

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 371/GT/2019

Coram:

Shri I. S. Jha, Member

Shri Arun Goyal, Member

Shri Pravas Kumar Singh, Member

Date of Order: 28th April 2023

IN THE MATTER OF

Petition for revision of tariff of Khandong Hydroelectric Project (50 MW) for the period 1.4.2014 to 31.3.2019 after truing-up exercise.

AND

IN THE MATTER OF

North Eastern Electric Power Corporation Limited
Corporate Office: Brookland Compound
Lower New Colony, Shillong – 793 003

.... Petitioner

Vs

1. Assam Power Distribution Company Limited
“Bijulee Bhawan” Paltanbazar
Guwahati-781 001, Assam
2. Meghalaya Power Distribution Corporation Limited
Lumjinshai, Short Round Road
Shillong-799 001, Meghalaya
3. Tripura State Electricity Corporation Limited
Bidyut Bhavan, North Banamalipur
Agartala-799 001, Tripura
4. Power & Electricity Department
Government of Mizoram
New Secretariat Complex
Kawlpetha, Aizwal-796001
5. Manipur State Power Distribution Company Limited
3rd Floor, New Directorate Building, Near 2nd M.R. Gate
Imphal-Dimapur Road, Imphal-795 001, Manipur
6. Department of Power
Vidyut Bhawan, Government of Arunachal Pradesh,
Itanagar-791 111



7. Department of Power
Government of Nagaland
Electricity House, AG Colony
Kohima-797 001
8. North Eastern Regional Power Committee
NERPC Complex, Dong Parmaw
Lapalang, Shillong-793 006
9. North Eastern Regional Load Despatch Centre
Dongtieh, Lower Nongrah
Lapalang, Shillong-793 006

.... Respondents

Parties Present:

Shri Devapriya Choudhury, NEEPCO
Shri Sushanta Deka, NEEPCO
Shri Munin Choudhary, 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 (NEEPCO) for revision of tariff of Khandong Hydroelectric Project (2 x 25 MW) (in short 'the generating station') for the period 2014-19 in terms of Regulation 8(1) of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (in short "the 2014 Tariff Regulations").

Background

2. The Kopili Hydroelectric Project Stage-I, comprises two generating stations, viz Khandong Hydroelectric generating station (50 MW) and Kopili Hydroelectric generating station (200 MW). The project comprises two concrete dams viz. Khandong Dam and Umrong Dam and two corresponding reservoirs with two separate water conduit systems and two power houses. The Khandong dam is across river Kopili which is a perennial river and the water from this reservoir is diverted through a tunnel



of 4.5-meter diameter and 2.76 km in length. The tail race discharge from the generating station is diverted to the Umrong reservoir through an open channel. First unit of the generating station was declared under commercial operation on 7.3.1984 and the second unit on 4.5.1984. The annual design energy of the generating station is 227.61 MU.

3. Petition No. 42/GT/2015 was filed by the Petitioner for approval of tariff of the generating station for the period 2014-19, in accordance with the 2014 Tariff Regulations and the Commission vide its order dated 13.1.2016 had approved the Annual Fixed Charges of the generating station as under:

Capital Cost

| | <i>(Rs. in lakh)</i> | | | | |
|------------------------------------|----------------------|----------------|----------------|----------------|----------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Opening Capital Cost | 12438.28 | 13728.51 | 17052.68 | 17276.63 | 18094.63 |
| Admitted additional capitalization | 1290.23 | 3324.17 | 223.95 | 818.00 | 693.00 |
| Closing Capital Cost | 13728.51 | 17052.68 | 17276.63 | 18094.63 | 18787.63 |

Annual Fixed Charges

| | <i>(Rs. in lakh)</i> | | | | |
|-----------------------------|----------------------|----------------|----------------|----------------|----------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Return on Equity | 1325.11 | 1469.60 | 1580.71 | 1613.33 | 1660.65 |
| Interest on Loan | 12.44 | 88.49 | 127.04 | 96.83 | 88.73 |
| Depreciation | 589.90 | 724.55 | 787.99 | 702.40 | 559.35 |
| Interest on Working Capital | 112.53 | 125.35 | 135.09 | 138.33 | 141.44 |
| O&M Expenses | 1233.87 | 1317.89 | 1405.45 | 1498.82 | 1598.41 |
| Total | 3273.85 | 3725.87 | 4036.27 | 4049.72 | 4048.58 |

4. The Respondent No.1, Assam Power Distribution Company Limited (APDCL) vide its affidavit dated 18.8.2021 has filed its reply in the matter. The Commission vide Record of the Proceedings (ROP) of the hearing dated 31.3.2022 directed the Petitioner to submit certain additional information and reserved order in this petition. In response, the Petitioner vide affidavit dated 13.5.2022 has filed the additional information and served copies of the same on the Respondents. Thereafter, based on prudence check of the information furnished, the Petitioner was further directed vide letter dated 31.1.2023 to furnish the details of wage revision impact and the Petitioner



vide affidavit dated 27.2.2023 has furnished the same. Taking into consideration the submissions of the parties and the documents available on record, we proceed to true-up the tariff of the generating station, on prudence check, as stated in the subsequent paragraphs.

Truing-up of tariff for the period 2014-19

5. Regulation 8(1) of the 2014 Tariff Regulations provides as under:

“8. Truing up

(1) The Commission shall carry out truing up exercise along with the tariff petition filed for the next tariff period, with respect to the capital expenditure including additional capital expenditure incurred up to 31.3.2019, as admitted by the Commission after prudence check at the time of truing up:

Provided that the generating company or the transmission licensee, as the case may be, shall make an application for interim truing up of capital expenditure including additional capital expenditure in FY 2016-17.”

6. The Petitioner has filed the present petition for truing-up of tariff based on the actual capital expenditure incurred for the period 2014-19, as per audited accounts. Accordingly, the capital cost and annual fixed charges claimed by the Petitioner are as under:

Capital cost claimed

(Rs. in lakh)

| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|--|-----------------|-----------------|-----------------|-----------------|-----------------|
| Opening Capital Cost | 12438.28 | 14653.26 | 15185.73 | 16199.32 | 16320.68 |
| Add: Addition during the year/ period | 2540.07 | 539.78 | 1023.54 | 121.36 | 126.97 |
| Less: Decapitalization during the year/ period | 325.09 | 7.30 | 9.95 | 0.00 | 60.66 |
| Closing Capital Cost | 14653.26 | 15185.73 | 16199.32 | 16320.68 | 16387.00 |
| Average Capital Cost | 13545.77 | 14919.49 | 15692.52 | 16260.00 | 16353.84 |

Annual Fixed Charges claimed

(Rs. in lakh)

| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|-----------------------------|----------------|----------------|----------------|----------------|----------------|
| Depreciation | 751.00 | 1114.37 | 1341.15 | 1588.90 | 1666.09 |
| Interest on Loan | 31.74 | 34.04 | 2.30 | 0.00 | 0.00 |
| Return on Equity | 1354.09 | 1530.77 | 1495.74 | 1710.32 | 1541.39 |
| Interest on Working Capital | 117.35 | 134.47 | 142.99 | 158.74 | 162.13 |
| O&M Expenses | 1233.87 | 1317.89 | 1405.45 | 1498.82 | 1598.41 |
| Total | 3488.05 | 4131.54 | 4387.64 | 4956.78 | 4968.02 |



Capital Cost

7. Regulation 9 (3) of the 2014 Tariff Regulations provides as under:

“9. Capital Cost:

(3) The Capital cost of an existing project shall include the following:

- (a) the capital cost admitted by the Commission prior to 1.4.2014 duly trued up by excluding liability, if any, as on 1.4.2014;*
- (b) additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with Regulation 14; and*
- (c) expenditure on account of renovation and modernisation as admitted by this Commission in accordance with Regulation 15.*

(4) The capital cost in case of existing/new hydro generating station shall also include:

- (a) cost of approved rehabilitation and resettlement (R&R) plan of the project in conformity with National R&R Policy and R&R package as approved; and*
- (b) cost of the developer’s 10% contribution towards Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) project in the affected area.”*

8. The Commission vide its order dated 13.1.2016 in Petition No. 42/GT/2015, had approved the closing capital cost of Rs.12438.28 lakh as on 31.3.2014. Accordingly, the capital cost of Rs.12438.28 lakh, has been considered as the opening capital cost as on 1.4.2014, for the purpose of truing-up of tariff for the period 2014-19.

Additional Capital Expenditure

9. Regulation 14(3) of the 2014 Tariff Regulations provides as under:

“14. (3) 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 after the cut-off date, may be admitted by the Commission, subject to prudence check:

- (i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court of law;*
- (ii) Change in law or compliance of any existing law;*
- (iii) Any expenses to be incurred on account of need for higher security and safety of the plant as advised or directed by appropriate Government Agencies of statutory authorities responsible for national security/internal security;*
- (iv) Deferred works relating to ash pond or ash handling system in the original scope of work;*
- (v) Any liability for works executed prior to the cut-off date, after prudence check of the details of such un-discharged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments etc.;*



(vi) Any liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments;

(vii) Any additional capital expenditure which has become necessary for efficient operation of generating station other than coal / lignite-based stations or transmission system as the case may be. The claim shall be substantiated with the technical justification duly supported by the documentary evidence like test results carried out by an independent agency in case of deterioration of assets, report of an independent agency in case of damage caused by natural calamities, obsolescence of technology, up-gradation of capacity for the technical reason such as increase in fault level;

(viii) In case of hydro generating stations, any expenditure which has become necessary on account of damage caused by natural calamities (but not due to flooding of power house attributable to the negligence of the generating company) and due to geological reasons after adjusting the proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plant operation;

(ix) In case of transmission system, any additional expenditure on items such as relays, control and instrumentation, computer system, power line carrier communication, DC batteries, replacement due to obsolescence of technology, replacement of switchyard equipment due to increase of fault level, tower strengthening, communication equipment, emergency restoration system, insulators cleaning infrastructure, replacement of porcelain insulator with polymer insulators, replacement of damaged equipment not covered by insurance and any other expenditure which has become necessary for successful and efficient operation of transmission system; and

(x) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receiving system arising due to non-materialization of coal supply corresponding to full coal linkage in respect of thermal generating station as result of circumstances not within the control of the generating station:

Provided that any expenditure on acquiring the minor items or the assets including tools and tackles, furniture, air-conditioners, voltage stabilizers, refrigerators, coolers, computers, fans, washing machines, heat convectors, mattresses, carpets etc. brought after the cut-off date shall not be considered for additional capitalization for determination of tariff w.e.f. 1.4.2014:

Provided further that any capital expenditure other than that of the nature specified above in (i) to (iv) in case of coal/lignite-based station shall be met out of compensation allowance:

Provided also that if any expenditure has been claimed under Renovation and Modernisation (R&M), repairs and maintenance under (O&M) expenses and Compensation Allowance, same expenditure cannot be claimed under this regulation.

10. The Commission vide its order dated 13.1.2016 in Petition No. 42/GT/2015 had allowed the year-wise, net projected additional capital expenditure for the period 2014-19 as under:



| <i>(Rs. in lakh)</i> | | | | |
|----------------------|---------|---------|---------|---------|
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 1290.23 | 3324.17 | 223.95 | 818.00 | 693.00 |

11. The Petitioner has submitted that there is a variation in the additional capital expenditure allowed by order dated 13.1.2016 in Petition No. 42/GT/2015, and the actual capital expenditure incurred by the generating station during the period 2014-19. Accordingly, the detailed break-up of the additional capital expenditure claimed by the Petitioner, is as under:

| <i>(Rs. in lakh)</i> | | | | | |
|--|----------------|---------------|----------------|---------------|--------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Additions during the year (a) | 2540.07 | 539.78 | 1023.54 | 121.36 | 126.97 |
| Deletions during the year (b) | 325.09 | 7.30 | 9.95 | 0.00 | 60.66 |
| Discharges during the year (c) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Net additional capital expenditure claimed (d)=(a)-(b)+(c) | 2214.98 | 532.47 | 1013.59 | 121.36 | 66.32 |

12. The Commission vide its ROP of hearing dated 31.3.2022, had directed the Petitioner to furnish the detailed justification, along with the provisions of Regulations, under which additional capital expenditure has been claimed during the period 2014-19, along with the clear bifurcation of the new items claimed and the items allowed in earlier order. The Petitioner, in response, has submitted the details of the same along with the justification. Accordingly, based on the information available on record, we proceed for truing-up the tariff of the generating station, after prudence check, in terms of the provisions of the 2014 Tariff Regulations, as stated in the subsequent paragraphs.

13. The details of the additional capital expenditure claimed for the period 2014-19, in terms of the provisions of the 2014 Tariff Regulations, is as under:

| Sl. No | Regulations | Amount <i>(Rs. in lakh)</i> | | | | |
|--------|-------------|-----------------------------|---------|---------|---------|---------|
| | | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 1 | 14(3)(viii) | 2540.07 | 536.79 | 1023.54 | 121.36 | 83.04 |
| 2 | 14(3)(ix) | 0.00 | 2.99 | 0.00 | 0.00 | 0.00 |



| Sl. No | Regulations | Amount (Rs. in lakh) | | | | |
|--------|-----------------------------------|----------------------|---------------|----------------|---------------|--------------|
| | | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 2 | 15(1) | 0.00 | 0.00 | 0.00 | 0.00 | 43.93 |
| 3 | 14(3) (De-capitalization) | 325.09 | 7.30 | 9.95 | 0.00 | 60.66 |
| | Total as per Form-9A (Net) | 2214.98 | 532.47 | 1013.59 | 121.36 | 66.32 |

14. As regards actual additional capital expenditure claimed, the Petitioner has submitted the following:

“The impact on AFC due to the capitalization is being claimed after excluding the amount incurred on minor items/expenditure of O&M nature/spares etc., which are not allowed for additional capitalization for tariff purposes as per provisions of above Tariff Regulation, 2014.

There are certain works which are necessarily required for efficient operation of the generating station, which have been executed. The capital expenditure on this account and justification for carrying out these works have been included in the claim.

There are certain expenditures of capital nature, which have been allowed by the Hon'ble Commission while determining AFC for Khandong Hydro Electric Power Plant for the period of 2014-19 vide its order dated. 13.01.2016 in petition no.42/GT/2015, but could not be completed by the Petitioner within the stipulated period of 31.03.2019 due to various practical constraints. It is the humble submission of NEEPCO before the Hon'ble Commission for allowing for carrying out the remaining works relating to the aforesaid allowed expenditures during the subsequent years based on the application being submitted before the CERC for the control period of 2019-24.

The Khandong Hydro Electric Plant was commissioned in 1984 and it has completed more than 34 years of operation. Therefore, it is contemplated to go for Renovation, Modernization and Life Extension of the plant. The detailed project report for R&M and Life Extension & Upgradation for Khandong HEP is under preparation. The Central Water Commission has already approved the water availability series vide their letter no. 4/271/2019-HYD(NE), dated. 19th Aug'2019. Based on the approved Water availability series, Power Optimization study for Khandong HEP has been carried out and same has been submitted to Central Electricity Authority (CEA), Ministry of Power for examination and approval. Once all approvals are accorded, the station will be undergoing for R & M and Life extension.

15. The Respondent, APDCL has submitted that the total additional capital expenditure claimed by the Petitioner is Rs.4351.71 lakh for the period 2014-19 as against the approved additional capitalization of Rs.6737.85 lakh. However, it has submitted that as the project of the Petitioner has already outlived its useful life, the claim towards replacement of asset/items, at this fag end of the life of the project, may be avoided as it will create unnecessary cost and will increase the burden on the p beneficiaries. Accordingly, the Respondent has prayed that the Commission may carry out prudence check, on the claims of the Petitioner, and take decision accordingly.



16. The matter has been considered. It is observed that in Petition No. 42/GT/2015, the Petitioner had claimed projected additional capital expenditure for certain assets/ works, which were projected to be capitalized during the period 2014-19, and the same was allowed by order dated 13.1.2016. However, in the present petition, the Petitioner has claimed actual additional capital expenditure in respect of some new assets/ works, which were not projected earlier and, hence, there is variation between the actual additional capital expenditure claimed as against the projected additional capital expenditure allowed in order dated 13.1.2016. It is also observed that the Petitioner has claimed items/works such as Cooler tubes, Major overhauling works, and for replacement of various components damaged due to acidic nature of water, etc., and some new expenditure pertaining to R&M of some major components. As regards the expenditure claimed under the head 'replacement of various components damaged due to acidic nature of water', the Commission in its order dated 13.1.2016 in Petition No. 42/GT/2015 had observed the following:

"11. It is noticed that the Petitioner has claimed an projected additional capital expenditure of `9968.98 lakh during the period 2014-19 which includes expenditure of `4643.82 lakh towards replacement of assets and `5325.16 lakh towards New assets/works. It is observed that major expenditure claimed on under replacement include machinery components which had worn out /corroded due to the acidic nature of water. It is pertinent to mention that the problem of acidic nature of water became evident during the period after June, 2006 when the same was tested by the Geological Survey of India NER, Meghalaya Pollution Control Board and the Centre for Soil and Material Research Station, New Delhi. Based on the recommendations of the expert committee comprising of CEA, CWC and CSMRS and since the assets are necessary for efficient operation of the generating station, the Commission by order dated 30.9.2011 in Petition No.297/2009 had allowed the expenditure for replacement of assets/repair of the assets and procurement of new assets on account of damage caused due to acidic nature of water in terms of Regulation 9(2)(iv) of the 2009 Tariff Regulations. It was also made clear in the said order that the expenditure towards treatment of assets should not be frequent and should be for a longer period failing which the expenses cannot be capitalized and would fall under the category of O&M expenses. The relevant portion of the order dated order dated 30.09.2011 is extracted as under:

"23. We now examine the claim of the Petitioner for replacement of assets damaged due to acidic nature of water. It is observed that most of the items/assets which have been damaged and replaced or repaired due to acidic nature of water (pHvalue 3.36 to 5.44 instead of the normal pH value of 6.5 to 8.5) are sought to be replaced. The quality of the water became evident during the period after June,2006, when the same was tested by the Geological Survey of India, North Eastern Region, Shillong, the Meghalaya State Pollution Control Board and the Centre for Soil and Material Research Station (CSMRS), New Delhi. The expert committee comprising of the CEA, CWC and the CSMRS had also visited the project site during the period from



27.2.2009 to 3.3.2009 and has suggested for routine testing of water in the area, concrete core drilling at specified locations in Khandong Dam, test of silt & slush, monitoring of seepage etc., Repair and replacement of corroded machine components, replacement of guide vanes with stainless steel materials, replacement of cooling pipes and tubes with suitable materials with epoxy coating. The expert committee had also recommended various short-term and long-term measures to be taken up. In the light of the recommendations of the expert committee, the Petitioner has sought the replacement of assets/repair of assets and procurement of new assets, on account of damage caused due to the acidic nature of water. Taking into consideration the recommendations of the expert committee and since these assets are necessary for the efficient operation of the generating station, we are of the view that the expenditure to be incurred for replacement of the assets/repair of the assets and the procurement of new assets on account of the damage caused due to the acidic nature of water should be allowed in terms of Regulation 9(2)(iv) of the 2009 regulations. We proceed accordingly. However, it is expected that the expenditure towards treatment of the assets in order to encounter the acidic nature of water should not be frequent (within a year or two) and should be for a longer period (more than five years), failing which, the expenses cannot be capitalized and would fall under the category of O & M expenses for which the Petitioner may be required to approach the Commission separately with a detailed project report for carrying out the renovation works, which would be considered in accordance with law.”

12. It is further noticed that against the projected additional capital expenditure of Rs.7273.15 lakh allowed on projected basis, the Petitioner had capitalized expenditure on assets amounting to Rs.244.76 lakh during 2009-14. As regards the variation, the Petitioner had clarified that certain expenditure of the nature of repairs and maintenance was allowed by the Commission as projected additional capital expenditure for the period 2009-14 considering the water acidity problems specific to the generating station causing damage to the underwater parts and the Petitioner has already incurred a major portion of the expenditure allowed during the period 2009-14. However, the Petitioner further submitted that considering the nature of such activities as well as to ensure compliance with the relevant accounting standards/policy, the expenditure has not been claimed as capital expenditure and has been excluded from the scope of the present petition for the purpose of revision of the annual fixed charges.

13. It is evident from the above submission that though the Petitioner had incurred expenditure on replacement of corroded components during 2009-14, major portion of the expenditure which are in the nature of O&M expenses could not be capitalized. The expenses towards replacement of worn out/ corroded components have been charged to O&M expenses by the Petitioner for the period 2009-14 and the same has been considered in the normative O&M expenses allowed to the generating station under the 2014 Tariff Regulations applicable for the period 2014-19. Accordingly, the projected additional capital expenditure claimed by the Petitioner during the period 2014-19 i.e expenditure on replacement of cooler tubes, small valves, MIV, etc., which are in the nature of O&M expenses have not been considered for capitalization for the purpose of tariff by this order.”

17. In view of above, the items which were not allowed vide order dated 13.1.2016 have not been considered in this order, for the reasons mentioned therein. As regards other claims towards R&M works, it is pertinent to mention that the Petitioner has filed Petition No.633/MP/2020, before this Commission, seeking approval of R&M of this



generating station and the same is pending consideration of the Commission. However, considering the status of project (under R&M stage) and the nature of the expenditure, such as R&M of Governors, Replacement of liners, etc. the same are dealt with on merits in the following paragraphs. In view of this, the expenditure on these works, shall not form part of the R&M proposal in Petition No. 633/MP/2020, for consideration.

18. Based on the above, the year wise additional capital expenditure claimed by the Petitioner in terms of the provisions of the 2014 Tariff Regulations, for the period 2014-19, are examined below:

2014-15

| | | | <i>(Rs. in lakh)</i> |
|---|-------------|---|----------------------|
| SI. No. | Regulation | | 2014-15 |
| (a) | 14(3)(viii) | Additional works/expenditure which has become necessary for efficient and successful operation of plant | 2540.07 |
| Total additional capital expenditure claimed | | | 2540.07 |

(a) Claims under Regulation 14(3)(viii) of the 2014 Tariff Regulations

| SI. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility/non-admissibility | Amount allowed (Rs. in lakh) |
|--|---|---------------------------------|---|--|---------------------------------|
| Items allowed in order dated 13.1.2016 in Petition No. 42/GT/2015 | | | | | |
| 1 | Khandong Tunnel, Hydro Mechanical works & Repair Recommissioning of existing work for Khandong surge shaft. | 247.66 | For safe & independent operation of Khandong & kopili Stage -II power station, the installation of surge shaft gates is very essential. These assets/works claimed were admitted vide Tariff order dated 13.1.2016 in Petition No. 42/GT/2015 (projected item No. 12 of 2014-15). | The additional capital expenditure claimed under these heads were allowed for Rs. 253.00 lakh, on projected basis, vide order dated 13.1.2016 in Petition No. 42/GT/2015. Considering the fact that the additional capital expenditure incurred will facilitate the efficient and successful operation of the generating station, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The gross value of old | 247.66 |



| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility/non-admissibility | Amount allowed (Rs. in lakh) |
|--------|---|------------------------------|---|--|------------------------------|
| | | | | replaced asset/work has been considered under 'De-capitalization' in 2014- 15. | |
| 2 & 3 | Switchgear including Cable Connection. Design, supply, retrofitting & commissioning of numerical relays for line protection and also Micom relays. (Replacement of Switch Yard spares for Khandong PS, including erection & Commissioning). | 6.02 + 7.98 | The Petitioner has furnished that the Khandong generating station is 30 years old and are equipped with MOCB of BHEL make. As the existing MOCBs are obsolete and difficult to procure spares from OEM, the Petitioner has made the procurement. The Petitioner has also furnished that this Generator and Line Protection & Control System was upgraded to Numeric relay-based systems as per the provisions of CEA (Technical standards construction of Electrical plants and lines (under Notification No. CEA/TATD/MP/R/01/2010). Further these assets/works claimed were admitted vide Tariff order dated 13.1.2016 in Petition No. 42/GT/2015 (projected item No. 3 of 2014-15). The Commission has approved amount of Rs. 45.96 lakh during 2014-15. | The additional capital expenditure claimed under these heads were allowed for Rs. 45.96 lakh, on projected basis, vide order dated 13.1.2016 in Petition No. 42/GT/2015. Considering the fact that the additional capital expenditure incurred will facilitate the efficient and successful operation of the generating station, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The gross value of old replaced asset/work has been considered under 'De-capitalization' in 2014- 15. | 6.02 + 7.98 |



| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility/non-admissibility | Amount allowed (Rs. in lakh) |
|---------|--|------------------------------|--|---|------------------------------|
| 4. & 5. | Transformer having a rating of 100Amps & above (Procurement & installation of 28.5 MVA GT for Khandong power | 167.42+ 10.96 | The Petitioner in justification furnished that Since the commissioning i.e., on 8.3.1984 the GT has failed three times. The useful life of the asset has expired. One spare 28.5MVA GT has already been procured through open tender and the same is planned to be put in commercial operation during 2015-16. With this it will increase reliability of the unit and provide support to the grid, will reduce outage substantially in case of failure of one generator. | The additional capital expenditure claimed under these heads were allowed for Rs.174.67 lakh, on projected basis, vide order dated 13.1.2016 in Petition No. 42/GT/2015. Considering the fact that the additional capital expenditure incurred will facilitate the efficient and successful operation of the generating station, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The gross value of old replaced asset/work has been considered under 'De-capitalization' in 2014- 15. | 167.42+ 10.96 |
| 6. | Supply of stator Assembly including freight charges (Replacement of Generator components, including erection & Commissioning) | 258.82 | Due to formation of cavity in stator in different locations and servicing of 30 years, it is necessary to replace the old stator. OEM BHEL has carried out inspection of the stator and suggested replacement of the same. MoM enclosed. The item was allowed by the Commission during 2009-14. | The additional capital expenditure claimed under these heads were allowed for Rs. 912.34 lakh, on projected basis, vide order dated 13.1.2016 in Petition No. 42/GT/2015. Considering the fact that the additional capital expenditure incurred will facilitate the efficient and successful operation of the generating station, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The gross value of old replaced asset/work has been considered under 'De-capitalization' in 2014- 15. | 258.82 |
| 7. | Supply of Turbine & Generator Spares for Unit -I & II. (Replacement of Generator components, including erection & Commissioning) | 819.72 | | | 819.72 |



| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility/non-admissibility | Amount allowed (Rs. in lakh) |
|--------|---|------------------------------|--|--|------------------------------|
| 8 & 9 | Procurement of Online vibration monitoring system /Carbon Dust collector etc. Including erection & Commissioning Charges Unit I & II. | 31.32 + 63.37 | The Petitioner has submitted that the New Technology resulting in better monitoring and safety of the units. With the new system balancing of the unit and other vibration related troubleshooting can be done internally which will be cost saving and development of in-house expertise. The vibration monitoring system was procured and installed as per the provisions of CEA (Technical standards construction of Electrical plants and lines (under Notification No. CEA/TATD/MP/R/01/2010)- Chapter III- Technical Standards for construction of Hydro Electric Generating Station - Clause 37(g)(2). These assets/works claimed were admitted vide Tariff order dated 13.1.2016 in Petition No. 42/GT/2015 (projected item No. 8 of 2014-15). | The additional capital expenditure claimed under these heads were allowed for Rs. 97.97 lakh, on projected basis, vide order dated 13.1.2016 in Petition No. 42/GT/2015. Considering the fact that the additional capital expenditure incurred will facilitate the efficient and successful operation of the generating station, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The gross value of old replaced asset/work has been considered under 'De-capitalization' in 2014- 15. | 31.32 + 63.37 |
| 10. | Supply of cooling water pipes, MS pipes, SS Electrode, TGB & LGB Cooler Tubes Etc. | 100.35 | The Petitioner in justification submitted that the Acidic corrosion of the reservoir water has reduced the availability and reliability of the units, therefore, after a series of discussions with BHEL, it was decided to change all the underwater parts to Stainless Steel. After replacement, the failures related to acidic corrosion have come down substantially. Moreover, in the revision of Petition No. 46/GT/2014 dated 7.10.2015, the Commission has allowed similar expenditure. Commission's order reads | It is noticed that the said expenditure was not allowed vide order dated 13.1.2016 in Petition No. 42/GT/2015 on the ground that the same is in the nature of revenue expenditure and that the said expenditure for replacement of corroded components, on account of acidification of reservoir water, already form part of the normative O&M expenses allowed to the generating station for the period 2014-19. Hence, the same are not allowed . The corresponding de- | 0.00 |
| 11. | Supply of top cover, Pivot Ring Gate valve, MS pipe, Oil cooler Tubes Etc. | 446.49 | | | 0.00 |



| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility/non-admissibility | Amount allowed (Rs. in lakh) |
|------------------|--|------------------------------|---|--|------------------------------|
| | | | as "Allowed under Regulation 9(2)(iv) of the 2009 Tariff Regulations as the expenditure on replacement of Gate valves, Cooler tube bundles and Runner cone were allowed by order dated 4.7.2014 on projected/actual basis, considering the acidic nature of the water and the damage of underwater parts and the problem faced in keeping the plant in operation. | capitalization is also not considered. | |
| New Items | | | | | |
| 12. | Major overhauling works of Turbine & Governing System Unit-II. | 371.11 | In Justification the Petitioner has submitted that the said expenditure was essential for replacement of all underwater parts, as mentioned above and hence deemed admissible. | It is noticed that the said expenditure was not allowed vide order dated 13.1.2016 in Petition No. 42/GT/2015 on the ground that the same is in the nature of revenue expenditure and that the said expenditure for replacement of corroded components, on account of acidification of reservoir water, already form part of the normative O&M expenses allowed to the generating station for the period 2014-19. Hence, the same are not allowed . The corresponding de-capitalization is also not considered. | 0.00 |
| 13. | Special Tools & Plant. Lighting arrestor leakage current analyser. | 8.34 | In justification, the Petitioner has submitted that Modern Technology used for more efficient condition monitoring of Surge Arresters, as the surge arresters are vital components of the Substation and failure of which may lead to major equipment damage and human injury. RIO also | The additional capital expenses claimed is on account of need for higher security and safety of plant as directed by Government agencies/ statutory authorities. Accordingly, the claim of the Petitioner is allowed under Regulation | 8.34 |



| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility/non-admissibility | Amount allowed (Rs. in lakh) |
|--------|--|------------------------------|--|---|------------------------------|
| | | | instructed to forward 3rd Harmonic leakage current readings of all Surge arresters. So, this was a statutory requirement. RIO letter is also enclosed. | 14(3)(viii) of the 2014 Tariff Regulations. | |
| 14. | Audio Visual Equipment. Day Night CC camera (16 Nos) | 0.51 | CCTV cameras with night vision were essential from safety as well as security point of view. As the region has turbulent socio-political condition, it was needed as a precautionary measure against the risk of sabotage and theft. | As the asset will facilitate the safety and security of the generating station, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. | 0.51 |
| | Total amount claimed | 2540.07 | | | |
| | Total amount allowed | | | | 1622.12 |

19. Based on the above, the total additional expenditure of Rs.1622.12 lakh is allowed in 2014-15.

2015-16

20. The details of the actual additional capital expenditure claimed by the Petitioner in 2015-16 under the provisions of Regulation 14(3) of the 2014 Tariff Regulations are examined below:

| (Rs. in lakh) | | | |
|---------------|---|---|---------------|
| Sl. No. | Regulation | | 2015-16 |
| (a) | 14(3)(viii) | Additional works/expenditure which has become necessary for efficient and successful operation of plant | 536.79 |
| (b) | 14(3)(ix) | Additional expenditure due to obsolescence of technology | 2.99 |
| | Total additional capital expenditure claimed | | 539.78 |

(a) Claims under Regulation 14(3)(viii) of the 2014 Tariff Regulations

| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility & non-admissibility | Amount allowed (Rs. in lakh) |
|--|--|------------------------------|--|---|------------------------------|
| Items allowed in order dated 13.1.2016 in Petition No. 42/GT/2015 | | | | | |
| 1 | Replacement of Switch Yard spares for Khandong | 1.72 + 41.90 | The Petitioner in justification submitted that these Protection & control System was upgraded to Numeric relay-based | The additional capital expenditure claimed under these heads were allowed for Rs. 45.96 lakh, on projected basis, | 1.72 + 41.90 |



| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility & non-admissibility | Amount allowed (Rs. in lakh) |
|--------|---|------------------------------|--|--|------------------------------|
| | Generating station, including erection & Commissioning. | | <p>systems as per the provisions of CEA (Technical standards construction of Electrical plants and lines (under Notification No. CEA/TATD/MP/R/01/2010).</p> <p>CEA (Technical standards construction of Electrical plants and lines (under Notification No. CEA/TATD/MP/R/01/2010)- Chapter III- Technical Standards for construction of Hydro Electric Generating Station - Clause 43 (2)(c) states that "the interrupting medium of Cricut Breakers should be SF6". Under these provisions, the old MOCB's were replaced with SF6 Breakers. Further these assets/works claimed were admitted vide Tariff order dated 13.1.2016 in Petition No. 42/GT/2015 (projected item No. 3 of 2014-15). The Commission has approved amount of Rs. 45.96 lakh during 2014-15.</p> | <p>vide order dated 13.1.2016 in Petition No. 42/GT/2015. Considering the fact that the additional capital expenditure incurred will facilitate the efficient and successful operation of the generating station, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The gross value of old replaced asset/work has been considered under 'Assumed Deletion' in 2015- 16.</p> | |
| 2. | Procurement of Isolators. | 5.58 | <p>Due to frequent sparking and malfunctioning of the mechanism box and to ensure trouble free operation, the bus isolators of Khandong Unit -I, II should be replaced with S&S make isolators. these assets/works claimed were admitted vide Tariff order dated 13.1.2016 in Petition No. 42/GT/2015 (projected item No. 5 of 2014-15).</p> | <p>The additional capital expenditure claimed under these heads were allowed for Rs. 10.50 lakh, on projected basis, vide order dated 13.1.2016 in Petition No. 42/GT/2015. Considering the fact that the additional capital expenditure incurred will facilitate the efficient and successful operation of the generating station, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The gross value of old replaced asset/work has been considered under</p> | 5.58 |



| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility & non-admissibility | Amount allowed (Rs. in lakh) |
|--------|---|------------------------------|--|---|------------------------------|
| | | | | 'De-capitalization' in 2015- 16. | |
| 3 & 4 | Transformer having a rating of 100 amp & above (KHD) (Procurement & installation of 28.5 MVA GT for Khandong power station) | 1.65 + 2.77 | <p>The Petitioner in justification furnished that since the commissioning i.e., on 8.3.1984 the GT has failed three times. The useful life of the asset has expired. One spare 28.5MVA GT has already been procured through open tender and the same is planned to be put in commercial operation during 2015-16. With this it will increase reliability of the unit and provide support to the grid, will reduce outage substantially in case of failure of one generator.</p> <p>As per CEA (Technical standards construction of Electrical plants and lines (under Notification No. CEA/TATD/MP/R/01/2010)- Chapter III- Technical Standards for construction of Hydro Electric Generating Station - Clause 37.5.(b) "The Station Auxiliary AC Supply shall be designed to provide high degree of reliability, continuity of service, and primarily to supply un-interrupted AC Supply to station Auxiliaries during normal operation and unit auxiliaries during starting & stopping of the unit. This procurement was essential for ensuring reliability of the Station Supply, hence the Petitioner has requested to allow the same.</p> | <p>The additional capital expenditure claimed under these heads were allowed for Rs. 174.67 lakh, on projected basis, vide order dated 13.1.2016 in Petition No. 42/GT/2015.</p> <p>Considering the fact that the additional capital expenditure incurred will facilitate the efficient and successful operation of the generating station, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The gross value of old replaced asset/work has been considered under 'De-capitalization' in 2015- 16.</p> | 1.65 + 2.77 |



| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility & non-admissibility | Amount allowed (Rs. in lakh) |
|---------|---|------------------------------|--|--|------------------------------|
| 5. & 6. | Replacement of cooler tubes (70:30 CU.Ni) | 8.21 + 8.91 | The Petitioner in justification submitted that the Acidic corrosion of the reservoir water has reduced the availability and reliability of the units, therefore, after a series of discussions with BHEL, it was decided to change all the underwater parts to Stainless Steel. After replacement, the failures related to acidic corrosion have come down substantially. Moreover, in the revision of Petition No. 46/GT/2014 dated 7.10.2015, the Commission has allowed similar expenditure. Commission's order reads as "Allowed under Regulation 9(2)(iv) of the 2009 Tariff Regulations as the expenditure on replacement of Gate valves, Cooler tube bundles and Runner cone were allowed by order dated 4.7.2014 on projected/actual basis, considering the acidic nature of the water and the damage of underwater parts and the problem faced in keeping the plant in operation. | It is noticed that the said expenditure was not allowed vide order dated 13.1.2016 in Petition No. 42/GT/2015 on the ground that the same is in the nature of revenue expenditure and that the said expenditure for replacement of corroded components, on account of acidification of reservoir water, already form part of the normative O&M expenses allowed to the generating station for the period 2014-19. Hence, the same are not allowed . The corresponding de-capitalization is also not considered. | 0.00 |
| 7. | Procurement Stainless Steel GATE valves | 25.43 | | | 0.00 |
| 8. | Procurement of Non-return valves | 2.25 | | | 0.00 |
| 9. | Replacement of Generator components, including erection & Commissioning | 393.33 | Due to formation of cavity in stator in different locations and servicing of 30 years, it is necessary to replace the old stator. OEM BHEL has carried out inspection of the stator and suggested replacement of the same. MoM enclosed. The item was allowed by the Commission during 2009-14. | The additional capital expenditure claimed under these heads were allowed for Rs.912.34 lakh, on projected basis, vide order dated 13.1.2016 in Petition No. 42/GT/2015. Considering the fact that the additional capital expenditure incurred will facilitate the efficient and successful operation of the generating station, the same is allowed | 393.33 |



| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility & non-admissibility | Amount allowed (Rs. in lakh) |
|--------|---|------------------------------|---|---|------------------------------|
| | | | | under Regulation 14(3)(viii) of the 2014 Tariff Regulations. | |
| 10. | Khandong Tunnel (Hydro Mechanical Works (New Works) & commissioning of Khandong Surge Shaft Gate, Kopili HE Plant, NC Hills, Umrongso, Assam) | 1.70 | For safe & independent operation of Khandong & kopili Stage -II power station, the installation of surge shaft gates is very essential. These assets/works claimed were admitted vide Tariff order dated 13.1.2016 in Petition No. 42/GT/2015 (projected item No. 12 of 2014-15). | The additional capital expenditure claimed under these heads were allowed for Rs. 253.00 lakh, on projected basis, vide order dated 13.1.2016 in Petition No. 42/GT/2015. Considering the fact that the additional capital expenditure incurred will facilitate the efficient and successful operation of the generating station, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. | 1.70 |
| 11. | Procurement of turbine oil filter machine | 8.64 | Due to acidification of reservoir water, the cooler tubes get punctured frequently and gets mixed up with oil in the bearings. Water on bearings may lead to failure of Bearing pads and hence major damage of the units. The turbine oil filter machine was procured and used to clean the oil continuously in oil sumps, which was essential for keeping up generation. | The additional capital expenditure claimed under these heads were allowed for Rs. 7.50 lakh, on projected basis, vide order dated 13.1.2016 in Petition No. 42/GT/2015. Considering the fact that the additional capital expenditure incurred will facilitate the efficient and successful operation of the generating station, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. | 8.64 |
| 12. | Turbine discharge measuring equipment electromagnetic flow relays | 34.71 | Direct measurements of absolute discharge are a prerequisite for comprehensive tests in most hydropower installations. The procurement was made in order to effectively measure turbine discharge, which form the basis of efficiency calculations. Electromagnetic Flow | The additional capital expenditure claimed for the asset was not allowed on projected basis vide order dated 13.1.2016 in Petition No. 42/GT/2015 on the ground that these assets are in the nature of tools & tackles, in terms of the first proviso to Regulation 14(3) of the 2014 Tariff Regulations. | 0.00 |



| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility & non-admissibility | Amount allowed (Rs. in lakh) |
|--------|-----------------------------|------------------------------|--|---|------------------------------|
| | | | relays were required for efficient cooling, early troubleshooting of the units. | Hence, the additional capital expenditure claimed is not allowed . | |
| 13. | Arrestor | 2.99 | This item has become obsolete and hence new procurement was made. Obsolescence certificate submersed during flooding of power station. | The additional capital expenses claimed is on account of obsolescence of the technology. Accordingly, the same is allowed . The gross value of old replaced asset/work has been considered under 'Assumed Deletion' in 2015- 16. | 2.99 |
| | Total amount claimed | 539.78 | | | |
| | Total amount allowed | | | | 460.27 |

21. Based on the above, the total additional expenditure of Rs. 460.27 lakh in 2015-16 is allowed.

2016-17

22. The details of the actual additional capital expenditure claimed by the Petitioner in 2016-17 under the provisions of Regulation 14(3) of the 2014 Tariff Regulations are examined below:

| <i>(Rs. in lakh)</i> | | | |
|----------------------|---|---|----------------|
| Sl. No. | Regulation | | 2016-17 |
| (a) | 14(3)(viii) | Additional works/expenditure which has become necessary for efficient and successful operation of plant | 1023.54 |
| | Total additional capital expenditure claimed | | 1023.54 |

(a) Claims under Regulation 14(3)(viii) of the 2014 Tariff Regulations

| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility & non-admissibility | Amount Allowed (Rs. in lakh) |
|--|---|------------------------------|--|---|------------------------------|
| Items allowed in order dated 13.1.2016 in Petition No. 42/GT/2015 | | | | | |
| 1 | Switchgear including Cable Connection. 132KV line Ct of | 16.54 | As per new grid standards Khandong Generating station need to upgrade line CT's to 600/1 ratio, in | The additional capital expenditure claimed under these heads were allowed for Rs. 22.00 | 16.54 |



| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility & non-admissibility | Amount Allowed (Rs. in lakh) |
|--------|---|------------------------------|---|---|------------------------------|
| | Ratio 600/1A (Replacement of 6 Nos. of 600/1 CT & PT (132 kV) and installation of the same) | | place of existing 300/1 which was decided in the operation Coordination 's 87 th meeting. The Petitioner has also furnished the details of minutes of the meeting. These assets/works claimed were admitted vide Tariff order dated 13.1.2016 in Petition No. 42/GT/2015. | lakh, on projected basis, vide order dated 13.1.2016 in Petition No. 42/GT/2015. Considering the fact that the additional capital expenditure incurred will facilitate the efficient and successful operation of the generating station, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The gross value of old replaced asset/work has been considered under 'Assumed Deletion' in 2016- 17. | |
| 2. | Upgradation of UCB for Khandong Generating station | 50.47 | As per the provisions of CEA (Technical standards construction of Electrical plants and lines (under Notification No. CEA/TATD/MP/R/01 /2010) Clause 38(2)(a)' the unit and station control System shall be micro-processor/ computer based distributed digital Control System" with requisite redundancies. The replacement of Unit Control Board (UCB) with numeric system was done under this provision of the standard. | The additional capital expenditure claimed under these heads were allowed for Rs. 75.00 lakh, on projected basis, vide order dated 13.1.2016 in Petition No. 42/GT/2015. Considering the fact that the additional capital expenditure incurred will facilitate the efficient and successful operation of the generating station, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The gross value of old replaced asset/work has been considered under 'Assumed Deletion' in 2016- 17. | 50.47 |
| 3. | Dismantling, erection termination and commissioning of RGMO EGHC panels of Khandong Units I & 2 | 5.52 | As per new grid standards all hydro governors need to be upgraded to RGMO/FGMO enabled mode. In this purview, an order has already been placed and some material has been received. | The additional capital expenditure claimed under these heads were allowed for Rs. 60.00 lakh, on projected basis, vide order dated 13.1.2016 in Petition No. 42/GT/2015. | 5.52 |



| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility & non-admissibility | Amount Allowed (Rs. in lakh) |
|--------|---|------------------------------|---|--|------------------------------|
| 4. | RGMO / FGMO works of unit I & II | 157.39+ 149.62 | Statutory requirement as per grid standards will allow more stability to grid parameters. Restricted Governor Mode Operation (RGMO) as required under Regulation 5.2 (f) of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010. The Governor had to be replaced to enable this requirement. These works were allowed by the Commission during FY 2015-16. | Considering the fact that the additional capital expenditure incurred will facilitate the efficient and successful operation of the generating station, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The gross value of old replaced asset/work has been considered under 'Assumed Deletion' in 2016- 17. | 157.39 + 149.62 |
| 5 | Required to replace the existing cooler tubes periodically due to acidic reservoir water. | 41.96 | Acidic corrosion of the reservoir water has reduced the availability and reliability of the units, and cooler tube failure is the most common effect of the corrosion. The standard cooper nickel cooler tubes are not suitable for acidic water, and Stainless-Steel tubes have much less heat transfer capabilities. Therefore, in absence of any standard solution, the cooler tubes had to be replaced periodically. Moreover, the Commission in Order dated 7.10.2015 in Petition No. 46/GT/2014 dated 07/10/15, has allowed similar expenditure. Considering the acidic nature of the water and the damage of underwater parts and the problem faced in keeping the plant in operation the same is requested for consideration before the Commission. | It is noticed that the said expenditure was not allowed vide order dated 13.1.2016 in Petition No. 42/GT/2015 on the ground that the same is in the nature of revenue expenditure and that the said expenditure for replacement of corroded components, on account of acidification of reservoir water, already form part of the normative O&M expenses allowed to the generating station for the period 2014-19. Hence, the same are not allowed . The corresponding de-capitalization is also not considered. | 0.00 |



| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility & non-admissibility | Amount Allowed (Rs. in lakh) |
|------------------|---|------------------------------|---|--|------------------------------|
| 6. | Supply, Installation & Commissioning of battery bank charger and DC Distribution Board, etc. (Up-gradation of Battery bank /Charger Planet type battery) & (Upgradation DC Distribution system) | 83.24 | The old 300AH battery banks of Khandong Generating Station have already completed its stipulated life period and the station DC being most vital component for a power station, it is planned to upgrade the battery bank to plant type batteries in place of conventional tubular batteries which is major trend in latest power generation technology. In CEA (Technical standards construction of Electrical plants and lines (under Notification No. CEA/TATD/MP/R/01/2010)- Chapter III- Technical Standards for construction of Hydro Electric Generating Station - Clause 37 (6) (b)- it is noted that "the battery bank shall have sufficient capacity to meet unit and station load in addition to 3 hours of emergency illumination requirement" The battery bank capacity was upgraded to meet these requirements. These works are allowed earlier in FY 2015-16 and FY 2018-19. | The additional capital expenditure claimed under these heads were allowed for Rs. 38.50 lakh, on projected basis, in 2015-16 and Rs. 50.00 lakh in 2018-19 vide order dated 13.1.2016 in Petition No. 42/GT/2015. Considering the fact that the additional capital expenditure incurred will facilitate the efficient and successful operation of the generating station, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. The gross value of old replaced asset/work has been considered under 'Assumed Deletion' in 2016- 17. | 83.24 |
| New items | | | | | |
| 7. | Water Supply & Drainage-Plant Area, Monoblock pump motor set | 0.09 | The Petition in justification furnished that Monoblock pump was required for handling of oil during shutdown/ Maintenance to reduce downtime. | The additional capital expenditure claimed is not allowed being minor asset in terms of the first proviso to Regulation 14(3) of the 2014 Tariff Regulations. | 0.00 |
| 8. | Switchgear including Cable Connection. Motor operated mechanism box for isolator | 0.78 | The operating mechanism for isolator was damaged and needed to be replaced. | The additional capital expenditure claimed by the Petitioner is on replacement basis and is also needed for the safety and security of the generating station. Therefore, the claim of | 0.78 |



| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility & non-admissibility | Amount Allowed (Rs. in lakh) |
|--------|---|------------------------------|--|--|------------------------------|
| | | | | the Petitioner is allowed . The gross value of old replaced asset/work has been considered under 'Assumed Deletion' in 2016-17. | |
| 9. | Lab and Meter Testing equipment | 0.53 | The Petition in justification furnished that hot air room heater, portable CRO make appliances, multi meters and other equipment etc. were required for more efficient maintenance of the auxiliaries of the plant. | In our view, the additional capital expenditure claimed is in the nature of tools and tackles. Also, considering the fact that the O&M expenses are allowed on normative basis and any savings in turn is retained by the Petitioner, the additional capital expenditure claimed is not allowed . | 0.00 |
| 10. | Ordinary Tools and Plants | 0.60 | | | 0.00 |
| 11. | Supply of Turbine oil Filter Machines of Khandong Power Station | 18.28 | CEA guidelines for "best practices in operation & maintenance of Hydro Power Station, suggests that for oil in the governor, "Purification of hydraulic oils by centrifugal as well as electrostatic liquid cleaner". So, it can be seen that only centrifugal cleaning of oil is not adequate for smooth running of the governing system. Therefore, this electrostatic oil filter was procured an installed. | In our view, the additional capital expenditure incurred by the Petitioner does not directly relate to the operation of the generating station and is in the nature of O&M expenses. Hence, the claim of the Petitioner is not allowed . The corresponding decapitalization on account of the same is not considered. | 0.00 |
| 12. | Turbine discharge Measuring Equipment. | 9.80 | The Petitioner in justification furnished those direct measurements of absolute discharge are a prerequisite for comprehensive tests in most hydropower installations. The procurement was made in order to effectively measure turbine discharge, which form the basis of efficiency calculations. | In our view, the additional capital expenditure claimed is in the nature of tools and tackles. Also, considering the fact that the O&M expenses are allowed on normative basis and any savings in turn is retained by the Petitioner, the additional capital expenditure claimed is not allowed . The corresponding decapitalization on | 0.00 |



| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility & non-admissibility | Amount Allowed (Rs. in lakh) |
|--------|---|------------------------------|---|---|------------------------------|
| | | | | account of the same is not considered. | |
| 13. | CU:NI Tubes Khandong GT Size 15.9 MMOD X13.76MMIDX15 07MM Long 1.07 Thick for unit 1 & 2 | 6.16 | Acidic corrosion of the reservoir water has reduced the availability and reliability of the units, and cooler tube failure is the most common effect of the corrosion. The standard cooper nickel cooler tubes are not suitable for acidic water, and Stainless-Steel tubes have much less heat transfer capabilities. Therefore, in absence of any standard solution, the cooler tubes had to be replaced periodically. Moreover, the Commission in Order dated 7.10.2015 in Petition No. 46/GT/2014 dated 07/10/15, has allowed similar expenditure. Considering the acidic nature of the water and the damage of underwater parts and the problem faced in keeping the plant in operation the same is requested for consideration before the Commission. | The expenditure claimed is in the nature of O&M expenses. Also, the said expenditure for replacement of corroded components on account of acidification of reservoir water form part of the normative O&M expenses allowed, to the generating station for the period 2014-19. Hence, the expenditure claimed are not allowed . | 0.00 |
| 14. | Application of Loctite coating | 12.51 | To protect the underwater parts from acidic water of reservoir, the anti-corrosive coating is applied mainly in the embedded and mild steel material underwater parts. The Loctite normal coating showed substantial resistance against corrosion in embedded underwater parts of the units. | | 0.00 |
| 15. | 70:30 CU:Ni Tubes for LGB oil cooler, cf8m type rising spindle end flanged, ss elbow 90 degree tp 304I, | 17.07 | Acidic corrosion of the reservoir water has reduced the availability and reliability of the units, and cooler tube failure is the most common effect of | The expenditure claimed is in the nature of O&M expenses. Also, the said expenditure for replacement of corroded components | 0.00 |



| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility & non-admissibility | Amount Allowed (Rs. in lakh) |
|--------|--|------------------------------|--|--|------------------------------|
| | sch: 40s size 200nb, cf8m type rising spindle both ebd flanged ss gate valve size 150nB, CLASS-150 | | the corrosion. The standard cooper nickel cooler tubes are not suitable for acidic water, and Stainless-Steel tubes have much less heat transfer capabilities. | on account of acidification of reservoir water form part of the normative O&M expenses allowed, to the generating station for the period 2014-19. | |
| 16. | Plant & Equipment | 433.84 | Therefore, in absence of any standard solution, the cooler tubes had to be replaced periodically. Moreover, the Commission in Order dated 7.10.2015 in Petition No. 46/GT/2014 dated 07/10/15, has allowed similar expenditure. Considering the acidic nature of the water and the damage of underwater parts and the problem faced in keeping the plant in operation the same is requested for consideration before the Commission. | Hence, the expenditure claimed are not allowed . The corresponding de-capitalization is not considered. | |
| 17. | Refrigerator, Air-Cooler, Water-Cooler and Air-Conditioners- | 11.37 | Three new Tower Type air conditioners were procured for Khandong Control Room as old air conditioners damaged beyond repair. HVAC is an essential requirement as per the norms and hence requested the Commission to allow these items. | The additional capital expenditure claimed is in the nature of minor assets and hence not allowed , in terms of the first proviso to Regulation 14(3) of the 2014 Tariff Regulations. | 0.00 |
| 18. | Interior Communication Equipment-Plant/Office | 6.14 | Mobile connectivity in the Power Station premises is very poor, and communication is the most vital need for an essential and high-risk activity like Generation of Power. The GSM Antennas provided better communication which helped to increase productivity. | | 0.00 |
| 19. | Misc. Office Equipment. Motorola Motorboxirp 8660 H | 1.38 | | | 0.00 |
| 20. | Tools & Plants (Electrical) | 0.27 | The Petitioner has claimed the ordinary tools and tackle. | In our view, the additional capital expenditure claimed is in the nature of tools and tackles. Also, considering the fact that | 0.00 |



| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility & non-admissibility | Amount Allowed (Rs. in lakh) |
|--------|-----------------------------|---------------------------------|---------------|---|---------------------------------|
| | | | | the O&M expenses are allowed on normative basis and any savings in turn is retained by the Petitioner, the additional capital expenditure claimed is not allowed . | |
| | Total amount claimed | 1023.54 | | | |
| | Total amount allowed | | | | 463.54 |

23. Based on the above, the total additional expenditure of Rs. 463.54 lakh in 2016-17 is allowed.

2017-18

24. The details of the actual additional capital expenditure claimed by the Petitioner in 2017-18 under the provisions of Regulation 14(3) of the 2014 Tariff Regulations, is examined below:

| <i>(Rs. in lakh)</i> | | | |
|----------------------|---|---|---------------|
| Sl. No. | Regulation | | 2017-18 |
| (a) | 14(3)(viii) | Additional works/expenditure which has become necessary for efficient and successful operation of plant (New Items) | 121.36 |
| | Total additional capital expenditure claimed | | 121.36 |

(a) Claims under Regulation 14(3)(viii) of the 2014 Tariff Regulations

| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility & non-admissibility | Amount allowed (Rs. in lakh) |
|------------------|-------------|---------------------------------|--|--|---------------------------------|
| New Items | | | | | |
| 1. | Vizimax RTU | 27.33 | The RTU's were procured and installed as per provisions of IEGC-2010 Lab test equipment's required for better condition monitoring of the components. (Clause No., 4.6.2) and further the asset is procured based on the requirement of CERC Regulations for | Considering the fact that the additional capital expenditure incurred for the asset will facilitate the efficient and successful operation of the generating station, the same is allowed under Regulation 14(3)(viii) of | 27.33 |



| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility & non-admissibility | Amount allowed (Rs. in lakh) |
|--------|--|------------------------------|--|--|------------------------------|
| | | | Communication System for Inter-State transmission of electricity. | the 2014 Tariff Regulations. | |
| 2. | 132KV CT Type C, Ratio:5025/1 | 15.76 | These high lead time spares were capitalized as Insurance Spare, unavailability of which may lead to long term outage of the units; therefore, these spares fall under Plant, property and Equipment under Indian Accounting Standard 16. | In our view, the additional capital expenditure incurred by the Petitioner is in the nature of capital spares, and no capital spares are allowed to be capitalized after the cut-off date of the generating station. Hence, the additional capital expenditure claimed is not allowed . | 0.00 |
| 3. | 132 KV Circuit Breaker complete | 7.74 | | | 0.00 |
| 4. | AE Make Dimmerstat,0-470V,100 | 1.89 | Tools & Plants required for better and more efficient maintenance of the plant | In our view, the additional capital expenditure claimed is in the nature of tools and tackles. Also, considering the fact that the O&M expenses are allowed on normative basis and any savings in turn is retained by the Petitioner, the additional capital expenditure claimed is not allowed . | 0.00 |
| 5. | INDEF make chain pully block | 2.54 | | | 0.00 |
| 6. | 2 Speed hammer drill | 0.14 | | | 0.00 |
| 7. | DBX MAKE Electrical Drive unit suitable for torque control panel to suit expander. | 0.18 | | | 0.00 |
| 8. | Progress 3 with pro-control station | 57.38 | Progress 3 Interface is required for modification and troubleshooting of P-13 pro-control based electronic devices such as Governor and SEE etc. The earlier P-13 interface 70SK06 was obsolete. Obsolescence Certificate from OEM ABB is also enclosed. | The additional capital expenses claimed is on account of obsolescence of the Technology. Accordingly, the same is allowed . The corresponding de-capitalization has also been carried out during 2017-18. | 57.38 |
| 9. | Laboratory oil test set with test certificate. | 8.40 | Lab test equipment's required for better condition monitoring of the components. | In our view, the additional capital expenditure claimed is in the nature of tools and tackles. Also, considering the fact that the O&M expenses are allowed on normative basis and any savings in turn is retained by the Petitioner, the additional | 0.00 |



| Sl. No | Details | Amount claimed (Rs. in lakh) | Justification | Reason for admissibility & non-admissibility | Amount allowed (Rs. in lakh) |
|--------|-----------------------------|---------------------------------|---------------|---|---------------------------------|
| | | | | capital expenditure claimed is not allowed . | |
| | Total amount claimed | 121.36 | | | |
| | Total amount allowed | | | | 84.71 |

25. Based on the above, the total additional expenditure of Rs. 84.71 lakh in 2017-18 is allowed.

2018-19

26. The details of the actual additional capital expenditure claimed by the Petitioner, is examined below:

| Sl. No. | Regulation | | (Rs. In lakh) |
|---------|---|--|---------------|
| (a) | 14(3)(viii) | Additional works/expenditure which has become necessary for efficient and successful operation of plant. | 87.28 |
| (b) | 15(1) | On Account of R&M Works | 39.69 |
| | Total additional capital expenditure claimed | | 126.97 |

(a) Claims under Regulation 14(3)(viii) of the 2014 Tariff Regulations

| Sl. No | Details | Amount claimed (Rs. In lakh) | Justification | Reason for admissibility & non-admissibility | Amount allowed (Rs. In lakh) |
|--|--|---------------------------------|--|---|---------------------------------|
| Items allowed in order dated 13.1.2016 in Petition No. 42/GT/2015 | | | | | |
| 1. | Design Engineering & Supply of panels for mounting BCU | 6.47 | As per the provisions of CEA (Technical standards construction of Electrical plants and lines (under Notification No. CEA/TATD/MP/R/01 /2010) Clause 38(2)(a)' the unit and station control System shall be micro-processor/ computer based distributed digital Control System" with requisite redundancies. The replacement of Unit Control Panels (UCP) was done under this provision of the standard. | The additional capital expenditure claimed under these heads were allowed for Rs. 75 lakh, on projected basis, vide order dated 13.1.2016 in Petition No. 42/GT/2015. Considering the fact that the additional capital expenditure incurred will facilitate the efficient and successful operation of the generating station, the same is allowed under Regulation 14(3)(viii) of the 2014 | 6.47 |
| 2. | Retrofit of UCP-1&2 at khandong | 7.08 | | | 7.08 |
| 3. | Erection and dismantling of UCP | 8.26 | | | 8.26 |



| Sl. No | Details | Amount claimed (Rs. In lakh) | Justification | Reason for admissibility & non-admissibility | Amount allowed (Rs. In lakh) |
|------------------|---|------------------------------|---|---|------------------------------|
| | | | | Tariff Regulations. The gross value of old replaced asset/work has been considered under 'De-capitalization' in 2018-19. | |
| New Items | | | | | |
| 4. | Oew Tangee, Hawe Germany etc, 75 MM Heavy Duty, etc | 16.19 | These Special Tools and plants were required for more efficient maintenance and overhauling of the plant and machinery. The Tangee make Hydraulic Torque wrench was required for dismantling and assembly of Turbine Generator Coupling, Runner etc. Earlier these were done manually by hammering, where the Torque applied can't be controlled. The Hydraulic Torque machines helped to induct requisite torque exactly to the bolts, and also speeded up the process. May please be considered as upgradation required for more efficient operation. | In our view, the additional capital expenditure claimed is in the nature of tools and tackles. Also, considering the fact that the O&M expenses are allowed on normative basis and any savings in turn is retained by the Petitioner, the additional capital expenditure claimed is not allowed . | 0.00 |
| 5. | Transformer oil filtration machine | 5.80 | Due to acidification of reservoir water, the cooler tubes gets punctured frequently and gets mixed up with oil in the bearings. Water on bearings may lead to failure of Bearing pads and hence major damage of the units. The turbine oil filter machine was procured and used to clean the oil continuously in oil sumps, which was essential for keeping up generation. | The expenditure claimed is in the nature of O&M expenses. Also, the said expenditure for replacement of corroded components on account of acidification of reservoir water form part of the normative O&M expenses allowed, to the generating station for the period 2014-19, the expenditure is not allowed . | 0.00 |
| 6. | Resin cast indoor, single phase, natural air cooled, dry type, neutral grounding transformer to | 4.24 | This item was approved under R&M of Khandong Power Station, however procured beforehand, as there was no spare available, and failure may | Considering the fact that the additional capital expenditure claimed is in the nature of capital spares, after the cut-off date of the | 0.00 |



| Sl. No | Details | Amount claimed (Rs. In lakh) | Justification | Reason for admissibility & non-admissibility | Amount allowed (Rs. In lakh) |
|--|--|------------------------------|---|---|------------------------------|
| | is:2026&iec:60726/1982 ratio :11000/10v Sr. no 18/452182 | | lead to long time outage of the plant. CEA approved estimate for R&M, LE report of Khandong is enclosed. | generating station, the same is not allowed . | |
| 7. | 45 kw skid mounted complete PU | 17.53 | The self-priming type of stainless-steel special disaster management pumps were procured and installed to enhance safety of the plant during flood situations. This was done under the provisions of CEA (Technical standards construction of Electrical plants and lines (under Notification No. CEA/TATD/MP/R/01 /2010) Clause No. 39 | As the expenditure claimed is based on the recommendations of CEA and is necessary to facilitate the successful and efficient operation of plant. Since, the expenditure is for safety of the plant, the same is allowed under Regulation 14(3)(iii) of the 2014 Tariff Regulations. | 17.53 |
| 8. | 72HP Trolley mounted complete | 21.09 | | | 21.09 |
| 9. | Digital Vibration meter-IRD 3 | 0.62 | Handheld vibration meter was procured to enhance condition monitoring of units as well as auxiliaries. | In our view, the additional capital expenditure claimed is in the nature of tools and tackles. Also, considering the fact that the O&M expenses are allowed on normative basis and any savings in turn is retained by the Petitioner, the additional capital expenditure claimed is not allowed . | 0.00 |
| Items claimed under Regulation 15(1) of the 2014 Tariff Regulations | | | | | |
| 10. | Diesel Generating station | 36.61 | The DG set was approved under R&M package of Khandong. Since the old DG was giving frequent problems, and became unreliable, the new DG had to be procured beforehand, in order to maintain reliability of Station Supply. The DG set was procured. | Based on the submissions of the Petitioner and considering the nature of the expenditure, the same are allowed under Regulation 143(viii) of 2014 Tariff Regulations, as the assets/works will facilitate the successful and efficient operation of plant. The corresponding decapitalization is also considered under 'Assumed Deletion'. However, the Petitioner is directed to ensure | 36.61 |
| 11 | INDEF make 20t chain pulley | 3.08 | The amount was spent on upgradation of Hand Operated Trolley Crane in Khandong Valve house. This item was approved in R&M of Khandong. | | 3.08 |



| Sl. No | Details | Amount claimed (Rs. In lakh) | Justification | Reason for admissibility & non-admissibility | Amount allowed (Rs. In lakh) |
|--------|-----------------------------|---------------------------------|---------------|---|---------------------------------|
| | | | | that the additional capital expenditure claimed shall not form part of the claims in the R&M petition (Petition No. 633/MP/2020) filed by the Petitioner and pending for consideration. | |
| | Total amount claimed | 126.97 | | | |
| | Total amount allowed | | | | 100.12 |

27. Based on the above, additional capital expenditure of Rs. 100.12 lakh is allowed in 2018-19.

Discharge of liabilities

28. The Petitioner has not claimed any discharge of liabilities for the instant generating station. The Commission has considered the same.

De-capitalization

29. The Petitioner has claimed the de-capitalization of amounts (as per Form 9Bi) during the period 2014-19, as under:

| <i>(Rs. in lakh)</i> | | | | |
|----------------------|---------|---------|---------|---------|
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 325.09 | 7.30 | 9.95 | 0.00 | 60.66 |

30. The de-capitalization claimed by the Petitioner has been dealt with in the relevant paragraphs, relating to the additional capital expenditure claims, which have been considered and allowed for the respective years of the period 2014-19 in terms of the provisions of Regulation 14(3) of the 2014 Tariff Regulations. Further, the de-capitalization of assets against which capitalization are not allowed, have not been considered. Accordingly, the de-capitalization in case of asset like spares during the period 2014-19 has not been considered for the purpose of tariff as under:



(Rs. In lakh)

| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|---|---------|---------|---------|---------|---------|
| De-capitalization claimed by the Petitioner | 325.09 | 7.30 | 9.95 | 0.00 | 60.66 |
| De-capitalization allowed | 202.46 | 1.16 | 0.00 | 0.00 | 2.19 |

Assumed Deletions

31. As per consistent methodology adopted by the Commission, the expenditure on replacement of assets, if found justified, is allowed for the purpose of tariff, provided that the capitalization of the said asset is followed by de-capitalization of the original value of the old asset. However, in certain cases where de-capitalization is affected in books during the following years, to the year of capitalization of new asset, the de-capitalization of the old asset for the purpose of tariff is shifted to the very same year in which the capitalization of the new asset is allowed. Such decapitalization which is not a book entry in the year of capitalization is termed as "Assumed deletion". Further, in the absence of the gross value of the asset being de-capitalized, the same is calculated by de-escalating the gross value of new asset @ 5% per annum till the year of capitalization of the old asset.

32. Accordingly, based on above methodology, the assumed deletion considered for these assets/works is as under:

(Rs. in lakh)

| SI No. | Details | Additions claimed for new asset on replacement | De-capitalization value of old asset claimed | Assumed Deletions for old asset allowed |
|----------------|---|--|--|---|
| 2015-16 | | | | |
| 1 | Replacement of Switch Yard spares for Khandong Generating station, including erection & Commissioning. | 43.62 | 0.00 | 9.61 |
| 2 | Arrestor | 2.99 | 0.00 | 0.66 |
| | Total | 46.61 | 0.00 | 10.27 |
| 2016-17 | | | | |
| 1 | Switchgear including Cable Connection. 132KV line CT of Ratio 600/1A (Replacement of 6 Nos. of 600/1 CT & PT (132 | 16.54 | 0.00 | 3.47 |



| SI No. | Details | Additions claimed for new asset on replacement | De-capitalization value of old asset claimed | Assumed Deletions for old asset allowed |
|----------------|---|--|--|---|
| | kV) and installation of the same) | | | |
| 2 | Upgradation of UCB for Khandong PS | 50.47 | 0.00 | 10.59 |
| 3 | Dismantling, erection termination and commissioning of RGMOEGHC panels of Khandong Units I & 2 | 5.52 | 0.00 | 1.16 |
| 4 | RGMO/FGMO WORKS OF UNIT I & II | 307.00 | 0.00 | 64.43 |
| 5 | Supply, installation testing & commissioning of battery bank charger and Dc distribution Board, etc. (Up-gradation of Battery bank /Charger Planet type battery) & (Upgradation DC Distribution system) | 83.24 | 0.00 | 17.47 |
| 6 | Switchgear including Cable Connection. Motor operated mechanism box for isolator | 0.78 | 0.00 | 0.16 |
| | Total | 463.54 | 0.00 | 97.28 |
| 2017-18 | | | | |
| 1 | Progress 3 with procontrol station | 57.38 | 0.00 | 11.47 |
| | Total | 57.38 | 0.00 | 11.47 |
| 2018-19 | | | | |
| 1 | Diesel Generating Station | 36.61 | 0.00 | 6.97 |
| 2 | INDEF Make 20t chain pulley w | 3.08 | 0.00 | 0.59 |
| | | 39.69 | 0.00 | 7.56 |

Exclusions [capitalized in books but not to be claimed for purpose of tariff]

33. The following are the year-wise expenditure incurred by the Petitioner towards the replacement of minor assets, purchase of capital spares, residential building, plant & machinery, electrical & auxiliaries, ancillary services, purchase of miscellaneous assets etc.:

| <i>(Rs in lakh)</i> | | | | |
|---------------------|---------|---------|---------|---------|
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 0.08 | 0.00 | 2.93 | 0.34 | 0.00 |

34. The above expenditure incurred towards the procurement/replacement of minor assets and capital spares are not allowed for the purpose of tariff, after the cut-off date,



in terms of the provisions of the 2014 Tariff Regulations. Accordingly, the Petitioner has put these additions under exclusion category. The aforesaid exclusion of positive entries, as effected by the Petitioner, are allowed for the purpose of tariff.

Net additional capital expenditure allowed

35. In view of above, the net additional capital expenditure allowed for the period 2014-19 is as under:

| | <i>(Rs. in lakh)</i> | | | | |
|---|----------------------|---------------|---------------|--------------|--------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Additions allowed during the year (a) | 1622.12 | 460.27 | 463.54 | 84.71 | 100.12 |
| Discharge of liabilities (b) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| De-capitalization (Including Assumed Deletion) considered during the year (c) | 202.46 | 11.43 | 97.28 | 11.47 | 9.75 |
| Exclusions in Deletions not allowed (to be considered in deletion) (d) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Net additional capital expenditure allowed (e)=(a)+(b)-(c)-(d) | 1419.66 | 448.85 | 366.26 | 73.24 | 90.37 |

Capital cost

36. Accordingly, the capital cost allowed for the period 2014-19, is as under:

| | <i>(Rs. in lakh)</i> | | | | |
|--|----------------------|-----------------|-----------------|-----------------|-----------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Opening capital cost | 12438.28 | 13857.94 | 14306.79 | 14673.05 | 14746.29 |
| Net additional capital expenditure allowed | 1419.66 | 448.85 | 366.26 | 73.24 | 90.37 |
| Closing Capital Cost | 13857.94 | 14306.79 | 14673.05 | 14746.29 | 14836.67 |
| Average Capital Cost | 13148.11 | 14082.37 | 14489.92 | 14709.67 | 14791.48 |

Debt-Equity Ratio

37. Regulation 19 of the 2014 Tariff Regulations provides as under:

“19. Debt-Equity Ratio: (1) For a project declared under commercial operation on or after 1.4.2014, the debt-equity ratio would be considered as 70:30 as on COD. If the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:

Provided that:

i. where equity actually deployed is less than 30% of the capital cost, actual equity shall be considered for determination of tariff:

ii. the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:

iii. any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of debt : equity ratio.



Explanation.-The premium, if any, raised by the generating company or the transmission licensee, as the case may be, while issuing share capital and investment of internal resources created out of its free reserve, for the funding of the project, shall be reckoned as paid up capital for the purpose of computing return on equity, only if such premium amount and internal resources are actually utilised for meeting the capital expenditure of the generating station or the transmission system.

(2)The generating company or the transmission licensee shall submit the resolution of the Board of the company or approval from Cabinet Committee on Economic Affairs(CCEA) regarding infusion of fund from internal resources in support of the utilization made or proposed to be made to meet the capital expenditure of the generating station or the transmission system including communication system, as the case may be.

(3) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, debt-equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2014 shall be considered.

(4) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, but where debt: equity ratio has not been determined by the Commission for determination of tariff for the period ending 31.3.2014, the Commission shall approve the debt: equity ratio based on actual information provided by the generating company or the transmission licensee as the case may be.

(5) Any expenditure incurred or projected to be incurred on or after 1.4.2014 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernization expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation.”

38. Gross normative loan and equity amounting to Rs.6284.18 lakh and Rs.6154.10 lakh, respectively, as on 31.3.2014 as considered in order dated 13.1.2016 in Petition No.42/GT/2015 has been considered as normative loan and equity as on 1.4.2014. The normative debt equity ratio of 70:30 has been considered for the admitted additional capital expenditure and de-capitalization in the debt equity ratio of 50:50. The opening and closing debt and equity is as under:

| Asset | As on 1.4.2014 | | Net Additional Capitalization during 2014-19 | | | | As on 31.3.2019 | |
|--------------|-----------------|---------------|--|---------------|-------------------|---------------|-----------------|---------------|
| | | | Additional Capital Expenditure | | De-capitalization | | | |
| | Amount | % | Amount | % | Amount | % | Amount | % |
| Debt | 6284.18 | 50.52 | 1911.54 | 70.00 | 166.19 | 50.00 | 8029.53 | 54.12 |
| Equity | 6154.10 | 49.48 | 819.23 | 30.00 | 166.19 | 50.00 | 6807.14 | 45.88 |
| Total | 12438.28 | 100.00 | 2730.77 | 100.00 | 332.39 | 100.00 | 14836.67 | 100.00 |

Return on Equity

39. Regulation 24 of the 2014 Tariff Regulations provides as under:



“24. Return on Equity: (1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with regulation 19.

(2) Return on equity shall be computed at the base rate of 15.50% for thermal generating stations, transmission system including communication system and run of the river hydro generating station, and at the base rate of 16.50% for the storage type hydro generating stations including pumped storage hydro generating stations and run of river generating station with pondage:

Provided that:

i. in case of projects commissioned on or after 1st April, 2014, an additional return of 0.50 % shall be allowed, if such projects are completed within the timeline specified in Appendix-I:

ii. the additional return of 0.5% shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever:

iii. additional RoE of 0.50% may be allowed if any element of the transmission project is completed within the specified timeline and it is certified by the Regional Power Committee/National Power Committee that commissioning of the particular element will benefit the system operation in the regional/national grid:

iv. the rate of return of a new project shall be reduced by 1% for such period as may be decided by the Commission, if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO)/ Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system:

v. as and when any of the above requirements are found lacking in a generating station based on the report submitted by the respective RLDC, RoE shall be reduced by 1% for the period for which the deficiency continues:

vi. additional RoE shall not be admissible for transmission line having length of less than 50 kilometers.”

40. Regulation 25 of the 2014 Tariff Regulations provides as under:

“Tax on Return on Equity: (1) The base rate of return on equity as allowed by the Commission under Regulation 24 shall be grossed up with the effective tax rate of the respective financial year. For this purpose, the effective tax rate shall be considered on the basis of actual tax paid in the respect of the financial year in line with the provisions of the relevant Finance Acts by the concerned generating company or the transmission licensee, as the case may be. The actual tax income on other income stream (i.e., income of non-generation or non-transmission business, as the case may be) shall not be considered for the calculation of “effective tax rate”

(2) Rate of return on equity shall be rounded off to three decimal places and shall be computed as per the formula given below:

Rate of pre-tax return on equity = Base rate / (1-t)

Where “t” is the effective tax rate in accordance with Clause (1) of this regulation and shall be calculated at the beginning of every financial year based on the estimated profit and tax to be paid estimated in line with the provisions of the relevant Finance Act applicable for that financial year to the company on pro-rata basis by excluding the income of non-generation or non-transmission business, as the case may be, and the corresponding tax thereon. In case of generating



company or transmission licensee paying Minimum Alternate Tax (MAT), “t” shall be considered as MAT rate including surcharge and cess

(3) The generating company or the transmission licensee, as the case may be, shall true up the grossed up rate of return on equity at the end of every financial year based on actual tax paid together with any additional tax demand including interest thereon, duly adjusted for any refund of tax including interest received from the income tax authorities pertaining to the tariff period 2014-15 to 2018-19 on actual gross income of any financial year. However, penalty, if any, arising on account of delay in deposit or short deposit of tax amount shall not be claimed by the generating company or the transmission licensee as the case may be. Any under- recovery or over recovery of grossed up rate on return on equity after truing up, shall be recovered or refunded to beneficiaries or the long term transmission customers/DICs as the case may be on year to year basis.”

41. In term of Regulation 25(3) of the 2014 Tariff Regulations, the generating company or the transmission licensee as the case may be, shall true up the grossed up rate of return on equity at the end of every financial year based on actual tax paid together with any additional tax demand including interest thereon duly adjusted for any refund of tax, including interest received from the income tax authorities, pertaining to the period from 2014-15 to 2018-19, on actual gross income of any financial year. The base rate of return on equity is to be grossed up with the effective tax rate of the respective financial years.

42. The Commission vide its order dated 7.6.2021 in Petition No.273/GT/2019 (truing-up of tariff of Ranagandi HEP for the period 2014-19), had considered the tax rates for the generating station of the Petitioner as under:

| Year | Effective Tax Rate (%) |
|-------------|-------------------------------|
| 2014-15 | 20.2521 |
| 2015-16 | 25.9099 |
| 2016-17 | 34.6080 |
| 2017-18 | 27.3764 |
| 2018-19 | 21.5488 |

43. Since, the effective tax rate is considered on the basis of actual tax paid in the respect of the financial year, in line with the provisions of the relevant Finance Acts, by the concerned generating company, the tax rate as worked out and allowed in the



said order dated 7.6.2021, has been considered for the computation of ROE for this generating station, as below:

| | <i>(Rs. in lakh)</i> | | | | |
|-------------------------------------|----------------------|----------------|----------------|----------------|----------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Opening Equity (a) | 6154.10 | 6539.51 | 6671.88 | 6762.30 | 6781.98 |
| Addition due to Capitalization (b) | 385.41 | 132.37 | 90.42 | 19.68 | 25.16 |
| Closing Equity (c)=(a)+(b) | 6539.51 | 6671.88 | 6762.30 | 6781.98 | 6807.14 |
| Average Equity (d)=(a+c)/2 | 6346.80 | 6605.69 | 6717.09 | 6772.14 | 6794.56 |
| Base Rate (%) (e) | 16.500% | 16.500% | 16.500% | 16.500% | 16.500% |
| Effective Tax Rate (%) (f) | 20.252% | 25.910% | 34.608% | 27.376% | 21.549% |
| Effective ROE Rate (%) (g) | 20.690% | 22.270% | 25.232% | 22.720% | 21.032% |
| Return on Equity (h)=(g)*(d) | 1313.15 | 1471.09 | 1694.86 | 1538.63 | 1429.03 |

Interest on Loan

44. Regulation 26 of the 2014 Tariff Regulations provides as under:

“26. Interest on loan capital: (1) The loans arrived at in the manner indicated in regulation 19 shall be considered as gross normative loan for calculation of interest on loan.

(2) The normative loan outstanding as on 1.4.2014 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2014 from the gross normative loan.

(3) The repayment for each of the year of the tariff period 2014-19 shall be deemed to be equal to the depreciation allowed for the corresponding year/period. In case of Decapitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered up to the date of de-capitalization of such asset

(4) Notwithstanding any moratorium period availed by the generating company or the transmission licensee, as the case may be, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the depreciation allowed for the year or part of the year.

(5) The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio after providing appropriate accounting adjustment for interest capitalized Provided that if there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average rate of interest shall be considered: Provided further that if the generating station or the transmission system, as the case may be, does not have actual loan, then the weighted average rate of interest of the generating company or the transmission licensee as a whole shall be considered

(6) The interest on loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest.

(7) The generating company or the transmission licensee, as the case may be, shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event the costs associated with such refinancing shall be borne by the beneficiaries and the net savings shall be shared between the beneficiaries



and the generating company or the transmission licensee, as the case may be, in the ratio of 2:1.

(8) The changes to the terms and conditions of the loans shall be reflected from the date of such re-financing.

(9) In case of dispute, any of the parties may make an application in accordance with the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999, as amended from time to time, including statutory re-enactment thereof for settlement of the dispute: Provided that the beneficiaries or the long term transmission customers /DICs shall not withhold any payment on account of the interest claimed by the generating company or the transmission licensee during the pendency of any dispute arising out of re-financing of loan.”

45. Regulation 26(5) of the 2014 Tariff Regulations provides for consideration of actual loan portfolio at the beginning of each year for computation of weighted average rate of interest. Accordingly, the weighted average rate of interest has been worked out on the basis of the actual loan portfolio of the respective year applicable to the project. The repayment for the period 2014-19, has been considered based on the depreciation allowed for the respective years. Interest on loan has been calculated on the normative average loan of the year by applying the last available weighted average rate of interest as the loan is already repaid. Accordingly, Interest on loan is worked out as under:

| | (Rs. in lakh) | | | | |
|--|---------------|--------------|-------------|---------|---------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Gross Normative Loan (A) | 6284.18 | 7318.43 | 7634.91 | 7910.75 | 7964.32 |
| Cumulative repayment of loan upto previous year (B) | 6284.18 | 6776.27 | 7441.56 | 7910.75 | 7964.32 |
| Net Loan Opening (C)=(A)-(B) | 0.00 | 542.16 | 193.36 | 0.00 | 0.00 |
| Repayment during the year (D) | 593.32 | 671.00 | 517.83 | 59.30 | 70.09 |
| Repayment adjustment on a/c of de-capitalization (E) | 101.23 | 5.71 | 48.64 | 5.73 | 4.87 |
| Net Repayment (F)=(D)-(E) | 492.09 | 665.29 | 469.19 | 53.57 | 65.21 |
| Net Addition due to additional capital expenditure (G) | 1034.25 | 316.48 | 275.84 | 53.57 | 65.21 |
| Net Loan Closing (H)= (C+G-F) | 542.16 | 193.36 | 0.00 | 0.00 | 0.00 |
| Average Loan(I)=(C+H)/2 | 271.08 | 367.76 | 96.68 | 0.00 | 0.00 |
| Weighted Average Rate of Interest of loan (J) | 7.94% | 7.94% | 7.94% | 7.94% | 7.94% |
| Interest on Loan (K=I*J) | 21.52 | 29.20 | 7.68 | - | - |

Depreciation

46. Regulation 27 of the 2014 Tariff Regulations provides as under:



“27. Depreciation: (1) Depreciation shall be computed from the date of commercial operation of a generating station or unit thereof or a transmission system including communication system or element thereof. In case of the tariff of all the units of a generating station or all elements of a transmission system including communication system for which a single tariff needs to be determined, the depreciation shall be computed from the effective date of commercial operation of the generating station or the transmission system taking into consideration the depreciation of individual units or elements thereof.

Provided that effective date of commercial operation shall be worked out by considering the actual date of commercial operation and installed capacity of all the units of the generating station or capital cost of all elements of the transmission system, for which single tariff needs to be determined.

(2) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission. In case of multiple units of a generating station or multiple elements of transmission system, weighted average life for the generating station of the transmission system shall be applied. Depreciation shall be chargeable from the first year of commercial operation. In case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis.

(3) The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset: Provided that in case of hydro generating station, the salvage value shall be as provided in the agreement signed by the developers with the State Government for development of the Plant:

Provided further that the capital cost of the assets of the hydro generating station for the purpose of computation of depreciated value shall correspond to the percentage of sale of electricity under long-term power purchase agreement at regulated tariff:

Provided also that any depreciation disallowed on account of lower availability of the generating station or generating unit or transmission system as the case may be, shall not be allowed to be recovered at a later stage during the useful life and the extended life.

(4) Land other than the land held under lease and the land for reservoir in case of hydro generating station shall not be a depreciable asset and its cost shall be excluded from the capital cost while computing depreciable value of the asset.

(5) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in Appendix-II to these regulations for the assets of the generating station and transmission system:

Provided that the remaining depreciable value as on 31st March of the year closing after a period of 12 years from the effective date of commercial operation of the station shall be spread over the balance useful life of the assets.

(6) In case of the existing projects, the balance depreciable value as on 1.4.2014 shall be worked out by deducting the cumulative depreciation as admitted by the Commission upto 31.3.2014 from the gross depreciable value of the assets.

(7) The generating company or the transmission license, as the case may be, shall submit the details of proposed capital expenditure during the fag end of the project (five years before the useful life) alongwith justification and proposed life extension. The Commission based on prudence check of such submissions shall approve the depreciation on capital expenditure during the fag end of the project.



(8) In case of de-capitalization of assets in respect of generating station or unit thereof or transmission system or element thereof, the cumulative depreciation shall be adjusted by taking into account the depreciation recovered in tariff by the decapitalized asset during its useful services.”

47. The COD of generating station is 4.5.1984. Since, the generating station has completed 12 years of commercial operation as on 4.5.1996, the spread over of depreciation had commenced. With the COD of the generating station being 4.5.1984, the useful life of the station (35 years) will expire on 30.4.2019 (i.e., just after the end of period 2014-19). The Petitioner has proposed to incur additional capital expenditure during this period i.e., 2014-19 which is at the fag end of the useful life of the station. In absence of any information for the proposed life extension as per Regulation 27(7) of the 2014 Tariff Regulations, the depreciation on additional capitalization as allowed for the period 2014-19, has been considered separately, by allowing depreciation at the rate of 5.28% as per the rates in Appendix-II of the 2014 Tariff Regulations. As per the methodology considered by the Commission for computing depreciation in order dated 13.1.2016 in Petition No.42/GT/2015. the depreciation on admitted additional capitalization, is also allowed. However, for the original gross block, depreciable value as on 1.4.2014, the depreciation has been allowed by spreading over the balance useful life. Accordingly, the depreciation has been computed as follows:

| | <i>(Rs. in lakh)</i> | | | | |
|--|----------------------|---------------|---------------|---------------|---------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Depreciation on the original Gross Block (i.e. without considering the additional capitalisation) | | | | | |
| Opening Capital Cost (a) | 12438.28 | 2438.28 | 2438.28 | 12438.28 | 12438.28 |
| Closing Capital Cost(b) | 12438.28 | 2438.28 | 2438.28 | 12438.28 | 12438.28 |
| Average Capital Cost (c)=(a+b)/2 | 12438.28 | 2438.28 | 2438.28 | 12438.28 | 12438.28 |
| Land Value (d) | 176.00 | 176.00 | 176.00 | 176.00 | 176.00 |
| Depreciable value(e)=(c-d)*0.9 | 11036.05 | 1036.05 | 1036.05 | 11036.05 | 11036.05 |
| Balance life(f) | 5.09 | 4.09 | 3.09 | 2.09 | 1.09 |
| Remaining Depreciable Value(g) | 2830.16 | 2390.32 | 1726.91 | 1124.53 | 474.96 |
| Depreciation during the period(h)=(g)/(f) | 555.84 | 584.19 | 558.57 | 537.63 | 435.08 |
| Depreciation on additional capitalisation | | | | | |
| Opening value (i) | 0.00 | 1419.66 | 1868.51 | 2234.77 | 2308.01 |
| Additional Capitalization during the year (j) | 1419.66 | 448.85 | 366.26 | 73.24 | 90.37 |
| Closing Value (k=i+j) | 1419.66 | 1868.51 | 2234.77 | 2308.01 | 2398.39 |
| Average (l=(i+k)/2) | 709.83 | 1644.09 | 2051.64 | 2271.39 | 2353.20 |



| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|--|----------------|----------------|----------------|-----------------|-----------------|
| Depreciation on the original Gross Block (i.e. without considering the additional capitalisation) | | | | | |
| Rate of Depreciation (m) | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% |
| Depreciation on the additional capitalisation (n) | 37.48 | 86.81 | 108.33 | 119.93 | 124.25 |
| Total Depreciation for the period (o=h+n) | 593.32 | 671.00 | 666.89 | 657.55 | 559.33 |
| Cumulative depreciation (p)=(Cumulative dep.at the beginning") | 8799.21 | 9316.73 | 9976.04 | 10569.07 | 11120.42 |
| Less: Adjustment on account of de-capitalisation (q) | 153.48 | 7.59 | 64.52 | 7.98 | 7.51 |
| Net Cumulative Depreciation (r)=(p)-(q) | 8645.73 | 9309.15 | 9911.52 | 10561.09 | 11112.91 |

*Cumulative Depreciation as on 31.3.2014 is Rs. 8205.89 lakh

Operation & Maintenance Expenses

48. Regulation 29 (3) (a) of the 2014 Tariff Regulations, provides for O&M expenses of the generating station, as under:

"29(3)(a) Following operations and maintenance expense norms shall be applicable for hydro generating stations which have been operational for three or more years as on 1.4.2014:

| | <i>(Rs. in lakh)</i> | | | | |
|-----------------|----------------------|----------------|----------------|----------------|----------------|
| <i>Khandong</i> | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| | 1233.87 | 1317.89 | 1405.45 | 1498.82 | 1598.41 |

49. The Petitioner, in Petition No. 42/GT/2015, had claimed O&M expenses for the period 2014-19, in terms of Regulation 29(3)(a) of the 2014 Tariff Regulations and the same was allowed vide order dated 13.1.2016. In the present petition, the Petitioner has claimed O&M expenses for the period 2014-19, in terms of the above Regulation and in addition, has claimed the impact of wage revision. Considering the fact, that the generating station is in operation for three or more years as on 1.4.2014, the normative O&M expenses in terms of the above regulation, is allowed. As regards the impact of Pay revision, the same is examined below:

Additional O&M Expenditure on account of impact of Pay revision

50. The Petitioner has claimed an amount of Rs.307.77 lakh as additional O&M expenses, on account of wage revision of its employees and for Meghalaya Home Guards for the period from 1.1.2017 to 31.3.2019. It has prayed that the additional



O&M expenses may be allowed to be recovered from the Respondents as a one-time payment under provisions of Regulation 54 (Powers to Relax) and Regulation 55 (Powers to Remove Difficulties) of the 2014 Tariff Regulations. Further, it has also submitted audited statements showing the details of the impact of wage revision and the year wise total impact of wage revision claimed, is as under:

| <i>(Rs in lakh)</i> | | | |
|---------------------|----------------|----------------|--------------|
| 2016-17 | 2017-18 | 2018-19 | Total |
| 50.25 | 155.64 | 101.88 | 307.77 |

51. The Respondent, APDCL has submitted that the claim of the Petitioner for reimbursement of wage revision of employees and for Home Guards under Regulations 54 and 55 of the 2014 Tariff Regulations cannot be allowed, as the Petitioner should file a separate petition with legal grounds to claim the same. In response, the Petitioner has submitted that the amount claimed is in accordance with the Commission's order dated 13.1.2016 in Petition No. 42/GT/2015 and has clarified that the submission of the Respondent, APDCL that the entire amount is being recovered from it is erroneous.

52. As regards the claim of the Petitioner for additional O&M expenses of Rs.307.77 lakh on account of wage revision from 1.1.2017 to 31.3.2019, the Commission vide letter dated 31.1.2023, had directed the Petitioner to submit the following details:

"As regards the impact of wage revision and GST claimed, the Petitioner shall furnish the following:

(a) Breakup of the actual O&M expenses of the generating station for the period 2014-19, under various subheads (as per Annexure-A enclosed) after including the pay revision impact (employees, and Security personnel, as applicable/claimed) (in both MS Excel and PDF format);

(b) Break-up of the actual O&M expenses of Corporate Centre/other offices including pay revision impact (as per Annexure-B enclosed) of the generating station for the 2014-19 tariff period along with the allocation of total O&M expenses to the various generating stations which are under construction, operational stations and any other offices/business activity along with basis of allocating such expenditure (in both MS Excel and PDF format);



(c) Break-up of the pay revision impact claimed in respect of employees of the Petitioner & Security Personnel stationed at the generating station and Corporate Centre/other offices employee cost allocated to the generating station (as per Annexure-C enclosed)
(d) A Comparative table indicating the actual O&M expenditure incurred versus the normative O&M allowable/allowed to the generating station for period 2014-19 .”

53. In compliance of the above, the Petitioner vide affidavit dated 27.2.2023 has filed the details of the year-wise impact of wage revision, as well as the comparison of the actual O&M expenses and normative O&M expenses as under:

(Rs. in lakh)

| | 2016-17 | | | 2017-18 | | | 2018-19 | | |
|--------------------------|---------------|---------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|
| | Pre-revised | Post revision | Wage impact | Pre-revised | Post revision | Wage impact | Pre-revised | Post revision | Wage impact |
| Salary & wages | 127.51 | 163.30 | 35.79 | 494.81 | 634.22 | 139.41 | 306.58 | 400.47 | 93.89 |
| PRP/ Ex-gratia | 0.00 | 3.07 | 3.07 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Superannuation benefits | 21.26 | 24.92 | 3.66 | 82.58 | 95.11 | 12.53 | 49.38 | 57.04 | 7.66 |
| Leave encashment | 52.91 | 60.64 | 7.73 | 23.86 | 27.56 | 3.70 | 2.10 | 2.43 | 0.33 |
| Net employee cost | 201.68 | 251.93 | 50.25 | 601.25 | 756.89 | 155.64 | 358.06 | 459.94 | 101.88 |

(Rs. in lakh)

| | Normative O&M expenses | Actual audited O&M expenses including Corporate Expenses |
|---------|------------------------|--|
| 2014-15 | 1233.87 | 1722.92 |
| 2015-16 | 1317.89 | 1956.89 |
| 2016-17 | 1405.45 | 1923.52 |
| 2017-18 | 1498.82 | 2456.24 |
| 2018-19 | 1598.41 | 2341.21 |

54. It is also observed that in addition to ex-gratia charges and Performance Related Pay (PRP), filing fees, community development expense and (Regional Load Despatch Centre (RLDC) Fees and Charges have been included under actual O&M expenses for the period 2014-19, as under:

(Rs in lakh)

| Heads | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|--|---------------|--------------|--------------|--------------|--------------|
| Ex-gratia | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Performance Related Pay (PRP)/Performance Linked Incentive | 47.43 | 44.83 | 19.16 | 28.58 | 3.09 |
| Filing Fees | 2.31 | 2.75 | 2.83 | 2.20 | 2.20 |
| Community Development Expenses | 19.84 | 2.63 | 9.16 | 7.12 | 15.49 |
| RLDC Fees and Charges | 77.42 | 23.93 | 33.97 | 19.19 | 21.22 |
| Total | 147.00 | 74.14 | 65.12 | 57.09 | 42.00 |



55. As regards recovery of the impact of wage revision, the Statement of Objects and Reasons (SOR) to the 2014 Tariff Regulations provides as under:

“29.26 Some of the generating stations have suggested that the impact of pay revision should be allowed on the basis of actual share of pay revision instead of normative 40% and one generating company suggested that the same should be considered as 60%. In the draft Regulations, the Commission had provided for a normative percentage of employee cost to total O&M expenses for different type of generating stations with an intention to provide a ceiling limit so that it does not lead to any exorbitant increase in the O&M expenses resulting in spike in tariff. The Commission would however, like to review the same considering the macroeconomics involved as these norms are also applicable for private generating stations. In order to ensure that such increase in employee expenses on account of pay revision in case of central generating stations and private generating stations are considered appropriately, the Commission is of the view that it shall be examined on case-to-case basis, balancing the interest of generating stations and consumers.

33.2 The draft Regulations provided for a normative percentage of employee cost to total O&M expenses for generating stations and transmission system with an intention to provide a ceiling limit so that the same should not lead to any exorbitant increase in the O&M expenses resulting in spike in tariff. The Commission shall examine the increase in employee expenses on case-to-case basis and shall consider the same if found appropriate, to ensure that overall impact at the macro level is sustainable and thoroughly justified. Accordingly, clause 29(4) proposed in the draft Regulations has been deleted. The impact of wage revision shall only be given after seeing impact of one full year and if it is found that O&M norms provided under Regulations are inadequate/insufficient to cover all justifiable O&M expenses for the particular year including employee expenses, then balance amount may be considered for reimbursement.”

56. It is observed, that the above methodology as indicated in the SOR suggests a comparison of the normative O&M expenses with the actual O&M expenditure on year-to-year basis. In this respect, the following facts need consideration:

- (a) The norms are framed based on the averaging of the actual O&M expenses of past five years to capture the year-on-year variations in sub-heads of O&M;
- (b) Certain cyclic expenditure may occur with a gap of one year or two years and as such adopting a longer duration i.e., five years for framing of norms also captures such expenditure which is not incurred on year to year basis;
- (c) Generators when they find that their actual expenditure has gone beyond the normative O&M in a particular year put departmental restrictions and try to bring the expenditure for the next year below the norms.

57. First step is to compare the normative O&M expenses with the actual O&M expenses for the period from 2014-15 to 2018-19, commensurate to the period for



which pay revision impact has been claimed. For like to like comparison, the components of O&M expenses like Productivity linked incentive, Performance Related Payment (PRP), Ex-gratia, Community development expenses, Filing Fees (separately recoverable) etc. which were not considered while framing the O&M expenses norms for the period 2014-19 (items at para 54 above), have been excluded from the yearly actual audited O&M expenses. Having brought the normative O&M expenses and actual O&M expenses at same level, if normative O&M expenses for the period 2014-19 are higher than actual O&M expenses (normalized) for the same period, the impact due to pay revision (excluding PRP and ex-gratia) as claimed for the period is not admissible/ allowed as the impact due to enhanced pay revision gets accommodated within the normative O&M expenses. However, if the normative O&M expenses for the period 2014-19 are less than the actual O&M expenses (normalized) for the said period, the pay revision impact (excluding PRP and ex-gratia) to the extent of under recovery or the pay revision impact (excluding PRP and ex-gratia), whichever is lower, is required to be allowed.

58. As stated, for a like to like comparison of the actual O&M expenses and normative O&M expenses, the expenditure against O&M expenses sub-heads as discussed above, has been excluded from the actual O&M expenses to arrive at the actual O&M expenses (normalized) for which the pay revision impact has been claimed in this petition.

59. The following tables portray the comparison of normative O&M expenses vis-a-vis the actual O&M expenses (normalized) for the period 2014-19 (on combined basis) commensurate with the impact of pay revision:-



(Rs.in lakh)

| Year | Normative O&M expenses as per Regulation (A) | Audited actual O&M Expenses (B) | Exclusions (C) | Normalized Actual O&M Expenses (D) = (B)-(C) | Difference (E) = (D)- (A) |
|--------------|--|---------------------------------|----------------|--|---------------------------|
| 2014-15 | 1233.87 | 1722.92 | 147.00 | 1575.91 | 342.04 |
| 2015-16 | 1317.89 | 1956.89 | 74.14 | 1882.74 | 564.85 |
| 2016-17 | 1405.45 | 1923.52 | 65.12 | 1858.40 | 452.95 |
| 2017-18 | 1498.82 | 2456.24 | 57.09 | 2399.15 | 900.33 |
| 2018-19 | 1598.41 | 2341.21 | 42.00 | 2299.21 | 700.80 |
| Total | 7054.44 | 10400.77 | 385.36 | 10015.41 | 2960.97 |

60. From the above table, it is clear that the total normalized actual O&M expenses incurred by the Petitioner are more than the normative O&M expenses allowed for the period 2014-19. Further, it is observed that the Petitioner has also claimed Performance Related Pay (PRP)/Ex-gratia, in its computation of impact of wage revision as per their submission in Annexure C (indicated in Para 54 above). As per consistent stand adopted by the Commission, while working out and allowing the impact of pay revision, PRP/Ex-gratia is not to be considered. Therefore, the total amount of Rs. 3.07 lakh in 2016-17 has not been considered and the impact of wage revision of Rs.47.18 lakhs (Rs.50.25 lakh – Rs.3.07 lakh) has only been considered for 2016-17.

61. From the submissions of the Petitioner, it is observed that the actual normalized O&M expenses, which also includes wage revision impact of Rs. 304.70 lakh (excluding Rs. 3.07 lakh of PRP / Ex-gratia), is more than the normative O&M expenses allowed during the period 2014-19. Accordingly, considering the fact that the normative O&M expenses allowed to the generating station in terms of the 2014 Tariff Regulations for the period 2014-19, is lesser than the actual normalized O&M expenses, the impact of the wage revision amounting to Rs. 304.70 lakh, as claimed by the Petitioner, excluding PRP, is allowed.



62. Accordingly, we, in exercise of the power under Regulation 54 of the 2014 Tariff Regulations (i.e., Power to relax), allow the reimbursement of the impact of wage revision amounting to Rs.304.70 lakh, as additional O&M expenses, for the years 2016-19. The arrear payments, on account of the wage revision impact is payable by the beneficiaries in twelve equal monthly installments, starting from the next bill, after issue of this order. Keeping in view the consumer interest, we as a special case, direct that no interest shall be charged by the Petitioner on the arrear payments on the wage revision impact allowed in this order. This arrangement, in our view, will balance the interest of both the Petitioner and the Respondents. Also, considering the fact that the impact of wage revision is being allowed in exercise of the power to relax, the expenses allowed are not made part of the O&M expenses and the consequent annual fixed charges determined in this order.

Interest on Working Capital

63. Regulation 28(1)(c) of the 2014 Tariff Regulations provides as under:

28. Interest on Working Capital:

(1) The working capital shall cover

(c) Hydro generating station including pumped storage hydroelectric generating station

and transmission system including communication system:

(i) Receivables equivalent to two months of fixed cost;

(ii) Maintenance spares @ 15% of operation and maintenance expense specified in regulation 29; and

(iii) Operation and maintenance expenses for one month.”

Working Capital for Receivables

64. Working Capital for Receivables equivalent to two months of capacity charges has been worked as under:

| <i>(Rs.in lakh)</i> | | | | |
|---------------------|----------------|----------------|----------------|----------------|
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 545.73 | 601.99 | 651.18 | 638.06 | 620.14 |



Working Capital for Maintenance Spares

65. Working capital for Maintenance spares @ 15% of O&M expenses are worked out and allowed as under:

| <i>(Rs.in lakh)</i> | | | | |
|---------------------|----------------|----------------|----------------|----------------|
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 185.08 | 197.68 | 210.82 | 224.82 | 239.76 |

Working Capital for O&M Expenses

66. Working capital for O&M expenses for 1 month for the purpose of working capital are as under:

| <i>(Rs.in lakh)</i> | | | | |
|---------------------|----------------|----------------|----------------|----------------|
| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| 102.82 | 109.82 | 117.12 | 124.90 | 133.20 |

67. Clause (3) of Regulation 28 of the 2014 Tariff Regulations provides as under:

"(3) Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2014-15 to 2018-19 in which the generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later."

68. Also, in terms of Regulation 28(3) of the 2014 Tariff Regulations, the Bank Rate of 13.50% (Base Rate + 350 Basis Points) as on 1.4.2014 as claimed by the Petitioner, has been considered in calculation of tariff. Accordingly, Interest on Working Capital is worked out and allowed as under:

| <i>(Rs.in lakh)</i> | | | | | |
|---|----------------|----------------|----------------|----------------|----------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Working Capital for O&M expenses (One month of O&M expenses) | 102.82 | 109.82 | 117.12 | 124.90 | 133.20 |
| Working Capital for Maintenance Spares (15% of O&M Expenses) | 185.08 | 197.68 | 210.82 | 224.82 | 239.76 |
| Working Capital for Receivables (2 months of annual fixed cost) | 545.73 | 601.99 | 651.18 | 638.06 | 620.14 |
| Total Working Capital | 833.64 | 909.50 | 979.11 | 987.78 | 993.10 |
| Rate of interest on working capital (%) | 13.500% | 13.500% | 13.500% | 13.500% | 13.500% |
| Interest on Working Capital | 112.54 | 122.78 | 132.18 | 133.35 | 134.07 |



Annual Fixed Charges

69. Based on the above, the annual fixed charges allowed for the generating station for the period 2014-19, is summarized as under:

| | (Rs.in lakh) | | | | |
|-----------------------------|---------------------|----------------|----------------|----------------|----------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Depreciation | 593.32 | 671.00 | 666.89 | 657.55 | 559.33 |
| Interest on Loan | 21.52 | 29.20 | 7.68 | 0.00 | 0.00 |
| Return on Equity | 1313.15 | 1471.09 | 1694.86 | 1538.63 | 1429.03 |
| O&M Expenses | 1233.87 | 1317.89 | 1405.45 | 1498.82 | 1598.41 |
| Interest on Working Capital | 112.54 | 122.78 | 132.18 | 133.35 | 134.07 |
| Total | 3274.41 | 3611.96 | 3907.06 | 3828.36 | 3720.84 |

Note: (1) All figures are on annualized basis. (2) All figures under each head have been rounded. The figure in total column in each year is also rounded. As such the sum of individual items may not be equal to the arithmetic total of the column.

Normative Annual Plant Availability Factor (NAPAF)

70. Clause (4) of Regulation 37 of the 2014 Tariff Regulations provides for the Normative Annual Plant Availability Factor (NAPAF) for hydro generating stations already in operation. Accordingly, NAPAF of 69% has been considered for the generating station for the period 2014-19.

Design Energy

71. The Commission vide its order dated 13.1.2016 in Petition No. 42/GT/2015 had considered the annual Design Energy (DE) of 227.61 million units for this generating station. This DE has been considered for this generating station for the period 2014-19 as per month-wise details as under:

| Months | Design Energy (MU) |
|---------------|---------------------------|
| April | 10.08 |
| May | 37.21 |
| June | 36.00 |
| July | 37.20 |
| August | 37.20 |
| September | 36.00 |
| October | 33.23 |
| November | 10.03 |
| December | 10.42 |
| January | 10.42 |
| February | 9.40 |
| March | 10.42 |



| | |
|---------------|---------------------------|
| Months | Design Energy (MU) |
| Total | 227.61 |

72. The difference between the annual fixed charges determined by this order and the annual fixed charges recovered by the Petitioner in terms of the Commission's order dated 13.1.2016 in Petition No. 42/GT/2015 shall be adjusted in terms of Regulation 8 (13) of the 2014 Tariff Regulations.

Summary

73. The summary of the annual fixed charges allowed after truing up of tariff for the period 2014-19, is summarized below:

| | <i>(Rs.in lakh)</i> | | | | |
|-------------------------|---------------------|----------------|----------------|----------------|----------------|
| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
| Annual Fixed Charges | 3274.41 | 3611.96 | 3907.06 | 3828.36 | 3720.84 |
| Impact of wage revision | - | - | 47.18 | 155.64 | 101.88 |

74. Petition No. 371/GT/2019 is disposed in terms of the above.

Sd/-
(Pravas Kumar Singh)
Member

Sd/-
(Arun Goyal)
Member

Sd/-
(I.S Jha)
Member

