

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 246/GT/2020

Coram:

**Shri I. S. Jha, Member
Shri Arun Goyal, Member
Shri Pravas Kumar Singh, Member**

Date of Order: 26th October, 2023

In the matter of:

Petition for determination of tariff of Agartala Gas Turbine Combined Cycle Power Plant (135 MW) of North Eastern Electric Power Corporation Limited for the period 2019-24.

And

In the matter of:

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

...Petitioner

Vs

1. Assam Power Distribution Company Limited,
"Bijulee Bhawan", Paltan bazar,
Guwahati-781 001

2. Meghalaya Energy Corporation Limited,
Meter Factory Area, Short Round road,
Integrated Office Complex
Shillong – 793001, Meghalaya

3. Tripura State Electricity Corporation Limited,
Vidyut Bhawan, North Banamalipur,
Agartala, Tripura – 799001

4. Power and Electricity Department,
Government of Mizoram,
Aizawal, Mizoram – 796001

5. Manipur State Power Distribution Company Limited,
Government of Manipur, Keishampat,
Imphal, Manipur – 795001



6. Department of Power,
Government of Arunachal Pradesh,
Vidyut Bhawan,
Itanagar – 791111

7. Department of Power,
Government of Nagaland,
Kohima – 797 001

8. North Eastern Regional Power Committee,
NERPC Complex, Dong Parmaw2,
Lapalang, Shillong 793006, Meghalaya

9. North Eastern Regional Load Despatch Centre,
Dogtieh, Lower Nongrah, Lapalang,
Shillong 793006, Meghalaya

....Respondents

Parties Present:

Shri Devapriya Choudhury, NEEPCO
Shri Sushanta Deka, NEEPCO
Shri Munin Choudhury, NEEPCO
Shri Ripunjoy Bhuyan, NEEPCO
Ms. Bornali Deori, NEEPCO
Ms. Elizabeth Pyrbot, NEEPCO
Shri Indrajit Tahbildar, APDCL
Shri Nil Madhab Deb, APDCL

ORDER

This Petition has been filed by the Petitioner NEEPCO for approval of tariff of Agartala Gas Turbine Combined Cycle Power Plant (135 MW) (in short ‘the generating station’) for the period 2019-24, in accordance with the provisions of the Central Electricity Regulatory Commission (Terms & Conditions of Tariff) Regulations, 2019 (in short ‘the 2019 Tariff Regulations’).

2. The generating station with an installed capacity of 135 MW comprises of Four Gas Turbine (GT) units of 21 MW each and two Steam Turbine (ST) units of 25.5 MW. The beneficiaries of the North-Eastern States have been allocated full capacity of 135 MW from



the generating station. The generating station, with an installed capacity of 84 MW and operating in open cycle mode, was declared under commercial operation (COD) on 1.8.1998. The generating station was converted into a Combined Cycle Power Plant with the addition of two Steam Turbine Generating units (STG) comprising of a capacity of 25.5 MW each, with effect from 29.7.2015 and 1.9.2015 respectively. Accordingly, the COD of the units of the generating station are as under:

	Capacity (MW)	Date of Commercial Operation (COD)
Unit – I (GT)	21	1.4.1998
Unit – II (GT)	21	1.4.1998
Unit – III (GT)	21	1.4.1998
Unit – IV (GT)	21	1.8.1998
Unit – V (ST)	25.5	29.7.2015
Unit – VI (ST) / Generating Station	25.5	1.9.2015

2. In Petition No. 32/GT/2020 filed by the Petitioner for revision of tariff of the generating station, based on truing up of tariff for the period 2014-19, the Commission vide its order dated 28.7.2023 approved the capital cost and annual fixed charges of the generating station for the 2014-19 tariff period, as follows:

Capital Cost allowed

(Rs. in lakh)

	2014-15	2015-16			2016-17	2017-18	2018-19
		(1.4.2015 to 28.7.2015)	(29.7.2015 to 31.8.2015)	(1.9.2015 to 31.3.2016)			
Opening Capital Cost	34172.61	34165.67	48962.49	62315.76	62936.84	63402.82	65032.15
Add: Addition during the year / period	(-) 6.94	0.00	0.00	621.08	136.29	1216.46	89.22
Less: De-capitalization during the year / period	0.00	0.00	0.00	0.00	11.28	351.73	62.54
Less: Reversal during the year / period	0.00	0.00	0.00	0.00	79.28	0.00	0.00
Add: Discharges during the year / period*	0.00	0.00	0.00	0.00	420.25	764.59	234.66
Closing Gross Block	34165.67	34165.67	48962.49	62936.84	63402.82	65032.15	65293.48
Average Gross Block	34169.14	34165.67	48962.49	62626.30	63169.83	64217.48	65162.81



Annual Fixed Charges allowed

(Rs. in lakh)

	2014-15	2015-16			2016-17	2017-18	2018-19
		1.4.2015 to 28.7.2015	29.7.2015 to 31.8.2015	1.9.2015 to 31.3.2016			
Depreciation (A)	540.72	175.69	118.14	1135.11	2000.01	2088.81	2245.12
Interest on Loan (B)	0.00	0.00	35.91	420.20	789.35	831.33	1005.73
Return on Equity (C)	3242.33	1134.62	410.45	3070.38	6016.10	5476.44	5117.59
Interest on Working Capital (D)	966.51	342.55	122.65	758.84	1081.54	1064.44	1329.70
O&M Expenses (E)	3470.88	1205.53	363.15	2804.79	5147.55	5498.55	5872.50
Total AFC (G) = (A+B+C+D+E)	8220.44	2858.39	1050.28	8189.33	15034.55	14959.57	15570.64

Present Petition

3. The Petitioner vide affidavit dated 7.1.2020, has filed the present Petition for determination of tariff for the generating station for the period 2019-24, in terms of the 2019 Tariff Regulations. Accordingly, the annual fixed charges and the capital cost claimed by the Petitioner (as per the revised Form I and Form I(i) submitted vide affidavit dated 19.8.2021) are as follows:

Capital cost

(Rs in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Capital Cost	68333.64	71712.52	73358.08	73640.00	73708.88
Add: Addition during the year/period	3450.71	1665.73	283.80	72.50	0.00
Less: De-capitalization during the year/period	91.21	20.17	1.87	3.63	0.00
Add: Discharges during the year/ period	19.38	0.00	0.00	0.00	0.00
Closing Capital Cost	71712.52	73358.08	73640.00	73708.88	73708.88
Average Capital Cost	70023.08	72535.30	73499.04	73674.44	73708.88

Annual Fixed Charges

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	1767.64	2427.01	2773.92	2845.64	2953.57
Interest on Loan	862.07	840.21	715.96	542.60	357.07
Return on Equity	5104.39	5153.38	5172.03	5175.43	5176.10



Interest on Working Capital	2707.68	2655.48	2727.57	2795.30	2865.87
O&M Expenses	4888.35	5059.80	5238.00	5421.60	5611.95
Annual Fixed Charges	15330.13	16135.88	16627.48	16780.57	16964.56

4. The Respondent No.1, Assam Power Distribution Company Limited (APDCL) has filed its reply vide affidavit dated 20.7.2021 and the Petitioner vide affidavit dated 19.8.2021 has filed its rejoinder to the said reply. This Petition along with Petition No. 32/GT/2020 (tariff of the generating station for the period 2014-19 after truing up exercise) was heard on 18.11.2021 and 10.8.2022, and the Petitioner was directed to submit certain additional information. In response, the Petitioner vide affidavits dated 16.12.2021 and 8.9.2022, respectively has submitted the additional information, after serving copies on the Respondents. The Petition was again heard on 20.9.2022, and the Commission, after directing the Petitioner to submit certain additional information, reserved its order in these Petitions. In response, the Petitioner vide affidavit dated 10.10.2022 has filed the additional information, after serving copies on the Respondents. As stated, Petition No.32/GT/2020 has been disposed of vide order dated 28.7.2023. Taking into consideration, the submissions of the parties and the documents available on record, we now proceed to examine the claims of the Petitioner, in this Petition, on prudence check, as stated in the subsequent paragraphs.

Capital Cost

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

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

(a) Capital cost admitted by the Commission prior to 1.4.2019 duly trued up by excluding liability, if any, as on 1.4.2019.



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

6. The annual fixed charges claimed by the Petitioner, are based on the opening capital cost of Rs. 68333.64 lakh. However, the Commission vide its order dated 28.7.2023 in Petition No. 32/GT/2020 had approved the closing capital cost of Rs. 65293.48 lakh, on cash basis, as on 31.3.2019. Accordingly, in terms of Regulation 19(3) of the 2019 Tariff Regulations, the capital cost of Rs. 65293.48 lakh, on cash basis, as on 31.3.2019, has been considered as the opening capital cost, as on 1.4.2019 for determination of tariff for the period 2019-24.

Additional Capital Expenditure

7. Regulation 24 of the 2019 Tariff Regulations provides as under:

"24. Additional Capitalization within the original scope and upto the cut-off date:

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

- (a) Undischarged liabilities recognized to be payable at a future date;*
- (b) Works deferred for execution;*
- (c) Procurement of initial capital spares within the original scope of work, in accordance with the provisions of Regulation 23 of these regulations;*
- (d) Liabilities to meet award of arbitration or for compliance of the directions or order of any statutory authority or order or decree of any court of law;*
- (e) Change in law or compliance of any existing law; and*
- (f) Force Majeure events:*

Provided that in case of any replacement of the assets, the additional capitalization shall be worked out after adjusting the gross fixed assets and cumulative depreciation of the assets replaced on account of de-capitalization.

(2) The generating company or the transmission licensee, as the case may be shall submit the details of works asset wise/work wise included in the original scope of work along with estimates of expenditure, liabilities recognized to be payable at a future date and the works deferred for execution."



8. Regulation 25 of the 2019 Tariff Regulations provides as follows:

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

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

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

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

(c) Deferred works relating to ash pond or ash handling system in the original scope of work;

(d) Liability for works executed prior to the cut-off date;

(e) Force Majeure events;

(f) Liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments; and (g) Raising of ash dyke as a part of ash disposal system.

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

(a) The useful life of the assets is not commensurate with the useful life of the project and such assets have been fully depreciated in accordance with the provisions of these regulations;

(b) The replacement of the asset or equipment is necessary on account of change in law or Force Majeure conditions;

(c) The replacement of such asset or equipment is necessary on account of obsolescence of technology; and

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

9. Regulation 26 of the 2019 Tariff Regulations provides as under:

“26. Additional Capitalization beyond the original scope:

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

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

(f) Change in law or compliance of any existing law;

(g) Force Majeure events;

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

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

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

(j) Usage of water from sewage treatment plant in thermal generating station “



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

10. The year-wise projected additional capital expenditure claimed by the Petitioner are as under:

(Rs. in lakh)

Sl no.	Particulars	Regulation	2019-20	2020-21	2021-22	2022-23	2023-24
A	Additional Capital Expenditure						
1	Procurement of 1 No. new Generator Rotor for GT#4	25(2)	1463.00	0.00	0.00	0.00	0.00
2	Replacement of Load Coupler of GT#4		127.33	0.00	0.00	0.00	0.00
3	Procurement of one no. Load Coupler for keeping as spare.	35(1)(6)	127.33	0.00	0.00	0.00	0.00
4	Procurement of Auto Recirculation Valve for Boiler Feed Pump	Capital spares	24.81	0.00	0.00	0.00	0.00
5	Procurement of Capital Spares for Major Inspection of GT#2	35(1)(6)	969.79	0.00	0.00	0.00	0.00
6	Procurement of Capital Spares for HGPI of GT#3		190.00	0.00	0.00	0.00	0.00
7	Upgradation from AVR to DVR of All Gas Turbine Generators	25(1)(f)	94.97	0.00	0.00	0.00	0.00
8	Procurement of 2 No. 145 kV SF6 Circuit Breakers for replacement against old Circuit Breakers of GTG#1 & 2		23.75	0.00	0.00	0.00	0.00
9	Procurement and Installation of 125 V Battery Chargers		25.03	0.00	0.00	0.00	0.00
10	Procurement and Installation of 220 V Battery Chargers		3.31	0.00	0.00	0.00	0.00
11	Procurement and Installation of 1 No. GT Cooler Radiator.		28.50	0.00	0.00	0.00	0.00
12	Renovation and Modification of SSB Panels	25(2)	8.03	0.00	0.00	0.00	0.00
13	Procurement of Relay Time Sync kit and installation and commissioning.	26(1)(a)	7.24	0.00	0.00	0.00	0.00
14	Procurement of one set of Special T&P for Steam Turbine	35(1)(6)	1.80	0.00	0.00	0.00	0.00
15	Spare Valve for LP ESV for STG		40.68	0.00	0.00	0.00	0.00
16	Supply and installation of Display Board for display of emission data, viz., Sox, Nox, CO2, etc. at Main Gate for public view	26 (1) (d)	3.54	0.00	0.00	0.00	0.00
17	Modification of GT Cooler GTG # 4	25(2)(c)	62.77	0.00	0.00	0.00	0.00
18	Construction of Security Road (1200.00 m)	26(1)(d)	124.29	0.00	0.00	0.00	0.00
19	Procurement of 1 (one) set of Bearing for Load Gear Box of Gas Turbine	35(1)(6)	124.54	0.00	0.00	0.00	0.00
20	Procurement of Capital Spares of MI of GT#1		0.00	969.79	0.00	0.00	0.00
21	Procurement of 6 No. of GT Cooling Water Pumps with Motors	25(2)(d)	0.00	26.55	0.00	0.00	0.00
22	Torque Converter Assembly for Gas Turbine Unit#1	25(2)(c)	0.00	122.34	0.00	0.00	0.00



Sl no.	Particulars	Regulation	2019-20	2020-21	2021-22	2022-23	2023-24
23	Procurement of Skid Cable for Gas Turbine Control System for GTG#1 and GTG#2 and installation	25(2)(c)	0.00	202.44	0.00	0.00	0.00
24	Procurement and Installation of SCADA	26(1)(a)	0.00	57.38	0.00	0.00	0.00
25	Renovation and upgradation of Firefighting System	26(1)(d)	0.00	20.00	0.00	0.00	0.00
26	Procurement and installation of Back-up protection relay of Generators		0.00	31.62	0.00	0.00	0.00
27	Modification of Generator Cooler of Unit#1	25(2) (c)	0.00	62.77	0.00	0.00	0.00
28	Procurement of 98.1 Ton Capacity Low height hydraulic Jack	35(1)(6)	0.00	1.74	0.00	0.00	0.00
29	Procurement of 3 Ton, 3.6 Meter Mas, Model 30 D, Diesel Operated Forklift Truck	26(1)(d)	0.00	10.44	0.00	0.00	0.00
30	Procurement of Tan Delta Test Kit		0.00	61.75	0.00	0.00	0.00
31	Renovation of Acid and Alkali Pipeline of DM Plant	25(2)(c)	0.00	17.29	0.00	0.00	0.00
32	Construction of colony road connecting the new Guest House	76&77	0.00	42.98	0.00	0.00	0.00
33	Procurement of 2 (No.) online condition monitoring of Generator Transformers	26(1)(d)	0.00	58.64	58.64	58.64	-
34	Installation of 1(one) deep tube well at Colony Complex	76&77	0.00	-	25.00	0.00	0.00
35	Torque Converter Assembly for Gas Turbine # 2	25(2)(c)	0.00	0.00	122.34	0.00	0.00
36	"Implementation of Zero Liquid Discharge, involving 1. Construction of a 20m x10m x2 m R.C.C. Tank. 2. Construction of 300 m long storm water drains, 3. Provision for screening at the entrance to the Treatment Tank 4. Procurement & installation of suitable Oil Skimmer 5. Procurement & installation of suitable Chemical Dosing Equipment 6. Procurement & installation of suitable capacity pump(s) for pumping water to the existing Raw Water Reservoir and pipe line (150m approximate) from the proposed Treatment Tank to the RWR.	26(1)(d)	0.00	0.00	99.00	0.00	0.00
37	Procurement and installation of Numerical Protection Relay in Generator Transformer of Gas Turbine & Station Transformer (7 Nos.in GT and 3 No. Station Transformer (Considering main and back up protection relay)	25(2)(c)	0.00	0.00	37.46	0.00	0.00
38	Modification of Generator Cooler of Unit#2		0.00	0.00	65.00	0.00	0.00
39	Replacement of 5 (five) No. 145 kV pneumatic operated Circuit Breaker with Spring Operated Breaker for replacement against old CBs of GTG#3, #4, Station Transformer #1 and 2 and for Bus Coupler		0.00	0.00	0.00	72.50	0.00
40	Torque Converter Assembly for Gas Turbine # 3		0.00	0.00	0.00	122.34	0.00
41	Modification of Generator Cooler of Unit#3		0.00	0.00	0.00	62.77	0.00
42	Construction of 2 units of C-type Quarters (Double storey)	76&77	0.00	0.00	0.00	209.00	0.00
43	Modification of GT Cooler GTG # 1 & 3	25(2)(c)	0.00	0.00	0.00	130.00	0.00
44	Procurement of Spares for 3rd MI of GT#3	35(1)(6)	0.00	0.00	0.00	969.79	0.00



Sl no.	Particulars	Regulation	2019-20	2020-21	2021-22	2022-23	2023-24
45	Procurement of New GT Rotor	25(2)	0.00	0.00	0.00	1427.35	0.00
46	Construction of Overhead Water Tank at plant site	76&77	0.00	0.00	0.00	0.00	42.00
47	Torque Converter Assembly for Gas Turbine # 4	25(2)(c)	0.00	0.00	0.00	0.00	122.34
48	Modification of Generator Cooler of Unit#4		0.00	0.00	0.00	0.00	65.00
49	Refurbishment of old Gas Turbine Rotor of GT#3		0.00	0.00	0.00	0.00	1089.90
			3450.71	1685.73	407.44	3052.39	1319.24
B	Less: De-capitalization during the year/period		91.21	21.17	5.12	37.74	78.25
C	Sub Total A - B		3359.50	1664.56	402.32	3014.65	1240.99
D	Discharge of Liabilities		19.38	0.00	0.00	0.00	0.00
	Total Additional Capital Expenditure claimed C + D		3378.87	1664.56	402.32	3014.65	1240.99

11. The COD of the open cycle (GT) of the generating station is 1.8.1998. However, with the introduction of two additional Steam Turbine Generating units, with effect from 29.7.2015 and 1.9.2015, the COD of the combined cycle generating station (i.e. only STG) is 1.9.2015. Accordingly, in terms of the 2014 Tariff Regulations, the cut-off date of STG is 31.3.2018. It is observed that the Petitioner has claimed certain additional capital expenditure in terms of Regulations 25, 26, 35, 76 and Regulation 77 of the 2019 Tariff Regulations and the same is examined below:

2019-20

(Rs. in lakh)

Sl. No	Head of Work/ Equipment	Regulation	Justification of Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
1	Procurement of 1 No. new Generator Rotor for GT#4	25(2)	GTG#4 tripped on 12.07.2018 due to electrical fault. On detailed inspection of Generator after threading out the Rotor, it was observed that MTS Bolt of Rotor sheared off and damaged the adjacent 3-4 no. of Stator Bars. M/S GE Power India (Pvt.) Ltd. suggested for sending the Rotor to their works for thorough inspection and repair. They ruled out further inspection and repairing at site and repairing of the rotor at their works would take minimum 6-8 months for completion. It was explored to repair the Rotor through BHEL	1463.00	The Petitioner has procured a new Generator Rotor, with the approval of competent authority considering the fact that the new Generator Rotor, could be installed with lesser restoration time. The projected expenditure claimed for the asset is in the nature of spares. In view of this, we are not inclined to allow the same as additional capital expenditure. However, Since, the Petitioner has already replaced the generator rotor, the same is allowed as part of capital	1463.00 (allowed as Capital spares)



Sl. No	Head of Work/ Equipment	Regulation	Justification of Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
			also. M/S BHEL also quoted repairing time as 7-8 months from the date of receipt of materials at their end. Fortunately, one new Generator Rotor was available with GE Global Parts & Products GmbH. Therefore, the competent authority decided to procure one New Generator Rotor, considering the fact that restoring of the unit with old repaired Generator Rotor would take almost 10-12 months including to and for travel time and one-month commissioning time, whereas with New Generator Rotor, restoration of the unit would be within 3-4 months, which would minimize generation as well as revenue loss at great extent. Accordingly, an order was placed on M/S GE Global Parts & Products GmbH, vide Order No. NEEPCO/ AGTCCPP/ C&P/T-43/2018-19/803, Dt. 14.12.2018. Installation and commissioning completed on 24.04.2019. Generator Rotor is a major Capital Spares. As such, as per Tariff Regulation - 2019, Clause 35 (6), expenditures against Capital Spares is reimbursable.		spares under O&M expenses separately.	
2	Replacement of Load Coupler of GT#4	25(2)	Load Coupler of GT#4 is worn out and causing vibration problem. OEM has recommended to replace the Load Coupler. Already an order was placed on BGGTS for keeping one Load Coupler as spare. However, the same will be used in Unit#4. Load Coupler is a capital spare. As such, as per Tariff Regulation - 2019, Clause 35 (6), expenditures against Capital Spares is reimbursable.	127.33	The Petitioner has claimed the expenditure under Regulation 25(2) but has not mentioned the relevant subclause under which claimed. It is observed from the submissions of the Petitioner that the projected expenditure claimed for the asset is in the nature of spares. In view of this, the claim is not allowed . However, the Petitioner is at liberty to claim the same as part of capital spares under O&M expenses, as and when they are put to use.	0.00



Sl. No	Head of Work/ Equipment	Regulation	Justification of Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
3	Procurement of one no. Load Coupler for keeping as spare.	35(1)(6)	Gear Teeth damage in load coupler has already occurred in GT#1 and GT#4. It may kindly be noted that damaged Load Coupler causes vibration problem in Gas Turbine. Restoration of Gas Turbine from vibration problem may take couples of weeks leading to generation as well as revenue loss. As the Gas Turbines has aged more than 20 years and seeing the condition in GT#1 and GT#4, it apprehended that Gear Teeth Failure in GT#2 and 3 may also fail. As such, it is proposed to keep one Load Coupler as spare to meet any eventuality against GT#2 & 3. As per Tariff Regulation - 2019, Clause No. 35 (6), expenditure against Capital spares is reimbursable	127.33	The Petitioner has claimed the expenditure under Regulation 35(1)(6) of the 2019, Tariff Regulations which provides for capital spares to be allowed separately after consumption. Since the projected expenditure claimed for the asset is in the nature of spares, the claim is not allowed . However, the Petitioner is at liberty to claim the same as part of capital spares under O&M expenses, as and when they are put to use.	0.00
4	Procurement of Auto Recirculation Valve for Boiler Feed Pump	Capital spares	There are 8 (eight) number of BFPs at AGTCCPP. Each BFP has one Air Recirculation Valve. The valve is fitted with KSB make Boiler Feed Pump (BFP) for controlling discharge water from the BFP. The ARC valve may got damaged due to overheating and cavitation. Due to its intricacy repairing of the valve at site is not possible. The material is imported item and lead time delivery is very long. In case of sudden damage of ARC Valve, the particular BFP will be under shut down for long period and may jeopardize availability of Boiler in case the standby BFP also undergo shutdown due to some other reason. As such, it is proposed to procure 2(two) number of ARC valve to maintain minimum inventory against total 8 (eight) number of BFP. It is a capital spare and as per Tariff Regulation - 2019, Clause No. 35 (6), expenditure against Capital spares is reimbursable.	24.81	It is observed from the submissions of the Petitioner that the projected expenditure claimed for the asset is in the nature of spares. In view of this, the claim is not allowed . However, the Petitioner is at liberty to claim the same as part of capital spares under O&M expenses, as and when they are put to use.	0.00



Sl. No	Head of Work/ Equipment	Regulation	Justification of Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
5	Procurement of Capital Spares for Major Inspection of GT#2	35(1)(6)	It is planned to carry out 3rd Major Inspection of GT#2 in Oct-Nov 2019. Order for supply of spares has already been placed on BGGTS as mentioned in 3rd column. Total order value is Rs.1286.00 lakh. However, cost of Capital spares including GST@18% and F&I is Rs. 969.79 lakh. It may please be noted that Major Inspection minimizes tripping, ensures stable operation and helps regain efficiency of the machine. As per Tariff Regulation - 2019, Clause No. 35 (6), expenditure against Capital spares is reimbursable.	969.79	The Petitioner has claimed the said expenditure under Regulation 35(1)(6) of the 2019, Tariff Regulations which provides for capital spares to be allowed separately after consumption. Since the projected expenditure claimed for the asset is in the nature of spares, the claim is not allowed . However, the Petitioner is at liberty to claim the same as part of capital spares under O&M expenses, as and when they are put to use.	0.00
6	Procurement of Capital Spares for HGPI of GT#3	35(1)(6)	It is planned to carry out HGPI of GT#3 in Nov-December 2019. As per OEM Guideline, the unit has already crossed recommended running hours for HGPI from last CIBI carried out in 2017. Timely carrying out overhauling/inspection at recommended interval ensures less tripping and greater stability of the units. As per Tariff Regulation - 2019, Clause No. 35 (6), expenditure against Capital spares is reimbursable. As such, it is proposed to claim expenditure against capital spares for HGPI.	190	The Petitioner has claimed the said expenditure under Regulation 35(1)(6) of the 2019, Tariff Regulations, which provides for capital spares to be allowed separately after consumption. Since the projected expenditure for the asset is in the nature of spares, the claim is not allowed . However, the Petitioner is at liberty to claim the same as part of the capital spares under O&M expenses, as and when, they are put to use.	0.00
7	Upgradation from AVR to DVR of All Gas Turbine Generators	25(1)(f)	Upgradation of AVR to DVR was approved by CERC in the Tariff period 2014-19. Materials have already been received at site in Feb 2019. However, erection, testing and commissioning could not be taken up due to non-availability of shut down. As such, it is proposed to apply again in the Tariff Period of 2019-24 for approval of CERC.	94.97	The upgradation of AVR to DVR for Gas Turbines had already been approved by the Commission. In view of this, the expenditure is allowed under Regulation 25(2)(d) of the 2019 Tariff Regulations.	94.97



Sl. No	Head of Work/ Equipment	Regulation	Justification of Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
8	Procurement of 2 No. 145 kV SF6 Circuit Breakers for replacement against old Circuit Breakers of GTG#1 & 2	25(1)(f)	Existing Circuit Breakers are 20 years old and obsolete as declared by OEM. Spares and Services not available. In case of outage of any 145kV CB, the downtime will be uncertain which will affect our generation and revenue as well as beneficiary. As such, it is proposed to include in Additional Capitalization scheme for the Tariff period 2019-24. order already placed but materials not yet received.	23.75	It is observed from the submissions of the Petitioner that the expenditure claimed for the asset is towards the replacement of the old asset. However, the Petitioner has claimed these assets under Regulation 25(1)(f) which pertains to liability for the works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments. Further the Petitioner in Form 1(i) has shown discharges of Rs. 19.38 lakh only. Accordingly, the additional capital expenditure claimed is allowed under Regulation 25 (2) (c) of the 2019 Tariff Regulations, subject to the Petitioner furnishing the OEM certificate with regard to the obsolesce of technology at the time of truing up of tariff.	23.75
10	Procurement and Installation of 125 V Battery Chargers	25(1)(f)	Already approved in Tariff Period of 2014-19. Work could not be completed due to delay in tender finalization. Order placed. Materials are likely to be received in April - May 2019. It is proposed to re-apply for approval of CERC in the Tariff Period of 2019-24. Order copies along with approval attached as Annexure-IV	25.03	Considering the fact that the Commission had allowed the additional capital expenditure of Rs. 80 lakhs under this head vide its order 14.7.2017 in Petition No. 94/ GT/2014, the claim of the Petitioner is allowed under Regulation 25(1)(f) of the 2019 Tariff Regulations.	25.03
11	Procurement and Installation of 220 V Battery Chargers	25(1)(f)	Already approved in Tariff Period of 2014-19. Work could not be completed due to delay in tender finalization. Order placed. Materials are likely to be received in April - May 2019. It is proposed to re-apply for approval of CERC in the Tariff Period of 2019-24.	3.31	Considering the fact that the Commission had allowed the additional capital expenditure of Rs. 80 lakhs, under this head vide its order 14.7.2017 in Petition No. 94/GT/2014, the claim of the Petitioner is allowed under Regulation 25(1)(f) of the 2019 Tariff Regulations.	3.31
12	Procurement and Installation of 1 No. GT Cooler	25(1)(f)	It may kindly be noted that till 2014 HRSGs were not erected. As such, there were enough open space, and the GT	28.50	In respect of the claim towards Modification and Replacement of GT coolers, the same has been	28.50



Sl. No	Head of Work/ Equipment	Regulation	Justification of Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
	Radiator. Already installed in GT-2 in 31.08.2018. Due to delay in execution, time extension was required for releasing final payment, for which capitalization could not be done in 2018-19. Now after final time extension is accorded and 100% payment released, the capitalization of the new radiator and de-capitalization of old radiator in 2019-20 is under process.		Coolers were performing well. However, after erection and commissioning of the HRSGs, the performance of GT Coolers was seen deteriorated. The deterioration has been seen more in GT#2 and GT#4. The reasons for deteriorated performance of GT Coolers are as follows: 1. During erection and commissioning period of HRSG, the coolers were soaked with dust and accumulated in radiator fins, thereby restricting normal air flow through the coolers 2. The Coolers are surrounded by HRSGs and created obstruction of ambient air 3. Due to radiation of heat from the HRSG ducts, the air temperature at Cooler area becomes higher than normal ambient temperature. As such, the radiator of GT Cooler of Unit #3 has already been replaced by spare radiator. One Radiator Cooler was procured from M/S Kelvion India Ltd., vide order no. NEEP/AGTCCPP/ MMU/T-29/735, Dt. 28.12.2017 and installed in GT#2 on 31.08.2018. With new GT Cooler, the performance of GT#2 is restored and can generate full capacity with ambient temperature.		discussed separately in paragraph 13 below, of this order. Accordingly, the amount claimed is allowed.	
13	Renovation and Modification of SSB Panels	25(2)	The existing panel is SFU type (Switch Fuse Unit) which is not capable to provide earth fault protection and the panel is 21 years old. Frequent outage /breakdown of SSB panel affected the generation of plant. So, the renovation of SSB panel with MCCB (in place of SFU) will eliminate breakdown and help steady generation.	8.03	The Petitioner has claimed the expenditure under Regulation 25(2) of the 2019 Tariff Regulations, without indicating any relevant sub-clause on which the claim is made. However, since the said expenditure is required for the smooth operation of the generating station, the claim is allowed under Regulation 25(2)(c) of the 2019 Tariff Regulations.	8.03



Sl. No	Head of Work/ Equipment	Regulation	Justification of Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
14	Procurement of Relay Time Sync kit and installation and commissioning.	26(1)(a)	This is requirement of NERLDC. As the numerical relays installed at AGTCCPP are not synchronous with GPS so the time DR mismatch with other. During protection sub-group meeting held on 14.05.2019 the issue was discussed, and it has been instructed to AGTCCPP to implement the time synchronization of the numerical relays with GPS with the time frame of 6 (SIX) months.	7.24	Since the expenditure is related to the security and safety of the generating station, the claim is allowed under Regulation 26(1)(a) of the 2019 Tariff Regulations. The Petitioner is directed to submit documentary evidence indicating that the expenditure is incurred based on the advice or as directed by appropriate Indian Government Instrumentality or Statutory authorities, at the time of truing-up of tariff.	7.24
	Procurement of one set of Special T&P for Steam Turbine	35(1)(6)	It is as per OEM recommendation. It will ensure smooth overhauling of Steam Turbines and shall ensure timely completion of Overhauling of Steam Turbines.	1.80	The Petitioner has claimed the said expenditure under Regulation 35(1)(6) of the 2019, Tariff Regulations which provides for capital spares to be allowed separately after consumption. Since the projected expenditure claimed for the asset, is in the nature of tools & tackles, which can be met through normative O&M expenses, the claim is not allowed .	0.00
15	Spare Valve for LP ESV for STG	35(1)(6)	No spare valve is available at Store. The delivery time is also very high 7-8 months. As such, any fault in the valve leads to long forced outage of the STG For smooth functioning of STG the said spare valve is mandatory.	40.68	The Petitioner has claimed the said expenditure under Regulation 35(1)(6) of the 2019, Tariff Regulations which provides for capital spares to be allowed separately after consumption. Since the projected expenditure for the asset, is in the nature of spares, the claim is not allowed . However, the Petitioner is granted liberty to claim the same as part of capital spares under O&M expenses, as and when they are put to use.	0.00
15	Supply and installation of Display Board for display of emission data, viz., Sox, Nox, CO2, etc. at	26 (1) (d)	This is mandatory requirement of Tripura State Pollution Control.	3.54	As the additional capital expenditure claimed is for display of emission data and is a mandatory requirement as advised by the Tripura State Pollution Control Board (TSPCB),	3.54



Sl. No	Head of Work/ Equipment	Regulation	Justification of Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
	Main Gate for public view.				Hence, the claim is allowed under Regulation 26(1)(d) of the 2019 Tariff Regulations.	
16	Modification of GT Cooler GTG # 4	25(2)(c)	<p>It may kindly be noted that till 2014 HRSGs were not erected. As such, there were enough open space, and the GT Coolers were performing well. However, after erection and commissioning of the HRSGs, the performance of GT Coolers was seen deteriorated. The deterioration has been seen more in GT#2 and GT#4. The reasons for deteriorated performance of GT Coolers are as follows:</p> <ol style="list-style-type: none"> 1. During erection and commissioning period of HRSG, the coolers were soaked with dust and accumulated in radiator fins, thereby restricting normal air flow through the coolers 2. The Coolers are surrounded by HRSGs and created obstruction of ambient air 3. Due to radiation of heat from the HRSG ducts, the air temperature at Cooler area becomes higher than normal ambient temperature. <p>As such, like in GT#2, it is proposed to modify the GT Cooler of GT#4 in 2019-20.</p>	62.77	In respect of the claim towards Modification and Replacement of GT coolers, the same has been discussed separately in paragraph 13 below, of this order.	-
17	Construction of Security Road (1200.00 m)	26(1)(d)	<p>* NEEPCO in its Tariff Petition of 02-06-2016 had originally proposed construction of security road around the plant (in six parts) under regulation 14(1) of the tariff regulation for the period 2014-19.</p> <p>* However, out of 6(six) parts 3(three) parts could be completed by end of March'2019.</p> <p>* Security road is very important for patrolling of the plant by security personnel</p> <p>* In addition, security road along the periphery of boundary wall will facilitate smooth movement of fire tenders in case of fire. This road is included in the risk</p>	124.29	As the expenditure claimed is related to the security and safety of the generating station, the claim is allowed under Regulation 26(1)(d) of the 2019 Tariff Regulations. The Petitioner is directed to submit documentary evidence indicating that the expenditure is incurred based on the advice or as directed by appropriate Indian Government Instrumentality or Statutory authorities, at the time of truing-up of tariff.	124.29



Sl. No	Head of Work/ Equipment	Regulation	Justification of Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
			management of this plant. * Construction of balance portion of security road is therefore proposed for inclusion in add-cap			
18	Procurement of 1 (one) set of Bearing for Load Gear Box of Gas Turbine	35(1)(6)	Gas Turbines of AGTCCPP are 20 years old. At present, there is no spare LGB Bearings at hand. As such, it essential to keep one set of LGB Bearings as inventory to meet any eventuality due to vibration. The expenses against Capital spares are reimbursable as per Clause 35 (6) of the Tariff Notification 2019.	124.54	The Petitioner has claimed the said expenditure under Regulation 35(1)(6) of the 2019, Tariff Regulations which provides for capital spares to be allowed separately after consumption. Since the projected expenditure for the asset is in the nature of spares, the claim is not allowed . However, the Petitioner is granted liberty to claim the same as part of capital spares under O&M expenses, as and when they are put to use	0.00
Total amount				3450.71		318.66

2020-21

(Rs. in lakh)

Sl. No	Head of Work/Equipment	Regulation	Justification of the Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
1	Procurement of Capital Spares of MI of GT#1	35(1)(6)	In conformity to the recommended maintenance schedule of OEM, it is planned to carry out 3rd Major Inspection of GT#1 in June-July 2020. Cost of Capital spares including GST@18% and F&I is Rs. 969.79 lakh. It may please be noted that Major Inspection minimizes tripping, ensures stable operation and helps regain efficiency of the machine. As per Tariff Regulation - 2019, Clause No. 35 (6), expenditure against Capital spares is reimbursable.	969.79	The Petitioner has claimed the said expenditure under Regulation 35(1)(6) of the 2019 Tariff Regulations which provides for capital spares to be allowed separately after consumption. Since the projected expenditure for the asset is in the nature of spares, the claim is not allowed . However, the Petitioner is	0.00



					granted liberty to claim the same as part of capital spares (under O&M expenses as and when they are put to use.	
2	Procurement of 6 No. of GT Cooling Water Pumps with Motors	25(2)(d)	<p>Each Gas Turbine Generating units has one cooling tower for cooling of turbine oil and generator winding. There are two number of Cooling Water Pump-Motor Set for Gas Turbine Oil Cooling – one running and one in standby. Similarly, the Generator bank has also two number Cooling Water Pump-Motor Set one running and one standby. Therefore, the total number of Cooling Water Pump Motor Sets for 4 number of Gas Turbines is 16 no. Under CERC approval we have already replaced 4 (four) number of Cooling water pump motor sets in May 2017. The Cooling Water Pump-Motor Sets are 20 years old and performance was deteriorating. Therefore, we replaced another 6 (six) numbers of Cooling Water Pump-Motor Sets in March 2019. Add Cap and De-cap of the same has already been done and applied for approval of CERC under Truing Up Petition. It is also proposed to procure another 6 (six) number of Cooling Water Pump Motor Sets for Gas Turbine Cooling Tower for completion of replacement of all the</p>	26.55	<p>The total cooling water pumps for 4 gas turbines is 16. (i.e. 2 for turbine and 2 for Generator for 1 GT). The Petitioner has already replaced 4 numbers of CW pumps during 2017. It is observed that the Commission vide its order dated 28.7.2023 in Petition No. 32/GT/2020 had allowed a claim of Rs 26.55 lakh in 2018-19 towards 6 numbers of cooling towers. Now, the Petitioner has claimed the additional capital expenditure of Rs 26.55 lakh towards the remaining 6 numbers of cooling water pumps. In the above background, the claim of the Petitioner is allowed.</p>	26.55



			<p>16 no. Cooling Water Pump-Motor Sets. Reasons and benefits of replacement of Cooling Water Pump-Motor Set are given below:</p> <ol style="list-style-type: none"> 1. The Cooling Water Pump-Motor Sets are 20 years old and number of trippings have increased. 2. Tripping of Cooling Water Pump-Motor Set may lead to tripping of GTG unit also, if the standby unit also faulty eventually incurring generation and revenue loss. 3. Already CERC has approved during the Tariff Period 2014-19 Justification and copies of order attached at Annexure-IX. Estimate is prepared based on recent order. Copy enclosed. 			
3	Torque Converter Assembly for Gas Turbine Unit#1	25(2)(c)	<p>The Torque converter of Gas Turbine units are 20 years old and is high time to carry out overhauling of the Torque converters for trouble running of the Gas Turbines. The lead time delivery period of the spares is high. Estimate is prepared on offer of the OEM. the cost of spares for one unit is Rs. 122.37 lakh.</p>	122.34	<p>The Petitioner has claimed the said expenditure for the asset under Regulation 25(2)(c) of the 2019 Tariff Regulations, which provides for replacement of such asset or equipment on account of obsolescence of technology. It is observed from the submissions, that the projected additional capital expenditure claimed is in the nature of spares. Hence, the claim is not allowed.</p>	0.00



					However, the Petitioner is granted liberty to claim the same as part of capital spares under O&M expenses, as and when they are put to use.	
4	Procurement of Skid Cable for Gas Turbine Control System for GTG#1 and GTG#2 and installation	25(2)(c)	The Skid cables of GT#3 & 4 has already been replaced and capitalized along with upgradation of Controller from Mark-V to Mark-Vie, which was approved by CERC. In that line, it is proposed to replace the existing Skid Cable of GT#1 and 2. It may please be noted the Skid cables are laid under GT housing and under high temperature zone. There is likelihood of insulation damage over the period of 20 years. In such case machines may go under long shutdown due to want of new Skid Cable.	202.44	The Petitioner has claimed the said asset under Regulation 25(2)(c) of the 2019, Tariff Regulations, However, the Petitioner has also submitted that the similar expenses pertaining to GT-3 and GT-4 was already approved by the Commission. Considering the above, the procurement of skid cable for Gas turbine control system for GT-1 and GT-2 is allowed under Regulation 25(2)(a) of 2019 Tariff Regulations.	202.44
5	Procurement and Installation of SCADA	26(1)(a)	Requirement of NERLDC. PC based SCADA system is required for monitoring and operation of whole plant equipment including Switch Yard.	57.38	The Petitioner has not furnished any documentary evidence justifying that the expenditure for the asset is for compliance of order or directions of any statutory authority, or order or decree of any Court of law. In view of this, the claim	0.00



					is not allowed . However, the Petitioner is at liberty to claim the same at the time of truing up of tariff subject to submission of proper justification with documentary evidence.	
6	Renovation and Upgradation of Firefighting System	26(1)(d)	The underground Fire Fighting Pipelines are 21 years old. It is very essential to maintain desired water pressure in sustainable manner for effective firefighting at any time. The coatings of the underground pipelines are susceptible to rusting and eventual damage occurs leading to water leakage and pressure drop. As such, it is high time to inspect and replace the pipeline if required. Detailed estimate shall be submitted shortly.	20.00	The Petitioner has submitted that the said expenditure is related to the security and safety of the generating station. Since the asset claimed is within the original scope of work (served 21 years in service), and is after the cut-off date, the claim is allowed under Regulation 25(2)(a) of 2019 Tariff Regulations.	20.00
7	Procurement and installation of Back-up protection relay of Generators.	26(1)(d)	The generators are operating on numerical protection relay. In the event of failure of this relay, the machines will be out of protection. Therefore, back up protection relay is required. Estimate prepared on past order.	31.62	It is observed from the submissions of the Petitioner that the projected additional capital expenditure for the asset is in the nature of spares. Though the Petitioner has claimed the asset under Regulation 26(1)(d) of the 2019, Tariff Regulations, it has not	0.00



					furnished any documentary evidence justifying the claim. In view of this, the claim is not allowed . However, the Petitioner is granted liberty to claim the same as part of capital spares, under O&M expenses, as and when they are put to use.	
8	Modification of Generator Cooler of Unit-1	25(2) (c)	It may please be noted that Turbine Oil Cooler and Generator Winding Cooler are under the same Cooling Tower. So, the Generator Coolers are also affected due to heat radiation, air pocket and choking of dust during erection commissioning of HRSGs. So, the performance of Generator Coolers are also deteriorating and also the coolers have aged 20 years. Estimate is considered as that of Modification of GT Cooler as both are in the same cooling tower and are of the same size.	62.77	In respect of the claims towards Modification and Replacement of GT coolers, the same is discussed separately in para 13 of this order, below.	-
9	Procurement of 98.1 Ton Capacity Low height hydraulic Jack	35(1)(6)	At present we do not have 100 Ton capacity Hydraulic Jack. Due to non-availability of 100-ton hydraulic jack the same had to be borrowed from another Thermal Power Plant of Tripura. Availability of proper lifting jacks at site shall ensure smooth maintenance as well as timely completion of mechanical maintenance job at site.	1.74	The Petitioner has claimed the said expenditure under Regulation 35(1)(6) of the 2019 Tariff Regulations which provides for capital spares to be allowed separately after consumption. The projected additional	0.00



					capital expenditure for the asset is in the nature of tools and tackles, which can be met through normative O&M expenses. In view of this, the claim is not allowed .	
10	Procurement of 3 Ton, 3.6 Meter Mas, Model 30 D, Diesel Operated Forklift Truck	26(1)(d)	Fork lifter helps in material handling at site and shall help in smooth operation and maintenance of the plant.	10.44	Though the Petitioner has claimed under Regulation 26(1)(d) of the 2019 Tariff Regulations and has not provided any documentary evidence justifying the claim. Hence, the claim of the Petitioner is not allowed .	0.00
11	Procurement of Tan Delta Test Kit	26(1)(d)	AGTCCPP switchyard has been installed and commissioned in 1998 and crossed a life of 20 years. As such periodic checking of healthiness of CT bushing, transformer bushing is very much required. Moreover, the equipment is not available at nearby power plant. The kit is hired from Power Grid whenever required. However, we become dependent on them, when equipment is not readily sparable.	61.75	The Petitioner has not furnished any documentary evidence justifying that the expenditure is incurred based on any advice or directions of Appropriate Indian Government Instrumentality or Statutory authorities. Hence, the claim is not allowed . However, the Petitioner is at liberty to claim the same at the time of truing up of tariff, with proper justification and	0.00



					documentary evidence.	
12	Renovation of Acid and Alkali Pipeline of DM Plant	25(2) (c)	Acid and alkali pipelines of DM Plant has crossed more than 15 years. The conditions of pipelines and other fittings has deteriorated due to acidic environment in the DM Plant complex. Due to corrosion leakage of acid has started in various locations. Repairing of pipelines in piecemeal basis frequently hampers DM Water generation. Major leakage may lead to shutdown of DM Plant and eventually may affect STG Generation. As such, it is proposed to replace all the Acid and Alkali Pipelines of DM Plant which will ensure steady, trouble free and safe operation of DM Plant and also ensure sustainable STG Generation.	17.29	Considering the fact that the expenditure for the assets/works are for replacement of the assets/works which are within the original scope of work of the project and after cut-off date, the claim is allowed under Regulation 25(2)(a) of the 2019 Tariff Regulations.	17.29
13	Construction of colony road connecting the new Guest House	76 &77	The road is necessary for connecting the new Guest House from 2(two) sides of the colony to facilitate emergency exit	42.98	The Petitioner has not indicated the relevant clause of the Regulations, which require to be relaxed in terms of Regulation 76 of the 2019 Tariff Regulations. Even otherwise, the exercise of power to relax is to be based on sufficient and reasonable justification furnished and not due to any difficulty caused to the Petitioner on account of the	0.00



					application of the Regulations. In view of this, the claim of the Petitioner is not allowed.	
14	Procurement of 2 (No.) online condition monitoring of Generator Transformers	26(1)(d)	Generator Transformers are vital equipment in a Power Station and are directly related to power evacuation. Repairing of Generator Transformer is time taking job and may lead to outage of particular unit months together. As such, it is very much important to monitor the condition of generator transformer continuously. The trend of the condition of transformer read through online condition monitoring equipment will help us take proactive action for remedy of transformers well ahead of severe damage. Eventually, we shall be able to maintain PAF for the plant and beneficiaries will be benefited. As per clause no. 35 (6) of the Tariff Notification 2019, cost against capital spares is reimbursable.	58.64	The Petitioner has not furnished any documentary evidence justifying that the expenditure is incurred based on any advice or directions of Appropriate Indian Government Instrumentality. Hence, the claim is not allowed. However, the Petitioner is at liberty to claim the same at the time of truing up of tariff, with proper justification and documentary evidence.	0.00
Total amount				1685.73		266.28

2021-22

(Rs. in lakh)

Sl. No	Head of Work/Equipment	Regulation	Justification of the Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
1	Installation of 1(one) deep tube well at Colony Complex	76&77	* Both plant and colony of the Project are entirely dependent on underground water. *Colony water supply is practically dependent on single	25.00	The Petitioner has not indicated the relevant clause of the Regulations, which require to be relaxed in terms of Regulation 76 of the 2019 Tariff Regulations. Even otherwise, the exercise of power to relax is	0.00



Sl. No	Head of Work/Equipment	Regulation	Justification of the Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
			deep tube well. * Water being most essential, a standby deep tube is proposed		to be based on sufficient and reasonable justification furnished and not due to any difficulty caused to the Petitioner on account of the application of the Regulations. In view of this, the claim of the Petitioner is not allowed .	
2	Torque Converter Assembly for Gas Turbine # 2	25(2)(c)	The Torque converter of Gas Turbine units are 20 years old and is high time to carry out overhauling of the Torque converters for trouble running of the Gas Turbines. The lead time delivery period of the spares is high.	122.34	It is observed from the submissions of the Petitioner that the projected additional capital expenditure for the asset is in the nature of spares. In view of this, the claim is not allowed . However, the Petitioner is granted liberty to claim the same as part of capital spares, under O&M expenses, as and when they are put to use.	0.00
3	Implementation of Zero Liquid Discharge, involving 1. Construction of a 20m x10m x2 m R.C.C. Tank. 2. Construction of 300 m long storm water drains, 3. Provision for screening at the entrance to the Treatment Tank 4. Procurement & installation of suitable Oil Skimmer 5. Procurement & installation of suitable Chemical Dosing Equipment 6. Procurement & installation of suitable capacity pump(s) for pumping water to the existing Raw Water Reservoir and pipe line (150m approximate)	26(1)(d)	* As per revised environmental norms under Environment (Protection) Amendment Rules, 2015 all new plants installed from 1st January, 2017 shall have zero waste water discharge from the power plant. * Zero Discharge' concept is required to be adopted in order to avoid discharging liquid effluent in the water body, * A suitable scheme relevant to this Project has been proposed not only for environmental point of view but also for conservation of water.	99	The Petitioner has not submitted any documentary evidence justifying that expenditure is based on any advice or as directed by Appropriate Indian Government Instrumentality or Statutory authorities responsible for national or internal security. It is also noticed that the Commission vide its order dated 4.6.2022 in Petition No. 420/GT/2020 had not allowed the said claim of the Petitioner. In view of the above, the claim of the Petitioner is not allowed . However, the Petitioner is granted liberty to claim the same at the time of truing-up of tariff, with proper justification and documentary evidence.	0.00



Sl. No	Head of Work/Equipment	Regulation	Justification of the Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
	from the proposed Treatment Tank to the RWR.					
4	Procurement and installation of Numerical Protection Relay in Generator Transformer of Gas Turbine & Station Transformer (7 Nos.in GT and 3 No. Station Transformer (Considering main and back up protection relay)	25(2)(c)	The existing relays are electro-mechanical type. These are to be replaced with numerical type. CERC has already approved for replacement of Electro-Mechanical type relay with Numerical one)	37.46	The Petitioner has submitted that the Commission had allowed the similar expenditure vide its order dated 28.7.2023 in Petition No.32/GT/2020. In view of this, the claim is allowed under Regulation 25(2)(d) of the 2019 Tariff Regulations	37.46
5	Modification of Generator Cooler of Unit#2	25(2)(c)	It may please be noted that Turbine Oil Cooler and Generator Winding Cooler are under the same Cooling Tower. So, the Generator Coolers are also affected due to heat radiation, air pocket and choking of dust during erection commissioning of HRSGs. So, the performance of Generator Coolers are also deteriorating and also the coolers have aged 20 years. Estimate is considered as that of Modification of GT Cooler as both are in the same cooling tower and are of the same size.	65	In respect of the claim towards Modification and Replacement of GT coolers, the same has been discussed separately in para 13 below of this order.	-
6	Procurement of 2 (No.) online condition monitoring of Generator Transformers	26(1)(d)	Generator Transformers are vital equipment in a Power Station and are directly related to power evacuation. Repairing of Generator Transformer is time taking job and may	58.64	The Petitioner has not furnished any documentary evidence justifying that the expenditure is incurred based on any advice or directions of Appropriate Indian Government Instrumentality or Statutory authorities	0.00



Sl. No	Head of Work/Equipment	Regulation	Justification of the Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
			lead to outage of particular unit months together. As such, it is very much important to monitor the condition of generator transformer continuously. The trend of the condition of transformer read through online condition monitoring equipment will help us take proactive action for remedy of transformers well ahead of severe damage. Eventually, we shall be able to maintain PAF for the plant and beneficiaries will be benefited. As per clause no. 35 (6) of the Tariff Notification 2019, cost against capital spares is reimbursable.		responsible for national or internal security. Hence, the claim is not allowed . However, the Petitioner is at liberty to claim the same at the time of truing up of tariff, with proper justification and documentary evidence.	
	Total amount			407.44		37.46

2022-23

(Rs. in lakh)

Sl. No	Head of Work/Equipment	Regulation	Justification of the Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
1	Replacement of 5 (five) No. 145 kV pneumatic operated Circuit Breaker with Spring Operated Breaker for replacement against old CBs of GT G#3, #4, Station Transformer #1 and 2 and	25(2)(c)	The existing 145 kV Circuit Breakers of our SY are 20 years old and also obsolete. Service Engineers/ Technician and spare for old Circuit Breakers are now not available. Estimate is prepared based on recent order placed at Annexure-III. Obsolesce Certificate is attached.	72.50	Considering the fact that the expenditure claimed for the assets/ works are for replacement and are within the original scope of work of the project and is after cut-off date, the claim of the Petitioner is allowed under Regulation 25(2)(c) of the 2019 Tariff Regulations.	72.50



Sl. No	Head of Work/Equipment	Regulation	Justification of the Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
	for Bus Coupler					
2	Torque Converter Assembly for Gas Turbine # 3	25(2)(c)	The Torque converter of Gas Turbine units are 20 years old and is high time to carry out overhauling of the Torque converters for trouble running of the Gas Turbines. The lead time delivery period of the spares is high. Estimate is prepared on offer of the OEM. the cost of spares for one unit is Rs. 122.37 lakh.	122.34	It is observed from the submissions of the Petitioner that the projected additional capital expenditure claimed for the assets, is in the nature of spares. In view of this, the claim is not allowed . However, the Petitioner is granted liberty to claim the same as part of capital spares under O&M expenses, as and when they are put to use	0.00
3	Modification of Generator Cooler of Unit-3	25(2)(c)	It may please be noted that Turbine Oil Cooler and Generator Winding Cooler are under the same Cooling Tower. So, the Generator Coolers are also affected due to heat radiation, air pocket and choking of dust during erection commissioning of HRSGs. So, the performance of Generator Coolers are also deteriorating and also the coolers have aged 20 years. Estimate is considered as that of Modification of GT Cooler as both are in the same cooling tower and are of the same size.	62.77	In respect of the claim towards Modification and Replacement of GT coolers, the same has been discussed separate in paragraph 13 below of this order.	-
4	Construction of 2 units of C-type Quarters (Double storey)	76&77	* Due to increase in the number of middle/senior executives in the Plant, post re-designation, the prescribed entitled class of accommodation could not be provided to many O&M executives, * Under the situation, many executives are forced	209.00	The Petitioner has claimed Rs 209.00 lakh for construction of quarters. The claim of the Petitioner is beyond original scope of work and there is no provision to allow such expenditure. The claim of the Petitioner is in the nature of O&M. Further, the Petitioner has not indicated the relevant clause of the Regulations, which require to be relaxed	0.00



Sl. No	Head of Work/Equipment	Regulation	Justification of the Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
			to put up in below entitled class of accommodations. * Construction of additional entitled class of accommodation, as now proposed, will help boost the morale and productivity of the executives		in terms of Regulation 76 of the 2019 Tariff Regulations. Even otherwise, the exercise of power to relax is to be based on sufficient and reasonable justification furnished and not due to any difficulty caused to the Petitioner on account of the application of the Regulations. In view of this, the claim of the Petitioner is not allowed .	
5	Modification of GT Cooler GTG # 1 & 3	25(2)(c)	It may kindly be noted that till 2014 HRSGs were not erected. As such, there were enough open space and the GT Coolers were performing well. However, after erection and commissioning of the HRSGs, the performance of GT Coolers was seen deteriorated. The deterioration has been seen more in GT#2 and GT#4. The reasons for deteriorated performance of GT Coolers are as follows: 1. During erection and commissioning period of HRSG, the coolers were soaked with dust and accumulated in radiator fins, thereby restricting normal air flow through the coolers2. The Coolers are surrounded by HRSGs and created obstruction of ambient air3. Due to radiation of heat from the HRSG ducts, the air temperature at Cooler area becomes higher than normal ambient temperature.	130.00	In respect of the claim towards Modification and Replacement of GT coolers, the same has been discussed separately in para 13 below of this order.	-



Sl. No	Head of Work/Equipment	Regulation	Justification of the Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
6	Procurement of 2 (No.) online condition monitoring of Generator Transformers	26(1)(d)	Generator Transformers are vital equipment in a Power Station and are directly related to power evacuation. Repairing of Generator Transformer is time taking job and may lead to outage of particular unit months together. As such, it is very much important to monitor the condition of generator transformer continuously. The trend of the condition of transformer read through online condition monitoring equipment will help us take proactive action for remedy of transformers well ahead of severe damage. Eventually, we shall be able to maintain PAF for the plant and beneficiaries will be benefited. As per clause no. 35 (6) of the Tariff Notification 2019, cost against capital spares is reimbursable.	58.64	It is observed from the submissions of the Petitioner that the projected additional capital expenditure claimed for the asset is in the nature of spares. In view of this, the claim is not allowed . However, the Petitioner is granted liberty to claim the same as part of capital spares under O&M expenses, as and when they are put to use.	0.00
7	Procurement of Spares for 3rd MI of GT-3	35(1)(6)	As per recommended maintenance schedule of OEM, 3rd MI of GT#3 will be due in 2022-23. It may please be noted that Major Inspection minimizes tripping, ensures stable operation and helps regain efficiency of the machine. As per Tariff Regulation - 2019, Clause No. 35 (6), expenditure against Capital spares is reimbursable.	969.79	It is observed from the submissions of the Petitioner that the projected additional capital expenditure claimed for the asset is in the nature of spares. In view of this, the claim is not allowed . However, the Petitioner is granted liberty to claim the same as part of capital spares under O&M expenses, as and when they are put to use.	0.00



Sl. No	Head of Work/Equipment	Regulation	Justification of the Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
8	Procurement of New GT Rotor	25(2)	<p>The OEM i.e. M/S BGGTS has suggested vide their Letter No. BGGTS/NEEP CO/AGTCCPP/ TECH / 17-01, Dt. 1st Feb 2017 (Annexure-XVII) for Rotor replacement during 3rd MI of each unit. For balance of cost, lead time and risk associated, they have recommended to procure one new GT Rotor and get the life extended on the removed rotors at authorized service shop. The new and refurbished rotors can be swapped at the MI outage. The life is extendable up to 100,000 fired hours after teardown inspection, repair and replacement of affected parts during service of the rotor. BGGTS has also submitted Roll in and Roll out program of the Rotor (Page 4 of annexure) after purchase of new rotor. It may please be seen that as per Roll-in Roll-out program, the rotor repair period is 5-6 months. In case new GT Rotor is not procured, 33.75 MW will be out from our total capacity for 5-6 months which will affect the beneficiary also. It may please be noted that AGBP has done such Roll-in Roll-out program for MHI make Gas Turbine. As the Rotor Refurbishment work enhances life of Gas Turbine as well as the</p>	1427.35	<p>The Petitioner has claimed expenditure of Rs 1427.35 lakh for procurement of new GT rotor under Regulation 25(2) of the 2019 Tariff Regulations. Though the Petitioner has submitted that OEM has suggested for the replacement of the asset, it has not been able to demonstrate that the same is on account of obsolescence of technology. No document has also been furnished by the Petitioner to show that the replacement is due to obsolescence of technology. The projected expenditure claimed for the asset is in the nature of spares. In view of this, we are not inclined to allow the same as additional capital expenditure. However, Since, the Petitioner has already replaced the generator rotor, the same is allowed as part of capital spares under O&M expenses separately.</p>	1427.35 (allowed as Capital spares)



Sl. No	Head of Work/Equipment	Regulation	Justification of the Petitioner	Amount claimed	Remarks on Admissibility	Amount allowed
			Plant, this expenditure may be considered as capital in nature and may be considered for seeking approval of CERC for reimbursement under add cap provision. Budgetary Quote of BGGTS may kindly be seen at Annexure-XVII). The new spare Rotor			
	Total amount			3052.39		72.50

2023-24

(Rs. in lakh)

Sl. No	Head of Work/Equipment	Regulation	Justification of the Petitioner	Amount claimed	Remarks for Admissibility	Amount allowed
1	Construction of Overhead Water Tank at plant site	76&77	* Plant area at present does not have any adequate sized overhead water tank. Intermediate pumping of treated water directly from the treatment plant is required to maintain supply of constant amount of water to the staff involved in O&M of power plant,* As a result, wear & tear of EM equipment, power consumption, water loss are significant. *Overhead tank will help avoid aforesaid shortcomings	42.00	The Petitioner has not indicated the relevant clause of the Regulations, which is required to be relaxed in terms of Regulation 76 of the 2019 Tariff Regulations. Even otherwise, the exercise of power to relax is to be based on sufficient and reasonable justification furnished and not due to any difficulty caused to the Petitioner on account of the application of the Regulations. In view of this, the claim of the Petitioner is not allowed .	0.00
2	Torque Converter Assembly for Gas Turbine # 4	25(2)(c)	The Torque converter of Gas Turbine units are 20 years old and is high time to carry out overhauling of the Torque converters for trouble running of the Gas Turbines. The lead time delivery period of the spares is high. Estimate is prepared on offer of the OEM. the cost of spares for one unit is Rs. 122.37 lakh.	122.34	It is observed from the submission of the Petitioner that the projected additional capital expenditure claimed is in the nature of spares. Hence, the claim is not allowed . However, the Petitioner is granted liberty to claim the same as part of capital spares under O&M expenses, as and when they are put to use.	0.00
3	Modification of	25(2)(c)	It may please be noted that Turbine Oil Cooler	65.00	In respect of the claim towards Modification and	-



Sl. No	Head of Work/Equipment	Regulation	Justification of the Petitioner	Amount claimed	Remarks for Admissibility	Amount allowed
	Generator Cooler of Unit-4		and Generator Winding Cooler are under the same Cooling Tower. So, the Generator Coolers are also affected due to heat radiation, air pocket and choking of dust during erection commissioning of HRSGs. So, the performance of Generator Coolers are also deteriorating and also the coolers have aged 20 years. Estimate is considered as that of Modification of GT Cooler as both are in the same cooling tower and are of the same size.		Replacement of GT coolers, the same has been discussed separately in para 13 below of this order.	
4	Refurbishment of old Gas Turbine Rotor of GT#3	25(2)(c)	The OEM, i.e. M/S BGGTS has suggested vide their Letter No. BGGTS/ NEEPCO/ AGTCCPP/ TECH/17-01, Dt. 1st Feb 2017 (Annexure-XVII) for Rotor replacement during 3rd MI of each unit. For balance of cost, lead time and risk associated, they have recommended to procure one new GT Rotor and get the life extended on the removed rotors at authorized service shop. The new and refurbished rotors can be swapped at the MI outage., The life is extendable upto 100,000 fired hours after teardown inspection, repair and replacement of affected parts during service of the rotor. BGGTS has also submitted Roll in and Roll out program of the Rotor (Page 4 of annexure) after purchase of new rotor. It may please be seen that as per Roll-in Roll-out program, the rotor repair period is 5-6 months. In case new GT Rotor is not	1089.90	The Petitioner has claimed expenditure of Rs 1089.90 lakh for procurement of new GT rotor under Regulation 25(2) of the 2019 Tariff Regulations. Though the Petitioner has submitted that OEM has suggested for the replacement of the asset, it has not been able to demonstrate that the same is on account of obsolescence of technology. No document has also been furnished by the Petitioner to show that the replacement is due to obsolescence of technology. The projected expenditure claimed for the asset is in the nature of spares. In view of this, we are not inclined to allow the same as additional capital expenditure. However, Since, the Petitioner has already replaced the generator rotor, the same is allowed as part of capital spares under O&M expenses separately	1089.90 (allowed as Capital spares)



Sl. No	Head of Work/Equipment	Regulation	Justification of the Petitioner	Amount claimed	Remarks for Admissibility	Amount allowed
			procured, 33.75 MW will be out from our total capacity for 5-6 months which will affect the beneficiary also. It may please be noted that AGBP has done such Roll-in Roll-out program for MHI make Gas Turbine. As the Rotor Refurbishment work enhances life of Gas Turbine as well as the Plant, this expenditure may be considered as capital in nature and may be considered for seeking approval of CERC for reimbursement under add cap provision. Budgetary Quote of BGGTS may kindly be seen at Annexure-XXIX. The Re-furbished GT Rotor of U#3 shall be used in GT#4, which will be due for MI in 2025-26.			
	Total amount			1319.24		0.00(Rs 1089.90 lakh allowed as a capital spare)

12. As stated above, the Petitioner has claimed total additional capital expenditure of Rs 476.81 lakh towards Modification and Replacement/Procurement of GT coolers. (i.e. Rs 28.50 lakh and Rs 62.77 lakh towards GT-2 and GT-4 respectively during the year 2019-20, Rs 62.77 lakh towards GT-1 in 2020-21, Rs 65.00 lakh for Unit-2 in 2021-22, Rs 62.77 lakh for Unit-3 in 2022-23, Rs 130.00 lakh for Unit-1,2 & 3 in 2022-23 and Rs 65.00 lakh for GT-4 in 2023-24). In justification for the same, the Petitioner has submitted that till 2014, the HRSG (Heat Recovery Steam Generators) were not erected, as there were enough open space GT coolers which were performing well. It has also submitted that after Erection and Commissioning of HRSG, the performance of GT coolers had deteriorated, the main reason being that during erection, commissioning, the coolers were soaked with dust that accumulated in radiator fans,



restricting the air. Also, the coolers being surrounded by HRSG duct, created obstruction of ambient air and due to radiation of heat from HRSG, and the air temperature at cooler area becomes higher than the normal ambient temperature.

13. We have examined the submissions. In our view, the modifications/ replacements, as above, are consequential to the changeover of the generating station, from Open cycle to Combined cycle, with the installation of 2 Steam Turbines (ST) with effect from 29.7.2015 and 1.9.2015. Accordingly, we allow the procurement / modification corresponding to GT-2 for Rs 28.50 lakh in 2019-20, under Regulation 25(2)(c) of the 2019 Tariff Regulations. It is however observed that the Petitioner has not yet undertaken the Procurement / Modification /Replacement of GT cooler radiators, corresponding to the balance amount of Rs 448.31 lakh (Rs 476.81- Rs 28.50 lakh). Further, from the claims of the Petitioner, it is not clear as to (i) why the Petitioner has made double claims for the said modification /procurement/ replacement and (ii) why there is variation in the amount claimed with regard to the same assets. In view of this, the balance amount of Rs 448.31 lakh as claimed by the Petitioner on this count, has not been allowed/considered at this stage. However, the Petitioner is granted liberty to claim the said expenditure, along with all relevant documents, the decapitalization value with full details on the Procurement / Modification /Replacement of GT cooler radiator, at the time of truing-up of tariff.

De-capitalization

14. The Petitioner has claimed total de-capitalization amount of Rs 233.50 lakh for the period 2019-24. Regulation 26(2) of the 2019 Tariff Regulations, provides that the original value of de-capitalized assets shall be deducted from the capital cost allowed to the generating station. Accordingly, the de-capitalization of the assets, where replacement is allowed as additional capitalization, as claimed by the Petitioner, is allowed. However, the decapitalization against



assets, not allowed as additional capitalization, has not been considered for the purpose of tariff. Accordingly, the decapitalization allowed to the generating station is as under:

	<i>(Rs. in lakh)</i>					
	2019-20	2020-21	2021-22	2022-23	2023-24	Total
Claimed	91.21	21.17	5.12	37.74	78.25	233.50
Allowed	9.18	13.31	1.87	3.63	0	27.99

15. The Petitioner is directed to submit the actual de-capitalization value of each asset, clearly indicating the year of put to use, at the time of truing up of tariff.

Assumed Deletion

16. As per consistent methodology adopted by the Commission in its orders, 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 gross value of the old asset. However, in certain cases, where the decapitalization is proposed to be affected during the future years to the year of capitalization of the 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 de-capitalization which is not a book entry in the year of capitalization is termed as "Assumed Deletion". However, as no such incidence is observed in this petition, assumed deletion has been considered as Nil.

17. Accordingly, the total decapitalization allowed for the period 2019-24 is as under:

	<i>(Rs. in lakh)</i>					
	2019-20	2020-21	2021-22	2022-23	2023-24	Total
De-capitalization	9.18	13.31	1.87	3.63	0.00	27.99
Assumed Deletion	0.00	0.00	0.00	0.00	0.00	0.00
Total de-capitalization Including assumed deletion	9.18	13.31	1.87	3.63	0.00	27.99
De-capitalization pertaining to ROE at WAROI	0.00	0.00	0.00	0.00	0.00	0.00
De-capitalization pertaining to ROE at normal base rate	9.18	13.31	1.87	3.63	0.00	27.99



Discharge of Liabilities

18. The Petitioner has claimed discharge of liabilities in Form-S as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24	Total
19.38	0.00	0.00	0.00	0.00	19.38

19. The Petitioner has claimed discharges of Rs. 19.38 lakh in 2019-20, which could not be identified with the corresponding assets. Hence, we, provisionally allow the amount claimed, with a direction to the Petitioner to submit the asset-wise discharge of liabilities, as against the admitted additional capital expenditure, at the time of truing up of tariff, failing which, the claims may be disallowed.

20. Accordingly, the additional capital expenditure allowed for ROE at normal rate and WAROI rate are as under:

Additional Capital Expenditure Eligible for Normal ROE:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24	Total
Admitted projected additional capital expenditure	183.59	266.28	37.46	72.50	0.00	559.83
Less: De-capitalization	9.18	13.31	1.87	3.63	0.00	27.99
Add: Discharges of liabilities (against allowed assets / works)	19.38	0.00	0.00	0.00	0.00	19.38
Net projected additional capital expenditure allowed (on cash basis)	193.79	252.97	35.59	68.88	0.00	551.22

Additional Capital Expenditure Eligible for WAROI ROE:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24	Total
Admitted projected additional capital expenditure	135.07	0.00	0.00	0.00	0.00	135.07
Less: De-capitalization	0.00	0.00	0.00	0.00	0.00	0.00
Add: Discharges of liabilities (against	0.00	0.00	0.00	0.00	0.00	0.00



	2019-20	2020-21	2021-22	2022-23	2023-24	Total
allowed assets / works)						
Net projected additional capital expenditure allowed (on cash basis)	135.07	0.00	0.00	0.00	0.00	135.07

Capital cost approved for the period 2019-24

21. As stated earlier, the Commission vide its order dated 28.7.2023 in Petition No. 32/GT/2020 had allowed the closing capital cost of Rs. 65293.48 lakh, as on 31.3.2019 and the same has been considered as the opening capital cost as on 1.4.2019. As such, the capital cost allowed for the period 2019-24 is as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Capital Cost (A)	65293.48	65622.34	65875.31	65910.90	65979.77
Add: Admitted Additional capital expenditure (B)	328.86	252.97	35.59	68.88	0.00
Closing Gross Block (C) = (A+B)	65622.34	65875.31	65910.90	65979.77	65979.77
Average Gross Block (D) = [(A+C)/2]	65457.91	65748.83	65893.10	65945.33	65979.77

Debt-Equity Ratio

22. Regulation 18 of the 2019 Tariff Regulations provides as follows:

“18. Debt-Equity Ratio: (1) For new projects, the debt-equity ratio of 70:30 as on date of commercial operation shall be considered. 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, as the case may be, shall submit the resolution of the Board of the company or approval of the competent authority in other cases regarding infusion of funds 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 1.4.2019, debt: equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2019 shall be considered:

Provided that in case of a generating station or a transmission system including communication, system which has completed its useful life as on or after 1.4.2019, if the equity actually deployed as on 1.4.2019 is more than 30% of the capital cost, equity in excess of 30% shall not be taken into account for tariff computation;

Provided further that in case of projects owned by Damodar Valley Corporation, the

debt: equity ratio shall be governed as per sub-clause (ii) of clause (2) of Regulation 72 of these regulations.

(4) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2019, but where debt: equity ratio has not been determined by the Commission for determination of tariff for the period ending 31.3.2019, the Commission shall approve the debt: equity ratio in accordance with clause (1) of this Regulation.

(5) Any expenditure incurred or projected to be incurred on or after 1.4.2019 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.”

23. The Commission vide its order dated 28.7.2023 in Petition No. 32/GT/2020 had considered the gross loan and equity of Rs. 39359.18 lakh and Rs. 25934.30 lakh respectively, as on 31.3.2019. The same has been considered as gross loan and equity, as on 1.4.2019. The 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 as these assets were originally allocated to debt and equity in the ratio of 50:50 in the respective tariff orders. The details of debt: equity ratio considered are shown as under:

(Rs. in lakh)								
	Capital cost as on 1.4.2019		Additional capital expenditure during 2019-24		Decapitalization during 2019-24		Capital cost as on 31.3.2024	
	Amount	(%)	Amount	(%)	Amount	(%)	Amount	(%)
Debt (A)	39359.18	60.28%	499.99	70.00%	14.00	50.00%	39845.18	60.39%
Equity (B)	25934.30	39.72%	214.28	30.00%	14.00	50.00%	26134.59	39.61%
Total (C) = (A) + (B)	65293.48	100.00%	714.28	100.00%	27.99	100.00%	65979.77	100.00%



Return on Equity

24. Regulation 30 and Regulation 31 of the 2019 Tariff Regulations provide as follows:

“30. Return on Equity:

(1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with Regulation 18 of these regulations.

(2) Return on equity shall be computed at the base rate of 15.50% for thermal generating station, transmission system including communication system and run-of 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 return on equity in respect of additional capitalization after cut-off date beyond the original scope shall be computed at the weighted average rate of interest

on actual loan portfolio of the generating station or the transmission system

Provided further that:

i. In case of a new project, the rate of return on equity shall be reduced by 1.00% 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) or Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system based on the report submitted by the respective RLDC;

ii. in case of existing generating station, as and when any of the requirements under (i) above of this Regulation are found lacking based on the report submitted by the concerned RLDC, rate of return on equity shall be reduced by 1.00% for the period for which the deficiency continues;

iii. in case of a thermal generating station, with effect from 1.4.2020: rate of return on equity shall be reduced by 0.25% in case of failure to achieve the ramp rate of 1% per minute; an additional rate of return on equity of 0.25% shall be allowed for every incremental ramp rate of 1% per minute achieved over and above the ramp rate of 1% per minute, subject to ceiling of additional rate of return on equity of 1.00%:

Provided that the detailed guidelines in this regard shall be issued by National Load Dispatch Centre by 30.6.2019.”

“31. Tax on Return on Equity. (1) The base rate of return on equity as allowed by the Commission under Regulation 30 of these regulations 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 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 paid on income from other businesses including deferred tax liability (i.e. income from business other than business of generation or transmission, as the case may be) shall be excluded 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.

Illustration-

In case of a generating company or a transmission licensee paying Minimum Alternate Tax (MAT) @ 21.55% including surcharge and cess:

$$\text{Rate of return on equity} = 15.50 / (1 - 0.2155) = 19.758\%$$

(i) In case of a generating company or a transmission licensee paying normal corporate tax including surcharge and cess:

Estimated Gross Income from generation or transmission business for FY 2019-20 is Rs 1,000 crore;

Estimated Advance Tax for the year on above is Rs 240 crore;

Effective Tax Rate for the year 2019-20 = Rs 240 Crore / Rs 1000 Crore = 24%; Rate of return on equity = $15.50 / (1 - 0.24) = 20.395\%$.

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 2019-24 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 trueing up, shall be recovered or refunded to beneficiaries or the long-term customers, as the case may be, on year to year basis."

25. Return on Equity (ROE) for the existing asset base and the additional capital expenditure allowed in this order for the asset/works within the original scope of work, has been calculated by grossing up the base rate of ROE at MAT rate of 17.472% as submitted by the Petitioner. Further, the additional capitalization which are beyond the original scope, excluding the additional capitalization due to change in law, ROE has been calculated considering the weighted average rate of interest on actual loan claimed by the Petitioner grossed up at MAT rate of 17.472%. Accordingly, ROE has been worked out and allowed as under:

Return on Equity at Normal Rate:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Normative Equity-Opening (A)	25934.30	25990.60	26063.83	26074.13	26094.07
Addition of Equity due to additional capital expenditure (B)	56.30	73.23	10.30	19.94	0.00
Normative Equity-Closing (C) = (A) + (B)	25990.60	26063.83	26074.13	26094.07	26094.07
Average Normative Equity (D) = (A+C)/2	25962.45	26027.22	26068.98	26084.10	26094.07



	2019-20	2020-21	2021-22	2022-23	2023-24
Return on Equity (Base Rate) (E)	15.500%	15.500%	15.500%	15.500%	15.500%
Effective Tax Rate (F)	17.472%	17.472%	17.472%	17.472%	17.472%
Rate of Return on Equity (Pre-Tax) (G) = (E)/(1-F)	18.782%	18.782%	18.782%	18.782%	18.782%
Return on Equity (Pre-Tax) annualized (H) = (D)x(G)	4876.27	4888.43	4896.28	4899.12	4900.99

Return on Equity at WAROI:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Normative Equity - Opening (A)	0.00	40.52	40.52	40.52	40.52
Addition of Equity due to additional capital expenditure (B)	40.52	0.00	0.00	0.00	0.00
Normative Equity-Closing (C) = [(A) + (B)]	40.52	40.52	40.52	40.52	40.52
Average Normative Equity (D) = [(A+C)/2]	20.26	40.52	40.52	40.52	40.52
Return on Equity (Base Rate) (E)	6.452%	6.452%	6.452%	6.452%	6.452%
Effective Tax Rate (F)	17.472%	17.472%	17.472%	17.472%	17.472%
Rate of Return on Equity (Pre-Tax) (G) = (E)/(1-F)	7.818%	7.818%	7.818%	7.818%	7.818%
Return on Equity (Pre-Tax) (annualized) (H) = [(D) x (G)]	1.58	3.17	3.17	3.17	3.17

Interest on Loan

26. Regulation 32 of the 2019 Tariff Regulations provides as follows:

“32. Interest on loan capital: (1) The loans arrived at in the manner indicated in Regulation 18 of these regulations shall be considered as gross normative loan for calculation of interest on loan.

(2) The normative loan outstanding as on 1.4.2019 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2019 from the gross normative loan.

(3) The repayment for each of the year of the tariff period 2019-24 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-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 changes to the terms and conditions of the loans shall be reflected from the date of such re-financing.”

27. Interest on loan has been computed as under:

- (i) The gross normative loan amounting to Rs. 39359.18 lakh has been considered as on 1.4.2019;
- (ii) Cumulative repayment amounting to Rs. 24773.90 lakh as on 31.3.2019 as considered in order dated 28.7.2023 in Petition No. 32/GT/2020 has been considered as on 1.4.2019;
- (iii) Accordingly, the net normative opening loan as on 1.4.2019 works out to be Rs. 14585.28 lakh;
- (iv) Addition to normative loan on account of additional capital expenditure approved above has been considered;
- (v) Depreciation allowed has been considered as repayment of normative loan during the respective year of the 2019-24 tariff period;

28. The Petitioner has claimed interest on loan by applying the weighted average rate of interest of 6.4518% for the period 2019-24 and the same has been considered. The Petitioner, is however, directed to submit documentary evidence of the rate of interest, as considered in Form-13 and for the repayment schedule of loan at the time of truing-up of tariff. Accordingly, Interest on loan has been worked out as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Gross opening loan (A)	39359.18	39591.22	39770.96	39796.24	39845.18
Cumulative repayment of loan up to previous year (B)	24773.90	26180.32	27594.72	29034.20	30469.45
Net Loan Opening (C) = [(A) - (B)]	14585.28	13410.90	12176.24	10762.04	9375.74
Addition due to additional capital expenditure (D)	232.04	179.74	25.29	48.94	0.00
Repayment of loan during the period (E)	1411.01	1421.05	1440.42	1437.05	941.93



	2019-20	2020-21	2021-22	2022-23	2023-24
Less: Repayment adjustment on a/c of de-capitalization (F)	4.59	6.66	0.94	1.81	0.00
Net Repayment of loan during the period (G) = [(E) - (F)]	1406.42	1414.40	1439.49	1435.24	941.93
Net loan Closing (H) = [(C) + (D) - (G)]	13410.90	12176.24	10762.04	9375.74	8433.81
Average loan (I) = [(C+H)/2]	13998.09	12793.57	11469.14	10068.89	8904.77
Weighted Average Rate of Interest of loan (J)	6.4518%	6.4518%	6.4518%	6.4518%	6.4518%
Interest on loan (K) = (I)*(J)	903.14	825.42	739.97	649.63	574.52

Depreciation

29. Regulation 33 of the 2019 Tariff Regulations provides as follows:

“33. Depreciation: (1) Depreciation shall be computed from the date of commercial operation of a generating station or unit thereof or a transmission system or element thereof including communication system. 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:

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.

(8) 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 a 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.

(9) 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 the salvage value for IT equipment and software shall be considered as NIL and 100% value of the assets shall be considered depreciable;

Provided further that in case of hydro generating stations, the salvage value shall be as provided in the agreement, if any, signed by the developers with the State Government for development of the generating station:

Provided also 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 unit or transmission system as the case may be, shall not be allowed to be recovered at a later stage during the useful life or the extended life.



(10) 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.

(11) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in Appendix-I 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.

(12) In case of the existing projects, the balance depreciable value as on 1.4.2019 shall be worked out by deducting the cumulative depreciation as admitted by the Commission up to 31.3.2019 from the gross depreciable value of the assets.

(13) The generating company or the transmission licensee, as the case may be, shall submit the details of proposed capital expenditure five years before the completion of useful life of the project along with justification and proposed life extension. The Commission based on prudence check of such submissions shall approve the depreciation on capital expenditure.

(14) 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 open cycle generating station is 1.8.1998. As such, the generating station has completed 12 years of operation as on 1.8.2010, and the Open Cycle generating station shall complete its useful life on 31.3.2024. Therefore, depreciation has been calculated in three stages. In the first stage, the remaining depreciation of the generating station has been spread over its balance useful life, as per the provisions of the 2019 Tariff Regulations as below:

(A) Depreciation allowed for Open Cycle AGTPP completing useful life in 2023-24

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Average Capital cost for Open Cycle (A)	34929.27	34929.27	34929.27	34929.27	34929.27
Value of Freehold Land included in Avg capital cost on cash basis (B)	275.32	275.32	275.32	275.32	275.32
Value of IT equipment included in Avg capital cost on cash basis (C)	0.00	0.00	0.00	0.00	0.00
Rate of Depreciation (D)	23.09%	30.03%	42.92%	75.19%	100.00%
Depreciable Value including Amortization of lease land in 25 yrs. (E) = (A-B-C)x90%+C	31188.56	31188.56	31188.56	31188.56	31188.56



	2019-20	2020-21	2021-22	2022-23	2023-24
Cumulative Depreciation at the beginning (F)	27993.75*	28725.23	29456.58	30198.96	30942.21
Less: Dep adjustment on a/c of decapitalization (G)	8.26	11.98	1.69	3.26	0.00
Net Cumulative Depreciation after adjustment for de-capitalization (H) = (F-G)	27985.49	28713.25	29454.90	30195.70	30942.21
Remaining Depreciable Value (I)	3203.07	2475.31	1733.66	992.86	246.35
Balance Useful life of the asset at the beginning of the year (J)	4.33	3.33	2.33	1.33	0.33
Depreciation (for the period) (K) =(I/J)	739.74	743.34	744.06	746.51	246.35
Net Cumulative Depreciation at the end of the year (L)	28725.23	29456.58	30198.96	30942.21	31188.56

*Cumulative depreciation as on 31.3.2019 is Rs.27993.75 lakh

31. At the second stage, depreciation allowed on the additional capitalization, during the fag end period of the Open Cycle AGTPP generating station has been calculated as per the weighted average rate of depreciation submitted by the Petitioner as under:

(B) Depreciation allowed for additional capital expenditure claimed during the period 2019-24 for Open Cycle.

	2019-20	2020-21	2021-22	2022-23	2023-24
Average Capital cost for Open Cycle (A)	164.43	455.34	599.62	651.85	686.29
Value of Freehold Land included in Avg capital cost on cash basis (B)	0.00	0.00	0.00	0.00	0.00
Value of IT equipment included in Avg capital cost on cash basis (C)	0.00	0.00	0.00	0.00	0.00
Rate of Depreciation (D)	2.199%	2.199%	2.249%	2.226%	2.24%
Depreciable Value including Amortization of lease land in 25 yrs. (E) = (A-B-C)x90%+C	147.99	409.81	539.66	586.66	617.66
Cumulative Depreciation at the beginning (F)	0.00	3.62	13.63	27.11	41.63
Less: Dep adjustment on a/c of decapitalization (G)	0.00	0.00	0.00	0.00	0.00
Net Cumulative Depreciation after adjustment for de-capitalization (H) = (F-G)	0.00	3.62	13.63	27.11	41.63
Remaining Depreciable Value (I)	147.99	406.19	526.03	559.55	576.03
Depreciation (for the period) (J) = (AxD)	3.62	10.01	13.49	14.51	15.37
Net Cumulative Depreciation at the end of the year (K)	3.62	13.63	27.11	41.63	57.00



32. At the third stage, with the Commissioning of the STGs, in line with the order dated 28.7.2023 in Petition No. 32/GT/2020, depreciation allowed for the generating station has been calculated based on the weighted average rate of depreciation claimed by the Petitioner for the period 2019-24 as under:

(C) Depreciation allowed for Combined Cycle

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Avg. Capital Cost for combined cycle (A)	30364.21	30364.21	30364.21	30364.21	30364.21
Value of Freehold Land included in Avg capital cost on cash basis (B)	275.32	275.32	275.32	275.32	275.32
Value of IT equipment included in Avg capital cost on cash basis (C)	0.00	0.00	0.00	0.00	0.00
Rate of Depreciation (D)	2.199%	2.199%	2.249%	2.226%	2.240%
Depreciable Value including amortization of lease land in 25 yrs. (E) = (A-B-C) x 90%+C	27080.00	27080.00	27080.00	27080.00	27080.00
Cumulative Depreciation at the beginning (F)	5386.38	6054.03	6721.73	7404.61	8080.64
Less: Dep adjustment on a/c of decapitalization (G)	0.00	0.00	0.00	0.00	0.00
Net Cumulative Depreciation after adjustment for de-capitalization at the end of the year (H) = (F-G)	5386.38*	6054.03	6721.73	7404.61	8080.64
Remaining Depreciable Value (I)	21693.62	21025.97	20358.27	19675.39	18999.36
Balance Useful life of the asset at the beginning of the year (J)	21.98	20.98	19.98	18.98	17.98
Depreciation (for the period) (K) = (AxD)	667.65	667.70	682.88	676.03	680.20
Net Cumulative Depreciation at the end of the year (L)	6054.03	6721.73	7404.61	8080.64	8760.84

*Cumulative depreciation as on 31.3.2019 is Rs.5386.38 lakh

Operation & Maintenance Expenses

33. Regulation 35(1)(3) of the 2019 Tariff Regulations provides for O&M expense norms for combined cycle gas turbine power generating stations equipped with Advance F Class Machines as follows:

<i>(in Rs. lakh/MW)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
36.21	37.48	38.80	40.16	41.57



34. It is observed that the Petitioner has claimed O&M expenses as applicable for Small Gas Turbine power generating stations, whereas the 2019 Tariff Regulations provides specific norms for Agartala GPS as follows:

<i>(in Rs. lakh/MW)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
42.85	44.35	45.91	47.52	49.19

35. In terms of the above, the normative O&M expenses allowed to the generating station for the period 2019-24 is as under:

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
5784.75	5987.25	6197.85	6415.20	6640.65

Water Charges

36. The Petitioner has not claimed water charges for the period 2019-24 and hence not considered in this order.

Security Charges

37. The third proviso to Regulation 35(1)(6) of the 2019 Tariff Regulations provides as under:

*“35(1)(6) The Water Charges, Security Expenses and Capital Spares for thermal generating stations shall be allowed separately after prudence check:
xxxx*

Provided further that the generating station shall submit the assessment of the security requirement and estimated expenses”

38. The Petitioner has claimed total security expenses for Rs. 622.20 lakh for the period 2019-24 (i.e., Rs. 122.84 lakh in 2019-20, Rs. 120.04 lakh in 2020-21, Rs. 125.24 lakh in 2021-22, Rs. 126.44 lakh in 2022-23 and Rs 127.64 lakh in 2023-24) in terms of Regulation 35(1)(6) of the 2019 Tariff Regulations. The Petitioner has submitted that the said expenses has been claimed based on the estimated expenses for the period 2019-24 and shall be subject to retrospective adjustment, based on actuals, at the time of truing up.



39. The matter has been considered. The Petitioner has claimed Security expenses for the period 2019-24, on estimated basis, but has not furnished the assessment of security requirement as required under the third proviso to Regulation 35(1)(6) of the 2019 Tariff Regulations. Further, the Petitioner has not submitted any details regarding the variation in the claim for the period 2019-24. In view of this, we are inclined to provisionally allow the security expenses for the period 2019-24, as claimed by the Petitioner. Accordingly, the Petitioner is directed to furnish the requisite details for carrying out the prudence check of security expenses at the time of truing up giving all the details included in the security expense and reason of variance thereon. Further, the Petitioner, shall, at the time of truing up, furnish the actual security expenses incurred along with proper justification and assessment in terms of Regulation 35(1)(6) of the 2019 Tariff Regulations.

40. The summary of the O&M expenses allowed under Regulation 35 of the 2019 Tariff Regulations is as under:

		<i>(Rs. in lakh)</i>				
		2019-20	2020-21	2021-22	2022-23	2023-24
Installed Capacity (MW) (A)		135.00	135.00	135.00	135.00	135.00
O&M expenses under Regulation 35(1) in Rs. lakh/MW (B)	Claimed	36.21	37.48	38.80	40.16	41.57
	Allowed	42.85	44.35	45.91	47.52	49.19
Total O&M expenses (C) = (A)*(B)	Claimed	4888.35	5059.80	5238.00	5421.60	5611.95
	Allowed	5784.75	5987.25	6197.85	6415.20	6640.65
Water Charges (in Rs lakh) (D)	Claimed	0.00	0.00	0.00	0.00	0.00
	Allowed	0.00	0.00	0.00	0.00	0.00
Security Expenses (in Rs lakh) (E)	Claimed	122.84	120.04	125.24	126.44	127.64
	Allowed	122.84	120.04	125.24	126.44	127.64
Total O&M Expenses as allowed (including Water Charges and Security Expenses) (F) = (C+D+E)	Claimed	5011.19	5179.84	5363.24	5548.04	5739.59
	Allowed	5907.59	6107.29	6323.09	6541.64	6768.29



Capital spares

41. With Regard to Capital Spares, the proviso under Regulation 35(1)(6) of the 2019, Tariff Regulations is as under:

Provided also that the generating station shall submit the details of year-wise actual capital spares consumed at the time of truing up with appropriate justification for incurring the same and substantiating that the same is not funded through compensatory allowance as per Regulation 17 of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 or Special Allowance or claimed as a part of additional capitalization or consumption of stores and spares and renovation and modernization.

42. In terms of the above proviso under Regulation 35(1)(6) of the 2019, Tariff Regulations, capital spares consumed, are admissible separately, at the time of truing up of tariff, based on the details furnished by the Petitioner. However, the Petitioner has already procured and put to use 3 new generator rotors during 2019-20, 2022-23 and 2023-24 amounting to Rs. 1463.00 lakh, Rs. 1427.35 lakh and Rs. 1089.90 lakh respectively.

43. The capital spares claimed comprise of two categories i.e. (i) spares which form part of the capital cost and (ii) spares which do not form part of the capital cost of the project. In respect of capital spares which form part of the capital cost of the project, the Petitioner has been recovering tariff since their procurement and, therefore, the same cannot be allowed as part of additional O&M expenses. However, in this case the Petitioner has procured 2 new rotors as spares and replaced with existing rotor.

44. Further, we are also of the view that spares do have a salvage value. Accordingly, in line with the practice of considering the salvage value, presumed to be recovered by the Petitioner on sale of other capital assets, on becoming unserviceable, the salvage value of 10% has been deducted from the cost of capital spares considered above. Therefore, on applying the salvage value @10%, the net capital spares allowed is as under:



(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Net total value of capital spares considered (A)	1463.00	0.00	0.00	1427.35	1089.90
Salvage value @ 10% (B)	146.30	0.00	0.00	142.74	108.99
Net Claim allowed (C) = (A)-(B)	1316.70	0.00	0.00	1284.61	980.91

Operational Norms

45. The operational norms claimed by the Petitioner for the purpose of tariff is as under:

Normative Annual Plant Availability Factor (NAPAF) (%)	85
Gross Station Heat Rate (kcal/kwh)	2600 (C.C.) 3578 (O.C.)
Auxiliary Power Consumption (%)	3.1

Normative Annual Plant Availability Factor

46. Regulation 49 of the 2019 Tariff Regulations provides as under:

(A) Normative Annual Plant Availability Factor (NAPAF)

(a) For all thermal generating stations, except those covered under clauses (b), (c), (d), & (e) - 85%.

The Petitioner has claimed NAPAF of 85% during the period 2019-24 as per Regulation 49(A)(a) of the 2019 Tariff Regulations and the same is considered.

Gross Station Heat Rate

47. Regulation 49(C)(c) of the 2019 Tariff Regulations provides as follows:

“(c) For Gas-based/ Liquid-based Thermal Generating Unit(s)/ Block(s) having COD on or after 1.4.2009:

For Natural Gas = 1.050 X Design Heat Rate of the unit/block (kCal/kWh)

For RLNG =1.071 X Design Heat Rate of the unit/block for Liquid Fuel (kCal/kWh)

Where the Design Heat Rate of a unit shall mean the guaranteed heat rate for a unit at 100% MCR and at site ambient conditions; and the Design Heat Rate of a block shall mean the guaranteed heat rate for a block at 100% MCR, site ambient conditions, zero percent make up, design cooling water temperature/back pressure”

48. The Gross Station Heat Rate of 2600 kCal / kWh (for Combined Cycle) and 3578 kCal / kWh (for Open Cycle) claimed by the Petitioner, is in accordance with the said regulation, and hence, the same been considered for the purpose of tariff.



Auxiliary Power Consumption

49. Regulation 49(E)(c)(i) of the 2019 Tariff Regulations provides Auxiliary Power Consumption (APC) as follows:

“(E) Auxiliary Energy Consumption

(c) For Gas Turbine /Combined Cycle generating stations:

(i) Combined Cycle: 2.75%

(ii) Open Cycle: 1.00%

Provided that where the gas based generating station is using electric motor driven Gas Booster Compressor, the Auxiliary Energy Consumption in case of Combine Cycle mode shall be 3.30% (including impact of air-cooled condensers for Steam Turbine Generators):

Provided further that an additional Auxiliary Energy Consumption of 0.35% shall be allowed for Combine Cycle Generating Stations having direct cooling air cooled condensers with mechanical draft fans.”

The Petitioner has claimed Auxiliary Power Consumption (APC) of 3.1% for the generating station. Regulation 49(E)(c)(i) of the 2019 Tariff Regulations provides for 2.75% of AEC for the Combined Cycle Gas Turbines. Further, considering the direct cooling air cooled condensers and additional AEC of 0.35% shall also be allowed to the generating station. Accordingly, the APC of 3.1%, in terms of Regulation 49(E)(c)(i) of the 2019 Tariff Regulations, has been considered for the period 2019-24.

Interest on Working Capital

50. Regulation 34(1)(b) of the 2019 Tariff Regulations provides as follows:

“34. Interest on Working Capital: (1) The working capital shall cover: (a) xxx

(b) For Open-cycle Gas Turbine/Combined Cycle thermal generating stations:

(i) Fuel cost for 30 days corresponding to the normative annual plant availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel;

(ii) Liquid fuel stock for 15 days corresponding to the normative annual plant availability factor, and in case of use of more than one liquid fuel, cost of main liquid fuel duly taking into account mode of operation of the generating stations of gas fuel and liquid fuel;

(iii) Maintenance spares @ 30% of operation and maintenance expenses including water charges and security expenses;



(iv) *Receivables equivalent to 45 days of capacity charge and energy charge for sale of electricity calculated on normative plant availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel; and*

(v) *Operation and maintenance expenses, including water charges and security expenses, for one month.*

51. Clauses (3) and (4) of Regulation 34 of the 2019 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 1.4.2019 or as on 1st April of the year during the tariff period 2019-24 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:

Provided that in case of truing-up, the rate of interest on working capital shall be considered at bank rate as on 1st April of each of the financial year during the tariff period 2019-24.

(4) Interest on working capital shall be payable on normative basis notwithstanding that the generating company or the transmission licensee has not taken loan for working capital from any outside agency.”

Fuel Components and Energy Charges in working capital

52. The Petitioner has claimed the following fuel components for computation of working capital in Form O, based on the price and GCV of gas for preceding three months of January, 2019, February 2019 and March 2019:

Fuel Cost for 1 Month	(Rs. in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
	2041.17	2041.17	2041.17	2041.17	2041.17

53. The Petitioner has claimed Energy Charge Rate (ECR) of 251.5 paise/kWh for 2019-20 and 251.5 paise/kWh for 2020-24. The Petitioner has claimed the cost for fuel component in working capital and ECR based on:

- a) Operational norms as per 2019 Tariff Regulations.
- b) Price and “as received” GCV of gas for the three months of January 2019, February 2019 and March 2019 for 2019-20;
- c) Price and “as received” GCV of gas for the three months of August 2019, September 2019 and October 2019 for the 2020-24 period;

54. On perusal of the data furnished by the Petitioner, it is observed that the Petitioner, while computing ECR, has considered the average price and GCV of gas, instead of the weighted



average price and GCV of gas. Accordingly, the weighted average landed cost and weighted average GCV of gas, for working out the fuel component in working capital for the above-said three months have been computed as follows:

		<i>(in Rs/MT)</i>			
		April 2019	May 2019	June 2019	Weighted Average
Weighted average Price of Gas	Claimed	9339.60	8860.54	8899.69	9033.27
	Allowed	9032.39	9032.39	9032.39	9032.39
Weighted average GCV of Gas (as received)	Claimed	9206.30	9205.55	9241.86	9217.91
	Allowed	9216.71	9216.71	9216.71	9216.71

55. Accordingly, the fuel component in working capital is allowed as follows:

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
2105.16	2105.16	2105.16	2105.16	2105.16

Energy Charge Rate (ECR)

56. As stated above, the Petitioner has claimed ECR of 143.873 paise/kWh for 2019-20 and 167.782 paise/kWh for 2020-24, based on the average price, GCV of gas procured and burnt for the above specified months. ECR, as worked out, based on the operational norms specified under the 2019 Tariff Regulations and on “as received” GCV of gas, for the three months as stated above, considered for allowing 2 months of energy charge in working capital is as under:

Description	Unit	2019-20	2020-24
Capacity	MW	135	135
Gross Station Heat Rate	kCal/kWh	2600	2600
Aux. Energy Consumption	%	3.1	3.1
Weighted average GCV of fuel	Rs/1000 SCM	9216.71	9216.71
Weighted average price of fuel	kCal/SCM	9032.39	9032.39
ECR	Paise /kWh	262.952	262.952

57. ECR in Rs./kWh on ex-power plant, on month-to-month basis, shall be calculated up to three decimal places in accordance with the formulae given under Regulation 42 of the 2019 Tariff Regulations.



Working Capital for O&M Expenses

58. The O&M expenses for 1 month as claimed by the Petitioner for the purpose of working capital, including water charges and security expenses, are as follows:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
417.60	431.65	446.94	462.34	478.30

59. Regulation 34(1)(b)(v) of the 2019 Tariff Regulations provides for O&M expenses for one month, including water charges and security expenses. Accordingly, the O&M expenses for working capital is allowed as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
492.30	508.94	526.92	545.14	564.02

Working Capital for Maintenance Spares

60. Regulation 34(1)(b)(iii) of the 2019 Tariff Regulations provides for Maintenance spares @ 30% of the O&M expenses, including water charges and security expenses. Accordingly, maintenance spares have been considered and allowed as under:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Claimed	15033.57	15539.52	16089.72	16644.12	17218.77
Allowed	1772.28	1832.19	1896.93	1962.49	2030.49

Working Capital for Receivables

61. Regulation 34(1)(b)(iv) of the 2019 Tariff Regulations provides for receivables for 45 days. Accordingly, after taking into account the mode of operation of the generating station on secondary fuel, the receivable component of working capital is allowed as follows:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Energy Charge for 45 days corresponding to NAPAF	3157.74	3157.74	3157.74	3157.74	3157.74



	2019-20	2020-21	2021-22	2022-23	2023-24
Fixed Charge for 45 days corresponding to NAPAF	1912.35	1762.91	1774.90	1952.40	1867.74
Total	5070.09	4920.65	4932.64	5110.14	5025.48

62. In line with Regulation 34(4) of the 2019 Tariff Regulations, the rate of interest on working capital has been considered as 12.05% [1 year SBI MCLR of 8.55% (as on 01.04.2019) + 350 bps] for the year 2019-20; 11.25% [1 year SBI MCLR of 7.75% (as on 01.04.2020) + 350 bps] for the year 2020-21, 10.50% [1 year SBI MCLR of 7.00% (as on 01.04.2021) + 350 bps] for the period 2021-22, and 10.50% (i.e. 1 year SBI MCLR of 7.00% (as on 01.04.2022) + 350 bps) for the period 2022-24. Accordingly, the rate of interest on working capital has been considered as 12.05% for 2019-20, 11.25% for 2020-21 and 10.50% for the period 2021-24.

Accordingly, interest on working capital is worked out and allowed as under:

	2019-20	2020-21	2021-22	2022-23	2023-24
Working Capital for Fuel Cost (A)	2105.16	2105.16	2105.16	2105.16	2105.16
Working Capital for O & M expenses - 1 month (B)	492.30	508.94	526.92	545.14	564.02
Working Capital for Maintenance Spares - 30% of O&M (C)	1772.28	1832.19	1896.93	1962.49	2030.49
Working Capital for Receivables - 45 Days (D)	5070.09	4920.65	4932.64	5110.14	5025.48
Total Working Capital (E) = (A+B+C+D)	9439.83	9366.94	9461.66	9722.93	9725.16
Rate of Interest (F)	12.05%	11.25%	10.50%	10.50%	10.50%
Interest on Working capital (G) = (E)x(F)	1137.50	1053.78	993.47	1020.91	1021.14

Annual Fixed Charges

63. Accordingly, the annual fixed charges allowed for the generating station for the period 2019-24 is summarized below:

	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation (A)	1411.01	1421.05	1440.42	1437.05	941.93
Interest on Loan (B)	903.14	825.42	739.97	649.63	574.52
Return on Equity (C)	4877.85	4891.60	4899.44	4902.28	4904.16
Interest on Working Capital (D)	1137.50	1053.78	993.47	1020.91	1021.14



	2019-20	2020-21	2021-22	2022-23	2023-24
O&M Expenses (including security expenses) (E)	5907.59	6107.29	6323.09	6541.64	6768.29
Capital Spares allowed (F)	1316.7	0.00	0.00	1284.61	980.91
Total AFC (G) = (A+B+C+D+E+F)	15,553.78	14,299.14	14,396.40	15,836.12	15,190.95

Note: All figures are on annualized basis. 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.

64. The annual fixed charges determined above is subject to truing-up in terms of Regulation 13 of the 2019 Tariff Regulations.

Application filing fees and Publication charges

65. The Petitioner has sought reimbursement of fees paid by it for filing the tariff petition for the period 2019-24 and towards publication expenses incurred. The Petitioner shall be entitled for reimbursement of the filing fees and publication expenses in connection with the present petition, directly from the beneficiaries, on pro-rata basis, in accordance with Regulation 70(1) of the 2019 Tariff Regulations.

66. Similarly, RLDC Fees & Charges paid by the Petitioner in terms of the Central Electricity Regulatory Commission (Fees and Charges of Regional Load Dispatch Centre and other related matters) Regulations, 2019, shall be recovered from the beneficiaries. In addition, the Petitioner is entitled for recovery of statutory taxes, levies, duties, cess etc. levied by the statutory authorities in accordance with the 2019 Tariff Regulations.

67. Petition No. 246/GT/2020 is disposed of in terms of the above.

**Sd/-
(Pravas Kumar Singh)
Member**

**Sd/-
(Arun Goyal)
Member**

**Sd/-
(I.S. Jha)
Member**

