CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 429/GT/2020

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

Date of Order: **25th August, 2023**

In the matter of:

Petition for approval of tariff of Farakka Super Thermal Power Station Stage-I&II (1600 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. West Bengal State Electricity Distribution Company Limited,
   Vidyut Bhawan, Block-DJ,
   Sector-II, Salt Lake City
   Kolkata – 700 091

2. Bihar State Power Holding Company Limited,
   Vidyut Bhawan, Bailey Road
   Patna – 800 001

3. Jharkhand Vidyut Vikas Nigam Limited,
   Engineering Bhawan,
   HEC, Dhurwa, Ranchi – 834004

4. Grid Corporation of Orissa Limited,
   Vidyut Bhawan, Janpath,
   Bhubaneswar – 751007

5. Haryana Power Purchase Centre,
   Shakti Bhawan, Sector-6, Panchkula, Haryana -134109

6. Power Department,
   Govt. of Sikkim, Kazi Road,
   Gangtok, Sikkim-737101

7. Tamil Nadu Generation and Distribution Corporation Limited,
   144, Anna Salai,
   Chennai – 600002

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

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

10. Power Development Department (J&K),
    Govt. of J&K Secretariat,
    Srinagar

11. Assam Power Distribution Company Limited,
    Bijlee Bhawan, Paltan Bazar,
    Guwahati – 782001

12. BSES Rajdhani Power Limited,
    BSES Bhawan, Nehru Place,
    New Delhi-110019

13. BSES Yamuna Power Limited,
    Shakti Kiran Bldg., Karkardooma,
    Delhi

14. Tata Power Delhi Distribution Company Limited,
    33 kV Sub-station Building,
    Hudson Lane, Kingsway Camp,
    Delhi-110009

15. Jaipur Vidyut Vitran Nigam Limited,
    Vidyut Bhawan Janpath,
    Jaipur-302 005

16. Ajmer Vidyut Vitran Nigam Limited,
    Old Power House, Hathi Bhafta,
    Jaipur Road, Ajmer-305 001

17. Jodhpur Vidyut Vitran Nigam Limited,
    New Power House, Industrial Area,
    Jodhpur-342 003 ….**Respondents**

Parties Present:

Ms. Swapna Seshadri, Advocate, NTPC
Ms. Nilankita Banerjee, NTPC
Shri Prashant Chaturvedi, NTPC
Shri V. V Sivakumar, NTPC
Shri Buddy Ranganathan, Advocate, BRPL & BYPL
Shri Aditya Ajay, Advocate, BRPL & BYPL
Shri Rahul Kinra, Advocate, BRPL & BYPL

Shri Aashwyn Singh, Advocate, BRPL& BYPL
Shri Anupam Verma, BRPL& BYPL
Shri Sameer Singh, BYPL
Shri Raj Kumar Mehta, Advocate, GRIDCO
Ms. Himanshi Andley, Advocate, GRIDCO
Shri M. Sahoo, GRIDCO Limited
Shri Mahfooz Alam, GRIDCO Limited
Shri Shashwat Kumar, Advocate, BSPHCL
Shri Rahul Chouhan, Advocate, BSPHCL
Shri Amitanshu Saxena, Advocate, BSPHCL
Shri Vishal Sagar, Advocate, TPDDL
Shri Tanmay Jain, Advocate, TPDDL
Shri S. Vallinagagam, Advocate, TANGEDCO
Shri R. Alamely, TANGEDCO
Shri I. Sudhakar, TANGEDCO

ORDER

This petition has been filed by the Petitioner, NTPC Limited, for approval of tariff of Farakka Super Thermal Power Station Stage-I&II (1600 MW) (in short 'the generating station') for the period 2019-24, in accordance with Regulation 9(2) of the Central Electricity Regulatory Commission (Terms & Conditions of Tariff) Regulations, 2019 (in short 'the 2019 Tariff Regulations'). The generating station with a capacity of 1600 MW comprises of three units of 200 MW each and two units of 500 MW each. The dates of commercial operation of the different units of the generating station are as under:

	Capacity (MW)	Actual COD
Unit-I	200	1.11.1986
Unit-II	200	1.10.1987
Unit-III	200	1.09.1988
Unit-IV	500	1.07.1996
Unit-V	500	1.04.1995

2. The Commission vide its order dated 17.4.2023 in Petition No. 698/GT/2020 had trued up the tariff of the generating station for the period 2014-19 as under:

Capital Cost allowed

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	319679.86	319566.75	319525.11	319826.94	319469.04
Add: Admitted Additional capital expenditure	(-)113.11	(-)41.64	301.83	(-)357.89	1955.21

	2014-15	2015-16	2016-17	2017-18	2018-19
Closing Capital cost	319566.75	319525.11	319826.94	319469.04	321424.25
Average Capital cost	**319623.30**	**319545.93**	**319676.02**	**319647.99**	**320446.65**

Annual Fixed Charges allowed

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	7929.31	7952.32	8017.86	8057.06	4513.68
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	30717.02	30855.85	30860.48	30849.77	30861.85
O&M Expenses	32076.77	34130.70	35167.56	37371.48	40837.05
Interest on Working Capital	15066.14	15216.85	15263.56	15694.76	15828.85
Compensation Allowance	500.00	750.00	750.00	1000.00	1000.00
Special allowance	4157.03	4421.00	4701.73	5000.29	5317.81
Annual fixed charges approved	**90446.26**	**93326.71**	**94761.20**	**97973.36**	**98359.25**

Present Petition

3. The Petitioner has filed the present petition for determination of tariff of the generating station for the period 2019-24, in accordance with Regulation 9(2) of the 2019 Tariff Regulations and has claimed the following capital cost and annual fixed charges:

Capital cost claimed

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Opening capital cost	321352.03	321934.46	330719.08	337023.83	340023.83
Add: Addition during the year/period	582.43	8784.62	6304.75	3000.00	700.00
Closing Capital Cost	321934.46	330719.08	337023.83	340023.83	340723.83
Average Capital Cost	**321648.25**	**326326.77**	**333871.46**	**338523.83**	**340373.83**

Annual Fixed Charges claimed

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	727.46	4215.17	6790.22	4187.14	1665.00
Interest on Loan	-	80.68	80.71	-	-
Return on Equity	18123.31	18387.21	18812.32	19074.46	19178.70
Interest on Working Capital	10866.25	11014.39	11150.11	11208.34	11266.00
O&M Expenses	50128.71	51881.17	53700.27	55605.33	57569.75
Special allowance	5700.00	10450.00	14015.75	15200.00	15200.00
Annual Fixed Charges	**85545.73**	**96028.62**	**104549.38**	**105275.27**	**104879.45**

4. The Respondents UPPCL, TANGEDCO, TPDDL, GRIDCO, BSPHCL and BRPL have filed their replies vide affidavits dated 14.9.2020/27.8.2021, 4.2.2021, 30.6.2021,

26.8.2021, 30.7.2021 and 27.9.2022, respectively. The Petitioner has filed its rejoinders to the aforesaid replies vide its affidavits dated 10.3.2021 and 29.9.2021 (UPPCL), 5.4.2021 (TANGEDCO), 29.9.2021 (TPDDL), 29.9.2021 (GRIDCO), 29.9.2021 (BSPHCL) and 16.11.2022 (BRPL). The Petitioner has also filed certain additional information vide affidavits dated 28.6.2021, 16.7.2021 and 8.7.2022, after serving copies on the Respondents. The Petition was heard through video conferencing on 28.7.2022 and the Commission, permitted the Petitioner to amend the Petition/tariff filing forms. In response, the Petitioner vide affidavit dated 8.8.2022, has filed the amended petition/tariff forms, after serving copies on the Respondents. This petition was again heard on 2.11.2022, and the Commission after hearing the parties, reserved its order. Taking into consideration the submissions of the parties and the documents available on record, we proceed to examine the claims of the Petitioner, in this petition, on prudence check, as stated in the subsequent paragraphs.

Capital Cost

5. 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 Commission vide order dated 17.4.2023, had allowed the closing capital cost of Rs. 321424.25 lakh, as on 31.3.2019. Accordingly, in terms of Regulation 19(3) of the 2019 Tariff Regulations, the capital cost of Rs. 321424.25 lakh, as on 31.3.2019, has been considered as the opening capital cost as on 1.4.2019, on cash basis, for the purpose of determination of tariff for the period 2019-24.

Additional Capital Expenditure

7. Regulation 25 and Regulation 26 of the 2019 Tariff Regulations provides as under:

> *"25. Additional Capitalisation within the original scope and after the cut-off date:*
>
> *(1) The additional capital expenditure incurred or projected to be incurred in respect of an existing project or a new project on the following counts within the original scope of work and after the cut-off date may be admitted by the Commission, subject to prudence check:*
> *(a) Liabilities to meet award of arbitration or for compliance of the directions or order of any statutory authority, or order or decree of any court of law;*
> *(b) Change in law or compliance of any existing law;*
> *(c) Deferred works relating to ash pond or ash handling system in the original scope of work;*
> *(d) Liability for works executed prior to the cut-off date;*
> *(e) Force Majeure events;*
> *(f) Liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments; and*
> *(g) Raising of ash dyke as a part of ash disposal system.*
>
> *(2) In case of replacement of assets deployed under the original scope of the existing project after cut-off date, the additional capitalization may be admitted by the Commission, after making necessary adjustments in the gross fixed assets and the cumulative depreciation, subject to prudence check on the following grounds:*
>
> *(a) The useful life of the assets is not commensurate with the useful life of the project and such assets have been fully depreciated in accordance with the provisions of these regulations;*
> *(b) The replacement of the asset or equipment is necessary on account of change in law or Force Majeure conditions;*
> *(c) The replacement of such asset or equipment is necessary on account of obsolescence of technology; and*
> *(d) The replacement of such asset or equipment has otherwise been allowed by the Commission.*
>
> *26. Additional Capitalisation beyond the original scope*
>
> *(1) The capital expenditure, in respect of existing generating station or the transmission system including communication system, incurred or projected to be incurred on the following counts beyond the original scope, may be admitted by the Commission, subject to prudence check:*
>
> *(a) Liabilities to meet award of arbitration or for compliance of order or directions of any statutory authority, or order or decree of any court of law;*

(b) Change in law or compliance of any existing law;
(c) Force Majeure events;
(d) Need for higher security and safety of the plant as advised or directed by appropriate Indian Government Instrumentality or statutory authorities responsible for national or internal security;
(e) Deferred works relating to ash pond or ash handling system in additional to the original scope of work, on case to case basis:
Provided also that if any expenditure has been claimed under Renovation and Modernisation (R&M) or repairs and maintenance under O&M expenses, the same shall not be claimed under this Regulation;
(f) Usage of water from sewage treatment plant in thermal generating station.

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

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

(Rs. in lakh)

Sl. No.	Head of Work /Equipment	2019-20	2020-21	2021-22	2022-23	2023-24
A	**Works under the original scope of work of the project**					
1.	Ash Dyke raising	582.43	70.00	4200.00	3000.00	700.00
2.	Fire Detection and Protection System	-	290.24	1457.85	-	-
3.	Dry Ash Extraction System for Units 1, 4 & 5	-	8261.15	646.90	-	-
4.	Inert Gas Fire Extinguishing System	-	163.23	-	-	-
	Total Projected additional capital expenditure claimed	**582.43**	**8784.62**	**6304.75**	**3000.00**	**700.00**

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

Ash dyke raising

10. The Petitioner has claimed total projected additional capital expenditure of Rs.8552.43 lakh (Rs 582.43 lakh in 2019-20, Rs 70.00 lakh in 2020-21, Rs 4200.00 lakh in 2021-22, Rs 3000.00 lakh in 2022-23 and Rs 700.00 lakh in 2023-24) towards Ash Dyke raising, in terms of sub-clauses (c) and (g) of Regulation 25(1) of the 2019 Tariff

Regulations. In justification for the same, the Petitioner has submitted that this expenditure has been projected against Ash dyke raising and other Ash dyke related works, within the original scope of work, which are required to be done periodically by way of disposal of ash generated during operation of the plant. The Petitioner has further submitted that the works associated are Ash dyke raising with Ash and earth covering, construction of sand blanket and sand chimney, construction of rock toe, inner slope with flat ash brick pitching and outer slope with grass etc.

11. The Respondents, BSPHCL and GRIDCO have submitted that the Commission has already dealt this additional capital expenditure in its order dated 10.3.2017 in Petition No. 316/GT/2014 (determination of tariff of this generating station for 2014-19) and had rejected the claim of Petitioner, on the ground that of completion of useful life of 25 years by the plant. The Respondents have also submitted that, if the generating station had achieved 100% ash utilisation by the Petitioner, there would have been no need to spend any amount for raising the Ash dyke. In response, the Petitioner has clarified that though this generating station has already completed more than 25 year of commercial operation, it cannot be said that there would not be any requirement for Ash dyke raising. The Petitioner has further submitted that raising of Ash dyke is a continuous process and is undertaken as per the requirements of the generating station and ash being generated. The Petitioner has also submitted that it has also filed appeal against the Commission's order dated 10.3.2017 before APTEL, which is still pending, and no stay order has been issued. The Petitioner has also clarified that the utilisation of fly ash and the various circulars issued by the MOEF, GOI on this aspect, has nothing to do with the requirement of an Ash dyke / the raising of Ash dyke / other Ash -related works to be carried on by the generating station, which are of a continuous nature and

the amount of capital expenditure to be allowed by the Commission under the Regulation. The Petitioner has also submitted that the rate of ash generation may not be the same as the rate at which ash is being utilized. Accordingly, the Petitioner has emphasized that Ash dykes need to be maintained and their heights need to be raised on a regular basis, in order to ensure proper and safe storage of ash at the generating station.

12. The Respondents, TANGEDCO, BYPL and UPPCL have submitted that special and compensation allowance has been allowed to meet the expenses for new assets of capital nature under Regulation 28 of the 2019 Tariff Regulations and therefore, the expenditure under this head may not be allowed. In response, the Petitioner has clarified that amount claimed towards Ash dyke raising and other Ash dyke related works fall within the original scope of work and has been deferred for execution. It has stated that the said work is required to be done periodically by way of disposal of ash for running of the plant, irrespective of the age of the plant and does not depend as to whether the plant is under fag end of life.

13. The submissions have been considered. The Petitioner has claimed projected additional capital expenditure towards Ash dyke raising and other Ash dyke related works under Regulation 25(1) (c) & 25(1) (g) of 2019 Tariff Regulations, on the ground that these works are of a continuous nature, to be executed in a phased manner during the operational life of generating station and is covered within the original scope of work of the project. We notice that the total additional capital expenditure of Rs.8552.43 lakh claimed for the period 2019-24, is towards the raising of Ash dyke as part of the ash disposal system. In view of this, the additional capitalization of expenditure for Ash dyke

related works **is allowed** under Regulation 25(1) (g) of the 2019 Tariff Regulations. However, the Petitioner is directed to submit the details regarding total Ash generated during the period 2019-24 (year wise), the quantity of ash dumped in ash pond and the quantity transported and utilized for other purposes along with supporting documents at the time of truing up of tariff.

Fire Detection and Protection System

14. The Petitioner has claimed total projected additional capital expenditure of Rs.1748.09 lakh (Rs 290.24 lakh in in 2020-21, Rs 1457.85 lakh in 2021-22) towards Augmentation of fire detection and protection system, in terms of Regulation 25(1)(b) and 26(1)(d) of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that it has augmented the fire protection system of Coal Handling Plant (CHP) and Stacker Reclaimer area in line with Regulation 12(5) of the 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 also submitted that the Commission vide its order dated 10.3.2017, did not decide this issue on the ground that the same needs to be examined on the larger perspective i.e. whether the CEA Regulations 2010 and 2011 are applicable to the existing generating stations and if so, whether the augmentation of fire fighting system should be considered as Change in law and whether it is required for safety and security of the plant in terms of Regulation 14(3)(ii) and (iii) of the 2014 Tariff Regulations. It has also submitted that only some of the work was completed during the period 2014-19 and the work in Wagon tippler area is still

pending. Accordingly, the Petitioner has prayed to allow the additional capitalization of the said works under Regulation 25 (1) (g) of the 2019 Tariff Regulations.

15. The Respondents, BSPHCL, GRIDCO, TPDDL and BYPL have submitted that since the Commission and CEA are yet to finalize as to whether the CEA Technical Standard Regulations, 2010 and 2011 are applicable to the generating station and if so, whether the implementation of the augmentation of fire-fighting system should be considered as 'change in law'. The present claim of the Petitioner under this head may not be considered. In response to the same, the Petitioner has submitted that the claim falls under Regulation 26 (1) (b) and (d) of the 2019 Tariff Regulations, since the assessment of availability, reliability and design adequacy of Fire detection and Protection system of all coal based thermal stations of the Petitioner, was carried out in line with Regulation 12(5) of CEA Regulations, 2010. The Petitioner has further submitted that major works were identified in order to comply with the said Regulation for fire detection and protection system by Installation of MVW (Medium Velocity Water) spray system for the various coal conveyers and Transfer Points of Stage-I and Stage-II CHP and crusher house of CHP Stage-I, installation of MVW spray system for the various cable galleries of Stage-I & II, installation of MVW spray system for Stacker Reclaimers of CHP Stage-I & II, installation of analogue addressable type fire detection and alarm system for various areas of CHP Stage-I & II and cable galleries and installation of Fire Order in hydrant for inclined conveyer galleries.

16. The Respondent, TANGEDCO has submitted that the Petitioner has not clarified, as to whether any Fire protection system was installed in the Coal handling area and also regarding the need for going in for an augmentation of new system at the fag end of the generating station. It has further submitted that the expenses towards upkeep

shall be met out from the Special allowances claimed by the Petitioner. In response to the same, the Petitioner has submitted that earlier, CHP area was equipped with mobile fire protection equipment and the proposed system is essentially required to prevent any catastrophic damage in case fire breaks out in CHP as existence 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. Accordingly, the Petitioner has submitted that expenditure on “Augmentation of fire protection system of Coal Handling Plant (CHP) and Stacker Reclaimer area” is required to be incurred in line with regulation 12(5) of CEA Regulations, 2010.

17. The Respondent UPPCL has submitted that work under the said claim is to be completed in the period 2019-24 and therefore, there is neither any compliance to 'change in law' nor the 'Safety and Security' of the plant has been enhanced. In clarification of the same, the Petitioner has submitted that the APTEL had allowed the additional capitalisation on fire-fighting system vide its judgement dated 5.8.2019 in Appeal No. 40 of 2017.

18. The matter has been examined. Considering the essentiality of the firefighting equipment in critical areas and in line with Regulation 12(5) of CEA Regulations, 2010, the projected additional capital expenditure claimed is **allowed** under Regulation 26 (1) (b) of 2019 Tariff Regulations.

Dry Ash Extraction system (DAES) for Units- 1, 4 & 5

19. The Petitioner has claimed total projected additional capital expenditure of Rs.8908.05 lakh (Rs 8261.15 lakh in 2020-21 and Rs 646.90 lakh in 2021-22) towards Dry Ash Extraction system, in terms of Regulation 26(1)(b) of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that Dry Ash

Extraction System, which is a standard fitment for all new power plants, is for achievement of 100% ash utilization as per MOEF notification dated 25.1.2016. It has further stated that the installation of this system would help increase utilization of dry fly ash. Since, presently the fly ash evacuation system of the units of Stage-I&II are operating on a slurry system (Wet), the same is required to be modified and converted to dry ash evacuation system. The Petitioner has also submitted that the Commission had allowed the same while determining tariff for some of the generating stations of the Petitioner, viz., Tanda TPS (order dated 21.3.2017 in Petition No. 366/GT/2017) & Talcher STPS-II (order dated 16.2.2017 in Petition No 293/GT/2014) etc. under change in law.

20. The Respondents, BSPHCL and GRIDCO have submitted that this issue has also been dealt with in Commission's order dated 10.3.2017 in Petition No. 316/ GT/ 2014, wherein, it was held that the expenditure towards DAES is in the nature of operational expenses and therefore, the claim of the Petitioner was rejected. Further, it has been submitted by the Respondents that the Petitioner was also directed to meet this expenditure from compensation allowance allowed to the generating station. In response to the above, the Petitioner has submitted that the Commission had allowed similar expenditure for other coal-based plants of the Petitioner for the period 2019-24.

21. The Respondent TPDDL has submitted that Regulation 26(1) mandates prudence check before allowing any change in law claim and this effectively requires the Petitioner to submit information/ details/ evidence/ supporting material to substantiate the amount claimed. It has also stated that the Petitioner has claimed additional capitalisation without providing any material/basis to substantiate and explain the amount claimed under this head. In response, the Petitioner has submitted that this

expenditure has been claimed under change in law and the relevant details along with the supporting documents have already been provided, for prudence check

22. The Respondent BYPL has submitted that the draft 2019 Tariff Regulations were notified by the Commission for public consultation and it did not include any provision for recovery of additional O&M expenses over and above the normative figures. The Respondent has further submitted that no objections were raised by the Petitioner regarding the non-insertion of the provision for additional O&M expenditure in terms of the MoEFCC Notification dated 25.1.2016. In response, the Petitioner has submitted that the aforesaid claim has been accepted as a 'Change in law' event by this Commission in its order dated 6.7.2022 in Petition No. 425/GT/2020 (approval of tariff of Sipat STPS, Stage-I (1980 MW) for the period 2019-24.

23. The matter has been considered. As regards installation of DAES, clause 2 (10) of the MoEF& CC Notification dated 25.1.2016, provides as follows:

> *"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"*

24. In our view, DAES shall help in reducing the burden of ash disposal in the ash dyke area, which will reduce the regular or time to time capitalization of expenditure for raising of ash dyke and environmental ground water pollution. In this background and keeping in view that the additional expenditure claimed is for compliance with the existing norms under the MoEF&CC notification dated 25.1.2016, the same **is allowed** under Regulation 26(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) and a copy of accounts, duly certified by the auditor, which is required to be mandatorily maintained by the Petitioner in terms of the said notification, at the time of truing up of tariff.

Inert Gas Fire Extinguishing System

25. The Petitioner has claimed projected additional capital expenditure of Rs. 163.23 lakh in 2020-21 towards Inert gas fire extinguisher system, under Regulation 25(1)(b) of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that Halon fire protection system is provided for permanent firefighting system and uses substances which are Ozone depleting in nature. It has further submitted that as per the Environment (Protection) Act 1986, the Central Government laid down rules for Ozone Depleting Substances (Regulation and Control) Rules, 2000) and as per the Montreal Protocol on substances that deplete the Ozone layer, plants using Ozone depleting substances must phase out these systems and adopt systems which use substances that do not deplete the Ozone layer, Accordingly, the Petitioner has submitted that the replacement of Halon gas fire protection system with alternate inert gas shall be taken up in line with CEA (Technical Standards for construction of Electrical Plants and Electric Lines) Regulation, 2010. Further, the Petitioner has also submitted that the Commission has allowed the same work in some of the Petitioner's stations such as Talcher STPS-I (Order dated 27.7.2016 in Petition no 281/GT/2014).

26. The Respondents, BSPHCL, GRIDCO and TPDDL have submitted that the Commission has rejected the similar claim of the Petitioner in the Order dated 10.3.2017 in Petition No. 316/GT/2014. They have also submitted that the Petitioner was directed to meet the said expenditure from the Compensation/Special allowance allowed to the generating station. The Respondents have further submitted that at this stage it is unclear whether the CEA Technical Standard Regulations 2010 constitutes a change in law event for the purpose of Regulation 26(1)(b) or not, however, as per the Commission’s order dated 10.3.2017, the present expenditure cannot be made part of

additional capital expenditure. In response, the Petitioner has clarified that the same has already been covered by judgement dated 5.8.2019 of APTEL, wherein the APTEL was pleased to allow the additional capitalisation in regard to inert gas fire extinguishing system based on the fire-fighting system.

27. The Respondent BYPL, has submitted that the draft 2019 Tariff Regulations were notified by the Commission for public consultations, did not include any provision for recovery of the additional O&M expenditure over and above the normative figures. The Respondent has submitted that no objections were raised by the Petitioner regarding non insertion of a provision for additional O&M expenditure. In response, the Petitioner has submitted that the Commission has treated the expenditure on inert gas fire extinguishing system to be of capital nature / and additional capitalisation and allowed the same in some of the Petitioner's stations such as Talcher STPS-I in Petition No. 281/GT/2014. It has further submitted that once the Commission has identified the aforesaid work as "Change in law" for the period 2014-19, the same holds true for the period 2019-24 also.

28. The matter has been considered. It is observed that the Commission in its various orders for thermal generating stations has allowed the expenditure for replacing Halon based fire extinguishing system with Inert gas firefighting system under "Change in law/ compliance of existing law" provisions of 2014 and 2019 Tariff Regulations. Since the additional capital expenditure of Rs. 163.23 lakh claimed is required to be incurred under the Rules framed by the Central Government and subsequently incorporated by CEA in its technical standards, the same **is allowed** under Regulation 26(1)(b) of the 2019 Tariff Regulations.

Assumed Deletion

29. As per consistent methodology adopted by the Commission, the expenditure on replacement of assets, if found justified, is allowed for the purpose of tariff provided that the capitalization of the said asset, is followed by de-capitalization of the gross value of the old asset. However, in certain cases, where the de-capitalization is proposed to be affected during the future years to the year of capitalization of the new asset, the de-capitalization of the old asset for the purpose of tariff, is shifted to the very same year in which the capitalization of the new asset is allowed. Such de-capitalization which is not a book entry in the year of capitalization is termed as "Assumed Deletion". Therefore, the methodology of arriving at the fair value of the de-capitalized asset, i.e., an escalation rate of 5% per annum from the COD has been considered in order to arrive at the gross value of the old asset in comparison to the cost of the new asset. In the present petition, the year of COD of the generating station is in 1986-87. We have considered the value of the asset under consideration on COD as 100% and escalated it @5% per annum till the year during which additional capital expenditure is claimed against replacement of the same. The amount claimed for additional capital expenditure against the asset, is multiplied by the derived ratio from the above two values i.e., value in year of COD divided by the value in capitalized year.

30. The Petitioner, in this petition, has claimed inert gas fire extinguishing system, but has not furnished the de-capitalized value of the old assets. Accordingly, the decapitalized value of the assets/ works has been calculated in terms of the above-mentioned methodology and the same is as follows:

(Rs. in lakh)

	Year of claim	Additional capital expenditure allowed (on accrual basis)	Assumed deletion
Inert gas fire extinguishing system	2020-21	163.23	31.07
	2021-22	646.90	117.28

31. Accordingly, the total projected additional capital expenditure claimed by the Petitioner and those allowed for the period 2019-24, is summarized as under:

(Rs. in lakh)

		2019-20	2020-21	2021-22	2022-23	2023-24	Total
Ash Dyke raising	Claimed	582.43	70.00	4200.00	3000.00	700.00	8552.43
	Allowed	582.43	70.00	4200.00	3000.00	700.00	8552.43
Fire Detection and Protection System	Claimed	0.00	290.24	1457.85	0.00	0.00	1748.09
	Allowed	0.00	290.24	1457.85	0.00	0.00	1748.09
Dry Ash Extraction system for Units-1, 4 & 5	Claimed	0.00	8261.15	646.90	0.00	0.00	8908.05
	Allowed	0.00	8261.15	646.90	0.00	0.00	8908.05
Inert Gas Fire Extinguishing System	Claimed	0.00	163.23	0.00	0.00	0.00	163.23
	Allowed	0.00	163.23	0.00	0.00	0.00	163.23
Sub-total (A)	Claimed	582.43	8784.62	6304.75	3000.00	700.00	19371.80
	Allowed	**582.43**	**8784.62**	**6304.75**	**3000.00**	**700.00**	**19371.80**
Decapitalization (B)							
De-capitalization (assumed deletion)	**Allowed**	0.00	31.07	117.28	0.00	0.00	148.35
Discharge of liability (C)							
Discharge of liability corresponding to allowed works	Claimed	0.00	0.00	0.00	0.00	0.00	0.00
	Allowed	0.00	0.00	0.00	0.00	0.00	0.00
Net Additional Capital Expenditure (D=A- B+C)	Claimed	582.43	8784.62	6304.75	3000.00	700.00	19371.80
	Allowed	**582.43**	**8753.55**	**6187.47**	**3000.00**	**700.00**	**19223.45**

Capital cost allowed for the period 2019-24

32. 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 (A)	321424.25	322006.68	330760.23	336947.71	339947.71
Add: Admitted Additional capital expenditure (B)	582.43	8753.55	6187.47	3000.00	700.00
Closing Capital Cost (C) = (A+B)	322006.68	330760.23	336947.71	339947.71	340647.71
Average Capital cost (D) = (A+C)/2	321715.47	326383.46	333853.97	338447.71	340297.71

Debt-Equity Ratio

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

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

Provided that:

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

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

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

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

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

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

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

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

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

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

34. The details of the debt and equity in respect of the generating station is as under:

(Rs. in lakh)

	Capital Cost as on 1.4.2019		**Net Additional Capitalization during 2019-24**		**Capital cost as on 31.3.2024**	
	Amount	**(%)**	**Amount**	**(%)**	**Amount**	**(%)**
Debt (A)	165493.45	51.49%	13483.88	70.14%	178977.33	52.54%
Equity (B)	155930.80	48.51%	5739.57	29.86%	161670.37	47.46%
Total (C) = (A) + (B)	**321424.25**	**100.00%**	**19223.45**	**100.00%**	**340647.71**	**100.00%**

35. As the generating station has completed its useful life as on 1.4.2019, the equity component in excess of 30% of the capital cost has not been considered in terms of the first proviso to Regulation 18(3) of 2019 Tariff Regulations. Accordingly, the equity component, for the purpose of computation of tariff for the period 2019-24, is restricted to 30% of the capital cost.

Return on Equity

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

"30. Return on Equity:

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

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

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

Provided further that:

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

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

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

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

"31. Tax on Return on Equity. (1) The base rate of return on equity as allowed by the Commission under Regulation 30 of these regulations shall be grossed up with the effective tax rate of the respective financial year. For this purpose, the effective tax rate shall be considered on the basis of actual tax paid in respect of the financial year in line

with the provisions of the relevant Finance Acts by the concerned generating company or the transmission licensee, as the case may be. The actual tax paid on income from other businesses including deferred tax liability (i.e. income from business other than business of generation or transmission, as the case may be) shall be excluded for the calculation of effective tax rate.

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

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

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

Illustration-

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

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

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

Estimated Gross Income from generation or transmission business for FY 2019-20 is Rs 1,000 crore;
Estimated Advance Tax for the year on above is Rs 240 crore;
Effective Tax Rate for the year 2019-20 = Rs 240 Crore/Rs 1000 Crore = 24%;
Rate of return on equity = 15.50/ (1-0.24) = 20.395%.

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 customers, as the case may be, on year to year basis."

37. As per proviso to Regulation 30 of the 2019 Tariff Regulations, ROE in respect of the additional capitalization, after the cut-off date, and beyond the original scope of work, excluding the 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. The additional capital expenditure within the original scope of work is calculated as per methodology provided in Regulation 30 and Regulation 31 of the 2019 Tariff

Regulations. For equity base, ROE has been calculated by grossing up of ROE during the period 2019-24. The Petitioner has claimed tariff considering the rate of ROE as 18.782% i.e., base rate of 15.50% and MAT rate of 17.472% (i.e., MAT rate of 15% + Surcharge of 12% + HEC of 4%) for the period 2019-24.

38. It is noticed that for grossing up of ROE during the period 2019-24, the Petitioner has applied the MAT rate of 17.472%. The same is allowed, subject to revision, if any, at the time of truing up of tariff. Accordingly, ROE has been worked out and allowed as under:

(Rs. in lakh)

	2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Normative Equity-Opening (A)	96427.28	96602.01	99222.32	101056.85	101956.85
Addition of Equity due to additional capital expenditure (B)	174.73	2620.31	1834.53	900.00	210.00
Normative Equity-Closing (C) = (A) + (B)	96602.01	99222.32	101056.85	101956.85	102166.85
Average Normative Equity (D) = (A+C)/2	96514.64	97912.16	100139.58	101506.85	102061.85
Return on Equity (Base Rate) (E)	15.500%	15.500%	15.500%	15.500%	15.500%
Effective Tax Rate (F)	17.472%	17.472%	17.472%	17.472%	17.472%
Rate of Return on Equity (Pre Tax) (G) = (E)/(1-F)	18.782%	18.782%	18.782%	18.782%	18.782%
Return on Equity (Pre Tax) annualised (H) = (D)x(G)	**18127.38**	**18389.86**	**18808.22**	**19065.02**	**19169.26**

Interest on Loan

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

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

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

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

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

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

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

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

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

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

40. Interest on loan has been computed as under:

(i) The gross normative loan amounting to Rs. 165493.45 lakh as on 31.3.2019 as considered in order dated 17.4.2023 in Petition No. 698/GT/2020 has been considered as on 1.4.2019;

(ii) Cumulative repayment amounting to Rs. 164712.33 lakh as on 31.3.2019 as considered in order dated 17.4.2023 has been considered as on 1.4.2019;

(iii) Accordingly, the net normative opening loan as on 1.4.2019 works out to as Rs. 781.12 lakh;

(iv) Addition to normative loan on account of additional capital expenditure approved above has been considered;

(v) Depreciation allowed has been considered as repayment of normative loan during the respective years of the period 2019-24. Further, repayments have been adjusted for de-capitalization of assets considered for the purpose of tariff.

41. The Petitioner has claimed interest on loan by applying the weighted average rate of interest of 8.3149% for the year 2019-20, 8.3429% for the years 2020-21, 8.3465% for the years 2021-22, 8.3506% for the years 2022-23 and 8.3521% for the years 2023-24. The same has been considered for the purpose of tariff. The Petitioner, is however, directed to submit documentary evidence for the rate of interest considered in Form-13 and repayment schedule of loan, at the time of truing up of tariff. Accordingly, Interest on loan has been worked out as under:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Gross opening loan (A)	165493.45	165901.15	172034.39	176387.33	178487.33
Cumulative repayment of loan upto previous year (B)	164712.33	165901.15	170086.35	176387.33	178487.33
Net Loan Opening (C) = (A) - (B)	781.12	0.00	1948.04	0.00	0.00
Addition due to additional capital expenditure (D)	407.70	6133.24	4352.94	2100.00	490.00
Repayment of loan during the period (E)	1188.82	4201.19	6361.37	2100.00	490.00
Less: Repayment adjustment on a/c of decapitalization (F)	0.00	16.00	60.38	0.00	0.00
Net Repayment of Loan during the period (G) = (E) - (F)	1188.82	4185.19	6300.99	2100.00	490.00
Net Loan Closing (H) =(C) +(D) -(G)	0.00	1948.04	0.00	0.00	0.00
Average Loan (I) = (C+H)/2	390.56	974.02	974.02	0.00	0.00
Weighted Average Rate of Interest of loan (J)	8.3419%	8.3429%	8.3465%	8.3506%	8.3521%
Interest on Loan (K) = (I)*(J)	**32.58**	**81.26**	**81.30**	**0.00**	**0.00**

Depreciation

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

43. The cumulative depreciation amounting to Rs. 282632.45 lakh, as on 31.3.2019, as considered in order dated 17.4.2023 in Petition No. 698/GT/2020, has been considered for the purpose of tariff. As on 1.4.2019, the useful life of the generating station is over. Accordingly, depreciation has been worked out and allowed as under:

(Rs. in lakh)

	2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Average Capital Cost (A)	321715.47	326383.46	333853.97	338447.71	340297.71
Value of freehold land included in average capital cost (B)	0.00	0.00	0.00	0.00	0.00
Value of software and IT equipment included in average capital cost (C)*	0.00	0.00	0.00	0.00	0.00
Aggregated Depreciable Value (D)= (A-B-C) x 90%+ (C)	289543.92	293745.11	300468.57	304602.93	306267.93

	2019-20	2020-21	2021-22	2022-23	2023-24
Remaining aggregate depreciable value at the beginning of the year (E) = (D) - Cumulative depreciation at the end of the preceding period, shown at (M)	6911.47	4923.30	7473.53	4962.02	2387.11
Depreciation during the year/ period (G)	6189.36	4201.19	6751.42	4239.91	1665.00
Cumulative depreciation at the end of the year (before adjustment for de-capitalisation) (H) = (G) + (Cumulative Depreciation at the end of the previous year)	288821.82	293023.01	299746.47	303880.83	305545.83
Less: Depreciation adjustment on account of de-capitalisation (I)	0.00	27.96	105.55	0.00	0.00
Cumulative depreciation at the end of the year (J)*= (H) - (I)	**288821.82**	**292995.04**	**299640.92**	**303880.83**	**305545.83**

Operation & Maintenance Expenses

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

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

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

(in Rs lakh/MW)

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

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

xxx

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

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

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
42286.00	43772.00	45306.00	46906.00	48544.00

46. 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

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

> *"35(1)(6) The Water Charges, Security Expenses and Capital Spares for thermal generating stations shall be allowed separately after prudence check:*
>
> *Provided that water charges shall be allowed based on water consumption depending upon type of plant and type of cooling water system, subject to prudence check. The details regarding the same shall be furnished along with the petition;*
>
> *xxxxx."*

48. In terms of the above regulation, water charges are to be allowed separately, based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check and considering the norms of specific water consumption notified by the MOEF&CC, GOI. The details furnished by the Petitioner in respect of water charges as applicable for the period 2019-24, are as under:

	Remarks
Type of Plant	Coal Based
Type of cooling water system	Open Circuit cooling
Consumption of Water	720 lakh cubic meter
Rate of Water charges	Rs 20.82 per 1000 gallon
Total Water Charges	Rs. 3960.04 lakh

49. The Petitioner has claimed the water charges as under:

(Rs.in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
3960.04	3960.04	3960.04	3960.04	3960.04

50. The Petitioner has submitted that the claim for the water charges is based on the estimates and the same shall be subject to retrospective adjustment based on actuals at the time of truing up of tariff. It has further submitted that the actual water charges incurred at the generating station, during the years 2018-19, 2019-20 and 2020-21 is Rs 2032.21 lakh, Rs 5215.62 lakh (includes arrear payment of Rs 1540.46 lakh pertaining to 2017-18 & 2018-19) and Rs. 3048.14 lakhs, respectively. The Petitioner has also submitted that water charges towards water consumed for 2017-18 and 2018-19 were paid during the year 2019-20 as the Farakka Barrage Authority claimed additional water charges retrospectively in May, 2020. It has added that the amount towards arrear payment of Rs. 1540.46 lakh has not been claimed by Petitioner in 2017-18 and 2018-19. The Petitioner has also furnished the Farakka Barrage Project, Ministry of Jal Shakti letter dated 11.3.2020.

51. The matter has been considered. The actual water charges incurred and claimed by the Petitioner for the years 2019-20 and 2020-21 is allowed. However, the total arrear water charges of Rs.1540.46 lakh relating to the years 2017-18 and 2018-19 and paid in 2019-20 is not allowed to form part of the annual fixed charges of the generating station, for the period 2019-24 and the same shall be recovered by the Petitioner from the beneficiaries, from the following month, from the date of issue of this order in six equal instalments (without any carrying cost/interest there on). The projected water charges claimed for 2021-22 to 2023-24, are allowed, subject to the Petitioner, furnishing the details of actual water consumption (in cubic meters), rate (Rs/ Cubic meter) and power charges separately, at the time of truing up of tariff in accordance with the applicable regulations. Accordingly, the water charges allowed for the period 2019-24, is summarised as follows:

(in Rs. lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
3675.16	3048.14	3960.04	3960.04	3960.04

Security Expenses

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

> *"6) The Water Charges, Security Expenses and Capital Spares for thermal generating stations shall be allowed separately after prudence check:*
>
> *Xxxx*
>
> *Provided further that the generating station shall submit the assessment of the security requirement and estimated expenses;*
> *xxx"*

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

(in Rs. lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
3882.67	4149.13	4434.23	4739.29	5065.71

54. The Petitioner has submitted that the actual Security expenses incurred at Farakka Station (2100 MW) during 2018-19 was Rs 4769.16 lakh and out of this, the share of Farakka-I&II (1600 MW) is Rs 3633.64 lakh, on pro-rata basis of the installed capacity (MW). The Petitioner has further submitted that for the arriving at the claimed security expenses for the period 2019-24, suitable escalation/estimation as per station requirement has been applied over the security expenses incurred by it for 2018-19. It has further submitted that the actual security expenses incurred at Farakka station during 2019-20 and 2020-21 are Rs 3854.42 lakh and Rs 6355.15 lakh, respectively. Out of it, share of Faraka-I&II for 2019-20 and 2020-21works out to Rs 2936.70 lakh and Rs 4842.01 lakh, respectively on pro-rata basis of installed capacity (in MW).

55. The matter has been considered. The actual security charges incurred for the years 2019-20 and 2020-21 and the projected security expenses for 2021-22 to 2023-24, as claimed by the Petitioner is allowed. However, the Petitioner shall, at the time of

truing up, furnish the actual security expenses incurred along with proper justification and assessment in terms of Regulation 35(1)(6) of the 2019 Tariff Regulations. The security expenses allowed for the period 2019-24, are summarised as under:

(in Rs. lakh)

2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
2936.70	4842.01	4434.23	4739.29	5065.71

Capital spares

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

Fly Ash Transportation charges

57. The Petitioner has claimed the fly ash transportation charges of Rs 5096 lakhs for 2021-22 (Jan to March 2022), Rs 54600 lakh for 2022-23 and Rs 73350 lakh for 2023-24. It is however noticed that the Petitioner had filed Petition No. 205/MP/2021 with regard to reimbursement of fly ash transportation charges in respect of its generating stations for the period 2019-24. The Petitioner has raised issues with regard to the fly ash transportation in that Petition arguing higher liability of the Respondents therein on account of interest burden and cash flow issues that may be faced by the Petitioner in case monthly billing of the actual transportation charges is not allowed. Order in the Petition No. 205/MP/2021 was issued on 28.10.2022, hence, the reimbursement of fly ash transportation charges of the Petitioner shall be governed by the said order *(paragraph 44)*. Further, considering the fact that the recovery of the fly ash

transportation expenses has been allowed, the fly ash transportation expenses for the period 2019-24 have not been made part of the Annual Fixed Charges.

Operational Norms

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

Normative Annual Plant Availability Factor (NAPAF) %	85.00
Gross Station Heat Rate (kcal/kwh)	2405.00
Auxiliary Power Consumption %	6.78
Specific Oil Consumption (ml/kwh)	0.50

59. Since, the operational norms claimed by the Petitioner, in respect of the generating station, as above, are in terms of Regulation 49 of the 2019 Tariff Regulations, the same is allowed.

Interest on Working Capital

60. 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."*

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

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

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

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

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

Fuel Cost for computation of working capital

61. The Petitioner has claimed Energy Charge Rate (ECR) of Rs. 2.554 /kWh and fuel component in working capital as under:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Cost of coal for 40 days	30860.91	30860.91	30860.91	30860.91	30860.91
Cost of Secondary fuel oil 2 months	331.89	330.98	330.98	330.98	331.89

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

a) Operational norms as per the 2019 Tariff Regulations.

b) Price and "as received" GCV of coal {after reducing the same by 85 kcal/kWh in terms of Regulation 43(2)(b)} procured for the three months of October 2018, November 2018, and December 2018, and

c) Price and GCV of secondary fuel oil for the three months of October 2018, November 2018, and December 2018.

63. The Normative Transit and Handling loss of 0.20% has been considered in our calculations of working capital requirements. GCV details for domestic coal submitted by the Petitioner for Farakka Stages I & II are at variation to the GCV details submitted for Farakka Stage-III. Hence, the Commission has considered the GCV of the Farakka Stage-III being the higher one. The weighted average GCV of coal computed is further reduced by a margin of 85 kcal/ Kg towards storage losses. With regard to the GCV and Price of the secondary fuel oil, it is observed that the Petitioner has calculated the same on the basis of simple average in place of weighted average. Accordingly, the weighted average landed cost and GCV of coal and oil as considered in our calculations for working capital requirements are as under as against the Petitioner's claimed values:

Sl. No.		**Claimed**	**Allowed**
1.	GCV of coal after adjustment of storage losses of 85 kcal/kg (kcal/kg)	3744.09	3748.55
2.	GCV of oil (kcal/LIT)	9790.00	9793.35
3.	Landed cost of coal (Rs./MT)	3687.34	3677.90
5.	Landed cost of oil (Rs./KL)	33338.09	33617.55

64. Accordingly, based on the above allowed landed cost and GCVs of fuels and operational parameters allowed to the station in terms of the 2019 Tariff Regulations, the Fuel components in working capital are allowed as under:

(Rs. in lakh)

	2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Cost of Coal for stock (10 days)	7686.30	7686.30	7686.30	7686.30	7686.30
Advance towards cost of Coal for generation (30 days)	23058.89	23058.89	23058.89	23058.89	23058.89
Cost of Secondary fuel 2 Months	334.67	333.76	333.76	333.76	334.67

Energy Charge Rate (ECR)

65. The Petitioner has claimed ECR (ex-bus) of Rs. 2.554/kWh, based on the weighted average price, GCV of coal & oil procured and burnt for the stipulated months of October 2018, November 2018 and December 2018.

66. The ECR, as worked out, based on the operational norms specified under the 2019 Regulations and allowed landed costs and GCVs of fuel , for allowing 45 days of variable charge in working capital is as under:

	Unit	**2019-24**
Capacity	MW	1600.00
Gross Station Heat Rate	Kcal/kWh	2405.00
Auxiliary Energy Consumption	%	6.78
Weighted average GCV of oil	Kcal/lit	9793.35
Weighted average GCV of coal	Kcal/kg	3748.55
Weighted average price of oil	Rs/KL	33617.55
Weighted average price of Coal	Rs/MT	3677.90
Rate of energy charge ex-bus	Rs/kWh	2.544

Working capital for O&M Expenses (1 month)

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

(Rs. in lakh)

2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
4177.39	4323.43	4475.02	4633.78	4797.48

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

(Rs. in lakh)

2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
4074.83	4305.18	4475.02	4633.78	4797.48

Working capital for Maintenance Spares

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

(Rs. in lakh)

2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
9779.57	10332.43	10740.05	11121.07	11513.95

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

Working capital for Receivables

71. Regulation 34(1)(a)(v) of the 2019 Tariff Regulations provides for Receivables for 45 days. Accordingly, after taking into account the allowed operational norms, price & GCV of fuel for stipulated three months, and the AFC finally allowed, the Receivable component of working capital is allowed as under:

(Rs. in lakh)

	2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Energy charge for 45 days for generation corresponding to NAPAF	34832.37	34832.37	34832.37	34832.37	34832.37
Fixed charge for 45 days	10340.79	10426.34	10974.05	10927.30	10841.29
Total	**45173.17**	**45258.71**	**45806.42**	**45759.68**	**45673.66**

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

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

Rate of Interest on working capital

74. In line with Regulation 34(3) of the 2019 Tariff Regulations, the Petitioner has claimed rate of interest on working capital as 12.05% (i.e., 1-year SBI MCLR of 8.55% as on 1.4.2019 + 350 basis points) on projection basis, for the period 2019-24. However, as the tariff of the generating station for the period 2019-24 is being determined during the year 2021-22, the SBI MCLR as on 1.4.2020 (7.75%) and as on 1.4.2021 (7.00%) is also available, which is lower in comparison to the same, as on 1.4.2019 (8.55%). Since, the rate of interest on working capital is subject to revision at the time of truing-up of tariff, based on the bank rate as on 1st April of each financial year, we find it prudent to allow the rate of interest as on 1.4.2020 and 1.4.2021, for the subsequent financial years. Accordingly, the rate of interest for the year 2019-20 is 12.05%, 2020-21 is 11.25% and for the subsequent years, the rate of interest of 10.50% has been considered (i.e., 1 year SBI MCLR of 7.75% as on 1.4.2020 + 350 basis points and 1 year SBI MCLR of 7.00% as on 1.4.2021 + 350 basis points). Accordingly, Interest on working capital is allowed as under:

(Rs. in lakh)

	2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Cost of Coal - 10 or 20 days (pit or non-pit) for generation corresponding to NAPAF (A)	7686.30	7686.30	7686.30	7686.30	7686.30
Cost of Coal (30 days) for generation corresponding to NAPAF (B)	23058.89	23058.89	23058.89	23058.89	23058.89
Cost of Secondary fuel (2 months) for generation corresponding to NAPAF (C)	334.67	333.76	333.76	333.76	334.67
Maintenance Spares - 20% of O&M (D)	9779.57	10332.43	10740.05	11121.07	11513.95
Receivables - 45 Days (E)	45173.17	45258.71	45806.42	45759.68	45673.66
O&M expenses - 1 month (F)	4074.82	4305.18	4475.02	4633.78	4797.48
Total Working Capital (I) = (A+B+C+D+E+F)	**90107.42**	**90975.26**	**92100.44**	**92593.46**	**93064.95**
Rate of Interest (G)	12.05%	11.25%	10.50%	10.50%	10.50%
Total Interest on Working capital (H) = ((I)*(G)	**10857.94**	**10234.72**	**9670.55**	**9722.31**	**9771.82**

Annual Fixed Charges for the period 2019-24

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

(Rs. in lakh)

	2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Depreciation (A)	6189.36	4201.19	6751.42	4239.91	1665.00
Interest on Loan (B)	32.58	81.26	81.30	0.00	0.00
Return on Equity (C)	18127.38	18389.86	18808.22	19065.02	19169.26
Interest on Working Capital (D)	10857.94	10234.72	9670.55	9722.31	9771.82
O&M Expenses (E)	48897.86	51662.15	53700.27	55605.33	57569.75
Special Allowance (F)	5700.00	10450.00	14015.75	15200.00	15200.00
Total Annual fixed charges (G) = (A+B+C+D+E+F)	**89805.13**	**95019.18**	**103027.51**	**103832.57**	**103375.83**

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

<u>Application Filing fees and Publication expenses</u>

77. The Petitioner has sought reimbursement of fees paid by it for filing the tariff petition and publication expenses. The Petitioner shall be entitled for reimbursement of the tariff petition filing fees along with the publication expenses incurred 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.

78. 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.

79. Petition No. 429/GT/2020 is disposed of in terms of the above.

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