CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No: 444/GT/2020

Coram:

Shri P.K. Pujari, Chairperson
Shri I.S Jha, Member
Shri Arun Goyal, Member

Date of Order: 17th November, 2021

In the matter of

Petition for approval of tariff of Ramagundam Super Thermal Power Station Stage-III (500 MW) for the period from 1.4.2019 to 31.3.2024

And

In the matter of

NTPC Limited,
NTPC Bhawan, Core-7, Scope Complex,
7, Institutional Area, Lodhi Road,
New Delhi-110 003. ......**Petitioner**

Vs

1. AP Eastern Power Distribution Company Limited,
Corporate Office P&T Colony, Seethammadhara,
Visakhapatnam – 530 013 - (AP).

2. AP Southern Power Distribution Company Limited,
Corporate Office, Back Side Srinivasa Kalyana Mandapam,
Tiruchhanur Road, Kesavayana Gunta,
Tirupathi – 517 503 (AP)

3. Telangana State Northern Power Distribution Company Limited,
H.No. 2-5-31/2, Vidyut Bhavan, Nakkalagutta, Hanamkonda,
Warangal – 506 001 (AP)

4. Telangana State Southern Power Distribution Company Limited,
Mint Compound, Corporate Office,
Hyderabad (AP) – 500 063.

5. Tamil Nadu Generation & Distribution Corporation Limited,
144, Anna Salai,
Chennai – 600 002

6. Bangalore Electricity Supply Company Limited,
Krishna Rajendra Circle,
Bangalore - 560 009.

7. Mangalore Electricity Supply Company Limited,
MESCOM Bhavan, Corporate Office,
Bejai, Kavoor cross road,
Mangaluru-575004, Karnataka

8. Chamundeshwari Electricity Supply Corporation Limited,
Corporate Office, No. 29, Vijayanagar, 2nd stage, Hinkal,
Mysore – 570 017.

9. Gulbarga Electricity Supply Company Limited,
Main road, Gulbarga,
Gulbarga – 585 102, Karnataka.

10. Hubli Electricity Supply Company Limited,
Corporate office, P.B.Road, Navanagar,
Hubli – 580 025.

11. Kerala State Electricity Board Limited,
Vaidyuthi Bhavanam, Pattom,
Thiruvananthapuram – 695 004.

12. Electricity Department,
Government of Puducherry,
137, Netaji Subhash Chandra Bose Salai,
Puducherry- 605001 **…Respondents**

Parties present:

Shri Venkatesh, Advocate, NTPC
Shri Vikas Maini, Advocate, NTPC
Shri Sachin Jain, NTPC
Shri S. Vallinayagam, Advocate, TANGEDCO
Dr. R. Kathiravan, TANGEDCO
Ms. R. Ramalakshmi, TANGEDCO

ORDER

This petition has been filed by the Petitioner, NTPC Limited (in short 'NTPC') for approval of tariff of Ramagundam Super Thermal Power Station Stage-III (500 MW) (in short 'the generating station') for the 2019-24 tariff period, in accordance with the provisions of the Central Electricity Regulatory Commission (Terms & Conditions of Tariff) Regulations, 2019 (hereinafter referred to as "the 2019 Tariff Regulations").

2. The generating station comprises of one unit with a capacity of 500 MW and the date of commercial operation of the said unit is 25.3.2005. The Commission vide its order dated 8.11.2016 in Petition No.268/GT/2014 had determined the tariff of the generating station for the 2014-19 tariff period. Thereafter, the Petitioner filed Petition No. 220/GT/2020 for revision of tariff of the generating station for 2014-19 tariff period, based on truing-up exercise and the Commission vide its order dated 25.9.2021 had determined the capital cost and annual fixed charges of the generating station as stated below:

Capital Cost allowed

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	156863.30	157508.45	157163.70	157918.33	157774.53
Add: Additional capital expenditure	645.15	(-) 344.75	754.63	(-) 143.80	(-) 187.50
Closing Capital Cost	**157508.45**	**157163.70**	**157918.33**	**157774.53**	**157587.03**
Average Capital Cost	157185.87	157336.07	157541.01	157846.43	157680.78

Annual Fixed Charges allowed

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	8335.24	8347.29	8357.31	2903.97	2899.34
Interest on Loan	2208.95	1509.28	833.57	399.31	165.01
Return on Equity	9247.24	9300.92	9313.04	9331.09	9346.37
Interest on Working Capital	3882.34	3904.53	3928.45	3889.22	3929.03
O&M Expenses	8343.00	8860.44	9561.76	9976.87	10700.16
Compensation Allowance	0.00	100.00	100.00	100.00	100.00
Total	**32016.78**	**32022.46**	**32094.13**	**26600.47**	**27139.90**

Present Petition

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

Capital Cost eligible for ROE at normal rate

(Rs. in lakh)

	2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Opening Capital Cost	157971.40	159267.40	160226.40	161438.40	164290.40
Add: Additional capital expenditure	1296.00	959.00	1212.00	2852.00	9632.00
Less: De-capitalization during the year/period	0.00	0.00	0.00	0.00	0.00
Add: Discharges during the year/period	0.00	0.00	0.00	0.00	0.00
Closing Capital Cost	**159267.40**	**160226.40**	**161438.40**	**164290.40**	**173922.40**
Average Capital Cost	158619.40	159746.90	160832.40	162864.40	169106.40

Annual Fixed Charges claimed

(Rs. in lakh)

	2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Depreciation	2971.61	3073.29	3182.08	3411.25	4216.09
Interest on Loan	30.37	0.00	0.00	0.00	121.27
Return on Equity	8937.57	9001.10	9062.26	9176.76	9528.47
Interest on Working Capital	3667.92	3699.18	3721.72	3753.80	3796.91
O&M Expenses (including water charges & security expenses)	12405.84	12970.98	13372.71	13913.44	14418.63
Total	**28013.30**	**28744.54**	**29338.77**	**30255.25**	**32081.38**

4. This petition, along with Petition No. 220/GT/2020 (truing up of tariff of the generating station for the 2014-19 tariff period) was heard through video conferencing on 13.8.2020 and the Commission, after directing the Petitioner to file certain additional information, reserved its orders in these petitions. In compliance to the directions, the Petitioner vide affidavit dated 4.11.2020 and 22.2.2021 has filed the additional information, after serving copy to the Respondents. The Respondent, KSEBL vide affidavit dated 13.8.2020 and the Respondent, TANGEDCO vide affidavits dated 17.9.2020 and 5.3.2021 have filed their replies. The Petitioner vide separate affidavits dated 4.12.2020 has filed its rejoinder to the said replies. Based on the submissions of the parties and documents available on record, we proceed to determine the tariff of the generating station, in the present petition, for the 2019-24 tariff period, on prudence check, as stated in the subsequent paragraphs.

Capital Cost

5. Clause (1) of Regulation 19 of the 2019 Tariff Regulations provides that the capital cost as determined by the Commission after prudence check in accordance with this regulation shall form the basis of determination of tariff for existing and new projects. Clause 3 of Regulation 19 of the 2019 Tariff Regulations provides that 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;*
>
> *(c) Capital expenditure on account of ash disposal and utilization including handling and transportation facility;*
>
> *(d) Capital expenditure incurred towards railway infrastructure and its augmentation for transportation of coal upto the receiving end of generating station but does not include the transportation cost and any other appurtenant cost paid to the railway; and*
>
> *(f) Capital cost incurred or projected to be incurred by a thermal generating station, on account of implementation of the norms under Perform, Achieve and Trade (PAT) scheme of Government of India shall be considered by the Commission subject to sharing of benefits accrued under the PAT scheme with the beneficiaries.*

6. The annual fixed charges claimed in the petition are based on opening capital cost of Rs.157971.40 lakh as on 1.4.2019. However, the Commission vide its order dated 25.9.2021 in Petition No. 220/GT/2020 had approved the capital cost of Rs.157587.03 as on 31.3.2019. Accordingly, in terms of Regulation 19(3) of the 2019 Tariff Regulations, the capital cost of Rs.157587.03 (after removal of un-discharged liabilities) as on 31.3.2019, has been considered as the capital cost as on 1.4.2019, on cash basis.

Additional Capital Expenditure

7. Clauses (1) and (2) of Regulation 25 and Regulation 26 of the 2019 Tariff Regulations provide as under:

> *"25. Additional Capitalisation within the original scope and after the cut-off date:*

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

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

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

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

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

(e) Force Majeure events;

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

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

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

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

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

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

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

26. Additional Capitalisation beyond the original scope

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

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

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

(c) Force Majeure events;

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

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

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

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

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

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

(Rs. in lakh)

Head of Work/ Equipment	**Projected Additional Capital Expenditure claimed**				
	2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Ash Water Recycling System	1296.00	144.00	0.00	0.00	0.00
Hydrobins	0.00	0.00	0.00	2717.00	302.00
Ash dyke buttressing/ raising and other related works	0.00	0.00	0.00	0.00	9330.00
Up-gradation of DCS Controller and HMI	0.00	815.00	0.00	0.00	0.00
CLO2 system	0.00	0.00	1212.00	135.00	0.00
Less: De-capitalization	0.00	0.00	0.00	0.00	0.00
Add: Discharges of liabilities	0.00	0.00	0.00	0.00	0.00
Net additional capital expenditure claimed	**1296.00**	**959.00**	**1212.00**	**2852.00**	**9632.00**

<u>Ash Water Recycling System</u>

9. The Petitioner has claimed projected additional capital expenditure of Rs.1296.00 lakh in 2019-20 and Rs.144.00 lakh in 2020-21 for works relating to Ash Water Recirculation System (AWRS) under Regulation 26(1)(b) of the 2019 Tariff Regulations. The Petitioner has submitted that the Environment Clearance (in short ‘EC’) for Ramagundam Stage-IV (1600 MW, Telangana Phase-I) was accorded by the Ministry of Enviroment and Forest and Climate Change (MOEF&CC) vide its letter dated 20.1.2016 and in the said EC, it was directed for immediate installation of AWRS for reuse of drain water. Accordingly, the Petitioner has submitted that AWRS is being installed/ augmented as per the directions contained in EC of Ramagundam Stage-IV (also called as Telangana Ph-1, 2 x 800 MW project). The Respondent KSEBL has submitted that the Petitioner has not considered the de-capitalization of

existing assets which are used for ash water handling. It has also stated that while approving the same, the gross fixed asset and depreciation may also be considered.

10. The matter has been examined. The Petitioner has claimed projected additional capitalization of Rs.1296.00 lakh in 2019-20 and Rs.144.00 lakh in 2020-21 under Regulation 26(1)(b) of the 2019 Tariff Regulations in respect of the said asset/ work, which are beyond the original scope of work of the project, under change in law or for compliance with the existing law. The Commission vide ROP of the hearing dated 13.8.2020, had directed the Petitioner to clarify the following:

> *"(xix) Justification for the projected additional capitalization of Rs.1440 lakh for the period 2019-21 towards Ash Water Recirculation System, being proposed in fulfillment of MOEF&CC Environmental Clearance condition for Telangana Phase -1 (2 x 800 MW). It shall be clarified whether the MOEF&CC Environmental Clearance for Telangana Phase -1 (2 x 800 MW) mandates AWRS system for this generating station. If not mandated, the reason as to how the claim is made under change in law may be submitted."*

11. In compliance of the above, the Petitioner has submitted that condition A(viii) of EC dated 20.1.2016 granted by MOEF&CC for Telangana Ph-1 (2x800 MW) Project (earlier called as Ramagundam Stage-IV) mandates that AWRS is to be installed for existing TPPs, for use of drain water. It is observed from EC dated 20.1.2016 that MOEF&CC, in respect of Telangana Ph-1 (2x800 MW), has inserted a condition that AWRS shall be immediately installed for the existing projects and till such time, the ash pond effluents should not be discharged into agricultural fields etc. According to this, EC has made it mandatory for the Petitioner to install AWRS not only for the yet to be constructed Telangana Ph-1 (2x800 MW project), but also for Stages I, II and III of Ramagundam generating station, as these are the existing units/ stations, at the same premises. In view of the fact that the Petitioner is required to comply with the condition in EC dated 20.1.2016 of MOEF&CC, the projected additional capital expenditure of Rs.1296.00 lakh claimed in 2019-20 and Rs.144.00 lakh in 2020-21 claimed towards AWRS is allowed under Regulation 26(1)(b) of the

2019 Tariff Regulations. The Petitioner is, however, directed to submit the details of the de-capitalized assets, if any, against AWRS at the time of truing up of tariff failing which the expenditure may not be considered.

Hydrobins

12. The Petitioner has claimed projected additional capital expenditure of Rs.2717.00 lakh in 2022-23 and Rs.302.00 lakh in 2023-24 towards 'Construction of Hydrobins' under Regulation 26(1)(b) of the 2019 Tariff Regulations. The Petitioner has submitted that as per MOEF&CC notification of 25.1.2016, hydrobins have been envisaged for ash handling system, to achieve 100% ash utilization. The Respondent KSEBL has submitted that since the Petitioner has not submitted the detailed break-up of the extent of ash utilization achieved and its reasonableness, the claim may be disallowed. The Petitioner has clarified that achieving 100% ash utilization is a statutory requirement in terms of MOEF&CC notification of 25.1.2016 and that the mine void filling has contributed to a considerable portion in the ash utilization.

13. The submissions have been considered. In our view, the installation of Hydrobins is for meeting the statutory requirement of 100% ash utilization as per the 2016 MOEF&CC notification, by providing the prescribed quality of ash for mine filling. Accordingly, the projected additional capital expenditure of Rs.2717.00 lakh in 2022-23 and Rs.302.00 lakh in 2023-24 claimed for 'Construction of Hydrobins' is allowed under Regulation 26(1)(b) of the 2019 Tariff Regulations. The Petitioner shall, at the time of truing-up of tariff, furnish the (i) details of the extent of ash utilization achieved prior to and after the installation of hydrobins and (ii) awarded price discovered through competitive bidding and the amount actually capitalized against Hydrobins, failing which, the expenditure may not be considered.

Ash dyke buttressing/ raising and other related works

14. The Petitioner has claimed projected additional capital expenditure of Rs.9330.00 lakh in 2023-24 for Ash dyke buttressing/ raising and other related works. The Petitioner has submitted that it had engaged experts to enhance the capacity of existing lagoons and disposal of ash in a safe manner and based on the advice of experts, the Petitioner is constructing a 'Peripheral Buttressing Dyke' from the downstream of the starter dyke. The Petitioner has claimed the additional capital expenditure under Regulation 25(1)(c) and Regulation 25(1)(g) of the 2019 Tariff Regulations.

15. The Commission vide ROP of the hearing dated 13.8.2020 directed the Petitioner to furnish the estimated expenditure envisaged for Ash Handling system/ Ash Pond/ Ash Dyke Raising within the original scope of work along with the actual expenditure incurred under these heads as on COD of the generating station and from COD to 31.3.2019. In response, the Petitioner vide affidavit dated 4.11.2020, has submitted that on the basis of price of 3rd quarter of 1998 price level, the Board of the Petitioner Company had approved an amount of Rs.2903.00 lakh for Ash Dyke related works and the expenditure on ash handling system forms part of the main plant turnkey project. The Petitioner has also furnished detailed break-up of the activities, along with the actual additional capital expenditure incurred for each works related to Ash pond/ Ash Handling System/ Ash Dyke raising, which are within the original scope of work from COD of the generating station till 2018-19. The Petitioner has also submitted that the total actual additional capital expenditure towards Ash Pond/ Ash Dyke works from COD till 31.3.2019 is Rs.2122.50 lakh, which is lesser than the amount of Rs.2903.00 lakh, as approved at the time of Investment Approval. The Petitioner has further submitted that the Commission has recognised such deferred works relating to Ash Pond/ Ash Dyke/ Ash handling system in all the Tariff

Regulations and there are provisions for additional capitalisation of such expenditure, even after the cut-off date of the generating station. It has submitted that the original estimate of Rs.2903.00 lakh for Ash Dyke work, at the time of approval in 2001, may not be appropriate for allowing further additional capital expenditure for Ash Handling System under Regulation 25(1)(c) of the 2019 Tariff Regulations. The Petitioner has submitted that due to lapse of time and since the investment approval is about 20 years old, which has effect on rupee depreciation and the escalation in prices. Further, the design for construction of ash dyke had also undergone changes. It has further been submitted that the approved cost of the project is Rs.178099.00 lakh, as per the 3rd quarter price level of 1998 and the closing capital cost as on 31.3.2019 as allowed by order dated 8.11.2016 in Petition No. 268/GT/2014 is Rs.158000.00 lakh, which is much lower than the original approved cost of Rs.178099.00 lakh. The Petitioner has stated that even after allowing the additional capital expenditure of Rs.9330.00 lakh in 2019-24 on Ash dyke system, the allowed capital cost for tariff purpose would be within the approved capital cost.

16. The details of the additional expenditure capitalized towards Ash handling system and Ash dyke works, as furnished by the Petitioner, vide affidavit dated 4.11.2020 are as under:

(Rs.in lakh)

Description of work	Amount capitalized	Year of capitalization
Ash Handling System		
U-7 Ash Handling system	344.21	2005-06
Main Plant Supply-AHP	34.94	2005-06
Total amount claimed towards Ash handling works	379.15	
Ash Dyke works		
Additional pedestals around Ash dyke (Garland area)	0.35	2007-08
Ash Pond: Construction of pump house, sump, discharge channel RCC culverts and service roads along downstream of N2 main dyke in ash	3.63	2007-08

Adjustment of Balance works in hydrogen building, foam pump house ash	(-)1.03	2007-08
Ash Silo area development works - Stage-III	31.51	2007-08
N2 starter dyke and first raising flood escape and downstream of N2 Flood Escape works	12.38	2007-08
N2 Pond starter dyke downstream seepage works	20.99	2007-08
Ash brick pavement and associated works	20.66	2007-08
Sub-total	**88.49**	
Raising of N-1 Dyke	678.05	2008-09
Ash brick pavement and associated works	3.43	2008-09
Sub-total	681.48	
Ash Pond raisings	10.94	2009-10
Ash Silo-2 Fabrication and Erection works	16.89	2009-10
Sub-total	**27.83**	
Ash Pond raisings	13.33	2010-11
Ash Pond raisings	547.08	2011-12
Raising of Ash Dyke in N1 pond (Total Service	685.63	2014-15
Material Cost in Raising of N1 pond	78.66	2014-15
Total amount claimed towards Ash Dyke	**2122.49**	

17. The matter has been examined. The claim of the Petitioner is for deferred work related to Ash pond or Ash handling system, as per approved scheme and is also within the original scope of work. Against an amount of Rs.2903.00 lakh, originally approved by the Board of the Petitioner Company, the Petitioner has already incurred additional capital expenditure Rs.2122.50 lakh up to 31.3.2019, for works related to Ash pond/ Ash handling System/ Ash Dyke raising. The Commission in its order dated 25.9.2021 in Petition No. 220/GT/2020, had allowed the actual additional capital expenditure of Rs.728.58 lakh (on cash basis) during the 2014-19 tariff period. Accordingly, from the details furnished by the Petitioner, the total additional capital expenditure allowed till 31.3.2019 is Rs.2122.49 lakh. Now, the Petitioner has claimed additional capital expenditure of Rs.9330.00 lakh in 2023-24 for Ash dyke buttressing/ raising and other related works on projection basis. Amount approved by the Board of Directors of the Petitioner company during investment approval for Ash Dyke related works and the expenditure up to 31.3.2019 on Ash handling system, is as follows:

(Rs. in lakh)

		Amount
Original Estimated Cost (as approved by Petitioner's Board)	(A)	2903.00
Expenditure incurred as on 31.3.2019 (submitted vide affidavit dated 4.11.2020)	(B)	2122.50
Remaining capital expenditure from approved Investment Approval cost	(C=A-B)	780.50

18. The Petitioner, in Petition No. 220/GT/2020, had not claimed any additional capital expenditure towards fly ash transportation expenses, based on the MOEF&CC notification dated 25.1.2016. However, it is observed from CEA Report on "Fly Ash Generation at Coal/Lignite based Thermal Power Stations and It's Utilization in the Country" for 2016-17, 2017-18, 2018-19, 2019-20 and 2020-21, that the generating station has been meeting target of utilizing 100% of its fly ash, as shown under:

. *(Rs.in lakh)*

Year	Fly ash generation (MT)	Fly ash Utilization (MT)	Utilization (%)
2016-17	4.71	4.38	93.10
2017-18	4.54	4.59	101.00
2018-19	4.27	4.71	100.10
2019-20	3.81	4.51	118.00
2020-21	3.85	4.28	111.00

19. Keeping in view the ash utilisation trend, as above, we find no merit in allowing further additional capital expenditure towards Ash dyke work. It is also observed that the Petitioner has projected additional capital expenditure of Rs.9330.00 lakh during the 2019-24 tariff period, which exceeds the approved Investment Approval cost of Rs.2903.00 lakh. In this background, we restrict the projected additional capital expenditure of Rs.9330.00 lakh claimed by the Petitioner and allow only Rs.780.50 lakh (see table under paragraph 17 above).

Up-gradation of DCS Controller and HMI

20. The Petitioner has claimed projected additional capital expenditure of Rs.815.00 lakh for Up-gradation of Max DNA DCS Controllers & HMI in 2020-21 under Regulation 25(2)(c) of the 2019 Tariff Regulations i.e. for replacement of the asset or equipment which is necessary on account of obsolescence of technology. In justification of the same, the Petitioner has submitted that the existing controller/ instrumentation are being maintained through repairing and spares are not available. It has submitted that M/s BHEL has advised to upgrade the existing controller/ instrumentation for continued support of spares/ services. The Respondent, KSEBL has submitted that the additional capital expenditure may be met from the O&M expenses allowed to the generating station. Similar submissions have been made by the Respondent, TANGEDCO. The Petitioner vide affidavit dated 4.11.2020 has submitted that the existing DCS and HMI system was awarded in 2003-04 with the original value of the asset as USD 4309970 and HMI up-gradation was done in 2012-13. It has stated that considering the dollar exchange rate at the time of investment approval of the generating station as US $1 = Rs.42.60, the value of the asset works out as Rs.1836.05 lakh. The Petitioner has also submitted that out of complete Max DNA DCS/HMI system, only DPUs, racks, ribbon cable and bus terminators have to be replaced under this up-gradation. It has further submitted that the workstations along with necessary software, network switches, mini-UPS and printers will be further replaced in this up-gradation scheme. The Petitioner has submitted that separate values/ breakup of these items under this contract is not available.

21. The matter has been examined. The Petitioner has, under this up-gradation scheme, proposed to replace only few components of the existing system due to unavailability of spares. In view of the fact that M/s BHEL (OEM) has stopped the support of spares/ services to the existing system in place and has advised the

Petitioner to upgrade the existing system, we allow the projected additional capital expenditure of Rs.815.00 lakh**.** However, in the absence of the gross value of replaced assets i.e. DPUs, racks, ribbon cable and bus terminators which were put in service in the year of COD (2004-05), the "assumed deletion" of Rs.373.36 lakh has been worked out, by applying the discounting rate of 5% on the current value of these assets i.e. Rs.815.00 lakh in the year 2020-21. Accordingly, on net basis, the projected additional capital expenditure of Rs.441.64 lakh is allowed towards the up-gradation of DCS Controller and HMI.

CLO_2 (Chlorine dioxide) system

22. The Petitioner has claimed projected additional capital expenditure of Rs.1212.00 lakh in 2021-22 and Rs.135.00 lakh in 2022-23 for works relating to ClO_2 system under Regulations 26(1)(b) and 26(1)(d) of 2019 Tariff Regulations. The Petitioner has submitted that in the interest of public safety, the Chlorine dozing system is being replaced by Chlorine dioxide (ClO_2) system, which is much safer and less hazardous than chlorine. The Petitioner has submitted that at present in the generating station, chlorine gas is being dozed directly at various stages of water treatment to maintain water quality and to inhibit organic growth in the water retaining structures/ equipment such as clarifiers, storage tanks, cooling towers, condenser tubes & piping etc. It has submitted that chlorine dosing is done from chlorine stored in cylinders/ tonners and chlorine gas is very hazardous and may prove fatal in case of leakage since handling and storage of the same involves risk to the life of public at large. The Petitioner has submitted that in the interest of public safety, the chlorine dozing system is now being replaced by chlorine dioxide (ClO_2) system, which is much safer and less hazardous than chlorine. The Petitioner has submitted that at its Kudgi project, the Department of Factories, Boiler, Industrial Safety and Health, State Government of Karnataka has asked the Petitioner to replace the highly hazardous

gas chlorination system with ClO2 system. It has further submitted that the Odisha State Pollution Control Board while issuing consent to establish, in case of the Darlipalli generating station of the Petitioner, had requested the Petitioner to explore the possibility of installing ClO_2 system instead of Chlorine gas system. Further, the Petitioner vide its affidavit dated 4.11.2020 has submitted that the existing chlorine dozing system was executed as a part of EPC package and, hence, the costing details are included in the Main Plant Turnkey package. It has submitted that some parts of existing chlorine dozing system, which can be re-used in the proposed chlorine dioxide system, are not part of the cost projected for additional capitalization. The Petitioner has further submitted that the equipment/ asset that will be de-capitalized, consists of chlorinators with booster pumps and that the present ClO_2 system will be used for whole Ramagundam generating station which consists of Stage-I, Stage-II & Stage-III with a total capacity of 2600 MW. The Petitioner has added that a total amount of Rs.118.50 lakh is to be de-capitalized for assets (i.e. chlorinator for PTP, chlorinator for CW System & CW-2 system for Stage-I and Stage-II).

23. The Respondent, KSEBL has submitted that Regulation 26(1)(b) of the 2019 Tariff Regulations provides for capitalization of additional expenditure under change in law or for compliance with the existing law and Regulation 26(1)(d) of the 2019 Tariff Regulations provides for additional capitalization of expenditure required for higher security and safety of the plant. It has submitted that the proposed additional capital expenditure does not qualify under these regulations and the Petitioner may meet such expenses from the normative O&M expenses allowed to the generating station. Similar submission has been made by the Respondent TANGEDCO.

24. We have examined the matter. The Petitioner has claimed additional capital expenditure of Rs.1212.00 lakh in 2021-22 and Rs.135.00 lakh in 2022-23 for works relating to ClO_2 system under Regulation 26(1)(b) of the 2019 Tariff Regulations. The Petitioner has submitted that for Kudgi project of the Petitioner, the Government of Karnataka had directed the Petitioner to replace the highly hazardous gas chlorination system with ClO_2 system. It is observed that the letter dated 23.9.2019 addressed by the Directorate of Factories, Industrial Safety & Health, State Government of Karnataka to GM, NTPC, pertains to site clearance of Kudgi Super Thermal Power station of the Petitioner. This letter, in no manner, can be termed as a change in law event or for compliance with any existing law in respect of this generating station (Ramgundam TPS) warranting the additional capitalization of the expenditure. As regards the claim of the Petitioner under Regulation 26(1)(d) of the 2019 Tariff Regulations, we find no specific direction or advice from any Governmental or statutory authorities as regards the requirement of this item i.e. chlorine dozing system to be replaced by Chlorine Dioxide (ClO_2) system, for safety and security of the generating station. In view of this, the projected additional capital expenditure of Rs.1212.00 lakh in 2021-22 and Rs.135.00 lakh in 2022-23 for works relating to ClO_2 system is not allowed.

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

(Rs. in lakh)

Head of Work/ Equipment	**2019-20**	**2020-21**	**2021-22**	**2022-23**	**2023-24**
Ash Water Recycling System (AWRS)	1296.00	144.00	0.00	0.00	0.00
Hydrobins	0.00	0.00	0.00	2717.00	302.00
Ash dyke buttressing/ raising and other related works	0.00	0.00	0.00	0.00	780.50
Up-gradation of DCS Controller and HMI	0.00	815.00	0.00	0.00	0.00
De-capitalization for DCS Controller and HMI (assumed deletion)	0.00	(-) 373.36	0.00	0.00	0.00

CLO2 system	0.00	0.00	0.00	0.00	0.00
Net additional capital expenditure allowed	**1296.00**	**585.64**	**0.00**	**2717.00**	**1082.50**

26. Further, the entire additional capital expenditure as admitted above is eligible for return on equity at normal rate of ROE.

Capital cost allowed for the 2019-24 tariff period

27. Accordingly, the capital cost allowed for the purpose of tariff for the 2019-24 tariff period is as under:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Capital Cost	157587.03	158883.03	159468.67	159468.67	162185.67
Add: Admitted additional capital expenditure	1296.00	585.64	0.00	2717.00	1082.50
Closing Capital Cost	**158883.03**	**159468.67**	**159468.67**	**162185.67**	**163268.17**
Average Capital Cost	158235.03	159175.85	159468.67	160827.17	162726.92

Debt–Equity ratio

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

(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.

29. The gross loan and equity amounting to Rs.110310.92 lakh and Rs.47276.11 lakh respectively, as on 31.3.2019, was considered in order dated 25.9.2021 in Petition No. 220/GT/2020. The proportionate equity as a percentage of the admitted capital cost as on 31.3.2019 is 30%. Accordingly, the gross loan and equity amounting to Rs.110310.92 lakh and Rs.47276.11 lakh respectively has been considered as the gross loan and equity as on 1.4.2019. The admitted additional capital expenditure has been considered in the ratio of 70:30. This is, however, subject to revision at the time of truing up of tariff.

Return on Equity

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

(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.

31. 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%.

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

32. The Petitioner has claimed Return on Equity (ROE) at 18.782% considering the base rate of 15.50% and MAT rate as effective tax rate of 17.472% for the period from 1.4.2019 to 31.3.2024. The same has been considered for the purpose of tariff, subject to truing up. Accordingly, ROE has been worked out as under:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Notional Equity - Opening	47276.11	47664.91	47840.60	47840.60	48655.70
Addition of Equity due to additional capital expenditure	388.80	175.69	0.00	815.10	324.75
Normative Equity - Closing	47664.91	47840.60	47840.60	48655.70	48980.45
Average Normative Equity	47470.51	47752.76	47840.60	48248.15	48818.08
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)-(annualized)	**8915.91**	**8968.92**	**8985.42**	**9061.97**	**9169.01**

Interest on loan

33. 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-capitalisation 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 loans shall be reflected from the date of such re-financing.

34. The interest on loan has been worked out as mentioned below:

i) The gross normative loan amounting to Rs.110310.92 lakh has been considered as on 1.4.2019;

ii) Cumulative repayment amounting to Rs.109785.47 lakh as on 31.3.2019 as considered in order dated 25.9.2021 in Petition No. 220/GT/2020 has been considered as on 1.4.2019;

iii) Accordingly, the net normative opening loan as on 1.4.2019 works out to Rs.525.45 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 year of the 2019-24 tariff period;

vi) The Petitioner has claimed interest on loan by applying the weighted average rate of interest of 8.8571% for 2019-20, 8.9829% for 2020-21, 9.0640% for 2021-22, 9.2762% for 2022-23 and 9.6004% for 2023-24. The weighted average rate of interest for the period 2019-23, as claimed by the Petitioner has been considered. However, for the year 2023-24, the weighted average rate of interest of 9.5982% has been considered for the purpose of tariff.

35. Necessary calculations for interest on loan is as shown below:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Gross opening loan	110310.92	111218.12	111628.07	111628.07	113529.97
Cumulative repayment of loan up to previous year / period	109785.47	111218.12	111628.07	111628.07	113529.97
Net Loan Opening	525.45	0.00	0.00	0.00	0.00
Addition due to additional capital expenditure	907.20	409.95	0.00	1901.90	757.75
Repayment of loan during the year	1432.65	671.30	0.00	1901.90	757.75
Less: Repayment adjustment on account of de-capitalization	0.00	261.35	0.00	0.00	0.00
Net Repayment of loan during the year	1432.65	409.95	0.00	1901.90	757.75
Net Loan Closing	0.00	0.00	0.00	0.00	0.00
Average Loan	262.73	0.00	0.00	0.00	0.00
Weighted Average Rate of Interest on Loan	8.8571%	8.9829%	9.0640%	9.2762%	9.5982%
Interest on Loan	**23.27**	**0.00**	**0.00**	**0.00**	**0.00**

Depreciation

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

"33. Depreciation:

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

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

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

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

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

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

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

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

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

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

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

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

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

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

37. Accordingly, the cumulative depreciation amounting to Rs.109931.65 lakh as on 31.03.2019 as considered in order dated 25.9.2021 in Petition No. 220/GT/2020 has been retained for the purpose of tariff. Further, the value of freehold land included in the average capital cost has been adjusted while calculating depreciable value for the purpose of tariff. Accordingly, the balance depreciable value (before providing depreciation) for the year 2019-20 works out to Rs.32479.88 lakh. Since as on 1.4.2019 the used life of the generating station (i.e. 14.02 years) is more than 12 years from the COD (25.03.2005), the depreciation shall be calculated by spreading of the remaining depreciable value over remaining useful life. The weighted average rate of depreciation (WAROD) of 1.869% for 2019-20, 1.911% for 2020-21, 1.944% for 2021-22, 2.023% for 2022-23 and 2.150% for 2023-24 has been considered for the purpose of tariff. The calculations for WAROD has been enclosed as Annexure-I to this order Accordingly, depreciation has been calculated and allowed as under:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Capital Cost (A)	157587.03	158883.03	159468.67	159468.67	162185.67
Add: Net additional capital expenditure (Projected) (B)	1296.00	585.64	0.00	2717.00	1082.50
Closing Capital Cost (C) [C = (A+B)]	158883.03	159468.67	159468.67	162185.67	163268.17
Average Capital Cost (D) [D = (A+C)/2]	158235.03	159175.85	159468.67	160827.17	162726.92
Value of freehold land included above (E)	0.00	0.00	0.00	0.00	0.00
Aggregated depreciable value @ 90% (F) [F = (D-E) x 90%]	142411.53	143258.27	143521.81	144744.46	146454.23
Remaining aggregated depreciable value at the beginning of the year (G) [G = F- Cumulative Depreciation (Shown at N) at the end of previous year]	32479.88	30369.42	27855.55	25977.39	24433.22
Number of completed years at the beginning of the year (H)	14.02	15.02	16.02	17.02	18.02
Balance useful life at the beginning of the year (I)	10.98	9.98	8.98	7.98	6.98
Weighted Average Rate of Depreciation (WAROD) (J)	1.869%	1.911%	1.944%	2.023%	2.150%
Combined depreciation during the year (K)	2957.20	3042.01	3100.80	3253.95	3498.79
Cumulative depreciation at the end of the year (before adjustment for de-capitalization) (L) [L = K + Cumulative Depreciation (shown at N) at the end of previous year]	112888.85	115930.86	118767.06	122021.02	125519.81
Less: Depreciation adjustment on account of de-capitalization (M)	0.00	264.60	0.00	0.00	0.00
Cumulative depreciation at the end of the year (N) [N = (K-M)]*	**112888.85**	**115666.26**	**118767.06**	**122021.02**	**125519.81**

***Note:** *The Cumulative Depreciation at the end of the year 2018-19 is Rs.109931.65 lakh.*

Operation & Maintenance Expenses

38. Regulation 35(1)(1) of the 2019 Tariff Regulations provides the following O&M expense norms for coal based generating stations of 500 MW capacity.

(Rs. in lakh/MW)

2019-20	2020-21	2021-22	2022-23	2023-24
22.51	23.30	24.12	24.97	25.84

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

(Rs. n lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24	Total
O&M Expenses claimed under Regulation 35(1)(1)	11255.00	11650.00	12060.00	12485.00	12920.00	60370
O&M Expenses claimed under Regulation 35(6)						
Water Charges	443.72	488.09	488.09	536.90	536.90	2493.70
Security Expenses	707.12	832.88	824.62	891.54	961.73	4217.89
Total O&M Expenses	**12405.84**	**12970.98**	**13372.71**	**13913.44**	**14418.63**	**67081.59**

40. The Petitioner's claim for normative O&M expenses is in accordance with Regulation 35(1)(1) of the 2019 Tariff Regulations and the same is, therefore, allowed. The Petitioner has also claimed Water Charges and Security Expenses, which are discussed below.

Water Charges

41. The first proviso to Regulation 35(6) of the 2019 Tariff Regulations provides for the claim for Water charges as under:

> *"35(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;*
>
> *xxxxxxxx."*

42. The actual water charges claimed by the Petitioner in Petition No. 220/GT/2020 for the 2014-19 tariff period and allowed by order dated 25.9.2021 is as under:

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Water Charges claimed in Petition No.220/GT/2020 for the 2014-19 tariff period	351.01	371.33	538.75	378.13	443.72
Water Charges allowed in order dated 25.9.2021 for the 2014-19 tariff period	343.00	355.44	521.76	359.96	428.60

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

(*Rs. in lakh*)

2019-20	2020-21	2021-22	2022-23	2023-24
443.72	488.09	488.09	536.90	536.90

44. The Respondent KSEBL has submitted that the details of the actual water requirement of the generating station along with the past water bills have not been furnished by the Petitioner.

45. In terms of Regulations 35(1)(6) of the 2019 Tariff Regulations, water charges shall be allowed separately, based on the water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check. The details in respect of water charges for the 2019-24 tariff period as furnished by the Petitioner are as under:

Description	Remarks
Type of Plant	Coal
Type of cooling water system	Closed circuit cooling with induced draft cooling tower
Consumption of water	0.477 TMC/year
Rate of water charges	Rs.7.16 Cr/TMC = Rs.716.00 lakh/TMC
Total water charges in 2019-20	Rs.443.72 lakh

46. We have examined the matter. It is observed that the Petitioner has claimed water charges of Rs.443.72 lakh for the year 2019-20, considering the actual water charges for the year 2018-19 as claimed in Petition No. 220/GT/2020. Further, for the years 2020-21 and 2021-22, the Petitioner has claimed Rs.488.09 lakh as water charges and for the years 2022-23 and 2023-24, it has claimed Rs.536.90 lakh as water charges. As regards the rate of water charges, the Petitioner has submitted that it has made payments towards power charges for lifting water as per the State Government notification. The Petitioner vide affidavit dated 4.11.2020 has submitted that the Irrigation Department, Government of Telangana is supplying raw water to the Petitioner from Sripada Yellampalli Project (SYP). It has stated that the water pumping system for the Petitioner was started in August 2012 and since then, water is being supplied to NTPC Reservoir as and when water is available in SYP project as per requirement and accordingly power charges are being paid. The Petitioner

has submitted that prior to August 2012 water supply was from SRSP (Sri Ramsagar Project) which is under natural drift irrigation scheme, for which no power charges were paid.

47. In consideration of the submissions of the Petitioner, we consider the actual water charges of Rs.428.60 lakh allowed for the year 2018-19 in order dated 25.9.2021 in Petition No. 220/GT/2020 and allow the same for the 2019-24 tariff period, with 10% escalation for every two financial years, in line with the State Government of Telangana notification GO. MS. 115 dated 27.8.2015, as furnished by the Petitioner. Accordingly, the water charges allowed for the 2019-24 tariff period are as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
428.60	428.60	471.46	471.46	518.61

48. The Petitioner is directed to furnish the details of the actual water consumption (in cubic meters), the rate (Rs./cubic meter) and the power charges separately at the time of truing up. The Petitioner shall also furnish the reasons for the variation in the claim, if any, duly supported by documents (i.e. agreement/ direction/ order etc. of the State Government/ statutory authority) with regard to the rate of water charges and power charges separately. The water charges allowed are subject to the truing up, as per actual water charges paid, after prudence check.

<u>Security Expenses</u>

49. The second proviso to Regulation 35(6) of the 2019 Tariff Regulations provides for the claim for Security expenses as under:

> *"35(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;*
>
> *Xxxx"*

50. The Petitioner has claimed the following Security expenses:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
707.12	832.88	824.62	891.54	961.73

51. The Respondent KSEBL has submitted that the details of security expenses have not been furnished by the Petitioner. The Petitioner has submitted that the total Security expenses, as per audited financial statements of 2018-19 was Rs.3657.00 lakh, for the total generating station of 2600 MW capacity. On apportionment of the same to this generating station, the security expenses work out to Rs.703.27 lakh.

52. The Petitioner has not furnished any justification and assessment with regard to the variation in the claim for security expenses during the 2019-24 tariff period. Considering the fact that the security expenses for thermal generating stations is required to be allowed separately, after prudence check, and that the Petitioner is required to submit the assessment of the security requirement and estimated expenses as per regulations, we, based on the actual security expenses incurred for 2018-19, allow the security expenses claimed for the 2019-24 tariff period, with 5% escalation per year. However, the Petitioner shall, at the time of truing up, furnish the assessment and actual details under each head towards security expenses. Accordingly, the Security expenses allowed are as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
703.27	738.43	775.35	814.12	854.83

Capital Spares

53. The Petitioner has not claimed any capital spares consumed during the 2019-24 tariff period, 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(6) of the 2019 Tariff Regulations, based on the 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, in accordance with law.

54. Accordingly, the total O&M expenses, including water charges and Security expenses, as claimed by the Petitioner and allowed for the purpose of tariff are as under:

(Rs. in lakh)

	2019-20	**2020-21**	**2021-22**	**2022-23**	**2023-24**
O&M Expenses claimed (a)	11255.00	11650.00	12060.00	12485.00	12920.00
O&M Expenses allowed (b)	**11255.00**	**11650.00**	**12060.00**	**12485.00**	**12920.00**
Water charges claimed (c)	443.72	488.09	488.09	536.90	536.90
Water charges allowed (d)	**428.60**	**428.60**	**471.46**	**471.46**	**518.60**
Security Expenses claimed (e)	707.12	832.88	824.62	891.54	961.73
Security Expenses allowed (f)	**703.27**	**738.43**	**775.35**	**814.12**	**854.83**
Total O&M expenses claimed (a + c + e)	12405.84	12970.98	13372.71	13913.44	14418.63
Total O&M expenses allowed (b + d + f)	**12386.87**	**12817.03**	**13306.81**	**13770.58**	**14293.43**

Additional Expenditure for Emission Control System

55. The Petitioner has submitted that it is in the process of installing Emission Control Systems (ECS) in compliance to the revised Emission Standards as notified by MOEF&CC vide notification dated 7.12.2015, as amended. It has submitted that the completion of these schemes in compliance to the revised emission norms will affect the Auxiliary Power Consumption, Heat Rate, and O&M expenses etc. In addition, the Petitioner has submitted that the availability of the unit/ station would also be affected due to shutdown of the units for installation of ECS. The Petitioner has also submitted that it would be filing the details of the same in a separate petition in terms of Regulation 29 of the 2019 Tariff Regulations. It is however noticed that the Petitioner had filed Petition No. 612/MP/2020, for approval of additional expenditure on installation of various Emission Control Systems at this generating station, in compliance of MOEF&CC notification dated 7.12.2015 and the Commission by a common order dated 30.9.2021 had disposed of the said petition, with certain observations. The claim of the Petitioner for additional expenditure on

emission control system shall therefore be guided by the order dated 30.9.2021 in Petition No. 612/MP/2020.

Additional Expenditure towards Fly Ash Transportation

56. The Petitioner has submitted that MOEF&CC vide notification dated 25.1.2016 in terms of the provisions of Environment (Protection) Act, 1986, has prescribed the transportation cost of fly ash generated at power stations. In this regard, the Petitioner had filed Petition No.172/MP/2016 before this Commission, seeking reimbursement of the additional expenditure incurred for Fly Ash Transportation directly from the beneficiaries as the same was in the nature of statutory expenses. The Petitioner has submitted that it has claimed additional expenditure towards 'fly ash transportation charges' for the years 2017-18 and 2018-19, in various petitions for truing up of tariff of generating stations for the 2014-19 tariff period. It has further submitted vide affidavit dated 15.5.2021, that the expenditure incurred towards fly ash transportation are recurring in nature and that the Petitioner has been incurring the same in some of its generating stations during the 2019-24 tariff period also. The Petitioner has submitted that in case these charges are permitted to be recovered at the end of the 2019-24 tariff period, there will be additional liability on the beneficiaries on account of interest payment for the period till the time the petitions for truing-up of tariff for the 2019-24 tariff period is decided. Accordingly, the Petitioner has submitted that to avoid the interest payment liability of the beneficiaries, it may be allowed to recover/ pass on the fly ash transportation charges, after adjusting the revenue earned from the sale of fly ash at the end of each quarter of the financial year, subject to truing-up at the end of the 2019-24 tariff period. It has submitted that billing & recovery of Ash transportation charges provisionally, on a monthly basis, may be allowed, based on self-certification and the recovery shall be subject to truing up at the end of financial year, based on auditor's

certificate. The Petitioner has added that the issue of monthly recovery and the procedure for recovery of costs is no more res-integra, as this Commission in its order dated 22.3.2021, in Petition No. 405/MP/2019 (*GKEL & Anr. v. DHBVNL & Ors)* had devised a mechanism for the generator therein, to recover future expenditure incurred on transportation of fly ash, wherein the Commission has directed recovery of expenditure on transportation of fly ash on a monthly basis, with reconciliation on an annual basis. The Petitioner has prayed that a similar procedure may also be made applicable in the case of the Petitioner.

57. The Respondent KSEBL has submitted that the Commission vide its order dated 5.11.2018 in Petition No.172/MP/2016 had granted liberty to the Petitioner to approach the Commission at the time of revision of tariff, based on all details/ information, duly certified by the auditor. It has submitted that since the matter is already decided, the request of the Petitioner to recover the additional expenditure for fly ash transportation at the end of each quarter of the financial year may be rejected. The Respondent, TANGEDCO has submitted that for considering the fly ash transportation expenses, the Petitioner has to submit the details of bidding process, actual additional expenditure incurred on fly ash transportation after 25.1.2016, revenue generated etc. Accordingly, the Respondent has submitted that the claim of the Petitioner for fly ash transportation charges may be rejected.

58. We have examined the matter. The Commission vide its order dated 5.11.2018 in Petition No.172/MP/2016 had decided that the MOEF&CC notification dated 25.1.2016 amending the earlier notification dated 14.9.1999 issued under Environment (Protection) Rules, 1986 as 'change in law' and had disposed of the said petition vide order dated 5.11.2018 as under:

> *"31. Accordingly, we in exercise of the regulatory power hold that the actual additional expenditure incurred by the Petitioner towards transportation of ash in terms of the MOEF&CCCC Notification is admissible under "Change in Law" as*

additional O&M expenses. However, the admissibility of the claims is subject to prudence check of the following conditions on case to case basis for each station:

a) Award of fly ash transportation contract through a transparent competitive bidding procedure. Alternatively, the schedule rates of the respective State Governments, as applicable for transportation of fly ash.
b) Details of the actual additional expenditure incurred on Ash transportation after 25.1.2016, duly certified by auditors.

c) Details of the Revenue generated from sale of fly ash/ fly ash products and the expenditure incurred towards Ash utilisation up to 25.1.2016 and from 25.1.2016 to till date, separately.

d) Revenue generated from fly Ash sales maintained in a separate account as per the MOEF&CC notification.

32. The Petitioner is granted liberty to approach the Commission at the time of revision of tariff of the generating stations based on truing –up exercise for the period 2014-19 in terms of Regulation 8 of the 2014 Tariff Regulations along with all details / information, duly certified by auditor."

59. We however note that the Petitioner has filed Petition No. 205/MP/2021 seeking reimbursement of fly ash transportation charges in respect of its generating stations. The Petitioner has raised similar issues with regard to 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. Some of the Respondents therein (including TANGEDCO) have raised issues on 'maintainability' of Petition No. 205/MP/2021, and the Commission, after hearing the parties on 12.10.2021, has issued notices for hearing on 'admissibility' of that petition. Therefore, we are not deciding this issue in this Petition. The reimbursement of charges towards transportation of fly ash shall, therefore, be governed by the decision of the Commission in Petition No. 205/MP/2021.

Operational Norms

60. The Petitioner in Form-3, has considered the following norms of operation for the purpose of tariff:

Normative Annual Plant Availability Factor (NAPAF) (%)	85
Gross Station Heat Rate (kcal/kwh)	2390
Auxiliary Power Consumption (%)	6.25
Specific Oil Consumption (ml/kwh)	0.50

Normative Annual Plant Availability Factor

61. Regulation 49 of the 2019 Tariff Regulations provides as under:

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

(a) For all thermal generating stations, except those covered under clauses (b), (c), (d), & (e) - 85%"

62. The Petitioner has considered the Normative Annual Plant Availability Factor (NAPAF) of 85% during the 2019-24 tariff period in terms of Regulation 49(A)(a) of the 2019 Tariff Regulations. Hence, the same is allowed.

Gross Station Heat Rate

63. Regulation 49(C)(a)(1) of 2019 Tariff Regulations provides as under:

"(C) Gross Station Heat Rate:

(a) Existing Thermal Generating Stations

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

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

64. The Gross Station Heat Rate of 2390 kCal/kWh, as claimed by the Petitioner, for existing coal based thermal generating stations of 500 MW, is as per provisions of Regulation 49(C)(a)(1) of 2019 Tariff Regulations and, hence, the same is allowed.

Auxiliary Power Consumption

65. Regulation 49(E)(a)(ii) of the 2019 Tariff Regulations provides for auxiliary power consumption as under:

"(E) Auxiliary Energy Consumption

(a) Coal-based generating stations except at (b) below:

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

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

66. As the generating station with a capacity of 500 MW, falls under the category of 300 MW & above, having Steam-driven Boiler Feed Pumps & Induced Draft Cooling Tower, the generating station qualifies for a normative Auxiliary Power Consumption of 6.25% (5.75% for Units having Steam-driven BFP & additional 0.50% for having Induced Draft Cooling Tower). Accordingly, the normative Auxiliary Power Consumption of 6.25% as considered by the Petitioner is allowed.

Specific Oil Consumption

67. Regulation 49(D)(a) of 2019 Tariff Regulations, provides for a Secondary fuel oil consumption of 0.50 ml/kWh for coal-based generating stations. Hence, the Secondary fuel oil Consumption as considered by the Petitioner is allowed.

68. Based on the above, the operational norms for the generating station as considered by the Petitioner as in paragraph 60 above is considered for the purpose of tariff.

Interest on Working capital

69. 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.

Xxxxxx

(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.

<u>Fuel Components and Energy Charges in working capital</u>

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

a) Operational norms as per the 2019 Tariff Regulations;

b) Price and ‘as received’ GCV of coal {after reducing the same by 85 kcal/kWh in terms of Regulation 43(2)(b) of the 2019 Tariff Regulations} 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.

71. Accordingly, the Petitioner has claimed ECR of 258.231 paise/kWh and fuel component in working capital as under:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Working capital as coal cost for 50 days	12249.86	12249.86	12249.86	12249.86	12249.86
Cost of Secondary fuel oil 2 months	118.08	117.76	117.76	117.76	118.08

72. It is observed that the Petitioner, in Form-15, had not initially furnished the opening stock of coal and coal received during the months of October 2018, November 2018, and December 2018 separately. Therefore, the Commission vide ROP of the hearing dated 13.8.2020 had directed the Petitioner to submit the details of the coal quantity received at the generating station (excluding the coal stock as on 30.9.2018) during the months of October 2018, November 2018 and December 2018 in Form-15. However, the Petitioner vide affidavit dated 5.11.2020, has furnished only the details of coal quantity received for the months of October 2018, November 2018 and December 2018.

73. On perusal of the data furnished by the Petitioner, it is observed that the Petitioner has not included the previous stock of coal for the month October 2018. However, the Petitioner has considered the opening stock of coal for the months of November 2018 and December 2018 (closing stock of the coal for the previous months). In terms of the regulations, the computation of ECR and associated fuel components in working capital, is based on the landed price and GCV of fuel, which means that the 'fuel received' during these three months, is only to be considered, without the opening stock. Accordingly, after excluding the opening stock and its value, we have computed the weighted average landed cost and weighted average GCV of coal, for calculating the fuel component in working capital, for the months of October 2018, November 2018 and December 2018. It is further observed that the Petitioner has claimed the cost of coal towards stock of 20 days (one of the components of working capital) which is applicable to non-pit head stations, whereas,

this generating station is a pit head station, for which cost of coal for 10 days stock only is allowable as per Regulation 34(1)(a)(i) of the 2019 Tariff Regulations. Accordingly, based on the revised GCV of coal (further reduced by a margin of 85 kCal/kg for storage losses) and the revised price of landed coal and the cost and GCV of oil as furnished, the fuel components in working capital are allowed as under:

(Rs. in lakh)

	2019-20 and 2023-24	**2020-21 to 2022-23**
Cost of 50 days coal (claimed) (a)	12249.86	12249.86
Cost of Coal for 10 days towards stock (allowed) (b)	2451.74	2451.74
Advance payment for 30 days towards cost of coal (allowed) (c)	7355.21	7355.21
Cost of coal for 40 days (allowed) (b)+(c)	9806.94	9806.94
Cost of Secondary fuel oil 2 months (claimed)	118.08	117.76
Cost of Secondary fuel oil 2 months (allowed)	118.08	117.76

Energy Charge Rate (ECR)

74. The Petitioner has claimed ECR (ex-bus) for Rs.2.582/kWh based on the weighted average price, GCV of coal & oil procured and burnt for the preceding three months of October 2018, November 2018 and December 2018. ECR as worked out based on operational norms specified under the 2019 Tariff Regulations and on “as received” GCV of coal for the preceding three months i.e. October 2018 to December 2018, as given below has been considered for allowing 45 days energy charge in working capital:

Description	**Unit**	**2019-20 and 2023-24**	**2020-21 to 2022-23**
Capacity	MW	500	500
Gross Station Heat Rate	Kcal/kWh	2390	2390
Aux. Energy Consumption	%	6.25	6.25
Weighted average GCV of oil	Kcal/lit	9870	9870
Weighted average GCV of coal	Kcal/kg	3624.33 (3709.33-85)	3624.33 (3709.33-85)
Weighted average price of oil	Rs./KL	37955.05	37955.05
Weighted average price of Coal	Rs./MT	3652.59	3652.59
Rate of energy charge ex-bus	**Rs./kWh**	**2.584**	**2.584**

75. The Energy Charges for 45 days is computed as under:

(Rs. in lakh)

2019-20 and 2023-24	2020-21 to 2022-23
11119.274	11119.275

76. Therefore, the fuel component and energy charges allowed in working capital are as under:

(Rs. in lakh)

	2019-20 and 2023-24	2020-21 to 2022-23
Cost of Coal for 40 days	9806.94	9806.94
Cost of Secondary fuel oil for 2 months	118.08	117.76
Energy charges for 45 days	11119.28	11119.28

77. 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) by the generating station and GCV of fuel as per the actual weighted average for the third quarter of preceding financial year. Hence, the Petitioner shall, at the time of truing up, furnish the details of quantity of coal as per Regulation 34(2) of 2019 Tariff Regulations. The Petitioner shall not alter or modify any of the column and lines provided in the forms/ annexures and shall submit the details strictly in accordance with the said forms/ annexures of the 2019 Tariff Regulations.

78. The Petitioner, on a month to month basis, shall compute and claim the energy charges from the beneficiaries based on the formulae as per Regulation 43 of the 2019 Tariff Regulations.

Working Capital for O&M expenses

79. The 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
1033.82	1080.91	1114.39	1159.45	1201.55

80. Regulation 34(a)(vi) of 2019 Tariff Regulations provides for O&M expenses for one month for coal-based generating stations, including water charges and security expenses. Hence, the Petitioner is allowed the following O&M expenses for 1 month based on the O&M expenses, including the water charges and security expenses allowed as above:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
1032.24	1068.09	1108.90	1147.55	1191.12

Working Capital for Maintenance spares

81. Regulation 34(a)(iv) of the 2019 Tariff Regulations provides for maintenance spares @ 20% of the operation & maintenance expenses, including water charges and security expenses. Accordingly, maintenance spares is allowed as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
2477.37	2563.41	2661.36	2754.12	2858.69

82. The difference in the claim for 'maintenance spares' and 'O&M expenses for one month' against those allowed is on account of the fact that the 'water charges' and 'security expenses' allowed in this order varies with those claimed by the Petitioner for the reasons mentioned therein.

Working Capital for Receivables

83. Receivables equivalent to 45 days of capacity charge and energy charges has been worked out as under:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Variable Charges - for 45 days	11119.28	11119.28	11119.28	11119.28	11119.28
Fixed Charges - for 45 days	3399.80	3451.09	3497.14	3585.49	3686.46
Total	**14519.07**	**14570.37**	**14616.42**	**14704.76**	**14805.73**

84. In line with Regulation 34(4) of the 2019 Tariff Regulations, the rate of interest on working capital has been considered as 12.05% (i.e. 1 year SBI MCLR of 8.55% (as on 01.04.2019) + 350 bps) for the year 2019-20 11.25% (i.e. 1 year SBI MCLR of

7.75% (as on 01.04.2020) + 350 bps) for the year 2020-21 and 10.50% (i.e. 1 year SBI MCLR of 7.00% (as on 01.04.2021) + 350 bps) for the period 2021-24. Accordingly, the interest on working capital has been considered as 12.05% for 2019-20 11.25% for 2020-21 and 10.50% for the period 2021-22 to 2023-24. Accordingly, interest on working capital is worked out and 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 of generation	2451.74	2451.74	2451.74	2451.74	2451.74
Working Capital for advance payment towards Cost of Coal – 30 days of generation	7355.21	7355.21	7355.21	7355.21	7355.21
Working Capital for Cost of Secondary Fuel Oil – 2 months of generation	118.08	117.76	117.76	117.76	118.08
Working Capital for Maintenance Spares -- 20% of O&M expenses	2477.37	2563.41	2661.36	2754.12	2858.69
Working Capital for Receivables – 45 days of capacity charge and energy charges	14519.07	14570.37	14616.42	14704.76	14805.73
Working Capital for O&M expenses – 1 month of O&M expenses	1032.24	1068.09	1108.90	1147.55	1191.12
Total Working Capital	**27953.70**	**28126.56**	**28311.38**	**28531.12**	**28780.56**
Rate of Interest	12.05%	11.25%	10.50%	10.50%	10.50%
Interest on Working Capital	**3368.42**	**3164.24**	**2972.69**	**2995.77**	**3021.96**

Annual Fixed Charges

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

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	2957.20	3042.01	3100.80	3253.95	3498.79
Interest on Loan	23.27	0.00	0.00	0.00	0.00
Return on Equity	8915.91	8968.92	8985.42	9061.97	9169.01
Interest on Working Capital	3368.42	3164.24	2972.69	2995.77	3021.96
O&M Expenses	12386.87	12817.03	13306.81	13770.58	14293.43
Total	**27651.67**	**27992.20**	**28365.73**	**29082.27**	**29983.20**

***Note**: All figures are on annualised basis. 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.*

86. 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

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

88. Annexure-I enclosed shall form part of this order.

89. Petition No. 444/GT/2020 is disposed of in terms of the above.

Sd/-	Sd/-	Sd/-
(Arun Goyal) **Member**	**(I.S Jha)** **Member**	**(P.K. Pujari)** **Chairperson**

Annexure-I

Weighted Average Rate of Depreciation for the 2019-24 tarff period

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Capital Cost (A)	157587.03	158883.03	159468.67	159468.67	162185.67
Net Addition during the year/ period (B)	1296.00	585.64	0.00	2717.00	1082.50
Closing Capital Cost (C) [C = (A+B)]	158883.03	159468.67	159468.67	162185.67	163268.17
Average Capital Cost (D) [D = (A+C)/2]	158235.03	159175.85	159468.67	160827.17	162726.92
Remaining Depreciable Value (E)	32479.88	30369.42	27855.55	25977.39	24433.22
Balance Useful life of the plant (in years) (F)	10.98	9.98	8.98	7.98	6.98
Depreciation for the period (G) [G = (E/F)]	2957.20	3042.01	3100.80	3253.95	3498.79
Effective Weightage Average Rate of Depreciation (H) [H = (G/D)]	1.869%	1.911%	1.944%	2.023%	2.150%