CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 423/GT/2020

Coram:

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

Date of Order: 4th March, 2023

In the matter of:

Petition for approval of tariff of the Mauda Super Thermal Power Station Stage-II (1320 MW) for the period 2019-2024

And

In the matter of:

NTPC Limited,
NTPC Bhawan, Core-7, Scope Complex,
7, Institutional Area, Lodhi Road
New Delhi-110003 **.....Petitioner**

Vs

1. Madhya Pradesh Power Management Company Limited
Shakti Bhawan, Vidyut Nagar,
Jabalpur 48200

2. Maharashtra State Electricity Distribution Company Limited,
Prakashgad, Bandra (East),
Mumbai 400051

3. Gujarat Urja Vikas Nigam Limited,
Vidyut Bhavan, Race Course
Vadodara - 390007

4. Chattisgarh State Power Distribution Company Limited,
P.O. Sundar Nagar, Danganiya,
Raipur-492013

5. Government of Goa,
Electricity Department, Vidyut Bhawan,
Panaji, Goa

Parties Present

Shri Venkatesh, Advocate, NTPC

Shri Siddharth Joshi, Advocate, NTPC
Ms. Simran Saluja, NTPC
Shri Sivakumar V. Vepakomma, NTPC
Shri Nitin Gaur, Advocate, MPPMCL
Shri Anurag Naik, MPPMCL

ORDER

This petition has been filed by the Petitioner, NTPC Limited for approval of tariff of Mauda Super Thermal Power Station Stage-II (2 x 660 MW) (in short 'the generating station') for the period 2019-24, in accordance with the provisions of the Central Electricity Regulatory Commission (Terms & Conditions of Tariff) Regulations, 2019 (in short 'the 2019 Tariff Regulations'). The generating station with a total capacity of 1320 MW comprises of two units 660 MW each, and the date of commissioning (COD) of Unit-I is 1.2.2017 and Unit-II is 18.9.2017.

2. The Commission vide its order dated 5.4.2019 in Petition No. 142/GT/2016 had approved the tariff of the generating station for the period 2014-19. Subsequently, in Petition No. 394/GT/2020 filed by the Petitioner for truing-up of tariff of the generating station, for the period 2014-19, the Commission vide its order dated 7.2.2023. had allowed the capital cost and annual fixed charges for the generating station as under:

Capital Cost allowed

(Rs. in lakh)

	2016-17	**2017-18**		**2018-19**
	1.2.2017 to 31.3.2017	**1.4.2017 to 17.9.2017**	**18.9.2017 to 31.3.2018**	
Opening Capital Cost	353660.29	362991.61	629416.42	648496.58
Add: Net additional capital expenditure allowed	9331.32	14396.09	19080.16	31047.68
Closing Capital Cost	362991.61	377387.70	648496.58	679544.26
Average Capital Cost	358325.95	370189.65	638956.50	664020.42

Annual Fixed Charges allowed

(Rs. in lakh)

	2016-17	2017-18		2018-19
	1.2.2017 to 31.3.2017	**1.4.2017 to 17.9.2017**	**18.9.2017 to 31.3.2018**	
Depreciation	18654.23	19342.45	33425.79	34709.23
Interest on Loan	15998.55	15699.97	26145.84	26391.65
Return on Equity	21182.44	21883.76	37771.91	39359.15
Interest on Working Capital	6353.20	6540.74	13292.93	13488.98
O&M Expenses	11136.02	12084.06	23502.06	25733.00
Total Annual Fixed Charges	**73324.44**	**75550.98**	**134138.53**	**139682.00**

Present Petition

3. The Petitioner, in the present petition, has claimed the capital cost and the annual fixed charges for its generating station for the period 2019-24, as under:

Capital cost claimed

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Opening capital cost	679544.26	727407.11	745383.11	750883.11	750883.11
Add: Addition during the year/period	47862.85	17976.00	5500.00	0.00	0.00
Closing Capital Cost	727407.11	745383.11	750883.11	750883.11	750883.11
Average Capital Cost	**703475.69**	**736395.11**	**748133.11**	**750883.11**	**750883.11**

Annual Fixed Charges claimed

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	36672.19	38388.28	39000.18	39143.54	39143.54
Interest on Loan	26601.06	26013.20	24064.25	21592.52	18777.25
Return on Equity	39638.04	41491.78	42152.04	42306.99	42306.97
Interest on Working Capital	11327.19	11460.96	11505.73	11501.29	11511.92
O&M Expenses	29386.96	31056.24	32161.60	32731.46	33916.42
Annual Fixed Charges	**143625.44**	**148410.45**	**148883.80**	**147275.79**	**145656.10**

4. The Respondent CSPDCL, Respondent MPPMCL and Respondent MSEDCL have filed their replies vide affidavits dated 28.6.2021, 29.6.2021 and 30.6.2021 respectively. The Petitioner vide affidavit dated 9.11.2021 has filed its rejoinder to the said replies of the Respondents. The Petitioner has also, vide affidavits dated 6.4.2021, 29.6.2021, 22.2.2022 and 26.7.2022 filed certain additional information and has served copies of the same on the Respondents. The Respondent MPPMCL had filed its reply vide affidavit dated 5.8.2022, and the Petitioner vide affidavit dated 11.8.2022 has filed its rejoinder to the said reply. This Petition was heard along with Petition No. 394/GT/2020 (truing up of tariff of the generating station for the period 2014-19) on 18.11.2021 and the Commission vide ROP of the hearing, directed the Petitioner to submit certain additional information and reserved its order in the petitions. However, as order in the petition could not be issued prior to Chairperson Shri P. K. Pujari demitting office, this Petition was re-listed and heard through virtual hearing on 14.7.2022. The Commission, after hearing the parties and after permitting the Petitioner to file certain additional information, reserved its order in the petition. In compliance to the direction, the Petitioner has filed the additional information, as stated, after serving copies on the Respondents. Based on the submissions of the parties and the documents available on record and after prudence check, we proceed to true-up the tariff of the generating station for the period 2019-24, as stated in the subsequent paragraphs.

Capital Cost

5. Regulation 19(3) of the 2019 Tariff Regulations provides as under:

(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;

(c) Capital expenditure on account of ash disposal and utilization including handling and transportation facility;

(d) Capital expenditure incurred towards railway infrastructure and its augmentation for transportation of coal upto the receiving end of generating station but does not include the transportation cost and any other appurtenant cost paid to the railway; and

(f) Capital cost incurred or projected to be incurred by a thermal generating station, on account of implementation of the norms under Perform, Achieve and Trade (PAT) scheme of Government of India shall be considered by the Commission subject to sharing of benefits accrued under the PAT scheme with the beneficiaries.

6. The annual fixed charges claimed by the Petitioner, is based on opening Capital Cost of Rs. 679544.26 lakh. The Commission vide its order dated 7.2.2023 in Petition No. 394/GT/2020 had allowed the same closing Capital Cost of Rs. 679544.26 lakh as on 31.3.2019. Accordingly, in terms of Regulation 19(3) of the 2019 Tariff Regulations, the capital cost of Rs. 679544.26 lakh as on 31.3.2019 has been considered as the opening capital cost as on 1.4.2019, on cash basis, for the purpose of determination of tariff for the 2019-24 tariff period.

Additional Capital Expenditure

7. Regulation 25 and Regulation 26 of the 2019 Tariff Regulations, provides as under:

"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.

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 de-capitalisation 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.

Extension of the cut-off date

8. The Petitioner has submitted that the capitalization of certain works which are under the original scope, are likely to get spilled over beyond the cut-off date, on account of some unforeseen circumstances, beyond its control. Thereafter, the Petitioner has submitted that due to unavoidable and uncontrollable reasons like (i) Non-availability of 'Sand and Moorum' due to ban in mining (ii) Excess rainfall during the period from June, 2016 to October 2016, had delayed the completion of project beyond the original schedule. It has further submitted that the Commission vide its order dated 5.4.2019 had considered the delay based on the above reasons and allowed the same. The Petitioner, while pointing out that the COD of the generating station was delayed, even though maximum resources were diverted towards COD related activities, has submitted that the consequent and cascading effect of these reasons, contributed heavily upon the schedule of non-COD related balance works, including the implementation of GST in July, 2017, which delayed the award of certain packages. It has further submitted that such non-COD related capitalization of items which spilled over the cut-off date, are not detrimental to the Respondent beneficiaries and on the contrary, protects the beneficiaries from front loading of tariff and no additional burden is imposed on them due to delays in balance works.

9. The Petitioner has further submitted that assets/works claimed in present petition are envisaged to be completed after the scheduled cut-off date and are necessary for the efficient functioning of the generating station. The Petitioner has also stated that it would not be justifiable to deny the entire cost of these assets, as in such case, the beneficiaries would be taking the benefit of these assets, without servicing the associated costs. The Petitioner has further submitted that there is no cost overrun on account of the delay in completion of these works and as such, the

Petitioner has invoked Regulation-76 (Power to Relax) and Regulation-77 (Power to Remove Difficulty) of the 2019 Tariff Regulations and prayed for condonation of the delay in completion of assets/works claimed and to allow the capitalization of the same during the period 2019-24 by relaxing the cut-off date, beyond 30.9.2020 for 6 months i.e. up to 31.3.2021.

10. The Respondent UPPCL in its reply has submitted that the extension of cut-off date should be in line with earlier order dated 6.12.2019 in Petition No.197/GT/2017 and any delay beyond the date may be disallowed. In response, the Petitioner has reiterated its submissions in the petition. Subsequently, the Petitioner in its additional submissions vide affidavit dated 4.6.2021, has submitted that the additional capital expenditure claimed relating to items within the original scope of work of the generating station would spill over beyond 2020-21, on account of following unforeseen factors/reasons beyond the control of the Petitioner:

A. COVID-19 Pandemic*:* the impact caused on account of Covid-19 with respect to progress of works of the generating station are as under:

a) Complete stoppage of works in several periods since Covid-19 outbreak due to national/local lockdown and high intensity of Covid-19 cases occurrence in phases.

b) Restriction in movement of men, material and equipment.

c) Delay in supply of equipment/machinery due to impact of Covid-19 on manufacturing sector and logistics.

d) Exodus of migratory manpower.

e) Restrictions on entry of manpower from other States.

f) Local manpower shortage due to high number of COVID-19 cases.

g) Strict social distancing measures leading to reduced labour productivity.

B. Non-availability of sand and moorum*:* The generating station is located in Nagpur district in Maharashtra. The State lacks a policy to identify sand reaches which was identified in March, 2018 vide report issued by Ministry of Mines, GOI on account of high demand and low availability of sand, illegal activity. Subsequent to the report on illegal activities, the National Green Tribunal (NGT) vide order dated 19.4.2017 in O.A No. 363 of 2015 prohibited the Maharashtra Government from granting permission for sand mining. The above directions of NGT severely affected the supply of sand in the State of Maharashtra, which hampered the progress of civil works of project. In view of this, several contractors executing civil works for the generating station approached the Petitioner, highlighting the critical shortage of sand being faced by them. Considering the request of the contractors, the Petitioner addressed letter dated 28.1.2020 to the District Collector, Nagpur thereby requesting it to intervene to facilitate the availability of sand to complete major and important civil works of the generating station. On account of shortage in availability of essential raw material like sand for construction activities during period 2017-18, Civil works pertaining to Main Plant, Offsite area, Chimney, Township, CHP, Road & Drain, Railway Siding and other works of the Project got affected.

C. Heavy rainfall: In August,2020, there was a sudden flood conditions at Nagpur, due to which more than 14000 people were evacuated after torrential rains. It is important to mention that Mauda, Kamptee, Parseoni and Kuhi were worst affected Tehsils. Additionally, the Plant is situated in area of black cotton soil, which has very low bearing capacity, and high swelling and shrinkage characteristics, due to which the movement of men, material and machinery, were severally affected during higher rainfall. The contractors appointed by the Petitioner for completion of the project, were severally affected by heavy rainfalls. Therefore, several letters were addressed to the Petitioner, seeking extension of time for completion of work, on account of heavy rainfall

D. Impact of Promulgation of GST: The promulgation of GST by GOI had turned out to be the biggest indirect tax reform of independent India, which implemented an entirely new system for Indian economy, on account of which initial problems were faced right through the supply chain of finished products. Owing, to the difficulties faced by the Petitioner concerning payments to be made to contractor's after implementation of GST, the Petitioner, decided to provide interim measures for purpose of making payments to Contractors.

E. Impact of increase in wages of Labour*:* Since the commencement of Project, there has been an increase in the basic minimum wages for labour, by 40%, which had considerably affected the contractor's liability to pay minimum wages to the workers, as per statutory requirement. On account of above, the sub-contractor's agencies had landed into financial difficulties which had impacted the progress of work.

11. For the above said reasons, the Petitioner has prayed that the works claimed for additional capitalization for the purpose of tariff for the period 2019-24, may be allowed by relaxing the cut-off date for a period of 3 years i.e. from 31.3.2020 to 31.3.2023.

12. We have examined the matter. The COD of the generating station is 18.9.2017 and hence, the cut-off date, in terms of the 2014 Tariff Regulations is 31.3.2020. It is noticed from records that the Commission in its order dated 5.4.2019 in Petition No.142/GT/2016 had considered some of the reasons like (i) Non-availability of 'Sand and Moorum' due to ban in mining (ii) Excess rainfall during the period from June, 2016 to October 2016, for time overrun of the project and allowed the same, while determining the tariff of the generating station for the period 2014-19. Even though the Petitioner has envisaged the completion of the balance works by 2020-21, keeping in view the factors mentioned under paragraph 6 above, has stated that the works could not be completed and has therefore, sought extension of the cut-off date of the generating station, beyond 2020-21, i.e. till 31.3.2023. In this background, and keeping in view the submissions of the

Petitioner that the assets/ works could not be completed by the Petitioner, within the cut-off date, due to factors like Covid-19 Pandemic, etc., we, instead of extending the cut-off date, are inclined to permit the additional capitalization claims of the Petitioner, in respect of works / items after the cut-off date, but which are within the original scope of work (but could not be executed/ completed), on prudence check, subject to the balance expenditure limit available for capitalization for assets/works within the original scope.

13. The Petitioner vide its affidavit dated 22.2.2022 has claimed the year-wise projected additional capital expenditure in respect of the generating station for the period 2019-24 as under:

(Rs. in lakh)

Sl. No	**Head of Work/ Equipment**	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**
A	**Works under the original scope**					
1	Land & ROU, R&R	23.94	0.00	600.00	1600.00	0.00
2	Main Plant, Offsite Civil and Chimney	723.90	356.93	3371.00	5402.89	0.00
3	Site Clearance & Levelling	38.24	0.00	141.13	700.00	0.00
4	Township	674.79	1401.13	2418.45	0.00	0.00
5	CISF Barrack - Civil Work	98.49	17.47	0.00	0.00	0.00
6	Control & Instrumentation	548.20	602.10	178.14	0.00	0.00
7	Coal Handling Plant	4188.28	995.74	1382.94	400.00	0.00
8	Steam Generator	8926.53	1261.00	2200.27	1000.00	0.00
9	ESP Package	112.99	30.43	46.00	40.00	0.00
10	Station Piping	0.00	120.00	221.48	40.00	0.00
11	Ventilation System	0.00	104.03	280.00	100.00	0.00
12	Turbine Generator	1130.66	1816.78	2150.21	600.00	0.00
13	Ash Handling Plant	1277.63	817.22	1131.47	450.00	0.00
14	Ash Dyke Works	0.00	1751.56	1500.00	5500.00	2300.00
15	Instrumentation Cable	0.00	0.00	9.46	0.00	0.00
16	Auxiliary Boiler	0.00	0.00	0.00	250.00	0.00
17	CW System equipment	4.55	0.00	83.00	0.00	0.00
18	Cooling Tower	1.30	0.00	0.00	0.00	0.00
19	Pre-Treatment Plant	755.02	73.20	5.00	0.00	0.00
20	Fire Detection & Protection System	1223.32	0.00	64.05	0.00	0.00
21	LT (outdoor) transformers	21.32	0.00	28.12	0.00	0.00
22	HT (outdoor) transformers	0.00	0.00	10.00	0.00	0.00
23	HT Power Cables	0.00	0.00	35.33	0.00	0.00

Sl. No	Head of Work/ Equipment	2019-20	2020-21	2021-22	2022-23	2023-24
24	LT Power Cables	0.00	0.00	63.70	0.00	0.00
25	HT Switchgear	90.01	5.82	76.98	0.00	0.00
26	LT Switchgear & MCC	29.42	0.00	4.00	0.00	0.00
27	Electrical Equipment Supply & Erection	867.12	798.61	388.79	100.00	0.00
28	Make up Water System	55.14	0.00	0.00	0.00	0.00
29	Switchyard	273.05	164.51	31.00	0.00	0.00
30	Railway Siding Works	2729.10	3350.39	729.00	1700.00	0.00
31	Tools & Plant	73.28	0.00	0.00	0.00	0.00
32	MBOA	2278.75	0.00	0.00	0.00	0.00
33	Capital Spares	158.15	2832.94	0.00	0.00	0.00
B	**Works beyond the original scope**					
34	Bio Methanation Plant	0.00	33.22	0.00	0.00	0.00
35	Zero Liquid Discharge	0.00	0.00	360.00	0.00	0.00
36	Additional HCL Storage Tank for CPU area	0.00	0.00	0.00	70.00	0.00
37	ClO2 Plant	0.00	0.00	1087.67	0.00	0.00
C	**Total (A+B)**	**26303.18**	**16533.08**	**18597.19**	**17952.89**	**2300.00**
38	Add: Discharge of Liability	2457.82	10051.47	0.00	0.00	0.00
D	**Total Additional capital expenditure claimed**	**28761.00**	**26584.55**	**18597.19**	**17952.89**	**2300.00**

Additional capital expenditure within the original scope of work (claimed within cut-off date 31.3.2020) (excluding Ash Handling plant and Ash Dyke)

14. The Petitioner has claimed additional capital expenditure towards Land & ROU, R&R, Main Plant, Offsite Civil and Chimney, Site Clearance and Levelling, Township, CISF Barracks – Civil Work, Control and Instrumentation, Coal Handling Plant, Steam Generator, ESP Package, Turbine Generator, CW System Equipment, Cooling Tower, Pre-Treatment Plant, Fire Detection and Protection System, LT (outdoor) transformers, HT Switchgear, LT Switchgear and MCC, Electrical Equipment Supply and Erection, Makeup Water System, Switchyard, Railway siding Works, Tools and Plant, MBOA under Regulation 24(1)(b) of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that these additional capitalization claimed pertains to the original scope of work and are within the cut-off date of the generating station i.e., 31.3.2020.

15. The matter has been considered. It is observed that the claim of the Petitioner pertains to actual additional capitalization of the balance works, which are within the original scope of work and deferred for execution, but within the cut-off date. Accordingly, the claim of the Petitioner is allowed under Regulation 24(1)(b) of the 2019 Tariff Regulations, which is subject to truing-up. The Petitioner is directed to furnish the original Form-5B, justifying its pending amount/works deferred till the cut-off date, towards additional capitalisation allowed for each works as mentioned above. In case the Petitioner does not justify/establish that the works/items are within the original scope of the project, the same may not be considered, at the time of truing-up of the tariff. Further, the works pertaining to 'capital spares' claimed by the Petitioner under Regulation 24(1)(c) of the 2019 Tariff Regulations, provides for the Procurement of initial capital spares within the original scope of work and the same is discussed under the head 'Initial Spares'.

Additional capital expenditure within the original scope of work, but claimed after the cut-off date (31.3.2020) i.e from 2020-21 to 2023-24 (excluding Ash Handling plant and Ash Dyke)

16. The Petitioner has claimed additional capital expenditure towards Land & ROU, R&R, Main Plant, Offsite Civil and Chimney, Site Clearance and Levelling, Township, CISF Barrack–Civil Work, Control and Instrumentation, Coal Handling Plant, Steam Generator, ESP Package, station piping, ventilation system, Turbine Generator, Instrumentation Cable, Auxiliary Boiler, CW System Equipment, Pre-Treatment Plant, Fire Detection and Protection System, LT (outdoor) transformers, HT (outdoor) transformers, HT Switchgear, LT Switchgear and MCC, Electrical Equipment Supply and Erection, Switchyard, Railway siding Works, under Regulation 24(1)(b) and Regulation 76 of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that these additional capitalization

pertains to original scope of work. However, the Petitioner vide affidavit dated 29.6.2021 has prayed for extension of cut-off date up to 31.3.2023, on account of various factors (as mentioned in para 6 above) which are beyond the control of the Petitioner.

17. The matter has been considered. It is observed that the claim of the Petitioner pertains to the actual additional capitalization of the balance works within the original scope of work, but deferred for execution beyond the cut-off date. Considering the submissions of the Petitioner, we, in exercise of the power to relax under Regulation 76 (Power to Relax) of the 2019 Tariff Regulations, allow the additional capitalisation claimed for the works mentioned above, under Regulation 25(1)(d) of 2019 Tariff Regulations, subject to prudence check, at the time of truing-up of the tariff. The Petitioner is directed to furnish the original Form-5B, justifying the pending amount/works deferred till the cut-off date towards additional capitalisation allowed for each works as mentioned above, which are falling within the respective package in Form 5B. In case the Petitioner does not justify/establish that the works/ items fall within the original scope, the same shall not be considered at the time of truing-up of tariff.

Ash Handling Plant

18. The Petitioner has claimed total projected additional capital expenditure for Rs. 3676.32 lakh (Rs 1277.63 lakh in 2019-20 + Rs 817.22 lakh in 2020-21 + Rs 1131.47 lakh in 2021-22 + Rs. 450 lakh in 2022-23) for Ash Handling Plant under Regulation 25(1)(c) of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that the same relates to balance work within the original scope of the project.

19. The matter has been considered. In our view, the projected additional capital expenditure for works claimed by the Petitioner are deferred works relating to ash pond or ash handling system and are within the original scope of work. Hence, the claim of the Petitioner is allowed under Regulation 25(1)(c) of the 2019 Tariff Regulations. This is subject to prudence check at the time of truing-up of tariff.

Ash Dyke Works

20. The Petitioner has claimed total projected additional capital expenditure of Rs. 11051 lakh (Rs.1751.56 lakh in 2020-21 + Rs. 1500.00 lakh in 2021-22 + Rs. 5500 lakh 2022-23 + Rs. 2300.00 in 2023-24) for Ash Dyke works period under Regulation 25(1)(c) of the 2019 Tariff Regulations. In justification of the same, the Petitioner submitted that the claim is in respect of the deferred works pertaining to ash pond within the original scope of work.

21. The matter has been considered. In our view, the ash related works are within the original scope of work of the project and these works are continuous in nature during the entire operational lifetime of the generating station, the claim of the Petitioner is allowed under Regulation 25(1)(c) of the 2019 Tariff Regulations. This is subject to prudence check at the time of truing-up of tariff.

Additional Capital expenditure claimed beyond the original scope

Additional HCL Storage Tank for CPU areas

22. The Petitioner has claimed projected additional capital expenditure of Rs.70.00 lakh in 2022-23 towards Additional HCL storage tanks under Regulation 26(1)(d) read with Regulation 76 of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that the Stage-II CPU regeneration system, has two numbers of Hydrochloric (HCL) Tanks for storing hydrochloric acid (one working and one stand

by), with a storage capacity of 25 MT each. It has also submitted that for safety in handling bulk acid and alkali, it is to be ensured that bulk acid storage tank shall not be filled in more than 80% of the capacity of the tank and one tank shall be kept empty for handling emergency in case of leakage. Accordingly, the Petitioner has submitted that for safe operation of the hydrochloric acid tanks of Stage-II CPU regeneration system, the safe storage quantity of HCL tank is 20 MT and other shall be kept empty for handling emergency. The Petitioner has further submitted that, due to varying scheduling from the beneficiaries, due to increasing penetration of variable renewable energy into the grid requiring flexible operation of the station, the project has a higher number of RSDs and cold start-up. It has also stated that the technical minimum being 55% as per IEGC, flexing requirements have increased. In view of the above and stringent water chemical parameters in case of super critical units, the requirement of demineralized water is high leading to more regeneration of resins, which in turn requires high consumption of HCL. The Petitioner has stated that for safety requirements and to have facilities of regeneration/flushing/handling of HCL, in a safe manner, additional tank of HCL is required to be installed at the generating station. It has added that the provision of one working and one standby HCL storage tank was envisaged under the original scope of work. The Petitioner has further submitted that the generating station was designed as a base load station, as envisaged in the PPA, however, the requirement of one additional HCL storage tank due to high start-ups and shutdowns and flexing of the generating station, as explained above, has been recognised only after the commissioning of the generating station and hence could not be envisaged within the original scope of work.

23. The Petitioner has also referred to “the Occupational Health, Safety and Working Conditions Code 2020” by Ministry of Law & Justice, GOI , which was notified as an act of Parliament on 29.9.2020, and submitted that the Petitioner is bound to identify the various safety hazards in the Plant and accordingly take steps to make sure that workplace is safe and free of hazards as human safety is involved which is of paramount importance. The Petitioner has contended that Regulation 26(1)(d) of the 2019 Tariff Regulations, provides for admittance of additional capitalisation for works related to the safety of the Plant, which includes the safety of the personnel working within the plant. It has added that as per the various provisions of ‘National Policy on Safety, Health and Environment at Workplace’ released by Ministry of Labour and Employment, GOI in February, 2009 and ‘National Disaster Management Guidelines – Chemical Disasters’ released by the NDMA, GOI in April 2007, additional storage tank is essential for the safe handling of hazardous HCL.

24. The Respondents CSPDCL and MPPMCL have submitted that Petitioner’s claim for Rs. 70 lakh in 2020-21 under Regulation 26(1)(d) towards installation of additional HCL storage tanks for CPU areas is beyond the original scope of work. They have also submitted that as per Regulation 19(5)(a) of the 2019 Tariff Regulations, the assets which form part of the project but not in use, are excluded from capital cost.

25. The matter has been considered. Regulation 26(1)(d) of the 2019 Tariff Regulations, provides for the consideration of the additional capital expenditure for works related to 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. Since the Petitioner has submitted no such documents and has also not demonstrated the optimum usage of the additional storage tank

during the regular plant operations, the claim for additional capitalization on this count is **not allowed**. However, the Petitioner at the time of truing-up of tariff, shall submit relevant details demonstrating that the assets/works is based on the recommendations of the statuary authority and the proposal shall be considered on merits.

Bio-Methanation Plant

26. The Petitioner has claimed additional capital expenditure for Rs. 33.22 lakh in 2020-21, for works related to Bio-Methanation Plant, under Regulation 26(1)(d) of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that the MOEF&CC's notification dated 8.4.2016 on Solid Waste Management Rules, 2015 provides one of the duties of waste generators, as per Clause 4.7, that bio-degradable waste shall be processed, treated, and disposed of through composting or bio-methanation within the premises as far as. It has also stated that the bio-methanation process of converting biomass into gaseous fuel is superior and a sustainable process that is preferable for processing in biogas plants. Accordingly, in line with MOEF&CC's notification, the Petitioner has set up the Bio-Methanation Plant and is treating the wet organic waste at the source point itself, in the most environment friendly manner. Accordingly, the Petitioner has submitted that the Commission may allow the same under 'change in law or compliance of existing law'.

27. The matter has been considered. It is observed that Regulation 26(1)(d) of the 2019 Tariff Regulations, which provides for consideration of the additional capital expenditure for works related to higher security and safety of the plant as advised or as directed by the appropriate Indian Government Instrumentality or statutory authorities responsible for national or internal security. However, the Petitioner has not

furnished any substantial justification or any supporting documentary evidence in support of its claim. Also, the nature of work claimed by the Petitioner has no relevance to Regulation 26(1)(d) of the 2019 Tariff Regulations. In addition,, the Petitioner has also not been able to demonstrate the benefits that are being passed on to its beneficiaries. In this background, we are not inclined to allow the additional capital expenditure claimed towards Bio-Methanation Plant. However, the Petitioner is permitted to approach the Commission with details of the scheme such as type of bio-degradable waste to be treated and amount of energy derived from Bio-Methanation Plant and the benefit transferred to beneficiaries, at the time of truing-up of tariff and the proposal shall be considered on merits.

Chlorine Dioxide (CLO_2) Plant

28. The Petitioner has claimed additional capitalisation of Rs. 1087.67 lakh towards CLO_2 Plant under Regulation 26(1)(b) & (d) read with Regulation 76 of the 2019 Tariff Regulations in 2021-22. In justification of the same, the Petitioner has submitted that the CLO_2 Plant is being installed to enable a much safer way of producing CLO_2 on site, by use of commercial grade HCl and sodium chlorite, instead of present practice of Chlorine gas, being dozed directly. It has stated that Chlorine gas is very hazardous and may prove fatal in case of leakage and handling & storage of same involves risk to the life of public at large and in the interest of public safety, the chlorine dozing system is now being replaced by CLO_2 system, which is much safer and less hazardous than chlorine. The Petitioner has also submitted that it has taken up the installation of CLO_2 Plant in line with the provisions of "National Policy on Safety, Health and Environment at Workplace" released by Ministry of Labour & Employment, GOI in February, 2009 and as per the duties necessitated for safety of workplace and workmen under clauses 6(1)(a) and 6(1)(d) of "The Occupational Safety, Health and

Working Conditions Code, 2020” notified by the Ministry of Law & Justice, GoI vide Gazette Notification dated 29.9.2020. It has also stated that the "National Disaster Management Guidelines - Chemical Disasters" released by NDMA, GOI highlights the grave hazards from use of chemicals (including Chlorine gas) and mandates changing/ strengthening/ upgrading the industrial systems for the prevention and management of chemical accidents. Accordingly, the Petitioner has submitted that the installation of CLO_2 system fall under the ambit of Regulation 26(1)(b) as well as Regulation 26(1)(d) of the 2019 Tariff Regulations.

29. The matter has been considered. The Petitioner has claimed projected additional capitalization of Rs. 1087.67 lakh in 2021-22 towards CLO_2 system under Regulation 26(1)(b) of the 2019 Tariff Regulations i.e., ‘Change in law’ and under Regulation 26(1)(d) of the 2019 Tarif Regulations i.e., ‘expenditure required for safety and security of the plant as advised or as per directions of appropriate governmental agency or statutory authorities. Though the Petitioner has contended that the chlorine dozing system is to be replaced by CLO_2 system, in the interest of public safety, it has not demonstrated that the projected expenditure is on account of ‘change in law’ or for compliance with the existing law. Similarly, the Petitioner has also not enclosed any documentary evidence indicating that the projected additional capital expenditure is required for safety and security of the plant, based on the advice and or directions of the appropriate Governmental agency or statutory authorities specifying the adoption/installation of CLO_2 plant. In this background, the projected additional capitalization claimed by the Petitioner on this count is not allowed.

Zero Liquid Discharge

30. The Petitioner has claimed additional capital expenditure for Rs. 360.00 lakh towards Zero Liquid Discharge in 2021-22, under Regulation 26(1)(b) of the 2019 Tariff Regulations. In justification of the same, the Petitioner has submitted that as per Environment Clearance (EC) granted for its generating station (clause A(xiii)) as well as conditions of Consent to Operate (CTO) for this generating station (clause 1(D), 18, 19) issued by the Maharashtra State Pollution Control Board, there shall be no discharge of treated effluent outside the Plant Boundary. It has also stated that the installation of Zero Liquid Discharge System is mandatory for Thermal Plants to be installed after 1st January 2017, as per MoEF&CC Notification dated 28.6.2018 - Environment (Protection) Amendment Rules, 2018, Clause 2.(a) III of which states that "Specific Water Consumption shall not exceed maximum of 3.0 m3/MWh for new plants installed after the 1.1.2017 and these plants shall also achieve zero waste water discharge.". Accordingly, the Petitioner has submitted that Zero Liquid Discharge system is being installed at the generating station, to achieve zero wastewater discharge, as mandated in terms of EC, CTO and MOEF&CC notification.

31. The matter has been considered. The Petitioner has claimed projected additional capitalization of Rs. 360 lakh in 2021-22 towards Zero Liquid Discharge under Regulation 26(1)(b) of the 2019 Tariff Regulations i.e., ‘change in law’. The Petitioner has submitted that MoEF&CC Notification dated 28.6.2018 envisages the installation of ZLD, for plants installed after 1.1.2017 and to restrict the water consumption up to 3.0 M3/MWH. It is noted that even in respect of the plants commissioned before 1.1.2017 there was provision for ETP and STP, to treat the effluent water and no plant was allowed to discharge untreated water. As far as consumption of water is

concerned, the Petitioner has not furnished any data with regard to the consumption of water before and after the installation of ZLD. In view of the above, the Petitioner has not established the fact that MOEF&CC notification is a change in law, mandating expenditure on this count. In this background, the projected additional capital expenditure claimed by the Petitioner is **not allowed.** However, the Petitioner is granted liberty to furnish details/ justification at the time of truing up, as to how the effluent water was treated and what was the specific water consumption prior to the MOEF&CC notification and also to establish that the installation of ZLD is a change in law event and the proposal shall be considered on merits.

Initial Spares

32. Regulation 13 of Tariff Regulations 2014 provides as follows:

> *"13. Initial Spares: Initial spares shall be capitalized as a percentage of the Plant and Machinery cost up to cut-off date, subject to following ceiling norms:*
>
> *(a) Coal-based/lignite-fired thermal generating stations - 4.0%*
> *(b) Gas Turbine/Combined Cycle thermal generating stations - 4.0%*
>
> *Provided that:*
>
> *i. where the benchmark norms for initial spares have been published as part of the benchmark norms for capital cost by the Commission, such norms shall apply to the exclusion of the norms specified above:*
> *……..*
>
> *iv. for the purpose of computing of initial the cost spares, plant and machinery cost shall be considered as project cost as on cut-off date excluding IDC, IEDC, Land Cost and cost of civil works. The transmission licensee shall submit the break-up of head wise IDC &IEDC in its tariff application."*

33. The Petitioner has claimed initial spares for Rs. 2991.09 lakh (Rs. 158.00 lakh in 2019-20 and Rs. 2832.94 lakh in 2020-21) under Regulation 24(1)(c) read with Regulation 76 of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that these initial spares fall within the ceiling limit of 4% of Plant & Machinery, as specified under the 2019 Tariff Regulations, wherein, the

procurement of these spares were initiated prior to the cut-off date, considering the expected lead time in delivery.

34. The matter has been considered. It is observed that the Commission vide order dated 7.2.2023 in Petition No. 394/GT/2020 had allowed initial spares for *Rs.* 18103.04 lakh based on the total Plant & Machinery cost of Rs. 501681.71 lakh (exclusive of applicable taxes) as per Form-5B furnished by the Petitioner. The initial spares of Rs. 18103.04 lakh allowed is 3.61% of the total Plant & Machinery cost. The relevant portion of the order dated 7.2.2023 is extracted below:

> *"23. The matter has been considered. The Commission vide order dated 5.4.2019 in Petition No. 142/GT/2016 has allowed initial spares of Rs.11529.78 lakh which comes out to 2.75% of the Plant & Machinery cost, which is upto COD (17.9.2017) of Unit II of the generating station. The Petitioner in this petition has claimed initial spares of Rs. 4705.12 lakh (on Cash Basis) (Rs. 1176.07 lakh during 18.9.2017 to 31.3.2018 and Rs. 3529.05 lakh during 2018-19). However, the Petitioner has not considered the discharge of liabilities of Rs. 262.17 lakh (Rs. 82.93 lakh during 18.9.2017 to 31.3.2018 and Rs. 179.25 lakh during 2018-19), towards its claimed initial spares. Accordingly, the initial spares, on accrual basis, for the 2017-18 (18.9.2017 to 31.3.2018) to 2018-19 period, works out to Rs. 4967.30 lakh (Rs. 4705.12 lakh + Rs. 262.17 lakh). Thus, the total value of the admitted initial spares works out to Rs. 16497.08 lakh (Rs. 11529.78 lakh + 4967.30 lakh).*
>
> *24. On further perusal of Form-9A, it has been observed that the Petitioner has claimed the additional capital expenditure towards Locomotive and Tools & Plant for Rs. 1104.47 lakh in 2016-17 (1.2.2017 to 31.3.2017) and Rs. 501.49 lakh in 2018-19 under Regulation 14(1)(iii). Regulation 14(1)(iii) provides for procurement of initial capital spares within the original scope of work. Therefore, additional capital expenditure of Rs. 1104.47 lakh and Rs. 501.49 lakh towards Locomotive and Tools & Plant has been considered as part of the initial spares. Accordingly, total initial spares claimed works out to Rs. 18103.04 lakh (Rs. 16497.08 lakh as the initial spares + Rs. 1104.47 lakh Locomotives + Rs. 501.49 lakh Tools & Plants).*
>
> *25. For the coal based thermal generating station, the Regulation 13(a) of the 2014 Tariff Regulations provides the limit of allowable initial spares @4% of the Plant & Machinery cost upto the cut-off date excluding IDC, IEDC, Land Cost and cost of civil works. Based on the audited Form-5B submitted by the Petitioner, the total Plant & Machinery Cost is Rs. 501681.71 lakh (exclusive of applicable taxes), out of which the total of Rs. 18103.04 lakh initial spares are allowed, which is 3.61% of the total Plant and Machinery Cost. The allowed initial spares is within the ceiling limit of 4% and hence the same is being allowed for the purpose of true up."*

35. The Petitioner, in compliance to ROP, has furnished Form 5B. However, the Plant & Machinery cost, as on the cut-off date of the generating station, has not been indicated in Form-5B. Hence, the Plant & Machinery cost of Rs 501681.71 lakh as considered in order dated 7.2.2023 has been considered. As per the 4th proviso to

Regulation 13(a) of the 2014 Tariff Regulations, the limit of allowable initial spares @4% of the Plant & Machinery cost works out to Rs.20067.27 lakh, out of which Rs. 18103.04 lakh, has already been allowed by order dated 7.2.2023 and the balance limit left to be capitalised, works out to Rs. 1964.23 lakh. Accordingly, out of the total initial spares claimed for Rs. 2991.09 lakh (Rs. 158.00 lakh in 2019-20 and Rs. 2832.94 lakh in 2020-21) the allowable initial spares has been restricted to Rs. 1964.23 lakh.

Discharge of Liabilities

36. The Petitioner has claimed total liability discharge for Rs. 12509.29 lakh (Rs. 2457.82 lakh in 2019-20 and Rs. 10051.47 lakh in 2020-21) and the same has been considered for the purpose of tariff for the period 2019-24. However, the Petitioner is directed to submit the details of un-discharged liabilities along with corresponding discharges made during the respective year of the period 2019-24, in respect of the admitted additional capital expenditure, at the time of truing-up of tariff.

37. Based on the above, the total projected additional capital expenditure claimed by the Petitioner and those allowed for the period 2019-24 is summarized as under:

(Rs. in lakh)

Head of Work /Equipment	2019-20	2020-21	2021-22	2022-23	2023-24
(A) Works under original scope, Change in Law etc. eligible for RoE at Normal Rate					
Land & ROU, R&R	23.94	0.00	600.00	1600.00	0.00
Main Plant, Offsite Civil and Chimney	723.90	356.93	3371.00	5402.89	0.00
Site Clearance & Levelling	38.24	0.00	141.13	700.00	0.00
Township	674.79	1401.13	2418.45	0.00	0.00
CISF Barrack - Civil Work	98.49	17.47	0.00	0.00	0.00
Control & Instrumentation	548.20	602.10	178.14	0.00	0.00
Coal Handling Plant	4188.28	995.74	1382.94	400.00	0.00
Steam Generator	8926.53	1261.00	2200.27	1000.00	0.00
ESP Package	112.99	30.43	46.00	40.00	0.00
Station Piping	0.00	120.00	221.48	40.00	0.00
Ventilation System	0.00	104.03	280.00	100.00	0.00
Turbine Generator	1130.66	1816.78	2150.21	600.00	0.00

Head of Work /Equipment	2019-20	2020-21	2021-22	2022-23	2023-24
Ash Handling Plant	1277.63	817.22	1131.47	450.00	0.00
Ash Dyke Works	0.00	1751.56	1500.00	5500.00	2300.00
Instrumentation Cable	0.00	0.00	9.46	0.00	0.00
Auxiliary Boiler	0.00	0.00	0.00	250.00	0.00
CW System equipment	4.55	0.00	83.00	0.00	0.00
Cooling Tower	1.30	0.00	0.00	0.00	0.00
Pre-Treatment Plant	755.02	73.20	5.00	0.00	0.00
Fire Detection & Protection System	1223.32	0.00	64.05	0.00	0.00
LT (outdoor) transformers	21.32	0.00	28.12	0.00	0.00
HT (outdoor) transformers	0.00	0.00	10.00	0.00	0.00
HT Power Cables	0.00	0.00	35.33	0.00	0.00
LT Power Cables	0.00	0.00	63.70	0.00	0.00
HT Switchgear	90.01	5.82	76.98	0.00	0.00
LT Switchgear & MCC	29.42	0.00	4.00	0.00	0.00
Electrical Equipment Supply & Erection	867.12	798.61	388.79	100.00	0.00
Make up Water System	55.14	0.00	0.00	0.00	0.00
Switchyard	273.05	164.51	31.00	0.00	0.00
Railway Siding Works	2729.10	3350.39	729.00	1700.00	0.00
Tools & Plant	73.28	0.00	0.00	0.00	0.00
MBOA	2278.75	0.00	0.00	0.00	0.00
Initial Spares	158.15	1806.08**	0.00	0.00	0.00
Total – (A)	**26303.18**	**15473.00**	**17149.52**	**17882.89**	**2300.00**
B. Works beyond Original scope					
Bio Methanation Plant	0.00	0.00	0.00	0.00	0.00
Zero Liquid Discharge	0.00	0.00	0.00	0.00	0.00
Additional HCL Storage Tank for CPU area	0.00	0.00	0.00	0.00	0.00
ClO2 Plant	0.00	0.00	0.00	0.00	0.00
Total – (B)	0.00	0.00	0.00	0.00	0.00
Total (C)= (A+B)	**26303.18**	**15473.00**	**17149.52**	**17882.89**	**2300.00**
Add: Discharge of Liability (D)	2457.82	10051.47	0.00	0.00	0.00
Total Additional Capital expenditure allowed (C)+(D)	**28761.00**	**25524.47**	**17149.52**	**17882.89**	**2300.00**

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)**	26303.18	15473.00	17149.52	17882.89	2300.00	79108.59
Less: De-capitalization considered for assets **(B)**	0.00	0.00	0.00	0.00	0.00	0.00
Less: Undischarged Liabilities **(C)**	0.00	0.00	0.00	0.00	0.00	0.00
Add: Discharges of liabilities (against allowed assets / works) **(D)**	2457.82	10051.47	0.00	0.00	0.00	12509.29
Net projected additional	**28761.00**	**25524.47**	**17149.52**	**17882.89**	**2300.00**	**91617.88**

	2019-20	2020-21	2021-22	2022-23	2023-24	Total
capital expenditure allowed (on cash basis) **(E) = (A-B-C+D)**						

Capital cost allowed for the period 2019-24

38. As stated earlier, the closing capital cost of Rs. 679544.26 lakh, as on 31.3.2019, as approved by order dated 7.2.2023 in Petition No. 394/GT/2020, has been considered as the opening capital cost, as on 1.4.2019. As such, the capital cost allowed for the purpose of tariff for the period 2019-24 is as under:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Capital cost	679544.26	708305.26	733829.72	750979.24	768862.13
Add: Addition during the year / period	28761.00	25524.47	17149.52	17882.89	2300.00
Closing Capital cost	708305.26	733829.72	750979.24	768862.13	771162.13
Average capital cost	**693924.76**	**721067.49**	**742404.48**	**759920.69**	**770012.13**

Debt-Equity Ratio

39. 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 s ystem 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."

40. The Petitioner has claimed gross normative loan of Rs. 475680.99 lakh and normative equity of Rs. 203863.27 lakh, as on 1.4.2019, and has considered the debt-equity ratio of 70:30, for funding of projected additional capital expenditure claimed during the period 2019-24. The Commission vide its order dated 7.2.2023 had considered the gross loan and equity of Rs. 475680.98 lakh and Rs. 203863.28 lakh respectively, as on 31.3.2019. The proportionate equity as a percentage of admitted capital cost as on 31.3.2019 is 30% and the same has been retained as on 1.4.2019 for the purpose of tariff. Further, the projected additional capital expenditure approved above has been allocated to debt and equity in the ratio of 70:30. Accordingly, the debt-equity ratio is worked out as under:

(Rs. in lakh)

	Capital cost as on 1.4.2019		**Additional capitalization**		**Capital cost as on 31.3.2024**	
	Amount	**(%)**	**Amount**	**(%)**	**ount**	**%)**
Debt (A)	475680.98	70.00%	64132.51	70.00%	539813.49	70.00%
Equity (B)	203863.28	30.00%	27485.36	30.00%	231348.64	30.00%
Total (C) = (A) + (B)	**679544.26**	**100.00%**	**91617.88**	**100.00%**	**771162.13**	**100.00%**

Return on Equity

41. 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 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.”

42. The Petitioner has claimed Return on Equity (ROE) considering base rate of 15.50% and effective tax rate of 17.472% for the opening equity as on 1.4.2019 and projected additional capital expenditure claimed under the additional capital expenditure under the original scope of work, change in law, etc.

43. The Respondent MSEDCL has submitted that the Petitioner has considered the effective tax rate of 17.4720%, for computation of ROE, wherein, it was observed that there is ‘zero tax’ liability as on 31.3.2017 and 31.3.2018’ as per balance sheet submitted along with Petition No. 394/GT/2020. Accordingly, it has stated that the Commission may allow the effective rax rate at 15.50% only as per Regulation 30(2)

of the 2019 Tariff Regulations, subject to the claims at the time of truing-up based on actual tax paid.

44. In response, the Petitioner has clarified as under:

(a) The Petitioner is a corporate legal entity who is obligated to pay tax and this is one of the generating Station of the Petitioner.

(b) Therefore, as long as tax liability is imposed upon the Generating Company i.e., the Petitioner, the same is liable to be grossed up as per Regulation 31 of Tariff Regulation, 2019 as in the present case actual tax has been paid by the generating company (NTPC) and not the respective generating Station of NTPC.

(c) Respondent MSEDCL while making its averment has considerably failed to give true essence to the regulations framed by the Commission. It is imperative to note that in the facts and circumstances of the present case, Mauda-II is neither a generating company and nor a corporate legal entity, rather it is only a division/Generating Station of NTPC. Therefore, in accordance with the provisions of Tariff Regulations, NTPC was justified and correct to claim effective tax rate of 17.4720% basis its consolidated financial statement owing to the fact tax liability is paid by company as a whole.

(d) Therefore, the contention raised by the Respondent MSEDCL falls flat and must be rejected in view of the contentions raised above at the instance of the Petitioner.

45. The Respondent CSPDCL has submitted that as per Regulation 31 of the 2019 Tariff Regulations, ROE is grossed up with the effective tax rate for the respective financial year and hence, the tax liability of the generator is passed on to the beneficiaries. It has stated that as per the Finance Act, the income tax is leviable on the income tax of the Company/Individual and accordingly, it is not justified to pass on the income tax liability of the generator to the beneficiaries. In response, the Petitioner has clarified that the tax on ROE is being claimed by the Petitioner in terms of Regulation 31(1) and (2) of the 2019 Tariff Regulations, wherein, the Petitioner has considered MAT rate for grossing up of the ROE.

46. The Respondent MPPMCL has submitted that the base rate of ROE at 15.5% prescribed in Regulation 30(2) of the 2019 Tariff Regulations is excessively high when compared with the rate of fixed deposit for a 5 to 10-year period, i.e., 5.40%, specially given the economic hit from Covid-19 pandemic and this ought to be relaxed by the Commission. In response, the Petitioner has clarified that the Respondent MPPMCL cannot be permitted to challenge the Regulations framed by this Commission. It has further submitted that the tax on ROE is being claimed by the Petitioner in terms of Regulation 31(1) and (2) of the 2019 Tariff Regulations, wherein, the Petitioner has considered MAT rate for grossing up of ROE.

47. The submissions have been considered. ROE has been computed in terms of Regulation 30 and 31 of the 2019 Tariff Regulations, considering the MAT rate for the respective years. Accordingly, ROE has been allowed, based on the admitted projected additional capital expenditure, as under:

Return on Equity at Normal Rate

(Rs. in lakh)

	2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Normative Equity-Opening (A)	203863.28	212491.58	220148.92	225293.77	230658.64
Addition of Equity due to additional capital expenditure (B)	8628.30	7657.34	5144.86	5364.87	690.00
Normative Equity-Closing (C) = (A) + (B)	212491.58	220148.92	225293.77	230658.64	231348.64
Average Normative Equity (D) = (A+C)/2	208177.43	216320.25	222721.35	227976.21	231003.64
Return on Equity (Base Rate) (E)	15.500%	15.500%	15.500%	15.500%	15.500%
Effective Tax Rate (F)	17.472%	17.472%	17.472%	17.472%	17.472%
Rate of Return on Equity (Pre-Tax) (G) = (E)/(1-F)	18.782%	18.782%	18.782%	18.782%	18.782%
Return on Equity (Pre-Tax) annualized (H) = (D)x(G)	**39099.88**	**40629.27**	**41831.52**	**42818.49**	**43387.10**

Interest on Loan

48. 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 upto 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."

49. Interest on loan has been computed as under:

(i) The gross normative loan amounting to Rs. 475680.98 lakh has been retained as on 1.4.2019.

(ii) Cumulative repayment amounting to Rs. 64573.61 lakh as on 31.3.2019 as considered in order dated 7.2.2023 in Petition No. 394/GT/2020 has been retained as on 1.4.2019.

(iii) Accordingly, the net normative opening loan as on 1.4.2019 works out to as Rs. 411107.37 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 years of the period 2019-24.

(vi) The Petitioner has claimed interest on loan by applying the weighted average rate of interest of 6.4899% for the year 2019-20, 6.5790% for the year 2020-21, 6.5944% for the year 2021-22, 6.5877% for the year 2022-23 and 6.5057 % for the year 2023-24. The same has been considered for the purpose of tariff. The Petitioner, is however, directed to submit documentary evidence for the rate of interest claimed and repayment schedule of loan, at the time of truing up of tariff. Interest on loan has been worked out as follows:

(Rs. in lakh)

	2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Gross opening loan (A)	475680.98	495813.68	513680.81	525685.47	538203.49
Cumulative repayment of loan upto previous year (B)	64573.61	100747.91	138337.16	177038.70	216653.37
Net Loan Opening (C) = (A) - (B)	411107.37	395065.77	375343.65	348646.77	321550.13
Addition due to additional capital expenditure (D)	20132.70	17867.13	12004.66	12518.02	1610.00
Repayment of Loan during the period (E)	36174.30	37589.25	38701.55	39614.67	40140.73
Less: Repayment adjustment on a/c of decap (F)	0.00	0.00	0.00	0.00	0.00
Net Repayment of Loan during the period (G) = (E) - (F)	36174.30	37589.25	38701.55	39614.67	40140.73
Net Loan Closing (H) =(C) +(D) -(G)	395065.77	375343.65	348646.77	321550.13	283019.39
Average Loan (I) = (C+H)/2	403086.57	385204.71	361995.21	335098.45	302284.76
Weighted Average Rate of Interest of loan (J)	6.4899%	6.5790%	6.5944%	6.5877%	6.5057%
Interest on Loan (K) = (I)*(J)	**26160.01**	**25342.72**	**23871.50**	**22075.20**	**19665.73**

<u>Depreciation</u>

50. 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 upto 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."

51. Cumulative depreciation amounting to Rs. 64573.61 lakh, as on 31.3.2019, as considered in order dated 7.2.2023 has been retained as on 1.4.2019. Since, the elapsed life of the generating station as on 1.4.2019 is 2.16 years, which is less than 12 years from the effective station COD, depreciation has been calculated by applying

weighted average rate of depreciation (WAROD) as enclosed in **Annexure**-I to this order. Necessary calculation for depreciation are as under:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Average Capital Cost (A)	693924.76	721067.49	742404.48	759920.69	770012.13
Value of freehold land included in average capital cost (B)	0.00	0.00	0.00	0.00	0.00
Value of software and IT equipment included in average capital cost (C)	0.00	0.00	0.00	0.00	0.00
Aggregated Depreciable Value (D)= (A-B-C)*90%+ (C)	624532.28	648960.74	668164.04	683928.62	693010.92
Remaining aggregate depreciable value at the beginning of the year (E) = (D) - (Cumulative Depreciation (shown at M), at the end of the previous year)	559958.67	548212.83	529826.88	506889.92	476357.55
No. of completed years at the beginning of the year (F)	2.16	3.16	4.16	5.16	6.16
Balance useful life at the beginning of the year (G) = 25 - (F)	22.84	21.84	20.84	19.84	18.84
Weighted Average Rate of Depreciation (WAROD) (H)	5.2130%	5.2130%	5.2130%	5.2130%	5.2130%
Combined Depreciation during the year/ period (I) = (A) * (H)	**36174.30**	**37589.25**	**38701.55**	**39614.67**	**40140.73**
Cumulative depreciation at the end of the year (before adjustment for de-capitalization) (J) = (I) + (Cumulative Depreciation (shown at K), at the end of the previous year)	100747.91	138337.16	177038.70	216653.37	256794.10

O&M Expenses

52. The total O&M expenses claimed by the Petitioner is as under:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Normative O&M expenses claimed under Regulation 35(1)(1) of the 2019 Tariff	26743.20	27680.40	28657.20	29660.40	30703.20

	2019-20	2020-21	2021-22	2022-23	2023-24
Regulations **(a)**					
O&M expenses claimed under Regulation 35(1)(6) of the 2019 Tariff Regulations					
- Water Charges	1522.90	1576.20	1631.37	1688.47	1747.56
- Security Expenses	1120.86	1799.64	1873.03	1382.59	1465.66
- Capital Spares consumed	0.00	0.00	0.00	0.00	0.00
Total O&M Expenses	**29386.96**	**31056.24**	**32161.60**	**32731.46**	**33916.42**

53. Since the normative O&M expenses claimed is in terms of Regulation 35(1)(1) of the 2019 Tariff Regulations, the same is allowed for the purpose of tariff.

Water Charges

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

> *"(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;*
>
> *xxxxx."*

55. The actual water charges claimed by the Petitioner and allowed by the Commission vide order dated 7.2.2023 for the period 2014-19 is as follows:

(Rs. in lakh)

2016-17 (1.2.2017 to 31.3.2017)	2017-18		2018-19
	1.4.2017 to 17.9.2017	18.9.2017 to 31.3.2018	
397.82	666.06	666.06	1471.40

56. In terms of the first proviso to Regulations 35(1)(6) of the 2019 Tariff Regulations, water charges shall be allowed separately, based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check. The details furnished by the Petitioner in respect of water charges as applicable for 2018-19 are as under:

Description	Remarks
Type of Plant	Coal Based
Type of cooling water system	Closed Cycle
Allocation of Water	
Consumption of Water	30.95 MCM
Rate of Water charges	Rs 5.28/ Cubic Meter
Total Water Charges	1471.40 Lakh

57. The Petitioner has submitted that the water charges shall be revised upwards by 3.5% every year. Accordingly, the water charges claimed by the Petitioner for the period 2019-24 is as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
1522.90	1576.20	1631.37	1688.47	1747.56

58. The Respondent MPPMCL has submitted that as per MOEF&CC Notification dated 7.12.2015 read with the proviso to Regulation 35(6) of the 2019 Tariff Regulations, the Petitioner is required to submit the details of water consumption and limit consumption to 3.5 m3/MWh. As per the Respondents calculation, the normative water consumption, based on gross generation for 2018-19, should be 15.54 MCM/annum and therefore, the water charges for 2019-20 is Rs. 726.1 lakh and for 2020-21 is Rs. 462.6 lakh. For the balance period, water charges at Rs. 463.6 lakh may be allowed. However, it has submitted that as per the rate claimed by the Petitioner, i.e., Rs. 5.28/m3, the water charges work out to Rs. 873 lakh, which is arbitrary, and the escalation of water charges at 3.5% is also highly arbitrary. The Respondent CSPDCL has submitted that the Petitioner has escalated the water charges of Rs. 1471.40 lakh for 2018-19 at 3.5% per year, to arrive at the water charges for the subsequent years of the period 2019-24. It has also submitted that there is no provision for escalation of water charges at 3.5% under the regulations. The Respondent has further submitted as per MOEFCC notification dated 7.12.2015, thermal power plants installed after 1.1.2017, have to meet a specific water

consumption up to a maximum of $3m^3/MWh$. As per Respondents calculation, the water requirement as per actual generation of power, during the period 2017-19, considering the above norm, is Rs. 382.80 lakh for 2017-18 and Rs. 873.31 lakh for 2018-19. Hence, the Respondent has submitted that the water consumption of 16.54 MCM for 2018-19 and the corresponding water charges of Rs. 873.82 lakh may be considered as water charges for the period 2019-24, subject to adjustment as per actual generation. The Respondent MSEDCL has submitted that the Petitioner has not provided any justification for an escalation in the water charges at 3.5% every year over the water charges of 2018-19.

59. In response to the above, the Petitioner has clarified as under:

(a) In compliance of Regulation 35(1)(6) of the 2019 Tariff Regulations, the details in respect of water charges such as type of cooling water system, water consumption, rate of water charges is already furnished in para 9 of the petition. The water charges claimed are on estimated basis, based on water charges applicable for 2018-19, with escalation @ 3.5% yearly on estimated basis, at an escalation rate of 3.5% on O&M expenses, is allowed as per the 2019 Tariff Regulations and water charges are also part of O&M expenses. The same are subject to truing-up based on actuals with retrospective adjustment as per the provisions of the 2019 Tariff Regulations.

(b) Water charges paid depends upon actual water consumption as well as contracted water quantity, in line with the Water agreement as signed with the State Water Resources Department. The agreement for water charges is entered into as per the rules/provisions of the respective state water boards/irrigation departments (as the case may be), wherein the generating station is situated. Accordingly, the generator has to sign the agreement for its installed capacity in line with the same. It is also submitted that water is the raw material for any thermal generating plant like fuel. If a generating station is being installed like the present station, the generator has to ensure water and coal corresponding to MCR capacity of the station so that it can offer its full energy to the respective beneficiaries as per their entitlements. The arrangement of raw materials is carried out on long term basis based on anticipated consumption for the same as per the contracted capacity of the station. As regards water, it is arranged in similar way, taking into account the peak requirements of the units in different season and the maximum demand envisaged.

(c) Further, the calculations indicated by the Respondent MPPMCL is based on the actual generation of the station that varies month on month based on the seasonal variations and demand of various beneficiaries. However, the Petitioner has to arrange for water corresponding to the maximum generation of the station i.e., at the MCR/ Installed capacity.

60. The matter has been considered. The Petitioner vide affidavit dated 29.6.2021 has sought recovery of water charges of Rs.1303.41 lakh in 2019-20 and Rs. 1262.45 lakh in 2020-21, based on the actual expenses incurred. Accordingly, the actual water incurred for the years 2019-20 and 2020-21 has been allowed. However, in the absence of actual water charges for the period 2021-24, the actual water charges incurred for the period 2020-21 has been considered and allowed for the period 2021-24. The Petitioner shall, at the time of truing up of tariff, furnish details of the actual water consumption (in cubic meters), rate (Rs/ cubic meter) etc, separately along with the charges incurred. The water charges allowed as above, is subject to the truing up, as per actual water charges paid and the ceiling limit of water consumption as per the Regulation 35 of the 2019 Tariff Regulations, after prudence check. Accordingly, the water charges allowed for the period 2019-24 is as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
1303.41	1262.45	1262.45	1262.45	1262.45

Security Charges

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

"6) The Water Charges, Security Expenses and Capital Spares for thermal generating stations shall be allowed separately after prudence check:

Xxxx

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

xxx"

62. The Respondent MPPMCL has submitted that there has been a 60% hike in the security expenses, since the decision to allow security expenses separately, as additional O&M expenses. It has stated that only an increase of 3.5% in the expenses for the respective year may be allowed. The Respondent has also submitted that the Petitioner may be directed to submit the details of the security expenses claimed which include the cadre-wise total number of personnel, their salary etc., as mandated under the second Proviso to Regulation 35(6) of the 2019 Tariff Regulations. The Respondent CSPDCL has submitted that the Petitioner has claimed security charges during the period 2019-24 based on estimates, subject to retrospective adjustment based on actuals, without providing any estimation details which form the basis of such claim. In addition, the respondent has stated that even if the charges are reimbursable on actuals, there must be a permissible limit up to which the expenses may be allowed. The Respondent has further submitted that that Petitioner has claimed security expenses in Petition No. 437/GT/2020 (determination of tariff of Mauda Stage-I) and hence the security expenses may be allowed, keeping in mind the entire stages of the generating station as a whole, and not stage-wise. It has added that these expenses could be allocated considering per MW basis, in both stages of the plant.

63. In response to the above, the Petitioner has submitted that the Security charges claimed by the Petitioner have been detailed in Form 3A of the petition. It has also stated that the security expenses claimed are on estimated basis, based on actual security expenses incurred by the Petitioner during the year 2018-19. The Petitioner has stated that the Security charges claimed is in compliance to Regulation 35(1)(6) of the 2019 Tariff Regulations. The Petitioner has further submitted that security expenses for Mauda-II are prorated (based on installed capacity of Mauda-II with

respect to the installed capacity of all stages Mauda STPS for) on the security charges incurred for all stages of Mauda STPS.

64. The matter has been considered. The Petitioner has claimed total Security expenses of Rs. 7641.78 lakh (i.e., Rs. 1120.86 lakh in 2019-20, Rs. 1799.64 lakh in 2020-21, Rs. 1873.03 lakh in 2021-22, Rs.1382.59 lakh in 2022-23 and Rs. 1465.66 lakh in 2023-24), in terms of the second proviso to Regulation 35(1)(6) of the 2019 Tariff Regulations. It has, however, not furnished any justification and the assessment of security, for the expenses claimed. The Petitioner in its additional submission vide affidavit dated 29.6.2021, has prayed to allow the Security expenses of Rs. 1198.04 lakh in 2019-20 and Rs. 1160.04 lakh in 2020-21, based on the actual expenses incurred. This has been allowed. In the absence of the actual Security expenses for the period from 2021-22 to 2023-24, the Security expenses for the said period, are allowed with escalation factor of 5.0% over the actual security expenses allowed in 2020-21. However, the Petitioner shall, at the time of truing up, furnish the actual security expenses incurred along with proper justification and assessment in terms of Regulation 35(1)(6) of the 2019 Tariff Regulations. The Security expenses allowed for the 2019-24 tariff period are summarized as under:

(Rs. in lakh)

2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
1198.04	1160.04	1218.04	1278.94	1342.89

<u>Summary</u>

65. Accordingly, the total O&M expenses, including Water charges and Security expenses, claimed and those allowed for the period 2019-24 is summarized below:

(Rs. in lakh)

		2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Installed Capacity (MW) **(A)**		1320.00	1320.00	1320.00	1320.00	1320.00
O&M Expenses under Reg.35(1) in Rs lakh / MW **(B)**	Claimed	20.26	20.97	21.71	22.47	23.26
	Allowed	**20.26**	**20.97**	**21.71**	**22.47**	**23.26**

		2019-20	2020-21	2021-22	2022-23	2023-24
Total O&M Expenses (in Rs lakh) **(C) = (A)*(B)**	Claimed	26743.20	27680.40	28657.20	29660.40	30703.20
	Allowed	**26743.20**	**27680.40**	**28657.20**	**29660.40**	30703.20
Water Charges (in Rs lakh) **(D)**	Claimed	1522.90	1576.20	1631.37	1688.47	1747.56
	Allowed	**1303.41**	**1262.45**	**1262.45**	**1262.45**	**1262.45**
Security Expenses (in Rs lakh) **(E)**	Claimed	1120.86	1799.64	1873.03	1382.59	1465.66
	Allowed	**1198.04**	**1160.04**	**1218.04**	**1278.94**	**1342.89**
Total O&M Expenses as allowed (including Water Charges and Capital Spares Consumed) (F) = (C+D+E)	Claimed	**29386.96**	**31056.24**	**32161.60**	**32731.46**	**33916.42**
	Allowed	**29244.65**	**30102.89**	**31137.69**	**32201.79**	**33308.54**

Additional expenditure towards Fly Ash Transportation

The Petitioner in compliance to the ROP vide affidavit dated 22.2.2022, has, vide additional submission, prayed to allow actual fly ash transportation charges of Rs. 3712.00 lakh in 2019-20 and Rs. 2162.00 lakh in 2020-21, based on the actual expenses incurred subject to truing up, from the beneficiaries on account of ash transportation charges after adjusting the revenue earned from sale of ash

67. It is pertinent to mention that in Petition 205/MP/2021 filed by the Petitioner for recovery of the additional expenditure incurred due to Ash transportation charges for the period 2019-24, consequent to Ministry of Environment and Forest & Climate Change, Government of India Notification dated 3.11.2009 and Notification dated 25.1.2016 on a recurring basis, the Commission vide its order dated 28.10.2022, had allowed the expenditure incurred towards the Ash transportation expenses incurred by the Petitioner for the period 2019-22. The relevant portion of the order is extracted below:

> *"39. Petitioner has furnished the details of the distance to which fly ash has been transported from the generating station, schedule rates applicable for transportation of fly ash, as notified by the State Governments along with details, including Auditor certified accounts. These documents have been examined and accordingly, the total fly ash transportation expenditure allowed to the Petitioner generating station wise for the period 2019-22 is as per the table in para 38 above totalling to Rs.309704.03 lakh and*

the same shall be recovered from the beneficiaries of the respective generating stations in 6 (six) equal monthly instalments. However, the Petitioner is directed to submit details regarding award of transportation contracts, distance to which fly ash has been transported along with duly reconciled statements of expenditure incurred on ash transportation at the time of filing petitions for truing up of tariff for the 2019-24 tariff period of the generating stations.

Xxxx

43. In the light of the above discussion and keeping in view that the Petitioner is entitled for recovery of fly ash transportation charges, under change in law, as additional O&M expenses, we permit the provisional billing at 90% of the fly ash transportation charges incurred by the etitioner, in respect of its generating stations, for the balance period (i.e. 2022-24), on a monthly basis, based on self -certification, and the beneficiaries shall pay the same accordingly. This is, however, subject to prudence check of the claims, at the time of truing-up of tariff for the period 2019-24, in respect of the generating stations of the Petitioner, in terms of Regulation 13 of the 2019 Tariff Regulations."

68. In view of the above, the claim of the Petitioner has not been considered in this order. The claim of the Petitioner shall be guided by the decision of this Commission in the said order.

<u>Additional Expenditure on Emission Control System</u>

69. The Petitioner has submitted that it is in the process of installing the Emission Control Systems (ECS) in compliance to the revised emission standards as notified by the MOEFCC vide notification dated 7.12.2015, as amended. It is however noticed that the Petitioner had filed Petition No. 519/MP/2020, for approval of additional expenditure on installation of various Emission Control Systems at this generating station, in compliance of MOEF&CC notification dated 7.12.2015 and the Commission by a common order dated 28.4.2021 had disposed of the said petition, with certain observations. Therefore, the claim of the Petitioner has not been considered in this order. The claim of the Petitioner on this count shall be guided by Commission's order dated 28.4.2021 in Petition No. 519/MP/2020.

<u>Operational Norms</u>

70. The Petitioner has considered following norms of operation, for the tariff period 2019-24:

Normative Annual Plant Availability Factor (NAPAF) %	85.00
Gross Station Heat Rate (kcal/kwh)	2255.53
Auxiliary Power Consumption %	6.25
Specific Oil Consumption (ml/kwh)	0.50

Normative Annual Plant Availability Factor

71. 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%."*

72. In terms of Regulation 49(A)(a) of the 2019 Tariff Regulations, the Petitioner has considered Normative Annual Plant Availability Factor of 85% during the tariff period 2019-24. The same is allowed for the purpose of tariff.

Gross Station Heat Rate

73. Regulation 49(C)(b)(i) of 2019 Tariff Regulations provides as under:

> *"(b) Thermal Generating Stations achieving COD on or after 1.4.2009:*
>
> *(i) For Coal-based and lignite-fired Thermal Generating Stations:*
>
> *1.05 X Design Heat Rate (kCal/kWh)*
>
> *Where the Design Heat Rate of a generating unit means the unit heat rate guaranteed by the supplier at conditions of 100% MCR, zero percent make up, design coal and design cooling water temperature/back pressure.*
> *Provided that the design heat rate shall not exceed the following maximum design unit heat rates depending upon the pressure and temperature ratings of the units:*

<table>
<tr><td>Pressure Rating (Kg/cm2)</td><td colspan="2">150</td><td>170</td><td>170</td></tr>
<tr><td>SHT/RHT (0C)</td><td colspan="2">535/535</td><td>537/537</td><td>537/565</td></tr>
<tr><td>Type of BFP</td><td colspan="2">Electrical Driven</td><td>Turbine Driven</td><td>Turbine Driven</td></tr>
<tr><td>Max Turbine Heat Rate (kCal/kWh)</td><td colspan="2">1955</td><td>1950</td><td>1935</td></tr>
<tr><td colspan="5">Min. Boiler Efficiency</td></tr>
<tr><td>Sub-Bituminous Indian Coal</td><td colspan="2">0.86</td><td>0.86</td><td>0.86</td></tr>
<tr><td>Bituminous Imported Coal</td><td colspan="2">0.89</td><td>0.89</td><td>0.89</td></tr>
<tr><td colspan="5">Max. Design Heat Rate (kCal/kWh)</td></tr>
<tr><td>Sub-Bituminous Indian Coal</td><td colspan="2">2273</td><td>2267</td><td>2250</td></tr>
<tr><td>Bituminous Imported Coal</td><td colspan="2">2197</td><td>2191</td><td>2174</td></tr>
<tr><td>Pressure Rating (Kg/cm2)</td><td>247</td><td>247</td><td>270</td><td>270</td></tr>
<tr><td>SHT/RHT (0C)</td><td>537/565</td><td>565/593</td><td>593/593</td><td>600/ 600</td></tr>
<tr><td>Type of BFP</td><td>Turbine</td><td>Turbine</td><td>Turbine</td><td>Turbine</td></tr>
</table>

	Driven	*Driven*	*Driven*	*Driven*
Max Turbine Heat Rate (kCal/kWh)	*1900*	*1850*	*1810*	*1800*
Min. Boiler Efficiency				
Sub-Bituminous Indian Coal	*0.86*	*0.86*	*0.865*	*0.865*
Bituminous Imported Coal	*0.89*	*0.89*	*0.895*	*0.895*
Max. Design Heat Rate (kCal/kWh)				
Sub-Bituminous Indian Coal	*2222*	*2151*	*2105*	*2081*
Bituminous Imported Coal	*2135*	*2078*	*2034*	*2022*

Provided further that in case pressure and temperature parameters of a unit are different from above ratings, the maximum design heat rate of the unit of the nearest class shall be taken:

Provided also that where heat rate of the unit has not been guaranteed but turbine cycle heat rate and boiler efficiency are guaranteed separately by the same supplier or different suppliers, the design heat rate of the unit shall be arrived at by using guaranteed turbine cycle heat rate and boiler efficiency:

Provided also that where the boiler efficiency is lower than 86% for Sub-bituminous Indian coal and 89% for bituminous imported coal, the same shall be considered as 86% and 89% for Sub-bituminous Indian coal and bituminous imported coal respectively, for computation of station heat rate:

Provided also that maximum turbine cycle heat rate shall be adjusted for type of dry cooling system:

Provided also that in case of coal based generating station if one or more generating units were declared under commercial operation prior to 1.4.2019, the heat rate norms for those generating units as well as generating units declared under commercial operation on or after 1.4.2019 shall be lowest of the heat rate norms considered by the Commission during tariff period 2014-19 or those arrived at by above methodology or the norms as per the sub-clause (C)(a)(i) of this Regulation:

Provided also that in case of lignite-fired generating stations (including stations based on CFBC technology), maximum design heat rates shall be increased using factor for moisture content given in sub-clause (C)(a)(iv) of this Regulation:

Provided also that for Generating stations based on coal rejects, the Commission shall approve the Station Heat Rate on case to case basis.

Note: In respect of generating units where the boiler feed pumps are electrically operated, the maximum design heat rate of the unit shall be 40 kCal/kWh lower than the maximum design heat rate of the unit specified above with turbine driven Boiler Feed Pump."

74. The Petitioner has considered the Gross Station Heat Rate (GSHR) of 2255.53 kCal/ kWh. The Petitioner has also submitted that the generating station was envisaged during the period 2009-14 and the equipment's including SG and TG specifications for tendering / award was stipulated, considering the boiler efficiency and Turbine heat rate specified by the Commission under the Tariff Regulations in vogue during the relevant period. The Petitioner has stated that in terms of this, the Petitioner ordered the equipment's through international competitive bidding and it

was not possible for the Petitioner to specify the efficiency parameters, at the time of finalizing the contracts for this generating station, as per the efficiency parameters specified in the 2019 Tariff Regulations which are more stringent. The Petitioner has submitted that if more stringent unit heat rate was stipulated, it would have increased the capital cost commensurate to the efficiency parameters sought. It has stated that the Petitioner has considered the boiler efficiency for working out the normative heat rate as 86% instead of the actual design efficiency of 85.4%, as a result of which, the unit heat rate is worked out to be 2239.80 kcal/kwh and the operating margin available over the design heat rate was 4.3%, which is less than the operating margin of 5%. Accordingly, the Petitioner has prayed that the GSHR may be allowed as 2255.53 kcal/kWh, based on the guaranteed turbine cycle heat rate of 1834.5 kcal/kWh and boiler efficiency of 85.4%, with an operating margin of 5 % from the guaranteed design value.

75. We have examined the matter. GSHR has been specified under the 2019 Tariff Regulations, based on the past performance data of thermal plants and after extensive stakeholder consultations. In view of this, we find no reason to consider the prayer of the Petitioner for relaxation of SHR norm. Considering the ceiling limit of 86% and Turbine Cycle Heat Rate of 1834.50 (kcal/kWh), the GSHR for the period 2019-24 works out to 2239.80kcal/kWh (1.05x 1834.50/0.86) and the same is considered for the purpose of tariff.

Auxiliary Power Consumption

76. Regulation 49 E (a)(ii) of the 2019 Tariff Regulations provides for Auxiliary Power Consumption as follows:

"49(E) Auxiliary Energy Consumption) Coal-based generating stations except at (b) below:

	With Natural Draft cooling tower or without cooling tower
(i) 200 MW series	*8.5%*
(ii) 300 MW and above	
Steam driven boiler feed pumps	*5.75%*
Electrically driven boiler feed pumps	*8.0%*

Provided that for thermal generating stations with induced draft cooling towers and where tube type coal mill is used, the norms shall be further increased by 0.5% and 0.8%, respectively:
Provided further that Additional Auxiliary Energy Consumption as follows shall be allowed for plants with Dry Cooling Systems:

Type of Dry Cooling System	***(% of gross generation)***
Direct cooling air cooled condensers with mechanical draft fans	*1.0%*
Indirect cooling system employing jet condensers with pressure recovery turbine and natural draft tower	*0.5%*

Note: The auxiliary energy consumption for the unit capacity of less than 200 MW sets shall be dealt on case-to-case basis."

77. The generating station with a capacity of 1320 MW is with induced draft cooling tower. Therefore, the Auxiliary Power Consumption of 6.25% as claimed by the Petitioner is as per Regulation 49(E)(a)(ii) of the 2019 Tariff Regulations. Hence, the same has been allowed.

Specific Oil Consumption

78. Regulation 49(D)(a) of the 2019 Tariff Regulations, provides for Secondary fuel oil consumption of 0.50 ml/kWh, for coal-based generating stations. As the Secondary fuel oil consumption considered by the Petitioner is as per the said regulations, the same is allowed for the period 2019-24.

79. Based on the above, the operational norms considered for determination of energy charges for the generating station for the period 2019-24 are as under:

Normative Annual Plant Availability Factor (NAPAF) (%)	85.00
Heat Rate (kCal/kWh)	2239.80
Auxiliary Power Consumption (%)	6.25
Specific Oil Consumption (ml/kWh)	0.50

Interest on Working Capital

80. Sub-section (c) of clause (1) of Regulation 34 the 2019 Tariff Regulation provides as follows:

> *"34. Interest on Working Capital**:** (1) The working capital shall cover:*
>
> *(a) For Coal-based/lignite-fired thermal generating stations:*
>
> *(i) Cost of coal or lignite and limestone towards stock, if applicable, for 10 days for pit-head generating stations and 20 days for non-pit-head generating stations for generation corresponding to the normative annual plant availability factor or the maximum coal/lignite stock storage capacity whichever is lower;*
>
> *(ii) Advance payment for 30 days towards cost of coal or lignite and limestone for generation corresponding to the normative annual plant availability factor;*
>
> *(iii) Cost of secondary fuel oil for two months for generation corresponding to the normative annual plant availability factor, and in case of use of more than one secondary fuel oil, cost of fuel oil stock for the main secondary fuel oil;*
>
> *(iv) Maintenance spares @ 20% of operation and maintenance expenses including water charges and security expenses;*
>
> *(v) Receivables equivalent to 45 days of capacity charge and energy charge for sale of electricity calculated on the normative annual plant availability factor; and*
>
> *(vi) Operation and maintenance expenses, including water charges and security expenses, for one month."*
>
> *(2) The cost of fuel in cases covered under sub-clauses (a) and (b) of clause (1) of this Regulation shall be based on the landed fuel cost (taking into account normative transit and handling losses in terms of Regulation 39 of these regulations) by the generating station and gross calorific value of the fuel as per actual weighted average for the third quarter of preceding financial year in case of each financial year for which tariff is to be determined:*
>
> *Provided that in case of new generating station, the cost of fuel for the first financial year shall be considered based on landed fuel cost (taking into account normative transit and handling losses in terms of Regulation 39 of these regulations) and gross calorific value of the fuel as per actual weighted average for three months, as used for infirm power, preceding date of commercial operation for which tariff is to be determined."*
>
> *"(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 Cost for computation of working capital

81. Regulation 34(2) of the 2019 Tariff Regulations provides that the computation of cost of fuel as part of Interest on Working Capital (IWC) is to be based on the landed price and GCV of fuel as per actuals, for the third quarter of preceding financial year in case of each financial year for which tariff is to be determined. Regulation 34(2) of the 2019 Tariff Regulations provides as under:

> *"(2) Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis shall be determined to three decimal places in accordance with the following formulae:*
> ***(a) For coal based and lignite fired stations**:*
>
> *ECR = {(SHR – SFC x CVSF) x LPPF / CVPF + SFC x LPSFi + LC x LPL} x 100 / (100 – AUX)*
>
> ***(b) For gas and liquid fuel based stations**:*
>
> *ECR = SHR x LPPF x 100 / {(CVPF) x (100 – AUX)}*
>
> *Where,*
>
> *AUX = Normative auxiliary energy consumption in percentage.*
> *CVPF = (a) Weighted Average Gross calorific value of coal as received, in kCal per kg for coal-based stations less 85 Kcal/Kg on account of variation during storage at generating station;*
> *(b) Weighted Average Gross calorific value of primary fuel as received, in kCal per kg, per litre or per standard cubic meter, as applicable for lignite, gas and liquid fuel based stations;*
>
> *(c) In case of blending of fuel from different sources, the weighted average Gross calorific value of primary fuel shall be arrived in proportion to blending ratio:*
> *CVSF = Calorific value of secondary fuel, in kCal per ml;*
> *ECR = Energy charge rate, in Rupees per kWh sent out;*
> *SHR = Gross station heat rate, in kCal per kWh;*
> *LC = Normative limestone consumption in kg per kWh;*
> *LPL = Weighted average landed cost of limestone in Rupees per kg;*
> *LPPF = Weighted average landed fuel cost of primary fuel, in Rupees per kg, per litre or per standard cubic metre, as applicable, during the month. (In case of blending of fuel from different sources, the weighted average landed fuel cost of primary fuel shall be arrived in proportion to blending ratio);*
> *SFC= Normative specific fuel oil consumption, in ml per kWh;*
>
> *LPSFi= Weighted Average Landed Fuel Cost of Secondary Fuel in Rs./ ml during the month:*
>
> *Provided that energy charge rate for a gas or liquid fuel based station shall be adjusted for open cycle operation based on certification of Member Secretary of respective Regional Power Committee during the month."*

82. The Petitioner has claimed the fuel component cost in working capital and ECR based on:

a) Operational norms as per the 2019 Tariff Regulations.
b) Price and "as received" GCV of coal procured for the three months of October 2018, November 2018, and December 2018, and
c) Price and GCV of secondary fuel oil for the three months of October 2018, November 2018, and December 2018.

83. The Petitioner has claimed Energy Charge Rate (ECR) of 2.833 paisa/kWh and fuel component in working capital as follows:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Cost of coal for 50 days	35397.90	35397.90	35397.90	35397.90	35397.90
Cost of Secondary fuel oil 2 months	437.20	436.00	436.00	436.00	437.20

84. The Petitioner has revised Form-15, indicating the opening stock of coal and coal received during the months of October, November and December 2018, separately. On perusal of the data furnished by the Petitioner, it is observed that the Petitioner, while computing the landed cost of fuel, has considered the opening stock of coal for the months of October 2018, November 2018 and December, 2018 (closing stock of the coal for the previous months). However, in terms of the Regulation 39 of the 2019 Tariff Regulations, the computation of ECR and associated fuel components in interest on working capital, is based on the landed price and GCV of fuel, which means that the fuel received during the specified three months (October 2018, November, 2018 and December, 2018) is only to be considered, without opening stock. Accordingly, the normative cost of coal for stock of 50 days and Petitioner claimed Transit and Handling loss has been considered for the calculation of working capital requirements Accordingly, after excluding the opening stock value, we have worked out the weighted average landed cost and weighted average GCV of coal for working out the

fuel component in working capital for the months of October 2018, November 2018 and December 2018. The Fuel components in working capital are allowed as under:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Cost of Coal for stock (20 days generation corresponding to NAPAF)	14060.18	14060.18	14060.18	14060.18	14060.18
Cost of Coal towards generation (30 days generation corresponding to NAPAF)	21090.28	21090.28	21090.28	21090.28	21090.28
Cost of Secondary fuel 2 Months generation corresponding to NAPAF	437.20	436.00	436.00	436.00	437.20

Energy Charge Rate (ECR)

85. The Petitioner has claimed ECR (ex-bus) of 2.833 Rs/kWh, based on the weighted average price, GCV of coal & oil procured and burnt for the preceding months of October 2018, November, 2018 and December 2018.

86. The Respondent, MSEDCL has submitted that the generating station, the ECR has varied widely from Rs. 2.356/kWh to 3.396/kWh, since COD, for the period from February 2017 to March 2021. It has submitted that for the period from 2018-19 to 2020-21, the Plant Load Factor (PLF) has varied from 57.19% to 33.92%, while the Plant Availability Factor (PAF) has varied from 78.31% to 97.84%. The Respondent has stated that even though Petitioner has declared high availability, the Plant was hardly scheduled by the beneficiaries, due to high ECR, resulting in low PLF. It has also pointed out that despite having a permanent coal linkage, the Petitioner has claimed high ECR of Rs. 2.833/kWh, as base rate, for the period 2019-24 and such a high rate is not viable.

87. In response, the Petitioner has clarified that the issue of high ECR for the generating station is outside the ambit in the present case. However, the Petitioner has submitted that it has been making all out efforts to minimize the ECR by optimizing coal logistics and adopting other measures. It has further submitted that generating station is a non-pit head station and in spite of regular upward revision in freight charges by Railways and revision in cost of coal-by-coal supplier, the Petitioner has been striving hard to maintain the ECR.

88. The matter has been considered. The ECR, as worked out, based on the operational norms specified under the 2019 Tariff Regulations and on "as received" GCV of coal for the preceding three months i.e., October 2018 to December 2018, has been considered for allowing two months of energy charge in working capital as follows:

Description	Unit	2019-24
Capacity	MW	1320.00
Gross Station Heat Rate	Kcal/kWh	2239.80
Auxiliary Energy Consumption	%	6.25
Weighted average GCV of oil	Kcal/lit	9560.52
Weighted average GCV of coal	Kcal/kg	3658.30
Weighted average price of oil	Rs/KL	53232.19
Weighted average price of Coal	Rs/MT	4273.22
Rate of energy charge ex-bus	Rs/kWh	2.8130

Working capital for O&M Expenses (1 month)

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

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
2448.91	2588.02	2680.13	2727.62	2826.37

90. Regulation 34(1)(a)(vi) of the 2019 Tariff Regulations provides for O&M expenses including water charges and security expenses for one month. Accordingly, the O&M expenses (I month) component of working capital is allowed as follows:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
2437.05	2508.57	2594.81	2683.48	2775.71

Working capital for Maintenance Spares

91. Regulation 34(1)(a)(iv) of the 2019 Tariff Regulations provides for Maintenance spares @ 20% of the O&M expenses including water charges and security expenses. Accordingly, maintenance spares have been allowed as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
5877.39	6211.25	6432.32	6546.29	6783.28

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

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
5848.93	6020.58	6227.54	6440.36	6661.71

Working capital for Receivables

93. Regulation 34(1)(a)(v) of the 2019 Tariff Regulations provides for Receivables for 45 days. Accordingly, after considering the mode of operation of the generating station on secondary fuel, the Receivable component of working capital is allowed as follows:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Fixed charge for 45 days corresponding to NAPAF	17449.05	17780.87	17931.38	18081.21	18009.36
Energy charge for 45 days corresponding to NAPAF	31956.38	31956.38	31956.38	31956.38	31956.38
Total	**49405.44**	**49737.25**	**49887.76**	**50037.59**	**49965.74**

94. As per Regulation 34(2) of the 2019 Tariff Regulations, the cost of coal shall be based on landed fuel cost (considering the normative transit and handling losses) in terms of Regulation 39 of the 2019 Tariff Regulations and gross calorific value of fuel,

as per actual weighted average for the third quarter of preceding financial year. Hence, the Petitioner is directed to furnish the details of quantity of coal, as per Regulation 34(2) of the 2019 Tariff Regulations, at the time of truing up of tariff. The Petitioner is also directed to submit the details strictly in line with in Forms/ Annexures attached to the 2019 Tariff Regulations.

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

Rate of Interest on working capital

96. In accordance with the Regulation 34(3) of the 2019 Tariff Regulations, the rate of interest on working capital is considered as 12.05% (i.e. 1 year SBI MCLR of 8.55% as on 1.4.2019 +350 bps) for the year 2019-20, 11.25% (i.e.1 year SBI MCLR of 7.75% as on 1.4.2020 + 350 bps) for the year 2020-21 and 10.50% (i.e. 1 year SBI MCLR of 7.00% as on 1.4.2021 + 350 bps) for the period 2021-24. Accordingly, Interest on working capital is allowed as under:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Working Capital for Cost of coal towards stock (20 days generation corresponding to NAPAF (non-pithead)	14060.18	14060.18	14060.18	14060.18	14060.18
Working Capital for Cost of coal towards Generation (30 days generation corresponding to NAPAF)	21090.28	21090.28	21090.28	21090.28	21090.28
Working capital for Cost of secondary fuel oil (2 months generation corresponding to NAPAF) (C)	437.20	436.00	436.00	436.00	437.20
Working capital for Maintenance spares (20% of O&M expenses) (D)	5848.93	6020.58	6227.54	6440.36	6661.71

	2019-20	2020-21	2021-22	2022-23	2023-24
Working capital for Receivables (2 months of sale of electricity at NAPAF) (E)	49405.44	49737.25	49887.76	50037.59	49965.74
Working capital for O&M expenses (1 month of O&M expenses) (F)	2437.05	2508.57	2594.81	2683.48	2775.71
Total Working Capital (G) = (A+B+C+D+E+F)	**93279.08**	**93852.86**	**94296.57**	**94747.89**	**94990.82**
Rate of Interest (H)	12.05%	11.25%	10.50%	10.50%	10.50%
Total Interest on Working capital (I) = ((H)*(G)	**11240.13**	**10558.45**	**9901.14**	**9948.53**	**9974.04**

Annual Fixed Charges

97. Accordingly, the annual fixed charges approved for the generating station for the period 2019-24 is summarised below:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation (A)	36174.30	37589.25	38701.55	39614.67	40140.73
Interest on Loan (B)	26160.01	25342.72	23871.50	22075.20	19665.73
Return on Equity (C)	39099.88	40629.27	41831.52	42818.49	43387.10
Interest on Working Capital (D)	11240.13	10558.45	9901.14	9948.53	9974.04
O&M Expenses (E)	29244.65	30102.89	31137.69	32201.79	33308.54
Total AFC (F) = (A+B+C+D+E)	**141918.97**	**144222.57**	**145443.40**	**146658.68**	**146476.14**

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

98. The annual fixed charges approved as above, is subject to truing up in terms of Regulation 13 of the 2019 Regulations.

Application Filing fees and Publication charges

99. The Petitioner has sought reimbursement of fee paid by it for filing the 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(1) of the 2019 Tariff Regulations.

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

101. Petition No. 423/GT/2020 is disposed of in terms of the above.

Sd/-	***Sd/-***	***Sd/-***
(Pravas Kumar Singh)	**(Arun Goyal)**	**(I.S. Jha)**
Member	**Member**	**Member**

Annexure-I

Calculation of Weighted Average Rate of Depreciation

(Rs.in lakh)

Sr. No.	Name of the Assets	Gross Block as on 1.4.2019 as on COD	Depreciation Rates as per CERC's Depreciation rate schedule	Depreciation Amount for each year up to 31.03.2024
1	**2**		**4**	**5= Col.3 X Col.4**
1	Freehold Land	**0**	**0%**	0.00
2	Leasehold Land	16585.39	3.34%	553.95
3	Land - Right of use	0.00	4.00%	0.00
4	Roads, bridges, culverts & helipads	4776.18	3.34%	159.52
5	Main Plant Buildings	4105.21	3.34%	137.11
6	Other Buildings	2751.38	3.34%	91.90
7	Temporary erection	4.29	100.00%	4.29
8	Water supply, drainage & sewerage	3214.92	5.28%	169.75
9	Railway siding	3194.73	5.28%	168.68
10	Earth dam reservoir	0.00	5.28%	0.00
11	Plant and machinery	666005.04	5.28%	35165.07
12	Furniture and fixtures	1194.37	6.33%	75.60
13	Other Office Equipments	432.58	6.33%	27.38
14	EDP, WP machines & SATCOM equipment	381.26	15.00%	57.19
15	Vehicles including speedboats	6.86	9.50%	0.65
16	Construction equipment	222.47	5.28%	11.75
17	Electrical installations	6418.45	5.28%	338.89
18	Communication equipment	104.79	6.33%	6.63
19	Hospital equipment	29.55	5.28%	1.56
20	Laboratory and workshop equipment	762.54	5.28%	40.26
21	Software	26.10	15.00%	3.92
22	Capital Spares	16194.23	5.28%	855.06
	TOTAL	**726410.35**		**37869.17**
	Weighted Average Rate of Depreciation (%)			**5.213%**