

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 109/GT/2020

Coram:

**Shri P. K. Pujari, Chairperson
Shri I. S. Jha, Member
Shri Pravas Kumar Singh, Member**

Date of Order: 11th January, 2022

In the matter of:

Petition for determination of tariff of combined cycle gas based Palatana Power Project of ONGC Tripura Power Company Limited (726.6 MW) for the 2019-24 tariff period.

And

In the matter of:

OTPC Limited,
6th Floor, A Wing, IFCI Tower,
61, Nehru Place,
New Delhi-110 019

.....Petitioner

Vs

1. Assam Power Distribution Company Limited (APDCL),
(Government of Assam)
"Bijulee Bhawan", Paltan bazar,
Guwahati-781 001
2. Department of Power,
(Government of Arunachal Pradesh)
Vidyut Bhawan,
Itanagar – 791111
3. Department of Power,
(Government of Nagaland)
Kohima – 797 001
4. Manipur State Power Distribution Company Limited (MSPDCL),
(Government of Manipur)
Keishampat, Imphal – 795001
5. Power and Electricity Department,



(Government of Mizoram), Aizawal, Mizoram – 796001

6. Meghalaya Energy Corporation Limited (MeCL),
(Government of Meghalaya)
Short Round road, “LUMJINGSHAI”
Shillong – 793001, Meghalaya

7. Tripura State Electricity Corporation Limited,
(Government of Tripura)
Vidyut Bhawan, North Banamalipur,
Agartala, Tripura – 799001

...Respondents

Parties Present:

Shri Arup C. Sarmah, OTPC Limited
Shri Sanil C. Namboodiripad, OTPC Limited
Shri Amit C. Dabbas, OTPC Limited
Shri Sree Narayan, OTPC Limited
Shri Sajjan Sharma, OTPC Limited
Shri Avininder Gupta, OTPC Limited

ORDER

The Petition has been filed by the Petitioner, OTPC Limited (in short, ‘OTPC’) for approval of tariff of Combined Cycle Gas Based Palatana generating station (726.6 MW) (hereinafter referred to as ‘the generating station’) for the period from 1.4.2019 to 31.3.2024, in accordance with the provisions of the Central Electricity Regulatory Commission (Terms & Conditions of Tariff) Regulations, 2019 (hereinafter referred to as ‘the 2019 Tariff Regulations’).

Background

2. The generating station with an installed capacity of 726.6 MW comprises of two Gas Turbine (GT) units of 232.39 MW each and two Steam Turbine (ST) units of 130.91 MW. The Petitioner is a joint venture of ONGC, IL&FS (through its affiliate IEDCL) and the Government of Tripura with the major shareholding by ONGC (50%), IEDCL (26%), Government of Tripura (0.5%) and Residual Equity (23.5%) for setting



up the generating station. The beneficiaries of the North-Eastern States have been allocated a capacity of 628 MW from the generating station and the balance capacity of 98 MW is towards merchant sale.

3. COD of Unit-I of the generating station is 4.1.2014 and that of Unit-II is 24.3.2015. The Commission vide order dated 20.12.2013 in Petition No.199/GT/2013 granted provisional tariff for Block-I of the generating station for the period from anticipated COD of Unit-I (Block-I) to 31.3.2014. Subsequently, by order dated 31.8.2015 in Petition No. 199/GT/2013, the tariff of Unit-I for the period from 4.1.2014 to 31.3.2014 was determined, after allowing the time overrun of 675 days for the said unit. Thereafter, the Commission, after allowing the time overrun of 675 days for Unit-I and 584 days for Unit-II, determined the tariff of the generating station for the 2014-19 tariff period, by order dated 30.3.2017 in Petition No.129/GT/2015. Subsequently, the order dated 30.3.2017 was revised vide corrigendum order dated 3.5.2017 in Petition No.129/GT/2015, after correction of arithmetical/ linkage errors in the calculation of Return on Equity and Interest on loan. Thereafter, in Petition No. 108/GT/2020 filed by the Petitioner for revision of tariff of the generating station, based on truing up of tariff for the 2014-19 tariff period, the Commission vide order dated 18.12.2021 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
	1.4.2014 to 23.3.2015	24.3.2015 to 31.3.2015				
Opening Capital Cost (A)	172470.03	306881.06	306881.06	325735.84	328485.68	333178.83
Add: Addition during the year / period (B)	0.00	0.00	4203.80	1819.92	3385.50	77.27



	2014-15		2015-16	2016-17	2017-18	2018-19
	1.4.2014 to 23.3.2015	24.3.2015 to 31.3.2015				
Less: Decapitalization during the year / period (C)	0.00	0.00	0.00	0.00	0.00	73.73
Add: Discharges during the year / period (D)	0.00	0.00	14650.98	929.92	1307.65	155.48
Closing Gross Block (E) = (A+B-C+D)	172470.03	306881.06	325735.84	328485.68	333178.83	333337.85
Average Gross Block (F) = (A+E)/2	172470.03	306881.06	316308.45	327110.76	330832.26	333258.34

Annual Fixed Charges allowed

(Rs. in lakh)

	2014-15		2015-16		2016-17	2017-18	2018-19
	1.4.2014 to 23.3.2015	24.3.2015 to 31.3.2015	1.4.2015 to 9.4.2015	10.4.2015 to 31.3.2016			
Depreciation	8316.01	331.58	374.80	15421.50	16409.05	16629.82	16762.13
Interest on Loan	13918.98	587.47	626.84	21110.33	19956.49	16945.51	15056.80
Return on Equity	5954.96	177.93	200.59	15648.87	16591.28	16780.03	16948.55
Interest on Working Capital	2411.29	99.27	113.26	4596.03	4802.54	4856.34	5070.82
O&M Expenses	9438.63	422.92	506.83	20104.20	22014.03	23510.56	25329.55
Total	40039.88	1619.17	1822.33	76880.92	79773.39	78722.25	79167.86

Present Petition

4. The Petitioner vide affidavit dated 28.10.2019 has filed the present petition for determination of tariff for the generating station for the 2019-24 tariff period, in terms of the 2019 Tariff Regulations. Subsequently, vide affidavit dated 6.10.2020, the tariff claimed was revised on account of settlement of Liquidated Damages (LD) with M/s BHEL. The Petitioner vide affidavit dated 31.5.2021 has revised its submissions on account of certain additional capital expenditure claimed. Accordingly, the annual fixed charges and the capital cost claimed by the Petitioner are as follows:



Capital cost claimed

(Rs in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Capital Cost	344399.17	363570.63	367027.42	371792.63	373795.83
Add: Addition during the year/period	11040.32	1816.22	4765.21	2003.21	0.00
Add: Discharges during the year/ period	8131.15	1640.56	0.00	0.00	0.00
Closing Capital Cost	363570.63	367027.42	371792.63	373795.83	373795.83
Average Capital Cost	353984.90	365299.03	369410.02	372794.23	373795.83

Annual Fixed Charges claimed

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	17593.05	18191.89	18655.21	18826.11	18876.69
Interest on Loan	16567.72	14209.84	12896.41	11509.77	9962.47
Return on Equity	17112.44	17659.39	17858.13	18021.73	18070.15
Interest on Working Capital	4037.91	4403.71	4439.16	4469.98	4493.19
O&M Expenses	20046.64	20754.24	21484.77	22238.26	23014.75
Annual Fixed Charges	75357.76	75219.08	75333.67	75065.84	74417.26

Hearing of the case

5. The Respondent No.1, Assam Power Distribution Company Ltd. (APDCL) has filed its reply vide affidavit dated 8.4.2021 and the Petitioner vide affidavit dated 1.6.2021 has filed its rejoinder to the said reply. This petition along with Petition No.108/GT/2020 was heard on 17.3.2021 through video conferencing and the Commission, after directing the Petitioner to submit certain additional information vide Record of the Proceeding, reserved its order in the petitions. In response, the Petitioner vide affidavit dated 31.5.2021 has filed the additional information, after serving copies on the Respondents. As these petitions could not be disposed of prior to demitting office of Member Ex-officio (Shri Prakash Mhaske), who was part of the coram, these petitions were heard again on 29.6.2021 through video conferencing and the Commission, after hearing the parties, reserved its order in the petitions. 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 in the subsequent paragraphs.



Capital Cost

6. Clause (1) of Regulation 19 of the 2019 Tariff Regulations provides that the capital cost as determined by the Commission after prudence check in accordance with this regulation shall form the basis 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 modernisation 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.

7. Accordingly, in terms of Regulation 19 of the 2019 Tariff Regulations, the capital cost of Rs.333337.85 lakh as on 31.3.2019 has been considered as the opening capital cost as on 1.4.2019, for the purpose of determination of tariff for the 2019-24 tariff period.

Additional Capital Expenditure

8. Regulation 25 and Regulation 26 of the 2019 Tariff Regulations provides that the application for determination of tariff shall be based on admitted capital cost



including any additional capital expenditure already admitted up to 31.3.2019 (either based on actual or projected additional capital expenditure) and estimated additional capital expenditure for the respective years of the 2019- 24 tariff period. Regulation 25 of the 2019 Tariff Regulations provides as follows:

“25. Additional Capitalisation 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 follows:

“26. Additional Capitalisation beyond the original scope:

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

- (a) Liabilities to meet award of arbitration or for compliance of order or directions of any statutory authority, or order or decree of any court of law;*
- (b) Change in law or compliance of any existing law;*
- (c) Force Majeure events;*



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

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

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

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

(2) In case of de-capitalisation 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 decapitalisation 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-capitalisation takes place with corresponding adjustments in cumulative depreciation and cumulative repayment of loan, duly taking into consideration the year in which it was capitalised.”

10. The year-wise projected additional capital expenditure claimed by the Petitioner for the 2019-24 tariff period in terms of the 2019 Tariff Regulations are summarized below:

<i>(Rs. in lakh)</i>								
Sl. No.	Head of Work/ Equipment	Regulation	2019-20	2020-21	2021-22	2022-23	2023-24	Total
A	Allowed Works							
1	Plant and Machinery		65.63	0.00	0.00	0.00	0.00	65.63
	Sub Total (A)		65.63	0.00	0.00	0.00	0.00	65.63
B	New Claims							
1	Palatana Township Civil Works	Regulation 25(1)(d)	11902.87	0.00	0.00	0.00	0.00	11902.87
2	Feed to GBC from 400 kV Transformer	Regulation 14(3)(vii) read with Regulations 76 and 77	0.00	0.00	0.00	0.00	0.00	0.00
3	Online GTG Rotor Flux Monitoring	-do-	0.00	0.00	0.00	0.00	0.00	0.00
4	Change of Obsolete Relays at OTPC Plant Switchyard	Regulation 25(2)(c)	0.00	30.00	0.00	0.00	0.00	30.00
5	Replacement of Sodium Lights with LED Lights at Palatana Premises	Regulation 25(2)(c)	0.00	30.00	0.00	0.00	0.00	30.00



SI. No.	Head of Work/ Equipment	Regulation	2019-20	2020-21	2021-22	2022-23	2023-24	Total
6	GTG Rotor	Regulation 14(3)(vii) read with Regulations 76 and 77	0.00	1382.00	0.00	0.00	0.00	1382.00
7	Compressor Enhancement Package	-do-	0.00	374.22	2003.21	2003.21	0.00	4380.64
8	Online Condition Monitoring of Transformers/ Reactors	-do-	0.00	0.00	200.00	0.00	0.00	200.00
9	Upgradation of DCS and MARK-6 Software	Regulation 25(2)(c)	0.00	0.00	2562.00	0.00	0.00	2562.00
10	Rainwater Harvesting System	Regulation 14(3)(vii)	307.54	0.00	0.00	0.00	0.00	307.54
	Sub Total (B)		12210.40	1816.22	4765.21	2003.21	0.00	20795.04
C	De-capitalization of Furniture & Fixture (C)		(-) 4.45	0.00	0.00	0.00	0.00	(-) 4.45
D	Sub Total (D) = (A + B + C)		12271.58	1816.22	4765.21	2003.21	0.00	20856.22
E	Discharge of Liabilities (E)	Regulation 14(3)(vi)	8131.15	1640.56	0.00	0.00	0.00	9771.71
	Total Additional Capital Expenditure claimed (D + E)		20402.72	3456.78	4765.21	2003.21	0.00	30627.92

11. The cut-of date of the generating station is 31.3.2018. It is observed that the Petitioner has claimed certain additional capital expenditure in terms of Regulation 14(3) of the 2014 Tariff Regulations. However, as the tariff of the generating station is being determined for the 2019-24 tariff period, in terms of the 2019 Tariff Regulations, the claim for additional capital expenditure is being considered in terms of Regulation 25 and Regulation 26 of the 2019 Tariff Regulations, as the case may be, in the following paragraphs.

A. Plant and Machinery



12. The Commission vide order dated 18.12.2021 in Petition No. 108/GT/2020 had allowed total actual additional capital expenditure of Rs.5360.82 lakh (Rs.2666.80 lakh in 2015-16, Rs.1942.59 lakh in 2016-17 and Rs.751.44 lakh in 2017-18) as claimed by the Petitioner in terms of Regulation 14(1) of the 2014 Tariff Regulations. The Petitioner has now claimed projected additional capital expenditure of Rs.65.63 lakh in 2019-20 for Plant and Machinery on account of payment adjustment with M/s BHEL. The Petitioner has, however, not furnished any justification nor submitted the relevant provision of the regulations under which such claim has been made. The Petitioner has also not furnished any detailed break-up of discharges in Form L of the petition. Thus, the claim for additional capital expenditure is not allowed. The Petitioner may submit proper details at the time of truing up of tariff, for consideration in terms of the relevant provision of the regulations.

B. Palatana Township Civil Works

13. The Petitioner has claimed additional capital expenditure of Rs.11902.87 lakh towards Palatana Township Civil Works in 2019-20 under Regulation 25(1)(d) read with Regulation 76 and Regulation 77 of the 2019 Tariff Regulations. In justification of the same, the Petitioner has submitted that the Commission vide order dated 30.3.2017 in Petition No.129/GT/2015 had approved the additional capital expenditure of Rs.13038.00 lakh for 2015-16, 2016-17 and 2017-18 for 'Civil Works' related to the completion of residential township within the cut-off date of the generating station. The Petitioner has submitted that the works related to construction of residential township were, however, completed by 31.3.2020, i.e. beyond the cut-off date for reasons which were beyond the control of the Petitioner, as follows:

- (i) **Delay in procurement and registration of land:** Given the geographical constraints of the State of Tripura, the process of finalizing of land



was time consuming and the Petitioner had to plan according to land that was available free of encumbrances and also suitable for construction-related activities. Furthermore, given the difficulty of terrain and everyday travelling, it was also necessary that the land purchased was as near the generating station as possible. Thus, a substantial amount of time was spent in looking for a suitable piece of land. Further, it was estimated that nearly 15 acres of land would be required for the construction of the residential township and it was difficult to find such land near the generating station, as the nearby area to the generating station was either forest land or private land. After much search, land measuring 7.91 acres was identified which was situated in Khilpara village. As, the land finalized was of 7.91 acres only (almost half the initially planned size of land of 15 acres), the Petitioner was forced to change its plan of constructing low rise apartments and instead high-rise apartments were planned. The registration of the land for residential township was made in the name of the Petitioner on 23.5.2013. Thus, it took almost 2 years from 2009 to 2011 to find a suitable piece of land and an additional one year and seven months to get the land registered. Before, awarding the contract for construction of the residential township, it was necessary to get the works related to soil Investigation, site levelling and grading, boundary wall construction and appointment of architect completed. Soil investigation of the residential township land was done by M/s CE Testing in July 2013 and the Soil Investigation Report was submitted on 19.7.2013. Further, the Soil Investigation Report suggested a Plate Load Test (*not part of the original scope of work*) be conducted. Therefore, a contract for the same was awarded. The Plate Load Test Report submitted by M/s CE Testing on 18.12.2013, recommended the requirement of Piles. Also, Tender no. OTPC/UDP/OTR/2013-14/22 dated 5.11.2013 which was already floated for the construction of boundary wall was cancelled vide approval note dated 3.2.2014, as it had not considered Pile foundations. Accordingly, revised Tender no. OTPC/BW/PAL/13-14/001 was issued on 26.3.2014, on domestic competitive bidding basis for "Construction of Boundary Wall at proposed Township at Khilpada". Five bids were received, and Letter of Award (LoA) was issued to the L1 bidder, Raja Raw Ghosh, who, without any reason or communication (i) did not accept the LoA, (ii) did not mobilize at site, and (iii) did not submit Contract Performance Bank



Guarantee. So, LoA was given to Barnik, L2 bidder, on 3.9.2014. The Petitioner has submitted that despite no fault, the award of contract for the construction of boundary wall was changed from 26.6.2014 to 3. 9.2014, leading to delay of almost 2 months.

(ii) **Delay in finalization of Pile Design due to Pile failure:** The Soil Investigation Report had shown the presence of liquefiable soil till 10 m depth. Therefore, it was necessary for the Petitioner to construct the piling of 500 mm diameter of around 20-24 meters length, depending upon the size of the building. It was also observed that the residential township site falls in seismic zone-V. Based upon the Soil Investigation Report dated 19.7.2013, the construction of test Piles was commenced by M/s Apu Dey, the contractor of EPIL. It was observed that test piles were found to have significantly lower capacity vis-a-vis the design capacity. As per the advice of Fichtner and CENGERS (a reputed consultant in the area of soil design), one additional test Pile (TP-4 New near Type-III) was installed under the supervision of CENGERS. This eventually led to more time required at every step than was earlier envisaged. Final Piling drawings were issued from 10.11.2016. Type-2, Type-3, Type-4, Type-5 and club house Piling drawings were handed over to EPIL on 10.11.2016, 18.11.2016, 2.12.2016, 15.12.2016 and 10.3.2017 respectively. After issue of piling drawings for Type-2 and Type-3, meetings were held with EPIL on 18.11.2016 and 30.11.2016, after which EPIL submitted a schedule according to which 100% piling work was scheduled to be completed by 5.5.2017.

(iii) **Arrest of key officials of EPIL (Engineering Projects (India) Ltd), a Government of India enterprise by the CBI in March 2017:** The contract for construction of the residential township was awarded to M/s EPIL, L1 for a total lump-sum price of Rs. 10813.00 lakh, which was further revised to Rs.10006.00 lakh, with target completion of 24 months, from the date of award. EPIL began the installation of first Pile on 6.1.2017 and in March 2017, EPIL's senior officials including the Chairman cum Managing Director, two Directors and some other persons were arrested by CBI for alleged graft. Such a situation was not foreseen by the Petitioner at the time of award of the contract to M/s EPIL for construction of residential township. The arrest of senior officers brought the



activities of civil works of the residential township to a standstill. Even after several rounds of communication, there was no outcome. The Petitioner also evaluated the option of getting the work executed through other agencies. A letter was sent to EPIL to complete the piling work within 15 days failing which the Petitioner intimated that it would consider getting the work executed through alternative agency. The potential contractors including those who had submitted bid for initial award of contract were contacted seeking their proposal. After discussions with the contractors, the Petitioner had two choices i.e. (i) to short close the contract awarded to EPIL after completion of piling work and award the contract to GDCL, which was the only agency which had agreed to take-up the work with additional expenditure of approximately Rs.20 crore; (ii) to continue with EPIL considering their latest commitment, matching with GDCL, to complete the work without incurring the additional cost of Rs.20 crore. It was decided by the Petitioner that the best alternative in the given situation was to continue with M/s EPIL for execution and completion of the residential township work. The Petitioner has taken all possible and necessary steps and did not spare to explore any feasible alternative to expedite the completion of civil works at the residential township. However, due to reasons beyond its control, the completion of civil work related to residential township has been delayed and went beyond the scheduled cut-off date of 31.3.2018.

(iv) **Excessive rainfall in the State of Tripura during monsoon and non-monsoon seasons:** The State of Tripura in the North Eastern Region of India experiences extended monsoons and excess rainfall, as compared to mainland due to which there was considerable delay in the execution of the construction work of residential township. Therefore, the delay on account of excessive rainfall may be condoned.

(v) **Unavailability of skilled contractors and manpower in the State:** The delay was also due to the absence of necessary manpower, materials and equipment, as all these were to be sourced from outside the State. The progress of civil works at the residential township also got affected due to rivalry between fractions of workers. The inability of the contractors to pay cash to its daily wages workers due to cash crunch, resulted in serious disruption in construction work at



the residential township site for several months, as large number of daily wage workers deployed by the sub-contracting agencies left the site abruptly.

14. The Petitioner has submitted that the aforesaid issues, which led to the delay in completion of the civil works, were beyond its control. The Petitioner has further submitted that due to the optimal design and construction work, the actual expenditure incurred for construction and completion of residential township is lesser than the original projected amount of Rs.13126.77 lakh. Accordingly, the Petitioner has prayed that the revised additional capital expenditure of Rs.11902.87 lakh incurred in 2019-20 may be allowed under Regulation 25(1)(d) read with Regulation 76 (power to relax) and Regulation 77 (removal of difficulty) of the 2019 Tariff Regulations.

15. The Respondent, APDCL has submitted that the Petitioner was allowed to complete the construction work before the cut-off date, but the Petitioner has completed the work on 31.3.2020, i.e. the delay of two years is mainly due to the arrest of EPIL officers, lethargic work of construction party, excess time in bidding process, and delay in procurement of land. The Respondent has further submitted that the factors mentioned by the Petitioner neither accounts for 'Force Majeure' condition nor is uncontrollable and, therefore, any cost over run on account of factors attributable to the Petitioner may not be passed on to the beneficiaries.

16. The matter has been considered. It is observed that the Petitioner had filed Petition No.98/MP/2018 for extension of cut-off date from 31.3.2018 to 31.3.2020, in respect of the Civil Works related to the residential township of the generating station. However, the Commission vide order dated 26.9.2019 in Petition No. 98/MP/2018 on the request of the Petitioner had allowed to withdraw the said petition with the liberty to approach the Commission for capitalization of the expenditure after completion of



the said works, in terms of the relevant regulations. The relevant extract of the order dated 26.9.2019 is quoted below:

“4. During the hearing on 24.9.2019, the learned counsel for the Petitioner submitted that since the works related to construction of residential township for its employees is likely to be completed by 31.3.2020, the Commission may relax the cut-off date of the Project from 31.3.2018 to 31.3.2020 in exercise of the power under Regulation 54 of the 2014 Tariff Regulations. On a specific observation of the Commission that the capitalization of the expenditure after 1.4.2019 would be governed by the provisions of the 2019 Tariff Regulations, the learned counsel for the Petitioner submitted that it may be permitted to withdraw the Petition with liberty to approach the Commission for capitalization of the expenditure after completion of the said works, in terms of the relevant regulations. The representative of the Respondent, APDCL did not object to the above submission.

5. Based on the submission of the learned counsel for the Petitioner, the Commission permitted the Petitioner to withdraw this Petition. Accordingly, the Petition is disposed of as withdrawn. The Petitioner is however granted liberty to approach the Commission for capitalization of the actual expenditure incurred towards the construction of residential township and the same would be considered in accordance with law. The filing fees deposited by the Petitioner for this Petition shall be adjusted against any Petition to be filed by the Petitioner before this Commission”

17. It is also observed that the Commission vide order dated 18.12.2021 in Petition No. 108/GT/2020 had allowed actual additional capital expenditure Rs.1379.01 lakh towards Civil works (against capital expenditure of Rs.13038.00 lakh admitted for 2014-19 period vide order dated 30.3.2017 in Petition No. 129/GT/2015). The Petitioner, now, has claimed actual additional capital expenditure of Rs.11902.87 lakh during 2019-20 towards balance works of Residential township. The Petitioner has also prayed that due to the optimal design and construction work, the actual expenditure incurred for construction and completion of residential township is lesser than the original projected amount of Rs.13126.77 lakh. However, it is observed that the total actual expenditure as on 31.3.2020 is Rs.13281.88 lakh (i.e. Rs.1379.01 during 2014-19 and Rs.11902.87 lakh in 2019-20). The Petitioner, in support of its justification for the delay in construction of Palatana Township Civil Works, has furnished copy of emails dated 3.9.2017 exchanged between the contactors (M/s



EPIL) and the Petitioner regarding the completion of work, the pile installation status report and copy of MOMs dated 19.4.2017, 14.6.2017, 28.6.2017 and 13.7.2017, 1.6.2018, 22.6.2018, 29.11.2018, 30.11.2018 between the Petitioner and EPIL officers, copy of emails/ letters dated 9.5.2017, 12.5.2017, 26.5.2017, 29.5.2017, 2.6.2017, 12.9.2017, 15.6.2018 and 27.6.2018 exchanged between the Petitioner and EPIL regarding payment and completion of the said work, MOM of the review meeting dated 30.5.2017, 2.5.2019 and 3.5.2019 between the Petitioner and EPIL regarding construction of the township, rainfall data from April 2016 and October 2017 and climate report prepared by Meteorological Centre, Agartala (Indian Meteorological Department). Though delay on account of contractor (EPIL) cannot be said to be uncontrollable, it is observed from the submissions of the Petitioner that the delay due to other reasons in construction of residential township was due to the factors which were beyond the control of the Petitioner. In the view of the above discussions, the fact that actual capital expenditure towards this head is lesser than the admitted capital expenditure (vide order dated 30.3.2017 in Petition No. 129/GT/2015) and on prudence check of the submissions and the documents furnished by the Petitioner, we allow the actual additional capital expenditure of Rs.11902.87 lakh in respect of Township Civil Works in 2019-20 under Regulation 25(1)(d) read with Regulation 76 (Power to Relax) of the 2019 Tariff Regulations.

C. Rainwater Harvesting System

18. The Petitioner has claimed additional capital expenditure of Rs.307.54 lakh towards Rainwater Harvesting System (RWHS) in 2019-20. In justification of the same, the Petitioner has submitted that it has undertaken Rainwater Harvesting System work at the generating station site. It has also submitted that while most of works related to RWHS were completed within the cut-off date, only the civil works



related with Pit-1 and Tube well Pump House -1 and 3 for Rs.307.54 lakh have been capitalized in 2019-20 and were delayed beyond the cut-off date. The Petitioner has further submitted that delay was due to reasons such as change in location of Pit-1, rainfall in Tripura, high water table etc. It has, therefore, prayed that the actual additional capital expenditure of Rs.307.54 lakh incurred may be allowed, as the work is within the original scope of work, but completed after the cut-off date.

19. The Respondent, APDCL has submitted that the execution work for RWHS was delayed due to change in location of Pit-1, which was selected without necessary prior survey analysis and could have been avoided. The Respondent has, therefore, submitted that as the delay is attributable to the Petitioner, the same shall not be passed on to the beneficiaries.

20. The matter has been considered. It is observed that the Petitioner has claimed actual additional capital expenditure under Regulation 14(3)(vii) of the 2014 Tariff Regulations, which is applicable for the 2014-19 tariff period. Since tariff of the generating station, in this petition, is being determined in terms of the 2019 Tariff Regulations applicable for the 2019-24 tariff period, the claim of the Petitioner under Regulation 14(3)(vii) of the 2014 Tariff Regulations cannot be considered. However, as most of the works have been completed within the cut-off date and only a portion of the work was completed beyond the cut-off date, i.e. in 2019-20, the actual additional capital expenditure claimed by the Petitioner is allowed on prudence check, in relaxation of Regulation 25(1)(d) of the 2019 Tariff Regulations.

D. Feed to GBC from 400 KV Transformer

21. The Petitioner vide affidavit dated 28.10.2019 had claimed additional capital expenditure of Rs.75.00 lakh for this item/ asset in 2020-21. However, the Petitioner in



its rejoinder dated 1.6.2021 has submitted that the planned expenditure towards this asset/ item was envisaged to improve the stability and avoid tripping of the generating station due to fluctuations in 132 kV system. It has stated that due to the commissioning of two new 132 kV lines from Palatana-Surajmaninagar, the additional capital expenditure claimed may not be required and, therefore, the Petitioner has withdrawn the additional capital expenditure claimed for this asset/ item. In view of the submissions of the Petitioner, withdrawing the additional capital expenditure claimed for the said work, the same has not been considered.

E. Online GTG Rotor Flux Monitoring

22. The Petitioner vide affidavit dated 6.10.2020 had claimed additional capital expenditure of Rs.150.00 lakh towards online GTG rotor flux monitoring system in 2020-21 under Regulation 76 and Regulation 77 of the 2019 Tariff Regulations. In justification of the same, the Petitioner had submitted that Unit-I of the generating station was out of operation due to rotor fault for nearly five months starting from 7.10.2019. The outage period was prolonged due to various logistic issues such as on going CAA (Citizenship Amendment Act, 2019) protests, requirement of complete dedicated rack for transportation of rotor from the remote site location to Gujarat facility etc. The Petitioner has, however vide affidavit dated 31.5.2021, withdrawn the additional capital expenditure claimed for this asset/ item. In view of the submissions of the Petitioner, withdrawing the additional capital expenditure claimed for the said item/work, the same has not been considered.

F. Change of Obsolete Relays at OTPC Plant Switchyard

23. The Petitioner has claimed additional capital expenditure of Rs.30.00 lakh for change of obsolete relays in the Plant Switchyard in 2020-21 under Regulation



25(2)(c) of the 2019 Tariff Regulations. In justification of the same, the Petitioner has submitted that it has proposed the replacement of obsolete 30 series relays with 40 series relays, which have excellent fault detection capabilities, at the switchyard of the generating station, as this will substantially improve the reliability and efficiency of the generating station. The Petitioner has further submitted that the 30 series relays face both O&M and fault issues, due to technology being old and obsolete.

24. The Respondent, APDCL has submitted that the obsolescence of technology, only after seven years of commissioning may be looked into. It has also submitted that replacement due to wear & tear/ obsolescence may be claimed under O&M expenses, with appropriate adjustment in depreciation. The Respondent has further submitted that as the Petitioner has not submitted the obsolescence certificate of OEM and other supporting documents, the additional capital expenditure claimed may be allowed only after prudence check.

25. The Commission vide ROP of the hearing dated 17.3.2021 directed the Petitioner to provide detailed justification (with reasons for de-capitalization at such an early stage of life of the generating station) for de-capitalization against each of the additional capitalization claimed along with revised forms. In response, the Petitioner has submitted that MiCOM P437 (30 series) are very old and GE, OEM does not provide support service for them as these are discontinued by them and they can provide MiCOM P443 (40 series) relays. The Petitioner has also furnished copy of email dated 31.7.2020 and 3.8.2020 from GE in support of its claim.

26. The matter has been considered. The Petitioner in support of its claim has submitted the copy of email communications dated 31.7.2020, 22.4.2021 and 27.4.2021 between the Petitioner and the OEM (M/s GE) regarding obsolescence of



technology and for replacement of MiCOM P437 (30 series) with MiCOM P443 (40 series) relays. MiCOM P437 (30 series) relays having become obsolete due to technology, the replacement of such relays have become necessary to improve the reliability and efficiency of the generating station. In view of this, the additional capital expenditure claimed by the Petitioner is allowed under Regulation 25(2)(c) of the 2019 Tariff Regulations. However, it is observed that the Petitioner has not submitted corresponding de-capitalisation amount of replaced MiCOM P437 (30 series) relays. Therefore, in the absence of de-capitalization amount, the de-capitalization corresponding to replaced MiCOM P437 (30 series) relays has been considered on the basis of 'assumed deletion'.

27. As per consistent methodology adopted by the Commission, the expenditure on replacement of assets, if found justified, is allowed for the purpose of tariff provided that the capitalization of the said asset, is followed by de-capitalization of the gross value of the old asset. However, in certain cases, where the de-capitalization 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". Therefore, the methodology of arriving at the fair value of the de-capitalized asset, i.e., escalation rate of 5% per annum from the COD has been considered in order to arrive at the gross value of old asset in comparison to the cost of new asset. In the present petition, year of COD of the generating station was in 2014-15. We have considered the value of asset under consideration as on COD as 100% and escalated it @5% per annum till the year during which additional capital



expenditure is claimed against replacement of the same. The amount claimed for additional capital expenditure against the asset is multiplied by the derived ratio from above two values i.e., value in year of COD divided by value in capitalized year. Accordingly, the de-capitalized value of the assets/ works has been calculated in terms of the above-mentioned methodology. Accordingly, the 'assumed deletions' allowed for the purpose of tariff are as follows:

	Year of claim	Additional capital expenditure allowed	Assumed deletion
Change of Obsolete Relays at the generating station Switchyard	2020-21	30.00	21.32

28. The Petitioner is directed to furnish the actual value of de-capitalization of replaced asset at the time of truing up of tariff of the generating station. Based on this, the net additional capital expenditure allowed is as below:

	Allowed
Change of Obsolete Relays at Plant Switchyard	30.00
Corresponding de-capitalization	21.32

G. Replacement of Sodium Lights with LED Lights at Palatana premises

29. The Petitioner has claimed additional capital expenditure of Rs.30.00 lakh towards Replacement of Sodium lights with LED Lights at Palatana premises in 2020-21 under Regulation 25(2)(c) of the 2019 Tariff Regulations. In justification of the same, the Petitioner has submitted that it has planned the replacement of all sodium lights in the premises of the generating station with LED lights, in line with the energy efficiency and energy saving measures being promoted by the Central Government. The Petitioner has also submitted that being a designated consumer, it is also obligated to replace inefficient lighting with energy-efficient lighting facilities, such as LEDs, induction lamps, etc., to maintain standard illumination. The Petitioner has further submitted that the State Government of Tripura has initiated a program for



replacement of old lights to energy efficient LED lights in the entire state of Tripura including Udaipur district, where the generating station is situated. The Respondent, APDCL has submitted that such minor claims may not be allowed.

30. The Commission vide ROP of the hearing dated 17.3.2021 directed the Petitioner to provide detailed justification (with reasons for de-capitalization at such an early stage of life of the generating station) for de-capitalization against each of the additional capitalization claimed along with revised forms. In response, the Petitioner has submitted that the replacement is in line with energy efficiency and energy saving measures being promoted by the Government of India and the Tripura Government.

31. The submissions have been considered. It is noticed that the additional capital expenditure incurred towards installation of 'replacement of Sodium light with LED light' is in terms of the Energy Conservation Guidelines for industries issued by Bureau of Energy Efficiency, Ministry of Power, Government of India, which recommends the replacement of existing old bulbs with LED bulbs, resulting in reduction of energy consumption. We note that Energy Conservation Guidelines for Industries issued by Bureau of Energy Efficiency, Ministry of Power, Government of India is recommendatory in nature and is not a change in law event to allow the additional capital expenditure claimed by the Petitioner. Moreover, the benefits of replacement of existing lighting system with LED lighting system accrues to the account of the Petitioner. In view of this, the additional capital expenditure incurred on account of installation of LED lighting system is not allowed. In case, the Petitioner has already replaced the lighting system, the Petitioner is directed to submit the actual value of de-capitalisation of replaced asset at the time of truing up of tariff.



H. Online Condition Monitoring of Transformers/ Reactors

32. The Petitioner has claimed additional capital expenditure of Rs.200.00 lakh towards Online Condition Monitoring of Transformers/ Reactors in 2021-22. In justification of the same, the Petitioner has submitted that Online Condition Monitoring of Transformers/ Reactors monitors the actual condition of the assets to determine signs of decreased performance or upcoming failure, which helps in the early detection of faults and avoidance of unexpected breakdowns. It has also stated that the generating station is located in a remote location in Tripura and the cost and time to repair any major breakdown is comparatively much higher than other power generating stations located in rest of the country. The Petitioner has submitted that the requirement of the Transformers/ Reactors becomes crucial for the generating station and has, therefore, prayed to allow the additional capital expenditure claimed.

33. The Respondent, APDCL has submitted that the testing of operational parameters of transformers and reactors like dissolved gas analysis, breakdown voltage of insulating oil, Top/ Partial discharge of HV bushing and main tank, bottom tank etc. are to be done in routine manner and not on daily basis and such tests can also be carried out in a nearby laboratory instead of incurring huge expenditure. The Respondent has, therefore, submitted that such additional capital expenditure may be allowed only after prudence check.

34. The Commission vide ROP of the hearing dated 17.3.2021 directed the Petitioner to provide management certificate, rationale and technical studies towards requirement of proposed works. In response, the Petitioner has submitted that there are four major transformers and non-availability of any transformer will paralyze the generating station operations. The Petitioner has further submitted that considering



the remote location of the generating station, the repairing and re-commissioning of the equipment may take several months. It has submitted that the additional capital expenditure claimed towards the said work is necessary for reliable operation of the generating station.

35. The matter has been considered. It is noticed that the Petitioner has claimed the additional capital expenditure towards the said work under Regulation 14(3)(vii) of the 2014 Regulations instead of the claim under relevant regulation under the 2019 Tariff Regulations. The claim of the Petitioner has, therefore, not been considered under the 2014 Tariff Regulations. The Petitioner has further prayed to allow the said projected additional capital expenditure under Regulation 76 and Regulation 77 of the 2019 Tariff Regulations. It is observed that considering the remote location and logistic issues associated with generating station, it is important to continuously monitor the health of generating station equipment so as to avoid unplanned outages. It is also observed that an actual additional capital expenditure of Rs.77.27 lakh towards Online Transformer Monitoring System was allowed in 2018-19 by order dated 18.12.2021 in Petition No. 108/GT/2020 to help the Petitioner to make timely decisions to improve the reliability/ availability of the plant, reduce maintenance expenses and proactively manage performance. Also, the installation of the said asset will help the Petitioner to avoid damage to the transformer and consequent outages in future. In view of this, the additional capital expenditure claimed by the Petitioner for balance works in 2021-22 is allowed under Regulation 26(1)(d) of the 2019 Tariff Regulations read with Regulation 76 (Power to Relax) of the 2019 Tariff Regulations.

I. GTG Rotor



36. The Petitioner has claimed additional capital expenditure of Rs.1382.00 lakh towards GTG Rotor in 2020-21 under Regulation 14(3)(vii) of the 2014 Regulations read with Regulation 76 and Regulation 77 of the 2019 Tariff Regulations. In justification of the same, the Petitioner has submitted that Unit-I of the generating station tripped on 7.10.2019 due to activation of gas turbine generator rotor earth fault protection and after performing various tests, M/s BHEL (the OEM) suggested removal of rotor for further investigation. It has also submitted that the OEM first planned to study the fault by removing the rotor and rectifying the fault at site itself but given the constraints at the site related to non-availability of tools and tackles, the rotor was taken to the Sanand facility of GE for repairs. The Petitioner has further submitted that due to logistic issues, there was substantial generation loss for the generating station due to the rotor fault and in repairing of the same. The Petitioner has submitted that considering the site location and logistic issues, it has observed the necessity of having a spare/ float rotor at site:

- a. So that in case of occurrence of any such event in Unit-II of the station, J-strap of GTG-2 shall be replaced at the earliest.
- b. A Float Rotor (Spare Rotor) with modified J-Strap shall be procured by the Petitioner to minimize the generation losses.
- c. Rotor shall be procured on limited tender basis to BHEL/GE as BHEL is OEM and GE has repaired the rotor of Unit-I successfully.

37. The Respondent, APDCL has submitted that for better monitoring, the Petitioner has already claimed additional capital expenditure towards online GTG Rotor Flux monitoring system. The Respondent has further submitted that the power purchase cost of the respondent is already very high, and allowance of such additional capital expenditure will further burden the beneficiaries and, therefore, the additional



capital expenditure may be allowed only after examining the necessity of such expenditure.

38. The Commission vide ROP of the hearing dated 17.3.2021 directed the Petitioner to provide management certificate and rationale and technical studies towards requirement of proposed works. In response, the Petitioner has submitted that considering the remote location of generating station, vulnerability of rotors, repair and re-commissioning time due to logistic issues and recommendations of committee constituted by Oil and Natural Gas Corporation Limited (ONGC Limited) upon submission of a detailed note by MD (OTPC Limited) after discussion with GE (OEM), the said additional capital expenditure has been claimed. The Petitioner has also submitted the copy of recommendation for procurement of additional rotor for GTG.

39. The matter has been considered. It is observed that the Petitioner has claimed GTG Rotor as a part of additional capital expenditure, whereas GTG rotor item is in the nature of capital spares, which are reimbursable in the year of actual consumption. It is observed that the Commission vide order dated 18.12.2021 in Petition No. 108/GT/2020 had disallowed capital spares on account of non-availability of proper justification of its claim. It is further observed that capital spares claimed to have been consumed in 2017-18 were found to be actually consumed during 2019-20. Accordingly, it was held in the said order that the issue will be decided in terms of the regulations during the relevant tariff period. The relevant extract of the order dated 18.12.2021 in Petition No. 108/GT/2020 is as follows:

“72. The Petitioner has also claimed total capital spares for Rs.7553.66 lakh in 2015-18 (i.e. Rs.368.49 lakh in 2015-16, Rs.194.91 lakh in 2016-17 and Rs.6990.26 lakh in 2017-18). The Petitioner, has, however, not furnished any justification for the same. However, it is noticed from the documents furnished by the Petitioner that the damaged spare parts of machinery were sent to the M/s Triveni, the sub vendor of M/s BHEL (OEM), on returnable basis, for re-use in future. In addition, it is observed from the



Petitioner's affidavit dated 29.5.2021 (submitted as Annexure 8 of the combined affidavit in this petition and Petition No.109/GT/2020) that the First Hot Gas Path Inspection (HGPI-1) was carried out in August 2019 as per schedule and in terms of the recommendations of the then OEM i.e. GE, the spares were consumed based on factored fired hours (FFH). The capital spares claimed to have been consumed by the Petitioner during the period 2017-18 have actually been consumed during the year 2019-20. In view of this, the capital spares as claimed by the Petitioner up to the cut-off date (31.3.2018) has not been allowed. The capital spares consumed during 2019- 20 will be dealt with in accordance with the relevant regulations”

40. In view of the above, we are not inclined to allow the additional capitalisation of GTG rotor as projected by the Petitioner. However, the actual capital spares consumed by the Petitioner, on this count, shall be dealt with in accordance with the proviso to Regulation 35(1)(6) of the 2019 Tariff Regulations.

J. Compressor Enhancement Package

41. The Petitioner has claimed additional capital expenditure of Rs.4380.64 lakh towards Compressor Enhancement Package during 2020-21, 2021-22 and 2023-24 (i.e. Rs.374.22 lakh in 2020-21, Rs.2003.21 lakh during 2021-22 and Rs.2003.21 lakh during 2023-24). In justification of the same, the Petitioner has submitted that it has installed 9FA machines at the generating station and in Boroscopic inspection, some dents were observed on several blades of three rows. Furthermore, some deposits were also observed on various downstream blades of the rotor and stator which may lead to collateral damages to other compressor blades, turbines buckets/ nozzles etc. The Petitioner has also submitted that currently, it has grinded the blades to minimize damages, since rotor repair at site is not feasible and the operations cannot be sustained for a longer period and may result in a major outage of the generating station. Therefore, in order to maintain reliable supply from the generating station with such geographical constraints, the Petitioner has planned to install the compressor enhancement package to avoid any such failures in future.



42. The Respondent, APDCL has submitted that considering the huge cost involved, a third-party inspection may be done to ascertain the necessity of additional capital expenditure and has requested to allow the expenditure only after prudence check.

43. The Commission vide ROP of the hearing dated 17.3.2021 directed the Petitioner to provide management certificate, rationale and technical studies towards requirement of proposed works. In response, the Petitioner has furnished the letter dated 17.3.2017 from GE (the OEM) in which the OEM has recommended that during the Boroscopic inspection, they have found impact damages, edge damages, rubs on rotor, Tip discoloration, deposits on blade, water leakage from inlet plenum base joint, black dust on the floor of inlet plenum and IGV covered with black powder etc. which could lead to unplanned compressor outages which can be improved by implementing enhanced package for compressor along with installation of blade health monitoring system.

44. The matter has been considered. It is observed that the Petitioner has claimed projected additional capital expenditure on the basis of OEM (M/s GE) proposal dated 10.5.2012 for supply of Flared 9FA.03 Enhanced Compressor Package 4 and BHM System, which was available with the Petitioner even prior to COD of the generating station. Further, from the documentary proof (report) submitted (email dated 17.3.2021 from GE), observations like impact damages, edge damages, Rubs on rotor, Tip discoloration, deposits on blades, water leakage from inlet plenum base joint, black dust found on floor of inlet plenum and IGV covered with black colour powder, were clearly noted by the OEM, which were mainly due to machine running in increased risk environment. It is also observed that the proposal from GE does not mention any



obsolescence of technology, but has included new items, which are beyond the original scope of work. In view of the above discussion, the projected additional capital expenditure claimed by the Petitioner is not allowed. However, the Petitioner is granted liberty to file a separate petition for the additional capital expenditure towards Compressor Enhancement Package with full justification and independent third party inspection.

K. Up-gradation of DCS and MACH-6 software

45. The Petitioner has claimed additional capital expenditure of Rs.2562.00 lakh towards up-gradation of DCS and MACH-6 software in 2021-22 under Regulation 25(2)(c) of the 2019 Tariff Regulations. In justification of the same, the Petitioner has submitted that currently, the control system is running on Windows XP operating system which has got obsolete in 2009 and the extended support for the operating system has also expired in 2014. The Petitioner has also submitted that as control system plays a critical role in generating station operations, operating the generating station on an obsolete software, with no system support, makes the generating station vulnerable to potential operational issues and cyber threats, which may lead to possible generation loss. The Petitioner has further submitted that the Ministry of Power, GOI has issued guidelines on 9.10.2018 for power sector entities to take preventive measures for mitigation of risks arising out of cyber security threats. Considering the above aspects in mind, the Petitioner has planned to upgrade its operating system and has prayed to allow the additional capital expenditure claimed.

46. The Respondent, APDCL has submitted that the Petitioner has claimed that the currently the control system is running on operating system which got obsolete since 2009 i.e., 5 years before the Unit-I was commissioned. The Respondent has further



submitted that the Petitioner had procured an already obsolete technology due to which, it now has to incur additional capital expenditure of Rs.2562.00 lakh. The Respondent has requested to adjust the cost of the existing operating software from the total amount claimed for the up-gradation, as procurement of already obsolete technology falls on the part of the Petitioner and may not be passed on to the beneficiaries. In response, the Petitioner has submitted that the orders for machinery and generating station items were placed much before the commissioning of the generating station, which was delayed due to logistic issues. However, the Petitioner has submitted that it was managing the works with the existing software with the extended support from OEM till 2014, but based on the MOP, GOI guidelines dated 9.10.2018, recommendations of the OEM and the EPC contractor and the internal committee report of the Petitioner Company, the Petitioner has planned to replace the obsolete software and related hardware.

47. The Commission vide ROP of the hearing dated 17.3.2021 directed the Petitioner to provide detailed justification (with reasons for de-capitalization at such an early stage of life of the generating station) for de-capitalization against each of the additional capitalization claimed along with revised forms. In response, the Petitioner has furnished the MOP guidelines dated 9.10.2018, proof for termination of extended support for Windows XP, copy of emails dated 3.5.2018, 6.6.2018, 11.6.2019, 12.6.2019 and 13.9.2019 from M/s BHEL, wherein, BHEL had advised the Petitioner to upgrade to latest operating software as the new antivirus support was not suitable for Windows XP. The Petitioner has also furnished copy of email dated 21.11.2017 regarding up-gradation of operating software and internal committee report of the Petitioner Company on Mark VI up-gradation.



48. The matter has been considered. COD of the generating station is 24.3.2015. It is observed that the Petitioner, in Petition No. 108/GT/2020, had claimed related sub-components of DCS and MACH-VI system like Rs.38.18 lakh in 2015-16 towards HMI VI Mark, Rs.23.09 lakh and Rs.76.36 lakh in 2018-19 towards Mark VI Power Supply Module RKPS G2A and HMI VL Mark LCI GT06B5559750, respectively as part of capital spares. It is further observed that the Petitioner has furnished a general notice received from M/s Microsoft Corporation, relating to stopping of support for Windows XP software, but has not furnished any justification as regards the claim for obsolescence of overall DCS system and MACH-VI Software from their respective OEM(s). In view of the above discussion, we are not inclined to allow the additional capital expenditure of Rs.2562.00 lakh claimed in 2021-22.

De-capitalization

49. The Petitioner has claimed de-capitalization of Rs.4.45 lakh towards Office equipment in 2019-20 but has not indicated the relevant regulations, under which such de-capitalization has been claimed. Regulation 26(2) of the 2019 Tariff Regulations, provides that original value of de-capitalised assets shall be deducted from the capital cost allowed to the generating station. Accordingly, the de-capitalisation of these assets as claimed by the Petitioner is allowed as under Regulation 26(2) of the 2019 Tariff Regulations.

Discharge of Liabilities

50. The Petitioner has claimed discharge of liabilities in Form L as under:

<i>(Rs. in lakh)</i>					
2019-20	2020-21	2021-22	2022-23	2023-24	Total
8131.15	1640.56	0.00	0.00	0.00	9771.71



51. It is evident that the Petitioner has claimed total discharge of liabilities amounting to Rs.9771.71 lakh during the period 2019-21, by deducting the closing gross block from the summation of opening gross block and additional capitalization during the year but has not furnished any justification for such discharges claimed. In the absence of detailed justification/ bifurcation, the discharges as claimed by the Petitioner during the 2019-24 tariff period is not allowed. The Petitioner is, however, directed to furnish the work/ asset-wise details of the liability discharged during the 2019-24 tariff period, at the time of truing up of tariff.

52. It is observed that the Commission in order dated 30.3.2017 in Petition No. 129/GT/2015 had not adjusted the LD amount at the time of approval of tariff, keeping in view the pending LD recovery under various packages. However, the Commission had directed the Petitioner to place on record the details of settlement of LD with contractors at the time of truing up of tariff. The Petitioner, vide affidavit dated 5.10.2020 in Petition No.108/GT/2020 had submitted that M/s BHEL vide its letter dated 27.5.2020 has accepted the final LD settlement amount of Rs.10700.00 lakh. In terms of this, the Petitioner had revised the 'deemed discharge' of liabilities from Rs.20185.03 lakh to Rs.10700.00 lakh as against the final LD settlement in 2014-15. However, the Commission vide order dated 18.12.2021 in Petition No. 108/GT/2020 had decided that the treatment of discharge of liability of Rs.10700.00 lakh (claimed in 2014-15) will be carried out in the year of settlement i.e., 2019-20. The relevant portion of the order dated 18.12.2021 in Petition No. 108/GT/2020 is extracted below:

"34. The submissions of the parties have been considered. It is observed that the Commission in its order dated 30.3.2017 in Petition No. 129/GT/2015 had not adjusted LD, in view of the pending recoveries of LD under various packages. The Commission directed the Petitioner to place on record the details of settlement of LD with contractors at the time of truing up. Thus, the Petitioner in its revised tariff petition dated 6.10.2020 has claimed and requested the Commission to allow the full LD of Rs.10700.00 lakh from 2014-15 as deemed discharge of liability. In this regard, we are of the view that



since the matter of LD has been settled with M/s BHEL in 2019-20, the treatment of claim with respect to deemed discharge of Rs.10700.00 lakh shall be carried out in the year of settlement i.e., 2019-20...”

53. It is observed that out of total time-over run of 1097 days, the Commission in its order dated 30.3.2017 in Petition No. 129/GT/2015 had allowed the time over-run of 584 days and disallowed time over-run of 513 days and, accordingly, allowed IEDC and IDC for the portion of time over-run which had been condoned. It is observed that the IDC corresponding to time over-run was already allowed to the Petitioner. Therefore, the LD recovered corresponding to time over-run allowed, which works out to Rs.5696.26 lakh $[(584/1097) \times 10700.00]$ is to be deducted from the capital cost, in 2019-20. The balance recovered LD of Rs.5003.74 lakh corresponding to the portion of time over-run of 513 days which had not been condoned, may be retained by the Petitioner. It is observed that the Petitioner has not furnished details as regards liabilities claimed to have been set off against BHEL towards the LD amount received, which the Petitioner has claimed as ‘deemed discharge’ of liabilities. The Petitioner is directed to provide the statement of reconciliation in respect of the un-discharged liabilities payable to M/s BHEL, which is claimed to have been adjusted against the LD amount received and the reconciliation thereof, along with the audited accounts for 2019-20, at the time truing up of tariff. Accordingly, no discharge of liabilities has been allowed during the 2019-24 tariff period.

54. Thus, the total additional capital expenditure claimed by the Petitioner and allowed for 2019-24 tariff period is summarized below:

		<i>(Rs. in lakh)</i>					
		2019-20	2020-21	2021-22	2022-23	2023-24	Total
Allowed Works							
Plant and Machinery (A)	Claimed	65.63	0.00	0.00	0.00	0.00	65.63
	Allowed	0.00	0.00	0.00	0.00	0.00	0.00
New Claims							



		2019-20	2020-21	2021-22	2022-23	2023-24	Total
Palatana Township Civil Works	Claimed	11902.87	0.00	0.00	0.00	0.00	11902.87
	Allowed	11902.87	0.00	0.00	0.00	0.00	11902.87
Change of Obsolete Relays at OTPC Plant Switchyard	Claimed	0.00	30.00	0.00	0.00	0.00	30.00
	Allowed	0.00	30.00	0.00	0.00	0.00	30.00
Replacement of Sodium Lights with LED Lights at Palatana Premises	Claimed	0.00	30.00	0.00	0.00	0.00	30.00
	Allowed	0.00	0.00	0.00	0.00	0.00	0.00
GTG Rotor	Claimed	0.00	1382.00	0.00	0.00	0.00	1382.00
	Allowed	0.00	0.00	0.00	0.00	0.00	0.00
Compressor Enhancement Package	Claimed	0.00	374.22	2003.21	2003.21	0.00	4380.64
	Allowed	0.00	0.00	0.00	0.00	0.00	0.00
Online Condition Monitoring of Transformers/Reactors	Claimed	0.00	0.00	200.00	0.00	0.00	200.00
	Allowed	0.00	0.00	200.00	0.00	0.00	200.00
Up-gradation of DCS and MARK-6 Software	Claimed	0.00	0.00	2562.00	0.00	0.00	2562.00
	Allowed	0.00	0.00	0.00	0.00	0.00	0.00
Rainwater Harvesting System	Claimed	307.54	0.00	0.00	0.00	0.00	307.54
	Allowed	307.54	0.00	0.00	0.00	0.00	307.54
Sub Total (B)	Claimed	12210.40	1816.22	4765.21	2003.21	0.00	20795.04
	Allowed	12210.40	30.00	200.00	0.00	0.00	12440.40
Sub Total (C) = (A + B)	Claimed	12276.03	1816.22	4765.21	2003.21	0.00	20860.67
	Allowed	12210.40	30.00	200.00	0.00	0.00	12440.40
Less: Un-discharged Liabilities (D)	Claimed	0.00	0.00	0.00	0.00	0.00	0.00
	Allowed	1231.26	0.00	0.00	0.00	0.00	1231.26
De-capitalization (E)	Claimed	4.45	0.00	0.00	0.00	0.00	4.45
	Allowed	4.45	21.32	0.00	0.00	0.00	25.77
Discharge of Liabilities (F)	Claimed	8131.15	1640.56	0.00	0.00	0.00	9771.71
	Allowed	0.00	0.00	0.00	0.00	0.00	0.00
Adjustment of recovered LD settlement for the condoned portion of time over-run (G)		(-) 5696.26	0.00	0.00	0.00	0.00	(-) 5696.26
Net Additional Capital Expenditure allowed (H) = (C-D-E+F+G)	Claimed	20402.72	3456.78	4765.21	2003.21	0.00	30627.92
	Allowed	5278.43	8.68	200.00	0.00	0.00	5487.11



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 (A)	12210.40	30.00	0.00	0.00	0.00	12240.40
Less: De-capitalization of assets (B)	4.45	21.32	0.00	0.00	0.00	25.77
Less: Un-discharged Liabilities (C)	1231.26	0.00	0.00	0.00	0.00	1231.26
Add: Discharges of liabilities (against allowed assets / works) (D)	0.00	0.00	0.00	0.00	0.00	0.00
Add: Adjustment with respect to LD Settlement (E)	(-) 5696.26	0.00	0.00	0.00	0.00	(-) 5696.26
Net projected additional capital expenditure allowed (on cash basis) (F) = (A-B-C+D+E)	5278.43	8.68	0.00	0.00	0.00	5287.11

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 (A)	0.00	0.00	200.00	0.00	0.00	200.00
Less: De-capitalization of assets (B)	0.00	0.00	0.00	0.00	0.00	0.00
Less: Un-discharged Liabilities (C)	0.00	0.00	0.00	0.00	0.00	0.00
Add: Discharges of liabilities (against allowed assets / works) (D)	0.00	0.00	0.00	0.00	0.00	0.00
Net projected additional capital expenditure allowed (on cash basis) (E) = (A-B-C+D)	0.00	0.00	200.00	0.00	0.00	200.00

Capital cost allowed

55. As stated earlier, the Commission vide its order dated 18.12.2021 in Petition No. 108/GT/2020 had allowed the closing capital cost of Rs.333337.85 lakh, as on 31.3.2019. The same has been considered as the opening capital cost as on



1.4.2019. As such, capital cost allowed for the purpose of tariff for the 2019-24 tariff period is as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Capital Cost (A)	333337.85	338616.29	338624.96	338824.96	338824.96
Add: Admitted Additional capital expenditure (B)	5278.43	8.68	200.00	0.00	0.00
Closing Gross Block (C) = (A+B)	338616.29	338624.96	338824.96	338824.96	338824.96
Average Gross Block (D) = [(A+C)/2]	335977.07	338620.62	338724.96	338824.96	338824.96

Debt-Equity Ratio

56. 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 modernisation expenditure for life extension shall be serviced in the manner specified in clause (1) of this Regulation.”

57. The Commission vide order dated 18.12.2021 in Petition No. 108/GT/2020 had considered the gross loan and equity of Rs.247536.69 lakh and Rs.85801.16 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 74.26:25:74 claimed by the Petitioner for additional capital expenditure during 2019-24 tariff period, has been considered. This is subject to truing up.

Return on Equity

58. 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:

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;
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;
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.

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-

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

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

(ii) 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 truing up, shall be recovered or refunded to beneficiaries or the long-term customers, as the case may be, on year to year basis.”

59. Further, as per proviso to Regulation 30 of the 2019 Tariff Regulations, the return on equity in respect of the additional capitalization, after the cut-off date and beyond the original scope of work, excluding the additional capitalization due to change in law, shall be computed at the weighted average rate of interest on actual loan portfolio of the generating station.

60. Based on the additional capital expenditure approved in this order, ROE in respect of the additional capital expenditure allowed, within the scope of work, has been calculated as per methodology provided in Regulation 30 and Regulation 31 of the 2019 Tariff Regulations. RoE in respect of the additional capital expenditure allowed beyond the scope of work, has been calculated by considering the weighted average rate of interest as considered for computation of interest on loan. For equity base, RoE has been calculated by grossing up RoE during the 2019-24 tariff period.

61. The Petitioner has claimed tariff considering rate of Return on Equity (ROE) @18.781% i.e., base rate of 15.50% and MAT Rate of 17.472% (i.e., MAT Rate of 15% + Surcharge of 12% + HEC of 4%) for the 2019-24 tariff period. However, the additional capital expenditure within the original scope of work, change in law etc. is allowed at normal rate as claimed by the Petitioner, whereas, for the additional capital expenditure allowed beyond the original scope of work, excluding additional capital expenditure due to change in law, the eligible RoE has been allowed at WAROI of



8.00% for 2019-20 and 7.67% for 2020-24. This is subject to truing-up. Accordingly, RoE worked out and allowed based on the additional capital expenditure allowed, is as follows:

Return on Equity on additional capital expenditure up to cut-off date

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Normative Equity-Opening (A)	85801.16	87159.83	87162.07	87162.07	87162.07
Addition of Equity due to additional capital expenditure (B)	1358.67	2.23	0.00	0.00	0.00
Normative Equity-Closing (C) = (A) + (B)	87159.83	87162.07	87162.07	87162.07	87162.07
Average Normative Equity (D) = [(A+C)/2]	86480.50	87160.95	87162.07	87162.07	87162.07
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) annualised (H) = [(D)x(G)]	16242.77	16370.57	16370.78	16370.78	16370.78

Return on Equity on additional capital expenditure after to cut-off date

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Normative Equity - Opening (A)	0.00	0.00	0.00	51.48	51.48
Addition of Equity due to additional capital expenditure (B)	0.00	0.00	51.48	0.00	0.00
Normative Equity-Closing (C) = [(A) + (B)]	0.00	0.00	51.48	51.48	51.48
Average Normative Equity (D) = [(A+C)/2]	0.00	0.00	25.74	51.48	51.48
Weighted average rate of interest on actual loan portfolio (E)	8.00%	7.67%	7.67%	7.67%	7.67%
Return on Equity (Pre-Tax) - Annualised (E) = [(D) x (E)]	0.00	0.00	1.97	3.95	3.95

Interest on Loan

62. 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.

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.

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 de-capitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered up to the date of de-capitalisation of such asset.

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.

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.

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

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

63. Interest on loan has been computed as under:

(i) The gross normative loan amounting to Rs.247536.69 lakh has been considered as on 1.4.2019;

(ii) Cumulative repayment amounting to Rs.75960.15 lakh as on 31.3.2019 as considered in order dated 18.12.2021 in Petition No. 108/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.171576.54 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;

64. The Petitioner has claimed interest on loan by applying the weighted average rate of interest of 8.55% for 2019-20 and 7.67% for the period 2020-24 respectively.

The weighted average rate of interest for the 2019-24 tariff period, as claimed by the



Petitioner, has been considered for computation of interest on loan for the period 2020-24, after adjustment of interest capitalised during the years. The Petitioner, is however, directed to submit the documentary evidence of rate of interest, considered in Form-13 and for repayment schedule of loan at the time of truing up of tariff. Accordingly, Interest on loan has been worked out as follows:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Gross opening loan (A)	247536.69	251456.45	251462.90	251611.42	251611.42
Cumulative repayment of loan up to previous year (B)	75960.15	92656.96	109513.22	126618.83	143729.49
Net Loan Opening (C) = [(A) - (B)]	171576.54	158799.50	141949.68	124992.59	107881.92
Addition due to additional capital expenditure (D)	3919.77	6.45	148.52	0.00	0.00
Repayment of loan during the period (E)	16698.06	16863.31	17105.61	17110.66	17110.66
Less: Repayment adjustment on a/c of de-capitalization (F)	1.25	7.04	0.00	0.00	0.00
Net Repayment of loan during the period (G) = [(E) - (F)]	16696.81	16856.26	17105.61	17110.66	17110.66
Net loan Closing (H) = [(C) + (D) - (G)]	158799.50	141949.68	124992.59	107881.92	90771.26
Average loan (I) = [(C+H)/2]	165188.02	150374.59	133471.13	116437.26	99326.59
Weighted Average Rate of Interest of loan (J)	8.0000%	7.6700%	7.6700%	7.6700%	7.6700%
Interest on loan (K) = (I)*(J)	13215.04	11533.73	10237.24	8930.74	7618.35

Depreciation

65. 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.

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.

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.

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.

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.

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.

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.

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.”

66. Accordingly, the cumulative depreciation amounting to Rs.75960.15 lakh as on 31.3.2019 as considered in order dated 18.12.2021 in Petition No. 108/GT/2020 has been retained for the purpose of tariff. The balance depreciable value (before



providing depreciation) for the year 2019-20 works out to Rs.225553.55 lakh. Since as on 1.4.2019, the used life of the generating station is 4.63 years, which is less than 12 years from the effective station COD of 14.8.2014, depreciation shall be calculated by applying the weighted average rate of depreciation for the 2019-24 tariff period. Accordingly, depreciation has been worked out and allowed as follows:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Average Capital Cost (A)	335977.07	338620.62	338724.96	338824.96	338824.96
Value of freehold land included above (B)	961.85	961.85	961.85	961.85	961.85
Average Capital cost, net of freehold land (C) = [(A-B)]	335015.22	337658.78	337763.12	337863.12	337863.12
Aggregated Depreciable Value (D) = [(C*90%)]	301513.70	303892.90	303986.81	304076.81	304076.81
Remaining aggregate depreciable value at the beginning of the year (E) = [(D) - (M)]	225553.55	225553.55	225553.55	225553.55	225553.55
No. of completed years at the beginning of the year (F)	4.63	5.63	6.63	7.63	8.63
Balance useful life at the beginning of the year (G) = [25 - (F)]	20.37	19.37	18.37	17.37	16.37
Weighted Average Rate of Depreciation (WAROD) (H)	4.970%	4.980%	5.050%	5.050%	5.050%
Combined Depreciation during the year/ period (Prorated) (I) = [(A)*(H)*(No. of days in operation/No. of days in year)]	16698.06	16863.31	17105.61	17110.66	17110.66
Combined Depreciation during the year/ period (Annualized) (J) = [(A)*(H)]	16698.06	16863.31	17105.61	17110.66	17110.66
Cumulative depreciation at the end of the year (before adjustment for de-capitalization)** (K) = [(J) + (M)]	92658.21	109520.26	126618.83	143729.49	160840.15
Less: Depreciation adjustment on account of de-capitalization (L)	1.25	7.04	0.00	0.00	0.00
Cumulative depreciation at the end of the year (M) = (K) - (L)	92656.96	109513.22	126618.83	143729.49	160840.15

**The cumulative depreciation at the end of 2018-19 is Rs.75960.15 lakh.

Operation & Maintenance Expenses



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

(in Rs. lakh/MW)

2019-20	2020-21	2021-22	2022-23	2023-24
26.34	27.27	28.23	29.22	30.24

68. The O&M expenses claimed by the Petitioner are in terms of Regulation 35(1)(3) of the 2019 Tariff Regulations and the same is allowed as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
19138.64	19814.38	20511.92	21231.25	21972.38

Water Charges

69. The first 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:

Provided that water charges shall be allowed based on water consumption depending upon type of plant and type of cooling water system, subject to prudence check. The details regarding the same shall be furnished along with the petition;

70. The actual water charges claimed by the Petitioner and allowed in order dated 18.12.2021 in Petition No. 108/GT/2020 for the 2014-19 tariff period is as follows:

(Rs. in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
4.53	4.65	5.32	5.05	5.16

71. The Petitioner has claimed water charges for the 2019-24 tariff period as follows:

(Rs. In lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
8.00	8.00	8.00	8.00	8.00

72. In terms of the first proviso to Regulation 35(1)(6) of the 2019 Tariff Regulations, water charges shall be allowed separately based on water consumption depending



upon type of generating station, type of cooling water system etc., subject to prudence check. It is observed that the Petitioner has not furnished the detailed computation of the water charges claimed during the 2019-24 tariff period. Therefore, the actual water consumption for the year 2018-19 as allowed in order dated 18.12.2021 in Petition No. 108/GT/2020 has been considered and approved as water charges for the 2019-24 tariff period, with 5% escalation each year. The Petitioner, shall, at the time of truing up of tariff, furnish the details of the actual water consumption (in cubic meters), the rate (Rs./Cubic meter) and power charges separately. The water charges allowed are subject to the truing up as per actual water charges paid, after prudence check. Accordingly, the water charges allowed for the 2019-24 tariff period is as under:

<i>(Rs. In lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
5.42	5.69	5.97	6.27	6.59

Security Charges

73. The first 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:

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

74. The Petitioner has claimed total security expenses for Rs.4830.08 lakh for the 2019-24 tariff period (Rs.900.00 lakh in 2019-20, Rs.931.86 lakh in 2020-21, Rs.964.85 lakh in 2021-22, Rs.999.00 lakh in 2022-23 and Rs.1034.37 lakh in 2023-24) in terms of Regulation 35(1)(6) of the 2019 Tariff Regulations. It is observed that the Petitioner has claimed escalation rate of 3.54% over the security expenses for each year but has not furnished any justification and assessment of the security expenses claimed. In the absence of any justification and considering the fact that



security expenses for the generating stations for the 2019-24 tariff period is required to be allowed separately, after prudence check, based on the assessment of the security requirement, we are not inclined to approve the claim of the Petitioner, in this order. The Petitioner is, however, granted liberty to claim the actual security expenses at the time of truing up of the 2019-24 tariff period, in terms of the second proviso to Regulation 35(1)(6) of the 2019 Tariff Regulations.

Capital spares

75. The Petitioner has submitted that in terms of the last proviso to the Regulation 35(1)(6) of the 2019 Tariff Regulations, capital spares, will be claimed at the time of truing-up of tariff for the 2019-24 tariff period, based on the actual consumption. In view of this, the Petitioner is granted liberty to claim the actual capital spares consumed (year-wise) along with proper justification for the same along with confirmation that the same is not funded through compensatory allowance as per Regulation 17 of the 2019 Tariff Regulations or Special Allowance or claimed as a part of additional capitalisation or consumption of stores and spares and renovation and modernization.

76. The summary of the O&M expenses allowed as per provisions under Regulation 35 of the 2019 Tariff Regulations is as follows:

		<i>(Rs. in lakh)</i>				
		2019-20	2020-21	2021-22	2022-23	2023-24
Installed Capacity (MW) (A)		726.60	726.60	726.60	726.60	726.60
O&M expenses under Regulation 35(1) in Rs. lakh/MW (B)	Claimed	26.34	27.27	28.23	29.22	30.24
	Allowed	26.34	27.27	28.23	29.22	30.24



		2019-20	2020-21	2021-22	2022-23	2023-24
Total O&M expenses (C) = (A)*(B)	Claimed	19138.64	19814.38	20511.92	21231.25	21972.38
	Allowed	19138.64	19814.38	20511.92	21231.25	21972.38
Water Charges (D)	Claimed	8.00	8.00	8.00	8.00	8.00
	Allowed	5.42	5.69	5.97	6.27	6.59
Security Expenses (E)	Claimed	900.00	931.86	964.85	999.00	1034.37
	Allowed	0.00	0.00	0.00	0.00	0.00
Total O&M expenses (including Water charges and Capital Spares consumed) (F) = (C+D+E)	Claimed	20046.64	20754.24	21484.77	22238.26	23014.75
	Allowed	19144.06	19820.07	20517.89	21237.52	21978.97

Operational Norms

77. The operational norms claimed by the Petitioner in Form-3 of the petition for the purpose of tariff is as follows:

Normative Annual Plant Availability Factor (NAPAF) (%)	85%
Gross Station Heat Rate (kcal/kwh)	1754.24
Auxiliary Power Consumption (%)	3.50

Normative Annual Plant Availability Factor

78. Regulation 49 of the 2019 Tariff Regulations provides as follows:

(A) Normative Annual Plant Availability Factor (NAPAF)

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

79. The Petitioner vide affidavit dated 28.10.2019 has submitted that the gas supply may fluctuate and become lower than the requirement for achieving NAPAF during any year of the 2019-24 tariff period, owing to reasons beyond the control of the Petitioner and due to force majeure conditions, thereby affecting fuel supply by the fuel supplier. It has, therefore, prayed to grant liberty to recover the annual fixed charges at actual availability factor, subject to submission of details at the time of truing-up of tariff, duly substantiating the actual gas supply position during the control period.



80. The Respondent, APDCL has submitted that the Petitioner in Petition No. 129/GT/2015 had already been allowed relaxation in NAPAF from 85% to 76% for the period from 24.4.2015 to 30.9.2018, as one time relaxation, due to which the additional burden of fixed charges is borne by the beneficiaries of NER. The Respondent has further submitted that the Petitioner shall take up the issue of shortfall of gas supply with ONGC for regularisation under the Gas Supply Agreement (GSA) instead of passing on the burden to the beneficiaries. The Respondent has requested that the claim of the Petitioner regarding relaxation of NAPAF may, therefore, not be entertained. In response, the Petitioner has clarified that the gas supply may fluctuate and become lower than the requirement for achieving NAPAF and it has only sought liberty to claim actual PAF, subject to submission of details of gas supply situation only at the time truing up of tariff.

81. The matter has been considered. It is observed that the Petitioner in Petition No.129/GT/2015 had submitted that the fuel supplier will be in a position to supply gas as per the requirement for full load generation of the plant, by September 2018. Based on this submission of the Petitioner, the Commission by order dated 30.3.2017 had approved NAPAF of 76% for the 2014-19 tariff period. We are of the view that as one time relaxation for NAPAF had already been granted to the Petitioner by order dated 30.3.2017 in Petition No. 129/GT/2015, we find no reason to grant liberty to claim PAF, at actuals, as prayed for by the Petitioner. It is, further, observed that the Petitioner has claimed NAPAF of 85% during the 2019-24 tariff period as per Regulation 49(A)(a) of the 2019 Tariff Regulations. Hence, the same is allowed for determination of tariff for the 2019-24 tariff period.

Gross Station Heat Rate



82. 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”

83. The Petitioner has submitted that CEA at the time of finalisation of the 2019 Tariff Regulations had recommended the following as admissible SHR.

PLF band (%)	90-100	80-89.99	70-79.99	60-69.99	50-59.99
Admissible % of additional SHR w.r.t PLF as per CEA recommendations [A]	Nil	2.5	5	8	12

84. The Petitioner has submitted that the actual Heat Rate achieved by the generating station during the 2014-19 tariff period was as follows:

	2014-15	2015-16	2016-17	2017-18	2018-19
Actual PLF (%)	85	85	85	85	85
Approved SHR (kCal/kWh) by Commission [B]	1754.24	1754.24	1754.24	1754.24	1754.24
Normative SHR as per CEA recommendations [(A/B)+B]	1754.24	1798.096	1841.952	1894.579	1964.749

85. The Petitioner has, therefore, prayed for grant of liberty to consider SHR as per CEA recommendations, based on actual PLF, at the time of raising monthly invoices.

86. The Respondent, APDCL has submitted that CEA has recommended additional SHR admissible at lower percentage of PLF from 2.5% for PLF of (80% - 80.99%) to 12% for PLF of (50% - 59.99%) of installed capacity. The Respondent has also submitted that the proposal of the Petitioner to consider SHR on the actual PLF pursuant to availability of gas and the CEA recommendations is not admissible. In response, the Petitioner has clarified that it has only prayed to consider the CEA recommendations towards SHR, subject to truing-up of tariff.



87. The matter has been considered. It is observed that the Commission vide its order dated 30.3.2017 in Petition No. 129/GT/2015 had allowed SHR of 1754.24 kCal/kWh based on $\{GSHR \text{ of } 1670.7 \text{ kCal/kWh corresponding to } 100\% \text{ MCR (as submitted by the Petitioner)}\} \times \{1.05\}$. Also, by order dated 18.12.2021 in Petition No. 108/GT/2020, the Commission has approved SHR of 1754.24 kCal/kWh. It is observed that the Petitioner in Form 2 of the petition has submitted the Guaranteed Design Gross Turbine Cycle Heat Rate of 1505.7 kCal/kWh at 100% MCR and Design/ Guaranteed Boiler Efficiency of 90%. SHR at Guaranteed Design Gross Turbine Cycle Heat Rate of 1505.7 kCal/kWh at 100% MCR and Design/ Guaranteed Boiler Efficiency of 90% works out to 1756.65 kCal/kWh $[(1505.7 \times 1.05) / (0.9)]$. It is pointed out that the recommendations of CEA, furnished at the time of finalising the 2019 Tariff Regulations is with regard to the payment of SHR degradation compensation, in case of part loading due to less off take by the beneficiaries and has nothing to do with this specific plant or SHR determination for tariff purposes. It is further observed that the Petitioner has considered SHR of 1754.24 kCal/kWh as approved by order dated 30.3.2017 in Petition No. 129/GT/2015 and order dated 18.12.2021 in Petition No. 108/GT/2020. Accordingly, the SHR of 1754.24 kCal/kWh as approved in the aforesaid orders has been considered for the 2019-24 tariff period.

Auxiliary Power Consumption

88. 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:”

89. The Petitioner has submitted that CEA at the time of finalisation of the 2019 Tariff Regulations, had recommended the following towards APC:

PLF band (%)	90-100	80-89.99	70-79.99	60-69.99	50-59.99
Admissible % of additional AEC w.r.t PLF as per CEA recommendations [A]	Nil	0.25	0.50	0.80	1.20

90. The Petitioner has submitted that based on the normative PLF during the 2019-24 tariff period, APC as per CEA recommendations would be as under:

	2019-20	2020-21	2021-22	2022-23	2023-24
Normative PLF (%)	85	85	85	85	85
Approved AEC (%) by Commission	3.50	3.50	3.50	3.50	3.50
Normative AEC as per CEA recommendations (%) [(3.50%)+(A)]	3.50	3.75	4.00	4.30	4.70

91. The Petitioner has, therefore, prayed for grant of liberty to consider APC as per CEA recommendations, based on actual PLF, at the time of raising monthly invoices.

92. The Respondent, APDCL has submitted that the Petitioner while claiming additional APC has referred to the CEA Recommendations on Operating Norms for thermal generating stations wherein CEA has recommended normative APC of 3.5% for the generating station. However, CEA has also recommended additional APC admissible at part loading of gas/ liquid fuel based thermal generating station from 0.25% for Plant loading as (80% - 80.99%) of installed capacity to 1.2% for plant loading as (50% - 59.99%) of installed capacity. The Respondent has submitted that part loading of a generating station happens either because of the part scheduling by the beneficiaries of the generating station or due to operational issues of the



generating station. The Respondent has further submitted that the proposal to consider the consumption on the actual PLF pursuant to availability of gas and cited CEA recommendations for additional APC at part loading is inadmissible because the responsibility of arranging gas for declaration of NAPAF of 85% lies on the Petitioner and the shortage of gas cannot be a force majeure condition. It has further submitted that the Commission in its order dated 25.1.2021 in Petition No. 9/RP/2020 had clarified that no further relaxation in NAPAF, due to shortfall of gas supply, would be given. The Respondent has, therefore, prayed that the request of the Petitioner to grant liberty to consider APC, based on actual PLF at the time of raising monthly invoices may not be allowed as it is solely due to the Petitioner's failure of getting adequate gas supply, despite having assurance from its gas supplier i.e. ONGC. In response, the Petitioner has clarified that it has only prayed to consider the CEA recommendations to allow APC, subject to truing-up.

93. The matter has been considered. It is observed that the Petitioner in the petition has claimed APC of 3.50% based upon the CEA recommendations, subject to truing-up. Regulation 49(E)(c)(i) of the 2019 Tariff Regulations provides for APC of 3.30% for the generating station, where the gas based generating station use electric motor driven Gas Booster Compressor, in case of combine cycle mode. In our view, once the provisions of the 2019 Tariff Regulations provides for APC of 3.3%, any reliance by the Petitioner on recommendations of CEA cannot be considered for allowing APC of 3.5%. It is also noticed that the Commission in its order dated 30.3.2017 in Petition No.129/GT/2015 had granted relaxation in APC and decided as under:

“102. We have examined the actual energy consumption during the period from April, 2015 to February, 2016. The reasons for variation in auxiliary energy consumption for this generating station (Block-I & Block-II) from 3.55% to 4.90 % during the period from April, 2015 to February, 2016 is due to different PLF and may be due to difference in the quality of gas. However, the fact appears to be clear that the AEC could be more than



2.5% (which is specified norm) even at 85% or higher PLF, due to operation of electric driven Gas Booster Compressors (GBCs) which is a special feature in this Project and consumes significant energy, averaging 1.42% during the period from April, 2015 to February, 2016. The EPC contractor, M/s BHEL has also furnished guaranteed APC of 3.41% at 100% base load which is close to 3.50% as was claimed by the petitioner. Accordingly, the AEC of 3.50 % has been allowed in exercise of the Power to Relax under Regulation 54 of the 2014 Tariff Regulations.”

94. Thus, APC of 3.5% was granted to the Petitioner by exercising the provisions of power to relax under Regulation 54 of the 2014 Tariff Regulations. We find no reason to exercise the provisions of power to relax again under the 2019 Tariff Regulations to grant relief to the Petitioner. The prayer of the Petitioner is, therefore, rejected. Accordingly, APC of 3.30% in terms of Regulation 49(E)(c)(i) of the 2019 Tariff Regulations has been considered for the 2019-24 tariff period.

Interest on Working Capital

95. Regulation 34(1)(b), Regulation 34(3) and Regulation 34(4) 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.

xxx

(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

96. The Petitioner has claimed Energy Charge Rate (ECR) of 143.873 paise/kWh for 2019-20 and 167.782 paise/kWh for 2020-24. The fuel component in working capital considered by the Petitioner is as follows:

<i>(Rs. in lakh)</i>				
2019-20	2020-2021	2021-22	2022-23	2023-24
7299.06	8516.25	8516.25	8516.25	8516.25

97. 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;

98. It is observed that the Petitioner, in Form-15 of the petition, has considered the opening stock of gas as ‘nil’ during the above-said three months. 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, after excluding the opening stock and its value, 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:

(in Rs/MT)



		January 2019	February 2019	March 2019	Weighted Average
Price of Gas	Claimed	7299.81	7297.69	7299.69	7299.06
	Allowed	7299.81	7297.69	7299.69	7299.12
GCV of Gas (as received)	Claimed	9223.57	9220.85	9223.13	9222.52
	Allowed	9223.57	9220.85	9223.13	9222.59

(in Rs/MT)

		August 2018	September 2018	October 2018	Weighted Average
Price of Gas	Claimed	8515.52	8516.61	8516.61	8516.25
	Allowed	8515.52	8516.61	8516.61	8516.24
GCV of Gas (as received)	Claimed	9226.30	9227.45	9227.45	9227.06
	Allowed	9226.30	9227.45	9227.45	9227.06

99. 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
6173.80	7199.78	7199.78	7199.78	7199.78

Energy Charge Rate (ECR)

100. 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 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 follows:

Description	Unit	2019-20	2020-24
Capacity	MW	726.60	726.60
Gross Station Heat Rate	kCal/kWh	1754.24	1754.24
Aux. Energy Consumption	%	3.30	3.30
Weighted average GCV of fuel	Rs/1000 SCM	9222.59	9227.06
Weighted average price of fuel	kCal/SCM	7299.12	8516.24
ECR	Rs. /kWh	1.436	1.674

101. The Petitioner is directed not to alter or modify any of the columns and lines provided in the forms/ annexures to the 2019 Tariff Regulations and shall comply and submit the details strictly, as provided in forms/ annexures to the 2019 Tariff Regulations.



102. The Petitioner, on month-to-month basis, shall compute and claim the energy charges from the beneficiaries based on the formulae given under Regulation 43 of the 2019 Tariff Regulations.

Working Capital for O&M Expenses

103. 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:

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
1670.55	1729.52	1790.40	1853.19	1917.90

104. 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:

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
1595.34	1651.67	1709.82	1769.79	1831.58

Working Capital for Maintenance Spares

105. 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:

<i>(Rs. in lakh)</i>					
	2019-20	2020-21	2021-22	2022-23	2023-24
Claimed	6013.99	6226.27	6445.43	6671.48	6904.43
Allowed	5743.22	5946.02	6155.37	6371.26	6593.69

106. The difference in the O&M expenses for 1 month and maintenance spares claimed by the Petitioner as against those allowed in this order, is only on account of the variation in the water charges and security expenses claimed by the Petitioner and those allowed in this order.

Working Capital for Receivables



107. 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:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Fixed Charge for 45 days	9260.70	10799.67	10799.67	10799.67	10799.67
Energy Charge for 45 days	8491.89	8434.88	8362.27	8293.47	8203.11
Total	17752.59	19234.56	19161.95	19093.14	19002.78

108. 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 and 10.50% [1 year SBI MCLR of 7.00% (as on 01.04.2021) + 350 bps] for the period 2021-24. 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 2021-22 to 2023-24. Accordingly, interest on working capital is worked out and allowed as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Working Capital for Fuel Cost (A)	6173.80	7199.78	7199.78	7199.78	7199.78
Working Capital for O & M expenses - 1 month (B)	1595.34	1651.67	1709.82	1769.79	1831.58
Working Capital for Maintenance Spares - 30% of O&M (C)	5743.22	5946.02	6155.37	6371.26	6593.69
Working Capital for Receivables - 45 Days (D)	17752.59	19234.56	19161.95	19093.14	19002.78
Total Working Capital (E) = (A+B+C+D)	31264.95	34032.03	34226.92	34433.97	34627.84
Rate of Interest (F)	12.05%	11.25%	10.50%	10.50%	10.50%
Interest on Working capital (G) = (E)x(F)	3767.43	3828.60	3593.83	3615.57	3635.92

Annual Fixed Charges



109. Accordingly, the annual fixed charges allowed for the generating station for the 2019-24 tariff period is summarised as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation (A)	16698.06	16863.31	17105.61	17110.66	17110.66
Interest on Loan (B)	13215.04	11533.73	10237.24	8930.74	7618.35
Return on Equity (C)	16242.77	16370.57	16372.75	16374.73	16374.73
Interest on Working Capital (D)	3767.43	3828.60	3593.83	3615.57	3635.92
O&M Expenses (E)	19144.06	19820.07	20517.89	21237.52	21978.97
Total AFC (F) = (A+B+C+D+E)	69067.36	68416.28	67827.32	67269.22	66718.63

Note: All figures are on annualised 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.

Application filing fees and Publication charges

110. The Petitioner has sought reimbursement of fees paid by it for filing the tariff petition for the 2019-24 tariff period and for publication expenses. 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 of the 2019 Tariff Regulations.

111. Petition No. 109/GT/2020 is disposed of in terms of the above.

Sd/-
(Pravas Kumar Singh)
Member

Sd/-
(I.S. Jha)
Member

Sd/-
(P.K.Pujari)
Chairperson

