CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 430/GT/2020

Coram:

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

Date of Order: 27th December, 2023

IN THE MATTER OF

Petition for determination of tariff of Rihand Super Thermal Power Station, Stage-III (1000 MW) for the period from 1.4.2019 to 31.3. 2024.

AND

IN THE MATTER OF

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

Vs

1. Uttar Pradesh Power Corporation Limited,
   Shakti Bhawan, 14, Ashok Marg,
   Lucknow 226001

2. Rajasthan Urja Vikas Nigam Limited,
   (*on behalf of Discoms of Rajasthan*)
   Vidyut Bhawan, Janpath,
   Jaipur 302005

3. Tata Power Delhi Distribution Limited,
   Grid Substation, Hudson Road,
   Kingsway Camp,
   Delhi- 110019

4. BSES Rajdhani Power Limited,
   2nd Floor, B-Block, BSES Bhawan,
   Nehru Place, New Delhi- 110019

5. BSES Yamuna Power Limited,
   Shakti Kiran Building, Karkardooma,
   Delhi- 110092

6. Haryana Power Purchase Center,
   Shakti Bhawan, Sector-VI,
   Panchkula, Haryana - 134109

7. Punjab State Power Corporation Limited,
   The Mall, Patiala- 147001

8. Himachal State Electricity Board Limited,
   Kumar Housing Complex Building-II,
   Vidyut Bhawan,
   Shimla – 171004

9. Power Development Department (J&K),
   Government of J&K, Secretariat,
   Srinagar

10. Electricity Department (Chandigarh),
    Union Territory of Chandigarh,
    Additional Office Building,
    Sector 9D- Chandigarh

11. Uttarakhand Power Corporation Limited,
    Urja Bhawan, Kanwali Road, Dehradun-248001,
    Uttarakhand **……Respondents**

Parties Present:

Shri Anand K. Ganesan, Advocate, NTPC
Ms. Swapna Seshadri, Advocate, NTPC
Ms. Ritu Apurva, Advocate, NTPC
Shri Deepak Thakur, Advocate, NTPC
Shri Mansoor Ali Shoket, Advocate, TPDDL
Shri Nitin Kala, Advocate, TPDDL
Shri Kunal Singh, Advocate, TPDDL
Ms. Shefali Sobti, TPDDL
Shri Anupam Varma, BYPL
Shri Aditya Ajay, Advocate, BYPL
Shri Rahul Kinra, Advocate, BYPL
Shri Sachin Dubey, Advocate, BRPL
Ms. Megha Bajpeyi, BRPL

ORDER

This petition has been filed by the Petitioner, NTPC Limited for approval of tariff of Rihand Super Thermal Power Station Stage-III (1000 MW) (in short 'the generating station') for the period 2019-24, in accordance with the provisions of the Central

Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 (in short 'the 2019 Tariff Regulations'). The generating station with a total capacity of 1000 MW comprises of two units of 500 MW each and the dates of commissioning of said units are as under:

Unit-I	19.11.2012
Unit-II	27.3.2014

2. The Commission vide its order dated 13.11.2023 in Petition No. 238/GT/2020 had trued up the tariff of the generating station for the period 2014-19. Accordingly, the annual fixed charges and capital cost allowed vide order dated 13.11.2023 are as under:

Capital Cost allowed

(Rs. in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Opening capital cost	467043.03	490782.64	506716.76	545492.36	550580.55
Add: Additional capital expenditure	23739.61	15934.13	38775.60	5088.19	804.81
Closing capital cost	**490782.64**	**506716.76**	**545492.36**	**550580.55**	**551385.35**
Average capital cost	478912.83	498749.70	526104.56	548036.45	550982.95

Annual Fixed Charges allowed

(Rs. in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Depreciation	26593.24	27656.80	28943.09	29977.89	30138.31
Interest on Loan	25041.25	22861.79	21731.20	20123.98	18089.66
Return on Equity	28174.44	29483.59	31100.67	32397.18	32658.96
Interest on Working Capital	6447.28	6520.07	6621.61	6795.82	6834.56
O&M Expenses	16423.85	17430.80	18500.70	19643.85	20864.30
Total	**102680.08**	**103953.05**	**106897.28**	**108938.72**	**108585.80**

Present Petition

3. The Petitioner has filed the present Petition for determination of tariff of the generating station for the period 2019-24 and has claimed the following annual fixed charges and capital cost:

Annual Fixed Charges

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	30317.54	30493.06	30807.17	31028.78	31295.74
Interest on Loan	16264.05	14099.63	12083.41	10346.42	8550.84
Return on Equity	31273.14	31426.84	31664.39	31806.94	32061.41
Interest on Working Capital	5233.70	5256.04	5274.75	5294.74	5314.67
O&M Expenses	24217.52	25136.59	25956.97	26775.05	27646.60
Total	**107305.95**	**106412.16**	**105786.69**	**105251.92**	**104869.25**

Capital Cost

(a) Capital cost eligible for Return on Equity at normal rate:

(Rs in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Opening capital cost	554745.61	555288.94	559251.27	560702.27	560702.27
Add: Addition during the year	543.33	3962.33	1451.00	0.00	7280.00
Less: De-capitalization during the year	0.00	0.00	0.00	0.00	0.00
Less: Reversal during the year	0.00	0.00	0.00	0.00	0.00
Add: Discharges during the year	0.00	0.00	0.00	0.00	0.00
Closing capital cost	555288.94	559251.27	560702.27	560702.27	567982.27
Average capital cost	**555017.28**	**557270.11**	**559976.77**	**560702.27**	**564342.27**

***(b) Capital cost eligible for Return on Equity at weighted average rate of interest*:**

(Rs in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Opening capital cost	0.00	10.00	1921.00	6097.50	8584.00
Add: Addition during the year	10.00	1911.00	4176.50	2486.50	8.00
Less: De-capitalization during the year	0.00	0.00	0.00	0.00	0.00
Less: Reversal during the year	0.00	0.00	0.00	0.00	0.00
Add: Discharges during the year	0.00	0.00	0.00	0.00	0.00
Closing capital cost	10.00	1921.00	6097.50	8584.00	8592.00
Average capital cost	**5.00**	**965.50**	**4009.25**	**7340.75**	**8588.00**

4. The Respondent UPPCL, has filed its reply vide affidavits dated 16.8.2021 and 23.7.2022 and the Petitioner has filed rejoinder to the same vide affidavit dated 7.1.2022 and 17.8.2022 respectively. The Petition was heard through video conferencing on 23.8.2022, and the Commission after hearing the parties, reserved its order. Based on the submissions of the parties and the documents available on

record and on prudence check, we proceed determination of the tariff of the generating station for the period 2019-24, as stated in the subsequent paragraphs.

Capital Cost

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

"(3) The Capital cost of an existing project shall include the following:

(a) Capital cost admitted by the Commission prior to 1.4.2019 duly trued up by excluding liability, if any, as on 1.4.2019;

(b) Additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with these regulations;

(c) Capital expenditure on account of renovation and modernisation as admitted by this Commission in accordance with these regulations;

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

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

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

6. The annual fixed charges claimed by the Petitioner, is based on the opening capital cost of Rs.554745.61 lakh, as against the capital cost of Rs.551385.35 lakh, as on 31.3.2019, on cash basis, allowed vide order dated 13.11.2023 in Petition No. 238/GT/2020. However, , in terms of Regulation 19(3) of the 2019 Tariff Regulations, the closing capital cost of Rs.551385.35 lakh, on cash basis, has been considered as the opening capital cost, as on 1.4.2019.

Additional Capital Expenditure for the period 2019-24

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 additional to the original scope of work, on case to case basis:

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

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

(2) In case of de-capitalisation of assets of a generating company or the transmission licensee, as the case may be, the original cost of such asset as on the date of decapitalisation shall be deducted from the value of gross fixed asset and

corresponding loan as well as equity shall be deducted from outstanding loan and the equity respectively in the year such de-capitalisation takes place with corresponding adjustments in cumulative depreciation and cumulative repayment of loan, duly taking into consideration the year in which it was capitalised."

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

(Rs. in lakh)

Head/ Equipment	Regulation	2019-20	2020-21	2021-22	2022-23	2023-24
A. Works under Original scope, Change in Law etc. eligible for RoE at Normal Rate						
Ash Dyke Construction	25(1) (c) & 25 (1)(g)	0.00	0.00	0.00	0.00	7280.00
Dry Ash Extraction System St-III	25(1)(b)	400.00	1500.00	1451.00	0.00	0.00
Rail Line Extension for DAES	25(1)(b)	0.00	750.00	0.00	0.00	0.00
Package of ClO_2 Plants	26(1)(b) and 26 (1)(d)	103.33	930.00	0.00	0.00	0.00
Sewage Treatment Plant	26(1)(b), 26(1)(f)	40.00	360.00	0.00	0.00	0.00
Nitrogen Sparging	26 (1) read with 76	0.00	422.33	0.00	0.00	0.00
Total (A)		**543.33**	**3962.33**	**1451.00**	**0.00**	**7280.00**
B. Works beyond Original scope excluding add-cap due to Change in Law eligible for RoE at Wtd. Average rate of Interest						
Additional Helper Cells CT	26 (1) read with 76	0.00	1500.00	4000.00	2421.00	0.00
Security related works and Procurement of Security gadgets / equipment's	26 (1) (d)	10.00	411.00	176.50	65.50	8.00
Total (B)		**10.00**	**1911.00**	**4176.50**	**2486.50**	**8.00**
Total Additional Capital Expenditure Claimed		**553.33**	**5873.33**	**5627.50**	**2486.50**	**7288.00**

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

Dry Ash Extraction System

10. The Petitioner has claimed projected additional capital expenditure of Rs.400.00 lakh in 2019-20, Rs.1500.00 lakh in 2020-21, Rs.1451.00 lakh in 2021-22 towards Dry Ash Extraction System (DAES) and related works under Regulation 25(1) (b) of the

2019 Tariff Regulations. In justification of the same, the Petitioner has submitted that as per notification of the MoEF&CC dated 25.01.2016, coal/ lignite based Thermal Power plants are required to comply with 100% fly ash utilization targets and Dry Ash Extraction System (DAES) is aimed to comply with the said directions of the MoEF&CC. The Respondent UPPCL has submitted that the Petitioner has claimed expenditure for DAES during the period 2014-19 in respect of Singrauli STPS (another generating station of the Petitioner) and the Commission vide its order had disallowed the said claim of the Petitioner on the grounds that the said station had completed its useful life and that the Petitioner has been claiming the special allowance. Accordingly, it has submitted that the claim of the Petitioner for the current generating station should also be disallowed.

11. The matter has been considered. It has been observed from the submissions of the Respondent that the Commission vide its order dated 28.7.2016 in Petition 290/GT/2014 (determination of tariff for Singrauli STPS for the period 2014-19) had disallowed the claim of the Petitioner for DAES, as under:

> *"The matter has been examined. The Commission in its orders dated 7.8.2012 and 15.5.2014 in Petition No. 225/2009 and 188/GT/2013 had allowed the projected additional capital expenditure under the Regulation 9(2)(ii) of the 2009 Tariff Regulations. However, in Petition No. 315/GT/2014 filed by the petitioner for final truing-up exercise for the period 2009-14 no claim was made by the petitioner for capitalization of this item during 2013-14 and the work was expected to be completed during 2015-16. Hence, against the projected additional capital expenditure of `4572.00 lakh allowed vide order dated 15.5.2014 for Dry ash Extraction and Transportation plant for Stage-II, no actual capital expenditure was incurred by the petitioner and accordingly no capitalisation of the expenditure was allowed of this work/ asset in commission's order dated 15.5.2014, it is however noticed that the generating station has completed its useful life of 25 years in 2013-14 (during the period 2009-14) and hence the petitioner has opted for Special allowance of `77848.32 lakh for the period 2014-19 towards meeting the requirement of expenses including R&M beyond the useful life of the generating station in terms of Regulation 16 of the 2014 Tariff Regulations. Hence, there cannot be any deferred work relating to ash pond or ash handling system in the original scope of work.*
>
> *Since the petitioner is allowed special allowance of `77848.32 lakh for the period 2014-19 towards meeting the capital expenses including R&M beyond the useful life of the generating station in terms of Regulation 16 of the 2014 Tariff Regulations, we, in line*

with the decisions of the Tribunal, (as referred above) decide that the projected additional expenditure of Rs 4572.00 lakh in 2015-16 cannot be allowed and the same may be met from the Special allowance allowed to the generating station."

12. We have considered the matter. The above order of the Commission is not applicable to the present case of the Petitioner as the generating station in the present case, is yet to complete its useful life. Moreover, in the said case, the claim of the Petitioner was under deferred works. This is not so in the present case, where, the claim of the Petitioner is under 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"*

13. In our view, DAES shall help in reducing the burden of ash disposal in the ash dyke area, which will in turn, reduce the regular capitalization of expenditure for raising of ash dyke and avoid ground water pollution. In this background and keeping in view that the additional expenditure claimed is for compliance with the existing norms under the MoEF&CC notification, the claim of the Petitioner **is allowed** under Regulation 25(1)(b) of the 2019 Tariff Regulations. The Petitioner is, however, directed to furnish details of the revenue earned from 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.

Rail Line Extension for DAES

14. The Petitioner has claimed projected additional capital expenditure of Rs.750.00 lakh in 2020-21 towards Rail Line Extension for DAES under Regulation 25(1) (b) of the 2019 Tariff Regulations. The Petitioner has submitted that as per the MoEF&CC notification dated 25.1.2016, coal/ lignite based Thermal Power plants shall have to comply with 100% fly Ash utilization targets. It has also stated that the notification also

mandates separate access for dry ash silos to ease the delivery of fly ash and in view of the remote location of the generating station, it is not possible to utilize 100% ash locally through access roads. Therefore, it was decided to transport the ash to potential utilisation sites through railway line and the proposed rail line extension work includes laying of Railway track within the Plant boundary up to dry ash silos to enable collection of ash directly from dry Ash silos. The Petitioner has further submitted that pursuant to the said notification, it had filed Petition No. 172/MP/2016 seeking recovery of additional expenditure incurred due to sharing of fly ash transportation cost as a "change in law‟ event. The Petitioner has also pointed out that the Commission vide its order dated 5.11.2018 in Petition No. 172/MP/ 2016 had declared the said Notification dated 25.1.2016 as a change in law event and admitted the claims that was spent over and above the ash sale fund, on account of ash transportation. In the said order, the Commission had directed as follows:

> *"31. Accordingly, we in exercise of the regulatory power hold that the actual additional expenditure incurred by the Petitioner towards transportation of ash in terms of the MOEFCC Notification is admissible under "Change in Law‟ as additional O&M expenses. However, the admissibility of the claims is subject to prudence check of the following conditions on case to case basis for each station:*
>
> *a) Award of fly ash transportation contract through a transparent competitive bidding procedure. Alternatively, the schedule rates of the respective State Governments, as applicable for transportation of fly ash.*
>
> *b) Details of the actual additional expenditure incurred on Ash transportation after 25.1.2016, duly certified by auditors.*
>
> *c) Details of the Revenue generated from sale of fly ash/ fly ash products and the expenditure incurred towards Ash utilisation up to 25.1.2016 and from 25.1.2016 to till date, separately.*
>
> *d) Revenue generated from fly Ash sales maintained in a separate account as per the MoEF notification."*

15. Accordingly, the Petitioner has submitted that it has incurred the expenditure towards ash transportation in terms of the above. In this background and keeping in view that the additional expenditure claimed is for compliance with the existing norms under the MoEF&CC notification, the claim of the Petitioner is **allowed** under

Regulation 25(1)(b) of the 2019 Tariff Regulations. The Petitioner is, however, directed to furnish details of revenue earned from 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.

Ash Dyke Construction

16. The Petitioner has claimed projected additional capital expenditure of Rs.7280.00 lakh in 2023-24 towards Ash Dyke Construction under Regulation 25(1) (c) & 25 (1) (g) of the 2019 Tariff Regulations. The Petitioner has submitted that Ash Dyke is required to accommodate the ash generated from Power Plant and it forms part of original scope of the project. The matter has been considered. It is observed that ash related works are within the original scope of work of the project and these works are continuous in nature during the entire operational lifetime of the generating station. Therefore, the additional capital expenditure claimed by the Petitioner is allowed under Regulation 25(1) (c) & 25 (1) (g) of the 2019 Tariff Regulations. However, petitioner should undertake this expenditure judiciously after duly considering the increased ash disposal with proposed investment in DAES and Rail Line Extension for DAES and submit the details at the time of true up.

CLO2 Package

17. The Petitioner has claimed projected additional capital expenditure of Rs.103.33 lakh in 2019-20 and Rs.930.00 lakh in 2020-21, under Regulation 26(1) (b) read with Regulation 26 (1) (b) and 26(1) (d) of the 2019 Tariff Regulations. In justification for the same, the Petitioner submitted that at present Chlorine gas is being dozed, from chlorine stored in cylinders/ tonners, 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 gas is very hazardous and may prove fatal in case of leakage. 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. In the proposed scheme Clo2 shall be produced on site by use of commercial grade HCl and Sodium Chlorite and accordingly avoids handling and storage risk. Further, at Kudgi NTPC project Department of Factories, Boiler, Industrial Safety and Health, Government of Karnataka has 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 has asked NTPC to explore the possibility of installing ClO2 system instead of Chlorine gas system. The Petitioner further submitted that in view of the directions of various statutory authorities in different states of the country and for enhancing the safety of O&M personnel, and public, NTPC is replacing the Chlorination system with ClO2 system. In this Context, the Respondent UPPCL has submitted that there is no incidence of change in law or compliance of any existing law in the instant matter which warrants quoting of regulation 26 (1) (b) and as such this claim is liable to be rejected.

18. We have considered the matter. The Petitioner has claimed additional capitalization expenditure of this asset/item under Regulation 26(1) (b) of the 2019 Tariff Regulations. The Petitioner has submitted that for Kudgi project of the Petitioner, the Government of Karnataka had directed the Petitioner to replace the highly hazardous gas chlorination system with ClO_2 system. It is observed that the letter dated 23.9.2019 addressed by the Directorate of Factories, Industrial Safety & Health State Government of Karnataka to the GM, NTPC pertains to site clearance of Kudgi Super Thermal Power station of the Petitioner. This letter can in no manner be termed

as a change in law event in respect of this generating station (Rihand STPS) warranting capitalization of the expenditure. As regards the claim of the Petitioner under Regulation 26(1)(d) of the 2019 Tariff Regulations, we find no specific direction or advice from any Governmental or statutory authorities as regards the need for this item (chlorine dozing system is being replaced by Chlorine Dioxide (ClO_2) system) for the safety and security of the generating station. It is pointed out that the claim of the Petitioner in Petition No. 418/GT/2020 (tariff of Simhadri STPS, Stage-II for the period 2019-24) had not been allowed vide Commission's order dated 24.1.2022. In this background, the claim of the Petitioner, is not allowed.

Nitrogen Sparging

19. The Petitioner has claimed projected additional capital expenditure of Rs.422.33 lakh in 2020-21, under Regulation 26(1) with Regulation 76 of the 2019 Tariff Regulations. The Petitioner has submitted that boilers, condensers and other steam/ water handling equipment's are very sensitive to corrosion and fouling and the main fouling impurity causing corrosion is the dissolved oxygen which enters the water-steam cycle through the cycle make-up water or during the start-up after outages when the system is filled with DM water. At present the DM water is stored in the vented storage tanks exposed to air wherein CO_2 and O_2 gets absorbed into this water. When this water containing high concentrations O_2 & CO_2 enters the system causes stress corrosion, fatigue corrosion, pitting etc. leading to failures. Further, it causes pH swings decremental to pressure parts and forms oxides which precipitate and gets deposited in the system. Most of the adverse effects are visible in the long run. Due to temperature and pressure variations during start-ups and load variations these deposits gets dis-lodged and need lot of time to mechanically scavenge out of the system by way of continuous blowdown which is a waste of energy or through polishing

units. By nitrogen sparging/ blanketing the storage tanks and other related systems ingress of O_2 and CO_2 could be avoided resulting in increased life of components, reduce failures, reduce start-up time. Moreover, it would help in reducing unplanned outages, increasing system stability and reliability. The Respondent UPPCL has submitted that the claim of the Petitioner is primarily of R&M in nature and hence the Petitioner should meet it through the Special allowance.

20. We have considered the matter. It is observed that the Petitioner has not provided detailed justification, such as the cost benefit analysis and the reasons as to why such expenditure cannot be met through the O&M expenses allowed to the generating station. It is also observed that a similar claim of the Petitioner was disallowed by the Commission vide its order dated 8.4.2022 in Petition 426/GT/2020 (tariff of Rihand STPS Stage-II for the period 2019-24). In view of this, the projected additional expenditure claimed by the Petitioner is not allowed.

Sewage Treatment Plant

21. The Petitioner has claimed projected additional capital expenditure of Rs.40.00 lakh in 2019-20 and Rs.360.00 lakh in 2020-21, under Regulation 26(1) (b) with 26 (1) (f) of the 2019 Tariff Regulations. The Petitioner has submitted that as per the directions of Uttar Pradesh Pollution Control Board (UPPCB) vide its letter dated 25.7.2016, the Petitioner is implementing the Sewage Treatment Plant. The Petitioner while pointing out that the projected additional capitalisation pertains to the balance work of Sewage Treatment Plant (STP) capitalised in Rihand STPS Stage-III in 2018-19, has submitted that the claim may be allowed under change in law or for compliance of an existing law.

22. We have considered the matter. It is observed that the additional capital expenditure claimed by the Petitioner in Petition No. 238/GT/2020 (tariff for the generating station for the period 2014-19 (after truing up) was allowed under change in law in 2018-19 vide order dated 13.11.2023. Since the claim of the Petitioner is towards the balance work of Sewage Treatment Plant, the same is allowed. However, the corresponding assumed deletion shall be considered at the time of truing up of tariff.

Additional Helper Cells for Cooling Towers

23. The Petitioner has claimed projected additional capital expenditure of expenditure of Rs.1500.00 lakh in 2020-21, Rs.4000.00 lakh in 2021-22 and Rs.2421.00 lakh in 2022-23, under Regulation 26(1) read with Regulation 76 of the 2019 Tariff Regulations. In justification, the Petitioner has submitted that Letter of Award for erection & commissioning of Cooling towers (CT) was awarded to M/s. NBCC and soon after the completion of work, a shortfall was observed in the performance of cooling towers. It has also submitted that the matter was taken up with M/s. NBCC and despite continuous follow-up, M/s. NBCC could not offer any solution to the performance issue. The Petitioner has stated that the basic factors affecting CT performance are area & volume of the fills, water distribution across fill area through nozzles and Air flow and in order to improve the performance, the Petitioner had made efforts to improve Air flow in CTs by replacing the existing fan blades with highly efficient improved profile fan blades but even after replacement of the fan blades, design performance could not be attained. It has submitted that despite several communications, M/s. NBCC did not depute its representative for joint PG test and therefore, the Petitioner had appointed M/s. McHale & Associates (USA), Cooling Technology Institute (CTI) as an approved agency, to conduct PG test with a

communication to M/s NBCC to attend the same. It has also stated that the PG test conducted by the agency failed to achieve the guarantee performance and M/s. NBCC had disputed the PG test and has taken the matter to Administrative Mechanism for Resolution of CPSEs Disputes (AMRCD) under DoPE. The Petitioner has submitted that it has retained the Liquidated Damages (LD), amounting to Rs 21.57 crore, for deduction, subject to outcome of the matter before AMRCD. The Petitioner has added that to improve the area/ volume of the fill to ensure proper water distribution, additional helper cells are being installed to bring the CTs at design efficiency and therefore, the current capitalization pertains to the installation of additional helper cells which may be approved.

24. We have considered the matter. In a similar case in respect of Mauda STPS Stage-I of the Petitioner, the Commission vide its order dated 14.11.2022 in Petition No. 437/GT/2020, had rejected the claim of the Petitioner, as under:

> *"Petitioner vide affidavit dated 14.7.2022 has submitted that the additional capital expenditure towards the said work is no longer envisaged. As the works of the cooling towers are executed by NBCC, the quality, quantity and performance of these works are to be ensured by the Petitioner through the vendor/ contractor as per the provisions of contract such as LD etc. In view of this submission of the Petitioner that the work is no longer envisaged, the projected additional capital expenditure claimed by the Petitioner has not been considered."*

25. As the works of the cooling towers are executed by NBCC, the quality, quantity and performance of these works are to be ensured by the Petitioner through the vendor/ contractor as per the provisions of contract such as LD etc. In view of this and in line with above referred order dated 14.11.2022 the projected additional capital expenditure claimed by the Petitioner has not been considered in this order.

Security related works and Procurement of Security gadgets / equipment's

26. The Petitioner has claimed projected additional capital expenditure of Rs.10.00 lakh in 2019-20, Rs.411.00 lakh in 2020-21, Rs.176.50 lakh in 2021-22, Rs.65.50 lakh

in 2022-23 and Rs.8.00 lakh in 2023-24, under Regulation 26(1) (d) of the 2019 Tariff Regulations. The Petitioner has submitted that Ministry of Power, GoI vide its letters dated 27.2.2019 and 23.10.2019 has directed the Petitioner to strengthen the security arrangements at vital installations. The Petitioner has submitted the copy of the letters and submitted that the expenditure projected are to be incurred towards security of the plant in line with the MoP letters.

27. The submissions have been considered. Considering the fact that the total projected additional capital expenditure of Rs.671.00 lakh claimed during the period 2019-24 is for the safety and security of the plant, the claim is allowed under Regulation 26(1)(d) of the 2019 Tariff Regulations. The Petitioner is, however, directed to submit the relevant documents in support the claim at the time of truing-up of tariff along with the complete scope of work, including a certificate to the affect that the asset has been put to use.

28. Accordingly, the projected additional capital expenditure allowed for the period 2019-24 in respect of the generating station for the period 2019-24 is as under:

(Rs. in lakh)

Head/ Equipment	Regulation	2019-20	2020-21	2021-22	2022-23	2023-24
A. Works under Original scope, Change in Law etc. eligible for RoE at Normal Rate						
Ash Dyke Construction	25(1)(c) & 25 (1)(g)	0.00	0.00	0.00	0.00	7280.00
Dry Ash Extraction System St-III	25(1)(b)	400.00	1500.00	1451.00	-	-
Rail Line Extension for DAES	25(1)(b)	0.00	750.00	0.00	0.00	0.00
Package of ClO2 Plants	26(1)(b) and 26 (1)(d)	0.00	0.00	0.00	0.00	0.00
Sewage Treatment Plant	26(1)(b), 26(1)(f)	40.00	360.00	0.00	0.00	0.00
Nitrogen Sparging	26 (1) read with 76	0.00	0.00	0.00	0.00	0.00
Total (A)		**440.00**	**2610.00**	**1451.00**	**0.00**	**7280.00**
B.Works beyond Original scope excluding add-cap due to Change in Law eligible for RoE at Wtd. Average rate of Interest						
Additional Helper Cells CT	26 (1) read with 76	0.00	0.00	0.00	0.00	0.00

Security related works and Procurement of Security gadgets / equipment's	26 (1) (d)	10.00	411.00	176.50	65.50	8.00
Total (B)		**10.00**	**411.00**	**176.50**	**65.50**	**8.00**
Total Additional Capital Expenditure Allowed		**450.00**	**3021.00**	**1627.50**	**65.50**	**7288.00**

Capital cost allowed for the period 2019-24

29. Based on above, the capital cost allowed for the purpose of tariff is as under:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Opening capital cost	551385.35	551835.35	554856.35	556483.85	556549.35
Add: Additional capital expenditure	450.00	3021.00	1627.50	65.50	7288.00
Closing capital cost	**551835.35**	**554856.35**	**556483.85**	**556549.35**	**563837.35**
Average capital cost	551610.35	553345.85	555670.10	556516.60	560193.35

Debt Equity Ratio

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

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

Provided that:

i. where equity actually deployed is less than 30% of the capital cost, actual equity shall be considered for determination of tariff:

ii. the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:

iii. any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of debt: equity ratio.

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

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

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

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

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

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

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

31. The gross normative loan and equity of the generating station as on 31.3.2019 approved by order dated 13.11.2023 in Petition No. 238/GT/2020 is Rs.385969.75 lakh and Rs.165415.61 lakh, respectively. Accordingly, in terms of Regulation 18(3) of the 2019 Tariff Regulations, the gross normative loan and equity to be considered as on 1.4.2019 works out to Rs.385969.75 lakh and Rs.165415.61 lakh, respectively. Further, the projected additional capital expenditure approved above has been allocated to debt and equity in the debt: equity ratio of 70:30. Accordingly, the details of debt: equity ratio in respect of the generating station as on 1.4.2019 and 31.3.2024, subject to truing up, is as under:

	Capital cost as on 1.4.2019 ***(Rs. in lakh)***	**(%)**	**Additional capital expenditure** ***(Rs. in lakh)***	**(%)**	**Total cost as on 31.3.2024** ***(Rs. in lakh)***	**(%)**
Debt	385969.75	70.00%	8716.40	70.00%	394686.15	70.00%
Equity	165415.61	30.00%	3735.60	30.00%	169151.21	30.00%
Total	**551385.35**	**100.00%**	**12452.00**	**100.00%**	**563837.35**	**100.00%**

Return on Equity

32. 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.

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

"31. Tax on Return on Equity:

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

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

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

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

Illustration-

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

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

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

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

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

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

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

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

34. The Petitioner has claimed Return on Equity (ROE) considering base rate of 15.50% and effective tax rate of 17.472% for the opening equity as on 1.4.2019 and projected additional capital expenditure claimed under original scope of work, change in law etc. for the period 2019-24. The same has been considered for the purpose of tariff. Further, for additional capital expenditure claimed beyond original scope of work (excluding additional capital expenditure due to change in law) the Petitioner has claimed ROE after grossing up weighted average rate of interest (WAROI) claimed for the respective years of the period 2019-24 with effective tax rate of 17.472%. The same has been considered for the purpose of tariff. Accordingly, return on equity has been worked out as under:

Return on Equity at Normal Rate

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Notional Equity- Opening	165415.61	165547.61	166330.61	166765.91	166765.91
Less: Adjustment to equity in terms of 1st proviso to Regulation 18(3)	0.00	0.00	0.00	0.00	0.00
Normative Equity- Opening	165415.61	165547.61	166330.61	166765.91	166765.91

Add: Addition of Equity due to additional capital expenditure	132.00	783.00	435.30	0.00	2184.00
Normative Equity – Closing	165547.61	166330.61	166765.91	166765.91	168949.91
Average Normative Equity	165481.61	165939.11	166548.26	166765.91	167857.91
Return on Equity (Base Rate)	15.500%	15.500%	15.500%	15.500%	15.500%
Effective Tax Rate for respective years	17.472%	17.472%	17.472%	17.472%	17.472%
Rate of Return on Equity (Pre-tax)	18.782%	18.782%	18.782%	18.782%	18.782%
Return on Equity (Pre-tax) - (annualised)	**31080.76**	**31166.68**	**31281.09**	**31321.97**	**31527.07**

Return on Equity at WAROI

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Gross Notional Equity	0.00	3.00	126.30	179.25	198.90
Less: Adjustment to equity in terms of 1st proviso to Regulation 18(3)	0.00	0.00	0.00	0.00	0.00
Normative Equity – Opening	**0.00**	**3.00**	**126.30**	**179.25**	**198.90**
Addition of Equity due to additional capital expenditure	3.00	123.30	52.95	19.65	2.40
Normative Equity – Closing	**3.00**	**126.30**	**179.25**	**198.90**	**201.30**
Average Normative Equity	1.50	64.65	152.78	189.08	200.10
Return on Equity (Base Rate) (%)	7.6678%	7.6648%	7.6804%	8.0050%	8.4238%
Effective Tax Rate *	17.472%	17.472%	17.472%	17.472%	17.472%
Rate of Return on Equity (Pre-tax)	9.291%	9.288%	9.306%	9.700%	10.207%
Return on Equity (Pre-tax) - (annualized)	**0.14**	**6.00**	**14.22**	**18.34**	**20.42**

35. In view of the above, the total ROE allowed for the purpose of tariff, for the period 2019-24 is as under:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Return on Equity					
(a) at Normal Rate	31080.76	31166.68	31281.09	31321.97	31527.07
(b) at WAROI	0.14	6.00	14.22	18.34	20.42
Total Return on Equity (Pre-tax) - (annualised)	**31080.89**	**31172.69**	**31295.31**	**31340.31**	**31547.50**

Interest on loan

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

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

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

(3) The repayment for each of the year of the tariff period 2019-24 shall be deemed to be equal to the depreciation allowed for the corresponding year/period. In case of 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."

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

a. Gross normative loan, cumulative repayment and net opening normative loan amounting to Rs.385969.75 lakh, Rs.161707.70 lakh and Rs.224262.04 lakh as on 31.3.2019 as considered in order dated 13.11.2023 in Petition No. 238/GT/2020 has been retained as on 1.4.2019;

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

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

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

(Rs. in lakh)

		2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
A	Gross opening loan	385969.75	386284.75	388399.45	389538.70	389584.55
B	Cumulative repayment of loan upto previous year	161707.70	191838.87	222064.83	252417.75	282816.92
C	Net Loan Opening (A-B)	224262.04	194445.88	166334.62	137120.94	106767.63
D	Addition due to additional capital expenditure	315.00	2114.70	1139.25	45.85	5101.60
E	Repayment of loan during the year	30131.16	30225.96	30352.92	30399.16	30600.00
F	Repayment adjustment on account of de-capitalisation	0.00	0.00	0.00	0.00	0.00
G	Repayment adjustment on account of discharges/reversals corresponding to un-discharged liabilities deducted as on 1.4.2009	0.00	0.00	0.00	0.00	0.00

		2019-20	2020-21	2021-22	2022-23	2023-24
H	Net Repayment of loan during the year (E-F+G)	30131.16	30225.96	30352.92	30399.16	30600.00
I	Net Loan Closing (C+D-H)	**194445.88**	**166334.62**	**137120.94**	**106767.63**	**81269.23**
J	Average Loan [(C+I)/2]	209353.96	180390.25	151727.78	121944.29	94018.43
K	WAROI	7.6678%	7.6648%	7.6804%	8.0050%	8.4238%
L	**Interest on Loan (J x K)**	**16052.83**	**13826.58**	**11653.31**	**9761.62**	**7919.89**

Depreciation

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

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

Provided that effective date of commercial operation shall be worked out by considering the actual date of commercial operation and installed capacity of all the units of the generating station or capital cost of all elements of the transmission system, for which single tariff needs to be determined.

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

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

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

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

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

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

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

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

transmission system:

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

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

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

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

40. The cumulative depreciation and freehold land amounting to Rs.161707.70 lakh and Rs.148.90 lakh, as on 31.3.2019, as considered in order dated 13.11.2023 in Petition No. 238/GT/2020, has been considered as on 1.4.2019. Since the elapsed life of the generating as on 1.4.2019 (i.e. 5.69 years) from the effective station COD (i.e. 23.7.2013) is less than 12 years the depreciation has been calculated considering weighted average rate of depreciation (WAROD). WAROD claimed by the Petitioner has been considered. Necessary calculations in support of depreciation are as under:

(Rs. in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Average capital cost (A)	551610.35	553345.85	555670.10	556516.60	560193.35
Value of freehold land included above (B)	148.90	148.90	148.90	148.90	148.90
Aggregated depreciable Value [C = (A-B) x 90%]	496315.31	497877.26	499969.08	500730.93	504040.01
Remaining aggregate depreciable value at the beginning of the year (D = C – 'K' of previous year)	334607.60	306038.39	277904.25	248313.18	221223.09
Balance useful life at the beginning of the year (E)	19.31	18.31	17.31	16.31	15.31
Weighted average rate of depreciation (F)	5.4624%	5.4624%	5.4624%	5.4624%	5.4624%
Depreciation during the year (G = AxF)	**30131.16**	**30225.96**	**30352.92**	**30399.16**	**30600.00**
Cumulative depreciation at the end of the year, before adjustment of de-	191838.87	222064.83	252417.75	282816.92	313416.92

	2014-15	2015-16	2016-17	2017-18	2018-19
capitalisation adjustment (H = G + 'K' of previous year)					
Cumulative depreciation adjustment on account of de-capitalisation (I)	0.00	0.00	0.00	0.00	0.00
Cumulative depreciation adjustment on a/c of un-discharged liabilities deducted as on 1.4.2009 (J)	0.00	0.00	0.00	0.00	0.00
Cumulative depreciation, at the end of the year (K = H-I+J)	**191838.87**	**222064.83**	**252417.75**	**282816.92**	**313416.92**

O&M Expenses

41. Regulation 35(1)(1) of the 2019 Tariff Regulations provides for the following O&M expenses:

Year	500 MW (lakh/ MW)
2019-20	22.51
2020-21	23.30
2021-22	24.12
2022-23	24.97
2023-24	25.84

42. 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)**	22510.00	23300.00	24120.00	24970.00	25840.00
O&M expenses under Regulation 35(1)(6) of the 2019 Tariff Regulations:					
- Water Charges	466.24	466.24	466.24	466.24	466.24
- Security Expenses	1241.29	1370.36	1370.74	1338.81	1340.36
- Capital Spares consumed	0.00	0.00	0.00	0.00	0.00
Total O&M Expenses	**24217.52**	**25136.59**	**25956.97**	**26775.05**	**27646.60**

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

Water Charges

44. Regulation 35(1)(6) of the 2019 Tariff Regulations provides for claim 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:*

45. The actual water charges claimed by the Petitioner in Petition No. 238/GT/2020 for the period 2014-19 and allowed vide order dated 13.11.2023 is as under:

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Water charges claimed	423.85	420.80	420.70	423.85	434.30
Water charges allowed	423.85	420.80	420.70	423.85	434.30

46. In terms of the above regulation, water charges are to be allowed based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check. The Petitioner has claimed water charges based on actual water consumption of the generating station, as under:

Description	Remarks
Type of plant	Coal based Thermal Power Plant
Type of cooling water system	Once Through Cooling
Yearly allocation of water	37.19 Cusec
Rate of water charges	Rs.295.543
Total water charges (2019-24)	466.24 lakh for each year

47. Accordingly, the claim for water charges for the period 2019-24 as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
466.24	466.24	466.24	466.24	466.24

48. It is observed that the Petitioner has claimed water charges, based on the actual water expenses allowed for 2018-19 by order dated 13.11.2023 in Petition No. 238/GT/2020. Further, the Petitioner vide affidavit dated 30.6.2021 has submitted that the actual water expenses incurred for the years 2019-20 and 2020-21 as Rs.466.24

lakh. Since the water charges are subject to truing up at actuals, we allow the actual water charges incurred during the years 2019-20, 2020-21. The same has also been considered for the balance years of the period i.e. 2021-22, 2022-23 and 2023-24. The Petitioner is however directed to submit the actual expenditure towards water along with details of the quantity consumed etc. Accordingly, the water charges of Rs 466.24 lakh each, as claimed by the Petitioner is allowed for the period 2019-24.

Capital Spares

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

Security Expenses

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

(Rs. in lakh)

2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
1241.29	1370.36	1370.74	1338.81	1340.36

51. The Petitioner submitted that above expenses has been claimed based on the estimated expenses for the period 2019-24 and shall be subject to retrospective adjustment based on actuals at the time of truing up. Further, the Petitioner vide affidavit dated 30.6.2021 has submitted that the actual security expenses for the years 2019-20 and 2020-21 are Rs.1244.50 lakh and Rs.1535.62 lakh respectively.

52. We have examined the matter. Since the Petitioner has submitted the actual security expenses for the period 2019-20 and 2020-21, the same is allowed. Also, the

actual expenditure incurred for 2020-21 is allowed for the balance years of the period 2019-24 (2021-22, 2022-23 and 2023-24) on projection basis, subject to true-up. Accordingly, the security expenses claimed and allowed for the generating station is as under:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Security expenses claimed	1241.29	1370.36	1370.74	1338.81	1340.36
Security expenses allowed	1244.50	1535.62	1535.62	1535.62	1535.62

53. Accordingly, the total O&M expenses including water charges and security expenses, as claimed by the Petitioner and allowed to the generating station for the period 2019-24 is summarised below:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Normative O&M expenses claimed under Regulation 35(1)(1) of the 2019 Tariff Regulations **(a)**	22510.00	23300.00	24120.00	24970.00	25840.00
Normative O&M expenses **allowed** under Regulation 35(1)(1) of the 2019 Tariff Regulations (b)	**22510.00**	**23300.00**	**24120.00**	**24970.00**	**25840.00**
Water Charges claimed under Regulation 35(1)(6) of the 2019 Tariff Regulations (c)	466.24	466.24	466.24	466.24	466.24
Water Charges **allowed** under Regulation 35(1)(6) of the 2019 Tariff Regulations (d)	**466.24**	**466.24**	**466.24**	**466.24**	**466.24**
Security Expenses claimed under Regulation 35(1)(6) of the 2019 Tariff Regulations (e)	1241.29	1370.36	1370.74	1338.81	1340.36
Security Expenses **allowed** under Regulation 35(1)(6) of the 2019 Tariff Regulations (f)	**1244.50**	**1535.62**	**1535.62**	**1535.62**	**1535.62**
Total O&M expenses claimed under Regulation 35 of the 2019 Tariff Regulations (a + c + e)	24217.53	25136.60	25956.98	26775.05	27646.60
Total O&M expenses **allowed** under Regulation 35 of the 2019 Tariff Regulations (b + d + f)	**24220.74**	**25301.86**	**26121.86**	**26971.86**	**27841.86**

<u>Additional expenditure towards Fly ash transportation</u>

54. The Petitioner has claimed recovery of additional expenditure of Rs.1042.00 lakh in 2019-20 and 2020-21, from the beneficiaries on account of ash transportation

charges, after adjusting the revenue earned from sale of ash. The Petitioner has submitted that pursuant to MOEF&CC Notification dated 25.1.2016, the Petitioner had filed Petition No. 172/MP/2016 seeking of recovery of additional expenditure incurred due to sharing of fly ash transportation cost as "Change in Law" event. The Commission vide its order dated 5.11.2018 in Petition No. 172/MP/2016 recognised Notification dated 25.1.2016 as 'Change in Law' event and admitted the claims that is amount spent over and above ash sale fund on account of ash transportation and has directed as under:

> *"31. Accordingly, we in exercise of the regulatory power hold that the actual additional expenditure incurred by the Petitioner towards transportation of ash in terms of the MOEFCC Notification is admissible under "Change in Law" as additional O&M expenses. However, the admissibility of the claims is subject to prudence check of the following conditions on case to case basis for each station:*
> *a) Award of fly ash transportation contract through a transparent competitive bidding procedure. Alternatively, the schedule rates of the respective State Governments, as applicable for transportation of fly ash.*
> *b) Details of the actual additional expenditure incurred on Ash transportation after 25.1.2016, duly certified by auditors.*
> *c) Details of the Revenue generated from sale of fly ash/ fly ash products and the expenditure incurred towards Ash utilisation up to 25.1.2016 and from 25.1.2016 to till date, separately.*
> *d) Revenue generated from fly Ash sales maintained in a separate account as per the MoEF notification."*

55. The Petitioner has submitted that in terms of above, the actual ash transportation expenses incurred for the generating station in 2019-20 and 2020-21 after adjustment of the revenue from sale of ash is as under:

(Rs. in lakh)

Year	Ash sale fund as on 1.4.2019	Revenue from sale of ash	Ash fund available for meeting transportation expenses	Ash transportation expenses	Ash transportation met out of Ash sale fund	Ash transportation expenses to be recovered from beneficiaries
	A	B	C = A+B	D	E = D (if C>=D) = C (if C<D)	F = 0 (if C>=D) = D-C (if C<D)
2019-20	0.00	0.31	0.31	0.04	0.04	0.00
2020-21	0.27	0.52	0.80	11.22	0.80	10.42

56. It is observed that the Commission vide its order dated 28.10.2022 in Petition 205/MP/2021 filed by the Petitioner for recovery of additional expenditure incurred due

to Ash transportation charges consequent to Ministry of Environment and Forest & Climate Change, Government of India Notification dated 3.11.2009 and Notification dated 25.1.2016 on a recurring basis, had allowed the expenditure incurred towards the Ash transportation expenses for the years 2019-20, 2020-21 and 2021-22. The relevant portion of the order is as below:

> *"Petitioner has furnished the details of the distance to which fly ash has been transported from the generating station, schedule rates applicable for transportation of fly ash, as notified by the State Governments along with details, including Auditor certified accounts. These documents have been examined and accordingly, the total fly ash transportation expenditure allowed to the Petitioner generating station wise for the period 2019-22 is as per the table in para 38 above totalling to Rs.309704.03 lakh and the same shall be recovered from the beneficiaries of the respective generating stations in 6 (six) equal monthly instalments. However, the Petitioner is directed to submit details regarding award of transportation contracts, distance to which fly ash has been transported along with duly reconciled statements of expenditure incurred on ash transportation at the time of filing petitions for truing up of tariff for the 2019-24 tariff period of the generating stations."*

57. Since the issue has already been dealt with in the order dated 28.10.2022 in 205/MP/2021, the same has not been considered in this order. The claim of the Petitioner shall be guided by the decision in the aforesaid matter. However, the Petitioner is directed to submit the details of the ash transportation expenses at time of truing up of tariff.

Operational Norms

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

Normative Annual Plant Availability Factor (NAPAF) (%)	85
Heat Rate (kCal/kwh)	2413.56
Auxiliary Power Consumption (%)	6.25
Specific Oil Consumption (ml/kwh)	0.50

(a) Normative Annual Plant Availability Factor (NAPAF)

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

> *"**(A) Normative Annual Plant Availability Factor (NAPAF)***

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

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

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

61. The Petitioner submitted that the Commission has prescribed boiler efficiency and turbine heat rate separately for deriving the unit heat rate where the Unit Heat Rate is not guaranteed by the suppliers. It is submitted that the instant station was envisaged during the period 2009-14 and equipment including SG and TG specifications for tendering / award was stipulated considering the boiler efficiency and the turbine heat rate prescribed by the Hon’ble Commission in the Tariff Regulations at that time. Based on the same the equipment were ordered through international competitive bidding. It was not possible for the Petitioner to specify the efficiency parameters at the time of finalizing the contracts for the instant station as per the efficiency parameters specified in Tariff Regulations 2019-24 which are more stringent. Further, if the Petitioner had stipulated more stringent unit heat rate, this would have increased the capital cost commensurate to the efficiency parameters sought. The benefit of the lower capital cost due to lower efficiency parameters has already been passed on to the beneficiaries in terms of lower capital cost. If now the boiler efficiency for working out the normative heat rate is considered as 86% instead of the actual design efficiency of 84.05%, the unit heat rate would be worked out to be 2358.84 kcal/kwh and the operating margin available over the design heat rate would be 2.62% only which is much less than the operating margin of 5% allowed in the 2019 Tariff Regulations. Moreover, the boiler efficiency is largely a function of coal quality. In view of above submissions, the Petitioner prayed that Gross Station Heat rate may

be allowed as 2413.56 Kcal/kwh based on guaranteed turbine cycle heat rate of 1932 Kcal/kwh and boiler efficiency of 84.05% with a operating margin of 5% from the guaranteed design value.

62. The Commission notes that Regulation 49 (C) (b) of the 2019 Tariff Regulations specifies the norms for heat rate for generating stations with COD on or after 1.04.2019 i.e., 1.05 X Design Heat Rate. Accordingly, the Commission has approved the design heat rate as 2358.84 (1932*1.05/0.86) kCal/kWh based on the Turbine heat rate of 1932 kcal/kwh and boiler efficiency of 86% (in accordance with proviso to Regulation 49 (C) which stipulates that where the boiler efficiency is lower than 86% for Sub-bituminous Indian coal and 89% for bituminous imported coal, the same shall be considered as 86% and 89% for Sub-bituminous Indian coal and bituminous imported coal respectively, for computation of station heat rate) for the period 2019-24.

(c) Specific Oil Consumption

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

> *"(a) For Coal-based generating stations other than at (c) below: 0.50 ml/kWh"*

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

(d) Auxiliary Power Consumption

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

> *"(a) For Coal-based generating stations except at (b) below:*

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

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

Provided further that Additional Auxiliary Energy Consumption as follows shall be allowed for plants with Dry Cooling Systems:

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

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

66. In terms of Regulation 49(E)(a) of the 2019 Tariff Regulations, the Petitioner has considered auxiliary energy consumption of 6.25% and hence, the same is allowed.

<u>Interest on Working Capital</u>

67. Sub-section (a) of clause (1) of 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) For Open-cycle Gas Turbine/Combined Cycle thermal generating stations:

(i) Fuel cost for 30 days corresponding to the normative annual plant availability factor duly taking into account mode of operation of the generating station on gas fuel and liquid fuel;

(ii) Liquid fuel stock for 15 days corresponding to the normative annual plant availability factor and in case of use of more than one liquid fuel cost of main liquid fuel duly taking into account mode of operation of the generating stations of gas fuel and liquid fuel;

(iii) Maintenance spares @ 30% of operation and maintenance expenses including water charges and security expenses;

(iv) Receivables equivalent to 45 days of capacity charge and energy charge for sale of electricity calculated on normative plant availability factor duly taking Order in Petition No. 410/GT/2020 Page 32 of 37 into account mode of operation of the generating station on gas fuel and liquid fuel; and

(v) Operation and maintenance expenses including water charges and security expenses for one month.

(c) For Hydro generating station (including Pumped Storage Hydro Generating Station) and transmission system:

(i) Receivables equivalent to 45 days of annual fixed cost;

(ii) Maintenance spares @ 15% of operation and maintenance expenses including security expenses; and

(iii) Operation and maintenance expenses including 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 and Energy Charges in Working Capital

68. Regulation 34(2) of the 2019 Tariff Regulations provides that the computation of cost of fuel as part of Interest on Working Capital (IWC) is to be based on the landed price and GCV of fuel as per actuals, for the third quarter of preceding financial year in case of each financial year for which tariff is to be determined. Regulation 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 x CVSF) x LPPF / CVPF + SFC x LPSFi + LC x LPL} x 100 / (100 – AUX)

***(b) For gas and liquid fuel-based stations**:*

ECR = SHR x LPPF x 100 / {(CVPF) x (100 – AUX)}

Where,

AUX = Normative auxiliary energy consumption in percentage.

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

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

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

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

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

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

LC = Normative limestone consumption in kg per kWh;

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

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

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

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

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

69. The Petitioner has claimed the cost of fuel component in working capital and Energy Charge Rate (ECR) based on followings:

(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.

70. Accordingly, the Petitioner has claimed ECR of Rs.1.430 per kWh and following fuel cost component in working capital for the period 2019-24:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Cost of coal for 40 days	10701.81	10701.81	10701.81	10701.81	10701.81
Cost of secondary fuel oil for 2 months	366.50	365.50	365.50	365.50	366.50

71. With regard to details of coal for computation of Energy charges, the Petitioner vide affidavit dated 30.6.2021 has submitted the revised Form 15. The weighted average price and GCV of coal and oil claimed by the Petitioner for the 2019-24 tariff period is as under:

	Claimed
Weighted average price of coal (Rs. /MT)	2228.62
Weighted average GCV of coal (kCal/kg) *	4093.30
Weighted average price of oil (Rs. /KL)	58903.62
Weighted average GCV of oil (kCal/Ltr.)	9487.82

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

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

(Rs. in lakh)

	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 generation corresponding to NAPAF	10701.81		10419.41	
Cost of secondary fuel oil for 2 months generation corresponding to NAPAF	366.50	365.50	366.50	365.50
Energy charges for 45 days	12309.90		12040.14	
ECR (Rs./kWh)	1.430		1.399	

73. 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.

Working Capital for Maintenance Spares

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

(Rs. in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
4843.50	5027.32	5191.40	5355.01	5529.32

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 for the period 2019-24 is as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
4844.15	5060.37	5224.37	5394.37	5568.37

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:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Variable Charges - for 45 days generation corresponding to NAPAF	12040.14	12040.14	12040.14	12040.14	12040.14
Fixed Charges - for 45 days generation corresponding to NAPAF	13112.45	12990.48	12815.37	12699.81	12678.83
Total	**25152.59**	**25030.63**	**24855.51**	**24739.96**	**24718.98**

Working Capital for O&M Expenses (1 month)

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

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
2018.13	2094.72	2163.08	2231.25	2303.88

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 for the 2019-24 tariff period is as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
2018.40	2108.49	2176.82	2247.66	2320.16

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

(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) (A)	2614.67	2614.67	2614.67	2614.67	2614.67
Working Capital for Cost of Coal towards Generation – (30 days generation corresponding to NAPAF) (B)	7844.01	7844.01	7844.01	7844.01	7844.01
Working Capital for Cost of Secondary fuel oil - (2 months generation corresponding to NAPAF) (C)	366.50	365.50	365.50	365.50	366.50
Working Capital for Maintenance Spares @ 20% of O&M expenses (D)	4844.15	5060.37	5224.37	5394.37	5568.37
Working Capital for Receivables – (45 days of sale of electricity at NAPAF (E)	25152.59	25030.63	24855.51	24739.96	24718.98
Working Capital for O&M expenses - 1 month (F)	2018.40	2108.49	2176.82	2247.66	2320.16
Total Working Capital	**42840.30**	**43023.66**	**43080.88**	**43206.16**	**43432.67**
Rate of Interest	12.0500%	11.2500%	10.5000%	10.5000%	10.5000%
Interest on Working Capital	**5162.26**	**4840.16**	**4523.49**	**4536.65**	**5211.92**

Annual Fixed Charges for the period 2019-24

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

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	30131.16	30225.96	30352.92	30399.16	30600.00
Interest on Loan	16052.83	13826.58	11653.31	9761.62	7919.89
Return on Equity	31080.89	31172.69	31295.31	31340.31	31547.50
Interest on Working Capital	5162.26	4840.16	4523.49	4536.65	5211.92
O&M Expenses	24220.74	25301.86	26121.86	26971.86	27841.86
Total	**106647.89**	**105367.26**	**103946.89**	**103009.60**	**103121.17**

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

83. 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

84. Petition No. 430/GT/2020 is disposed of in terms of the above.

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