

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 46/GT/2015**

**Coram:**

**Shri Gireesh B. Pradhan, Chairperson**

**Shri A. K. Singhal, Member**

**Shri A. S. Bakshi, Member**

**DATE OF HEARING: 16.07.2015**

**DATE OF ORDER: 13.01.2016**

**IN THE MATTER OF**

Approval of tariff of Kopili Hydro Electric Power plant (4X50 MW) of North Eastern Electric Power Corporation Limited (NEEPCO) Shillong for the period from 1.4.2014 to 31.3.2019.

**AND**

**IN THE MATTER OF**

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

.....Petitioner

**Vs**

1. Assam Power Distribution Company Ltd.  
"Bijulee Bhawan", Paltanbazar  
Guwahati-781 001

2. Meghalaya Energy Corporation Ltd.  
Meter Factory Area, Short Round Road  
Integrated Office Complex  
Shillong-793 001

3. Tripura State Electricity Corporation Ltd.  
Bidyut Bhavan, North Banamalipur  
Agartala-799 001

4. Power and Electricity Department  
Govt. of Mizoram  
P&E Office Complex, Electric Veng,  
Aizwal-796 001

5. Manipur State Power Distribution Co. Ltd.,  
Electrical Complex, Khawai Bazar,  
Keishampat, Imphal-795 001

6. Department of Power  
Govt. of Arunachal Pradesh  
Vidyut Bhawan  
Itanagar-791 111



7. Department of Power  
Govt. of Nagaland  
Kohima-797 001

8. North Eastern Regional Power Committee  
NERPC Complex, Dong Parmaw  
Lapalang , Shillong-793 003

9. North Eastern Regional Load Despatch Centre  
Dongtieh, Lower Nongrah  
Lapalang, Shillong-793 006

...Respondents

**Parties present:**

Shri Rana Bose, NEEPCO  
Shri Paresh Ch. Barman, NEEPCO  
Shri Devapriya Choudhary, NEEPCO  
Ms. Elizabeth Pyrbot, NEEPCO  
Shri K. Goswami, APDCL  
Shri M.K Adhikary, APDCL

**ORDER**

This petition has filed by petitioner, North Eastern Electric Power Corporation Ltd (NEEPCO) for approval of tariff of Kopili Hydro Electric Project (4 x 50MW) (hereinafter referred to as “the generating station”) for the period 2014-19 in terms of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (“the 2014 Tariff Regulations”).

2. The project comprises of four units of 50 MW. The date of commercial operation of the respective units of the generating station is as under:

	<b>Date of commercial operation</b>
Unit-I	5.7.1988
Unit-II	22.6.1988
Unit-III	1.5.1997
Unit-IV /Generating station	12.7.1997

3. The tariff of the generating station for the 2009-14 was determined by the Commission in order dated 4.7.2014 and 7.10.2015 in Petition No. 238/GT/2013 and Petition No. 456/GT/2014. The annual fixed charges approved by the Commission vide its order dated 28.9.2015 is as under:



	(₹ in lakh)	
	<b>2012-13</b>	<b>2013-14</b>
Return on Equity	2648.57	2841.43
Interest on Loan	35.36	8.43
Depreciation	566.74	572.47
Interest on Working Capital	275.94	290.87
O & M Expenses	4162.10	4400.17
<b>Total</b>	<b>30819.36</b>	<b>32126.72</b>

4. The petitioner vide affidavit dated 19.12.2014 has prayed for determination of tariff of the generating station for the period 2014-19 in accordance with the 2014 Tariff Regulations. Accordingly, the annual fixed charges claimed by the petitioner for the period 2014-19 are as under:

	(₹ in lakh)				
	<b>2009-10</b>	<b>2010-11</b>	<b>2011-12</b>	<b>2012-13</b>	<b>2013-14</b>
Return on Equity	2950.87	3547.40	3749.98	3902.46	4052.46
Interest on Loan	92.52	171.66	129.89	172.60	203.70
Depreciation	673.70	802.84	825.61	945.42	1071.54
Interest on Working Capital	424.35	465.38	493.61	526.46	560.84
O & M Expenses	6132.72	6540.18	6974.71	7432.11	7932.30
<b>Total</b>	<b>10274.16</b>	<b>11527.46</b>	<b>12173.80</b>	<b>12985.05</b>	<b>13820.84</b>

5. Reply to the petition has been filed by the respondent No.1, APDCL. The petition was heard on 7.4.2015 and the Commission vide Record of the proceedings held on 7.4.2015 directed the petitioner to file certain additional information. In response, the petitioner vide affidavit dated 1.6.2015 has filed the information with copy to the respondents. Thereafter, the matter was heard on 16.7.2015 and the Commission after directing the petitioner to file certain additional information, reserved its orders in the petition.

6. Based on the submissions of the parties and the documents available on record and on prudence check, we proceed to determine the tariff of the generating station for the period 2014-19 as stated in the subsequent paragraphs.

### **Capital Cost**

7. Clause (1) of Regulation 9 of the 2014 Tariff Regulations provides that the capital cost as determined by the Commission after prudence check in accordance with this regulation shall form the basis of determination of tariff for existing and new projects. Clause (3) of Regulation 9 provides as under:



*“9(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)xxxx*

*(c) xxxx*

8. The Commission in its order dated 7.10.2015 in Petition No.456/GT2014 had approved the closing capital cost of ₹27835.74 lakh as on 31.3.2014. This has been considered as the opening capital cost as on 1.4.2014 for the purpose of determination of tariff of the generating station for the period 2014-19.

### **Additional Capital Expenditure for 2014-19**

9. Clause (3) of Regulation 7 of the 2014 Tariff Regulations provides that the application for determination of tariff shall be based on admitted capital cost including any additional capital expenditure already admitted upto 31.3.2014 (either based on actual or projected additional capital expenditure) and estimated additional capital expenditure for the respective years of the tariff period 2014-15 to 2018-19. Clause (3) of Regulation 14 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 year-wise breakup of the actual/ projected additional capital expenditure claimed by the petitioner is as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Additional Capital Expenditure claimed on gross basis	5253.70	895.44	255.00	6379.65	150.00
De-capitalization claimed	962.00	252.00	97.00	2471.00	58.00
<b>Net Additional Capital Expenditure claimed</b>	<b>4291.70</b>	<b>643.44</b>	<b>158.00</b>	<b>3908.65</b>	<b>92.00</b>



11. It is noticed that the petitioner has claimed projected additional capital expenditure of ₹12933.79 lakh during the period 2014-19 which includes expenditure of ₹12497.94 lakh towards replacement of assets and ₹435.85 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 30.9.2011 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 (pH value 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 as against the projected expenditure of ₹5613.41 lakh allowed on projected basis, the petitioner had capitalized expenditure of ₹1263.36 lakh during 2009-14. As regards the variation, the petitioner in Petition Nos. 238/GT/2013 and 456/GT/2014 had clarified that certain expenditure of nature of repairs and maintenance were 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, annual overhauling of turbines etc., which are in the nature of O&M expenses have not been considered for capitalization for the purpose of tariff by this order.

14. Based on the above submissions of the parties and information available on record, the claims of the petitioner for the period 2014-19 are considered and allowed on prudence check, after reduction of the gross value of old assets, wherever necessary, as detailed in the subsequent paragraphs.





Sl. No.	Assets/ Works	Amount claimed	Justification submitted by the petitioner	Remarks on admissibility	Amount Allowed
1	Turbine Spare Replacement.	2176.68	Replacement/ erection & commissioning of materials on account of acidification of reservoir water and technical obsolescence The works have been approved in principle by CEA.	<b>Not allowed</b> , as the claim is in the nature of revenue expenditure and expenditure for replacement of corroded components on account of acidification of reservoir water is already a part of normative O&M expenses allowed to the station for the period 2014-19	<b>0.00</b>
2	Panel Spares Replacement.	520.33			<b>0.00</b>
3	Generator Spares Replacement.	1394.68			<b>0.00</b>
4	Construction of bay for 5 MVA 132/33 kV transformers at Kopili PS switchyard for station auxiliary supply on cost plus basis.	163.93	The works have been approved in principle by CEA.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant.	<b>163.93</b>
5	Supply and delivery of Turbine spares for BHEL make Hydro Turbine Generators Unit 3&4 of 4x50 MW Kopili Power Station.	188.36	Due to Acidification of reservoir water these items are to be replaced for smooth and efficient operation of the unit.	<b>Not allowed</b> , as the claim is in the nature of revenue expenditure and expenditure for replacement of corroded components on account of acidification of reservoir water is already a part of normative O&M expenses allowed to the station for the period 2014-19	<b>0.00</b>
6	Major Overhauling works in BHEL make Hydro Turbine Generator (Unit 3) of 4x50 MW Kopili P.S.	61.89			<b>0.00</b>
7	Supply, installation, testing & commissioning of CGL make complete GT winding along with transformer accessories of Kopili P.S., KHEP, NEEPCO Ltd. (Unit 3 & 4)	91.59	Due to Acidification of reservoir water cooler tubes are getting punctured and water is getting mixed up with the transformer oil as a result existing transformer winding got damaged.	<b>Allowed under</b> Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant.	<b>91.59</b>





8	Supply and Delivery of 135 barrels ( 28350 ltrs.) of Turbine Oil (Servo Prime-57) to Kopili Power Station, KHEP, NEEPCO Ltd. (Unit-1 & 2)	53.88	Due to Acidification of reservoir water cooler tubes are getting punctured and water is getting mixed up with the transformer oil as such all the oil are to be replaced/topped up.	<b>Not allowed</b> , as the claim is in the nature of revenue expenditure and expenditure for replacement of corroded components on account of acidification of reservoir water is already a part of normative O&M expenses allowed to the station for the period 2014-19	<b>0.00</b>
9	Supply and Delivery of SS Plates to Kopili Power Station. (Unit-1 & 2)	12.37	Due to erosion in underwater parts of turbine on account of acidification of reservoir water these SS plates are be to be cladded in the embedded potion of turbine components.		<b>0.00</b>
10	Manufacture, shop testing, supply and delivery of 73:30 Cu:Ni Oil Cooler Tubes bundles (for EMCO make GT) to Kopili Hydro Electric Plant. (Unit-1 & 2)	76.83	Due to Acidification of reservoir water cooler tubes are getting punctured and hence the same are to be replaced.	<b>Not allowed</b> , as the claim is in the nature of revenue expenditure and such expenditure for replacement of corroded components on account of acidification of reservoir water is already a part of normative O&M expenses allowed to the station for the period 2014-19	<b>0.00</b>
11	Suply and Delivery of 70/30 Cu-Ni cooler tubes for LGB/UGB & Thrust oil coolers of 4x50 MW Kopili Power Station. (Unit-1 & 2)	13.96			<b>0.00</b>
12	Supply and Delivery of Oil Coolers (tube bundles) for 20 MVA , 11/220 KV CGL make Generator Transformers of 4x50 MW Kopili Power Station. (Unit-1 & 2)	9.86			<b>0.00</b>
13	Supply and Delivery of cables to Kopili Hydro Electric Plant. (Unit-1 & 2)	14.23	The works has been approved in principle by CEA.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant.	<b>14.23</b>



14	Supply including installation, testing & commissioning of 2(two) no. of Spare Winding Limbs comprising of HV. LV & Tap Coil for 20 MVA, 11/220 KV EMCO make Generator Transformer including installation, testing & commissioning of Kopili P.S., KHEP. (Unit-1 & 2)	234.81	Due to Acidification of reservoir water cooler tubes are getting punctured and water is getting mixed up with the transformer oil as a result existing transformer winding got damaged and hence replacement is required.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant.	<b>234.81</b>
15	Supply and Delivery of 70:30 Cu:Ni Cooler tubes required for BHEL make Hydro Turbine Generators of 4x50 MW Kopili Power Station. (Unit-1&2)	12.24	Due to Acidification of reservoir water cooler tubes are getting punctured and hence the same are to be replaced.	<b>Not Allowed</b> as the claim is in the nature of revenue expenditure and expenditure for replacement of corroded components on account of acidification of reservoir water is already a part of normative O&M expenses allowed to the station for the period 2014-19	<b>0.00</b>
16	Supply of SS pipe & other SS materials of 304 grades. (Unit-1 & 2)	11.76	Due to erosion in underwater parts of turbine on account of acidification of reservoir water		<b>0.00</b>
17	Supply, installation, testing & commissioning of 2 nos. of Diesel Pump sets. (one for Unit#1&2 side and the other for Unit#3&4 side)	2.00	To pump out leakage water from Valve gallery , turbine pit and dewatering sump in case of emergency (i.e. power failure) such that power station can be saved from flooding. This leakages has been		<b>2.00</b>
18	Supply, installation, testing & commissioning of 4 nos. of Submergible Pump sets. (for all the 4 (four) units)	4.00	occurred due to Acidification of reservoir water		<b>4.00</b>
19	Supply, installation, testing & commissioning of 2 nos. of Ingersol Rand make HP Air Compressor (1 no. unit1&2 side and other Unit-3&4 side)	6.00	Existing one was installed in the year 1996 and remains frequently inoperative and after sales service is very poor.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant.	<b>6.00</b>



20	Hydro mechanical works ( New works in old existing structure) for one No Draft Tube gate and one No Pressure Release Valve (PRV) Gate for Unit-IV of Kopli Power Station (4X50MW), KHEP, Umrongso, Dima, Hasao, Assam	35.99	This is a new item. As per guideline of CWC each and every generating unit should have dedicated Draft Tube Gate. In Kopli Power Station 3 Nos of DT gates were used for operating 4 nos of generating units. Hence the 4th DT gate along with PRV gate is very essential for smooth operation of the power Station.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant.	<b>35.99</b>
21	Supply, Fabrication and Erection of Stainless Steel liner over the existing steel liner of Umrong Tunnel at the tunnel outlet near Kopili Valve House, KHEP, Umrong, Assam	163.68	This is a new item. The steel liner provided at the outlet of Umrong tunnel near kopli valve house has been badly eroded and punctured at several locations resulting in huge leakage from the tunnel. Frequent shut down is necessary for repairing of the punctured steel liner which resulted in huge loss of generation. So rehabilitation measures with stainless steel liner are of utmost necessity.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant.	<b>163.68</b>
22	Raising of Umrong dyke from EL 608.30 M to EL 612.60 M	4.64	To achieve increased storage capacity and consequent increased generation capacity of Kopili H. E. Project and to support the 1st Stage extension (2 x 50 MW) and the Stage-II (1 x 25 MW) of KHEP.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant.	<b>4.64</b>
<b>Total amount</b>		<b>5253.70</b>		<b>Amount allowed</b>	<b>720.87</b>

### 2015-16

Sl. No.	Assets/ Works	Amount claimed	Justification submitted by the petitioner	Remarks on admissibility	Amount Allowed
1	Major overhauling works of Unit-4 including supply of consumables	100.00	Due to erosion in underwater parts of TG Unit-4 on account of acidification of reservoir water	<b>Not allowed</b> , as the claim is in the nature of revenue expenditure and expenditure for replacement of corroded components on account of acidification of reservoir water is	<b>0.00</b>



				already a part of normative O&M expenses allowed to the station for the period 2014-19	
2	Installation & Commissioning of New Governing System suitable for implementation of FGMO/RGMO in BHEL make Hydro Turbine Generator Unit 3&4 (2x50 MW) of Kopili P.S.	283.94	Required under Regulation 5.2 (f) of the Central Electricity Regulatory Commission (Indian Electricity Grid Code) Regulations, 2010.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant.	<b>283.94</b>
3	Supply & Commissioning of Numerical Protection system for Unit-1 & 2 (Generator and Unit Control Panel)	125.00	Minutes for the Joint Standing Committee Meeting of Eastern and North Eastern Region on Power System Planning held at Guwahati on 03-01-2014 circulated by CEA vide letter no. 66/5/SP&PA-2013/212-35 dated 23.1.2014.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant. The gross value of old asset is considered as ₹ 23.00 lakh.	<b>125.00</b>
4	Supply and commissioning of SF6 Breaker for 220kV Kopili-Misa feeder-III	30.00	The OEM (M/s BHEL) has stopped manufacturing of existing MOCB and spares against the same is also not available hence replacement is necessary.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant.	<b>30.00</b>
5	Supply, installation, testing & commissioning of New 3-phase 5MVA Station Service Transformer	120.00	The existing 5 MVA transformer which was purchased almost 25 years back failed and it is essential to procure new one for providing station supply.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant. The gross value of old asset is considered as Rs. 7.00 lakh.	<b>120.00</b>
6	Supply, installation, testing & commissioning of Coil for 3-phase 5MVA Station Service transformer.	40.00	New Coil for replacement of the existing damaged coil of 5MVA transformer	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant.	<b>40.00</b>



7	Supply, installation, testing & commissioning of super duplex TGB Cooler Tube Bundles. Unit 3&4	39.00	Due to Acidification of reservoir water cooler tubes are getting punctured and hence the same are to be replaced.	<b>Not allowed</b> , as the claim is in the nature of revenue expenditure and expenditure for replacement of corroded components on account of acidification of reservoir water is already a part of normative O&M expenses allowed to the station for the period 2014-19	<b>0.00</b>
8	Supply, installation, testing & commissioning of 2 sets of New Battery Bank for providing DC supply to the control panels of the units.	7.50	Useful life of old battery bank is over.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant.	<b>7.50</b>
9	Supply, installation, testing & commissioning of New Battery Charger.	10.00	Due to technical obsolescence	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant	<b>10.00</b>
10	Installation & commissioning of Fire Fighting System in place of existing damaged Fire Fighting System.	50.00	Due to Acidification of reservoir water existing pipe line and cooling water pump got damaged.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant.	<b>50.00</b>
11	Design, Engineering, manufacturing & supply of twin tube type / Oil Forced Air Forced heat exchanger for generator transformer (phase-1). Unit-1&2	80.00	This modification is required due to Acidification of reservoir water such that a permanent solution can be made to arrest damage of transformer winding and impurification of transformer oil.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant	<b>80.00</b>
12	Supply, installation, testing & commissioning of New DC Distribution Board due to technical obsolescence	10.00	Due to technical obsolescence.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant.	<b>10.00</b>
<b>Total amount claimed</b>		<b>895.44</b>		<b>Amount allowed</b>	<b>756.44</b>



**2016-17***(₹ in lakh)*

Sl. No.	Assets/ Works	Amount claimed	Justification submitted by the petitioner	Remarks on admissibility	Amount Allowed
1	Supply & Commissioning of Numerical Protection system for Unit-3 & 4 (Generator and Unit Control Panel) including LBB protection	150.00	Minutes for the Joint Standing Committee Meeting of Eastern and North Eastern Region on Power System Planning held at Guwahati on 03-01-2014 circulated by CEA vide letter no. 66/5/SP&PA-2013/212-35 dated 23/01/2014.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant.	<b>150.00</b>
2	Design, Engineering, manufacturing & supply of twin tube type / Oil Forced Air Forced heat exchanger for generator transformer (Phase-2). Unit 3&4	40.00	These modifications are required due to Acidification of reservoir water such that a permanent solution can be made to arrest damage of transformer winding and impurification of transformer oil.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant	<b>40.00</b>
3	Manufacture , shop testing, supply and delivery of 73:30 Cu:Ni / Super Duplex Oil Cooler Tubes to Kopili Hydro Electric Plant (for Unit-1&2)	15.00	Due to Acidification of reservoir water cooler tubes are getting punctured and hence the same are to be replaced.	<b>Not allowed</b> , as the claim is in the nature of revenue expenditure and expenditure for replacement of corroded components on account of acidification of reservoir water is already a part of normative O&M expenses allowed to the station for the period 2014-19	<b>0.00</b>
4	Replacement of cooling water header pipe line with Stain less steel pipes (for Unit-3&4)	50.00	Due to Acidification of reservoir water existing GI pipelines got eroded hence it is proposed to replace the existing pipes with stainless steel pipes to have a permanent solution.		<b>0.00</b>
<b>Total amount claimed</b>		<b>255.00</b>		<b>Amount allowed</b>	<b>190.00</b>

**2017-18***(₹ in lakh)*

Sl. No.	Assets/ Works	Amount claimed	Justification submitted by the petitioner	Remarks on admissibility	Amount Allowed
1	Design, Engineering, manufacturing & supply of twin tube type / Oil Forced Air Forced heat exchanger for generator	40.00	These modifications are required due to Acidification of reservoir water such that a permanent solution can be made to arrest damage of transformer winding and impurification of	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of	<b>40.00</b>



	transformer (Phase-3). Unit 3&4		transformer oil.	plant.	
2	Replacement of cooling water header line with SS pipes (for Unit-1&2)	150.00	Due to Acidification of reservoir water existing pipelines got eroded hence it is proposed to replace the existing pipes with stainless steel pipes to have a permanent solution.	<b>Not allowed</b> , as the claim is in the nature of revenue expenditure and expenditure for replacement of corroded components on account of acidification of reservoir water is already a part of normative O&M expenses allowed to the station for the period 2014-19	<b>150.00</b>
3	Supply, installation, testing & commissioning of Stainless Steel Gate Valve of different size (for all four units)	75.00	Due to Acidification of reservoir water existing valves got eroded hence it is proposed to replace the existing valves with stainless steel valves to have a permanent solution.		<b>0.00</b>
4	Major Overhauling Works related to Unit# 3 & 4 of Kopili Power Station. As per Annexure-1	6114.65	Due to Acidification of reservoir water severe erosion of different water contact components of the Turbine-Generator has been observed and this works is necessary for smooth and efficient operation of the unit.		<b>0.00</b>
<b>Total amount claimed</b>		<b>6379.65</b>	<b>Amount allowed</b>		<b>190.00</b>

### 2018-19

<i>(₹ in lakh)</i>					
Sl. No.	Assets/ Works	Amount claimed	Justification submitted by the petitioner	Remarks on admissibility	Amount Allowed
1	Supply, installation, testing & commissioning of 3 nos of Cooling Water Pump for Unit-3 & 4 side.	60.00	Old pumpsets are commissioned in the year 1996 and now these pumpsets are giving frequent trouble which sometimes leads to forced outage of the unit.	<b>Allowed</b> under Regulation 14(3)(viii) of the 2014 Tariff Regulations, as the asset will facilitate successful and efficient operation of plant.	60.00
2	Manufacture , shop testing, supply and delivery of 73:30 Cu:Ni / Super Duplex Oil Cooler Tubes to Kopili Hydro Electric Plant - Unit 3&4	90.00	Due to Acidification of reservoir water cooler tubes are getting punctured and hence the same are to be replaced for smooth & efficient operation of the unit.	<b>Not allowed</b> , as the claim is in the nature of revenue expenditure and expenditure for replacement of corroded components on account of acidification of reservoir water	<b>0.00</b>





				is already a part of normative O&M expenses allowed to the station for the period 2014-19	
<b>Total amount claimed</b>	<b>150.00</b>			<b>Amount allowed</b>	<b>60.00</b>

### Additional capital expenditure

15. Based on the above, the additional capital expenditure claimed and allowed for the period 2014-19 is as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
<b>Additional capital expenditure claimed</b>	5253.70	895.44	255.00	6379.65	150.00
<b>Additional capital expenditure allowed</b>	720.87	756.44	190.00	190.00	60.00

### Deletion

16. The petitioner has claimed the following de-capitalization for the period 2014-19 is as under:

			(₹ in lakh)
Sl. No.	Name of Asset		Original value of asset
1	Turbine Spare Replacement.		(-)400.00
2	Panel Spares Replacement.		(-)96.00
3	Generator Spares Replacement.		(-)256.00
4	Supply and delivery of Turbine spares for BHEL make Hydro Turbine Generators Unit# 3&4 of 4x50 MW Kopili Power Station.		(-)74.00
5	Major Overhauling works in BHEL make Hydro Turbine Generator (Unit#3) of 4x50 MW Kopili P.S.		(-)24.00
6	Supply, installation, testing & commissioning of CGL make complete GT winding along with transformer accessories of Kopili P.S., KHEP, NEEPCO Ltd. (Unit 3 & 4)		(-)36.00
7	Manufacture , shop testing, supply and delivery of 73:30 Cu:Ni Oil Cooler Tubes bundles (for EMCO make GT) to Kopili Hydro Electric Plant. (Unit-1 & 2)		(-)14.00
8	Supply and Delivery of 70/30 Cu-Ni cooler tubes for LGB/UGB & Thrust oil coolers of 4x50 MW Kopili Power Station. (Unit-1 & 2)		(-)2.00
9	Supply and Delivery of Oil Coolers (Tube Bundles) for 20 MVA 11/220 KV CGL make Generator Transformers of 4x50 MW Kopili Power Station. (Unit-1 & 2)		(-)2.00
10	Supply and Delivery of cables to Kopili Hydro Electric Plant. (Unit-1 & 2)		(-)2.00
11	Supply, installation testing & commissioning of 2(two) no. of Spare Winding Limbs comprising of HV. LV & Tap Coil for 20 MVA, 11/220 KV EMCO make Generator Transformer of Kopili P.S., KHEP. (Unit-1 & 2)		(-)43.00
12	Supply and Delivery of 70:30 Cu:Ni Cooler tubes required for BHEL make Hydro Turbine Generators of 4x50 MW Kopili Power Station. (Unit-1&2)		(-)2.00
13	Supply of SS pipe & other SS materials of 304 grade. (Unit-1 & 2)		(-)2.00
14	Supply, installation, testing & commissioning of 2 nos of IngersolRand make HP Air Compressor (1 no. unit1&2 side and other Unit-3&4 side)		(-)2.00



15	Design, Engineering, manufacturing & supply of twin tube type / Oil Forced Air Forced heat exchanger for generator transformer (Phase-1). Unit-1&2	(-)7.00
<b>Total de-capitalization projected for 2014-15</b>		<b>(-)962.00</b>
<b>2015-16</b>		
1	Major overhauling works of Unit-4 including supply of consumables	(-)1.00
2	Installation & Commissioning of New Governing System suitable for implementation of FGMO/RGMO in BHEL make Hydro Turbine Generator Unit 3&4 (2x50 MW) of Kopili P.S.	(-)2.00
3	Supply & Commissioning of Numerical Protection system for Unit-1 & 2 (Generator and Unit Control Panel)	(-)9.00
4	Supply and commissioning of SF6 Breaker for 220kV Kopili-Misa feeder-III	(-)14.00
5	Supply, installation, testing & commissioning of Coil for 3-phase 5MVA Station Service transformer.	(-)2.00
6	Supply, installation, testing & commissioning of TGB Cooler Tube Bundles. Unit 3&4	(-)39.00
7	Supply, installation, testing & commissioning of 2 sets of New Battery Bank for providing DC supply to the control panels of the units.	(-)111.00
8	Supply, installation, testing & commissioning of New Battery Charger.	(-)23.00
9	Renovation & Modernisation including installation & commissioning of Fire Fighting System	(-)6.00
10	Design, Engineering, manufacturing & supply of twin tube type / Oil Forced Air Forced heat exchanger for generator transformer (phase-1). Unit-1&2	(-)7.00
11	Supply, installation, testing & commissioning of New DC Distribution Board due to technical obsolescence.	(-)16.00
12	Supply, installation, testing & commissioning of New 3-phase 5MVA Station Service Transformer	(-)22.00
<b>Total de-capitalization projected for 2015-16</b>		<b>(-)252.00</b>
<b>2016-17</b>		
1	Supply & Commissioning of Numerical Protection system for Unit-3 & 4 (Generator and Unit Control Panel) including LBB protection	(-)59.00
2	Design, Engineering, manufacturing & supply of twin tube type / Oil Forced Air Forced heat exchanger for generator transformer (Phase-2). Unit 3&4	(-)16.00
3	Manufacture , shop testing, supply and delivery of 73:30 Cu:Ni / Super Duplex Oil Cooler Tubes to Kopili Hydro Electric Plant (for Unit-1&2)	(-)2.00
4	Replacement of cooling water header pipe line with Stain less steel pipes (for Unit-3&4)	(-)20.00
<b>Total de-capitalization projected for 2016-17</b>		<b>(-)97.00</b>
<b>2017-18</b>		
1	Design, Engineering, manufacturing & supply of twin tube type / Oil Forced Air Forced heat exchanger for generator transformer (Phase-3). Unit 3&4	(-)16.00
2	Replacement of cooling water header line with SS pipes (for Unit-1&2)	(-)27.00
3	Supply, installation, testing & commissioning of Stainless Steel Gate Valve of different size (for all four units)	(-)29.00
4	Major Over Hauling Works related to Unit 3 & 4 of Kopli Power Station	(-)2399.00
<b>Total de-capitalization projected for 2017-18</b>		<b>(-)2471.00</b>
<b>2018-19</b>		
1	Supply, installation, testing & commissioning of 3 nos of Cooling Water Pump for Unit-3 & 4 side.	(-)23.00
2	Manufacture , shop testing, supply and delivery of 73:30 Cu:Ni / Super Duplex Oil Cooler Tubes to Kopili Hydro Electric Plant - Unit 3&4	(-)35.00
<b>Total de-capitalization projected for 2018-19</b>		<b>(-)58.00</b>



17. Considering the fact that the capitalization of expenditure on replacement of assets of revenue nature e.g. overhauling expenditure, replacement of cooler tube bundles, spares, etc. has not been allowed. The corresponding projected deletions have also been ignored for the purpose of tariff. However, the petitioner is directed that any asset de-capitalized from books of accounts then the same will also be de-capitalized for the purpose of tariff provided that the same is in the capital base for the purpose of tariff. In case petitioner is able to prove that the de-capitalized asset is not a part of capital base for the purpose of tariff then the de-capitalization is ignored for the purpose of tariff. As such, the onus of proving that the de-capitalized asset is not a part of capital base would be on the petitioner.

18. In view of the above the de-capitalization projected and considered for the period 2014-19 corresponding to the assets allowed under replacement is as under, subject to review at the time of final truing-up:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
De-capitalization projected	(-)962.00	(-)252.00	(-)97.00	(-)2471.00	(-)59.00
De-capitalization allowed	(-)90.00	(-)197.00	(-)75.00	(-)43.00	(-)23.00

19. Based on additional capital expenditure allowed and deletions considered, the net additional capital expenditure allowed is as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Additional capital expenditure allowed	720.87	756.44	190.00	190.00	60.00
De-capitalization allowed	(-)90.00	(-)197.00	(-)75.00	(-)43.00	(-)23.00
Net additional capital expenditure allowed	630.87	559.44	115.00	147.00	37.00

### Capital Cost for 2014-19

20. As stated, the closing capital cost as on 31.3.2014 is ₹ 27835.74 lakh. The same has been considered as the opening capital cost as on 1.4.2014. Accordingly, the capital cost considered for the purpose of tariff for the period 2014-19 is as under:



	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	27835.74	28466.61	29026.05	29141.05	29288.05
Additional Capital expenditure allowed	630.87	559.44	115.00	147.00	37.00
<b>Capital Cost as on 31<sup>st</sup> March of the year</b>	<b>28466.61</b>	<b>29026.05</b>	<b>29141.05</b>	<b>29288.05</b>	<b>29325.05</b>

### Return on Equity

21. 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.

22. 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:*

$$\text{Rate of pre-tax return on equity} = \text{Base rate} / (1-t)$$

*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."*

23. The rate of Return on Equity (RoE) claimed by the petitioner is as under:

	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
Base Rate	16.500%	16.500%	16.500%	16.500%	16.500%
Effective Tax Rate	20.961%	30.795%	33.990%	33.990%	33.990%
<b>Rate of ROE (pre-tax)</b>	20.876%	23.842%	24.996%	24.996%	24.996%

24. With regard to tax rate claimed for the purpose of grossing up of RoE, the Commission vide ROP dated 7.4.2015 directed the petitioner to submit clarifications/information on the following:

*“The applicable tax rate for grossing up of Return on Equity as claimed by the petitioner is Minimum Alternate Tax rate for the year 2014-15 and Corporate Tax rate for the years 2015-16 to 2018-19. Clarification/ justification for the change in applicable tax rate claimed”*

25. In response, the petitioner vide affidavit dated 10.6.2015 has submitted as under:



## 2014-15

After availing available MAT credit during the financial year 2014-15, it is estimated that the effective tax rate applicable for NEEPCO for the FY 2014-15 is expected to be the MAT rate only and accordingly the same has been considered.

## 2015-16

It is estimated that during the FY 2015-16, the balance of the MAT credit available will be exhausted resulting in the expected effective tax rate for NEEPCO considered, which is more than MAT rate but lower than corporate tax rate”

## 2016-17 to 2018-19

It is expected that total MAT credit available will be exhausted during the FY 2015-16. Accordingly, NEEPCO will continue to paying normal corporate tax since the FY 2016-17 and accordingly, the same has been considered”.

26. As per Regulation, effective tax rate is to be considered on the basis of actual tax paid in the respect of the financial year. Accordingly, the tax rates as claimed by the petitioner on projection basis have not been considered for the purpose of determination of tariff. Tax Rate as applicable for 2014-15 is considered for all the years of tariff. However, the petitioner is directed to furnish the detailed calculation of the effective tax rate, duly certified by Auditor and supported by tax audit report for the respective years, at the time of revision of tariff based on true-up exercise in terms of the 2014 Tariff Regulations. Return on Equity has been computed as under:

	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Notional Equity	13489.70	13678.96	13846.79	13881.29	13925.39
Addition due to additional capital expenditure	189.26	167.83	34.50	44.10	11.10
<b>Closing Equity</b>	<b>13678.96</b>	<b>13846.79</b>	<b>13881.29</b>	<b>13925.39</b>	<b>13936.49</b>
Average Equity	13584.33	13762.88	13864.04	13903.34	13930.94
Rate of ROE (pre-tax)	20.876%	20.876%	20.876%	20.876%	20.876%
<b>Return on Equity</b>	<b>2835.82</b>	<b>2,873.09</b>	<b>2,894.21</b>	<b>2,902.41</b>	<b>2,908.17</b>

## Interest on Loan

27. 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 de-capitalization 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 upto the date of de-capitalisation 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 re-financing 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."*

28. The normative loan of the project has already been repaid. The normative loan on account of admitted additional capital expenditure during the respective year of the tariff period has also been considered as paid fully, as the admitted depreciation is more than the amount of normative loan in these years. Accordingly, Interest on Loan during the period 2014-19 is Nil.





## Depreciation

29. 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 licensee, 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 de-capitalized asset during its useful services.”

30. The COD of the generating station is 12.7.1997. As such, the generating station has completed 12 years of operation as on 12.7.2009, the remaining depreciable value has been spread over the balance useful life of the project. Accordingly, depreciation has been worked out as follows:

(₹ in lakh)					
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Gross block	27835.74	28466.61	29026.05	29141.05	29288.05
Additional capital expenditure during 2014-19	630.87	559.44	115.00	147.00	37.00
Closing gross block	28466.61	29026.05	29141.05	29288.05	29325.05
Average gross block	28151.17	28746.33	29083.55	29214.55	29306.55
Depreciable Value	25336.05	25871.69	26175.19	26293.09	26375.89
Balance Useful life of the asset	18.28	17.28	16.28	15.28	14.28
Remaining Depreciable Value	10779.70	10773.93	10560.96	10072.01	9520.48
<b>Depreciation</b>	<b>589.68</b>	<b>623.47</b>	<b>648.69</b>	<b>659.14</b>	<b>666.67</b>

### Operation & Maintenance Expenses

31. Regulation 29 (3) (a) of the 2014 Tariff Regulations provides as under:

#### **29. Operation and Maintenance Expenses:**

(3) Hydro Generating Station

(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 01.04.2014:

(₹ in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
6132.72	6540.18	6974.71	7438.11	7932.30

32. The petitioner has claimed the O&M expenses as per the above norms. The generating station is in operation for three or more years as on 1.4.2014. Accordingly, in terms



of sub-section (a) of clause (3) of Regulation 29 of the 2014 Tariff Regulations, the year-wise O&M expense norms claimed by the petitioner as above is allowed for the period 2014-19.

### **Interest on working capital**

33. Sub-section (c) of Clause (1) of Regulation 28 of the 2014 Tariff Regulations provides as under:

#### **28. Interest on Working Capital:**

(1) *The working capital shall cover*

(a) *Hydro generating station including pumped storage hydro electric 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.*

34. Clause (3) of Regulation 28 of the 2014 Tariff Regulations provides that the 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.”

35. Accordingly, the receivables equivalent to two months of fixed cost is allowed as under:

<i>(₹ in lakh)</i>				
<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
1662.64	1,746.42	1,830.74	1,915.42	2,004.61

36. Maintenance spares @15% of the OM expenses is worked out and allowed as under:

<i>(₹ in lakh)</i>				
<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
919.91	981.03	1046.21	1115.72	1189.85

37. O&M Expenses for one month is worked out and allowed as under:

<i>(₹ in lakh)</i>				
<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
511.06	545.02	581.23	619.84	661.03



38. In terms of the above regulations, Bank Rate of 13.50% (Base Rate + 350 Basis Points) as on 1.4.2014 claimed by the petitioner has been considered in the calculations for working capital.

39. Necessary computations in support of interest on working capital are as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	919.91	981.03	1046.21	1115.72	1189.85
O & M expenses	511.06	545.02	581.23	619.84	661.03
Receivables	1662.64	1,746.42	1,830.74	1,915.42	2,004.61
Total	3093.61	3,272.46	3,458.18	3,650.98	3,855.48
<b>Interest on Working Capital</b>	<b>417.64</b>	<b>441.78</b>	<b>466.85</b>	<b>492.88</b>	<b>520.49</b>

40. Accordingly, the annual fixed charges approved for the generating station for the period from 1.4.2014 to 31.3.2019 is summarized as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Return on Equity	2835.82	2,873.09	2,894.21	2,902.41	2,908.17
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Depreciation	589.68	623.47	648.69	659.14	666.67
Interest on Working Capital	417.64	441.78	466.85	492.88	520.49
O & M Expenses	6132.72	6540.18	6974.71	7438.11	7932.30
<b>Annual Fixed Charges</b>	<b>9975.85</b>	<b>10,478.52</b>	<b>10,984.46</b>	<b>11,492.54</b>	<b>12,027.64</b>

### Normative Annual Plant Availability Factor

41. 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, the NAPAF of 79% has been considered for this generating station.

### Design Energy

42. The Commission in its order dated 10.5.2011 in Petition No.294/2009 had approved the annual Design Energy (DE) of 1186.14 Million units for the period 2009-14 in respect of this generating station. This DE has been considered for this generating station for the period 2014-19 as per month-wise details as under:



Month	Design Energy (MUs)
April	58.03
May	148.80
June	144.00
July	148.80
August	148.80
September	144.00
October	118.30
November	54.72
December	56.54
January	56.54
February	51.07
March	56.54
<b>Total</b>	<b>1186.14</b>

### Enhancement of O&M expenses

43. The petitioner in the petition has submitted that the salary & wages of the employees of the petitioner will be due from 1.1.2017. It has further submitted that the petition has been submitted considering the O&M expenses in terms of Regulation 29(3)(a) of the 2014 Tariff Regulations and the yearly escalation provided in the O&M expenses may not cover the enhanced employee cost due to the aforesaid pay revision. Accordingly, the petitioner has sought liberty to approach the Commission for seeking enhancement in the O&M expenses with effect from 1.1.2017 due to pay revision, if any, under Regulation 54 and 55 of the 2014 Tariff Regulations. The matter has been examined. On this issue, the Commission in the Statement of Reasons to the 2014 Tariff Regulations has observed 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 macro economics 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”*

44. Accordingly, the prayer of the petitioner for enhancement of O&M expenses if any, due to pay revision may be examined by the Commission, on a case to case basis, subject to the



implementation of pay revision as per DPE guidelines and the filing of an appropriate application by the petitioner in this regard.

### **Application Fee and Publication Expenses**

45. The petitioner has sought the reimbursement of filing fee and also the expenses incurred towards publication of notices for application of tariff for the period 2014-19. The petitioner has deposited the filing fees for the period 2014-19 in terms of the provisions of the Central Electricity Regulatory Commission (Payment of Fees) Regulations, 2012. The petitioner has incurred charges towards publication of the said tariff petition in the newspapers. Accordingly, in terms of Regulation 52 of the 2014 Tariff Regulations, and the decision of the Commission in order dated 6.1.2016 in Petition No.232/GT/2014, the petitioner is entitled to recover the filing fees and the expenses incurred on publication of notices for the period 2014-19 directly from the respondents. Accordingly, the expenses incurred by the petitioner towards tariff application filing fees and publication of notices in connection with the present petition shall be directly recovered from the respondent beneficiaries on pro rata basis.

46. The annual fixed charges approved for the period 2014-19 as above are subject to truing-up in terms of Regulation 8 of the 2014 Tariff Regulations.

47. Petition No. 46/GT/2015 is disposed of in terms of the above.

**-Sd/-**  
**(A.S. Bakshi)**  
**Member**

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

**-Sd/-**  
**(Gireesh B.Pradhan)**  
**Chairperson**

