**CENTRAL ELECTRICITY REGULATORY COMMISSION**
**NEW DELHI**

**Petition No. 433/GT/2020**

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

**Date of Order: 15th September, 2023**

**In the matter of:**

Petition for determination of tariff of Rihand Super Thermal Power Station Stage-I (1000 MW) for the period 2019-24.

**AND**

**In the matter of:**

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

**Vs**

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

2. Rajasthan Urja Vika Nigam Limited,
   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. Himanchal 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,
    Union Territory of Chandigarh,
    Additional Office Building, Sector 9D- Chandigarh

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

**Parties Present:**

Shri Anand. K. Ganesan, Advocate NTPC
Shri Swapna Seshadri, Advocate, NTPC
Shri 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, BRPL/BYPL
Shri Aditya Ajay, Advocate, BRPL/BYPL
Shri Rahul Kinra, Advocate, BRPL/BYPL
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-I (1000 MW) (in short 'the generating station') for the period 2019-24, in accordance with Regulation 9(2) 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 1000 MW comprises of two units of 500 MW each. The dates of commercial operation of different units of the generating station are as under:

| | |
|---|---|
| Unit-I | 1.1.1990 |
| Unit-II | 1.1.1991 |

2. The Commission vide its order dated 27.6.2023 in Petition No. 230/GT/2020, had determined the capital cost and annual fixed charges of the generating station for the period 2014-19, after truing up exercise, as under:

***Capital Cost allowed***

***(Rs. in lakh)***

| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|---|---|---|---|---|---|
| Opening capital cost | 242348.24 | 242322.08 | 242352.80 | 242120.48 | 241997.75 |
| Add: Additional capital expenditure | (-)26.16 | 30.72 | (-)232.32 | (-)122.73 | 1425.12 |
| **Closing capital cost** | 242322.08 | 242352.80 | 242120.48 | 241997.75 | 243422.87 |
| Average capital cost | 242335.16 | 242337.44 | 242236.64 | 242059.11 | 242710.31 |

***Annual Fixed Charges allowed***

***(Rs. in lakh)***

| | 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|---|---|---|---|---|---|
| Depreciation | 5369.26 | 5386.43 | 1245.75 | 51.08 | 44.84 |
| Interest on Loan | 0.00 | 0.00 | 0.00 | 0.95 | 50.82 |
| Return on Equity | 23561.03 | 23674.47 | 23663.84 | 23645.92 | 23741.16 |
| Interest on Working Capital | 5188.45 | 5257.90 | 5222.121 | 5342.43 | 5420.53 |
| O&M Expenses | 16608.49 | 17587.52 | 18639.37 | 19670.75 | 20875.96 |
| Compensation Allowance | 1000.00 | 500.00 | 0.00 | 0.00 | 0.00 |
| Special Allowance | 0.00 | 3988.13 | 8482.74 | 9021.40 | 9594.25 |
| Unrecovered Depreciation | 0.00 | 0.00 | 179.12 | 0.00 | 0.00 |
| **Total** | **51727.24** | **56394.45** | **57432.94** | **57732.54** | **59727.57** |

***Present Petition***

3. The Petitioner, in the present Petition, has claimed the capital cost and annual fixed charges for the period 2019-21, as under:

***Capital Cost Claimed***

***(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 | 245233.60 | 246112.93 | 251042.93 | 253042.93 | 254542.93 |
| Add: Addition during the year/ period | 879.33 | 4930.00 | 2000.00 | 1500.00 | - |
| Less: De-capitalization during the year/ period | - | - | - | - | - |
| Less: Reversal during the year/ period | - | - | - | - | - |
| Add: Discharges during the year/ period | - | - | - | - | - |
| **Closing capital cost** | 246112.93 | 251042.93 | 253042.93 | 254542.93 | 254542.93 |
| Average capital cost | **245673.27** | **248577.93** | **252042.93** | **253792.93** | **254542.93** |

### *(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 | - | - | 422.33 | 422.33 | 422.33 |
| Add: Addition during the year/ period | - | 422.33 | - | - | - |
| Less: De-capitalization during the year/ period | - | - | - | - | - |
| Less: Reversal during the year/ period | - | - | - | - | - |
| Add: Discharges during the year/ period | - | - | - | - | - |
| **Closing capital cost** | - | 422.33 | 422.33 | 422.33 | 422.33 |
| Average capital cost | **-** | **211.17** | **422.33** | **422.33** | **422.33** |

### *Annual Fixed Charges Claimed*

***(Rs. in lakh)***

| | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 |
|---|---|---|---|---|---|
| Depreciation | 1603.60 | 2804.25 | 3308.55 | 1575.00 | 675.00 |
| Interest on Loan | 25.94 | 39.59 | 39.61 | - | - |
| Return on Equity | 13842.71 | 14012.82 | 14214.52 | 14313.13 | 14355.38 |
| Interest on Working Capital | 4222.17 | 4290.45 | 4341.90 | 4357.33 | 4385.93 |
| O&M Expenses | 24217.53 | 25136.60 | 25956.98 | 26775.05 | 27646.60 |
| Compensation Allowance | - | - | - | - | - |
| Special Allowance | 9500.00 | 9500.00 | 9500.00 | 9500.00 | 9500.00 |
| **Total** | **53411.95** | **55783.71** | **57361.55** | **56520.51** | **56562.91** |

4. The Respondent UPPCL has filed its reply vide affidavits dated 9.9.2020 and 24.8.2021 and the Petitioner has filed its rejoinder to the abovesaid replies, vide affidavits dated 10.6.2021 and 8.11.2021, respectively. The Petitioner has also submitted certain additional information vide affidavits dated 30.6.2021 and 27.8.2022, after serving copies on the Respondents. The Petition was heard through video conferencing on 23.8.2022 and the Commission after hearing the parties, reserved its order. Taking into consideration the submissions of the parties and the documents available on record and on prudence check, we 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 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 is based on the opening capital cost of Rs.245233.60 lakh, as against the capital cost of Rs.243422.87 lakh, on cash basis as on 31.3.2019, allowed vide Commission's order dated 27.6.2023 in Petition No. 230/GT/2020. Accordingly, in terms of Regulation 19(3) of the 2019 Tariff Regulations, the capital cost of Rs.243422.87 lakh, on cash basis, as on 31.3.2019, has been considered as the opening capital cost as 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 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 year-wise, 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*** | | | | | | |
| Dry Ash Evacuation System | 26(1)(b) | 500.00 | 4000.00 | 2000.00 | 1500.00 | - |
| Augmentation of Fire detection & Protection & Protection System (CHP) | 26(1)(b) | 276.00 | - | - | - | - |

| | | | | | | |
|---|---|---|---|---|---|---|
| Package of $CLO_2$ System | 26(1)(b), 26(1)(d) | 103.33 | 930.00 | - | - | - |
| Total (A) | | 879.33 | 4930 | 2000 | 1500 | - |
| ***B. Works beyond Original scope excluding additional capitalisation due to Change in law eligible for ROE at Weighted Average rate of Interest*** | | | | | | |
| Nitrogen Sparking | 26(1) with Regulation 76 | - | 422.33 | - | - | - |
| Total (B) | | - | 422.33 | - | - | - |
| **Total Additional Capital Expenditure claimed** | | **879.33** | **5352.33** | **2000.00** | **1500.00** | **-** |

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

***Dry Ash Evacuation System (DAES)***

10. The Petitioner has claimed projected additional capital expenditure of Rs.500.00 lakh in 2019-20, Rs.4000.00 lakh in 2020-21, Rs.2000.00 lakh in 2021-22 and Rs.1500 lakh in 2022-23, towards DAES and related works, 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 made mandatory by MOEF &CC vide 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 100% ash utilization target, in order to avoid the imposition of penalty for “damages for environment restoration”.

11. The Respondent UPPCL has pointed out that the Commission vide its order dated 28.7.2016 in Petition No. 290/GT/2014 had disallowed the claim of the Petitioner for expenditure for DAES in 2014-19, for Singrauli STPS on the ground that it has completed its useful life and the Petitioner has been claiming Special allowance. Accordingly, the Respondent has submitted that the claim of the Petitioner for this generating station may also be disallowed.

12. The matter has been considered. 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."*

13. 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 raising of ash dyke and environmental ground water pollution. Further, similar additional expenditure claimed by the Petitioner had been allowed vide Commission's order dated 6.6.2022 in Petition No. 425/GT/2020 (tariff of Sipat STPS-I). In this background and keeping in view that the additional expenditure claimed is for compliance to the existing norms in terms of the MOEF&CC 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 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.

***Augmentation of the Fire Detection and Protection System (CHP)***

14. The Petitioner has claimed projected additional capital expenditure of Rs.276 lakh in 2019-20, towards Augmentation of Fire detection and protection system, under Regulation 26(1) (b) of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that the amount proposed to be capitalised is the balance payment of the works carried out for augmentation of the fire protection system of Coal Handling Plant (CHP) in line with Regulation 12(5) of Central Electricity Authority (CEA) (Technical Standards for construction of Electrical Plants and Electric Lines) Regulations, 2010 and the same was essentially required to prevent any catastrophic

damage in case fire breaks out in CHP as presence of coal in CHP area makes it vulnerable to fire hazard and mobile fire protection equipment may not be able to control the spread of fire. The Petitioner has submitted that the Appellate Tribunal for Electricity (APTEL) vide order dated 5.8.2019 in Appeal No. 40 of 2017 had allowed similar additional capitalisation, in respect of other generating stations of the Petitioner for the period 2014-19 i.e. for Talcher I & II, Simhadri etc.

15. The Respondent UPPCL has submitted that Commission in its order dated 23.8.2016 in Petition 291/GT/2014 has disallowed the same claim of the Petitioner on the ground that it is not a change in law event and has directed the Petitioner to meet the expenditure from special allowance allowed to the Petitioner.

16. The matter has been examined. It is noticed that the asset claimed by the Petitioner was disallowed by the Commission vide its order dated 23.8.2016 in Petition 291/GT/2014, on the ground that the Petitioner had not established that the augmentation of a firefighting system was due to any change in law event and had directed the said claim may be met from the Special Allowance, allowed to the generating station for the period 2014-19 . However, APTEL vide its judgment dated 5.8.2019 in Appeal No. 40 of 2017, had opined that the CEA Regulations, 2010 for augmentation of firefighting system constitutes as change in law event, in terms of Regulation 14 (3)(ii) of the 2014 Tariff Regulations and had accordingly allowed the claim of the Petitioner towards augmentation of firefighting system. The relevant portion of the order is quoted as under:

> *"Our Findings:*
> *14 7.5. We have considered the rival contentions of both the parties in the matter and also perused the findings of the Central Commission in its impugned order regarding disallowance of the expenditure towards installation of inert gas firefighting system. It is admitted fact that prior to notification of the referred CEA Regulations, 2010, the generating stations were provided with CO2 gas based firefighting system and after the notifications, the system was required to be augmented with firefighting system based on inert gas. The Appellant in pursuance of the Montreal Protocol & CEA*

*Regulations, 2010 went ahead for installation of inert gas firefighting system and incurred an expenditure of Rs. 161 lakh. While referring to the order dated 21.02.2017 of the Central Commission in respect of another thermal station namely Talchar Super Thermal Power Station Stage-I (1000 MW) relating to identical issue, we note that the Central Commission has acknowledged that CEA Regulations, 2010 for augmentation of firefighting system constitutes change in law in terms of Regulation 14 (3)(ii) i.e. compliance of any existing laws and accordingly has allowed the claim of NTPC for capitalisation of expenditures towards augmentation of firefighting system. We, therefore, opine that the claim of NTPC regarding augmentation of firefighting system is duly covered by the referred order of CERC. Accordingly, the claim of NTPC - Rs. 161 lakh for installation of inert gas firefighting system would need to be appraised by the Central Commission afresh in accordance with law."*

17. In line with the above decision, the claim of the Petitioner **is allowed** under Regulation 26(1)(b) of the 2019 Tariff Regulations.

***$CLO_2$ Package***

18. The Petitioner has claimed projected additional capital expenditure of Rs.103.33 lakh in 2019-20 and Rs.930.00 lakh in 2020-21, towards $CLO_2$ 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 the CLO2 Plant is being installed to enable a much safer way of producing CLO2 on site, by use of commercial grade HCl and sodium chlorite, instead of present practice of Chlorine gas, being dozed directly. It has stated that Chlorine gas is very hazardous and may prove fatal in case of leakage and handling & storage of same involves risk to the life of public at large and in the interest of public safety, the chlorine dozing system is now being replaced by CLO2 system, which is much safer and less hazardous than chlorine. The Petitioner has further submitted that at its Kudgi project, Department of Factories, Boiler, Industrial Safety and Health, Government of Karnataka has directed the Petitioner to replace highly hazardous gas Chlorination system with ClO2 system. SPCB, Odisha while issuing consent to establish in case of Darlipalli Station has asked the Petitioner to explore the possibility of installing ClO2 system instead of Chlorine gas system. In view of the directions of the various statutory authorities in different

states of the country and for enhancing the safety of O&M personnel, the Petitioner has stated that it is replacing the chlorination system with ClO2 system.

19. The Respondent UPPCL has submitted that there is no ‘change in law’ or compliance of any existing law in the present matter which can warrant quoting of regulation 26 (1) (b) and therefore this claim may be rejected.

20. The matter has been considered. The Petitioner has submitted that for Kudgi project of the Petitioner, the Government of Karnataka had directed the Petitioner to replace the highly hazardous gas chlorination system with $ClO_2$ 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. 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 (ClO2) system) for the safety and security of the generating station. It is also pointed out that a similar claim of the Petitioner was not allowed by the Commission vide its order dated 24.1.2022 in Petition No. 418/GT/2020. Accordingly, the projected additional capital expenditure claimed by the Petitioner on this count is **not allowed**.

***Nitrogen Sparging***

21. The Petitioner has claimed projected additional capital expenditure of Rs. 422.23.00 lakh in 2021-22, towards Nitrogen Sparging, under Regulation 26(1) read with Regulation 76 of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that boilers, condenser and other steam/ water handling

equipment are very sensitive to corrosion and fouling. It has submitted that dissolved oxygen is the main fouling impurity which causes corrosion and enters into water-steam cycle through make-up water or during the start-up. The Petitioner has also submitted that at present the DM water is stored in the vented storage tanks exposed to air wherein $CO_2$ and $O_2$ gets absorbed and the water with high concentration of $O_2$ & $CO_2$ causes stress corrosion, fatigue corrosion, pitting etc. leading to failures and deposition of precipitates. It has further submitted that due to temperature and pressure variations during start-ups and load variations, these deposits get 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. The Petitioner has stated that 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 and increase the system stability and reliability.

22. The Respondent UPPCL has submitted that the claim of the Petitioner is primarily in the nature of R&M expenses and hence the Petitioner may meet the same through Special allowance, allowed to the generating station.

23. We have considered the matter. It is observed that a similar claim of the Petitioner on this count, was disallowed by the Commission vide its order dated 8.4.2022 in Petition No. 426/GT/2020 for this generating station, for the period 2014-19. In view of this, the projected additional expenditure claimed by the Petitioner is **not allowed**. The Petitioner may, however, approach the Commission with proper justification/ details in respect of the additional capital expenditure claimed with a separate petition or at the time of truing-up of tariff.

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

***(Rs. in lakh)***

| **Head/ Equipment** | **2019-20** | **2020-21** | **2021-22** | **2022-23** | **2023-24** |
|---|---|---|---|---|---|
| ***A. Works under Original scope, Change in law etc. eligible for ROE at Normal Rate*** | | | | | |
| Dry Ash Evacuation System | 500.00 | 4000.00 | 2000.00 | 1500.00 | 0.00 |
| Augmentation of Fire detection & Protection & Protection System (CHP) | 276.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Package of CLO2 System | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Total (A)** | **776.00** | **4000.00** | **2000.00** | **1500.00** | **0.00** |
| ***B. Works beyond Original scope excluding add-cap due to Change in law eligible for ROE at Weighted average rate of Interest*** | | | | | |
| Nitrogen Sparging | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| Total (B) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| **Total Additional Capital Expenditure Allowed** | **776.00** | **4000.00** | **2000.00** | **1500.00** | **0.00** |

### *Capital cost allowed for the period 2019-24*

25. Based on the 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 | 243422.87 | 244198.87 | 248198.87 | 250198.87 | 251698.87 |
| Add: Additional capital expenditure | 776.00 | 4000.00 | 2000.00 | 1500.00 | 0.00 |
| **Closing capital cost** | **244198.87** | **248198.87** | **250198.87** | **251698.87** | **251698.87** |
| Average capital cost | 243810.87 | 246198.87 | 249198.87 | 250948.87 | 251698.87 |

### *Debt Equity Ratio*

26. 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.*

27. The gross normative loan and equity as on 31.3.2019 approved by the Commission in its order dated 27.6.2023 is Rs.123070.09 lakh (i.e., 50.56% of the admitted capital cost as on 31.3.2019) and Rs.120352.78 lakh (i.e., 49.44% of the admitted capital cost as on 31.3.2019), respectively. However, considering the first proviso to Regulation 18(3) of the 2019 Tariff Regulations, the equity to be considered for the purpose of tariff, as on 1.4.2019, works out to Rs.73026.86 lakh. Accordingly, the gross normative loan of Rs.123070.09 lakh and net equity of Rs.73026.86 lakh, has been considered for the purpose of tariff, as on 1.4.2019. Further, the projected additional capital expenditure approved above has been allocated to debt and equity in the ratio of 70:30. Accordingly, the details of debt-equity ratio as on 1.4.2019 and 31.3.2024, is worked out as under:

*(Rs. in lakh)*

| | Capital cost as on 1.4.2019 | (%) | Additional capital expenditure | (%) | Total cost as on 31.3.2024 | (%) |
|---|---|---|---|---|---|---|
| Debt | 123070.09 | 50.56% | 5793.20 | 70.00% | 128863.29 | 51.20% |
| Equity # | 120352.78 | 49.44% | 2482.80 | 30.00% | 122835.58 | 48.80% |
| **Total** | **243422.87** | **100.00%** | **8276.00** | **100.00%** | **251698.87** | **100.00%** |

*# net normative equity as on 1.4.2019 is Rs.73026.86 lakh and as on 31.3.2024 is Rs.75509.66 lakh.*

### *Return on Equity*

28. 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.*

29. 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."*

30. The Petitioner has claimed Return on Equity (ROE) considering the base rate of 15.50% and effective tax rate of 17.472% for the opening equity as on 1.4.2019 and projected additional capital expenditure claimed under the 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 the additional capital expenditure claimed beyond the 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 on loan (WAROI) of 8.4005% in 2019-20, 8.403% in 2020-21, 8.406% in 2021-22, 8.408% in 2022-23 and 8.406% in 2023-24 with effective tax rate of 17.472%. As discussed above, since the additional capital expenditure beyond the original scope of work has not been allowed for the period 2019-24, no ROE has been allowed at WAROI rate. Accordingly, ROE has been worked out as under:

***(Rs. in lakh)***

| | **2019-20** | **2020-21** | **2021-22** | **2022-23** | **2023-24** |
|---|---|---|---|---|---|
| Notional Equity- Opening | 120352.78 | 120585.58 | 121785.58 | 122385.58 | 122835.58 |
| Less: Adjustment to equity in terms of 1st proviso to Regulation 18(3) | 47325.92 | 47325.92 | 47325.92 | 47325.92 | 47325.92 |
| Normative Equity- Opening | 73026.86 | 73259.66 | 74459.66 | 75059.66 | 75509.66 |
| Add: Addition of Equity due to additional capital expenditure | 232.80 | 1200.00 | 600.00 | 450.00 | 0.00 |
| Normative Equity – Closing | 73259.66 | 74459.66 | 75059.66 | 75509.66 | 75509.66 |
| Average Normative Equity | 73143.26 | 73859.66 | 74759.66 | 75284.66 | 75509.66 |
| 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)** | **13737.77** | **13872.32** | **14041.36** | **14139.97** | **14182.22** |

### *Interest on loan*

31. 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."*

32. 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 order dated 27.6.2023, 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 assets** | | **Total as on 1.4.2019** |
|---|---|---|---|
| | **Existing at the beginning of 1.4.2014 (or existing assets)** | **Added on or after 1.4.2014 (or other assets)** | |
| Gross normative loan (A) | 121878.98 | 1191.11 | 123070.09 |
| Cumulative repayment of loan (B) | 121787.43 | 79.69 | 121867.12 |
| Net normative loan (C = A-B) | 91.55 | 1111.42 | 1202.97 |
| Cumulative depreciation (D) | 214704.73 | 49.41 | 214754.14 |
| Capital cost as on 1.4.2019 (E) | 241758.96 | 1663.92 | 243422.87 |
| Value of freehold land (F) | 3114.74 | 0.00 | 3114.74 |
| Depreciable value [G = (E-F) x 0.9] | 214779.80 | 1497.53 | 216277.32 |
| Balance depreciable value (H = G-D) | 75.07 | 1448.11 | 1523.18 |

33. It is observed from the above table, that as on 1.4.2019, the balance depreciable value corresponding to assets existing at the beginning of 1.4.2014 (hereinafter referred to as "existing assets") is Rs.75.07 and the net normative outstanding loan balance is Rs.91.55 lakh. This situation normally does not happen as depreciation is allowed to the extent of 90% of the value of an asset and normative debt is normally allowed equivalent to 70% of the value of an asset and repayment of 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:

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

34. Since, prior to 1.4.2009, the repayment of normative loan was not linked to 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 is fully depreciated, as on 1.4.2019. Further, during the period 2004-09 and 2009-14, the Petitioner was allowed cumulative repayment adjustment equivalent to 70% of the value of asset de-capitalised, irrespective of the quantum of 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 balance depreciable value and net normative loan outstanding corresponding to existing assets as on 1.4.2019. The actual outstanding loan as on 1.4.2019, corresponding to assets existing as on 1.4.2009, is 'Nil'.

35. The existing assets are almost fully depreciated, with balance depreciable value of Rs.75.07 lakh only, as on 1.4.2019 and the corresponding net normative loan of Rs.91.55 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 repayment of actual loan and as on 1.4.2019 the actual loan balance corresponding to assets existing as on 1.4.2009, is 'Nil'. Had any of the repayment methodology 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 safeguarding of consumers interest and at the same

time recovery of cost of electricity in a reasonable manner. Accordingly, considering the fact that Petitioner has already recovered almost 90% depreciation towards allowed assets and actual interest outgo towards loan corresponding to assets existing, as on 1.4.2009 is 'Nil', the cumulative repayment, as on 1.4.2019 is revised to Rs.121883.61 lakh (Rs.121803.92 lakh cumulative repayment balance as on 31.3.2019 plus Rs.79.69 lakh) so as to serve only the net normative outstanding loan of Rs.1186.49 lakh (Rs.75.07 lakh being equivalent to the balance depreciable value corresponding to existing assets and Rs.1111.42 lakh corresponding to other assets), 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 truing up.

36. As stated above, gross normative loan amounting to Rs.123070.09 lakh (Rs.121878.98 lakh corresponding to existing assets and Rs.1191.11 lakh corresponding to other assets) has been considered, as on 1.4.2019. Further, cumulative repayment of Rs.121883.61 lakh (Rs.121803.92 lakh corresponding to existing assets and Rs.79.69 lakh corresponding to other assets) has been considered, as on 1.4.2019. Accordingly, the net normative outstanding loan, as on 1.4.2019 works out to Rs.1186.49 lakh (Rs.75.07 lakh corresponding to existing assets and Rs.1111.42 lakh corresponding to other assets). Addition to normative loan on account of additional capital expenditure, if any, 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 8.4005% in 2019-20, 8.4030% in 2020-

21, 8.4060% in 2020-21, 8.4080% in 2022-23 and 8.4060% in 2023-24, the same has been considered.

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

***(Rs. in lakh)***

| | | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 |
|---|---|---|---|---|---|---|
| **A** | **For existing assets** | | | | | |
| a | Gross opening loan | 121878.98 | 121878.98 | 121878.98 | 121878.98 | 121878.98 |
| b | Cumulative repayment of loan upto previous year | 121803.92 | 121878.98 | 121878.98 | 121878.98 | 121878.98 |
| c | Net Loan Opening (a-b) | 75.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| d | Addition on account of additional capital expenditure | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| e | Repayment of loan during the year | 75.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| f | Repayment adjustment on account of de-capitalisation | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| g | Net repayment of loan during the year (e-f) | 75.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| h | Net Loan Closing (c+d-g) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| i | Average Loan [(c+h)/2] | 37.53 | 0.00 | 0.00 | 0.00 | 0.00 |
| j | WAROI | 8.4005% | 8.4030% | 8.4060% | 8.4080% | 8.4060% |
| k | Interest on Loan (i x j) | 3.15 | 0.00 | 0.00 | 0.00 | 0.00 |
| **B** | **For other assets (i.e. assets admitted on or after 1.4.2019 or new assets)** | | | | | |
| l | Gross opening loan | 1191.11 | 1734.31 | 4534.31 | 5934.31 | 6984.31 |
| m | Cumulative repayment of loan upto previous year | 79.69 | 188.03 | 422.46 | 815.29 | 1300.52 |
| n | Net Loan Opening (l-m) | 1111.42 | 1546.28 | 4111.85 | 5119.02 | 5683.80 |
| o | Addition on account of additional capital expenditure | 543.20 | 2800.00 | 1400.00 | 1050.00 | 0.00 |
| p | Repayment of loan during the year | 108.34 | 234.43 | 392.83 | 485.23 | 524.83 |
| q | Repayment adjustment on account of de-capitalisation | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| r | Net repayment of loan during the year (p-q) | 108.34 | 234.43 | 392.83 | 485.23 | 524.83 |
| s | Net Loan Closing (n+o-r) | 1546.28 | 4111.85 | 5119.02 | 5683.80 | 5158.97 |
| t | Average Loan [(n+s)/2] | 1,328.85 | 2,829.06 | 4,615.44 | 5,401.41 | 5,421.38 |
| u | WAROI | 8.4005% | 8.4030% | 8.4060% | 8.4080% | 8.4060% |
| v | Interest on Loan (t x u) | 111.63 | 237.73 | 387.97 | 454.15 | 455.72 |
| **C** | **For total admitted assets (A+B)** | | | | | |
| w | Gross opening loan (a+l) | 123070.09 | 123613.29 | 126413.29 | 127813.29 | 128863.29 |
| x | Cumulative repayment of loan upto previous year (b+m) | 121883.61 | 122067.02 | 122301.44 | 122694.27 | 123179.50 |
| y | Net Loan Opening (c+n) | 1186.49 | 1546.28 | 4111.85 | 5119.02 | 5683.80 |
| z | Addition on account of additional capital expenditure (d+o) | 543.20 | 2800.00 | 1400.00 | 1050.00 | 0.00 |
| aa | Repayment of loan during the year (e+p) | 183.41 | 234.43 | 392.83 | 485.23 | 524.83 |
| ab | Repayment adjustment on account of de-capitalisation (f+q) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |

| | | | | | | |
|---|---|---|---|---|---|---|
| ac | Net repayment of loan during the year (g+r) | 183.41 | 234.43 | 392.83 | 485.23 | 524.83 |
| ad | Net Loan Closing (h+s) | 1546.28 | 4111.85 | 5119.02 | 5683.80 | 5158.97 |
| ae | Average Loan (i+t) | 1366.38 | 2829.06 | 4615.44 | 5401.41 | 5421.38 |
| af | WAROI | 8.4005% | 8.4030% | 8.4060% | 8.4080% | 8.4060% |
| ag | **Interest on Loan (k x v)** | **114.78** | **237.73** | **387.97** | **454.15** | **455.72** |

***Depreciation***

38. 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 31$^{st}$ 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."*

39. The cumulative depreciation amounting to Rs. 214754.14 lakh (Rs. 214704.73 lakh for existing assets and Rs.49.41 lakh for other assets) as on 31.3.2019 as considered in order dated 27.6.2023, has been considered, as on 1.4.2019. The value of freehold land amounting to Rs.3114.74 lakh (corresponding to existing assets) has been considered, as on 1.4.2019. As considered in order dated 27.6.2023 in Petition No. 230/GT/2020 the existing assets has been depreciated by spreading over and other assets has been depreciated considering weighted average rate of depreciation (WAROD) 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** | | | | | |
| a | Opening capital cost | 241758.96 | 241758.96 | 241758.96 | 241758.96 | 241758.96 |
| b | Additional capital expenditure | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| c | Closing capital cost (a+b) | **241758.96** | **241758.96** | **241758.96** | **241758.96** | **241758.96** |
| d | Average capital cost [(a+c)/2] | 241758.96 | 241758.96 | 241758.96 | 241758.96 | 241758.96 |
| e | Freehold land | 3114.74 | 3114.74 | 3114.74 | 3114.74 | 3114.74 |
| f | Depreciable Value [(d-e) x 0.9] | 214779.80 | 214779.80 | 214779.80 | 214779.80 | 214779.80 |
| g | Cumulative depreciation at the beginning of the year (previous year's 'm') | 214704.73 | 214779.80 | 214779.80 | 214779.80 | 214779.80 |
| h | Balance depreciable value (f-g) | 75.07 | 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 (k/d) | 0.03% | 0.00% | 0.00% | 0.00% | 0.00% |
| k | Depreciation for the year (h/i) | 75.07 | 0.00 | 0.00 | 0.00 | 0.00 |
| l | Cumulative depreciation adjustment on account of de-capitalisation | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| m | Cumulative Depreciation at end of the year (g+k-l) | 214779.80 | 214779.80 | 214779.80 | 214779.80 | 214779.80 |
| **B** | **For other assets (i.e. assets admitted on or after 1.4.2019 or new assets)** | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| n | Opening capital cost | 1663.92 | 2439.92 | 6439.92 | 8439.92 | 9939.92 |
| o | Additional capital expenditure | 776.00 | 4000.00 | 2000.00 | 1500.00 | 0.00 |
| p | Closing capital cost (n+o) | **2439.92** | **6439.92** | **8439.92** | **9939.92** | **9939.92** |
| q | Average capital cost [(n+p)/2] | 2051.92 | 4439.92 | 7439.92 | 9189.92 | 9939.92 |
| r | Freehold land | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| s | Depreciable Value [(q-r) x 0.9] | 1846.73 | 3995.93 | 6695.93 | 8270.93 | 8945.93 |
| t | Cumulative depreciation at the beginning of the year (Previous year's 'z') | 49.41 | 157.75 | 392.18 | 785.01 | 1270.23 |
| u | Balance depreciable value (s-t) | 1797.31 | 3838.17 | 6303.75 | 7485.92 | 7675.69 |
| v | Balance useful life at the beginning of the year | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| w | Depreciation Rate | 5.28% | 5.28% | 5.28% | 5.28% | 5.28% |
| x | Depreciation for the year (q x w) | 108.34 | 234.43 | 392.83 | 485.23 | 524.83 |
| y | Cumulative depreciation adjustment on account of de-capitalisation | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| z | Cumulative Depreciation at end of the year (t+x-y) | **157.75** | **392.18** | **785.01** | **1270.23** | **1795.06** |
| **C** | **For total admitted assets (A+B)** | | | | | |
| aa | Opening capital cost (a+n) | 243422.87 | 244198.87 | 248198.87 | 250198.87 | 251698.87 |
| ab | Additional capital expenditure (b+o) | 776.00 | 4000.00 | 2000.00 | 1500.00 | 0.00 |
| ac | Closing capital cost (c+p) | **244198.87** | **248198.87** | **250198.87** | **251698.87** | **251698.87** |
| ad | Average capital cost (d+q) | 243810.87 | 246198.87 | 249198.87 | 250948.87 | 251698.87 |
| ae | Freehold land (e+r) | 3114.74 | 3114.74 | 3114.74 | 3114.74 | 3114.74 |
| af | Depreciable Value (f+s) | 216626.52 | 218775.72 | 221475.72 | 223050.72 | 223725.72 |
| ag | Cumulative depreciation at the beginning of the year (g+t) | 214754.14 | 214937.55 | 215171.98 | 215564.81 | 216050.03 |
| ah | Balance depreciable value (h+u) | 1872.38 | 3838.17 | 6303.75 | 7485.92 | 7675.69 |
| ai | Balance useful life at the beginning of the year ('i' or 'v') | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| aj | Depreciation Rate (aj/ad) | 0.0752% | 0.0952% | 0.1576% | 0.1934% | 0.2085% |
| ak | Depreciation for the year (k+x) | 183.41 | 234.43 | 392.83 | 485.23 | 524.83 |
| al | Cumulative depreciation adjustment on account of de-capitalisation (l+y) | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| am | Cumulative Depreciation at end of the year (m+z) | 214937.55 | 215171.98 | 215564.81 | 216050.03 | 216574.86 |

***Operation & Maintenance Expenses***

40. 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 |

41. 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 | - | - | - | - | - |
| **Total O&M Expenses** | **24217.53** | **25136.60** | **25956.98** | **26775.05** | **27646.60** |

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

***Water Charges***

43. 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:*

44. The actual water charges claimed by the Petitioner in Petition No. 230/GT/2020 for the period 2014-19 and allowed by order dated 27.6.2023 is as under:

*(Rs. in lakh)*

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

45. 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. The details furnished by the Petitioner in respect of water charges, are as under:

| | 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 paid for (2019-24) | 466.24 lakh for each year |

46. It is observed that the Petitioner has claimed the water charges on the basis of actual water expenses allowed for 2018-19 vide its order dated 27.06.2023 in Petition 230/GT/2020. Further, the Petitioner vide affidavit dated 30.6.2021 has submitted that the actual water expenses incurred for 2019-20 and 2020-21 is Rs.466.24 lakh each. Since the water charges are subject to truing up at actuals, we allow the water charges based on the actual charges incurred (for the period 2019-21) during the years 2021-24 also. The Petitioner is however directed to submit the actual expenditure towards water charges along with details of the quantity consumed etc. Accordingly, the water charges claimed by the Petitioner are allowed 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 |

***Capital Spares***

47. 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, towards capital spares at the time of truing up shall be considered on merits, after prudence check.

***Security Expenses***

48. 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 |

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

50. The matter has been considered. The actual security expenses incurred for the years 2019-20 and 2020-21, as claimed by the Petitioner is allowed. Also, the actual expenditure incurred as above is allowed for the balance period 2021-24, on projected basis. Accordingly, the security expenses claimed and allowed, 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 |

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

***(Rs. in lakh)***

| | 2019-20 | 2020-21 | 2021-22 | 2022-23 | 2023-24 |
|---|---|---|---|---|---|
| Normative O&M expenses claimed under Regulation 35(1)(1) of the 2019 Tariff Regulations **(a)** | 22510.00 | 23300.00 | 24120.00 | 24970.00 | 25840.00 |
| Normative O&M expenses allowed under Regulation 35(1)(1) of the 2019 Tariff Regulations **(b)** | 22510.00 | 23300.00 | 24120.00 | 24970.00 | 25840.00 |
| Water Charges claimed under Regulation 35(1)(6) of the 2019 Tariff Regulations **(c)** | 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** |

***Additional expenditure towards Fly ash transportation***

52. 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 issuance of Notification dated 25.1.2016 by MOEF&CC, the Petitioner had filed Petition No. 172/MP/2016 seeking recovery of additional expenditure incurred due to sharing of fly ash transportation cost as "Change in Law" event.

53. It is observed that the Commission in Petition 205/MP/2021 filed by the Petitioner for recovery of additional expenditure incurred due to Ash transportation charges consequent to MOEF&CC, GOI Notification dated 3.11.2009 and Notification dated 25.1.2016 on a recurring basis, had vide order dated 28.10.2022 allowed the expenditure incurred towards Ash transportation expenses for the period 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."*

54. Since the issue has already been dealt with in the order dated 28.10.2022 in 205/MP/2022, the same has not been considered in this petition. The claim of the Petitioner shall therefore be guided by the findings of this Commission on this issue, in the said order.

### *Operational Norms*

55. The Petitioner has considered following norms of operation:

| | |
|---|---|
| Normative Annual Plant Availability Factor (NAPAF) (%) | 85 |
| Heat Rate (kCal/kwh) | 2350 |
| Auxiliary Power Consumption (%) | 8.00 |
| Specific Oil Consumption (ml/kwh) | 0.50 |

### *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 hence the same is allowed.

### *Gross Station Heat Rate (kCal/kWh)*

57. Regulation 49(C)(a)(i) of 2019 Tariff Regulations provides as under:

*"(i) For existing Coal-based Thermal Generating Stations, other than those covered under clauses (ii) and (iii) below:*

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

*In respect of 500 MW and above units where the boiler feed pumps are electrically operated, the gross station heat rate shall be 40 kCal/kWh lower than the gross station heat rate specified above."*

58. In terms of Regulation 49(C)(a)(i) of the 2019 Tariff Regulations, Petitioner has considered GSHR of 2350 kCal/kWh during the period 2019-24 and hence the same is allowed.

### *Specific Oil Consumption*

59. 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 during the period 2019-24 and hence the same is allowed.

### *Auxiliary Power Consumption*

60. 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%* |

61. In terms of Regulation 49(E)(a) of the 2019 Tariff Regulations, the Petitioner has considered auxiliary energy consumption of 8.00% during the period 2019-24 and hence the same is allowed.

### *Interest on Working Capital*

62. 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*

63. 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."*

64. 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.

65. Accordingly, the Petitioner has claimed ECR of Rs.1.420 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 | 10419.41 | 10419.41 | 10419.41 | 10419.41 | 10419.41 |
| Cost of secondary fuel oil for 2 months | 366.50 | 365.50 | 365.50 | 365.50 | 366.50 |

66. As regards the details of coal for computation of Energy Charges, the Petitioner vide affidavit dated 30.6.2021 has submitted 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) | 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.*

67. It is observed that the Petitioner in its revised submission has furnished the details of opening quantity of coal. However, the cost of coal and GCV claimed in the main petition and the revised forms are the same. Accordingly, the claim of the Petitioner is allowed, and the same is subject to truing-up in terms of Regulation 34(C)(2) of the 2019 Tariff Regulations. Accordingly, the fuel component in working capital, energy charges and the 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 | 10419.41 | | 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 | 11992.21 | | 11992.75 | |
| ECR (in *Rs./kWh)* | 1.420 | | 1.420 | |

68. 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*

69. The Petitioner has claimed the maintenance spares in the working capital as under:

*(Rs. in lakh)*

| 2014-15 | 2015-16 | 2016-17 | 2017-18 | 2018-19 |
|---|---|---|---|---|
| 4843.51 | 5027.32 | 5191.40 | 5355.01 | 5529.32 |

70. 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:

*(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*

71. 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 | 11992.75 | 11992.75 | 11992.75 | 11992.75 | 11992.75 |
| Fixed Charges - for 45 days generation corresponding to NAPAF | 5220.18 | 5377.85 | 5509.89 | 5651.34 | 5825.88 |
| **Total** | **17212.94** | **17370.60** | **17502.64** | **17644.09** | **17818.63** |

### *Working Capital for O&M Expenses (1 month)*

72. The Petitioner 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 |

73. 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:

***(Rs. in lakh)***

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

***Rate of interest on working capital***

74. In line with the Regulation 34(3) of the 2019 Tariff Regulations, the rate of interest on working capital is considered as 12.05% (i.e. 1 year SBI MCLR of 8.55% as on 1.4.2019 + 350 bps) for 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) (A) | 2604.85 | 2604.85 | 2604.85 | 2604.85 | 2604.85 |
| Working Capital for Cost of Coal towards Generation – (30 days generation corresponding to NAPAF) (B) | 7814.56 | 7814.56 | 7814.56 | 7814.56 | 7814.56 |
| 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) | 17212.94 | 17370.60 | 17502.64 | 17644.09 | 17818.63 |
| Working Capital for O&M expenses - 1 month (F) | 2018.40 | 2108.49 | 2176.82 | 2247.66 | 2320.16 |
| **Total Working Capital** | **34861.39** | **35324.37** | **35688.75** | **36071.03** | **36493.07** |
| Rate of Interest | 12.0500% | 11.2500% | 10.5000% | 10.5000% | 10.5000% |
| **Interest on Working Capital** | **4200.80** | **3973.99** | **3747.32** | **3787.46** | **4379.17** |

### *Special Allowance*

75. Regulation 28 of the 2019 Tariff Regulation for special allowances provides as under:

> ***"****28. Special Allowance for Coal-based/Lignite fired Thermal Generating station*
>
> *(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.*

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

| | **2019-20** | **2020-21** | **2021-22** | **2022-23** | **2023-24** |
|---|---|---|---|---|---|
| **Capacity** | 1000 | 1000 | 1000 | 1000 | 1000 |
| Special Allowance @ Rs. 9.5 Lakh/ MW/ Year | 9500.00 | 9500.00 | 9500.00 | 9500.00 | 9500.00 |

### *Annual Fixed Charges for the period 2019-24*

77. 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 | 183.41 | 234.43 | 392.83 | 485.23 | 524.83 |
| Interest on Loan | 114.78 | 237.73 | 387.97 | 454.15 | 455.72 |
| Return on Equity | 13737.77 | 13872.32 | 14041.36 | 14139.97 | 14182.22 |
| Interest on Working Capital | 4200.80 | 3973.99 | 3747.32 | 3787.46 | 4379.17 |
| O&M Expenses | 24220.74 | 25301.86 | 26121.86 | 26971.86 | 27841.86 |
| Special Allowance | 9500.00 | 9500.00 | 9500.00 | 9500.00 | 9500.00 |
| **Total** | **51957.50** | **53120.33** | **54191.34** | **55338.66** | **56883.80** |

***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.*

78. 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***

79. The Petitioner has sought reimbursement of fee paid by it for filing the petition for the period 2019-24 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.

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

81. Petition No. 433/GT/2020 is disposed of in terms of the above.

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