

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 235/GT/2020

Coram:

**Shri P. K Pujari, Chairperson
Shri Arun Goyal, Member
Shri Pravas Kumar Singh, Member**

Date of Order: 7th May, 2022

IN THE MATTER OF

Petition for approval of tariff of Kopili Hydro Electric Project Stage-II (25 MW) for the period from 1.4.2019 to 31.3.2024

AND

IN THE MATTER OF

North Eastern Electric Power Corporation Limited,
Brookland Compound, Lower New Colony,
Shillong-793 003

...Petitioner

Vs

1. Assam Power Distribution Company Limited,
Bijulee Bhawan', Paltanbazar,
Guwahati-781 001
2. Meghalaya Energy Corporation Limited,
Meter Factory Area, Short Round Road Integrated Office Complex,
Shillong-793 001
3. Tripura State Electricity Corporation Limited,
Bidyut Bhavan, North Banamalipur
Agartala-799 001
4. Power and Electricity Department,
Government of Mizoram, P&E Office Complex, Electric Veng,
Aizwal-796 001



5. Electricity Department
Government of Manipur, Keishampat,
Imphal-795 001
6. Department of Power,
Government of Arunachal Pradesh, Vidyut Bhawan,
Itanagar-791 111
7. Department of Power,
Government of Nagaland,
Kohima-797 001
8. North Eastern Regional Power Committee,
Meghalaya State Housing Finance Co-operative Society Limited Building,
Nongrim Hills,
Shillong-793 003
9. North Eastern Regional Load Despatch Centre,
Dongtiah, Lower Nongrah, Lapalang,
Shillong-793 006

...Respondents

Parties present:

Shri Munin Choudhury, NEEPCO
Shri Ripunjoy Bhuyan, NEEPCO
Ms. Bornali Deori, NEEPCO
Ms. Elizabeth Pyrbot, NEEPCO

ORDER

This petition has been filed by the Petitioner, North Eastern Electric Power Corporation Limited, for approval of tariff of Kopili Hydro Electric Project Stage-II (1 x 25 MW) (hereinafter referred to as 'the generating station') for the 2019-24 tariff period in accordance with the provisions of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 (hereinafter referred to as 'the 2019 Tariff Regulations').



Background

2. Kopili Hydro Electric Project comprises of three power stations, namely Khandong Power Station (2x25 MW), Kopili Power Station (4x50 MW) and Kopili Stage-II Power Station (1x25 MW). Initially, the project was of the capacity of 150 MW i.e. (2x25 MW) in Khandong Power Station and (2x50 MW) in Kopili Power Station. Thereafter, a capacity of (2x50 MW) was added to Kopili Power Station as KHEP Stage-I Extension. In addition to this, (1x25 MW) Kopili Stage II Power station was added to the project with date of commissioning as 26.7.2004. The Stage-I of the project had been executed to derive maximum benefits in future from the built-in civil works. The project comprises of two concrete dams, viz, Khandong Dam and Umrong Dam and two corresponding reservoirs with two separate water conductor systems and two power houses, namely, Khandong power Station and Kopili Power Station. Khandong Dam is across the river Kopili, which is a perennial river. Water from this reservoir is diverted through a tunnel of diameter 4.5 meters and length of 2.76 km to the Khandong Powerhouse (2x25 MW). Umrong Dam is across a small tributary of the river Kopili, called Umrong, which has a very less discharge during the lean season. The tail race discharge from Khandong Power Station is diverted to Umrong reservoir through an open channel and water from this reservoir is diverted through a channel of diameter 4.5 meter and a length of 5.5 km to Kopili Power Station (4x50 MW) located on the banks of river Kopili on downstream side.

3. The date of commercial operation of the generating station is 26.7.2004. The scope of works of the generating station includes the construction of an additional powerhouse and a by-pass tunnel of 275-meter length. The by-pass tunnel bifurcates from the main



tunnel just beyond the surge-shaft for which boring was done at the time of construction of Kopili HEP Stage-I.

4. Petition No. 372/GT/2019 was filed by the Petitioner for truing-up of tariff of the generating station for the 2014-19 tariff period and the Commission vide its order dated 25.3.2022 approved the capital cost and annual fixed charges as under:

Capital Cost allowed

	<i>(Rs. in lakh)</i>				
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	8215.32	8345.80	8352.06	8873.75	8880.96
Additional capital expenditure allowed (Net)	130.48	6.26	521.69	7.21	337.54
Closing Capital Cost	8345.80	8352.06	8873.75	8880.96	9218.50

Annual Fixed Charges allowed

	<i>(Rs. in lakh)</i>				
	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	363.89	366.89	378.50	99.12	106.40
Interest on Loan	72.33	48.12	33.23	28.96	30.80
Return on Equity	513.97	557.79	651.96	605.08	571.00
O&M Expenses	321.00	342.33	365.07	389.32	415.19
Interest on Working Capital	39.60	41.30	44.65	38.38	39.24
Total	1310.79	1356.43	1473.40	1160.87	1162.62

Present Petition

5. The Petitioner has filed the present petition for determination of tariff of the generating station for the period from 1.4.2019 to 31.3.2024 in terms of the provisions of the 2019 Tariff Regulations. The capital cost and annual fixed charges claimed by the Petitioner in the present petition are as under:



Capital Cost claimed

	(Rs. in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Capital Cost	9266.87	9302.37	9926.37	11228.37	11489.37
Add: Addition during the year	43.50	753.00	1700.00	350.00	235.00
Less: De-capitalization during the year	8.00	129.00	398.00	89.00	69.00
Less: Reversal during the year	0.00	0.00	0.00	0.00	0.00
Add: Discharges during the year	0.00	0.00	0.00	0.00	0.00
Closing Capital Cost	9302.37	9926.37	11228.37	11489.37	11655.37

Annual Fixed Charges claimed

	(Rs. in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	93.92	106.12	143.27	174.77	183.77
Interest on Loan	32.98	43.37	86.99	117.80	115.43
Return on Equity	556.24	564.10	587.04	605.65	610.74
Interest on Working Capital	60.01	59.93	63.80	67.45	70.22
O&M Expenses	1130.56	1184.45	1240.90	1300.05	1362.02
Total	1873.71	1957.97	2122.00	2265.72	2342.18

6. None of the Respondents have filed replies in the matter. The matter was heard on 24.8.2021 through virtual conferencing and the Commission reserved its order in the petition. Accordingly, based on the submissions and the documents available on record, we proceed to determine the tariff of the generating station for the 2019-24 tariff period as stated in the subsequent paragraphs.

Capital Cost

7. Clause(1) of Regulation19 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 of determination of tariff for existing and new projects. However, the capital cost for an existing project is governed as per clause (3) of Regulation19 of the 2019 Tariff Regulations, which is provided as under:



“The Capital cost of an existing project shall include the following:

(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 up to 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....”

8. The opening capital cost considered by the Petitioner as on 1.4.2019 is Rs.9266.87 lakh. However, the Commission, in its order dated 25.3.2022 in Petition No.372/GT/2019 had allowed the closing capital cost of Rs.9218.50 lakh as on 31.3.2019. Accordingly, in terms of Regulation 19 (3) of the 2019 Tariff Regulations, the capital cost of Rs.9218.50 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 2019-24 tariff period.

Discharge of liabilities

9. 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, duly certified by auditor along with the break-up of discharges, included in the liabilities discharged within the original scope of work and those other than within the original scope of work of the project, at the time of truing-up of tariff for the 2019-24 tariff period.



Additional Capital Expenditure

10. Clause (2) of Regulation 9 of the 2019 Tariff Regulations provides that the application for determination of tariff shall be on admitted capital cost including additional capital expenditure already admitted and incurred up to 31.3.2019 (either based on actual or projected additional capital expenditure) and estimated additional capital expenditure for the respective years of the 2019-24 tariff period along with the true up for the 2014-19 period in accordance with the 2014 Tariff Regulations. Clauses of Regulation 25 & 26 of the 2019 Tariff Regulations, provides as follows:

“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 Modernization (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.”

11. The Petitioner has submitted that the net projected additional capital expenditure of Rs.3081.50 lakh has been claimed till 31.3.2024 under various provisions of Regulations 25 and 26 of the 2019 Tariff Regulations. It is noticed that the Petitioner has claimed total projected additional capital expenditure for Rs.615.00 lakh for the following assets/works, in line with R&M RLA studies carried out by CPRI in respect of Khandong generating station owned by the Petitioner:

Sl. No	Head of Work/ Equipment	Claimed amount (Rs in lakh)	Regulation	Justification submitted by the Petitioner
2020-21				
1	Replacement of Shaft Seal	25.00	25(2)(c)	During R&M RLA studies carried out by CPRI, it suggested that all underwater parts



Sl. No	Head of Work/ Equipment	Claimed amount (Rs in lakh)	Regulation	Justification submitted by the Petitioner
	with SS material			as well as other components which are in direct contact with reservoir water should be made of suitable grade stainless steel (SS) material to extend the life of the plant. So, in line with the suggestions in Khandong power station, the shaft seal of this generating station, is also required to be of SS material as the common reservoir water is used at both power stations. The Commission has already approved the SS MIV for the generating station which was completed in the 2014-19 tariff period.
2	Conversion of Generator Transformer Cooling System to OFAF	90.00	25(2)(c)	Due to lack of natural elevation and adequate backup of neutral pH cooling water, the present OFWF GT coolers cannot run from closed loop system. As CPRI suggested OFAF cooling in all GTs of Khandong power station, during R&M RLA studies, the same is required to be adopted in this generating station also which will eliminate the failure of GT, due to penetration of water in oil and will extend the life of the GT.
3	Replacement of Station Service Transformer and related Bay equipment	100.00	25(2)(b)	The expenditure is claimed in accordance with the tests that were carried out during RLA study of Khandong station by CPRI. The present 7.5 MVA transformer having failure history and 1 MVA SST having oil leakage, OTI & WTI issues as well as ageing may fail at any time. So, CPRI suggested to replace all for better reliability or else the station will be completely blacked out in case the transformer fails.
4	Replacement of SS Bypass Valve and Air Valve	100.00	25(2)(b)	During the R&M RLA studies carried out by CPRI, it was suggested that all underwater parts as well as other components which are in direct contact with reservoir water should be made of suitable grade stainless steel material so as to extend the life of the plant. So, in line with the suggestions in Khandong power station, the bypass and air valves of this generating station are also required to be of SS material, as the common reservoir water is used at both power stations. The Commission has already approved the SS MIV for generating station which was already completed in the 2014-19 tariff period.



Sl. No	Head of Work/ Equipment	Claimed amount (Rs in lakh)	Regulation	Justification submitted by the Petitioner
2022-23				
5	Replacement of existing MS bush Housing with SS material incorporate Self Lubricating Bushes	300.00	25(2)(c)	During the R&M RLA studies carried out by CPRI, it was suggested that all underwater parts as well as other components which are in direct contact with reservoir water should be made of suitable grade stainless steel material to extend the life of the plant. So, in line with the suggestions in Khandong power station, the GV bush housing of this generating station is also required to be of SS material as the common reservoir water is used at both power stations. The Commission vide order dated 22.2.2016 in Petition No. 45/GT/2015 had already approved the SS MIV for generating station which was completed in the 2014-19 tariff period.

12. It is evident that the claim of the Petitioner for additional capital expenditure in respect of the above said assets/works for this generating station are mainly based on the suggestions/reports of CPRI in respect of the R&M RLA studies carried out by the Petitioner for its another generating station i.e. Khandong generating station. We are of the view that the same suggestions/reports cannot be adopted for this generating station. Accordingly, we find no reason to consider these claims in this order. However, considering the vintage of the plant, we grant liberty to the Petitioner to approach the Commission, by way of fresh petition, to claim the expenditure for these assets/works, based on RLA studies/recommendations for this generating station i.e. Kopili generating station and the same will be considered as per applicable regulations for R&M of generating stations.

13. The year-wise details of the projected additional capital expenditure claimed by



the Petitioner for other assets/works, are as under:

2019-20

(Rs. in lakh)

Sl. No.	Head of Work/ Equipment	Claimed	Regulation	Justification and reasons of admissibility	Allowed
1	Treatment of Underwater parts, cladding, coating/ tiling etc.	15.00	25(2)(b)	The Petitioner has submitted that the work has to be carried out regularly in acid affected underwater parts which are embedded in concrete and can't be replaced. In order to, replace these parts, the complete excavation of concrete is not possible and thus, treatment is necessary to protect the underwater parts from further erosion and extend its life span to avoid complete outage of the unit. Since the claim is in the nature of O&M expenses, the same is not allowed	0.00
2	Replacement of Generator Transformer Fire Hydrant System	3.50	25(2)(b)	The Petitioner has submitted that the present high-pressure fire hydrant system was installed since the commissioning of the plant. In order to provide adequate safety in case of fire, the system is required to be upgraded by incorporation of protection logic with generator breakers, unit tripping etc. Based on submissions, the additional capital expenditure claimed is allowed under Regulation 25(2)(c) of the 2019 Tariff Regulations on replacement basis. It is noticed that the Petitioner has not considered the de-capitalization of old asset against which the expenditure is claimed. Accordingly, the amount of Rs.1.60 lakh has been considered for the old, replaced asset under 'Assumed Deletions' in paragraph 26 of	3.50



Sl. No.	Head of Work/ Equipment	Claimed	Regulation	Justification and reasons of admissibility	Allowed
				this order. The Petitioner is directed to submit management certificate with regard to the obsolescence of old asset at the time of truing up of tariff	
3	Procurement of 410KVA excitation Transformer	25.00	25(2)(b)	<p>The Petitioner has submitted that the present 410KVA excitation transformer supplied by M/s BHEL during the commissioning of the unit was having some issues like high winding temperature, transformer trouble alarm etc. After discussion with OEM, it transpired that the transformer is dry cast and attending to these issues may not be financially beneficial as the transformer has to be sent to BHEL Jhansi factory and the unit will be out during the whole period and thus it was suggested to replace with a new one.</p> <p>Based on submissions, the additional capital expenditure claimed is allowed under Regulation 25(2)(c) of the 2019 Tariff Regulations on replacement basis. It is noticed that the Petitioner has not considered the de-capitalization of old asset against which the expenditure is claimed. Accordingly, the amount of Rs.11.45 lakh has been considered for the old, replaced asset under 'Assumed Deletions' in paragraph 24 of this order. The Petitioner is, however, directed to submit management certificate with regard to certification for obsolescence of old asset at the time of truing up of tariff.</p>	25.00
	Total Amount	43.50			



Sl. No.	Head of Work/ Equipment	Claimed	Regulation	Justification and reasons of admissibility	Allowed
	Claimed				
	Total Amount Allowed				28.50

14. Accordingly, the total projected additional capital expenditure of Rs.28.50 lakh is allowed in 2019-20.

2020-21

(Rs. in lakh)

Sl. No.	Head of Work/ Equipment	Claimed	Regulation	Justification and reasons of admissibility	Allowed
1	Replacement of CO2 fire-fighting with modern Technology	50.00	25(2)(c)	The Petitioner has submitted that the present generator firefighting system is conventional type and has been installed since the commissioning of the plant. It is required to install the latest technology addressable fully automatic CO2 firefighting system for better safety and reliability. The Petitioner has claimed the expenditure for replacement of asset on account of obsolescence of technology/ upgradation. In view of this, the additional capital expenditure claimed is allowed under Regulation 25(2)(c) of the 2019 Tariff Regulations, on replacement basis. It is noticed that the Petitioner has not considered the de-capitalisation of old asset against which the expenditure is claimed. Accordingly, the amount of Rs.21.81 lakh has been considered for the old, replaced asset under 'Assumed Deletions' in paragraph 24 of this order. The Petitioner is, however, directed to submit management certificate with regard to certification for	50.00



Sl. No.	Head of Work/ Equipment	Claimed	Regulation	Justification and reasons of admissibility	Allowed
				obsolescence of old asset at the time of truing up.	
3	Procurement of New DG set with higher capacity	50.00	25(2)(b)	<p>The Petitioner has submitted that the existing DG set is of Much Lower Capacity (125 KVA) and it is planned to use the same as back up DG for Khandong too. Presently, 400KVA DG is available at Khandong power station and the DG of Kopili Stage-II may be upgraded to the near most rating.</p> <p>Based on submissions, the additional capital expenditure claimed is allowed under Regulation 25(2)(c) of the 2019 Tariff Regulations on replacement basis. It is noticed that the Petitioner has not considered the de-capitalisation of old asset against which the expenditure is claimed. Accordingly, the amount of Rs.21.81 lakh has been considered for the old, replaced asset under 'Assumed Deletions' in paragraph 26 of this order. The Petitioner is directed to submit management certificate with regard to the obsolescence of old asset at the time of truing up of tariff.</p>	50.00
4	Procurement and Installation of CCTV	20.00	26(1)(d)	<p>The Petitioner has submitted that installation of CCTV is required for safety and security purpose. Considering the fact that the additional capitalisation is on account of higher safety and security of generating station, the expenditure claimed is disallowed under Regulation 26(1)(d) of the 2019 Tariff Regulations.</p>	20.00
5	New Higher capacity UAT	50.00	25(2)(b)	<p>The Petitioner has submitted that with Closed loop system</p>	50.00



Sl. No.	Head of Work/ Equipment	Claimed	Regulation	Justification and reasons of admissibility	Allowed
	and associated panels			<p>and Disaster management pumps, the load on UAT increases. The Closed loop pumps had to run from UAT, otherwise unit may trip in the event of Power Supply failure. So, approx. 500KVA UAT will be required in place of present 250KVA UAT.</p> <p>Based on submissions, the additional capital expenditure claimed is allowed under Regulation 25(2)(c) of the 2019 Tariff Regulations on replacement basis. It is noticed that the Petitioner has not considered the de-capitalisation of old asset against which the expenditure is claimed. Accordingly, the amount of Rs.21.81 lakh has been considered for the old, replaced asset under 'Assumed Deletions' in paragraph 24 of this order. The Petitioner is, however, is directed to submit management certificate with regard to certification for obsolescence of old asset at the time of truing up.</p>	
6	High Mast Tower at SY	50.00	26(1)(d)	The Petitioner has submitted that the additional expenditure is for providing improved illumination in Power Station & Switchyard and surrounding areas for the Plant operation purpose. Considering the fact that the additional capitalisation does not pertain to the account of higher safety of generating station, the expenditure claimed is not allowed .	0.00
7	Providing air conditions system for control panels	8.50	25(2)(c)	The Petitioner has submitted that the electronic control panels and modules are supposed to operate within a particular temperature environment. But	0.00

