

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 424/GT/2020

Coram:

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

Date of Order: 5th September, 2023

In the matter of:

Petition for approval of tariff of Singrauli Super Thermal Power Station (2000 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 – 110003

..... Petitioner

Vs

1. Uttar Pradesh Power Corporation Limited,
Shakti Bhawan, 14, Ashok Marg,
Lucknow – 226 001
2. Rajasthan Urja Vikas Nigam Limited,
Vidyut Bhawan, Janpath,
Jaipur – 302 005
3. Tata Power Delhi Distribution Limited,
Grid Substation, Hudson Road,
Kingsway Camp, Delhi – 110 009
4. BSES Rajdhani Power Limited,
2nd Floor, B-Block, BSES Bhawan, Nehru Place,
New Delhi – 110 019
5. BSES Yamuna Power Limited,
Shakti Kiran Building, Karkardooma, Delhi – 110 092



6. Haryana Power Purchase Centre,
Shakti Bhawan, Sector- VI,
Panchkula, Haryana – 134 109
7. Punjab State Power Corporation Limited,
The Mall, Patiala – 147 001
8. Himachal Pradesh State Electricity Board Limited,
Kumar Housing Complex Building-II,
Vidyut Bhawan, Shimla – 171 004
9. Power Development Department,
Government of J&K,
Srinagar
10. Electricity Department,
Union Territory of Chandigarh,
Addl. Office Building, Sector- 9D, Chandigarh
11. Uttarakhand Power Corporation Limited,
Urja Bhawan, Kanwali Road, Dehradun,
Uttarakhand – 248 001

....Respondents

Parties Present:

Ms. Swapna Seshadri, Advocate, NTPC
Ms. Ritu Apurva, Advocate, NTPC
Ms. Archita Kashyap, Advocate, NTPC
Shri Buddy Ranganathan, Advocate, BYPL
Shri Rahul Kinra, Advocate, BYPL
Shri Aditya Ajay, Advocate, BYPL
Shri Sachin Dubey, Advocate, BRPL
Shri Mohit Mudgal, Advocate, BRPL
Ms. Megha Bajpeyi, BRPL

ORDER

This petition has been filed by the Petitioner, NTPC Limited, for approval of the tariff of Singrauli Super Thermal Power Station (2000 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 capacity of 2000 MW comprises five units of 200 MW each and two units of 500 MW each. The dates of commercial operation of different units of the generating station are as under:



Units	COD
Unit- I	1.6.1982
Unit-II	1.2.1983
Unit- III	1.7.1983
Unit- IV	1.1.1984
Unit- V	1.6.1984
Unit -VI	1.7.1987
Unit- VII (Generating Station)	1.5.1988

2. The Commission, vide its order dated 28.11.2022 in Petition 191/GT/2020, had determined the capital cost and annual fixed charges of the generating station for the period 2014-19, after the truing-up exercise, as under:

Capital Cost allowed

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening capital cost	124746.99	124586.11	124831.22	124166.84	123165.60
Add: Addition during the year	(-) 160.88	245.12	(-) 664.38	(-) 1001.24	(-) 3864.10
Closing capital cost	124586.11	124831.22	124166.84	123165.60	119301.50
Average capital cost	124666.55	124708.66	124499.03	123666.22	121233.55

Annual Fixed Charges allowed

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	2.16	15.82	31.56	33.85	34.32
Interest on Loan	873.09	901.20	923.34	856.00	907.11
Return on Equity	11800.03	11850.80	11818.02	11734.23	11525.12
Interest on Working Capital	9098.41	9309.61	9321.20	9657.82	9834.22
O&M Expenses	42424.87	45629.45	45973.49	49052.73	51949.47
Special Allowance	13713.85	14584.68	15510.81	16495.75	17543.23
Total	77912.41	82291.56	83578.41	87380.38	91793.46

Present Petition

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

Capital Cost claimed

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Opening capital cost	122980.92	123270.92	127886.92	128658.92	129430.92
Add: Addition during the year	290.00	4616.00	772.00	772.00	-
Less: De-capitalization during the year	-	-	-	-	-
Less: Reversal during the year	-	-	-	-	-
Add: Discharges during the year	-	-	-	-	-
Closing capital cost	123270.92	127886.92	128658.92	129430.92	129430.92
Average capital cost	123125.92	125578.92	128272.92	129044.92	129430.92

Note: Entire equity corresponding to capital cost claimed by the Petitioner is eligible for return on equity at normal ROE rate.



Annual Fixed Charges claimed

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	64.46	193.98	336.23	376.99	397.37
Interest on Loan	884.98	1017.65	1153.44	1170.15	1161.49
Return on Equity	6937.65	7075.87	7227.67	7271.17	7292.91
Interest on Working Capital	8674.31	8800.66	8929.44	9054.56	9191.02
O&M Expenses	60423.61	62782.61	65241.61	67726.61	70529.61
Special allowance	19000.00	19000.00	19000.00	19000.00	19000.00
Total (A)	95985.02	98870.77	101888.38	104599.47	107572.40

4. The Respondents UPPCL, BYPL, and BRPL have filed their replies vide affidavits dated 24.9.2020/23.7.2021, 4.5.2022, and 6.5.2022, respectively and the Petitioner has filed its rejoinder to the abovesaid replies, vide affidavits dated 10.6.2021/8.11.2021 (UPPCL) and 13.5.2022 (BYPL). No rejoinder has been filed by the Petitioner to the reply of the Respondent BRPL. The Petitioner has also submitted certain additional information vide affidavits dated 17.5.2021 and 30.6.2021, after serving copies on the Respondents. The Petition was heard on 16.3.2023 and the Commission, after directing the Petitioner to submit certain additional information, reserved its order in the matter. In compliance, the Petitioner vide affidavit dated 24.4.2023, has filed the additional information, after serving copies on the Respondents. Taking into consideration, the submissions of the parties and the documents available on record and on prudence check, we now proceed to determine the tariff of the generating station for the period 2019-24.

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 the 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 in the Petition are based on the opening capital cost of Rs.122980.92 lakh, as against the capital cost of Rs.119301.50 lakh (inadvertently shown as Rs. 119181.48 lakh), on a cash basis (after removal of un-discharged liabilities amounting to Rs.315.49 lakh comprising of liabilities of Rs.160.24 lakh deducted as on 1.4.2009 and the balance liability of Rs.155.25 lakh pertaining to assets allowed after 1.4.2009) allowed as on 31.3.2019, vide Commission's order dated 28.11.2022 in Petition No. 191/GT/2020. Accordingly, in terms of Regulation 19(3) of the 2019 Tariff Regulations, the capital cost of Rs.119301.50 lakh, on a cash basis, as on 31.3.2019, has been considered as the opening capital cost on 1.4.2019.

Additional Capital Expenditure

7. Regulation 25 and 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 addition to the original scope of work, on case to case basis:*

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

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

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



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

		<i>(Rs. in lakh)</i>				
	Regulation	2019-20	2020-21	2021-22	2022-23	2023-24
Ash Utilization Infrastructure (Weigh Bridge, Ash brick machines etc.)	26(1)(b)	30.00	44.00	-	-	-
Biomass Gasifier		163.00	-	-	-	-
Ambient Air Quality Monitoring System (AAQMS)		97.00	-	-	-	-
Dry Ash Evacuation System		-	4572.00	-	-	-
Package of ClO ₂ system	26(1)(b) & 26(1)(d)	-	-	772.00	772.00	-
Additional capital expenditure claimed (before discharge of liabilities)		290.00	4616.00	772.00	772.00	-

9. We now examine the additional capital expenditure claimed by the Petitioner, as under:

Ash Utilization Infrastructure (Weigh Bridge, Ash brick machines, etc.)

10. The Petitioner has claimed projected additional capital expenditure of Rs.30.00 lakh in 2019-20 and Rs.44.00 lakh in 2020-21, towards Ash utilization infrastructure, under Regulation 26(1)(b) of 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that 100% ash utilization has been mandated by MOEFCC vide its notification dated 25.1.2016 and subsequent order dated 20.11.2018 of the National Green Tribunal (NGT). The Petitioner has also submitted that it is incurring the said expenditure for achieving a 100% ash utilization target, in order to avoid the imposition of penalty for “damages for environment restoration”. The Petitioner has also furnished copies of the MOEF&CC Notification dated 25.1.2016 and the NGT order dated 20.11.2018.

11. The Respondent UPPCL has submitted that the generating station has outlived its useful life and has opted for a special allowance. It has also submitted that in terms of the proviso to Regulation 26(1) of the 2019 Tariff Regulations, if any expenditure



has been claimed under Renovation & Modernization or Repair and Maintenance under O&M expenses, the same shall not be claimed under this Regulation. The Respondent has stated that since the Petitioner has claimed Special Allowance under Regulation 28 of the 2019 Tariff Regulations, the claim of the Petitioner for additional capitalization is not permissible under Regulation 26(1) of the 2019 Tariff Regulations. The Respondents BYPL and BRPL have submitted that the Petitioner has not furnished any documentary evidence in support of the claim and therefore, the claim may be rejected.

12. The matter has been considered. The Petitioner has claimed the additional capital expenditure on the basis of the MOEF&CC notification dated 25.1.2016 and the Order of NGT dated 20.11.2018. Since the expenditure claimed by the Petitioner is on the basis of the MOEF&CC notification and the order of NGT, the same **is allowed**. It is noticed that though the MOEF&CC notification mandates 100% ash utilization for all the thermal power generating stations, the Petitioner has not submitted any details of existing facilities at the generating station. Moreover, the MOEF notification dated 3.11.2009 provides for 100% ash utilization, and the money collected from the sale of fly ash or fly ash-based products is required to be utilized for the development of infrastructure for the use of fly ash. It is also observed that the income generated from the sale of fly ash is not being passed on to the beneficiaries and that the Petitioner is not prevented from utilizing the money for the said work. In view of this, the additional expenditure allowed on this count is subject to Petitioner's furnishing the following details:

- a) *Details of the funds collected from the sale of fly ash or fly ash-based products and the utilization of funds;*



- b) Details of the quantum of ash generated, ash utilized and ash accumulated at generating stations along with the details of the expenditure incurred on ash utilization and where it is booked;*
- c) Details of the revenue earned from the sale of Ash/ash products and how it is accounted for.*

Biomass Gasifier

13. The Petitioner has claimed additional capital expenditure of Rs.163.00 lakh, towards the Installation of biomass gasifier, in 2019-20 under Regulation 26(1)(b) of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that the Government of India, as a measure of promotion of biomass gasifier with a focus on sustainable development, waste management, climate change, and environmental protection has awarded this project under its policy framework to meet the captive electrical and thermal needs. The Petitioner has further submitted that installation of the biomass gasifier would in turn help in replacing the conventional fuels such as coal, diesel, furnace oil, etc.

14. The Respondent UPPCL has submitted that the claim of the Petitioner does not qualify for a change in law event since the installation of a biomass gasifier has not been mandated by any law. The Respondents BYPL and BRPL have submitted that the Petitioner has not submitted any documentary evidence to substantiate its claim and hence may be disallowed.

15. The matter has been considered. It has been observed that the Petitioner has claimed the additional capital expenditure under 'change in law' stating that the same is on account of the policy measure of the Government of India. We are of the considered view that the expenditure incurred for the installation of biomass gasifier is not mandated by any law in force and therefore does not qualify as a change in law event. Moreover, the Petitioner has not furnished any details of the savings envisaged



in fuel as a result of the installation of the said biomass gasifier. In view of the above, the claim of the Petitioner is not allowed.

Ambient Air Quality Monitoring System (AAQMS)

16. The Petitioner has claimed additional capital expenditure of Rs.97.00 lakh towards AAQMS, in 2019-20, under Regulation 26(1)(b) of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that the Central Pollution Control Board (CPCB) vide its directions dated 5.2.2014 has mandated the monitoring of the ambient air quality and hence the projected additional capital expenditure has been claimed towards compliance with the existing law.

17. The Respondent UPPCL has submitted that since the Petitioner has claimed Special allowance under Regulation 28 of the 2019 Tariff Regulations, the expenditure on this count should be met from the Special Allowance and hence may be disallowed. The Respondents BYPL and BRPL have submitted that the Petitioner has not submitted any documentary evidence to substantiate its claim and hence the claim may be disallowed.

18. The matter has been considered. It is noticed that the Petitioner has not furnished a copy of the directions/letter received from the CPCB. However, in Petition No.191/GT/2020 filed by the Petitioner for true up of tariff of this generating station for 2014-19, the copy of the letter dated 5.2.2014 furnished by the Petitioner has been examined. On scrutiny of the said letter, it is observed that the CPCB has directed the Petitioner to install the continuous emission monitoring system and the effluent quality monitoring system. In this background, and since the claim of the Petitioner is for compliance with the existing law, Petitioner's claim is allowed.



Dry Ash Evacuation System (DAES)

19. The Petitioner has claimed additional capital expenditure of Rs.4572.00 lakh towards DAES, in 2020-21, under Regulation 26(1)(b) of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that 100% ash utilization has been mandated by MOEF&CC vide its notification dated 25.1.2016 and subsequent order of the National Green Tribunal (NGT) dated 20.11.2018. The Petitioner has further submitted that it is incurring the expenditure for achieving the 100% ash utilization target to avoid the imposition of penalty for “damages for environment restoration”. The Petitioner has submitted copies of the notification of MOEFCC and the order of NGT.

20. The Respondent UPPCL has pointed out that the Commission vide its order dated 28.7.2016 in Petition 290/GT/2014 had disallowed the claim of the Petitioner, on this count. It has also submitted that the Petitioner has claimed an amount of Rs.950 crores as Special allowance and therefore, the same shall be utilized to meet the additional capital expenditure claimed. The Respondent BRPL has submitted that the Petitioner has not submitted any documentary evidence to substantiate its claim and hence may be disallowed.

21. The matter has been examined. The Petitioner has claimed additional capital expenditure under the head of ‘change in law’. Clause 2(10) of the MOEF CC Notification dated 25.1.2016 provides as under:

“Every Coal or lignite based thermal power plant shall install dedicated dry ash silos having separate access roads so as to ease the delivery of fly ash”

22. In our view, the installation of DAES shall help in reducing the burden of ash disposal in the ash dyke area, which will also reduce the regular or time to time capitalization of expenditure for the raising ash dyke and environmental ground water



pollution. In this background and keeping in view that the additional expenditure claimed is for compliance with the existing norms in terms of the MOEF notification and the order of NGT, the claim of the Petitioner, is allowed under Regulation 26(1)(b) of the 2019 Tariff Regulations. The Petitioner is, however, directed to furnish the details of the revenue earned from the sale of fly ash (excluding transportation charges if any paid by the Petitioner) along with a copy of accounts, duly certified by the auditor, in terms of the said notification, at the time of truing up of tariff.

Package of ClO₂ System

23. The Petitioner has claimed projected additional capital expenditure of Rs.1544.00 lakh (Rs.772.00 lakh in 2021-22 and Rs.772.00 lakh in 2022-23) towards ClO₂ package, under Regulation 26(1)(b) read with Regulation 26(1)(d) of the 2019 Tariff Regulations. In justification for the same, the Petitioner has 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. Chlorine gas is very hazardous and may prove fatal in case of leakage; handling and storage of the same involves risk to the life of the public at large. In the interest of public safety, the chlorine dosing system is now being replaced by Chlorine Di-oxide (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 the site, avoids handling and storage risk. The Petitioner has further submitted that for the safety of the public, the Petitioner is replacing the Chlorination system with the ClO₂ system.



24. The matter has been considered. Though the Petitioner has claimed additional capital expenditure under Regulation 26(1)(b) of the 2019 Tariff Regulations, it has not submitted any supporting documents to substantiate that the said claim is based on the change in law. As regards the claim of the Petitioner under Regulation 26(1)(d) of the 2019 Tariff Regulations, we find no specific directions or advice from any Governmental or statutory authorities as regards the requirement of this item i.e., chlorine dosing system be replaced by the ClO₂ system for safety and security of the generating station. A similar claim of the Petitioner in respect of the tariff petitions for other generating stations of the Petitioner for the period 2019-24, has not been allowed by the Commission in its various orders. In view of this, the projected additional capital expenditure claimed by the Petitioner is not allowed.

25. Based on the above, the projected additional capital expenditure allowed for the generating station for the period 2019-24, is summarized as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Ash Utilization Infrastructure (Weigh Bridge, Ash brick machines etc.)	30.00	44.00	0.00	0.00	0.00
Biomass Gasifier	0.00	0.00	0.00	0.00	0.00
Ambient Air Quality Monitoring System	97.00	0.00	0.00	0.00	0.00
Dry Ash Evacuation System	0.00	4572.00	0.00	0.00	0.00
Package of ClO ₂ System	0.00	0.00	0.00	0.00	0.00
Additional capital expenditure claimed (before discharge of liabilities)	127.00	4616.00	0.00	0.00	0.00

Capital Cost allowed for the period 2019-24

26. Accordingly, the capital cost approved for the generating station is as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Opening capital cost	# 119301.50	119428.50	124044.50	124044.50	124044.50
Add: Additional capital expenditure	127.00	4616.00	0.00	0.00	0.00
Closing capital cost	119428.50	124044.50	124044.50	124044.50	124044.50
Average capital cost	119365.00	121736.50	124044.50	124044.50	124044.50

Rs.118646.48 lakh pertaining to assets existing at the beginning of 1.4.2009 (i.e. existing assets) and Rs.655.02 lakh pertaining to assets capitalized on or after 1.4.2009 (i.e. other assets).



Debt Equity Ratio

27. Regulation 19 of the 2019 Tariff Regulations provides as under:

“19. Debt-Equity Ratio: (1) For a project declared under commercial operation on or after 1.4.2014, the debt-equity ratio would be considered as 70:30 as on COD. 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 shall submit the resolution of the Board of the company or approval from Cabinet Committee on Economic Affairs (CCEA) regarding infusion of fund 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 1.4.2014, debt-equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2014 shall be considered.

(4) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, but where debt: equity ratio has not been determined by the Commission for determination of tariff for the period ending 31.3.2014, the Commission shall approve the debt: equity ratio based on actual information provided by the generating company or the transmission licensee as the case may be.

(5) Any expenditure incurred or projected to be incurred on or after 1.4.2014 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.

28. The Petitioner has considered a gross normative loan of Rs.63297.00 lakh and equity of Rs.36981.28 lakh (net of equity adjustment of Rs.22789.65 lakh in terms of the first proviso to Regulation 18(3) of the 2019 Tariff Regulations, as on 1.4.2019). The gross normative loan and equity of the generating station, as on 31.3.2019, as approved in the order dated 28.11.2022 in Petition No. 191/GT/2020 is Rs.61937.13



lakh (i.e. 51.92% of the admitted capital cost as on 31.3.2019) and Rs.57364.37 lakh (i.e. 48.08% of the admitted capital cost as on 31.3.2019), respectively. Further, as on 1.4.2019, the useful life of the generating station has already elapsed. 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.61937.13 lakh and Rs.57364.37 lakh, respectively. However, considering the first proviso to Regulation 18(3) of the 2019 Tariff Regulations, the net equity to be considered as on 1.4.2019, works out to Rs.35790.45 lakh. Further, the additional capital expenditure approved above, has been allocated to debt and equity in the ratio of 70:30. Accordingly, the gross normative loan of Rs.61937.13 lakh and the net equity of Rs.35790.45 lakh has been considered for the purpose of tariff as on 1.4.2019. The details of the debt-equity ratio considered for the purpose of computation of tariff is as under:

(Rs. in lakh)						
	Capital cost as on 1.4.2019	(%)	Additional capital expenditure	(%)	Total cost as on 31.3.2024	(%)
Debt	# 61937.13	51.92%	3320.10	70.00%	65257.23	50.49%
Equity	* 57364.37	48.08%	1422.90	30.00%	* 58787.27	49.51%
Total	119301.51	100.00%	4743.00	100.00%	124044.50	100.00%

* In line with the first proviso to Regulation 18(3) of the 2019 Tariff Regulations the admissible net equity has been restricted to Rs.35790.45 lakh i.e. 30% of the capital cost for the purpose of tariff.

Rs.61478.61 lakh pertaining to existing assets and Rs.458.52 lakh pertaining to other assets.

Return on Equity (ROE)

29. 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.

(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;

(iii) in case of a thermal generating station with effect from 1.4.2020:

(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) 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.

30. 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:

$$\text{Rate of pre-tax return on equity} = \text{Base rate} / (1-t)$$

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:

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

(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 = $15.50 / (1 - 0.24) = 20.395\%$.

(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 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."

31. The Petitioner has claimed ROE considering the base rate of 15.50% and the 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 entire equity of the generating station is eligible for ROE at the normal rate of ROE, in terms of the above regulation, the rate of ROE as claimed by the Petitioner, has been considered for the purpose of tariff. Accordingly, ROE has been worked out and allowed as under:

	(Rs.in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Gross Notional Equity – Opening	57364.37	57402.47	58787.27	58787.27	58787.27
Less: Adjustment to equity in terms of 1st proviso to Regulation 18(3)	21573.92	21573.92	21573.92	21573.92	21573.92
Normative Equity – Opening	35790.45	35828.55	37213.35	37213.35	37213.35
Addition of Equity due to additional capital expenditure	38.10	1384.80	0.00	0.00	0.00
Normative Equity – Closing	35828.55	37213.35	37213.35	37213.35	37213.35
Average Normative Equity	35809.50	36520.95	37213.35	37213.35	37213.35
Return on Equity (Base Rate)	15.500%	15.500%	15.500%	15.500%	15.500%
Effective Tax Rate	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) - (annualized)	6725.74	6859.36	6989.41	6989.41	6989.41

Interest on loan

32. 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 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-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.”

33. The details of the gross normative loan, cumulative repayment, net normative opening loan, and cumulative depreciation, as on 1.4.2019, as carried forward from the order dated 28.11.2022 in Petition No. 191/GT/2020 along with depreciable value and remaining depreciable value has been worked out as on 1.4.2019 and allowed as under:

(Rs. in lakh)

	Pertaining to		Total
	Existing at the beginning of 1.4.2009 (existing assets)	Added on or after 1.4.2009 (other assets)	
Gross normative loan (A)	61478.61	458.52	61937.13
Cumulative repayment of loan (B)	50329.00	123.55	50452.55
Net normative loan (C = A-B)	11149.61	334.96	11484.57
Cumulative depreciation (D)	106605.17	123.55	106728.72
Capital cost as on 1.4.2019 (E)	118646.48	655.02	119301.50
Value of freehold land (F)	1081.00	0.00	1081.00
Depreciable value [G = (E-F) x 0.9]	105808.93	589.52	106398.45
Balance depreciable value (H = G-D)	0.00	465.97	465.97



34. From the above table, it is observed that as on 1.4.2019, the balance depreciable value corresponding to the assets existing at the beginning of 1.4.2009 (hereinafter referred to as “existing assets”) is ‘Nil’ and the net normative outstanding loan balance is Rs.11149.61 lakh. This situation normally does not happen as depreciation is allowed to the extent of 90% of the value of an asset and the normative debt is normally allowed equivalent to 70% of the value of an asset and the repayment of the normative loan is now (since 1.4.2009) linked to depreciation allowed during the respective year. Prior to 1.4.2009, the normative repayment used to be calculated based on actual loan portfolio as under:

$$\text{Normative Repayment} = \frac{\text{Repayment of actual loan X Normative loan outstanding}}{\text{Actual loan outstanding}}$$

35. Since, prior to 1.4.2009, the repayment of the normative loan was not linked to the depreciation allowed. Accordingly, this could also be one of the reasons for the current situation, wherein, the normative loan is still outstanding even though the entire existing asset has been fully depreciated, as on 1.4.2019. Further, during the periods 2004-09 and 2009-14, the Petitioner was allowed the cumulative repayment adjustment equivalent to 70% of the value of assets de-capitalised, irrespective of the quantum of the repayments actually considered corresponding to that asset, subject to outcome of Civil Appeal No. 5437/2007 filed by the Commission before the Hon'ble Supreme Court, which also contributed to the creation of gap between the balance depreciable value and net normative loan outstanding corresponding to existing assets as on 1.4.2019.

36. The Commission, vide Record of Proceedings to hearing dated 16.3.2023 had directed the Petitioner to furnish the reasons for the outstanding normative loan balance as on 1.4.2019, considering the fact that existing assets are fully depreciated



and the generating station has already elapsed its useful life. In response, the Petitioner, vide affidavit dated 24.4.2023 has submitted that depreciation and repayments allowed to the Petitioner during the periods 2001-04, 2004-09, 2009-14, and 2014-19 were strictly as per the Tariff Regulations prevalent during the respective periods. The Petitioner has also submitted that the actual outstanding loan corresponding to existing assets as on 1.4.2019 is 'Nil'.

37. The submissions of the Petitioner have been examined. The existing assets are fully depreciated as on 1.4.2019 and the corresponding net normative loan of Rs.11149.61 lakh is still outstanding as on 1.4.2019. This situation is normally not expected as repayments are now (since the period 2009 -14) linked to depreciation allowed for the purpose of tariff. Further, prior to 1.4.2009, the repayment of normative loans was linked to the repayment of actual loans and as on 1.4.2019, the actual loan balance corresponding to existing assets is 'Nil'. Had any of the repayment methodologies been followed uniformly for the generating station, the normative loan balance corresponding to existing assets would have been 'Nil'. The Electricity Act, 2003, provides for the safeguarding of consumers' interests and at the same time recovery of the costs of electricity in a reasonable manner. Accordingly, considering the fact that Petitioner has already recovered 90% depreciation towards existing assets and the actual interest outgo towards loan corresponding to the existing assets is 'Nil', the cumulative repayment as on 1.4.2019, is revised to Rs.61602.17 lakh (Rs.61478.61 lakh corresponding to the existing assets and Rs.123.55 lakh corresponding to other assets) so as to serve only the net normative outstanding loan of Rs.334.96 lakh, corresponding to assets created after 1.4.2009, as on 1.4.2019. However, the Petitioner is granted liberty to claim interest on loan corresponding to



these existing assets in case any actual loan is outstanding against these existing assets by submitting justification and documentary evidence at the time of true up.

38. As stated above, the gross normative loan amounting to Rs.61937.13 lakh, has been considered as on 1.4.2019. Further, the cumulative repayment of Rs.61602.17 lakh, has been considered, as on 1.4.2019. Accordingly, the net normative outstanding loan as on 1.4.2019, works out to Rs.334.96 lakh. Also, the addition to the normative loan on account of the additional capital expenditure approved above has been considered. Depreciation allowed has been considered as repayment of normative loan during the respective year of the period 2019-24. The Petitioner has claimed tariff considering weighted average rate of interest (WAROI) of 8.2989% in 2019-20, 8.3062% in 2020-21, 8.3146% in 2021-22, 8.3248% in 2022-23 and 8.3325% in 2023-24 and the same has been considered.

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

	(Rs. in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Gross opening loan	61937.13	62026.03	65257.23	65257.23	65257.23
Less: Cumulative repayment of loan up to previous year	61602.17	61640.11	61803.26	62088.28	62373.29
Net Loan Opening	334.96	385.92	3453.97	3168.95	2883.94
Add: Addition on account of additional capital expenditure	88.90	3231.20	0.00	0.00	0.00
Less: Repayment of loan during the year	37.94	163.15	285.02	285.02	285.02
Net Loan Closing	385.92	3453.97	3168.95	2883.94	2598.92
Average Loan	360.44	1919.94	3311.46	3026.44	2741.43
WAROI	8.2989%	8.3062%	8.3146%	8.3248%	8.3325%
Interest on Loan	29.91	159.47	275.33	251.95	228.43

Depreciation

40. 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."

41. Cumulative depreciation amounting to Rs. 106728.72 lakh (Rs.106605.17 lakh for existing assets and Rs.123.55 lakh for other assets) and freehold land amounting



to Rs.1081.00 lakh, as considered, as on 31.3.2019, in order dated 28.11.2022 in Petition No. 191/GT/2020, has been retained, as on 1.4.2019. Further, since the plant has outlived its useful life, as decided in the order dated 21.12.2015 in Petition 315/GT/2014 the existing assets are to be spread over the remaining useful life, and for new assets the rate of depreciation as specified in relevant Tariff Regulations has to be considered, the depreciation for the assets admitted during the period 2014-19, has been allowed considering the weighted average rate of depreciation of 5.28%. Accordingly, depreciation has been computed and allowed as under:

		(Rs. in lakh)				
		2019-20	2020-21	2021-22	2022-23	2023-24
A	For existing assets (i.e. assets admitted upto 31.3.2009)					
a	Opening capital cost	118646.48	118646.48	118646.48	118646.48	118646.48
b	Additional capital expenditure	0.00	0.00	0.00	0.00	0.00
c	Closing capital cost (a+b)	118646.48	118646.48	118646.48	118646.48	118646.48
d	Average capital cost [(a+c)/2]	118646.48	118646.48	118646.48	118646.48	118646.48
e	Freehold land	1081.00	1081.00	1081.00	1081.00	1081.00
f	Depreciable value [(d-e) x 0.9]	105808.93	105808.93	105808.93	105808.93	105808.93
g	Cumulative depreciation at the beginning of the year (Previous year's 'l')	106605.17	106605.17	106605.17	106605.17	106605.17
h	Balance depreciable value (f-g)	0.00	0.00	0.00	0.00	0.00
i	Balance useful life at the beginning of the year	0.00	0.00	0.00	0.00	0.00
j	Depreciation rate	0.00%	0.00%	0.00%	0.00%	0.00%
k	Depreciation for the year	0.00	0.00	0.00	0.00	0.00
l	Cu. Depreciation at end of the year	106605.17	106605.17	106605.17	106605.17	106605.17
B	For new assets (i.e. assets admitted on or after 1.4.2009)					
m	Opening capital cost	655.02	782.02	5398.02	5398.02	5398.02
n	Additional capital expenditure	127.00	4616.00	0.00	0.00	0.00
o	Closing capital cost (m+n)	782.02	5398.02	5398.02	5398.02	5398.02
p	Average capital cost [(m+o)/2]	718.52	3090.02	5398.02	5398.02	5398.02
q	Freehold land	0.00	0.00	0.00	0.00	0.00
r	Depreciable value [(p-q) x 0.9]	646.67	2781.02	4858.22	4858.22	4858.22
s	Cumulative depreciation at the beginning of the year (Previous year's 'x')	123.55	161.49	324.64	609.66	894.67
t	Balance depreciable value (r-s)	523.12	2619.53	4533.58	4248.56	3963.55
u	Balance useful life at the beginning of the year	0.00	0.00	0.00	0.00	0.00
v	Depreciation rate	5.28%	5.28%	5.28%	5.28%	5.28%
w	Depreciation for the year	37.94	163.15	285.02	285.02	285.02
x	Cu. Depreciation at end of the year	161.49	324.64	609.66	894.67	1179.69



C	Total admitted assets (i.e. existing + new assets)					
y	Opening capital cost (a+m)	119301.50	119428.50	124044.50	124044.50	124044.50
z	Additional capital expenditure (b+n)	127.00	4616.00	0.00	0.00	0.00
aa	Closing capital cost (c+o)	119428.50	124044.50	124044.50	124044.50	124044.50
ab	Average capital cost (d+p)	119365.00	121736.50	124044.50	124044.50	124044.50
ac	Freehold land (e+q)	1081.00	1081.00	1081.00	1081.00	1081.00
ad	Depreciable value (f+r)	106455.60	108589.95	110667.15	110667.15	110667.15
ae	Cumulative depreciation at the beginning of the year (g+s)	106728.72	106766.66	106929.81	107214.83	107499.84
af	Balance depreciable value (h+t)	523.12	2619.53	4533.58	4248.56	3963.55
ag	Balance useful life at the beginning of the year ('i' or 'u')	0.00	0.00	0.00	0.00	0.00
ah	Depreciation rate (aj / ab)	0.0318%	0.1340%	0.2298%	0.2298%	0.2298%
ai	Depreciation for the year (k+w)	37.94	163.15	285.02	285.02	285.02
aj	Cu. Depreciation at end of the year (l+x)	106766.66	106929.81	107214.83	107499.84	107784.86

Operation & Maintenance Expenses

42. 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:

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."

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

	(Rs. in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Normative O&M expenses claimed under Regulation 35(1)(1) of the 2019 Tariff Regulations (a)	55470.00	57420.00	59430.00	61530.00	63680.00

O&M expenses under Regulation 35(1)(6) of the 2019 Tariff Regulations:					
- Water Charges	868.61	868.61	868.61	868.61	868.61
- Security Expenses	4085.00	4494.00	4943.00	5328.00	5981.00
- Capital Spares consumed	0.00	0.00	0.00	0.00	0.00
Total O&M Expenses	60423.61	62782.61	65241.61	67726.61	70529.61

44. The normative O&M expenses claimed in terms of Regulation 35(1)(1) of the 2019 Tariff Regulations are found to be in order and is allowed.

Water Charges

45. The first proviso to Regulation 35(1)(6) of the 2019 Tariff Regulations provides for claims towards water charges, security expenses, and capital spares as under:

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

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

46. The actual water charges claimed by the Petitioner in Petition No. 191/GT/2020 for the period 2014-19 and allowed by order dated 28.11.2022 are as under:

	(Rs. in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Water charges claimed for 2014-19	847.71	847.71	847.71	847.71	868.61
Water charges allowed for 2014-19	847.71	847.71	847.71	847.71	868.61

47. In terms of the above regulation, water charges are to be allowed separately, based on the water consumption depending upon the type of plant, type of cooling water system, etc., subject to prudence check. The details furnished by the Petitioner in respect of water charges for the period 2019-24, are as under:

	Remarks
Type of plant	Coal based Thermal Power Plant
Type of cooling water system	Once through cooling
Consumption of water	74.38 MCM
Rate of water charges	Rs.2.955/m ³
Total water charges	Rs.868.61 lakh



48. It is observed that the Petitioner has claimed the water charges on the basis of actual water expenses allowed for 2018-19 vide Commission's order dated 28.11.2022 in Petition 191/GT/2020. Though, the Petitioner vide affidavit dated 30.6.2021 has submitted that the actual water expenses for the years 2019-20 and 2020-21 as Rs.932.47 lakh each, it has not furnished any details of the same. Since the water charges are subject to truing up at actuals, we allow the actual water charges incurred during the years 2019-20 and 2020-21 for the period 2019-24. The Petitioner is however directed to submit the actual expenditure towards water charges along with details of the quantity consumed etc at the time of truing up of tariff. Accordingly, the water charged claimed and allowed for the period 2019-24 are summarised below:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Water charges claimed for 2019-24	868.61	868.61	868.61	868.61	868.61
Water charges allowed for 2019-24	932.47	932.47	932.47	932.47	932.47

Security Expenses

49. 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:

xxx

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

Xxx"

50. 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
	4085.00	4494.00	4943.00	5328.00	5981.00

51. The Petitioner has submitted that the above expenses have 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 of tariff. Further, the Petitioner



vide affidavit dated 30.6.2021 has submitted that the actual security expenses during 2019-20 and 2020-21 is Rs.3774.69 lakh and Rs.5688.72 lakh, respectively.

52. The matter has been considered. The actual security expenses of Rs. 3774.69 lakh for 2019-20 and Rs.5688.72 lakh for 2020-21, as claimed by the Petitioner are allowed. However, for the balance period i.e. 2021-22 to 2023-24, the actual security expenses of Rs.5688.72 lakh incurred during the year 2020-21 are allowed on a projected basis. The Petitioner is directed to furnish the relevant details of security expenses at the time of truing up of tariff. Accordingly, the security expenses claimed and allowed, is as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Security expenses claimed	4085.00	4494.00	4943.00	5328.00	5981.00
Security expenses allowed	3774.69	5688.72	5688.72	5688.72	5688.72

Capital Spares

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

54. Accordingly, the total O&M expenses allowed for the period 2019-24, is summarized as under:

	<i>(Rs. in lakh)</i>				
	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)	55470.00	57420.00	59430.00	61530.00	63680.00



Normative O&M expenses allowed under Regulation 35(1)(1) of the 2019 Tariff Regulations (b)	55470.00	57420.00	59430.00	61530.00	63680.00
Water charges claimed under Regulation 35(1)(6) of the 2019 Tariff Regulations (c)	868.60	868.60	868.60	868.60	868.60
Water charges allowed under Regulation 35(1)(6) of the 2019 Tariff Regulations (d)*	932.47	932.47	932.47	932.47	932.47
Security expenses claimed under Regulation 35(1)(6) of the 2019 Tariff Regulations (e)	4085.00	4494.00	4943.00	5328.00	5981.00
Security expenses allowed under Regulation 35(1)(6) of the 2019 Tariff Regulations (f)	3774.69	5688.72	5688.72	5688.72	5688.72
Total O&M expenses claimed under Regulation 35 of the 2019 Tariff Regulations (a + c + e)	60423.61	62872.61	65241.61	67726.61	70529.61
Total O&M expenses allowed under Regulation 35 of the 2019 Tariff Regulations (b + d + f) *	60177.16	64041.19	66051.19	68151.19	70301.19

*Considering the additional submission of Petitioner regarding the actual water expenses in 2019-20 and 2020-21

Operational Norms

55. The operational norms with respect to the generating station i.e. normative annual plant availability factor, gross station heat rate, specific fuel oil consumption, and auxiliary power consumption are discussed as under:

Normative Annual Plant Availability Factor (NAPAF)

56. In terms of Regulation 49(A)(a) of the 2019 Tariff Regulations, the Petitioner has considered NAPAF of 85% during the period 2019-24 and the same is allowed.

Gross Station Heat Rate (kCal/kWh)

57. In terms of Regulation 49(C)(a)(i) of the 2019 Tariff Regulations, the Petitioner has considered a Gross Station Heat Rate (GSHR) of 2410 kCal/kWh during the period 2019-24, which is the weighted average GSHR of 200 MW unit and 500 MW unit of the generating station, and the same is allowed.

Specific Oil Consumption

58. In terms of Regulation 49(D)(a) of the 2019 Tariff Regulations, the Petitioner has considered the secondary fuel oil consumption of 0.50 ml/kWh during the period 2019-24, and the same is allowed.

Auxiliary Energy Consumption

59. In terms of Regulation 49(E)(a) of the 2019 Tariff Regulations, the Petitioner has considered auxiliary energy consumption of 7.13% during the period 2019-24, which is the weighted average of the 200 MW and 500 MW units of the generating stations and on three decimal places, and hence the same is allowed.

Special Allowance

60. Regulation 28 of the 2019 Tariff Regulations provides for Special Allowance for Coal-based /Lignite fired Thermal Generating stations as under:

“(1) In case of coal-based/lignite fired thermal generating stations, the generating company, instead of availing renovation and modernization (R&M) may opt to avail a ‘special allowance’ in accordance with the norms specified in this Regulation, as compensation for meeting the requirement of expenses including renovation and modernisation beyond the useful life of the generating station or a unit thereof and in such an event, upward revision of the capital cost shall not be allowed and the applicable operational norms shall not be relaxed but the Special Allowance shall be included in the annual fixed cost:

Provided that such option shall not be available for a generating station or unit thereof for which renovation and modernization has been undertaken and the expenditure has been admitted by the Commission before commencement of these regulations, or for a generating station or unit which is in a depleted condition or operating under relaxed operational and performance norms.

Provided further that special allowance shall also be available for a generating station which has availed the Special Allowance during the tariff period 2009-14 or 2014-19 as applicable from the date of completion of the useful life.

(2) The Special Allowance admissible to a generating station shall be @ Rs 9.5 lakh per MW per year for the tariff period 2019-24.

(3) In the event of a generating station availing Special Allowance, the expenditure incurred upon or utilized from Special Allowance shall be maintained separately by the generating station and details of same shall be made available to the Commission as and when directed.



(4) The Special Allowance allowed under this Regulation shall be transferred to a separate fund for utilization towards Renovation & Modernisation activities, for which detailed methodology shall be issued separately.

61. The Special allowance claimed by the Petitioner in terms of the above regulations is allowed as under:

(Rs.in lakh)				
2019-20	2020-21	2020-21	2021-22	2022-23
19000.00	19000.00	19000.00	19000.00	19000.00

Interest on Working Capital

62. Regulation 34 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.

(b) xxxx

(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 and Energy Charges in Working Capital

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

64. Regulation 43(2) of the 2019 Tariff Regulations provides as under:

“(2) Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis shall be determined to three decimal places in accordance with the following formulae:

(a) For coal based and lignite fired stations:

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

xxxx

Where,

AUX = Normative auxiliary energy consumption in percentage.

CVPF = (a) Weighted Average Gross calorific value of coal as received, in kCal per kg for coal based stations less 85 Kcal/Kg on account of variation during storage at generating station;

(b) Weighted Average Gross calorific value of primary fuel as received, in kCal per kg, per litre or per standard cubic meter, as applicable for lignite, gas and liquid fuel based stations;

(c) In case of blending of fuel from different sources, the weighted average Gross calorific value of primary fuel shall be arrived in proportion to blending ratio:

CVSF = Calorific value of secondary fuel, in kCal per ml;

ECR = Energy charge rate, in Rupees per kWh sent out;

SHR = Gross station heat rate, in kCal per kWh;

LC = Normative limestone consumption in kg per kWh;

LPL = Weighted average landed cost of limestone in Rupees per kg;

LPPF = Weighted average landed fuel cost of primary fuel, in Rupees per kg, per litre or per standard cubic metre, as applicable, during the month. (In case of blending of fuel from different sources, the weighted average landed fuel cost of primary fuel shall be arrived in proportion to blending ratio);

SFC = Normative specific fuel oil consumption, in ml per kWh;

LPSFi = Weighted Average Landed Fuel Cost of Secondary Fuel in Rs./ ml during the month:

Provided that energy charge rate for a gas or liquid fuel based station shall be adjusted for open cycle operation based on certification of Member Secretary of respective Regional Power Committee during the month.”

65. The Petitioner has claimed the cost of fuel component in working capital and Energy Charge Rate (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 above-quoted Regulation) procured for the three months of October 2018, November 2018, and December 2018.
- (c) Price and GCV of secondary fuel oil for the three months of October 2018, November 2018 and December 2018.

66. The Petitioner has claimed the Energy Charge Rate (ECR) ex-bus of Rs.1.404/kWh for the generating station based on GCV and price of fuel (coal and secondary fuel oil) as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2021-22	2022-23
Cost of Coal towards stock (40 days)	20902.98	20902.98	20902.98	20902.98	20902.98
Cost of Secondary fuel oil 2 months	564.95	563.41	563.41	563.41	564.95

67. As regards the details of coal for computation of Energy charges, the Petitioner, vide affidavit dated 30.6.2021 has submitted a revised Form-15. Accordingly, the Weighted average price and GCV of coal and oil claimed by the Petitioner for the period 2019-24, is as under:

	Claimed
Weighted average price of coal (Rs./MT)	2000.14
Weighted average GCV of Coal (kcal/kg)	3755.33
Weighted average price of oil (Rs./KL)	45399.52
Weighted average GCV of oil (kcal/KL)	10433.33

68. It is observed that the Petitioner in the revised form has provided the details of the opening quantity of coal. Moreover, the cost of coal and GCV claimed in the main petition and the revised forms are the same. In view of this, claim of the Petitioner is allowed, which is subject to truing up as per Regulation 34(C)(2) of the 2019 Tariff Regulations. Accordingly, the fuel component in working capital and ECR claimed for the period 2019-24, is allowed as under:



	Claimed		Allowed	
	2019-20 & 2023-24	2020-21 to 2022-23	2019-20 & 2023-24	2020-21 to 2022-23
Cost of coal for 40 days of generation at NAPAF	20902.98		20902.98	
Cost of secondary fuel oil for 2 months of generation at NAPAF	564.95	563.41	564.95	563.41
ECR (Rs. /kWh)	1.404		1.404	

69. 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.

Month to Month Energy Charges

70. Regulation 30(6)(a) of the 2019 Tariff Regulations provides for computation and payment of Energy Charge for thermal generating stations:

“(6) : Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis shall be determined to three decimal place in accordance with the following formula:

(a) For coal based and lignite fired stations

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

Where,

AUX = Normative auxiliary energy consumption in percentage.

CVPF = Gross calorific value of primary fuel as received, in kCal per kg, per litre or per standard cubic metre, as applicable.

CVSF = Calorific value of secondary fuel, in kCal per ml.

ECR = Energy charge rate, in Rupees per kWh sent out.

GHR = 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 price of primary fuel, in Rupees per kg, per litre or per standard cubic metre, as applicable during the month.

SFC= Normative specific fuel oil consumption, in ml/ kWh

LPSFi= Weighted average landed price of secondary fuel in Rs/ ml during the month”.

Energy Charge Rate for computation of working capital



71. The Petitioner has claimed an Energy Charge Rate (ECR) of 140.400 Paise/kWh for the generating station. As discussed earlier, the claim of the Petitioner is allowed as under:

	Unit	2019-24
Capacity	MW	2000
Gross Station Heat Rate	kCal/kWh	2410
Aux. Energy Consumption	%	7.125%
Weighted average GCV of oil	kCal/lit	10433.33
Weighted average GCV of Coal	Kcal/kg	3755.33
Weighted average price of oil	Rs./KL	45399.53
Weighted average price of Coal	Rs./MT	2000.14
Rate of Energy Charge ex-bus	Rs./kWh	1.404

72. The Energy Charges for 45 days for computation of working capital based on ECR of Rs.1.404/kWh, is allowed as under:

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
23940.80	23940.80	23940.80	23940.80	23940.80

73. Accordingly, the fuel component and energy charges for two months in working capital is allowed as under:

<i>(Rs. in lakh)</i>					
	2019-20	2020-21	2021-22	2022-23	2023-24
Cost of Coal for 40 days (10 days for coal stock and 30 days for generation)	20902.98	20902.98	20902.98	20902.98	20902.98
Cost of Secondary fuel oil for 2 months	564.95	563.41	563.41	563.41	564.95
Energy Charges for 45 Days	23940.80	23940.80	23940.80	23940.80	23940.80

Working Capital for Maintenance Spares

74. The Petitioner 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
12084.72	12556.52	13048.32	13545.32	14105.92

75. Regulation 34(1)(a)(iv) of the 2019 Tariff Regulations provide for maintenance spares @ 20% of the O&M expenses (including water charges and security expenses).



Accordingly, maintenance spares @ 20% of the O&M expenses (including the water charges and security expenses) allowed is as under:

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
12035.43	12808.24	13210.24	13630.24	14060.24

Working Capital for Receivables

76. In terms of Regulation 34(1)(a)(v) of the 2019 Tariff Regulations, the receivables equivalent to 45 days of capacity charges and energy charges is worked out and allowed as under:

<i>(Rs. in lakh)</i>					
	2019-20	2020-21	2021-22	2022-23	2023-24
Variable Charges - for 45 Days	23940.80	23940.80	23940.80	23940.80	23940.80
Fixed Charges - for 45 Days	9297.22	9798.30	10034.05	10301.23	10687.60
Total	33238.01	33739.10	33974.85	34242.03	34628.40

Working Capital for O&M Expenses (1 month)

77. The Petitioner has claimed the 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
5035.30	5231.88	5436.80	5643.88	5877.47

78. Regulation 34(1)(a)(vi) of the 2019 Tariff Regulations provide for O&M expenses equivalent to 1 month of the O&M expenses (including water charges and security expenses). Accordingly, O&M expenses equivalent to 1 month of the O&M expenses (including water charges and security expenses) allowed is as under:

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
5014.76	5336.77	5504.27	5679.27	5858.43

Rate of interest on working capital

79. In line with Regulation 34(3) of the 2019 Tariff Regulations, the rate of interest on working capital is considered as 12.05% (i.e. 1 year SBI MCLR of 8.55% as on 1.4.2019 + 350 bps) for the year 2019-20, 11.25% (i.e. 1 year SBI MCLR of 7.75% as on 1.4.2020 + 350 bps) for the year 2020-21, 10.50% (i.e. 1 year SBI MCLR of 7.00% as on 1.4.2021 / 1.4.2022 + 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 is allowed as under:

	(Rs. in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Working Capital for Cost of Coal towards Stock (10 days generation corresponding to NAPAF)	5225.74	5225.74	5225.74	5225.74	5225.74
Working Capital Cost of Coal towards Generation (30 days generation corresponding to NAPAF)	15677.23	15677.23	15677.23	15677.23	15677.23
Working Capital Cost of Secondary fuel oil (2 months generation corresponding to NAPAF)	564.95	563.41	563.41	563.41	564.95
Working Capital for Maintenance Spares @ 20% of O&M expenses	12035.43	12808.24	13210.24	13630.24	14060.24
Working Capital for Receivables – 4(5 Days sale of electricity at NAPAF)	33238.01	33739.10	33974.85	34242.03	34628.40
Working Capital for O&M expenses – 1 month	5014.76	5336.77	5504.27	5679.27	5858.43
Total Working Capital	71756.14	73350.49	74155.74	75017.92	76015.00
Rate of Interest	12.0500%	11.2500%	10.5000%	10.5000%	12.0000%
Interest on Working Capital	8646.62	8251.93	7786.35	7876.88	9121.80

Annual Fixed Charges for the period 2019-24

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

	(Rs. in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	37.94	163.15	285.02	285.02	285.02
Interest on Loan	29.91	159.47	275.33	251.95	228.43
Return on Equity	6725.74	6859.36	6989.41	6989.41	6989.41
Interest on Working Capital	8646.62	8251.93	7786.35	7876.88	9121.80
O&M Expenses	60177.16	64041.19	66051.19	68151.19	70301.19
Special Allowance	19000.00	19000.00	19000.00	19000.00	19000.00
Total	94617.37	98475.11	100387.30	102554.44	105925.85

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.



81. 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

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

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

84. Petition No. 424/GT/2020 is disposed of in terms of the above.

Sd/-
(Pravas Kumar Singh)
Member

Sd/-
(Arun Goyal)
Member

Sd/-
(I.S. Jha)
Member

Sd/-
(Jishnu Barua)
Chairperson