

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 426/GT/2020

Coram:

Shri P. K. Pujari, Chairperson

Shri I. S. Jha, Member

Shri Pravas Kumar Singh, Member

Date of Order: 8th April, 2022

In the matter of:

Petition for approval of tariff of the Rihand Super Thermal Power Station-II (1000 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-110003

.....Petitioner

Vs

- 1 Uttar Pradesh Power Corp. Limited,
Shakti Bhawan, 14, Ashok Marg,
Lucknow-226 001
- 2 Rajasthan Urja Vikas Nigam Limited,
(On Behalf of Rajasthan Discoms),
Vidyut Bhawan, Janpath,
Jaipur-302 005
- 3 Tata Power Delhi Distribution Limited,
Grid Substation, Hudson Road, Kingsway Camp,
New Delhi-110009
- 4 BSES Rajdhani Power Limited.
BSES Bhawan, Nehru Place,
New Delhi-110019
- 5 BSES Yamuna Power Limited,
Shakti Kiran Building, Karkardooma,
Delhi-110092



- 6 Haryana Power Purchase Centre,
Shakti Bhawan, Sector-VI,
Panchkula-134109
- 7 Punjab State Power Corporation Limited,
The Mall,
Patiala-147 001
- 8 Himachal Pradesh State Electricity Board Limited,
Kumar Housing Complex Building-II, Vidyut Bhawan,
Shimla-171 004
- 9 Power Development Department,
Government of J&K, Civil Secretariat,
Srinagar
- 10 Electricity Department of Chandigarh,
Union Territory of Chandigarh,
Additional Office Building, Sector-9 D,
Chandigarh
- 11 Uttarakhand Power Corporation Limited,
Urja Bhavan, Kanwali Road,
Dehradun-248 001

.....Respondents

Parties Present:

Ms. Swapna Seshadri, Advocate, NTPC.
Shri Anand K. Ganesan, Advocate, NTPC
Ms. Ritu Apurva, Advocate, NTPC
Ms. Megha Bajpeyi, BRPL
Shri Manish Garg, UPPCL
Shri Mohit Mudgal, Advocate, BYPL

ORDER

This petition has been filed by the Petitioner, NTPC Limited for approval of tariff of Rihand Super Thermal Power Station-II (1000 MW) (hereinafter referred to as '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').



Background

2. The generating station with a capacity of 1000 MW comprises of two units of 500 MW each is located in the State of Uttar Pradesh. Unit-III of the generating station achieved COD on 15.8.2005 and Unit-IV on 1.4.2006. The Commission vide its order dated 22.3.2022 in Petition No. 112/GT/2020 trued up the tariff of the generating station for the 2014-19 tariff period. Accordingly, the capital cost and annual fixed charges approved by order dated 22.3.2022 is as under:

Capital Cost allowed

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	295355.88	295279.36	295542.25	295369.43	295133.38
Add: Admitted Additional capital expenditure	(-)76.52	262.89	(-)172.82	(-)236.05	990.04
Closing Capital cost	295279.36	295542.25	295369.43	295133.38	296123.42
Average Capital cost	295317.62	295410.81	295455.84	295251.40	295628.40

Annual Fixed Charges allowed

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	15516.10	15515.51	15500.39	15475.63	5719.18
Interest on Loan	5588.01	4242.34	2963.47	1729.82	920.81
Return on Equity	17373.53	17463.21	17465.87	17453.79	17523.08
Interest on Working Capital	4945.22	4993.18	5018.98	5125.99	4957.49
O&M Expenses	16602.03	17760.78	18732.60	19751.01	20927.18
Sub-total	60024.89	59975.02	59681.32	59536.23	50047.74
Compensatory Allowance	0.00	0.00	200.00	200.00	200.00
Total	60024.89	59975.02	59881.32	59736.23	50247.74

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

Capital cost claimed

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Opening capital cost	296603.98	300848.58	306146.56	308328.27	308393.77
Add: Addition during the year/period	4244.60	5297.98	2181.71	65.50	1208.00
Closing Capital Cost	300848.58	306146.56	308328.27	308393.77	309601.77



	2019-20	2020-21	2021-22	2022-23	2023-24
Average Capital Cost	298726.28	303497.57	307237.42	308361.02	308997.77

Annual Fixed Charges claimed

	2019-20	2020-21	2021-22	2022-23	2023-24
					<i>(Rs. in lakh)</i>
Depreciation	5895.06	6296.76	6644.11	6760.48	6835.00
Interest on Loan	545.86	330.33	115.86	0.00	0.00
Return on Equity	16831.89	17094.70	17297.01	17356.86	17391.68
Interest on Working Capital	4385.67	4440.16	4486.02	4527.62	4570.41
O&M Expenses	24217.52	25136.59	25956.97	26775.05	27646.60
Annual Fixed Charges	51875.99	53298.55	54499.98	55420.01	56443.70

4. The Respondent UPPCL and Respondent BYPL have filed their replies vide affidavits dated 18.9.2020 and 4.6.2021 respectively. The Petitioner vide affidavit dated 27.5.2021 filed its rejoinder to the reply of UPPCL. The Petitioner vide affidavits dated 11.5.2021 and 4.6.2021 has filed the additional information and served copies to the Respondents. The matter was heard along with Petition No. 112/GT/2020 (for truing up of tariff of the generating station for the period 2014-19 tariff period) on 11.6.2021 and the Commission, after permitting the Respondent BRPL to file its submissions, reserved its order in the matter. In compliance to the directions, the Respondents BRPL filed their reply on 2.7.2021. In response, the Petitioner has filed its rejoinder to the reply of the Respondent BRPL by affidavit dated 19.7.2021. Accordingly, taking into consideration the submissions of the parties and the documents available on record, we proceed to determine the tariff of the generating station, in this petition, on prudence check, as stated in the subsequent paragraphs.

Capital Cost

5. Regulation 19(3) of the 2019 Tariff Regulations provides as under:

(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 Commission vide its order dated 22.03.2022 in Petition No. 112/GT/2020 had allowed the closing capital cost of Rs.296123.42 lakh as on 31.3.2019. Accordingly, in terms of Regulation 19(3) of the 2019 Tariff Regulations, the capital cost of Rs.296123.42 lakh as on 31.3.2019 (after removal of un-discharged liabilities of Rs.824.46 lakh) 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 2019-24 tariff period.

Additional Capital Expenditure

7. Regulation 25 and Regulation 26 of the 2019 Tariff Regulations provides that the application for determination of tariff shall be based on admitted capital cost, including any additional capital expenditure already admitted up to 31.3.2019 (either based on actual or projected additional capital expenditure) and estimated additional capital expenditure for the respective years of the 2019- 24 tariff period. Clauses (1) and (2) of Regulations 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 2019-24 tariff period are as follows:

(Rs. in lakh)

	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 (Mithini Lagoon II 2nd raising)	0.00	1080.00	0.00	0.00	0.00
2.	Ash Dyke Raising (Mithini Lagoon I 3rd raising)	0.00	0.00	1100.00	0.00	0.00
3.	Ash Dyke Raising (Mithini Lagoon II 3rd raising)	0.00	0.00	0.00	0.00	1200.00
4.	Ash Transport through Rail (BTAP)	4000.00	2274.65	0.00	0.00	0.00
5.	Installation of load cells below Silo	111.27	0.00	0.00	0.00	0.00
6.	High Cycle of Concentration operation	20.00	180.00	0.00	0.00	0.00
7.	Package of ClO2 Plant	103.33	930.00	0.00	0.00	0.00
8.	Nitrogen Sparging	0.00	422.33	0.00	0.00	0.00
9.	Up-gradation of DCS controllers & HMI of Unit-4	0.00	0.00	905.21	0.00	0.00
	Subtotal (A)	4234.60	4886.98	2005.21	0.00	1200.00
B	Works beyond the original scope of the project					
10.	Security related works and Procurement of Security gadgets / equipment	10.00	411.00	176.50	65.50	8.00
	Total Projected additional capital expenditure claimed	4244.60	5297.98	2181.71	65.50	1208.00

(a) Ash Transportation through Rail (Bogey Tank for Alumina Powder - BTAP)

9. The Petitioner has claimed projected additional capital expenditure of Rs.6274.65 lakh (Rs.4000.00 lakh in 2019-20 and Rs.2274.65 lakh in 2020-21) towards Ash Transportation through Rail (BTAP) during the 2019-24 tariff period under Regulation 26(1)(b) of the 2019 Tariff Regulations. In justification of the same, the Petitioner has submitted that MOEFCC vide notification dated 3.11.2009 had directed



that all the Thermal generating stations shall achieve 100% Ash utilization within 5 years. Subsequently, vide notification dated 25. 1.2016, the target date for 100% Ash utilization was revised to 31.12.2017. The Petitioner has further submitted that in the 2nd meeting of Joint Committee (JC) under the Chairmanship of Shri Ritesh Kumar Singh, Joint Secretary, (MoEF&CC) held on 17.7.2019 and 18.7.2019 to discuss action plan to achieve 100% fly ash utilization by the Thermal generating stations, it was decided that NTPC should submit revised quarterly action plan for Category 'C' TPPs, which includes Rihand STPS, to achieve 85% utilization of fly ash including bottom ash by 2019-20 and 100 % fly ash utilization by 2020-21. Since the plant is in remote location and it is not possible to utilize the ash locally, it was decided to transport the ash to potential utilization sites like Katni in Madhya Pradesh and store it there for distribution of the same to various agencies for utilization. The Petitioner has submitted that for transporting the Ash from Rihand STPS to storage location, Bogie Tanker Car for Alumina Powder (BTAP) wagons are required and has therefore, prayed to allow the capitalization under 'compliance of existing law'.

10. The Respondent, BRPL has submitted that the Petitioner has earned a substantial amount of income through sale of fly ash, as evident from the financial statement of 2015-16 and 2016-17. The said income has been transferred by the Petitioner to the ash utilization fund. The income received by the Petitioner through sale of fly ash ought to be utilized to meet the additional capital expenditure on ash transportation and compensate the change in Tariff. However, both the Respondents BRPL and BYPL have submitted the following:

- i. The Petitioner has failed to adhere to the timelines provided by the MOEF&CC vide its Notifications for achieving 100% ash utilization. The Petitioner has not placed on record the revised quarterly action plan for the generating station for



achieving 85% ash utilization by the year 2019-20 and 100% ash utilization by the year 2020-21, in terms of the meeting dated 18.7.2019.

- ii. In terms of order dated 5.11.2018 in Petition No. 172/MP/2016, the Commission had directed that claims for additional expenditure on ash transportation would be subject to prudence check and will be considered on case-to-case basis for each station.
 - iii. The above said order dated 18.7.2019 is in respect of the MOEF&CC notifications dated 14.9.1999 and 25.1.2016, as the order allows the Petitioner to recover additional capital expenditure towards ash transportation whereas the intent of the notification was to penalize thermal generating stations which failed to achieve 100% ash utilization within the timelines provided under the said Notifications.
 - iv. The incorrect decision in order dated 5.11.2018 in Petition No. 172/MP/2016 cannot be allowed in perpetuity in terms of the judgment dated 12.5.2015 in Appeal Nos. 129 & batch of the APTEL. Also, in terms of the judgment of APTEL in Appeal No. 100 of 2013, UHBVNL v CERC & ors., the issue is purely legal in nature therefore issue of estoppel would not arise, and can be raised at any time.
 - v. The claim is based on mere conjecture and the Petitioner has failed to provide any data or documentary evidence to substantiate the additional capital expenditure on ash transportation. Therefore, claim may be rejected.
11. In response, the Petitioner has clarified as follows:
- (a) The amount of income which has been generated by the Petitioner through the sale of fly ash, is indicated *vide* additional affidavit filed by the Petitioner on 11.5.2021. The opening balance by sale of ash as on 1.4.2019 already contains the amounts lying in the fund and the amount generated through sale of ash has been added towards the same. The Petitioner has claimed a very minimal amount of Rs.1042 lakh only towards Ash Transportation charges after adjusting the opening balance lying in the ash fund. Therefore, the Petitioner



has no other option available to meet the further additional capital expenditure towards ash transportation.

- (b) The Respondent's reading of the MoEF&CC notification dated 25.1.2016 is lopsided and self-serving. The said notification nowhere states that the same is punitive in nature. The Respondent cannot make a bald statement without examining the various notifications issued by MoEF&CC from time to time including in the previous years. From a perusal of the above notifications in seriatim, it will be clear that MoEF&CC changed the prescriptions for various authorities including users of fly ash, thermal power plants, pollution control boards, construction agencies, Government departments etc. with regard to ash utilization. Further, the Petitioner is not seeking to get rewarded in any manner. The Petitioner has taken several steps to utilise the fly ash. However, the same could not be completed due to the fact that there are not adequate users in the vicinity to create demand of fly ash.
- (c) Revisiting the order dated 5.11.2018 in Petition No. 172/MP/2016, is unnecessary as the Commission has taken a consistent view from several generators on the MOEF&CC notification, 2016 being a change in law. The Commission has been pleased to give a clear dispensation with regard to recovery of cost of transportation of fly ash in its order dated 22.3.2021 in Petition No. 405/MP/2019 in the matter of GMR Kamalanga Energy Ltd vs DHBVNL & Ors.
- (d) The reliance placed by the Respondent, BRPL on the judgement of the APTEL in Appeal No.100 of 2013 is of no relevance and only states a well-known principle that there cannot be any estoppel against law. In the present case, the Commission has already construed the MoEF&CC notification dated 25.1.2016 to be a change in law event. Therefore, the change in law has already been declared by the Commission and the Respondents cannot re-argue its position. Further, the mechanism devised in the order dated 22.3.2021 in Petition No. 405/MP/2019 is balanced and protects the rights of the generating company and the beneficiaries. The Petitioner has prayed that a similar procedure may be made applicable in the present case also.



12. We have considered the matter. It is observed that the Petitioner has projected the said expenditure for ash transportation in compliance of above mentioned MOEF&CC notifications dated 3.11.2009 and 25. 1.2016. It is also observed that the said notifications provide that all coal/lignite based thermal stations would be free to sell the fly ash to user agencies subject to certain conditions as mentioned therein. Moreover, the amount collected from sale of fly ash or fly ash-based products by coal and/or lignite based thermal power stations or their subsidiary or sister concern unit, as applicable should be kept in a separate account head and shall be utilized only for development of infrastructure or facilities, promotion and facilitation activities for use of fly ash. Therefore, the projected additional capital expenditure towards the said asset/work cannot be allowed under under Regulation 26(1)(b) of the 2019 Tariff Regulations.

(b) Ash Dyke Raising (Mithini Lagoon II 2nd and 3rd raising and Mithini Lagoon I 3rd raising)

13. The Petitioner has projected additional capital expenditure of Rs.1080.00 lakh towards Ash Dyke Raising of Mithini Lagoon II 2nd raising in 2020-21, Rs.1100.00 lakh towards Mithini Lagoon I 3rd raising in 2021-22 and Rs.1200.00 lakh towards Mithini Lagoon II 3rd raising in 2023-24 under Regulation 25(1)(c) and 25(1)(g) of the 2019 Tariff Regulations. In justification of the same, the Petitioner has submitted that raising of Ash Dyke is required to accommodate the ash generated from the generating station and the raising of ash dyke is part of original scope of the project.

14. The Respondent, UPPCL has submitted that the purpose of incurring expenditure on Ash Transport through rail is to achieve 85% ash utilization (including bottom ash) by the year 2019-20 and 100% by the year 2020-21. It has submitted that if the target



of 100% ash utilization is met by the year 2020-21, the very need for Ash Dyke Raising would not arise and therefore the claim may be disallowed.

15. In response, the Petitioner has clarified that the ash is commonly divided into two subcategories- fly ash and Bottom ash, as follows:

- i. Fly ash is collected at the Electro-static Precipitator's (ESP) hoppers and Air Pre-heaters' (APH) hoppers whereas the Bottom Ash is collected at the bottom of the boiler in wet form. The finest and most voluminous constituent is fly ash. As per the minutes of Joint Committee meeting dated 18.7.2019, under the chairmanship of JS (MoEF&CC), it was decided that the Petitioner should submit revised quarterly action plan for category 'C' TPPs which includes the generating station to achieve 100% fly ash utilization (including Bottom Ash) by the year 2020-21. Further, in view of the remote location of the generating station, it is not possible to utilize the ash locally and it has been decided to transport the fly ash to potential utilization sites like Katni in Madhya Pradesh and store it there for distribution of the same to various agencies for utilization. For transporting the fly Ash through rail from the generating station to the storage locations, BTAP wagons are claimed in the instant petition. The BTAP wagons are leak proof wagons with special air fluidizing system to discharge powder.
- ii. Further, the coarser Bottom Ash is transported in the form of slurry to Ash Dyke near the generating station. Raising of Ash Dyke, therefore, is necessary requirement for disposal/ utilization of bottom ash. Ash generation is indispensable process of a coal-based thermal generating station. To attain the 100% ash utilization in the instant station, in compliance of the notifications dated 3.11.2009 & 25.1.2016 and the MoM dated 18.7.2019, utilization of both fly ash and bottom ash is necessary. Therefore, the contention of the respondent is incorrect and may be denied.

16. The Respondents BRPL and BYPL have submitted that the proposals under Regulation 25(1) of the 2019 Tariff Regulations are subject to prudence check. The



Petitioner must file the proposals along with the copy of Letter of Award which would indicate the scope of work, its cost and the timeline for completion to filter out the serious proposals from casual proposals. Therefore, the Petitioner may be asked to provide the requisite documents for this purpose, pending which the entire proposal may be rejected.

17. In response, the Petitioner has submitted as follows:

- i. Ash is generated continuously if coal is burnt for generation of electricity. It is not that the entire ash generated can be immediately utilised, as suggested by the Respondents. Therefore, the expenditure including the additional capitalisation is a continuous aspect and incurred from time to time depending on the requirement of the particular generating station.
- ii. The ash generated needs to be stored in the ash dyke and the raising of ash dykes are to be planned in advance manner anticipating the ash required to be stored. The Petitioner simultaneously is also taking steps for disposal of fly ash.
- iii. Due to the remote location of the generating station, it has not been possible to achieve the prescribed fly ash utilisation since there are no projects in which such utilisation is possible. The Petitioner has even taken steps to transport this ash to places where the ash may be utilized readily such as Katni in Madhya Pradesh by procuring special railway wagons as well as installing load cells below SILOs.
- iv. Further, the documents pertaining to award of contract is an internal matter and it has been following the best practices in this regard.

18. We have considered the matter. It is observed that Ash related work is within the original scope of work of the project and these works are continuous in nature during the entire operational lifetime of the generating station. In view of this, the additional capital expenditure claimed by the Petitioner is allowed under Regulation 25(1)(g) of the 2019 Tariff Regulations.



(c) Installation of load cells below Silo

19. The Petitioner has projected additional capital expenditure of Rs.111.27 lakh towards Installation of load cells below Silo during 2019-20 under Regulation 26(1)(b) of the 2019 Tariff Regulations. In justification of the same, the Petitioner has submitted that the installation of load cells below silos is being carried out for accounting of the ash utilization as explained in justification under “Ash Transport through Rail (BTAP)”.

20. The matter has been considered. It is observed that since the work is complementary/related to the additional capital expenditure towards “Ash Transport through Rail (BTAP), which has not been allowed as above. Accordingly, the projected capital expenditure claimed for the said work/asset is not allowed.

(d) High Cycle of Concentration operation

21. The Petitioner has projected additional capital expenditure of Rs.200 lakh (Rs.20.00 lakh in 2019-20 and Rs.180.00 lakh in 2020-21) towards High Cycle of Concentration operation during 2019-24 tariff period under Regulation 26(1)(b) of the 2019 Tariff Regulations. In justification of the same, the Petitioner has submitted that operating Cycle of Concentration (CoC) at the generating station is approximately 3.8. However, after the direction of MOEF&CC vide notification dated 7.12.2015 for reduction of water consumption, it has been decided to increase CoC to 5 in order to reduce water consumption. Further, MoEF&CC has advised to operate at CoC of at least 4 in the environment clearance for the generating station. Hence, the Petitioner has requested to allow the expenditure under change in law.

22. The Respondent BPRL has submitted that the Petitioner has failed to provide any documentary evidence / computation to show that operating the generating station at CoC of 5 will lead to water conservation. Both Respondents, BRPL and BYPL, have



submitted that the Petitioner has failed to provide any justification for operating the generating station under sub-optimum operation and misusing the national resources. Therefore, the additional capital expenditure claimed may be rejected.

23. In response, the Petitioner has clarified as under:

- (a) The generating station is one of the most efficient stations and also having one of the lowest ECRs. Therefore, it gets scheduled to the full extent and it is not that the station is being operated on suboptimal levels. However, the Petitioner constantly tries to improve efficiency and strives to comply with the MOEF&CC notifications/ directions as issued from time to time to further reduce the usage of water.
- (b) The Central Electricity Authority (CEA) in its report also recommends on minimisation of water requirement in coal based thermal generating stations by increasing operating level of CoC for cooling/ circulating water. Presently the CoC being maintained in the generating station is approximately 3.8. However, as per the guidelines of water conservation from CEA, the CoC may be maintained at the level of 5 for the normal sources of raw water. However, the sustained operation of unit at higher CoC may cause scaling in condenser tubes, and therefore, it needs comprehensive chemical treatment on continual basis.
- (c) The requirement of suitable improvement in chemical regime of the circulating water has also been suggested by CEA. Further, the increased CoC operation results in reduction in blowdown water quantity and thus, reduces make-up water demand. Since this is an essential additional capitalisation to comply with the direction to reduce water consumption issued by the MOEF&CC, therefore, the Petitioner has requested to allow the capital expenditure under 'Change in Law' under Regulation 26(1)(b) of the 2019 Tariff Regulations.

24. We have considered the matter. The Petitioner has submitted that the current COC at the generating station is 3.8 and that the environmental clearance mandates to maintain the COC by at least at 4. Though the Petitioner has claimed the said



expenditure in compliance to the Environmental Clearance dated 5.2.2009, it has not claimed any expenditure under this head during the 2009-14 and 2014-19 tariff periods. Moreover, the Petitioner has also not furnished any relevant details regarding the savings in water consumption, in respect of the additional capital expenditure claimed. In view of the above, we find no reason to allow the additional capital expenditure claimed by the Petitioner. The Petitioner may, however, approach the Commission with proper justification/details in respect of the additional capital expenditure claimed along with details of the benefits, if any, accruing to the beneficiaries on this count with a separate petition or at the time of truing up of tariff of the generating station.

(e) ClO₂ dosing system

25. The Petitioner has projected additional capital expenditure of Rs.1033.33 lakh (Rs.103.33 lakh in 2019-20, Rs.930.00 lakh in 2020-21 and Rs.122.00 lakh in 2021-22) during 2019-24 tariff period under Regulation 26(1)(b) and 26(1)(d) of the 2019 Tariff Regulations towards work. In justification of the same, the Petitioner has submitted that chlorine gas is being dozed directly at various stages of water treatment to maintain water quality and to inhibit organic growth in the water retaining structures/equipment such as clarifiers, storage tanks, cooling towers, condenser tubes & piping etc. Chlorine dosing is done from chlorine stored in cylinders/ tonners. Chlorine gas is very hazardous and may prove fatal in case of leakage; handling and storage of same involves risk to the life of public at large. In the interest of public safety the chlorine dozing system is now being replaced by Chlorine Dioxide (ClO₂) system, which is much safer and less hazardous than chlorine. In the proposed scheme, ClO₂ shall be produced on site by use of commercial grade HCl and sodium chlorite. ClO₂ generated at site, avoids handling and storage risk. Further, at Kudgi



NTPC project, Department of Factories, Boiler, Industrial Safety and Health, Govt of Karnataka had asked NTPC to consider replacement of highly hazardous gas chlorination system with ClO₂ system. SPCB, Odisha while issuing consent to establish in case of Darlipalli Station had asked NTPC to explore the possibility of installing ClO₂ system instead of Chlorine gas system. In view of the directions of various statutory authorities in different states of the country and for enhancing the safety of O&M personnel, the Petitioner has considered replacing the chlorination system with ClO₂ system.

26. The Respondent, UPPCL has submitted that the replacement is not on account of policy/Law or direction of Central or State Government. Further, the corresponding de-capitalization has not been adjusted. Thus, the Petitioner may be directed to provide the details of original gross block to determine the de-capitalization amount along with the evidence of commissioning of ClO₂ system, to determine the year of capitalization for tariff purpose. This expenditure does not qualify as change in law and is disallowable, if the Petitioner does not submit the details of law/policy/directions, based on which claim is allowable under change in law.

27. In response, the Petitioner has clarified as follows:

- i. The work is claimed by Petitioner not only under Regulation 26(1)(b) but also under Regulation 26(1)(d) of 2019 Tariff Regulations. Further, it is submitted that at present Chlorine gas is being dozed directly at various stages of water treatment to maintain water quality and to inhibit organic growth in the water retaining structures/ equipment such as clarifiers, storage tanks, cooling towers, condenser tubes & piping etc. Chlorine dosing is done from chlorine stored in cylinders/ tonners.
- ii. Further, chlorine gas is very hazardous and may prove fatal in case of leakage, handling and storage of same involves risk to the life of public at large.



Therefore, in the interest of public safety, the chlorine dosing system is now being replaced by Chlorine Dioxide ('ClO₂') system, which is much safer and less hazardous than chlorine.

- iii. In the proposed scheme, ClO₂ shall be produced on site by use of commercial grade HCl and sodium chlorite. ClO₂ generated at site, avoids handling and storage risk. Further, at Kudgi NTPC project, the Department of factories, boiler, industrial safety and health, Government of Karnataka had directed NTPC to replace highly hazardous gas chlorination system with ClO₂ system. The SPCB, Odisha in case of Darlipalli Station, while issuing consent to establish had asked NTPC to explore the possibility of installing ClO₂ system instead of Chlorine gas system. In this regard, the Petitioner has submitted the relevant documentary evidence. Both the above authorities are statutory authorities and have advised the Petitioner to replace the existing chlorination system. The same amounts to a direction / law and is being done in this generating station as well.
- iv. Further, the Petitioner has submitted that the details of de-capitalization shall be provided at the time of truing up. Therefore, in the interest of public safety, the Petitioner has requested to allow the expenditure.

28. The Respondents, BRPL and BYPL have submitted that none of the letters (i.e. those issued by the State Pollution Control Board, Odisha and the Government of Karnataka) referred to by the Petitioner is pertaining to the state of Uttar Pradesh, and hence they are liable to be ignored. Further, there is no Change in Law event which has occurred for allowing the said additional capital expenditure under Regulation 26(1)(b) of 2019 Tariff Regulations. Also, Regulation 26(1)(d) of the 2019 Tariff Regulations is also not applicable for the proposed additional capitalization as this Regulation can be invoked only if there is '*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 international security*'. The Petitioner



has not placed on record any documentary evidence to show that there is requirement of ClO₂ plant as a measure for higher security and safety of the generating station in terms of Regulations 26(1)(d) of the 2019 Tariff Regulations. Hence, the proposed amount may be rejected.

29. In response, the Petitioner has submitted as follows:

- i. The generating station is one of the largest generators of electricity in the country and it follows best practices and hence, such measures are taken for the benefit of beneficiaries and project. So, a generating company will not be in a position to function in a smooth and uninterrupted manner until such costs are recognized in the tariff determination process.
- ii. Therefore, in order to avoid the hazards of chlorine gas leakage, the Petitioner has taken the decision to install ClO₂ package in all its generating plants. This expenditure is allowable both under Regulation 26(1)(b) and 26(1)(d) of the 2019 Tariff Regulations.
- iii. Further, the letters of the respective State Pollution Control Board of Karnataka and Orissa have been cited as specific examples of statutory authorities who issue directions in the case of certain generating stations. This itself qualifies the expenditure on ClO₂ plant as one necessary for safety and security of the generating station contemplated in Regulation 26(1)(d) of the 2019 Tariff Regulations. It has already produced sufficient documentary evidence to prove that there is requirement of ClO₂ plant as a measure for higher security and safety and the same cost has been claimed in several generating stations of the Petitioner.
- iv. Also, the Hon'ble Supreme Court (*in Gulf Goan Hotels Co. Ltd. vs. Union of India (2014 (10) SCC 673*) has examined the width of the notification/letter issued by any government department and what could be the legal binding of such documents. Further, the Petitioner has highlighted similar cases wherein the Hon'ble ATE (*in NTPC vs CERC & Ors in Appeal 125 of 2017 vide Order*



dated 19.5.2019) has understood the importance of additional safety and security of projects and has allowed the additional capitalization for the same.

- v. Further, the “Draft Safety, Health and Working Conditions Code 2018” was put up by Ministry of Labour and Employment in March 2018 inviting comments/suggestions of various stakeholders, wherein responsibilities of various faculties of industries/factories were mentioned including those of the employer. The Petitioner, as a responsible employer, took cognizance of the requirement of installation & commissioning of the ClO₂ system for safety reasons and as “The Occupational Safety, Health and Working Conditions Code, 2020” was notified by Ministry of Law & Justice, Govt *vide* Gazette Notification dated 29.9.2020, the Petitioner has decided to implement ClO₂ system, in line with the duties necessitated in the said Code.

30. We have considered the matter. 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 ClO₂ system. It is observed that the letter dated 23.9.2013 addressed by the Directorate of Factories, Industrial Safety & Health, State Government of Karnataka to the GM, NTPC, pertains to site clearance of Kudgi Super Thermal Power station of the Petitioner. This letter, can, in no manner, can be termed as a change in law event or for compliance with any existing law in respect of this generating station (Rihand STPS) 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 dosing system to be replaced by Chlorine Dioxide (ClO₂) system) for safety and security of the generating station. Similar claim of the Petitioner in respect of tariff petitions for other generating stations of the Petitioner for the 2019-24 tariff period has not been allowed by the Commission in its various orders. In view



of this, the projected additional capital expenditure claimed by the Petitioner is not allowed.

(f) Nitrogen Sparging

31. The Petitioner has projected additional capital expenditure of Rs.422.33 lakh towards Nitrogen Sparging in 2020-21 under Regulation 26(1) read with Regulation 76 of the 2019 Tariff Regulations. In justification of the same, the Petitioner has submitted that boilers, condensers and other steam/ water handling equipment are very sensitive to corrosion and fouling. It has submitted that main fouling impurity causing corrosion is the dissolved oxygen which enters the water-steam cycle through the cycle make-up water or during the start-up after outages when the system is filled with DM water. The Petitioner has stated that at present, the DM water is stored in the vented storage tanks exposed to air wherein CO₂ and O₂ gets absorbed into this water and when this water containing high concentrations O₂ and CO₂ enters the system, it causes stress corrosion, fatigue corrosion, pitting etc. leading to failures. It has further submitted that it causes PH swings, detrimental to pressure parts and forms oxides which precipitate and gets deposited in the system and most of the adverse effects are visible in the long run. The Petitioner has pointed out that due to temperature and pressure variations during start-ups and load variations, these deposits get dis-lodged and need lot of time to mechanically scavenging out of the system by way of continuous blowdown which is a waste of energy or through polishing units. By nitrogen sparging/ blanketing the storage tanks and other related systems, ingress of O₂ and CO₂ could be avoided resulting in increased life of components, reduced failures, reduced start-up time. Moreover, it would reduce unplanned outages increasing the system stability and reliability. In view of various technological benefits, the Petitioner has prayed to allow the expenditure.



32. The Respondent, UPPCL has submitted that the expenditure is not allowable under any provisions of the 2019 Tariff Regulations. The Petitioner may be directed to submit the detailed cost benefit analysis, if required, else the Petitioner should bear the expenditure. The Respondents BRPL and BYPL have submitted that there is no provision under the 2019 Tariff Regulations for claim of additional capital expenditure on this head. They have also submitted that the Petitioner has failed to satisfy any of the aforesaid conditions laid down by the APTEL to substantiate its prayer for invocation of the Power to Relax by the Commission. (ref: TPCL V JSERC & ors (2012 SCC OnLine APTEL 155) and the reasoning given are merely generic in nature without any documentary evidence to support the same.

33. In response, the Petitioner has clarified as follows:

- i. The opening portion of Regulation 26(1) of the 2019 Tariff Regulations is the governing provision and the sub sections are only the examples of the additional capitalizations which may be permitted by the Commission. However, this does not mean that the Petitioner is prevented from invoking the 'Power to Relax' provision of the Commission under Regulation 76 of the 2019 Tariff Regulations in case it can justify that the expenditure is essential and will benefit the beneficiaries in the long term.
- ii. The claim made by the Petitioner under this head is sufficiently explained and also how the changes would reduce the ingress of O₂ and CO₂ system which will result in increased life of components, reduce failures, reduce start up time.
- iii. In terms of APTEL judgement dated 25.3.2011 in RGPPL Vs CERC & anr, to relax the rigors of the Regulations, on an appropriate case basis, it is seeking to invoke the "Power to Relax" under Regulation 76 of the 2019 Tariff Regulations.
- iv. The reliance placed by the Respondent, BRPL on the judgement TPCL v JSERC case, has no relevance, as the exercise of powers depends on a case



to case basis and each of the tests laid down by APTEL in the said judgment stand satisfied by the Petitioner in the present case.

34. We have considered the matter. It is observed that the Petitioner has not provided detailed justification such as the cost benefit analysis and the reasons as to why such expenditure cannot be met through the O&M expenses allowed to the Petitioner. In view of this, the projected additional expenditure claimed by the Petitioner is not allowed. The Petitioner may, however, approach the Commission with proper justification/ details in respect of the additional capital expenditure claimed with a separate petition or at the time of truing-up of tariff.

(g) Up-gradation of DCS controllers & HMI of Unit-4

35. The Petitioner has claimed projected additional capital expenditure of Rs.905.21 lakh towards up-gradation of DCS controllers & HMI of Unit-4 in 2021-22 under Regulation 25(2)(c) of the 2019 Tariff Regulations. In justification of the same, the Petitioner has submitted that the control system in Rihand Unit-4 is DPU4E processor based max DNA system supplied by BHEL. The Petitioner has further submitted that vide letter dated 9.9.2015, the OEM BHEL had informed that they have phased out DPU4E processor and withdrawn spares and service support due to component obsolescence. Therefore, it has become necessary to replace DPU4E processors & HMI with latest one to overcome obsolescence.

36. The Respondents BRPL and BYPL have submitted that the proposals under Regulation 25(1) of the 2019 Tariff Regulations are subject to prudence check by the Commission. However, the Petitioner has not submitted any details or documents for carrying out of the prudence check of such up-gradation. Accordingly, the projected



additional capital expenditure may be rejected. In response, the Petitioner has reiterated the same submission as in the original submission.

37. The matter has been examined. It is observed that the Petitioner has proposed to replace only few components of the existing system due to unavailability of spares. Further, 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. In view of the above, the projected additional capital expenditure of Rs.905.21 lakh is allowed under Regulation 25(2)(C) of the 2019 Tariff Regulations. However, it is observed that the Petitioner has not provided the gross value of replaced assets which were put in service in the year of COD (2006-07), therefore, the “assumed deletion” of Rs.435.42 lakh has been worked out, by applying the discounting rate of 5% on the current value of these assets i.e. Rs.905.21 lakh in the year 2021-22.

(h) Security related works and Procurement of Security gadgets / equipment

38. The Petitioner has projected additional capital expenditure of Rs.671.00 lakh (Rs.10.00 lakh in 2019-20, Rs.411.00 lakh in 2020-21, Rs.176.50 lakh in 2021-22, Rs.65.50 lakh in 2022-23 and Rs.8.00 lakh in 2023-24) towards Security related works and Procurement of Security gadgets/ equipment during 2019-24 tariff period under Regulation 26(1)(d) of the 2019 Tariff Regulations. In justification of the same, the Petitioner has submitted that Ministry of Power (MoP), GoI vide its letters dated 27.2.2019 and 23.10.2019 has instructed the Petitioner to strengthen the security arrangements at vital installations. It has submitted that the projected additional capitalization pertains to expenditure projected to be incurred towards security of the plant in line with the MoP letters dated 27.2.2019 & 23.10.2019.



39. The Respondents, BRPL and BYPL has submitted that the additional capitalization can be claimed under Regulations 26(1)(d) of the 2019 Tariff Regulations if there is '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 International security'. The Respondents have submitted that MoP, GOI letters cited by the Petitioner does not fall under the ambit of the aforementioned criteria. It is settled law that the Commission, while conducting tariff determination proceedings, is bound by its own Regulations in terms of the judgment of the Hon'ble Supreme Court India in PTC India Ltd. v. CERC (2010) 4 SCC 603. Without prejudice to the above, the Respondents have submitted that on perusal of the said letters it is evident that the same are not intended for any additional capitalization, but only to inform the generating station about immediate threat perception received by the MoP, GOI from Intelligence Agencies, which cannot be construed as instructions to incur an additional expenditure.

40. In response, the Petitioner has clarified as follows:

- i. The directions of the MoP, GOI amounts to 'change in law' event as it has a force of law. Relying on the Judgement of the Hon'ble Supreme Court in *Gulf Goan Hotels Co. Ltd. vs. Union of India (2014 (10) SCC 673)*, the Petitioner has legal binding on the notification/letter issued by MoP, GOI.
- ii. Further, the security agencies/intelligence agencies based on threat perceptions, inform the various wings of government. As the Petitioner's company falls under the aegis of the MoP and any direction issued by the MoP to the Petitioner to enhance its security needs to be complied with diligently. Therefore, the expenditure proposed on security equipment may be permitted as an additional capitalisation.

41. The submissions have been considered. Considering the fact that the total projected additional capital expenditure of Rs.671.00 lakh claimed during 2019-24



tariff period is for the safety and security of the plant, we allow the same under Regulation 26(1)(d) of the 2019 Tariff Regulations. The Petitioner is, however, directed to submit the relevant documents in support the claim at the time of truing-up of tariff along with the complete scope of work, including a certificate to the effect that the asset has been put to use.

42. Based on the above, the total projected additional capital expenditure claimed by the Petitioner and those allowed for the 2019-24 tariff period is summarized as under:

(Rs. in lakh)

		2019-20	2020-21	2021-22	2022-23	2023-24	Total
Additional Capital Expenditure under original scope of work (A)							
Ash Transport through Rail (BTAP)	Claimed	4000.00	2274.65	0.00	0.00	0.00	6274.65
	Approved	0.00	0.00	0.00	0.00	0.00	0.00
Installation of load cells below Silo	Claimed	111.27	0.00	0.00	0.00	0.00	111.27
	Approved	0.00	0.00	0.00	0.00	0.00	0.00
High Cycle of Concentration operation	Claimed	20.00	180.00	0.00	0.00	0.00	200.00
	Approved	0.00	0.00	0.00	0.00	0.00	0.00
Package of ClO ₂ Plant	Claimed	103.33	930.00	0.00	0.00	0.00	1033.33
	Approved	0.00	0.00	0.00	0.00	0.00	0.00
Nitrogen Sparging	Claimed	0.00	422.33	0.00	0.00	0.00	422.33
	Approved	0.00	0.00	0.00	0.00	0.00	0.00
Ash Dyke Raising (Mithini Lagoon II 2nd raising)	Claimed	0.00	1080.00	0.00	0.00	0.00	1080.00
	Approved	0.00	1080.00	0.00	0.00	0.00	1080.00
Ash Dyke Raising (Mithini Lagoon I 3rd raising)	Claimed	0.00	0.00	1100.00	0.00	0.00	1100.00
	Approved	0.00	0.00	1100.00	0.00	0.00	1100.00
Up-gradation of DCS controllers & HMI of Unit-4	Claimed	0.00	0.00	905.21	0.00	0.00	905.21
	Approved	0.00	0.00	905.21	0.00	0.00	905.21
Ash Dyke Raising (Mithini Lagoon II 3rd raising)	Claimed	0.00	0.00	0.00	0.00	1200.00	1200.00
	Approved	0.00	0.00	0.00	0.00	1200.00	1200.00
Subtotal (A)	Claimed	4234.60	4886.98	2005.21	0.00	1200.00	12326.79
	Approved	0.00	1080.00	2005.21	0.00	1200.00	4285.21
Additional Capital Expenditure beyond original scope of work (B)							
Security related works and Procurement of Security gadgets / equipment	Claimed	10.00	411.00	176.50	65.50	8.00	671.00
	Approved	10.00	411.00	176.50	65.50	8.00	671.00
Subtotal (B)	Claimed	10.00	411.00	176.50	65.50	8.00	671.00
	Approved	10.00	411.00	176.50	65.50	8.00	671.00
De-capitalization (C)							
De-capitalization for DCS Controller and	Approved	0.00	0.00	435.42	0.00	0.00	435.42



		2019-20	2020-21	2021-22	2022-23	2023-24	Total
HMI (assumed deletion)							
Discharge of liability (D)							
Discharge of liability corresponding to allowed works	Claimed	0.00	0.00	0.00	0.00	0.00	0.00
	Approved	0.00	0.00	0.00	0.00	0.00	0.00
Net Additional Capital Expenditure (D)=(A+ B-C-D)	Claimed	4244.60	5297.98	2181.71	65.50	1208.00	12997.79
	Approved	10.00	1491.00	1746.29	65.50	1208.00	4520.79

Additional Capital Expenditure eligible for normal ROE

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24	Total
Admitted additions in projected additional capital expenditure (A)	0.00	1080.00	2005.21	0.00	1200.00	4285.21
Less: De-capitalization considered for assets (B)	0.00	0.00	435.42	0.00	0.00	435.42
Less: Un-discharged Liabilities (C)	0.00	0.00	0.00	0.00	0.00	0.00
Add: Discharges of liabilities (against allowed assets / works) (D)	0.00	0.00	0.00	0.00	0.00	0.00
Net projected additional capital expenditure allowed (on cash basis) (E) = (A-B-C+D)	0.00	1080.00	1569.79	0.00	1200.00	3849.79

Additional Capital Expenditure eligible for WAROI ROE

	2019-20	2020-21	2021-22	2022-23	2023-24	Total
Admitted additions in projected additional capital expenditure (A)	10.00	411.00	176.50	65.50	8.00	671.00
Less: De-capitalization considered for assets (B)	0.00	0.00	0.00	0.00	0.00	0.00
Less: Un-discharged Liabilities (C)	0.00	0.00	0.00	0.00	0.00	0.00
Add: Discharges of liabilities (against allowed assets / works) (D)	0.00	0.00	0.00	0.00	0.00	0.00
Net projected additional capital expenditure allowed (on cash basis) (E) = (A-B-C+D)	10.00	411.00	176.50	65.50	8.00	671.00

Capital cost allowed

43. As stated earlier, the closing capital cost of Rs.296123.42 lakh as on 31.3.2019, as approved by order dated 22.03.2022 in Petition No. 112/GT/2020 has



been considered as the opening capital cost as on 1.4.2019. As such, the capital cost allowed for the purpose of tariff for the 2019-24 tariff period is as follows:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Capital Cost (A)	296123.42	296133.42	297624.42	299370.70	299436.20
Add: Admitted Additional capital expenditure (B)	10.00	1491.00	1746.29	65.50	1208.00
Closing Capital Cost (C) = (A+B)	296133.42	297624.42	299370.70	299436.20	300644.20
Average Capital cost (D) = [(A+C)/2]	296128.42	296878.92	298497.56	299403.45	300040.20

Debt-Equity Ratio

44. 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.”

45. The Commission vide its order dated 22.03.2022 in Petition No. 112/GT/2020 had considered gross loan and equity of Rs.207286.40 lakh and Rs.88837.02 lakh respectively as on 31.3.2019. The proportionate equity as a percentage of admitted capital cost as on 31.3.2019 is 30%. Accordingly, the gross loan and equity amounting to Rs.207286.40 lakh and Rs.88837.02 lakh has been considered as gross loan and equity as on 1.4.2019. The debt-equity ratio for the allowed projected additional capital expenditure has been considered as 70:30, subject to truing up. Accordingly, debt-equity is worked out as under:

(Rs. in lakh)

	Capital Cost as on 1.4.2019		Net Additional Capitalization during 2019-24 period*		Capital cost as on 31.3.2024	
	Amount	(%)	Amount	(%)	Amount	(%)
Debt (A)	207286.40	70.00%	3164.55	70.00%	210450.95	70.00%
Equity (B)	88837.02	30.00%	1356.24	30.00%	90193.26	30.00%
Total (C) = (A) + (B)	296123.42	100.00%	4520.79	100.00%	300644.20	100.00%

*Note: Debt-equity ratio has been calculated on additional capital expenditure net of De-capitalization basis. However, debt-equity ratio would be calculated on the basis of actual additional capital expenditure and actual de-capitalization (based on original capitalization date) separately at the time of truing-up of 2019-24 tariff period.

Return on Equity

46. 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."

47. As per proviso to Regulation 30 of the 2019 Tariff Regulations, the 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 2019-24 tariff period. 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 2019-24 tariff period.

48. The additional capital expenditure under the original scope of work, change in law etc. has been allowed at the normal rate. The additional capital expenditure



beyond the original scope of work, excluding the additional capital expenditure due to change in law, the eligible ROE has been allowed at WAROI on actual loan portfolio of 7.698% for the year 2019-20 and 7.620% for the years from 2020-21 to 2023-24.

49. Accordingly, ROE has been allowed based on projected additional capital expenditure allowed as under:

Return on Equity at Normal Rate

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Normative Equity-Opening (A)	88837.02	88837.02	89161.02	89631.96	89631.96
Addition of Equity due to additional capital expenditure (B)	0.00	324.00	470.94	0.00	360.00
Normative Equity-Closing (C) = [(A)+(B)]	88837.02	89161.02	89631.96	89631.96	89991.96
Average Normative Equity (D) = [(A+C)/2]	88837.02	88999.02	89396.49	89631.96	89811.96
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)]	16685.37	16715.80	16790.45	16834.67	16868.48

(a) Return on Equity at WAROI Rate

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Normative Equity - Opening (A)	0.00	3.00	126.30	179.25	198.90
Addition of Equity due to additional capital expenditure (B)	3.00	123.30	52.95	19.65	2.40
Normative Equity-Closing (C) =[(A)+(B)]	3.00	126.30	179.25	198.90	201.30
Average Normative Equity (D) = [(A+C)/2]	1.50	64.65	152.78	189.08	200.10
Weighted average rate of interest on actual loan portfolio (E)	7.698%	7.620%	7.620%	7.620%	7.620%
Return on Equity (Pre Tax)-Annualised (E) = [(D) x (E)]	0.12	4.93	11.64	14.41	15.25



Total Return on Equity allowed

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Return on Equity at Normal Rate (A)	16685.37	16715.80	16790.45	16834.67	16868.48
Return on Equity at WAROI (B)	0.12	4.93	11.64	14.41	15.25
Total Return on Equity allowed (A+B)	16685.48	16720.72	16802.09	16849.08	16883.73

Interest on Loan

50. 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 up to 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.”

51. Interest on loan has been computed as under:



- (i) The gross normative loan amounting to Rs.207286.40 lakh as on 31.3.2019 as considered in order dated 22.3.2022 in Petition No. 112/GT/2020 has been considered as on 1.4.2019;
- (ii) Cumulative repayment amounting to Rs.198250.19 lakh as on 31.3.2019 as considered in order dated 22.3.2022 in Petition No. 112/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 as Rs.9036.21 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 2019-24 tariff period. Further, repayments have been adjusted for de-capitalization of assets considered for the purpose of tariff.

52. The Petitioner has claimed interest on loan by applying the weighted average rate of interest of 7.6978% for the year 2019-20 and 7.6200% for the years from 2020-21 to 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. Interest on loan has been worked out as follows:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Gross opening loan (A)	207286.40	207293.40	208337.10	209559.50	209605.35
Cumulative repayment of loan up to previous year (B)	198250.19	204021.10	208337.10	209559.50	209605.35
Net Loan Opening (C) = [(A) - (B)]	9036.21	3272.29	0.00	0.00	0.00
Addition due to additional capital expenditure (D)	7.00	1043.70	1222.40	45.85	845.60
Repayment of Loan during the period (E)	5770.91	4315.99	1505.22	45.85	845.60
Less: Repayment adjustment on a/c of de-capitalisation (F)	0.00	0.00	282.82	0.00	0.00
Net Repayment of Loan during the period (G) = [(E) - (F)]	5770.91	4315.99	1222.40	45.85	845.60
Net Loan Closing (H) = [(C) +(D) - (G)]	3272.29	0.00	0.00	0.00	0.00



Average Loan (I) = [(C+H)/2]	6154.25	1636.15	0.00	0.00	0.00
Weighted Average Rate of Interest of loan (J)	7.6978%	7.6200%	7.6200%	7.6200%	7.6200%
Interest on Loan (K) = [(I)*(J)]	473.74	124.67	0.00	0.00	0.00

Depreciation

53. 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 up to 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.”

54. Accordingly, cumulative depreciation amounting to Rs.199076.04 lakh as on 31.3.2019 as considered in order dated 22.03.2022 in Petition No. 112/GT/2020 has been considered for the purpose of tariff. The balance depreciable value (before providing depreciation) for 2019-20 works out to Rs.67439.54 lakh. Since, as on 1.4.2019, the used life of the generating station is 13.31 years, which is more than 12 years from the effective station COD of 7.12.2005, depreciation has been spread over the remaining useful life of the asset for the 2019-24 tariff period. Accordingly, depreciation has been worked out and allowed as follows:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Average Capital Cost (A)	296128.42	296878.92	298497.56	299403.45	300040.20
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)x90% + (C)]	266515.57	267191.02	268647.80	269463.11	270036.18
Remaining aggregate depreciable value at the beginning of the year (E) = [(D) – (Cumulative depreciation shown at (M) at the end of the preceding period)]	67439.54	62344.07	57966.73	53080.33	47542.46



	2019-20	2020-21	2021-22	2022-23	2023-24
Number of completed years at the beginning of the year (F)	13.31	14.31	15.31	16.31	17.31
Balance useful life at the beginning of the year (G) = [25 - (F)]	11.69	10.69	9.69	8.69	7.69
Weighted Average Rate of Depreciation (WAROD) (H)	1.9488%	1.9652%	2.0049%	2.0410%	2.0616%
Combined Depreciation during the year/ period (I) = [(A) x (H)]	5770.91	5834.12	5984.52	6110.94	6185.50
Combined Depreciation during the year/ period (annualized) (J) = (I)	5770.91	5834.12	5984.52	6110.94	6185.50
Cumulative depreciation at the end of the year (before adjustment for de-capitalisation) (K) = [(J) + (Cumulative Depreciation (shown at M) at the end of the previous year)]	204846.95	210681.07	216665.60	222493.72	228679.22
Less: Depreciation adjustment on account of de-capitalisation (L)	0.00	0.00	282.82	0.00	0.00
Cumulative depreciation at the end of the year (M)** = (K) - (L)	204846.95	210681.07	216382.78	222493.72	228679.22

* As per the Petitioner submissions, the details of IT Equipment will be provided at the time of truing up

**The cumulative depreciation at the end of 2018-19 is Rs. 199076.04 lakh.

O&M Expenses

55. 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.

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

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
22510.00	23300.00	24120.00	24970.00	25840.00

57. The normative O&M expenses have been allowed as claimed by the Petitioner for the purpose of tariff computation.

Water Charges

58. The first 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:

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.”

59. The actual water charges claimed by the Petitioner and allowed by order dated 22.03.2022 in Petition No. 112/GT/2020 for the 2014-19 tariff period is as follows:

<i>(Rs.in lakh)</i>				
2014-15	2015-16	2016-17	2017-18	2018-19
423.85	420.80	420.70	423.85	434.30

60. In terms of the first proviso to Regulations 35(1)(6) of the 2019 Tariff Regulations, water charges shall be allowed separately, based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check. The details furnished by the Petitioner in respect of water charges as applicable for 2018-19 are as under:

Description	Remarks
Type of Plant	Coal Based
Type of cooling water system	Closed Cycle
Allocation of Water*	37.19 CUSEC



Description	Remarks
Consumption of Water*	37.19 CUSEC
Rate of Water charges*	Rs.2.69/kWh
Total Water Charges**	Rs.434.30 Lakh

61. The Petitioner has submitted that based on the minutes of meeting dated 3.4.1999, the water charges shall be revised upwards by 10% every 5 years. The Petitioner has submitted that the last revision of water charges took place on 1.1.2019, therefore, water charges are claimed based on rate of water charges applicable w.e.f. 1.1.2019. Therefore, the Petitioner has claimed the water charges for the 2019-24 tariff period as follows:

(Rs. in lakh)

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

62. In the absence of the actual water charges for 2019-20, the water charges for 2019-20, 2020-21, 2021-22, 2022-23 and 2023-24 are allowed as claimed by the Petitioner. However, the Petitioner at the time of truing up shall furnish the detail of actual water consumption (in cubic meters), rate (Rs/ Cubic meter) and power charges separately along with the minutes of the meeting dated 3.4.1999. The water charges allowed are subject to the truing up as per actual water charges paid after prudence check. The water charges allowed for the 2019-24 tariff period are summarized as follows:

(Rs.in lakh)

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

Security Charges

63. 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”

64. The Petitioner has claimed total security expenses of Rs.6661.56 lakh (i.e. Rs.1241.29 lakh in 2019-20, Rs.1370.36 lakh in 2020-21, Rs.1370.74 lakh in 2021-22, Rs.1338.81 lakh in 2022-23 and Rs.1340.36 lakh in 2023-24) for the 2019-24 tariff period, in terms of the second proviso to Regulation 35(1)(6) of the 2019 Tariff Regulations. It has, however, not furnished any justification and the assessment of security, for the expenses claimed. It is further observed that the Petitioner vide affidavit dated 4.6.2021 has submitted that the claim for security expenses is based on estimation and shall be subject to retrospective adjustment based on actuals. In view of this, the Security charges as claimed by the Petitioner are 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.

Capital spares

65. The Petitioner has not claimed any capital spares, on projection basis, during the 2019-24 tariff period and 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.

66. Accordingly, the total O&M expenses, including Water charges and Security expenses, claimed and allowed for the 2019-24 tariff period is summarized below:

		2019-20	2020-21	2021-22	2022-23	2023-24
Installed Capacity		1000.00	1000.00	1000.00	1000.00	1000.00



		2019-20	2020-21	2021-22	2022-23	2023-24
(MW) (A)						
O&M Expenses under Regulation 35(1) (in Rs. lakh/ MW) (B)	Claimed	22.51	23.30	24.12	24.97	25.84
	Allowed	22.51	23.30	24.12	24.97	25.84
Total O&M Expenses (in Rs. lakh) (C) = [(A)*(B)]	Claimed	22510.00	23300.00	24120.00	24970.00	25840.00
	Allowed	22510.00	23300.00	24120.00	24970.00	25840.00
Water Charges (in Rs. lakh) (D)	Claimed	466.24	466.24	466.24	466.24	466.24
	Allowed	466.24	466.24	466.24	466.24	466.24
Security Expenses (in Rs. lakh) (E)	Claimed	1241.29	1370.36	1370.74	1338.81	1340.36
	Allowed	1241.29	1370.36	1370.74	1338.81	1340.36
Total O&M Expenses as allowed (in Rs. lakh) (including Water Charges and Capital Spares Consumed) (F) = (C+D+E)	Claimed	24217.52	25136.59	25956.97	26775.05	27646.60
	Allowed	24217.52	25136.59	25956.97	26775.05	27646.60

Fly Ash Transportation charges

67. The Petitioner in additional submission dated 11.5.2021 has prayed to allow actual fly ash transportation charges of Rs.1042.00 lakh in 2020-21, based on the actual expenses incurred. It is however noticed that the Petitioner has filed Petition No. 205/MP/2021 with regard to reimbursement of fly ash transportation charges in respect of its generating stations for 2019-24 tariff period. 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. Some of the Respondents therein have raised issues on 'maintainability' of Petition No. 205/MP/2021. Therefore, the reimbursement of fly ash transportation charges shall be governed by decision of the Commission in Petition No. 205/MP/2021, which has been reserved for order, on maintainability of the Petition.

Additional Expenditure on Emission Control System



68. The Petitioner, in terms of the Ministry of Environment and Forests and Climate Change (MOEF&CC) notification dated 7.12.2015 has submitted that it is in the process of installing the Emission Control Systems (ECS) for this generating station. It is however noticed that the Petitioner had filed Petition No. 467/MP/2019, for approval of additional expenditure on installation of various Emission Control Systems for 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. Therefore, we are not deciding this issue in this petition. The claim of the Petitioner for additional expenditure on emission control system shall therefore be guided by order dated 30.9.2021 in Petition No. 467/MP/2019.

Operational Norms

69. 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)	2390.00
Auxiliary Power Consumption %	6.25
Specific Oil Consumption (ml/kwh)	0.50

(a) Normative Annual Plant Availability Factor

70. Regulation 49 of the 2019 Tariff Regulations provides as follows:

- (A) Normative Annual Plant Availability Factor (NAPAF)
- (a) For all thermal generating stations, except those covered under clauses (b), (c), (d), & (e) - 85%.

71. The Petitioner has considered NAPAF of 85% during the 2019-24 tariff period as per Regulation 49(A)(a) of the 2019 Tariff Regulations and hence, the same is allowed.

(b) Station Heat Rate



72. Regulation 49(C)(a)(i) of the 2019 Tariff Regulations provides as follows:

“(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

73. The Petitioner has considered the Gross Station Heat Rate of 2390 kCal/ kWh as per Regulation 49(C)(a)(i) of the 2019 Tariff Regulations and therefore, same has been considered for the purpose of tariff.

(c) Auxiliary Power Consumption

74. Regulation 49(E)(a)(ii) of the 2019 Tariff Regulations provides for Auxiliary Power Consumption as follows:

“49(E) Auxiliary Energy Consumption

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

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

75. The generating station is 1000 MW plant with induced draft cooling tower. Therefore, the Auxiliary Power Consumption (APC) of 6.25% as claimed by the Petitioner is as per Regulation 49(E)(a)(ii) of the 2019 Tariff Regulations. Hence, the same has been allowed.

(d) Specific Oil Consumption

76. Regulation 49(D)(a) of the 2019 Tariff Regulations, provides for Secondary fuel oil consumption of 0.50 ml/kWh, for coal-based generating stations. As the Secondary fuel oil consumption considered by the Petitioner is as per the said regulations, the same is allowed for determination of tariff for the 2019-24 period.



77. Based on the above, the operational norms considered for determination of energy charges for the generating station for the 2019-24 tariff period are as under:

Normative Annual Plant Availability Factor (NAPAF) (%)	85.00
Heat Rate (kCal/kWh)	2390.00
Auxiliary Power Consumption (%)	6.25
Specific Oil Consumption (ml/kWh)	0.50

Interest on Working Capital

78. Sub-section (c) of clause (1) of Regulation 34 the 2019 Tariff Regulation provides as follows:

“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

79. The Petitioner has claimed Energy Charge Rate (ECR) of 141.666 paisa/kWh and fuel component in working capital as follows:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Cost of coal for 40 days	10597.12	10597.12	10597.12	10597.12	10597.12
Cost of Secondary fuel oil 2 months	366.50	365.50	365.50	365.50	366.50

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

- Operational norms as per the 2019 Tariff Regulations.
- 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
- Price and GCV of secondary fuel oil for the three months of October 2018, November 2018, and December 2018.

81. It is observed that the Petitioner vide affidavit dated 4.6.2021 has submitted revised Form-15 indicating the opening stock of coal and coal received during the months of October, November and December 2018, separately. On perusal of the data furnished by the Petitioner, it is observed that the Petitioner, while computing the landed cost of fuel, has considered the opening stock of coal for the months of October 2018, November 2018 and December 2018 (closing stock of the coal for the previous months). However, in terms of the Regulation 39 of the 2019 Tariff



Regulations, the computation of ECR and associated fuel components in interest on working capital, is based on the landed price and GCV of fuel, which means that the fuel received during the specified three months (October 2018, November 2018 and December 2018) is only to be considered, without opening stock. Similarly, while calculating the weighted average price of the coal, the Petitioner has used the Normative Transit and Handling loss of 0.29% for October 2018, 0.26% for November 2018 and 0.29% for December 2018 which is more than applicable Normative Transit and Handling loss of 0.20% for the generating station. Accordingly, the normative cost of coal for stock of 40 days and Normative Transit and Handling loss of 0.20% has been considered for the calculation of working capital requirements Accordingly, after excluding the opening stock value, we have worked out the weighted average landed cost and weighted average GCV of coal for working out the fuel component in working capital for the months of October 2018, November 2018 and December 2018. The revised GCV is further reduced by a margin of 85 kcal/Kg towards storage losses and the revised price of landed cost of coal and GCV of oil as furnished, has been considered. The Fuel components in working capital are allowed as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Cost of Coal for stock (10 days)	2665.86	2665.86	2665.86	2665.86	2665.86
Advance towards cost of Coal for generation (30 days)	7997.59	7997.59	7997.59	7997.59	7997.59
Cost of Secondary fuel 2 Months	190.46	189.94	189.94	189.94	190.46

Energy Charge Rate (ECR)

82. The Petitioner has claimed ECR (ex-bus) of 141.666 Rs/kWh, based on the weighted average price, GCV of coal & oil procured and burnt for the preceding months of October 2018, November 2018 and December 2018. The Respondent, UPPCL has submitted following contentions on the claim of the Petitioner:



- i. There is significant variation in expenditure on month on month basis. There is abnormal increase in December 2018.
- ii. Further, there are no details of credit notes for grade slippages. It is not clear whether the Petitioner is accounting for grade slippages at the time of purchase, i.e. on accrual basis or accounting as and when credit notes are issued by the coal supply company. Therefore, it is requested that the details of credit notes for grade slippages may be provided, since inception, along with credit notes for grade slippages currently outstanding for recovery /adjustment (as credit notes are issued by coal company at its discretion).
- iii. Further, the Petitioner may be directed to provide details of accounting treatment being followed for grade slippages and if required, direct the Petitioner to account for grade slippages on accrual basis.

83. In response, the Petitioner has submitted that the “other charges” as submitted in Form 15 consists of various charges of miscellaneous nature such as handling charges, sampling charges, track patrolling etc. These charges usually vary from month to month based on the coal receipt, presentation of vendor’s bills during the months & payments thereof. The variation is very minimal in absolute terms. Further, in respect of the grade slippages, it is submitted that it is accounted on accrual basis. The Petitioner has placed on record, the Auditor certified Form 15 *vide* affidavit dated 27.5.2021.

84. The submissions have been considered. The ECR, as worked out, based on the operational norms specified under the 2019 Regulations and on “as received” GCV of coal for the preceding three months i.e., October 2018 to December 2018



have been considered for allowing two months of energy charge in working capital as follows:

Description	Unit	2019-24
Capacity	MW	1000.00
Gross Station Heat Rate	Kcal/kWh	2390.00
Auxiliary Energy Consumption	%	6.25
Weighted average GCV of oil	Kcal/lit	9790.00
Weighted average GCV of coal	Kcal/kg	4088.62 (4173.62-85.00)
Weighted average price of oil	Rs/KL	30611.29
Weighted average price of Coal	Rs/MT	2240.15
Rate of energy charge ex-bus	Rs/kWh	1.4100

Working capital for O&M Expenses

85. O&M expenses for 1(one) 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
2018.13	2094.72	2163.08	2231.25	2303.88

86. 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 (1 month) component of working capital is allowed as follows:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
2017.28	2094.72	2163.08	2231.25	2303.88

Working capital for Maintenance Spares

87. 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



2019-20	2020-21	2021-22	2022-23	2023-24
4841.46	5027.32	5191.39	5355.01	5529.32

88. 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

89. Regulation 34(1)(a)(v) of the 2019 Tariff Regulations provides for Receivables for 45 days. Accordingly, after taking into account the mode of operation of the generating station on secondary fuel, the Receivable component of working capital is allowed as follows:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Fixed charge for 45 days	12134.81	12134.81	12134.81	12134.81	12134.81
Energy charge for 45 days	6331.60	6401.55	6486.24	6613.12	6720.22
Total	18466.41	18536.36	18621.05	18747.93	18855.03

90. 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.

91. 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

92. In accordance 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 2019-24 tariff period. However, as the tariff of the generating station for 2019-24 tariff period 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).

93. Accordingly, Interest on working capital is allowed as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Cost of Coal - 10 or 20 days (pit or non-pit) (A)	2665.86	2665.86	2665.86	2665.86	2665.86
Cost of Coal - 30 days(B)	7997.59	7997.59	7997.59	7997.59	7997.59
Cost of Secondary fuel - 2 Months (C)	190.46	189.94	189.94	189.94	190.46
Maintenance Spares - 20% of O&M (D)	4841.46	5027.32	5191.39	5355.01	5529.32
Receivables - 45 Days (E)	18466.41	18536.36	18621.05	18747.93	18855.03
O&M expenses - 1 month (F)	2017.28	2094.72	2163.08	2231.25	2303.88
Total Working Capital (I) = (A+B+C+D+E+F)	36179.07	36511.80	36828.93	37187.60	37542.15
Rate of Interest (G)	12.05%	11.25%	10.50%	10.50%	10.50%
Total Interest on Working capital (H) = [(I)*(G)]	4359.58	4107.58	3867.04	3904.70	3941.93



Annual Fixed Charges

94. Accordingly, the annual fixed charges approved for the generating station for the 2019-24 tariff period is summarised below:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation (A)	5770.91	5834.12	5984.52	6110.94	6185.50
Interest on Loan (B)	473.74	124.67	0.00	0.00	0.00
Return on Equity (C)	16685.48	16720.72	16802.09	16849.08	16883.73
Interest on Working Capital (D)	4359.58	4107.58	3867.04	3904.70	3941.93
O&M Expenses (E)	24207.30	25136.59	25956.97	26775.05	27646.60
Total Annual Fixed Charges (F) = (A+B+C+D+E)	51497.02	51923.69	52610.62	53639.77	54657.75

Application Filing fees and Publication charges

95. The Petitioner has sought reimbursement of the fees paid by it for filing of the tariff petition and for publication expenses and has submitted that the reimbursement of the same are in accordance with Regulation 70(1) of the 2019 Tariff Regulations.

96. The Respondent, BYPL has submitted that the Commission in its order dated 11.9.2008 in Petition No. 129 of 2005 had held that the Central Power Sector undertakings in furtherance of their business interests, are statutorily required to approach the Commission for determination and approval of the tariff and hence decline the claim of the Central Power Sector undertakings for allowing the reimbursement of the application filing fee. Thus, the claim of the Petitioner even in the present petition is liable to be rejected by the Commission. In response, the Petitioner has submitted that the expenses cannot be denied to the Petitioner, unless it is proved that it has been imprudent in the incurring of such expenses. Also, the reimbursement of such expenses does not need additional justification and is recovered on cost plus basis.



97. The submissions have been considered. In terms of Regulation 70(1) of the 2019 Tariff Regulations, the Petitioner is entitled for reimbursement of the filing fees and publication expenses in connection with the filing of this petition, directly from the beneficiaries, on pro-rata basis. The said order dated 11.9.2008 referred by the Respondent BYPL is not applicable to the present case. Accordingly, we allow the reimbursement of the expenditure in accordance with Regulation 70(1) of the 2019 Tariff Regulations.

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

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

100. Petition No. 426/GT/2020 is disposed of in terms of the above.

Sd/-
(Pravas Kumar Singh)
(Member)

Sd/-
(I. S. Jha)
(Member)

Sd/-
(P. K. Pujari)
(Chairperson)

