: Addition during the year / period	5442.16	3738.35	791.80	1297.80	564.60
Closing Capital Cost	729791.21	733529.56	734321.36	735619.16	736183.76
Average Capital Cost	727070.13	731660.39	733925.46	734970.26	735901.46

Annual Fixed Charges claimed

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	37884.87	7710.07	7795.91	7835.40	7874.22
Interest on Loan	3039.52	1347.36	836.61	255.39	0.00
Return on Equity	51099.66	51099.66	51099.66	51099.66	51099.66
Interest on Working Capital	3063.56	2621.00	2705.23	2792.87	2891.17
O & M Expenses	34953.18	36850.93	38857.99	40980.68	43225.52
Total	130040.79	99629.02	101295.40	102963.99	105090.57

5. The Petitioner had filed the additional information vide affidavit dated 15.12.2020 and has served copies of the same on the Respondents. The Respondent UPPCL, Respondent, MPPCL and Respondent, BRPL have filed their reply affidavits on 19.10.2020, 4.11.2020 and 22.6.2021 respectively. In response, the Petitioner has filed their rejoinder affidavits on 27.11.2020, 7.12.2020 and 12.7.2021 respectively. The matter was heard through video conferencing along with Petition No. 98/GT/2020 (for truing up of tariff of the generating station for the period 2014-19 tariff period) on 29.6.2021 and the Commission, after permitting the Respondent TPDDL to file its reply, reserved its order in the matter. In compliance to the directions, the Respondents TPDDL has filed its reply on 19.7.2021 and the Petitioner has filed its rejoinder to the said reply on 27.7.2021. Based on the submissions of the parties and the documents available on record and on prudence check, we proceed to determine the tariff of the generating station for 2019-24 tariff period as stated in the subsequent paragraphs.



Capital Cost

6. Clause (1) of Regulation 19 of the 2019 Tariff Regulations provides that the capital cost as determined by the Commission, after prudence check, in accordance with this regulation shall form the basis for determination of tariff for existing and new projects. However, capital cost for an existing project is governed as per clause (3) of Regulation 19 of the 2019 Tariff Regulations, which is provided as under:

- (a) Capital cost admitted by the Commission prior to 1.4.2019 duly trued up by excluding liability, if any, as on 1.4.2019;*
- (b) Additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with these regulations;*
- (c) Capital expenditure on account of renovation and modernization as admitted by this Commission in accordance with these regulations;*
- (d) Capital expenditure on account of ash disposal and utilization including handling and transportation facility;*
- (e) Capital expenditure incurred towards railway infrastructure and its augmentation for transportation of coal upto the receiving end of generating station but does not include the transportation cost and any other appurtenant cost paid to the railway; and*
- (f) Capital cost incurred or projected to be incurred by a thermal generating station, on account of implementation of the norms under Perform, Achieve and Trade (PAT) scheme of Government of India shall be considered by the Commission subject to sharing of benefits accrued under the PAT scheme with the beneficiaries.*

7. The Petitioner vide Form-I(I) of this petition has claimed capital cost as indicated in the table under paragraph 4 above. The Commission vide its order dated 2.5.2022 in Petition No.98/GT/2020, had approved the closing capital cost of Rs.721977.82 lakh as on 31.3.2019. Accordingly, in terms of Regulation 19(3) of the 2019 Tariff Regulations, the capital cost of Rs.721977.82 lakh as on 31.3.2019 has been considered as the opening capital cost as on 1.4.2019 for the purpose of determination of tariff for the 2019-24 tariff period.



Discharge of liabilities

8. The Petitioner has not claimed any discharge of liabilities during the 2019-24 tariff period. However, the Petitioner is directed to submit the reconciliation statement showing details of such liabilities as per balance sheet for the 2019-24 tariff period, duly certified by auditor and also furnish the break-up of discharges included in the liabilities discharged against admitted items within the original scope of work or other than within the original scope of work of the project, at the time of truing-up of tariff exercise.

Additional Capital Expenditure

9. Clauses (1) and (2) of Regulations 25 and Regulation 26 of the 2019 Tariff Regulations, provides as under:

“25. Additional Capitalization within the original scope and after the cut-off date:

(1) The additional capital expenditure incurred or projected to be incurred in respect of an existing project or a new project on the following counts within the original scope of work and after the cut-off date may be admitted by the Commission, subject to prudence check:

- a) Liabilities to meet award of arbitration or for compliance of the directions or order of any statutory authority, or order or decree of any court of law;*
- b) Change in law or compliance of any existing law;*
- c) Deferred works relating to ash pond or ash handling system in the original scope of work;*
- d) Liability for works executed prior to the cut-off date;*
- e) Force Majeure events;*
- f) Liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments; and*
- g) Raising of ash dyke as a part of ash disposal system.*

(2) In case of replacement of assets deployed under the original scope of the existing project after cut-off date, the additional capitalization may be admitted by the Commission, after making necessary adjustments in the gross fixed assets and the cumulative depreciation, subject to prudence check on the following grounds:

- a) The useful life of the assets is not commensurate with the useful life of the project and such assets have been fully depreciated in accordance with the provisions of these regulations;*
- b) The replacement of the asset or equipment is necessary on account of change in law or Force Majeure conditions;*
- c) The replacement of such asset or equipment is necessary on account of*



obsolescence of technology; and

d) The replacement of such asset or equipment has otherwise been allowed by the Commission.

26. Additional Capitalization beyond the original scope

(1) The capital expenditure, in respect of existing generating station or the transmission system including communication system, incurred or projected to be incurred on the following counts beyond the original scope, may be admitted by the Commission, subject to prudence check:

a) Liabilities to meet award of arbitration or for compliance of order or directions of any statutory authority, or order or decree of any court of law;

b) Change in law or compliance of any existing law;

c) Force Majeure events.

d) Need for higher security and safety of the plant as advised or directed by appropriate Indian Government Instrumentality or statutory authorities responsible for national or internal security;

e) Deferred works relating to ash pond or ash handling system in additional to the original scope of work, on case to case basis:

Provided also that if any expenditure has been claimed under Renovation and Modernisation (R&M) or repairs and maintenance under O&M expenses, the same shall not be claimed under this Regulation;

(f) Usage of water from sewage treatment plant in thermal generating station.

(2) In case of de-capitalization of assets of a generating company or the transmission licensee, as the case may be, the original cost of such asset as on the date of de-capitalization shall be deducted from the value of gross fixed asset and corresponding loan as well as equity shall be deducted from outstanding loan and the equity respectively in the year such de-capitalization takes place with corresponding adjustments in cumulative depreciation and cumulative repayment of loan, duly taking into consideration the year in which it was capitalized. “

10. The Petitioner has claimed projected additional capital expenditure during the 2019-24 tariff period under Regulation 76 i.e. 'Power to Relax' and Regulation 77 i.e. 'Power to Remove difficulty', Regulation 26(1)(c) and Regulation 26(1)(d) of the 2019 Tariff Regulations. The Respondent, UPPCL in its reply has submitted that the Petitioner has claimed assets/works such as photocopies, duplicating machine, Guest house fittings, after office equipment, office furniture, guest house furniture, TV, projectors etc., in recurring manner, but has not submitted any justification for such recurrence, without exhausting the useful life of the assets/works. It has also submitted that the Petitioner in its claim for 25 jeeps, has not clarified as to whether the old vehicles were scrapped and/or if their salvage value has been adjusted. Accordingly,



the Respondent, UPPCL has submitted that the Petitioner may be directed to revise the annual estimates during the 2019-24 tariff period. The Respondent, MPPMCL has submitted that the Petitioners claim for additional capital expenditure, under Regulation 76 and Regulation 77 is without proper justification. It has also submitted that the expenditures claimed do not fall under any of the provisions of the 2019 Tariff Regulations and the claims made under Regulation 26(1)(c) are also not tenable. The Respondent BRPL has submitted that the prayer of the Petitioner for relaxation is liable to be rejected. It has also submitted that the Petitioners claim of additional capital expenditure under Regulation 26(1)(c) of the 2019 Tariff Regulations is for assets/works which cannot be categorized under 'Force Majeure' clause, and these expenses may be met from the normative O&M expenses allowed to the generating station. The Respondent TPPDL has submitted that the claim of the Petitioner for additional capitalization is not due to any specified Force Majeure events and hence the same is liable to be rejected. It has also submitted that the components of additional capital expenditure, unrelated to the project, may be rejected by the Commission.

11. In response to the above, the Petitioner has submitted as under:

(a) The projected expenditure claimed for assets/works are necessary and required for successful and efficient plant operation. Also, the existing vehicles shall be replaced with newer vehicles in a phased manner, considering the condition of the vehicle.

(b) It is not possible to envisage all situations and the implications of the Regulations, as they differ for all generating stations. Hence, the expenditures have been claimed under Regulation 76 (Power to Relax) and Regulation 77- '(Power to Remove Difficulty)' of the 2019 Tariff Regulations.

(c) As regards, assets/works claimed under Regulation 26(1)(c) read with Regulation 3(25)(a) of the 2014 Tariff Regulations, during monsoon season, heavy rainfall and landslide (near the vicinity of DAM) damaged the only



connecting main road for transportation of man & machine. As such, in order to safeguard the main structure of DAM, Spillways & stilling basin, slope stabilization and restoration of roads was essentially required for efficient and successful plant operation.

(d) The proposed expenditure claimed under Regulation 26(1)(c) and Regulation 3(25) read with Regulation 76 and 77 of the 2019 Tariff Regulations is for safety of generating station, based on CEA Regulation 2010 (Measures relating to safety and electric supply), recommendations of IIT-Roorkee and based on Joint Expert Committee recommendations etc.

(e) The items for slope stabilization and channelization of rainwater and rehabilitation, claimed under Regulation 26(1)(c) of the 2014 Tariff Regulations, may be read as claimed under Regulation 26(1)(d) of the 2019 Tariff Regulations.

(f) As the generating station is located in hilly terrain and in a remote area the additional capital expenditure claimed is on account of fulfillment of basic amenities, assets/works essentially required for successful and efficient plant operation, and assets/works essentially required for the safety of the Power plant and on the account of geological surprises.

12. Based on the submissions of the parties and documents available on record, we examine the additional capital expenditure claimed by the Petitioner, on prudence check, as stated in the subsequent paragraphs.

2019-20

<i>(Rs. in lakh)</i>				
Sl. No.	Head of Work/ Equipment	Claimed	Justification and Reasons for admissibility	Amount allowed
Regulation 76 & 77 of the 2019 Tariff Regulations				
1	Construction of Civil Structure of hoist way of glass lifts in transformer hall.	19.89	Considering the fact that the expenditures claimed is in the nature of O&M expenses, the same is not allowed .	0.00
2	Installation of lift in transformer hall.	19.60		0.00
3	Face lifting of Portal area of Adit-3 with construction of replica of Shri Badrinath Temple at HPP Tehri.	311.12	Considering the fact that the additional capital expenditure claimed is respect of assets which are not in the nature of Plant & Machinery, the same is not allowed .	0.00
4	Procurement,	14.07	The Petitioner has submitted that mini	14.07



Sl. No.	Head of Work/ Equipment	Claimed	Justification and Reasons for admissibility	Amount allowed
	Fabrication & Supply of Water mist system based Mini Fire Tender mounted on TATA 207 Single cabin chassis at Tehri HPP, Bhagirathipuram, Tehri Garhwal.		<p>fire tender is being procured based on the requirement of CISF to safeguard the generating station from fire. Considering that the fact that the expenditure pertains to security and safety of the plant, the additional capital expenditure claimed is allowed under Regulation 26(1)(d) of the 2019 Tariff Regulations.</p> <p>The Petitioner is however, directed to submit the actual expenditure along with supporting documents and recommendations of CISF, at the time of truing-up of tariff, failing which the claim may not be considered.</p>	
5	Procurement of Under Water Concrete abrasion Testing Equipment	2.50	Considering the fact that the expenditure claimed is in the nature of O&M expenses, the same is not allowed .	0.00
6	Electronic panel for Air Gap & Vibration Monitoring (AGVM) System. The AGVM System is installed at EL600m Unit wise. This system monitors relative position of rotor and stator (Air Gap), shaft displacement (vibration), and acceleration of bearing brackets. Air gap and vibration monitoring system is a condition monitoring tool for generating units of Tehri HPP (4x250MW).	21.78	<p>The Petitioner has submitted that the existing system was non-operational due to defects and deficiencies in panels along with its internal components. As such, new electronic panels were procured from OEM for rectification & operationalization of AGVM (Air Gap Vibration Measurement) system.</p> <p>Considering the submissions of the Petitioner and keeping in view that the expenditure is on account of replacement of asset/work due to obsolescence of technology, the claim of the Petitioner is allowed under Regulation 25(2)(c) of the 2019 Tariff Regulations.</p> <p>The Petitioner, has, however, not considered the de-capitalization of old asset/work and as such, the amount of Rs.11.55 lakh has been considered under 'Assumed Deletions', in paragraph 22 below. The Petitioner is also directed to furnish the actual expenditure along with supporting documents at the time of truing-up of tariff, failing which the claim may not be considered.</p>	21.78
7	Electromagnetic flow meters for Generator UGB (Upper Guide	5.58	The Petitioner has submitted that the pressure based mechanical flow meters were installed in the cooling water	5.58



Sl. No.	Head of Work/ Equipment	Claimed	Justification and Reasons for admissibility	Amount allowed
	Bearing), LGB (Lower Guide Bearing) and stator cooling water pipelines, The flow meters are installed at EL.595m of Power House for monitoring cooling water flow through UGB, LGB and stator Air coolers.		<p>circuits of the units, which due to ageing, used to display faulty readings and indicate in-correct and unreliable values of cooling water flow. Since the cooling water is for heat exchangers which are provided for guide and thrust bearings and stator cooling, its correct monitoring becomes crucial. The Petitioner has therefore submitted that technologically advance, precise and accurate electromagnetic flow meters have been installed in the respective cooling water circuits, which has helped in minimizing the signaling errors and curtailed chances of maloperation.</p> <p>Considering the submissions of the Petitioner and keeping in view that the expenditure is on account of replacement of asset/work due to obsolescence of technology, the same is allowed under Regulation 25(2)(c) of the 2019 Tariff Regulations.</p> <p>The Petitioner has, however, not considered the de-capitalization of old asset/work and as such, the amount of Rs.2.96 lakh has been considered under 'Assumed Deletions', in paragraph 22 below. The Petitioner is directed to submit the actual expenditure along with supporting documents at the time of truing-up of tariff, failing which the claim may not be considered.</p>	
8	SS (Stainless Steel) Gate valves for LGB (Lower Guide Bearing) cooling water circuit of the Generating Units of Tehri HPP (4x250MW)	6.38	The Petitioner has submitted that the cooling water loop of LGB oil bath were made of MS pipelines and were provided with gate valves for isolation and sectionalization in case of emergency/ maintenance. However, with time, the previously installed valves had developed scaling and rusting which resulted in failure in valve operation. The Petitioner has further submitted that the purpose of providing these gate valves was getting defeated and in event of maintenance/ emergency, whole cooling water pipeline has to be drained. These degraded valves were replaced with SS (Stainless Steel) gate valves.	6.38

