

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 427/GT/2020

Coram:

Shri I. S. Jha, Member

Shri Arun Goyal, Member

Shri Pravas Kumar Singh, Member

Date of Order: 7th October, 2022

In the matter of:

Petition for approval of tariff of the Feroze Gandhi Unchahar Thermal Power Station Stage-3 (210 MW) for the period from 1.4.2019 to 31.3.2024.

And

In the matter of

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

.....Petitioner

Vs

1. Uttar Pradesh Power Corporation Limited,
Shakti Bhawan, 14, Ashok Marg
Lucknow – 226 001
2. Rajasthan Urja Vikas Nigam Limited,
(on behalf of Discoms of Rajasthan),
Vidyut Bhawan, Janpath,
Jaipur 302 005
3. Tata Power Delhi Distribution Limited,
Grid Substation, Hudson Road
Kingsway Camp,
New Delhi – 110009
4. BSES Rajdhani Power Limited,
BSES Bhawan, Nehru Place,
New Delhi – 110019
5. BSES Yamuna Power Limited,
Shakti Kiran Building, Karkardooma,
Delhi- 110092



6. Haryana Power Purchase Centre,
Shakti Bhawan, Sector – VI,
Panchkula, Haryana – 134109
7. Punjab State Power Corporation Limited,
The Mall, Patiala – 147001.
8. Himachal Pradesh State Electricity Board Limited,
Kumar Housing Complex Building-II
Vidyut Bhawan, Shimla – 171004.
9. Power Development Department,
Govt. of J&K , Civil Secretariat,
Srinagar
10. Electricity Department,
Union Territory of Chandigarh,
Additional Office Building, Sector-9 D,
Chandigarh.
11. Uttarakhand Power Corporation Limited,
Urja Bhavan, Kanwali Road,
Dehradun – 248001

...Respondents

Parties Present:

Shri Anand K. Ganesan, Advocate, NTPC
Ms. Swapna Seshadri, Advocate, NTPC
Ms. Ritu Apurva, Advocate, NTPC
Ms. Ashabari Basu Thakur, Advocate, NTPC
Shri R.B. Sharma, Advocate, BRPL
Ms. Megha Bajpeyi, BRPL
Shri Mansoor Ali Shoket, Advocate, TPDDL
Shri Nitin Kala, Advocate, TPDDL
Shri Kunal Singh, Advocate, TPDDL
Shri Aditya Ajay, Advocate, BYPL
Shri Rahul Kinra, Advocate, BYPL
Shri Hemant Khera, Advocate, BYPL

ORDER

This petition has been filed by the Petitioner, NTPC Limited for determination of tariff of Feroze Gandhi Unchahar Thermal Power Station Stage-3 (1x210 MW) (hereinafter referred to as ‘the generating station’) for the period from 1.4.2019 to 31.3.2024, in accordance with the provisions of the Central Electricity Regulatory



Commission (Terms & Conditions of Tariff) Regulations, 2019 (hereinafter referred to as 'the 2019 Tariff Regulations').

2. The generating station comprises of one unit of 210 MW capacity with the date of commercial operation as 1.1.2007. The Commission vide its order dated 1.10.2022 in Petition No. 287/GT/2020 had revised capital cost and annual fixed charges of the generating station for the 2014-19 tariff period, as under:

Capital Cost allowed

	<i>(Rs. in lakh)</i>				
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	87440.43	87776.67	87786.71	88771.16	89093.02
Add: Admitted Additional capital expenditure	336.24	10.05	984.44	321.87	(-)412.06
Closing Capital cost	87776.67	87786.71	88771.16	89093.02	88680.96
Average Capital cost	87608.55	87781.69	88278.93	88932.09	88886.99

Annual Fixed Charges allowed

	<i>(Rs. in lakh)</i>				
	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	4559.44	4567.46	4588.77	4619.90	4617.53
Interest on Loan	2244.50	1918.45	1625.30	1301.36	924.43
Return on Equity	5154.01	5189.21	5218.61	5257.22	5268.69
Interest on Working Capital	2291.60	2310.29	2318.12	2376.88	2389.05
O&M Expenses	5157.77	5525.16	5778.98	6152.21	6485.11
Special Allowance	0.00	0.00	0.00	42.00	42.00
Total	19407.32	19510.57	19529.78	19749.58	19726.81

Present Petition

3. The Petitioner has filed the present petition for determination of tariff for the generating station for the 2019-24 tariff period, in terms of the provisions of the 2019 Tariff Regulations and has claimed the capital cost and annual fixed charges as under:

Capital cost claimed

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Opening capital cost	88708.13	88749.71	88794.54	89095.04	89095.04
Add: Addition during the year/period	41.58	44.83	300.50	0.00	0.00
Closing Capital Cost	88749.71	88794.54	89095.04	89095.04	89095.04



	2019-20	2020-21	2021-22	2022-23	2023-24
Average Capital Cost	88728.92	88772.13	88944.79	89095.04	89095.04

Annual Fixed Charges claimed

	2019-20	2020-21	2021-22	2022-23	2023-24
					<i>(Rs. in lakh)</i>
Depreciation	1975.44	1978.75	1993.20	2007.07	2007.07
Interest on Loan	663.99	486.81	304.91	117.66	9.01
Return on Equity	4999.52	5001.95	5011.68	5020.15	5020.15
Interest on Working Capital	1853.36	1866.10	1878.93	1892.56	1906.95
O&M Expenses	7498.54	7793.09	8098.98	8423.04	8759.53
Annual Fixed Charges	16990.84	17126.70	17287.70	17460.49	17702.72

4. The Respondent No.1, UPPCL has filed its reply vide affidavits dated 31.7.2020 and 28.8.2021 and the Petitioner has filed its rejoinder to the said replies, vide affidavits dated 15.12.2020 and 29.10.2021 respectively. The Petitioner has also filed certain additional information vide affidavits dated 13.5.2021, 24.6.2021 and 11.4.2022. The Petition was heard on 15.3.2022, 19.5.2022 and 14.7.2022. In response to the directions of the Commission vide ROP of the hearing dated 15.3.2022, the Petitioner vide affidavit dated 11.4.2022 has filed the additional information, after serving copies to the Respondents. The Respondents, BRPL and BYPL have filed their replies on 15.3.2022 and the Petitioner has filed its rejoinder to the same vide affidavit dated 22.4.2022. The Petition was thereafter heard on 14.7.2022 and the Commission, after seeking certain additional information and directing the parties, to complete pleadings, reserved its order in the matter. In response, the Petitioner vide affidavit dated 25.7.2022 has filed the additional information after serving copies on the Respondents. Based on the submissions of the parties and the documents available on record, we proceed for determination of tariff for the generating station for the 2019-24 tariff period as stated in the subsequent paragraphs.



Capital Cost

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

- (a) *Capital cost admitted by the Commission prior to 1.4.2019 duly trued up by excluding liability, if any, as on 1.4.2019;*
- (b) *Additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with these regulations;*
- (c) *Capital expenditure on account of renovation and modernization as admitted by this Commission in accordance with these regulations;*
- (c) *Capital expenditure on account of ash disposal and utilization including handling and transportation facility;*
- (d) *Capital expenditure incurred towards railway infrastructure and its augmentation for transportation of coal upto the receiving end of generating station but does not include the transportation cost and any other appurtenant cost paid to the railway; and*
- (f) *Capital cost incurred or projected to be incurred by a thermal generating station, on account of implementation of the norms under Perform, Achieve and Trade (PAT) scheme of Government of India shall be considered by the Commission subject to sharing of benefits accrued under the PAT scheme with the beneficiaries.*

6. The Commission vide its order dated 1.10.2022 in Petition No. 287/GT/2020 had allowed the closing capital cost of Rs. 88680.96 lakh as on 31.3.2019. Accordingly, in terms of Regulation 19(3) of the 2019 Tariff Regulations, the capital cost of Rs. 88680.96 lakh as on 31.3.2019 (after removal of un-discharged liabilities of Rs. 1168.98 lakh) has been considered as the opening capital cost as on 1.4.2019, on cash basis, for the purpose of determination of tariff for the 2019-24 tariff period.

Additional Capital Expenditure

7. Regulations 25 and 26 of the 2019 Tariff Regulations provides that the application for determination of tariff shall be based on admitted capital cost, including any additional capital expenditure already admitted up to 31.3.2019 (either based on actual or projected additional capital expenditure) and estimated additional capital expenditure for the respective years of the 2019- 24 tariff period. Clauses (1) and (2) of Regulations 25 and Regulation 26 of the 2019 Tariff Regulations, provides as under:



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

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

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

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

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

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

(e) Force Majeure events;

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

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

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

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

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

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

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

26. Additional Capitalisation beyond the original scope

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

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

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

(c) Force Majeure events;

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

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



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

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

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

8. The year-wise projected additional capital expenditure claimed by the Petitioner for the 2019-24 tariff period are as under:

<i>(Rs. in lakh)</i>						
Head of Work /Equipment	Regulation	2019-20	2020-21	2021-22	2022-23	2023-24
Online Coal Analyser	26(1)(b)	23.00	7.67	0.00	0.00	0.00
Replacement of Chlorine System by CLO2	26(1)(b) & 26(1)(d)	18.58	37.16	300.50	0.00	0.00
Total Projected additional capital expenditure claimed		41.58	44.83	300.50	0.00	0.00

(a) Online Coal Analyser

9. The Petitioner has claimed projected additional capital expenditure of Rs. 30.67 lakh (i.e. Rs. 23.00 lakh in 2019-20 and Rs. 7.67 lakh in 2020-21) towards online coal analyser during 2019-21 under Regulation 26(1)(b) of the 2019 Tariff Regulations. The Petitioner has furnished copy of the Office Memorandum (OM) dated 26.8.2015 of Ministry of Environment, Forest and Climate Change (MOEF&CC), which mandated all coal based thermal power plants with installed capacity of 100 MW and above, located at a distance of 500 km and above from coal source, for sampling and analysis of coal and reporting of compliance in respect of use and supply of raw or blended coal with ash content not exceeding 34% as content in coal. The Petitioner has further submitted that the said OM directs real time monitoring, using auto mechanical sampling (online) from moving stream of coal used for sampling fuels. The Petitioner has also submitted



that as the generating station is located at about 600-700 km from the linked mines and also source coal from other mines, under flexible coal utilization scheme, it is obligated to incur the expenditure for installation of 'Online coal analyser' to comply with the MOEF&CC directions and has prayed that claim may be allowed under change in law.

10. The Respondents, BYPL and BRPL have submitted that the Petitioner has not submitted any justification / information for claiming the said additional expenditure during the 2019-24 tariff period i.e., almost three (3) years after the date of compliance. Accordingly, in the absence of detailed justification / requisite information, the proposed additional expenditure towards Online Coal Analysers may be rejected. In response, the Petitioner has clarified that that the additional capital expenditure claimed is required in compliance to the MoEF&CC notification dated 26.8.2015 and therefore, has prayed that the said work is uncontrollable in nature and may be allowed under change in law in terms of Regulation 26(1)(b) of the 2019 Tariff Regulations.

11. The matter has been considered. It is observed that the OM dated 26.8.2015 of MOEF&CC, makes it mandatory for all coal-based thermal power plants with an installed capacity of 100 MW & above and located at a distance of 500 km & above from coal source, to have coal with ash content less than 34% and the same shall be complied by sampling and analysis of the coal. As regards Ash content monitoring, the said OM provides for the following:

"5.0 Ash content monitoring (sampling and analysis) technique of coal:

Coal is highly heterogeneous in nature consisting of particles of various shapes and sizes each having different physical characteristics, chemical properties and residual ash content: Sampling is further complicated by the sampling equipment available, the quantity to be represented by the sample mass, and the degree of precision required. In addition, the coal to be sampled may be a blend of different coal types and how the coal is blended has a profound effect on the way a representative sample is obtained. National and international standards have been developed to provide guidelines for coal sampling procedures under different conditions, sample preparation and bias test procedures for the purpose of obtaining unbiased samples.



Real Time monitoring using auto mechanical sampling (online) from moving streams shall be used for sampling fuels. This shall be effective from a date not later than 01 September, 2016 in order to enable the Coal Companies and thermal power plants to install and operationalise the real time monitoring system. Manual sampling and analysis may be done so as to verify the online monitoring results.

*In case of manual monitoring, coal samples may be taken from a moving conveyor belt since sampling from stationary coal such as a coal storage pile or railcars may be problematic. **The analysis of samples shall be carried out by third party appointed by the respective thermal power plant/coal mine or company, as applicable, as per the guidelines of Coal Controller.***

12. It is observed that the Petitioner, in terms of the above guidelines, has been mandated to have a system for monitoring of coal through a third-party agency i.e. CIMPFR, in the present case. However, the Petitioner has not submitted any reason for the Procurement of Online Coal Analyser and has also not submitted complete details. For this reason, we are not inclined to allow the projected additional capital expenditure claimed for the said item/asset, at this stage. However, the Petitioner is directed to furnish, at the time of truing-up of tariff, complete details, in respect of the working of 'Online Coal Analysers', including the coal parameters measured and details as to how the said analyzers are better than the existing conventional laboratory methods to measure coal quality parameters. The detailed note shall also indicate the reasons for the Petitioner to defer the procurement of these analyzers for about five years, from the date of the said OM.

(b) Replacement of Chlorine System by CLO₂

13. The Petitioner has claimed projected additional capital expenditure for Rs. 356.24 lakh during 2019-22 (i.e. Rs. 18.58 lakh in 2019-20, Rs. 37.16 lakh in 2020-21 and Rs. 300.50 lakh in 2021-22) towards the Replacement of Chlorine System by CLO₂ under Regulation 26(1)(b) and Regulation 26(1)(d) of the 2019 Tariff Regulations. In justification of the same, the Petitioner has submitted that chlorine gas is being dozed directly at various stages of water treatment to maintain water quality and to inhibit



organic growth in the water retaining structures/ equipment such as clarifiers, storage tanks, cooling towers, condenser tubes & 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. CLO₂ generated at site, avoids handling and storage risk. Further, at Kudgi NTPC project, Department of Factories, Boiler, Industrial Safety and Health, Government of Karnataka had asked NTPC to consider replacement of highly hazardous gas chlorination system with CLO₂ system. SPCB, Odisha while issuing consent to establish in case of Darlipalli Station had 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 O&M personnel, the Petitioner has considered replacing the chlorination system with CLO₂ system.

14. The Respondent, UPPCL has submitted that the replacement is not on account of policy/Law or direction of Central or State Government and the corresponding decapitalization has also not been adjusted. It has further submitted that the Petitioner may be directed to provide the details of original gross block to determine the decapitalization amount along with the evidence of commissioning of CLO₂ system, to determine the year of capitalization for purpose of tariff. It has also stated that the expenditure does not qualify as change in law and may therefore be disallowed, if the



Petitioner does not furnish any details based on which claim is allowable under change in law. In response, the Petitioner has clarified as follows:

- i. The work is claimed not only under Regulation 26(1)(b) but also under Regulation 26(1)(d) of the 2019 Tariff Regulations. Further, it is 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 the water retaining structures/ equipment such as clarifiers, storage tanks, cooling towers, condenser tubes & piping etc. Chlorine dosing is done from chlorine stored in cylinders/ tonners.
- ii. Further, 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. Therefore, in the interest of public safety, the chlorine dozing system is now being replaced by Chlorine Dioxide ('CLO2') system, which is much safer and less hazardous than chlorine.
- iii. In the proposed scheme, CLO2 shall be produced on site by use of commercial grade HCl and sodium chlorite. CLO2 generated at site, avoids handling and storage risk. Further, at Kudgi NTPC project, the Department of factories, boiler, industrial safety and health, Government of Karnataka had directed NTPC to replace highly hazardous gas chlorination system with CLO2 system. The SPCB, Odisha in case of Darlipalli Station, while issuing consent to establish had asked NTPC to explore the possibility of installing CLO2 system instead of Chlorine gas system. In this regard, the Petitioner has submitted the relevant documentary evidence. Both the above authorities are statutory authorities and have advised the Petitioner to replace the existing chlorination system. The same amounts to a direction / law and is being done in this generating station as well.
- iv. Further, the Petitioner has submitted that notional de-capitalization value of the old Chlorination system may be considered at this stage subject to actual decapitalization details which will be provided by NTPC at the time of truing-up of tariff for 2019-24 period.

15. The Respondents, BRPL and BYPL have submitted that none of the letters (i.e. those issued by the State Pollution Control Board, Odisha and the Government of Karnataka) referred by the Petitioner pertain to the State of Uttar Pradesh, and hence the claim may be disallowed. They have also submitted that there is no change in law event which has occurred to allow the said additional capital expenditure under Regulation 26(1)(b) of the 2019 Tariff Regulations. These Respondents have also



stated that the Petitioner has not placed on record any documentary evidence to show that there is requirement of CLO2 plant as a measure for higher security and safety of the generating station in terms of Regulations 26(1)(d) of the 2019 Tariff Regulations.

In response, the Petitioner has submitted as follows:

- i. The generating company is one of the largest generators of electricity in the country and it follows best practices and hence, such measures are taken for the benefit of beneficiaries and the project. So, a generating company will not be in a position to function in a smooth and uninterrupted manner until such costs are recognized in the tariff determination process.
- ii. In order to avoid the hazards of chlorine gas leakage, the Petitioner has taken the decision to install CLO2 package in all its generating plants. This expenditure is allowable both under Regulation 26(1)(b) and 26(1)(d) of the 2019 Tariff Regulations.
- iii. Further, the letters of the respective State Pollution Control Board of Karnataka and Orissa have been cited as specific examples of statutory authorities who issue directions in the case of certain generating stations. This itself qualifies the expenditure on CLO2 plant as one necessary for safety and security of the generating station contemplated in Regulation 26(1)(d) of the 2019 Tariff Regulations. It has already produced sufficient documentary evidence to prove that there is requirement of CLO2 plant as a measure for higher security and safety and the same cost has been claimed in several generating stations of the Petitioner.
- iv. Also, the Hon'ble Supreme Court (*in Gulf Goan Hotels Co. Ltd. vs. Union of India (2014 (10) SCC 673*) has examined the width of the notification/letter issued by any government department and what could be the legal binding of such documents. Further, the Petitioner has highlighted similar cases wherein the Hon'ble ATE (*in NTPC vs CERC & Ors in Appeal 125 of 2017 vide Order dated 19.5.2019*) has understood the importance of additional safety and security of projects and has allowed the additional capitalization for the same.
- v. Further, the "Draft Safety, Health and Working Conditions Code 2018" was put up by 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 requirement of installation & commissioning of the CLO2 system for safety reasons and as "The Occupational Safety, Health and Working Conditions Code, 2020" was



notified by Ministry of Law & Justice, GoI vide Gazette Notification dated 29.9.2020, the Petitioner has decided to implement CLO₂ system, in line with the duties necessitated in the said Code.

16. The matter has been considered. 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 23.9.2013 issued by the Directorate of Factories, Industrial Safety & Health, Government of Karnataka pertains to site clearance of Kudgi Super Thermal Power station of the Petitioner. However, the said 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 (FGUTPS Stage-3) warranting the additional capital 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 for implementation of this item i.e. (chlorine dosing system to be replaced by CLO₂ system) for safety and security of the generating station. Accordingly, the projected additional capital expenditure towards replacement of Chlorine System by CLO₂ as claimed by the Petitioner is not allowed.

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

		<i>(Rs. in lakh)</i>					
		2019-20	2020-21	2021-22	2022-23	2023-24	Total
Online Coal Analyzer (A)	Claimed	23.00	7.67	0.00	0.00	0.00	30.67
	Approved	0.00	0.00	0.00	0.00	0.00	0.00
Replacement of Chlorine System by CLO ₂ (B)	Claimed	18.58	37.16	300.50	0.00	0.00	356.24
	Approved	0.00	0.00	0.00	0.00	0.00	0.00
Total Additional Capital Expenditure (C=A+B)	Claimed	41.58	44.83	300.50	0.00	0.00	386.91
	Approved	0.00	0.00	0.00	0.00	0.00	0.00



Capital cost allowed

18. As stated earlier, the closing capital cost of Rs. 88680.96 lakh as on 31.3.2019, as approved by order dated 1.10.2022 in Petition No.287/GT/2020 has been considered as the opening capital cost as on 1.4.2019. As such, the capital cost allowed for the purpose of tariff for the 2019-24 tariff period is as follows:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Capital Cost (A)	88680.96	88680.96	88680.96	88680.96	88680.96
Add: Admitted Additional capital expenditure (B)	0.00	0.00	0.00	0.00	0.00
Closing Capital Cost (C) = (A+B)	88680.96	88680.96	88680.96	88680.96	88680.96
Average Capital cost (D) = (A+C)/2	88680.96	88680.96	88680.96	88680.96	88680.96

Debt-Equity Ratio

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

“18. Debt-Equity Ratio: (1) For new projects, the debt-equity ratio of 70:30 as on date of commercial operation shall be considered. If the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:

Provided that:

- i. where equity actually deployed is less than 30% of the capital cost, actual equity shall be considered for determination of tariff:*
- ii. the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:*
- iii. any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of debt: equity ratio.*

Explanation-The premium, if any, raised by the generating company or the transmission licensee, as the case may be, while issuing share capital and investment of internal resources created out of its free reserve, for the funding of the project, shall be reckoned as paid up capital for the purpose of computing return on equity, only if such premium amount and internal resources are actually utilised for meeting the capital expenditure of the generating station or the transmission system.

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

(3) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2019, debt: equity ratio allowed



by the Commission for determination of tariff for the period ending 31.3.2019 shall be considered:

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

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

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

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

20. The Commission vide its order dated 1.10.2022 in Petition No. 287/GT/2020 has considered gross loan and equity of Rs. 62076.67 lakh and Rs. 26604.29 lakh respectively as on 31.3.2019. Accordingly, the gross loan and equity amounting to Rs. 62076.67 lakh and Rs. 26604.29 lakh has been considered as gross loan and equity as on 1.4.2019. Accordingly, debt-equity is worked out as under:

(Rs. in lakh)

Funding	Capital cost upto COD / 1.4.2019		Capital cost as on 31.3.2024	
	Amount	(%)	Amount	(%)
Debt (A)	62076.67	70.00%	62076.67	70.00%
Equity (B)	26604.29	30.00%	26604.29	30.00%
Total (C) = (A) + (B)	88680.96	100.00%	88680.96	100.00%

Return on Equity

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

“30. Return on Equity:

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



(2) Return on equity shall be computed at the base rate of 15.50% for thermal generating station, transmission system including communication system and run-of-river hydro generating station, and at the base rate of 16.50% for the storage type hydro generating stations including pumped storage hydro generating stations and run-of-river generating station with pondage:

Provided that return on equity in respect of additional capitalization after cut-off date beyond the original scope shall be computed at the weighted average rate of interest on actual loan portfolio of the generating station or the transmission system

Provided further that:

In case of a new project, the rate of return on equity shall be reduced by 1.00% for such period as may be decided by the Commission, if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO) or Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system based on the report submitted by the respective RLDC;

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

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

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

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

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

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

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

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

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

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

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

(3) The generating company or the transmission licensee, as the case may be, shall true up the grossed up rate of return on equity at the end of every financial year based on actual tax paid together with any additional tax demand including interest thereon, duly adjusted for any refund of tax including interest received from the income tax authorities pertaining to the tariff period 2019-24 on actual gross income of any financial year. However, penalty, if any, arising on account of delay in deposit or short deposit of tax amount shall not be claimed by the generating company or the transmission licensee, as the case may be. Any under-recovery or over-recovery of grossed up rate on return on equity after trueing up, shall be recovered or refunded to beneficiaries or the long term customers, as the case may be, on year to year basis."

22. Regulation 31(3) of the 2019 Tariff Regulation provides for grossing up of Return on Equity (ROE) with effective tax rate during the 2019-24 tariff period. The ROE for the existing asset base allowed in this order for asset/works, within the original scope of work, has been calculated by grossing up of base ROE, at MAT rate of 17.472%, as submitted by the Petitioner. Accordingly, ROE has been allowed based on projected additional capital expenditure allowed as under:

	<i>(Rs. in lakh)</i>				
Particulars	2019-20	2020-21	2021-22	2022-23	2023-24
Normative Equity-Opening (A)	26604.29	26604.29	26604.29	26604.29	26604.29
Addition of Equity due to additional capital expenditure (B)	0.00	0.00	0.00	0.00	0.00
Normative Equity-Closing (C) = (A) + (B)	26604.29	26604.29	26604.29	26604.29	26604.29
Average Normative Equity (D) = (A+C)/2	26604.29	26604.29	26604.29	26604.29	26604.29
Return on Equity (Base Rate) (E)	15.500%	15.500%	15.500%	15.500%	15.500%
Effective Tax Rate (F)	17.472%	17.472%	17.472%	17.472%	17.472%
Rate of Return on Equity (Pre Tax) (G) = (E)/(1-F)	18.782%	18.782%	18.782%	18.782%	18.782%
Return on Equity (Pre Tax) annualised (H) = (D)x(G)	4996.82	4996.82	4996.82	4996.82	4996.82



Interest on Loan

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

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

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

The repayment for each of the year of the tariff period 2019-24 shall be deemed to be equal to the depreciation allowed for the corresponding year/period. In case of de-capitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered upto the date of de-capitalisation of such asset.

Notwithstanding any moratorium period availed by the generating company or the transmission licensee, as the case may be, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the depreciation allowed for the year or part of the year.

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

Provided that if there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average rate of interest shall be considered;

Provided further that if the generating station or the transmission system, as the case may be, does not have actual loan, then the weighted average rate of interest of the generating company or the transmission licensee as a whole shall be considered.

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

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

24. Interest on loan has been computed as under:

- (i) The gross normative loan amounting to Rs. 62076.67 lakh as on 31.3.2019 as considered in order dated 1.10.2022 in Petition No. 287/GT/2020 has been considered as on 1.4.2019;
- (ii) Cumulative repayment amounting to Rs. 54526.29 lakh as on 31.3.2019 as considered in order dated 1.10.2022 in Petition No. 287/GT/2020 has been considered as on 1.4.2019;
- (iii) Accordingly, the net normative opening loan as on 1.4.2019 works out to as Rs. 7550.38 lakh;



(iv) Depreciation allowed has been considered as repayment of normative loan during the respective years of the 2019-24 tariff period.

25. The Petitioner has claimed interest on loan by applying the weighted average rate of interest of 9.6304%, 9.8389%, 9.8908%, 9.9060 and 9.7793% for the years from 2019-20 to 2023-24. The same has been considered for the purpose of tariff. The Petitioner, is however, directed to submit documentary evidence for the rate of interest considered in Form-13 and repayment schedule of loan, at the time of truing up of tariff. Interest on loan has been worked out as follows:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Gross opening loan (A)	62076.67	62076.67	62076.67	62076.67	62076.67
Cumulative repayment of loan upto previous year (B)	54526.29	56501.91	58477.54	60453.16	62076.67
Net Loan Opening (C) = (A) - (B)	7550.38	5574.76	3599.14	1623.51	0.00
Addition due to additional capital expenditure (D)	0.00	0.00	0.00	0.00	0.00
Repayment of Loan during the period (E)	1975.62	1975.62	1975.62	1623.51	0.00
Less: Repayment adjustment on a/c of de-capitalization (F)	0.00	0.00	0.00	0.00	0.00
Net Repayment of Loan during the period (G) = (E) - (F)	1975.62	1975.62	1975.62	1623.51	0.00
Net Loan Closing (H) =(C) +(D) -(G)	5574.76	3599.14	1623.51	0.00	0.00
Average Loan (I) = (C+H)/2	6562.57	4586.95	2611.33	811.76	0.00
Weighted Average Rate of Interest on loan (J)	9.6304%	9.8389%	9.8908%	9.9060%	9.7793%
Interest on Loan (K) = (I)*(J)	632.00	451.31	258.28	80.41	0.00

Depreciation

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

“33. Depreciation: (1) Depreciation shall be computed from the date of commercial operation of a generating station or unit thereof or a transmission system or element thereof including communication system. In case of the tariff of all the units of a generating station or all elements of a transmission system including communication system for which a single tariff needs to be determined, the depreciation shall be computed from the effective date of commercial operation of the generating station or the transmission system taking into consideration the depreciation of individual units:

Provided that effective date of commercial operation shall be worked out by considering



the actual date of commercial operation and installed capacity of all the units of the generating station or capital cost of all elements of the transmission system, for which single tariff needs to be determined.

The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission. In case of multiple units of a generating station or multiple elements of a transmission system, weighted average life for the generating station of the transmission system shall be applied. Depreciation shall be chargeable from the first year of commercial operation. In case of commercial operation of the asset for part of the year, depreciation shall be charged on pro rata basis.

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

Provided that the salvage value for IT equipment and software shall be considered as NIL and 100% value of the assets shall be considered depreciable;

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

Provided also that the capital cost of the assets of the hydro generating station for the purpose of computation of depreciated value shall correspond to the percentage of sale of electricity under long-term power purchase agreement at regulated tariff:

Provided also that any depreciation disallowed on account of lower availability of the generating station or unit or transmission system as the case may be, shall not be allowed to be recovered at a later stage during the useful life or the extended life.

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

Depreciation shall be calculated annually based on Straight Line Method and at rates specified in Appendix-I to these regulations for the assets of the generating station and transmission system:

Provided that the remaining depreciable value as on 31st March of the year closing after a period of 12 years from the effective date of commercial operation of the station shall be spread over the balance useful life of the assets.

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

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

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



its useful services.”

27. Accordingly, cumulative depreciation amounting to Rs. 54623.67 lakh as on 31.3.2019 as considered in order dated 1.10.2022 in Petition No. 287/GT/2020 has been considered for the purpose of tariff. The balance depreciable value (before providing depreciation) for 2019-20 works out to Rs. 25189.20 lakh. Since, as on 1.4.2019, the used life of the generating station is 12.25 years, which is more than 12 years from the effective station COD of 1.1.2007, depreciation has been spread over the remaining useful life of the asset for the 2019-24 tariff period. Accordingly, depreciation has been worked out and allowed as follows:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Average Capital Cost (A)	88680.96	88680.96	88680.96	88680.96	88680.96
Value of freehold land included in average capital cost (B)	0.00	0.00	0.00	0.00	0.00
Value of software and IT equipment included in average capital cost (C)*	0.00	0.00	0.00	0.00	0.00
Aggregated Depreciable Value (D)= (A-B-C)x90%+ (C)	79812.87	79812.87	79812.87	79812.87	79812.87
Remaining aggregate depreciable value at the beginning of the year (E) = (D) – Cumulative depreciation at the end of the preceding period, shown at (L)	25189.20	23213.58	21237.95	19262.33	17286.71
No. of completed years at the beginning of the year (F)	12.25	13.25	14.25	15.25	16.25
Balance useful life at the beginning of the year (G) = 25 - (F)	12.75	11.75	10.75	9.75	8.75
Combined Depreciation during the year/ period (H) = (E) / (G)	1975.62	1975.62	1975.62	1975.62	1975.62
Combined Depreciation during the year/ period (annualized) (I) = (H)	1975.62	1975.62	1975.62	1975.62	1975.62
Cumulative depreciation at the end of the year (before adjustment for de-capitalisation) (J) = (I) + (Cumulative Depreciation (shown at M), at the end of the previous year)	56599.29	58574.92	60550.54	62526.16	64501.79
Less: Depreciation adjustment on account of de-capitalisation (K)	0.00	0.00	0.00	0.00	0.00
Cumulative depreciation at the end of the year (L)** = (J) - (K)	56599.29	58574.92	60550.54	62526.16	64501.79

* As per the Petitioner submissions, the details of IT Equipment will be provided at the time of truing up

**The cumulative depreciation at the end of 2018-19 is Rs.54623.67 lakh.



O&M Expenses

28. Regulation 35(1)(1) of the 2019 Tariff Regulations provides as follows:

“(35)(1) Thermal Generating Station: Normative Operation and Maintenance expenses of thermal generating stations shall be as follows:

(1) Coal based and lignite fired (including those based on Circulating Fluidised Bed Combustion (CFBC) technology) generating stations, other than the generating stations or units referred to in clauses (2), (4) and (5) of this Regulation:

(in Rs lakh/MW)

Year	200/210/ 250 MW Series	300/ 330/ 350 MW Series	500 MW Series	600 MW Series	800 MW Series and above
FY 2019-20	32.96	27.74	22.51	20.26	18.23
FY 2020-21	34.12	28.71	23.30	20.97	18.87
FY 2021-22	35.31	29.72	24.12	21.71	19.54
FY 2022-23	36.56	30.76	24.97	22.47	20.22
FY 2023-24	37.84	31.84	25.84	23.26	20.93

Provided that where the date of commercial operation of any additional unit(s) of a generating station after first four units occurs on or after 1.4.2019, the O&M expenses of such additional unit(s) shall be admissible at 90% of the operation and maintenance expenses as specified above;

xxx

Provided also that operation and maintenance expenses of generating station having unit size of less than 200 MW not covered above shall be determined on case to case basis.

29. The Petitioner has claimed normative O&M expenses in Form 3A as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
6921.60	7165.20	7415.10	7677.60	7946.40

30. The normative O&M expenses as claimed by the Petitioner has been allowed for the purpose of tariff computation.



Water Charges

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

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

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

xxxxx.”

32. The actual water charges claimed by the Petitioner and allowed by order dated 1.10.2022 in Petition No. 287/GT/2020 for the 2014-19 tariff period are as follows:

(Rs. in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
108.80	116.92	108.98	125.21	78.01

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

Description	Remarks
Type of Plant	Coal Based
Type of cooling water system	Closed Cycle
Consumption of Water	224885030 Cubic Feet
Rate of Water charges	Rs. 12.48 per 1000 Cubic Feet
Rate of Royalty	Rs. 6 lakhs per cusec per year
Total Water Charges	Rs. 78.01 lakhs

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

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
62.17	62.17	62.17	62.17	62.17

35. The Petitioner vide additional submission dated 23.6.2021 has submitted the actual water charges of Rs. 72.72 lakh incurred in 2019-20 and the same is considered.



Further, the water charges for the period 2020-24 has been allowed, after escalating the actual water charges for 2019-20 by 5%. However, the Petitioner is directed to furnish the details of actual water consumption (in cubic meters) and rate (Rs/ Cubic meter) at the time of truing up of tariff. The water charges allowed for the 2019-24 tariff period are summarized as follows:

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
72.72	76.36	80.17	84.18	88.39

Security Charges

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

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

Xxxx

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

xxx”

37. The Petitioner has claimed total security expenses of Rs. 3136.41 lakh (i.e. Rs. 514.76 lakh in 2019-20, Rs. 565.71 lakh in 2020-21, Rs. 621.70 lakh in 2021-22, Rs. 683.27 lakh in 2022-23 and Rs. 750.96 lakh in 2023-24) for the 2019-24 tariff period, in terms of the second proviso to Regulation 35(1)(6) of the 2019 Tariff Regulations. It has, however, not furnished any justification and the assessment of security, for the expenses claimed. It is further observed that the Petitioner vide additional submission dated 24.6.2021 has submitted actual security expenses of Rs. 454.51 lakh in 2019-20 and Rs. 476.64 lakh in 2020-21. Accordingly, we have considered the actual security expenses as claimed by the Petitioner for 2019-20 and 2020-21. Thereafter, for the years 2021-22, 2022-23 and 2023-24, the Security expenses have been allowed, after



escalating the actual security expenses for 2020-21 by 5%. However, the Petitioner shall, at the time of truing up, furnish the actual security expenses incurred along with proper justification and assessment in terms of Regulation 35(1)(6) of the 2019 Tariff Regulations. Accordingly, the Security charges allowed for the 2019-24 tariff period are summarized as follows:

<i>(in Rs. lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
454.51	476.64	500.47	525.50	551.77

Capital spares

38. The Petitioner has not claimed any capital spares, on projection basis, during the 2019-24 tariff period and has submitted that the same shall be claimed at the time of truing up of tariff, in terms of the last proviso to Regulation 35(1)(6) of the 2019 Tariff Regulations, based on actual consumption of spares. The claim of the Petitioner, if any, at the time of truing-up, of tariff, shall be considered on merits, after prudence check.

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

<i>(Rs. in lakh)</i>						
		2019-20	2020-21	2021-22	2022-23	2023-24
O&M Expenses (in Rs lakh) (A)	Claimed	6921.60	7165.20	7415.10	7677.60	7946.40
	Allowed	6921.60	7165.20	7415.10	7677.60	7946.40
Water Charges (in Rs lakh) (B)	Claimed	62.17	62.17	62.17	62.17	62.17
	Allowed	72.72	76.36	80.17	84.18	88.39
Security Expenses (in Rs lakh) (C)	Claimed	514.76	565.71	621.70	683.27	750.96
	Allowed	454.51	476.64	500.47	525.50	551.77
Total O&M Expenses as allowed (including Water Charges and Capital Spares Consumed) (D) = (A+B+C)	Claimed	7498.54	7793.09	8098.98	8423.04	8759.53
	Allowed	7448.83	7718.20	7995.75	8287.28	8586.56



Fly Ash Transportation charges

40. The Petitioner, in the main petition, has not claimed expenditure towards fly ash transportation. However, the Petitioner vide its affidavit dated 13.5.2021 has claimed the actual expenditure of Rs.1014 lakh and Rs.1963 lakh for 2019-20 and 2020-21 respectively. Further, the Petitioner has submitted that it has claimed the projected expenses to be incurred due to the transportation of fly ash for the 2021-22 to 2023-24 (but has not indicated projected expenses for 2021-22). The Petitioner has projected Rs. 1416.08 lakh for 2022-23 and Rs. 1429.99 lakh for 2023-24. The Petitioner has prayed to allow above fly ash transportation charges for the 2019-24 tariff period. The Petitioner has submitted that to avoid the interest payment liability of the beneficiaries, the Petitioner may be allowed 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.

41. The matter has been considered. We note that the Petitioner has filed Petition No. 205/MP/2021 seeking reimbursement of fly ash transportation charges in respect of its generating stations for the period 2019-24 and the Commission vide its order dated 28.5.2022 has 'admitted' the petition and the matter, has been heard on merits and order has been reserved on 11.7.2022. Therefore, the reimbursement of charges towards fly ash transportation has not been considered in this order and shall, be governed by the decision of the Commission in Petition No. 205/MP/2021.

Operational Norms

42. The operational norms considered by the Petitioner in Form-3 of the petition is as follows:



Normative Annual Plant Availability Factor (NAPAF) %	85.00
Gross Station Heat Rate (kcal/kwh)	2430.00
Auxiliary Power Consumption %	9.00
Specific Oil Consumption (ml/kwh)	0.50

(a) Normative Annual Plant Availability Factor

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

(A) Normative Annual Plant Availability Factor (NAPAF)
(a) For all thermal generating stations, except those covered under clauses (b), (c), (d), & (e) - 85%.

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

(b) Station Heat Rate

45. Regulation 49(C)(a)(i) of the 2019 Tariff Regulations provides as follows:

“(C) Gross Station Heat Rate: (a) Existing Thermal Generating Stations (i) For existing Coal-based Thermal Generating Stations, other than those covered under clauses (ii) and (iii) below:

200/210/250 MW Sets	500 MW Sets (Sub-critical)
2430kCal/kWh	2390 kCal/kWh

46. The Petitioner has considered the Gross Station Heat Rate of 2430 kCal/ kWh as per Regulation 49(C)(a)(i) of the 2019 Tariff Regulations and therefore, same has been considered for the purpose of tariff.

(c) Auxiliary Power Consumption:

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

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



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

Provided that for thermal generating stations with induced draft cooling towers and where tube type coal mill is used, the norms shall be further increased by 0.5% and 0.8% respectively:

48. The generating station is a 210 MW plant with induced draft cooling tower. Therefore, the Auxiliary Power Consumption (APC) of 9% as claimed by the Petitioner is as per Regulation 49(E)(a)(ii) of the 2019 Tariff Regulations. Hence, the same has been allowed.

(d) Specific Oil Consumption

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

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

Normative Annual Plant Availability Factor (NAPAF) (%)	85.00
Heat Rate (kCal/kWh)	2430.00
Auxiliary Power Consumption (%)	9.00
Specific Oil Consumption (ml/kWh)	0.50

Interest on Working Capital

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

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

(a) For Coal-based/lignite-fired thermal generating stations:

(i) Cost of coal or lignite and limestone towards stock, if applicable, for 10 days for



pit-head generating stations and 20 days for non-pit-head generating stations for generation corresponding to the normative annual plant availability factor or the maximum coal/lignite stock storage capacity whichever is lower;

(ii) Advance payment for 30 days towards cost of coal or lignite and limestone for generation corresponding to the normative annual plant availability factor;

(iii) Cost of secondary fuel oil for two months for generation corresponding to the normative annual plant availability factor, and in case of use of more than one secondary fuel oil, cost of fuel oil stock for the main secondary fuel oil;

(iv) Maintenance spares @ 20% of operation and maintenance expenses including water charges and security expenses;

(v) Receivables equivalent to 45 days of capacity charge and energy charge for sale of electricity calculated on the normative annual plant availability factor; and

(vi) Operation and maintenance expenses, including water charges and security expenses, for one month.”

(2) The cost of fuel in cases covered under sub-clauses (a) and (b) of clause (1) of this Regulation shall be based on the landed fuel cost (taking into account normative transit and handling losses in terms of Regulation 39 of these regulations) by the generating station and gross calorific value of the fuel as per actual weighted average for the third quarter of preceding financial year in case of each financial year for which tariff is to be determined:

Provided that in case of new generating station, the cost of fuel for the first financial year shall be considered based on landed fuel cost (taking into account normative transit and handling losses in terms of Regulation 39 of these regulations) and gross calorific value of the fuel as per actual weighted average for three months, as used for infirm power, preceding date of commercial operation for which tariff is to be determined.”

“(3) Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2019 or as on 1st April of the year during the tariff period 2019-24 in which the generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later:

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

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

Fuel Cost for computation of working capital

52. The Petitioner has claimed Energy Charge Rate (ECR) of 301.166 paisa/kWh and fuel component in working capital as follows:



(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Cost of coal for 50 days	5810.52	5810.52	5810.52	5810.52	5810.52
Cost of Secondary fuel oil 2 months	73.05	72.85	72.85	72.85	73.05

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

- a) Operational norms as per the 2019 Tariff Regulations.
- b) Price and “as received” GCV of coal {after reducing the same by 85 kcal/kWh in terms of Regulation 43(2)(b)} procured for the three months of October 2018, November 2018, and December 2018, and
- c) Price and GCV of secondary fuel oil for the three months of October 2018, November 2018, and December 2018.

54. It is observed that the Petitioner vide affidavit dated 24.6.2021 has submitted revised Form-15 indicating the opening stock of coal and coal received during the months of October, November and December 2018, separately. On perusal of the data furnished by the Petitioner, it is observed that the Petitioner, while computing the landed cost of fuel, has considered the opening stock of coal for the months of October 2018, November 2018 and December 2018 (closing stock of the coal for the previous months). However, in terms of the Regulation 39 of the 2019 Tariff Regulations, the computation of ECR and associated fuel components in interest on working capital, is based on the landed price and GCV of fuel, which means that the fuel received during the specified three months (October 2018, November 2018 and December 2018) is only to be considered, without opening stock. The normative cost of coal for stock of 50 days and Normative Transit and Handling loss of 0.80% has been considered for the calculation of working capital requirements Accordingly, after excluding the opening stock value, we have worked out the weighted average landed cost and weighted average GCV of coal for working out the fuel component in working capital for the months of October



2018, November 2018 and December 2018. The Fuel components in working capital are allowed as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Cost of Coal towards stock (20 days generation corresponding to NAPAF)	2317.06	2317.06	2317.06	2317.06	2317.06
Advance towards cost of Coal for generation (30 days generation corresponding to NAPAF)	3475.60	3475.60	3475.60	3475.60	3475.60
Cost of Secondary fuel oil (2 Months generation corresponding to NAPAF)	64.46	64.29	64.29	64.29	64.46

Energy Charge Rate (ECR)

55. The Petitioner has claimed ECR (ex-bus) of 301.16621 Rs/kWh, based on the weighted average price, GCV of coal & oil procured and burnt for the preceding months of October 2018, November 2018 and December 2018. The Respondent, UPPCL has submitted following contentions on the claim of the Petitioner:

- i. There is significant variation in expenditure on month on month basis. There is abnormal increase in December 2018.
- ii. Further, there are no details of credit notes for grade slippages. It is not clear whether the Petitioner is accounting for grade slippages at the time of purchase, i.e. on accrual basis or accounting as and when credit notes are issued by coal supply company. Therefore, it is requested that the details of credit notes for grade slippages may be provided, since inception, along with credit notes for grade slippages currently outstanding for recovery /adjustment (as credit notes are issued by coal company at its discretion).
- iii. Further, the Petitioner may be directed to provide details of accounting treatment being followed for grade slippages and if required, direct the Petitioner to account for grade slippages on accrual basis.

56. In response, the Petitioner has submitted that the “other charges” as submitted in Form 15 consists of various charges of miscellaneous nature such as handling charges, sampling charges, track patrolling etc and these charges usually vary from month to month based on the coal receipt, presentation of vendor’s bills during the months & payments thereof. It has stated that variation is very minimal in absolute terms.



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

Description	Unit	2019-24
Capacity	MW	210.00
Gross Station Heat Rate	Kcal/kWh	2430.00
Auxiliary Energy Consumption	%	9.00
Weighted average GCV of oil	Kcal/lit	9673.00
Weighted average GCV of coal	Kcal/kg	3870.33 (3955.33-85.00)
Weighted average price of oil	Rs/KL	49336.57
Weighted average price of Coal	Rs/MT	4315.85
Rate of energy charge ex-bus	Rs/kWh	2.9990

Working capital for O&M Expenses

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

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
624.88	649.42	674.91	701.92	729.96

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

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
620.74	643.18	666.31	690.61	715.55

Working capital for Maintenance Spares

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

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
1489.77	1543.64	1599.15	1657.46	1717.31



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

Working capital for Receivables

62. Regulation 34(1)(a)(v) of the 2019 Tariff Regulations provides for Receivables for 45 days of capacity charge and energy charge for sale of electricity calculated on the normative annual plant availability factor. Accordingly, the Receivable component of working capital is allowed as follows:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Fixed charge for 45 days of sale of electricity calculated on NAPAF	2077.58	2080.20	2077.38	2092.66	2115.24
Energy charge for 45 days of sale of electricity calculated on NAPAF	5261.14	5261.14	5261.14	5261.14	5261.14
Total	7338.72	7341.34	7338.52	7353.80	7376.38

63. As per Regulation 34(2) of the 2019 Tariff Regulations, the cost of coal shall be based on landed fuel cost taking into account normative transit and handling losses in terms of Regulation 39 of the 2019 Tariff Regulations and gross calorific value of fuel as per actual weighted average for the third quarter of preceding financial year. Hence, the Petitioner is directed to furnish the details of quantity of coal as per Regulation 34(2) of the 2019 Tariff Regulations, at the time of truing up of tariff. The Petitioner is also directed to submit the details strictly as provided in Forms/ Annexures attached to the 2019 Tariff Regulations.



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

Rate of Interest on working capital

65. In accordance with Regulation 34(3) of the 2019 Tariff Regulations, the Petitioner has claimed rate of interest on working capital as 12.05% (i.e., 1 year SBI MCLR of 8.55% as on 1.4.2019 + 350 basis points) on projection basis, for the 2019-24 tariff period. However, as the tariff of the generating station for 2019-24 tariff period is being determined, the SBI MCLR as on 1.4.2020 (7.75%) and as on 1.4.2021 (7.00%) is also available, which is lower in comparison to the same, as on 1.4.2019 (8.55%). Since the rate of interest on working capital is subject to revision at the time of truing-up of tariff, based on the bank rate as on 1st April of each financial year, we find it prudent to allow the rate of interest as on 1.4.2020 and 1.4.2021, for the subsequent financial years. Accordingly, the rate of interest for the year 2019-20 is 12.05%, 2020-21 is 11.25% and for the subsequent years, the rate of interest of 10.50% has been considered (i.e., 1 year SBI MCLR of 7.75% as on 1.4.2020 + 350 basis points and 1 year SBI MCLR of 7.00% as on 1.4.2021 + 350 basis points). Accordingly, Interest on working capital is allowed as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Working Capital for Cost of Coal/Lignite for Stock (20 days generation corresponding to NAPAF) (A)	2317.06	2317.06	2317.06	2317.06	2317.06
Working Capital for Cost of Coal/Lignite (30 days generation corresponding to NAPAF) (B)	3475.60	3475.60	3475.60	3475.60	3475.60
Working capital for Cost of Oil (2 Months generation corresponding to NAPAF) (C)	64.46	64.29	64.29	64.29	64.46



	2019-20	2020-21	2021-22	2022-23	2023-24
Working Capital for Maintenance Spares (20% of Annual O&M Expenses) (D)	1489.77	1543.64	1599.15	1657.46	1717.31
Working Capital for Receivables (45 Days of Sale of Electricity at NAPAF) (E)	7338.72	7341.34	7338.52	7353.80	7376.38
Working Capital for O&M expenses (1 month of O&M Expenses) (F)	620.74	643.18	666.31	690.61	715.55
Total Working Capital (I) = (A+B+C+D+E+F)	15306.35	15385.11	15460.93	15558.81	15666.37
Rate of Interest (G)	12.05%	11.25%	10.50%	10.50%	10.50%
Total Interest on Working capital (H) = (I)*(G)	1844.42	1730.83	1623.40	1633.68	1644.97

Annual Fixed Charges

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

	2019-20	2020-21	2021-22	2022-23	2023-24
	<i>(Rs. in lakh)</i>				
Depreciation	1975.62	1975.62	1975.62	1975.62	1975.62
Interest on Loan	632.00	451.31	258.28	80.41	0.00
Return on Equity	4996.82	4996.82	4996.82	4996.82	4996.82
Interest on Working Capital	1844.42	1730.83	1623.40	1633.68	1644.97
O&M Expenses	7448.83	7718.20	7995.75	8287.28	8586.56
Total Annual Fixed Charges	16897.69	16872.77	16849.87	16973.81	17203.97

* 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.

Application Filing fees and Publication charges

67. The Petitioner has sought reimbursement of the fees paid by it for filing of the tariff petition and for publication expenses and has submitted that the reimbursement of the same are in accordance with Regulation 70(1) of the 2019 Tariff Regulations. In terms of Regulation 70(1) of the 2019 Tariff Regulations, the Petitioner is entitled for reimbursement of the filing fees and publication expenses in connection with the filing of this petition, directly from the beneficiaries, on pro-rata basis. Accordingly, we allow



the reimbursement of the expenditure in accordance with Regulation 70(1) of the 2019 Tariff Regulations.

68. 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.

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

70. Petition No. 427/GT/2020 is disposed of in terms of the above.

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

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

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

