

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 422/GT/2020

Coram:

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

Date of Order: 5th January, 2024

IN THE MATTER OF:

Determination of tariff in respect of Vindhyachal Super Thermal Power Station, Stage-IV (1000 MW) for the period 2019-24.

AND

IN THE MATTER OF

NTPC Limited,
NTPC Bhawan
Core-7, Scope Complex
7, Institutional Area, Lodhi Road
New Delhi-110 003.

.... Petitioner

Vs

1. Madhya Pradesh Power Management,
Company Limited, Shakti Bhawan, Vidyut Nagar,
Jabalpur 482 008
2. Maharashtra State Electricity Distribution Company Limited,
Prakashgad, Bandra (East),
Mumbai 400 051
3. Gujarat Urja Vikas Nigam Limited,
Vidyut Bhavan, Race Course
Vadodara – 390 007
4. Chhattisgarh State Power Distribution Company Limited,
P.O. Sundar Nagar, Danganiya, Raipur – 492013
5. Government of Goa,
Electricity Department, Vidyut Bhawan,
Panaji, Goa



6. Electricity Department,
Administration of Daman & Diu
Daman-396 210

7. Electricity Department,
Administration of Dadra & Nagar Haveli,
Silvasa.

.....Respondents

Parties Present:

Shri Venkatesh, Advocate, NTPC
Shri Ashutosh Shrivastava, Advocate, NTPC
Shri Nihal Bhardwaj, Advocate, NTPC
Shri Kartikay Trivedi, Advocate, NTPC
Shri Sameer Aggarwal, NTPC
Shri Harsh V Kabra, NTPC
Shri Ravin Dubey, Advocate, MPPMCL

ORDER

This Petition has been filed by the Petitioner, NTPC Limited, for determination of tariff of Vindhyachal Super Thermal Power Station Stage-IV (1000 MW) (in short “the generating station”), for the period 2019-24, in accordance with the provisions of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 (in short “the 2019 Tariff Regulations”). The generating station with a total capacity of 1000 MW comprises of two units of 500 MW each and the dates of commissioning of the units of the generating station are as under:

Unit	COD
Unit-I	1.3.2013
Unit-II	27.3.2014

2. The Commission vide its order dated 30.6.2023 in Petition No. 286/GT/2020 had approved the capital cost and annual fixed charges of the generating station after truing up for the period 2014-19, vide order dated 30.6.2023 as under:



Capital Cost allowed

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening capital cost	476707.81	526789.74	565417.36	609996.04	631156.07
Add: Addition during the year	50081.93	38627.62	44578.68	21160.03	190.69
Closing capital cost	526789.74	565417.36	609996.04	631156.07	631346.76
Average Capital cost	501748.77	546103.55	587706.70	620576.06	631251.42

Annual Fixed Charges allowed:

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	25670.10	28148.82	30422.59	32183.23	32741.79
Interest on Loan	26760.09	25900.07	25383.59	23971.47	22380.60
Return on Equity	29517.88	32282.91	34742.28	36685.35	37416.80
Interest on Working Capital	6877.69	7042.15	7189.51	7402.34	7478.90
O&M Expenses	17867.75	18790.40	19699.75	20770.83	22114.10
Total	106693.51	112164.34	117437.72	121013.22	122132.18

Present Petition

3. The Petitioner has filed the present petition for determination of tariff of the generating station for the period 2019-24 and has claimed the annual fixed charges as under:

Capital Cost Claimed

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Opening capital cost	633692.87	641004.87	643770.87	657234.87	658723.87
Add: Addition during the year	7312.00	2766.00	13464.00	1489.00	0.00
Less: De-capitalization during the year	0.00	0.00	0.00	0.00	0.00
Less: Reversal during the year	0.00	0.00	0.00	0.00	0.00
Add: Discharges during the year	0.00	0.00	0.00	0.00	0.00
Closing capital cost *	641004.87	643770.87	657234.87	658723.87	658723.87
Average capital cost	637348.87	642387.87	650502.87	657979.37	658723.87

* Entire capital cost claimed in the Petition is eligible for ROE at normal rate

Annual Fixed Charges claimed

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	33499.06	33763.91	34190.43	34583.40	34622.53
Interest on Loan	20414.05	18145.73	15995.68	14366.72	12326.58
Return on Equity	35912.06	36195.99	36653.23	37074.51	37116.45
Interest on Working Capital	5819.71	5845.04	5874.36	5912.54	5930.27
O&M Expenses	25029.88	25962.69	26935.97	27950.62	28997.65
Total	120674.75	119913.36	119649.67	119887.78	118993.48

4. The Respondents CSPDCL and MPPMCL have filed their replies vide affidavits dated 22.7.2021 and 23.7.2021 respectively. The Petitioner has filed its rejoinders to



said replies vide affidavit dated 30.7.2021. The Petitioner has also submitted additional information vide affidavit dated 7.9.2022, after serving copy to the Respondents. This Petition was heard along with Petition No. 286/GT/2020 on 6.12.2022 and the Commission, after permitting the Respondent MPPMCL to file its written submissions, reserved its order in these petitions. Based on the submissions of the parties and documents available on record and after prudence check, we proceed for determination of tariff of the generating station, for the period 2019-24, in this Petition, as stated in the subsequent paragraphs.

Capital Cost

5. Clause (1) of Regulation 19 of the 2019 Tariff Regulations provides that the capital cost as determined by the Commission after prudence check, in accordance with this regulation, shall form the basis of determination of tariff for existing and new projects. Clause 3 of Regulation 19 of the 2019 Tariff Regulations provides as under:

*“(3) The Capital cost of an existing project shall include the following:
(a) Capital cost admitted by the Commission prior to 1.4.2019 duly trued up by excluding liability, if any, as on 1.4.2019;
(b) Additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with these regulations;
(c) Capital expenditure on account of renovation and modernisation as admitted by this Commission in accordance with these regulations;
(d) Capital expenditure on account of ash disposal and utilization including handling and transportation facility;
(e) Capital expenditure incurred towards railway infrastructure and its augmentation for transportation of coal 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 the opening capital cost of Rs.633692.87 lakh, as against the capital cost of Rs.631346.76 lakh, on cash basis, as on 31.3.2019, allowed vide order dated 30.6.2023 in Petition No.



286/GT/2020. Accordingly, in terms of Regulation 19(3) of the 2019 Tariff Regulations the capital cost of Rs.631346.76 lakh, on cash basis, has been considered as on 1.4.2019.

Additional Capital Expenditure

7. Regulation 9(2) of the 2019 Tariff Regulations provides that the application for determination of tariff shall be based on admitted capital cost including additional capital expenditure already admitted and incurred up to 31.3.2019 (either based on actual or projected additional capital expenditure) and estimated additional capital expenditure for the respective years of the period 2019-24 along with the true-up for the period 2014-19 in accordance with the 2014 Tariff Regulations. Regulation 25 and 26 of the 2019 Tariff Regulations, provides as under:

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

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

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

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

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

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

(e) Force Majeure events;

(f) Liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments; and

(g) Raising of ash dyke as a part of ash disposal system.

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

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

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

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

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

26. Additional Capitalization beyond the original scope



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

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

8. The projected additional capital expenditure claimed by the Petitioner for the period 2019-24, is as under:

		<i>(Rs. in lakh)</i>					
		Regulation	Additional capital expenditure claimed				
			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						
1	Ash Dyke raising and associated works	25(1) (c) &(g)	1297.00	1016.00	4420.00	170.00	-
2	Coal Handling Package	25(1)(d)	1000.00	1000.00	-	-	-
3	A/C & Ventilation System		120.00	-	-	-	-
4	Fire Detection and Protection System		-	300.00	-	-	-
5	Station Piping		120.00	-	-	-	-
6	Electrical Equipment package		50.00	-	-	-	-
7	Misc package		400.00	-	-	-	-
8	Station C&I Package		25(1)(d)	-	450.00	-	-
9	ESP Retrofit for Stage-I	26(1)(b)	4325.00	-	8255.00	-	-
10	CIO2 Package	26(1) (b) &(d)	-	-	264.00	1319.00	-
11	Integrated Security System		-	-	525.00	-	-
	Total Additional Capital Expenditure claimed		7312.00	2766.00	13464.00	1489.00	-

9. We examine the projected additional capital expenditure claimed by the Petitioner for the period 2019-24 as under:



A. Additional Capital Expenditure within the original Scope of work

Ash Dyke Raising and Associated Works

10. The Petitioner has claimed additional capital expenditure of Rs.1297.00 lakh in 2019-20, Rs.1016.00 lakh in 2020-21, Rs.4420.00 lakh in 2021-22 and Rs.170.00 lakh in 2022-23 towards Ash dyke raising and associated works under Regulation 25(1)(c) and Regulation 25(1)(g) of the 2019 Tariff Regulations. In justification of the same, the Petitioner has submitted that ash dyke raising is the work under original scope of the project. The activity of dyke raising is carried out periodically during the life of the plant to ensure continuous and sustainable operation.

11. The Respondents MPPMCL and CSPDCL have submitted that since the MOEFCC notification has mandated 100% utilisation of ash, there is no requirement of ash dyke raising. The Petitioner, in its rejoinder, has submitted that the expenses towards Ash Dyke related work has been claimed as part of the ongoing raising work of existing ash dyke and is within the original scope of work. It has also submitted that the raising of the ash dyke is necessarily required for increasing its capacity for further disposal of ash generated from the station for sustained operation of the plant.

12. The matter has been considered. Since the additional capital expenditure towards Ash dyke and associated works is required for the efficient operation of the plant, the claim of the Petitioner is **allowed** under Regulation 25(1)(g) of the 2019 Tariff Regulations. However, the Petitioner has not furnished the bifurcation of work of ash dyke raising and other associated works and therefore, the Petitioner, at the time of truing up of tariff, shall furnish the detailed breakup of the works executed along with the scope of works and the expenditure envisaged at the time of the Project execution and the balance works that are to be undertaken, in a phased manner,



including the justification for ash dyke raising, while 100% ash disposal is envisaged under the MoEF&CC notification dated 25.1.2016.

Coal Handling Package

13. The Petitioner has claimed additional capital expenditure of Rs.1000.00 lakh in 2019-20 and Rs.1000.00 lakh in 2020-21 towards Coal Handling works under Regulation 25(1)(d) of the 2019 Tariff Regulations. In justification of the same, the Petitioner has submitted that the work pertaining to Coal Handling Plant has been completed and it is put to use, however, the mandatory spares under the package has not yet been received by the Petitioner. It has further submitted that on account of shortage of material, the agency has requested the Petitioner to provide the same on short term loan basis. It has stated that as the completion of job was the priority, the raw material shortage was recouped and completion of the work was ensured. The Petitioner has further submitted that mandatory spares supply got delayed by TRF under this package and although all out efforts were taken by the Petitioner to get the job completed, the completion of the same got spilled over the cut-off date. It has submitted that some amount was withheld in view of the Performance Guarantee (PG) test and the claimed expenditure is the retention payment on these counts i.e., against the non-receipt of the spares, non-settlement of bill regarding material supply by the Petitioner and the PG test to be done. The Petitioner has added that PG test and material bill settlement against the supply of raw material was expected by 2019-20 and the supply of mandatory spares was taking place in batches, and was expected to be supplied completely by 2020-21. The Petitioner has further submitted that despite the efforts, the work got delayed, which was beyond the Petitioner's reasonable control.



14. The Respondent MPPMCL has submitted that no proper justification for the additional capital expenditure towards coal handling plant has been put forth for claiming such amount. The Petitioner, in its rejoinder, has stated that it has provided justification for claiming the said additional capital expenditure.

15. The matter has been considered. It is observed that the Commission had allowed the additional capitalization against Coal Handling Plant for the period 2017-18 and 2018-19, in order dated 30.6.2023 in Petition No. 286/GT/2020. In justification for the same, the Petitioner has submitted that the expenditure pertains to mainly initial spares, non-settlement of bills regarding material supply and PG test. As regards initial spares, the Commission has already allowed the admissible capital spares vide its order dated 30.6.2023 and the same has been restricted to 4% of the capital cost as per the prevailing Tariff Regulations. In view of the above, the claim of the Petitioner has **not been allowed**. The Petitioner has also not furnished the balance amount pending towards the settlement of bills and PE Test. However, the Petitioner is at liberty to approach the Commission with the relevant details at the time of truing up of tariff, which will be considered as per law.

Other Claims (Regulation 25(1)(d) of the 2019 Tariff Regulations)

16. The Petitioner has claimed additional capital expenditure of Rs.120.00 lakh in 2019-20 towards A/C and Ventilation system, Rs.300.00 lakh in 2020-21 towards Fire detection and protection system, Rs.120.00 lakh in 2019-20 towards Station piping, Rs.50.00 lakh in 2019-20 towards Electrical equipment package, Rs.400.00 lakh in 2019-20 towards Miscellaneous package, Rs.450.00 lakh in 2020-21 towards Station C&I package. All the said assets/items have been claimed under Regulation 25(1)(d) of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that these works/packages pertain to the original scope of work and the



same have been already completed within the cut-off date of the generating station. However, on account of non-closure of the contract in view of various reasons like final settlement of bill, defect rectification, price adjustment as per the contract, the balance amounts were still to be released by the Petitioner. It has also stated that most of these deferred liabilities were to be released during the years 2019-20 and 2020-21.

17. The Respondents MPPMCL and CSPDCL have submitted that the claim for the expenditure towards A/C and Ventilation system, Fire detection and Protection system, Station Piping, Electrical equipment package, Misc package and Station C&I Package are in the nature of O&M expenses, and hence the expenses incurred may be met from the O&M expenses allowed to the Petitioner. The Petitioner in its rejoinder has reiterated its submission made above.

18. The matter has been considered. The Petitioner has claimed the additional expenditure due to non-closure of the contract (on account of the final settlement of bill, defect rectification, price adjustment as per the contract). However, the Petitioner has not furnished the details of the total awarded cost and the cost variation thereof, if any. In this background, as the claims pertain to part of the original scope of work, the claims of the Petitioner, are **allowed** provisionally under Regulation 25(1)(d) of the 2019 Tariff Regulations. However, the Petitioner is directed to submit the documentary evidence of the reasons for delay at the time of truing up of tariff.

ESP Retrofit for Stage-I

19. The Petitioner has claimed additional capital expenditure of Rs.4325.00 lakh in 2019-20 and Rs.8255 lakh in 2021-22 towards ESP retrofit for Stage-I of the generating station. In justification of the same, the Petitioner has submitted that the



environment clearance for this generating station (Stage-IV) was provided by the MOEF with the pre-condition of ESP retrofit of both Stage -I and Stage-II in view of the reduction in SPM level as per norms set by the MOEF&CC for stack emission. The Petitioner has also submitted that the Commission in its order dated 12.9.2012 in respect of Stage-I had directed that the expenditure be considered for Stage-IV. Further, the Commission vide its order dated 10.3.2017 in Petition No. 339/GT/2014 had allowed the work of ESP retrofit of Stage-I & Stage-II for Stage-IV for the purpose of tariff.

20. The matter has been considered. It is observed that the Commission in its order dated 10.3.2017 in Petition No. 339/GT/2014 has decided as under:

We have examined the submissions of the parties. It is observed that in order dated 12.9.2012 in Petition No. 227/2009 the petitioner had claimed the expenditure of ESP for Stage-I and II as the reduction of emission levels had been made mandatory by the MP Pollution Control Board, as per the directions/guidelines of Ministry of Environment and Forest (MOEF) vide notification dated 5.2.2009. It is further observed that the Commission had decided to consider the expenditure for modification of ESPs of Stage-I against Stage-IV and the petitioner had agreed to the same. The relevant paras of the order are extracted as under: -

“ESP Modification of Stage-I units

The petitioner has claimed expenditure of Rs.1400.00 lakh during 2011-12, Rs.4000.00 lakh during 2012-13 and Rs.4000.00 lakh during 2013-14. The petitioner has submitted that the present emission level at Stages I & II is 250-300 mg/Nm³ as against the design value of 345mg/Nm³. It has also submitted that in terms of the conditional clearance granted by the Ministry of Environment & Forests, Government of India vide its letter dated 5.2.2009 for Stage-IV of the generating station, the emission from ESP is required to be reduced to 75 mg/Nm³ before commissioning of Stage-IV of the generating station. Based on this, the R&M of ESPs have become necessary and the expenditure may be allowed, the petitioner has stated. The petitioner in its affidavits dated 21.3.2011 and 25.4.2011 has reiterated that the revised scope of work includes the retrofitting of ESPs (6 units) with additional collection area of 30000M² and 58000 M² in Stage I & II units respectively to reduce the emission level to 75 Mg/Nm³. It has also been submitted that the reduction of emission levels have been made mandatory by the MP Pollution Control Board and hence the proposed phased funding for execution of work upto 31.3.2014 may be approved.

On a specific query by the Commission during the hearing on 28.6.2011, as to whether the expenditure for modification of ESPs of Stage-I could be considered against Stage-IV of the generating station, since the expenditure for modification of ESPs of Stage-I was necessitated due to conditional clearance by the Ministry of Environment & Forests, Government of India aforesaid, the representative of the petitioner replied in the affirmative and has not objected to the same. Accordingly, the total expenditure of



Rs.9400.00 lakh during 2011-14 claimed by petitioner has not been considered for Stage-I of the generating station.”

17. In view of the above, we are inclined to allow the additional capital expenditure Rs.2000.00 lakh in 2014-15, Rs.6000.00 lakh in 2015-16, Rs.6000.00 lakh in 2016-17, Rs.6000.00 lakh in 2017-18 and Rs.6000.00 lakh in 2018-19 towards the ESP retrofitting for Stage-I &II under Regulation 14(3)(ii) of the 2014 Tariff Regulations. The petitioner is however directed to submit the details of works capitalized in respect of Stage-I and II respectively at the time of truing-up in terms of Regulation 8 of 2014 Tariff Regulations.

21. It is evident from the above that the Commission, in the said order, had deliberated upon the reasonability and justification of the additional capitalisation and had directed the Petitioner to submit details of the works capitalised in respect of Stages I and II respectively, at the time of truing-up of tariff for the period 2014-19 for Stage-IV. The Petitioner had submitted the actual additional capital expenditure in respect of Stages I and II in Petition No. 286/GT/2020 (truing up of tariff for the period 2014-19 for Stage-V) and the Commission had allowed the same vide order dated 30.6.2023. In the present Petition, the Petitioner has claimed additional capital expenditure towards ESP retrofit works for Stage-I only and the same is **allowed**. However, the total approved cost was Rs.26000 lakh and considering the actual expenditure incurred of Rs.9921.8 lakh in 2016-17, Rs.11652 lakh in 2017-18 and (-) Rs.761.28 lakh in 2018-19, the additional expenditure claimed over and above the approved expenditure works out to Rs. 7392.12 Lakh. Considering that the said expenditure pertains to approved scheme, the Commission has provisionally approved the expenditure as claimed by the Petitioner towards the scheme, however, the Commission will consider the same at the time of truing up of tariff for the period 2019-24 subject to prudence check. The Petitioner is directed to submit the documentary evidence along with the reason for increase in the expenditure at the time of truing up.



ClO₂ System

22. The Petitioner has claimed additional capital expenditure of Rs.264.00 lakh in 2021-22 and Rs.1319 lakh in 2022-23 towards installation of Chlorine Dioxide (ClO₂) system under Regulation 26(1)(b) and 26(1)(d) of the 2019 Tariff Regulations. In justification of the same, the Petitioner submitted that at present chlorine gas is being dozed directly at various stages of water treatment to maintain water quality and to inhibit organic growth in water retaining structures/ equipment such as clarifiers, storage tanks, cooling towers, condenser tubes and piping etc. Chlorine dosing is done from chlorine stored in cylinders/ tonners. Chlorine gas is very hazardous and may prove fatal in case of leakage. Handling and storage of same involves risk to the life of public at large. In the interest of public safety, the chlorine dosing system is now being replaced by Chlorine Dioxide (ClO₂) system, which is much safer and less hazardous than chlorine. In the proposed scheme, ClO₂ shall be produced on site by use of commercial grade HCl and sodium chlorite. As ClO₂ is generated at site, the handling and storage risk of chlorine will be avoided. Further, at Kudgi NTPC project, Department of Factories, Boiler, Industrial Safety and Health, Govt of Karnataka has directed NTPC to replace the highly hazardous gas chlorination system with ClO₂ system. Also, SPCB, Odisha while issuing consent to establish in Darlipalli Station has asked NTPC to explore the possibility of installing ClO₂ system instead of Chlorine gas system. In view of the directions of various statutory authorities in different states of the country and for enhancing the safety of public, the Petitioner has claimed the additional capital expenditure for replacing the chlorination system with ClO₂ system.

23. The Respondent MPPMCL submitted that the claimed expenditure is not maintainable under Regulation 26(1)(b) as there is no incidence of Change in Law or



compliance of any existing law in the instant case. Additionally, directions of authority of Karnataka cannot be construed to be applicable in State of Madhya Pradesh as a change in law event.

24. The Petitioner vide its additional affidavit dated 7.9.2022 has submitted that the Ministry of Labour and Employment, Govt. of India, had released the “National Policy on Safety, Health and Environment at Workplace” in February 2009. The various clauses of the policy mandating the Government and other stakeholders to ensure safety of working personnel at work place. The Petitioner has also submitted that it is a constant endeavour of the Petitioner to improve the safety practices and mitigate the hazards in line with the statutory provisions on safety, health and environment at workplace. Further, the Petitioner has submitted that the “Draft Safety, Health and Working Conditions Code 2018” was put up by the Ministry of Labour and Employment in March 2018 inviting comments/suggestions of various stakeholders, wherein responsibilities of various faculties of industries/factories was mentioned including the employer. The Petitioner, as a responsible employer, took cognizance of the hazardous nature of chlorine gas dosing and decided to replace the chlorine dosing system by a much safer Chlorine Dioxide (‘ClO₂’) system in the instant station. This is also in line with the duties necessitated for an employer under the clause 6(1)(a) and 6(1)(d) of “*The Occupational Safety, Health and Working Conditions Code, 2020*” notified by Ministry of Law & Justice, Govt. of India vide Gazette Notification dated 29.9.2020. Also, the Petitioner has submitted that In India, chlorine is deemed to be an explosive, when contained in any metal container in a compressed or liquefied state, within the meaning of the Indian Explosives Act, 1884 and the leakage or failure in handling of this chlorine gas may result into major accident which involves loss of property and human life. It has pointed out that the National Disaster Management



Authority (NDMA), Govt. of India, had released “National Disaster Management Guidelines: Chemical Disasters” in April 2007. Major accidents in the past due to leakage/explosion of Chlorine gas in just a span of six years (from 2002 to 2006) have been documented in the Guidelines. Chapter 5 (Guidelines for Industrial (Chemical) Installations and Storages) of the said guidelines by NDMA provides that industrial systems shall be continuously re-engineered (improved and upgraded)/ strengthened for the prevention and management of chemical accidents. Therefore, the Petitioner has stated that the installation of ClO₂ Plant taken up in place of the earlier Chlorine dosing system is a *Change of process* taken up for prevention and management of chemical accidents in accordance with the various provisions and objectives of the “National Disaster Management Guidelines – Chemical Disasters” released by the NDMA, GOI in April 2007. The Petitioner has submitted that Regulation 26(1)(d) of the 2019 Tariff Regulations, provides for admittance of additional capital expenditure for security and safety of Power Stations, which is inclusive of safety of the people working within the plant and neighbouring communities. As a responsible corporate entity, safety of workmen and employees is of paramount importance for the Petitioner. Also, it is the responsibility of the Petitioner to ensure that neighbouring communities are safe and not affected adversely due to Plant operations. The Petitioner has therefore requested to allow such additional capital expenditure under the said regulations and exercising the *Power to Relax* under the Regulation 76 of 2019 Tariff Regulations.

25. We have considered the matter. The Petitioner has claimed additional capital expenditure for ClO₂ system under Regulation 26(1)(b) and Regulation 26(1)(d) of the 2019 Tariff Regulations. The Petitioner has submitted that for Kudgi project of the



Petitioner, the Government of Karnataka had directed the Petitioner to replace the highly hazardous gas chlorination system with ClO₂ system. It is observed that the letter dated 23.9.2019 addressed by the Directorate of Factories, Industrial Safety and Health, State Government of Karnataka to GM, NTPC, pertains to site clearance of Kudgi Super Thermal Power station of the Petitioner. This letter, in no manner, can be termed as a change in law event or for compliance with any existing law in respect of this generating station (Vindhyachal TPS) warranting the additional capitalization of the expenditure. As regards the claim of the Petitioner under Regulation 26(1)(d) of the 2019 Tariff Regulations, we find no specific direction or advice from any Governmental or statutory authorities as regards the requirement of this item i.e., chlorine dosing system to be replaced by ClO₂ system, for safety and security of the generating station. In view of this, the projected additional capital expenditure of Rs. 264.00 lakh in 2021-22 and Rs.1319.00 lakh in 2022-23 for works relating to ClO₂ system is **not allowed**.

Integrated Security System (ISS)

26. The Petitioner has claimed additional capital expenditure of Rs.525.00 lakh in 2021-22 towards Integrated Security System, under Regulation 26(1)(b) and Regulation 26(1)(d) of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that it has received a letter dated 23.10.2019 from the MoP, Gol for enhancement and automation of security at the power station, in view of consistent threat to various vital installations and infrastructure including power stations as per reports from external agencies. In view of similar information received earlier, the Petitioner, in collaboration with Central Industrial Security Force (CISF), has prepared a comprehensive multilayer e-security system, called integrated security system (ISS) to be installed in various power stations across the country.



This ISS shall not only enhance the reliability of the security system, but it will also help rationalise the security manpower at the station.

27. The Respondent MPPMCL has submitted that the additional capital expenditure against integrated security system under Regulation 26(1)(d) is not maintainable, in view of the fact that Petitioner is misinterpreting Regulation 26(1)(d) which is applicable only for security and safety related expenses for the Plant if advised or directed by Statutory Authority. It has also stated that the Petitioner has failed to submit documentary proof or evidence to substantiate that a direction has been passed by the Appropriate Governmental/statutory authority. The Petitioner in its rejoinder submitted that the steps towards integrated security system has been taken by Petitioner on account of receipt of letter dated 23.10.2019 issued by Ministry of Power (MoP) which provides for enhancement and automatic security power station in view of consistent threat to various vital installations and infrastructure including power stations as per reports of the external agencies. The Respondent CSPDCL has submitted that the Petitioner is already claiming Security Charges under additional O&M expenses, which itself is on very higher side and hence no additional capital expenditure on account of security expenses should be allowed. The Petitioner has submitted that the proposed ISS to be installed will not only improve the security system's reliability, but will also help the station's security manpower be more rationalised.

28. We have considered the matter. The Petitioner in support of the projected additional capital expenditure has submitted that it has received letter dated 23.10.2019 from MOP, GOI mandating the enhancement and automation of security at power stations, in view of consistent threat to various vital installations and



infrastructure including the power stations, based on reports of external agencies. This expenditure, in our view, for the enhancement and automation of security at power stations, based on threat perception to vital installations received from external agencies. Also, the expenditure for this asset/ item will not only enhance the reliability of security system, but will also help in rationalizing the security manpower of the generating station. In this background, we **allow** the projected additional capital expenditure claimed by the Petitioner. The Petitioner is, however, directed to furnish the documentary proof, in support of the claim, in a sealed cover for consideration of the Commission, at the time of truing-up of tariff of the generating station.

29. Based on the above discussions, the additional capital expenditure allowed for the period 2019-24 is summarized below:

(Rs. in lakh)

	Regulation	Additional capital expenditure allowed					
		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						
1	Ash Dyke raising and associated works	25(1)(c)&(g)	1297.00	1016.00	4420.00	170.00	0.00
2	Coal Handling Package	25(1)(d)	0.00	0.00	0.00	0.00	0.00
3	A/C & Ventilation System	25(1)(d)	120.00	0.00	0.00	0.00	0.00
4	Fire Detection and Protection System	25(1)(d)	0.00	300.00	0.00	0.00	0.00
5	Station Piping	25(1)(d)	120.00	0.00	0.00	0.00	0.00
6	Electrical Equipment package	25(1)(d)	50.00	0.00	0.00	0.00	0.00
7	Misc package	25(1)(d)	400.00	0.00	0.00	0.00	0.00
8	Station C&I Package	25(1)(d)	0.00	450.00	0.00	0.00	0.00
9	ESP Retrofit for Stage-I	26(1)(b)	4325.00	0.00	8255	0.00	0.00
10	Integrated Security System	26(1)(b)&(d)	0.00	0.00	525.00	0.00	0.00
	Sub-Total		6312.00	1766.00	13200	170.00	0.00
B	Works beyond Original scope excluding add-cap due to Change in Law eligible for RoE at Wtd. Average rate of Interest						
	Total (B)		0.00	0.00	0.00	0.00	0.00
	Total Additional Capital Expenditure claimed (A+B)		6312.00	1766.00	13200	170.00	0.00

Capital cost allowed for the period 2019-24

30. Accordingly, the capital cost allowed for the purpose of tariff is as under:

(Rs in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Opening capital cost	631346.76	636968.76	637984.76	643792.64	643962.64
Add: Additional capital	6312.00	1766.00	13200.00	170.00	0.00



expenditure					
Closing capital cost	637658.76	639424.76	652624.76	652794.76	652794.76
Average capital cost	634502.76	638541.76	646024.76	652709.76	652794.76

Debt Equity Ratio

31. Regulation 18 of the 2019 Tariff Regulations provides as under:

“18. Debt-Equity Ratio: (1) For a new project, 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. Order in Petition No. 415/GT/2020 Page 21 of 47 Explanation.-The premium if any, raised by the generating company or the transmission licensee, as the case may be, while issuing share capital and investment of internal resources created out of its free reserve, for the funding of the project, shall be reckoned as paid up capital for the purpose of computing return on equity, only if such premium amount and internal resources are actually utilised for meeting the capital expenditure of the generating station or the transmission system.

(2)The generating company or the transmission licensee, as the case may be, shall submit the resolution of the Board of the company or approval of the competent authority in other cases regarding infusion of funds from internal resources in support of the utilization made or proposed to be made to meet the capital expenditure of the generating station or the transmission system including communication system, as the case may be.

(3) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2019, debt: equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2019 shall be considered:

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

Provided further that in case of projects owned by Damodar Valley Corporation, the debt: equity ratio shall be governed as per sub-clause (ii) of clause (2) of Regulation 72 of these regulations.

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

(5) Any expenditure incurred or projected to be incurred on or after 1.4.2019 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernization expenditure for life extension shall be serviced in the manner specified in clause (1) of this Regulation.”

32. The gross normative loan and equity of the generating station, as on 31.3.2019 as approved by order dated 30.6.2023 in Petition No. 286/GT/2020 is Rs.441942.73



lakh and Rs.189404.02 lakh, respectively. Accordingly, in terms of Regulation 18(3) of the 2019 Tariff Regulations, the gross normative loan and equity to be considered as on 1.4.2019 works out to Rs.441942.73 lakh and Rs.189404.02 lakh, respectively. Further, the projected additional capital expenditure approved above has been allocated to debt and equity in the ratio of 70:30. Accordingly, the details of debt: equity ratio in respect of the generating station as on 1.4.2019 and as on 31.3.2024 is as under:

	Capital cost as on 1.4.2019 (Rs. in lakh)	(%)	Additional capital expenditure (Rs. in lakh)	(%)	Total cost as on 31.3.2024 (Rs. in lakh)	(%)
Debt	441942.73	70%	15013.60	70%	456956.33	70%
Equity	189404.02	30%	6434.40	30%	195838.42	30%
Total	631346.77	100%	21448.00	100%	652794.77	100%

Return on Equity

33. Regulation 30 of the 2019 Tariff Regulations provides as under:

“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. (1) (2) Return on equity shall be computed at the base rate of 15.50% for thermal generating stations transmission system including communication system and run of 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 excluding additional capitalization due to Change in Law shall be computed at the weighted average rate of interest on actual loan portfolio of the generating station or the transmission system; Provided further that: (i) In case of a new project the rate of return on equity shall be reduced by 1.00% for such period as may be decided by the Commission if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO) or Free Governor Mode Operation (FGMO) data telemetry communication system up to load dispatch centre or protection system based on the report submitted by the respective RLDC; (ii) in case of existing generating station as and when any of the requirements under (i) above of this Regulation are found lacking based on the report submitted by the concerned RLDC rate of return on equity shall be reduced by 1.00% for the period for which the deficiency continues; (i) (iii) in case of a thermal generating station with effect from 1.4.2020: a) (a) rate of return on equity shall be reduced by 0.25% in case of failure to achieve the ramp rate of 1% per minute; b) (b) 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.



34. Regulation 31 of the 2019 Tariff Regulations provides as under:

“31. Tax on Return on Equity: (1) The base rate of return on equity as allowed by the Commission under Regulation 30 of these regulations shall be grossed up with the effective tax rate of the respective financial year. For this purpose the effective tax rate shall be considered on the basis of actual tax paid in respect of the financial year in line with the provisions of the relevant Finance Acts by the concerned generating company or the transmission licensee as the case may be. The actual tax paid on income from other businesses including deferred tax liability (i.e. income from business other than business of generation or transmission as the case may be) shall be excluded for the calculation of effective tax rate.

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

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

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

Illustration-

(i) In case of the generating company or the 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% (i)

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

(a) Estimated Gross Income from generation or transmission business for FY 2019-20 is Rs 1000 crore;

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

(c) Effective Tax Rate for the year 2019-20 = Rs 240 Crore/Rs 1000 Crore = 24%;

(d) Rate of return on equity = 15.50/ (1-0.24) = 20.395%.

(2) 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 transmission customers as the case may be on year to year basis.”

35. The Petitioner has claimed Return on Equity (ROE) considering the base rate of 15.50% and effective tax rate of 17.472% (i.e. MAT Rate of 15% + Surcharge of 12% + HEC of 4%) for the period 2019-24. Since the generating station is eligible for ROE at normal rate of ROE, in terms of above regulations, the rate of ROE as claimed



by the Petitioner has been considered for the purpose of tariff. Accordingly, ROE has been worked out as under:

	(Rs. in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Gross Normative Equity	189404.02	191297.62	191827.42	195787.42	195838.42
Less: Adjustment to equity in terms of 1st proviso to Regulation 18(3)	-	-	-	-	-
Normative Equity- Opening	189404.02	191297.62	191827.42	195787.42	195838.42
Add: Addition of Equity due to additional capital expenditure	1893.60	529.80	3960.00	51.00	0.00
Normative Equity – Closing	191297.62	191827.42	195787.42	195838.42	195838.42
Average Normative Equity	190350.82	191562.52	193807.42	195812.92	195838.42
Return on Equity (Base Rate)	15.500%	15.500%	15.500%	15.500%	15.500%
Effective Tax Rate for respective years	17.472%	17.472%	17.472%	17.472%	17.472%
Rate of Return on Equity (Pre-tax)	18.782%	18.782%	18.782%	18.782%	18.782%
Return on Equity (Pre-tax) - (annualised)	35751.69	35979.27	36400.91	36777.58	36782.37

Interest on loan

36. Regulation 32 of the 2019 Tariff Regulations provides as under:

“32. Interest on loan capital: (1) The loans arrived at in the manner indicated in Regulation 18 of these regulations shall be considered as gross normative loan for calculation of interest on loan. (2) The normative loan outstanding as on 1.4.2019 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2019 from the gross normative loan. (3) The repayment for each of the year of the tariff period 2019-24 shall be deemed to be equal to the depreciation allowed for the corresponding year/period. In case of decapitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered upto the date of de-capitalization of such asset. (4) Notwithstanding any moratorium period availed by the generating company or the transmission licensee, as the case may be, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the depreciation allowed for the year or part of the year.

(5) The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio after providing appropriate accounting adjustment for interest capitalized:

Provided that if there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average rate of interest shall be considered: Provided further that if the generating station or the transmission system, as the case may be, does not have actual loan, then the weighted average rate of interest of the generating company or the transmission licensee as a whole shall be considered.

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

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

37. Interest on loan has been worked out as under:



i) Gross normative loan, cumulative repayment and net opening normative loan amounting to Rs.441942.73 lakh, Rs.162265.65 lakh and Rs.279677.08 lakh as on 31.3.2019, as considered in order dated 30.6.2023 in Petition No. 286/GT/2020, has been retained as on 1.4.2019;

ii) Weighted average rate of interest (WAROI) as claimed by the Petitioner has been retained for the purpose of tariff;

iii) The repayments for the respective years of the period 2019-24, has been considered equal to the depreciation allowed for that year;

38. Necessary calculation of interest of loan is as under:

		(Rs. in lakh)				
		2019-20	2020-21	2021-22	2022-23	2023-24
A	Gross opening loan	441942.73	446361.13	447597.33	456837.33	456956.33
B	Cumulative repayment of loan upto previous year	162265.65	195615.12	229176.87	263131.93	297438.36
C	Net Loan Opening (A-B)	279677.08	250746.02	218420.46	193705.40	159517.98
D	Addition due to additional capital expenditure	4418.40	1236.20	9240.00	119.00	0.00
E	Repayment of loan during the year	33349.47	33561.75	33955.06	34306.42	34310.89
F	Repayment adjustment on account of de-capitalisation	0.00	0.00	0.00	0.00	0.00
G	Repayment adjustment on account of discharges/reversals corresponding to un-discharged liabilities deducted as on 1.4.2009	0.00	0.00	0.00	0.00	0.00
H	Net Repayment of loan during the year (E-F+G)	33349.47	33561.75	33955.06	34306.42	34310.89
I	Net Loan Closing (C+D-H)	250746.02	218420.46	193705.40	159517.98	125207.08
J	Average Loan [(C+I)/2]	265211.55	234583.24	206062.93	176611.69	142362.53
K	Weighted Average Rate of Interest (WAROI)	7.6030%	7.6116%	7.6134%	7.9398%	8.3932%
L	Interest on Loan (J x K)	20164.03	17855.54	15688.40	14022.61	11948.77

Depreciation

39. Regulation 33 of the 2019 Tariff Regulations provides as under:

“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.



(2) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission. In case of multiple units of a generating station or multiple elements of 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.

(3) The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset:

Provided that 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.

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

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

(6) 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.

(7) 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.

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

40. Cumulative depreciation and freehold land amounting to Rs.162265.65 lakh and Rs.16694.64 lakh (on cash basis) as on 31.3.2019, as considered in order dated 30.6.2023 in Petition No. 286/GT/2020 has been considered as on 1.4.2019. Since the elapsed life of the generating station as on 1.4.2019 (i.e. 5.55 years) from the effective station COD (i.e., 12.9.2013) of the generating station is less than 12 years, depreciation has been calculated by considering the weighted average rate of



depreciation (WAROD), as claimed by the Petitioner. Necessary calculations in support of depreciation are as under:

<i>(Rs. in lakh)</i>					
Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Average capital cost (A)	634502.76	638541.76	646024.76	652709.76	652794.76
Value of freehold land included above (B)	16,694.64	16,694.64	16,694.64	16,694.64	16,694.64
Aggregated depreciable Value [C = (A-B) x 90%]	5,56,027.31	5,59,662.41	5,66,397.11	5,72,413.61	5,72,490.11
Remaining aggregate depreciable value at the beginning of the year (D = C – 'K' of previous year)	393761.66	364047.29	337220.24	309281.67	275051.75
Balance useful life at the beginning of the year (E)	19.45	18.45	17.45	16.45	15.45
Weighted average rate of depreciation (F)	5.26%	5.26%	5.26%	5.26%	5.26%
Depreciation during the year (G = AxF)	33,349.47	33,561.75	33,955.06	34,306.42	34,310.89
Cumulative depreciation at the end of the year, before adjustment of de-capitalisation adjustment (H = G + 'K' of previous year)	1,95,615.12	2,29,176.87	2,63,131.93	2,97,438.36	3,31,749.25
Cumulative depreciation adjustment on account of de-capitalisation (I)	0.00	0.00	0.00	0.00	0.00
Cumulative depreciation adjustment on a/c of un-discharged liabilities deducted as on 1.4.2009 (J)	0.00	0.00	0.00	0.00	0.00
Cumulative depreciation, at the end of the year (K = H-I+J)	1,95,615.12	2,29,176.87	2,63,131.93	2,97,438.36	3,31,749.25

41. Further, the Petitioner has claimed that due to underperformance in terms of the plan availability factor in comparison to NAPAF, there is under recovery of Rs. 669.69 Lakh summarized as under:

FY	Target Availability	Annual Availability	AFC (Periodic)	Dep. included in AFC (Periodic)	Disincentive (Periodic)	Dep. unrecovered due to disincentive (Periodic)
	(%)	(%)	(Rs. Lakh)	(Rs. Lakh)	(Rs. Lakh)	(Rs. Lakh)
2012-13 (01.03.2013-31.03.2013)	85	24.40	4387.10	981.63	2992.99	669.69



42. Based on the decision of the Appellate Tribunal for Electricity in its judgment dated 13.6.2007 in Appeal No. 207 of 2006, the Commission vide its order dated 27.6.2023 (pertaining to Rihand STPS Stage-I), had allowed the recovery of unrecovered depreciation upto 31.3.2014, due to underperformance of the said generating station in terms of plant availability factor in comparison to NAPAF, at the end of useful life of the generating station. Accordingly, the unrecovered depreciation, if any, upto 31.3.2014 due to underperformance of the generating station in terms of plant availability factor in comparison to NAPAF shall be allowed to be recovered after completion of useful life of the generating station subject to prudence check at the time of truing up. The Petitioner may recover the same from beneficiaries after reconciliation of the PAF, billed amount and unrecovered depreciation during the period of claim as indicated by the Petitioner.

Operation & Maintenance Expenses

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

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
O&M expenses under Regulation 35(1)(1) of the 2019 Tariff Regulations	22510	23300	24120	24970	25840
O&M expenses under Regulation 35(1)(6) of the 2019 Tariff Regulations					
Water Charges	1679.54	1738.32	1799.17	1862.14	1927.31
Security Expenses	840.34	924.37	1016.81	1118.49	1230.34
Capital Spares consumed	0.00	0.00	0.00	0.00	0.00
Total O&M Expenses	25029.88	25962.69	26935.97	27950.62	28997.65

44. Regulation 35(1)(1) of the 2019 Tariff Regulations provides for the following O&M expenses for 500 MW thermal power plants:

2019-20	2020-21	2021-22	2022-23	2023-24
22.51	23.30	24.12	24.97	25.84

45. The generating station has two units each is of 500 MW and the COD of these units are all prior to 1.4.2019. Accordingly, the normative O&M expenses claimed by



the Petitioner, as above, is in terms of the Regulation 35(1)(1) of the 2019 Tariff Regulations and hence allowed for the purpose of tariff.

Water Charges

46. Regulation 35 (1) (6) of the 2019 Tariff Regulations read with the First Amendment to the 2019 Tariff Regulations (in 2020) provide 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 and considering the norms of specific water consumption notified by the Ministry of Environment, Forest and Climate Change. The details regarding the same shall be furnished along with the petition;

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

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

47. In terms of the above regulation, water charges are to be allowed based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check. In this regard, the Petitioner has submitted that water resource department vide dated 27.9.2016 has escalated the water charges at 10% per annum w.e.f., 1.4.2017. Further, the Petitioner submitted following actual information for 2018-19 and mentioned that these water charges were escalated at 10% per annum in 2019 – 24.

Description	Remarks
Type of plant	Coal based Thermal Power Plant
Type of cooling water system	Closed Circuit Cooling System
Consumption of water	149 MCM
Rate of water charges	Rs.5.50/m ³
Total water charges paid (2018-19)	Rs. 1623 lakh

48. Accordingly, Water charges claimed by the Petitioner are as follows:



(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
1679.54	1738.32	1799.17	1862.14	1927.31

49. The Respondent MPPMCL has submitted that the Petitioner has claimed water charges in contravention to the norms prescribed by MOEFCC notification dated 07.12.2015 and the 2019 Tariff Regulations. The Respondent has submitted that it has calculated the water charges allowable to the Petitioner for the years 2019-20 and 2020-21 and submitted that the claim of the petition exceeds by 11% over and above the allowable normative water charges. The Respondent CSPDCL has also submitted that the Petitioner is entitled to water charges as per the norms specified by MOEFCC vide its notification dated 7.12.2015 for the thermal power plants installed before 1.1.2017. It has also submitted that the Petitioner has escalated the water charges of Rs 1623 lakh for the year 2018-19 at the rate of 3.5% per year to arrive at the water charges for the subsequent years for the period 2019-24. The Petitioner in its rejoinder has clarified that the 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. It has also submitted that these charges are claimed based on the water charges as applicable for the year 2018-19 and the same are subject to actuals charges incurred at the time of truing up of tariff.

50. We have examined the matter. It is observed that water charges for the period 2019-24 have been arrived on the basis of water charges claimed for 2018-19 with annual escalation of 3.50%. It is also observed that the rate of water charges considered by the Petitioner for the period 2019-24, is the same as considered for the period 2014-19. Accordingly, we are not inclined to allow the annual escalation of 3.50% as claimed by the Petitioner. Further, based on the actual water charges



incurred by the Petitioner for the years 2019-20 and 2020-21, which amounted to Rs.1555.08 lakh and Rs.1550.83 lakh respectively, water charges for 2019-20 are allowed as Rs.1555.08 lakh and Rs.1550.83 lakh for the period 2020-24. Accordingly, the water charges claimed and allowed, for the period 2019-24 is as under:

	2019-20	2020-21	2021-22	2022-23	2023-24
Water charges claimed	1679.54	1738.32	1799.17	1862.14	1927.31
Water charges Allowed	1555.08	1550.83	1550.83	1550.83	1550.83

51. The water charges allowed as above are subject to truing-up in terms of the provisions of the regulations. Further, the Petitioner is to furnish the details such as water consumption, copy of water agreement, contracted capacity and efforts to revise the contracted capacity if actual consumption is less than the contracted capacity.

Capital Spares

52. The Petitioner has not claimed capital spares during the period 2019- but has submitted that the same shall be claimed based on actual consumption of spares during the period 2019-24 at the time of truing up in terms of proviso to Regulation 35(1)(6) of the 2019 Tariff Regulations. Accordingly, the same has not been considered in this order. The claim of the Petitioner, if any, towards capital spares at the time of truing up shall be considered on merits, after prudence check.

Security Expenses

53. The security expenses claimed by the Petitioner is as under:

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
840.34	924.37	1016.81	1118.49	1230.34

54. The Petitioner has submitted that above expenses has been claimed based on the estimated expenses for the period 2019-24 and shall be subject to retrospective



adjustment based on actuals at the time of truing up. The Respondent MPPMCL has submitted that the Petitioner may be directed to submit the details of the security expenses claimed covering the cadre wise total number of personnel and their salary to be substantiated with justification as mandated under the second proviso to Regulation 35(6) of the 2019 Tariff Regulations, for prudence check of this Commission. The Respondent CSPDCL has submitted that even if the security expenses are reimbursed as per actuals, there has to be some permissible limit up to which the Commission may allow expenses towards security. The Petitioner has clarified that it has provided the details of the security charges in Form 3A of Appendix-I of the Petition. The Petitioner has also submitted that the claim for the security expenses is based on the estimated expenses for the period 2019-24 and the same is subject to retrospective adjustment based on actuals at the time of truing up. The Petitioner has added that while the security expenses have been claimed as per Regulation 35 (1) (6) of the 2019 Tariff Regulations, the said Regulation is silent on the contended permissible limit sought to be imposed by CSPDCL.

55. We have examined the matter. The Petitioner had submitted the actual security expenses for the years 2019-20 and 2020-21 as Rs. 931.68 lakh and Rs. 997.18 lakh respectively. The Petitioner has however not furnished the assessment of security requirement as required under the provisions of the 2019 Tariff Regulations. Accordingly, the Petitioner is directed to furnish the requisite details for carrying out the prudence check of security expenses at the time of truing up of tariff. For the present, the actual security expenses incurred for the period 2019-21 and the projected security expenses claimed for the period 2019-24, has been considered for the purpose of tariff. Accordingly, the security expenses claimed and allowed, for the period 2019-24 is as under:



(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Security expenses claimed	840.34	924.37	1016.81	1118.49	1230.34
Security expenses allowed	931.68	997.18	1016.81	1118.49	1230.34

56. Accordingly, the total O&M expenses including water charges and security expenses, as claimed by the Petitioner and allowed to the generating station for the period 2019-24 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 Regulations (a)	22510.00	23300.00	24120.00	24970.00	25840.00
Normative O&M expenses allowed under Regulation 35(1)(1) of the 2019 Tariff Regulations (b)	22510.00	23300.00	24120.00	24970.00	25840.00
Water Charges claimed under Regulation 35(1)(6) of the 2019 Tariff Regulations (c)	1679.54	1738.324	1799.165	1862.136	1927.311
Water Charges allowed under Regulation 35(1)(6) of the 2019 Tariff Regulations (d)	1555.08	1550.83	1550.83	1550.83	1550.83
Security Expenses claimed under Regulation 35(1)(6) of the 2019 Tariff Regulations (e)	840.34	924.37	1016.81	1118.49	1230.34
Security Expenses allowed under Regulation 35(1)(6) of the 2019 Tariff Regulations (f)	931.68	997.18	1016.81	1118.49	1230.34
Total O&M expenses claimed under Regulation 35 of the 2019 Tariff Regulations (a + c + e)	25029.88	25962.69	26935.97	27950.62	28997.65
Total O&M expenses allowed under Regulation 35 of the 2019 Tariff Regulations (b + d + f)	24996.76	25848.01	26687.64	27639.32	28621.17

Fly Ash Transportation Expenses

57. The Petitioner has submitted that pursuant to issuance of Notification dated 25.1.2016 by MOEFCC, the Petitioner filed Petition No. 172/MP/2016 seeking reimbursement of the additional expenditure for Fly Ash Transportation directly from the beneficiaries as the same was in the nature of statutory expense. It has stated



that on 5.11.2018, this Commission vide order in Petition No. 172/MP/2016 had recognized the Notification dated 25.1.2016 as a change in law event. The Petitioner has requested the Commission to recover/ pass on the ash transportation charges after adjusting the revenue earned from sale of ash at the end of each quarter of financial year subject to true-up at the end of the period. The Respondent MPPMCL submitted that since 2019 Tariff Regulations does not mandate recovery of additional expenditure incurred due to fly ash transportation by the generating company, the said expenditure has become a part of O&M expenses being allowable on normative basis and it cannot be allowed separately. The Respondent CSPDCL also submitted that 2019 Tariff Regulation are silent on the reimbursement of fly ash transportation charges by the beneficiaries and the order dated 05.11.2018 in Petition No. 172 /MP/2016 was only applicable for the period 2014-19 and cannot be applied to the period 2019-24. The Petitioner in its rejoinder submitted that the Commission in the order dated 22.3.2021 in Petition No. 405/MP/2019 had put in place a robust mechanism of monthly recovery of fly ash transportation charges with annual reconciliation. The Petitioner has prayed for allowing a similar mechanism for recovery of fly ash transportation charges from its beneficiaries. The Petitioner vide additional affidavit dated 7.9.2022 has submitted that on 22.9.2021, it had filed Petition No. 205/MP/2021 before the Commission seeking recovery of the ash transportation charges. Accordingly, the Petitioner has requested the Commission to allow payment of expenditure towards ash utilisation activities in terms of MOEFCC Notification dated 31.12.2021 by the beneficiaries to the generating stations as part of annual fixed cost of the generating station.

58. It is noticed that the Petitioner had filed Petition No. 205/MP/2021 before this Commission for recovery of additional expenditure incurred due to Fly Ash



transportation charges consequent to Ministry of Environment and Forest & Climate Change, GOI Notification dated 3.11.2009 and Notification dated 25.1.2016. Accordingly, the Commission vide its order dated 28.10.2022, had allowed the Ash transportation expenses incurred by the Petitioner for the period 2019-22 and for recovery of these through supplementary bills in 2022–24. The relevant portion of the order is as below:

“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.”

59. In view of the above, the claim of the Petitioner shall be governed by the findings of the Commission, in the said order. Thus, the claim of the Petitioner has not been considered in this order.

Operational Norms

60. The Petitioner has considered following norms of operation as under:

Normative Annual Plant Availability Factor (NAPAF) (%)	85
Heat Rate (kCal/kwh)	2415
Auxiliary Power Consumption (%)	6.25
Specific Oil Consumption (ml/kwh)	0.50

(a) Normative Annual Plant Availability Factor (NAPAF)

61. Regulation 49(A) of the 2019 Tariff Regulations provides as under:

“(A) Normative Annual Plant Availability Factor (NAPAF)

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



62. The NAPAF of 85% claimed by Petitioner is in terms of Regulation 49(A)(a) of the 2019 Tariff Regulations and hence, the same is allowed.

(b) Gross Station Heat Rate (kCal/kWh)

63. The Petitioner has submitted that the Commission has specified the boiler efficiency and turbine heat rate separately for deriving the unit heat rate where the Unit Heat Rate is not guaranteed by the suppliers. It has submitted that the generating station was envisaged during the period 2009-14 and equipment including SG and TG specifications for tendering / award was stipulated considering the boiler efficiency and the turbine heat rate prescribed by the Commission in the Tariff Regulations at that time. Based on the same the equipment was ordered 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 the instant station as per the efficiency parameters specified in the 2019 Tariff Regulations which are more stringent. The Petitioner has further submitted that if it had stipulated more stringent unit heat rate, this would have increased the capital cost commensurate to the efficiency parameters sought. It has stated that the benefit of the lower capital cost due to lower efficiency parameters has already been passed on to the beneficiaries in terms of lower capital cost, and if the boiler efficiency for working out the normative heat rate is considered as 86% instead of the actual design efficiency of 84%, the unit heat rate would be worked out to be 2358.84 kcal/kwh and the operating margin available over the design heat rate would be 2.56% only which is much less than the operating margin of 5% allowed in the 2019 Tariff Regulations. Moreover, the boiler efficiency is largely a function of coal quality. In view of above, the Petitioner has prayed that the Gross Station Heat rate (GSHR) may be allowed as 2415 Kcal/kwh



based on guaranteed turbine cycle heat rate of 1932 Kcal/kwh and boiler efficiency of 84% with an operating margin of 5% from the guaranteed design value.

64. The Respondent MPPMCL has submitted that the claim of Petitioner for relaxation of Gross Station Heat Rate (“GSHR”) without any legal basis as Regulation 49(C)(b) of 2019 Tariff Regulations provides for GSHR of thermal generating stations which have achieved CoD on or after 1.4.2019. In view of the 2019 Tariff Regulations, the minimum boiler efficiency is 86% and any efficiency lower than this cannot be considered. Accordingly, the allowable GSHR in accordance with Regulations should be 2358.84 KCal/Kwh. The Respondent CSPDCL has submitted that Petitioner’s plant has achieved COD on 27.3.2014, and therefore, the fifth proviso to Regulation 49(C) (b) of 2019 Tariff Regulations will be applicable. It has also pointed out that the GSHR considered by the Commission for determination of tariff of this generating station for the period 2014-19 was 2375.22 Kcal /Kwh and hence the same should be continued for the period 2019-24.

65. Regulation 49 (C) (b) of the 2019 Tariff Regulations specifies the norms for heat rate for generating stations achieved COD on or after 1.4.2009 i.e., $1.05 \times \text{Design Heat Rate}$. Accordingly, we approve the design heat rate as 2358.84 ($1932 \times 1.05 / 0.86$) kCal/kWh based on the Turbine heat rate of 1932 kcal/kwh and boiler efficiency of 86% (in accordance with proviso to Regulation 49 (C) which stipulates that where the boiler efficiency is lower than 86% for Subbituminous 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) for the period 2019-24. We are not inclined to relax these norms as the same were allowed in 2014-19 also.



(c) Specific Oil Consumption

66. Regulation 49(D)(a) of 2019 Tariff Regulations provides as under:

“(a) For Coal-based generating stations other than at (c) below: 0.50 ml/kWh”

67. The secondary oil claimed by the Petitioner is in terms of Regulation 49(D)(a) of the 2019 Tariff Regulations and hence, the same is allowed.

(d) Auxiliary Power Consumption

68. Regulation 49(E)(a) of 2019 Tariff Regulations provides as under:

“(a) For Coal-based generating stations except at (b) below:

S.No.	Generating Station	With Natural Draft cooling tower or without cooling tower
(i)	200 MW Series	8.50%
(ii)	300 MW and above	
	Steam driven boiler feed pumps	5.75%
	Electrically driven boiler feed pumps	8.00%

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)
<i>Direct cooling air cooled condensers with mechanical draft fans</i>	1.0%
<i>Indirect cooling system employing jet condensers with pressure recovery turbine and natural draft tower</i>	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.”

69. In terms of Regulation 49(E)(a) of the 2019 Tariff Regulations, the Petitioner has claimed auxiliary energy consumption of 6.25%, for the period 2019-24. The Respondent MPPMCL submitted that Auxiliary Consumption for the Petitioner may be allowed at 5.75% at the rate considered during the previous tariff period. The Petitioner in its rejoinder has submitted that it has claimed Auxiliary Energy Consumption in terms of Regulation 49(E) of the 2019 Tariff Regulations.

70. Since the Petitioner has claimed auxiliary energy consumption of 6.25% in terms of Regulation 49(E)(a) of the 2019 Tariff Regulations, the same is allowed.



Interest on Working Capital

71. Regulation 34 (1) (a) of the 2019 Tariff Regulations provides as under:

“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.”

72. Regulation 34(3) of the 2019 Tariff Regulations provides as under:

34(3) Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2014 or as on 1st April of the year during the tariff period 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.”

Fuel Cost and Energy Charges in Working Capital

73. 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 fuel cost (taking into account normative transit and handling losses) at 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. The Respondent MPPMCL submitted that the Petitioner in Form-15 of Annexure-1 has provided the landed cost of fuel and GCV values for 3rd month, 2nd month and 1st month from 1.4.2019. The Petitioner in its rejoinder submitted that the Petitioner has provided the weighted average GCV based on GCV



values from October 2018 to December 2018, which is the third quarter of the preceding financial year for determination of tariff w.e.f. 1.4.2019. Regulation 43(2) of the 2019 Tariff Regulations provides as under:

“43. Computation and Payment of Energy Charge for Thermal Generating Stations:

(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:

$$ECR = \{(SHR - SFC \times CVSF) \times LPPF / (CVPF + SFC \times LPSFi + LC \times LPL)\} \times 100 / (100 - AUX)$$

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 price 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:

74. The Petitioner has claimed the cost of fuel component in working capital and Energy Charge Rate (ECR) based on the operational norms as per the 2019 Tariff Regulations, Price and GCV of coal and oil as considered by the Petitioner for Oct 2018 to Dec 2018 along with margin of 85 kCal /kg in GCV. Accordingly, the Petitioner has claimed ECR of Rs.1.615 per kWh and following fuel cost component in working capital for the period 2019-24:



	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Cost of Coal- 40 days for generation	12151.64	12151.64	12151.64	12151.64	12151.64
Cost of secondary fuel oil – 2 months	313.79	312.93	312.93	312.93	313.79

75. The Respondent MPPMCL has submitted that there is huge difference between the GCV as Billed and GCV as Received, for the three months as provided by the Petitioner and such huge difference is resulting in undue financial burden on the consumers of electricity in the form of higher energy charges. It has submitted that there is adverse environmental impact as the larger quantity of coal will be needed for generation of same quantum of electricity. The Respondent CSPDCL has also pointed that there is huge difference between GCV as Billed and GCV as Received for the three months as provided by the Petitioner in Form 15. The Petitioner in its rejoinder submitted that both the values are computed based on different parameters and hence cannot be compared.

76. In terms of Regulation 34(2) of the 2019 Tariff Regulations, the computation of cost of fuel as part of IWC, is to be based on the landed price and GCV of fuel, as per actuals, which means that fuel received during these three months is only to be considered and no opening stock shall be included therein. Hence, for the present, the details of landed price, as submitted by the Petitioner, has been considered. Based on the weighted average price and GCV of coal and oil claimed and allowed for the period 2019-24 are as under:

	Claimed	Approved
Weighted average price of coal (Rs./MT)	2231.09	2230.21
Weighted average GCV of coal (kCal/kg) *	3610.81	3610.81
Weighted average price of oil (Rs./KL)	50432.01	50432.01
Weighted average GCV of oil (kCal/Ltr.)	9829.89	9829.89

* Weighted average GCV of coal as received net of 85 kCal/kg



77. Accordingly, the fuel component in working capital, Energy charges and ECR allowed for the period 2019-24 are as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Cost of Coal - 10 days for stock corresponding to NAPAF	2965.94	2965.94	2965.94	2965.94	2965.94
Cost of Coal - 30 days for generation corresponding to NAPAF	8897.82	8897.82	8897.82	8897.82	8897.82
Cost of secondary fuel oil – 2 months	313.79	312.93	312.93	312.93	313.79
Energy charges for 45 days corresponding to NAPAF	13580.66	13580.66	13580.66	13580.66	13580.66
ECR (Rs. / kWh)	1.578	1.578	1.578	1.578	1.578

78. The Petitioner, on a month to month basis, shall compute and claim the energy charges from the beneficiaries based on formulae given under Regulation 43 of the 2019 Tariff Regulations. Further, in terms of the 2019 Tariff Regulations, the Petitioner is directed to submit the year wise Form-15, excluding the opening stock, along with CIMFR / third party reports, actual blending ratio. In addition, the Petitioner shall furnish the details regarding grade slippages, moisture content, adjustment made, reasons for higher difference in GCV billed and GCV received of domestic coal, loss of GCV in imported coal, justification for claiming diesel charges for coal supplied through Railways, Other charges etc., at the time of truing up of tariff.

Working Capital for Maintenance Spares

79. The Petitioner in Form-O has claimed the maintenance spares in the working capital as under:

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
5005.98	5192.54	5387.19	5590.12	5799.53

80. Regulation 34(1)(a)(iv) of the 2019 Tariff Regulations provide for maintenance spares @ 20% of the O&M expenses. Accordingly, maintenance spares @ 20% of the O&M expenses allowed for the period 2019-24 is as under:



<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
4999.35	5169.60	5337.53	5527.86	5724.23

Working Capital for Receivables

81. Receivables equivalent to two months of capacity charges and energy charges has been worked out duly taking into account mode of operation of the generating station on secondary fuel, is allowed as under:

<i>(Rs. in lakh)</i>					
	2019-20	2020-21	2021-22	2022-23	2023-24
Variable Charges - for 45 days generation corresponding to NAPAF	13580.66	13580.66	13580.66	13580.66	13580.66
Fixed Charges - for 45 days generation corresponding to NAPAF	14746.84	14602.16	14415.65	14347.26	14267.95
Total	28327.51	28182.82	27996.32	27927.92	27848.61

Working Capital for O&M Expenses (1 month)

82. The Petitioner, in Form O, has claimed O&M expenses for 1 month in the working capital as under:

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
2085.82	2163.56	2244.66	2329.22	2416.47

83. For consideration of working capital, O&M expenses of 1 month are to be considered. The normative O&M expenses allowable as per Regulation 34(1) (a) (iv) of the 2019 Tariff Regulations, including water charges and security expenses have been considered as a part of working capital.

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
2083.06	2154.00	2223.97	2303.28	2385.10

84. In line 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 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, 10.50% (i.e., 1 year SBI MCLR of 7.00%



as on 1.4.2021 + 350 bps) for the period 2021-23 and 12.00% (i.e. 1 year SBI MCLR of 8.50% as on 1.4.2023 + 350 bps) for the year 2023-24. Accordingly, Interest on working capital has been computed as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Working capital for Cost of Coal towards Stock (10 days generation corresponding to NAPAF) (A)	2965.94	2965.94	2965.94	2965.94	2965.94
Working capital for Cost of Coal towards Generation (30 days generation corresponding to NAPAF) (B)	8897.82	8897.82	8897.82	8897.82	8897.82
Working capital for Cost of Secondary fuel oil (2 months generation corresponding to NAPAF) (C)	313.79	312.93	312.93	312.93	313.79
Working capital for Maintenance Spares (20% of O&M expenses) (D)	4999.35	5169.60	5337.53	5527.86	5724.23
Working capital for Receivables (45 days of sale of electricity at NAPAF) (E)	28334.40	28203.97	28098.38	28103.66	28022.51
Working capital for O&M expenses (1 month of O&M expenses) (F)	2083.06	2154.00	2223.97	2303.28	2385.10
Total Working Capital (G = A+B+C+D+E+F)	47594.37	47704.27	47836.57	48111.49	48309.39
Rate of Interest (H)	12.05%	11.25%	10.50%	10.50%	12.00%
Interest on Working Capital (I = G x H)	5735.12	5366.73	5022.84	5051.71	5797.13

Annual Fixed Charges for the period 2019-24

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

	<i>(Rs in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	33349.47	33561.75	33955.06	34306.42	34310.89
Interest on Loan	20164.03	17855.54	15688.40	14022.61	11948.77
Return on Equity	35751.69	35979.27	36400.91	36777.58	36782.37
Interest on Working Capital	5735.12	5366.73	5022.84	5051.71	5797.13
O&M Expenses	24996.76	25848.01	26687.64	27639.32	28621.17
Total	119997.07	118611.31	117754.84	117797.65	117460.33

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

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

Application Fee and Publication expenses



87. 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 Respondent MPPMCL submitted that filing and publication fees claimed by Petitioner must form part of O&M expenses being allowed on normative basis and should not be allowed to be recovered from the beneficiaries. The Petitioner in its rejoinder has replied that the claim towards recovery of filing fee and publication expenses from beneficiaries is allowable under Regulation 70(1) of 2019 Tariff Regulations on the discretion of this Hon'ble Commission. 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.

88. 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 recovery of statutory taxes, levies, duties, cess etc. levied by the statutory authorities in accordance with the 2019 Tariff Regulations.

Emission Control Systems

89. The Petitioner submitted that it has filed the present Petition on the basis of norms specified in the 2019 Tariff Regulations. The Petitioner has also submitted is in the process of installing the Emission Control Systems (ECS) in compliance of the Revised Emission Standards as notified by MOEFCC vide notification dated 07.12.2015 as amended from time to time. It has stated that the completion of these schemes in compliance of revised emission norms will affect the station APC, Heat



Rate, O&M expenses etc., and in addition, the availability of the unit/ station would be also affected due to shutdown of the units for installation of ECS. The Petitioner has stated that it would be filing the details of the same in a separate petition in terms of the Regulation 29(4) of the 2019 Tariff Regulations. The tariff of the present Petition would undergo changes consequent to the order of the Commission in the said ECS petition.

90. The Respondent MPPMCL has submitted that there are enough margins available in existing normative APC, heat rate, O&M expenses etc. and therefore, no additional norms may be allowed on account of implementation of ECS. The Respondent CSPDCL while reserving its reply on the ECS Petition to be filed by the Petitioner, has submitted that the Petitioner should align the shut-down of the plant for installation of the ECS equipment along with the annual over hauling of the power plant. It has also submitted that no relaxation in the availability norms should be given to the Petitioner for such shutdown for computation of capacity charges. The Petitioner in its rejoinder, has submitted that the revised emission norms prescribed by the MOEFCC notification dated 7.12.2015 is a statutory mandate to be implemented by the Petitioner. It has also pointed out that in order in Petition No. 98/MP/2017, the Commission has recognized the said notification as 'change in law' event and therefore, any expenditure or revenue loss on account of implementation of ECS is recoverable by the Petitioner. As regards APC and additional O&M expenses, the Petitioner has submitted that the Commission in order dated 28.4.2021 in Petition No. 335/MP/2020 had decided on the APC and additional O&M expense applicability due to installation of ECS at generating stations. As regards availability due to shut down of the generating station for installation of ECS, the Commission in its order dated 28.4.2021 in Petition No. 512/MP/2020 has observed that the issue of



'deemed availability' will be dealt with at the time of determination of tariff on a case to case basis and therefore the issue raised by the Respondents is premature. The Petitioner has also submitted that without prejudice to the above contentions, the Petitioner shall endeavour to plan the integration of ECS with the main plant by synchronizing it with annual overhaul.

91. As per Regulation 29 (4) of the 2019 Tariff Regulations, the Petitioner is required to file a Petition for determination of tariff after completion of implementation of revised emission standards, as reproduced below:

“(4) After completion of the implementation of revised emission standards, the generating company shall file a petition for determination of tariff. Any expenditure incurred or projected to be incurred and admitted by the Commission after prudence check based on reasonableness of the cost and impact on operational parameters shall form the basis of determination of tariff.”

92. Further the Commission has issued the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) (First Amendment) Regulations, 2020 (2020 Amendment Regulations) on 25.8.2020. Accordingly, the supplementary charges for recovery of cost of ECS shall be determined in accordance with the 2020 Amendment Regulations, based on the petition to be filed by the Petitioner and considering the submissions of the Respondents therein.

93. Petition No. 422/GT/2020 is disposed of in terms of the above.

Sd/-
(Pravas Kumar Singh)
Member

Sd/-
(Arun Goyal)
Member

Sd/-
(I. S. Jha)
Member

