

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 454/GT/2020

Coram:

Shri I. S. Jha, Member

Shri Arun Goyal, Member

Shri Pravas Kumar Singh, Member

Date of Order : 12th January, 2024

In the matter of:

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

And

In the matter of:

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

.....Petitioner

Vs

1. West Bengal State Electricity Distribution Company Limited,
Vidyut Bhawan, Block-DJ, Sector-II,
Salt Lake City, Kolkata – 700 091
2. Bihar State Power Holding Company Limited,
Vidyut Bhawan, Bailey Road, Patna – 800 001
3. Jharkhand Bijlee Vitaran Nigam Limited,
Engineering Building, HEC Township,
Dhurwa, Ranchi – 834 004
4. GRIDCO Limited,
24, Janpath, Bhubaneswar – 751007

Parties Present:

Ms. Swapna Seshadri, Advocate, NTPC
Ms. Ritu Apurva, Advocate, NTPC
Ms. Ashabari Thakur, Advocate, NTPC
Ms. Surbhi Gupta, Advocate, NTPC
Shri Prashant Chaturvedi, NTPC
Shri Raj Kumar Mehta, Advocate, GRIDCO
Ms. Himanshi Andley, Advocate, GRIDCO



ORDER

This petition has been filed by the Petitioner, NTPC Limited, for approval of tariff of Farakka Super Thermal Power Station, Stage-III (500 MW) (in short 'the generating station') for the period 2019-24, in accordance with the provisions of the Central Electricity Regulatory Commission (Terms & Conditions of Tariff) Regulations, 2019 (in short 'the 2019 Tariff Regulations'). The generating station comprises of one unit of 500 MW. The date of commercial operation of the unit is 4.4.2012

2. The Commission vide its order dated 11.01.2024 in Petition No. 391/GT/2020, had determined and allowed the capital cost and annual fixed charges of the generating station for the period 2014-19, as under :

Capital Cost allowed

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	237698.86	257725.12	261267.96	262540.96	263948.54
Add: Additional capital expenditure	20026.26	3542.85	1273.00	1407.58	661.46
Closing Capital cost	257725.12	261267.96	262540.96	263948.54	264610.00
Average Capital cost	247711.99	259496.54	261904.46	263244.75	264279.27

Annual Fixed Charges allowed

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	12860.72	13648.38	13765.66	13831.65	13879.48
Interest on Loan	14058.03	13014.87	11682.05	10005.60	8671.86
Return on Equity	14572.90	15340.14	15482.48	15561.71	15664.89
O&M Expenses	8212.89	8781.87	9270.55	9827.27	10874.72
Interest on Working Capital	5247.94	5301.08	5300.74	5391.24	5429.12
Total	54952.47	56086.35	55501.48	54617.48	54520.06

Present Petition

3. The Petitioner has filed the present petition for determination of tariff for the generating station for the period 2019-24, 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	269631.43	274059.59	296892.21	306026.44	306967.55
Add: Addition during the year / period	4428.16	22832.62	9134.23	941.11	0.00
Closing Capital Cost	274059.59	296892.21	306026.44	306967.55	306967.55
Average Capital Cost	271845.51	285475.90	301459.33	306497.00	306967.55

Annual Fixed Charges claimed*(Rs. in lakh)*

	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	13869.56	14564.98	15380.45	15637.48	15661.48
Interest on Loan	7788.87	7406.01	7083.77	6069.53	4764.65
Return on Equity	15317.41	16085.43	16986.03	17269.88	17296.39
Interest on Working Capital	4095.84	4138.14	4183.98	4202.72	4208.18
O&M Expenses	13533.97	14012.23	14511.33	15031.66	15568.66
Annual Fixed Charges	54605.65	56206.78	58145.56	58211.27	57499.37

4. It is observed that subsequent to filing of the Petition, the Petitioner, vide additional affidavit dated 14.5.2021 claimed ash transportation charges. Thereafter, the Petitioner vide affidavit dated 28.6.2021 made certain additional submissions, including, revision of Form-15, wherein, details of opening stock, coal procured through MGR, coal procured through rail etc, were provided. The Respondent, GRIDCO has filed its reply vide affidavit dated 19.7.2021 and the Respondent, BSPHCL has filed its reply vide affidavit dated 24.9.2021. The Petitioner vide affidavits dated 29.9.2021 and 6.1.2022 has filed its rejoinders to the replies of GRIDCO and BSPHCL, respectively. Further, the Petitioner vide affidavits dated 22.3.2022 and 25.5.2022 made certain additional submissions. The matter was heard on 6.10.2022 and the Commission after directing the Petitioner to submit certain additional information, reserved its order in the petition. The Petitioner has filed its written submissions and the Respondent, GRIDCO has filed the note of arguments dated 6.10.2022. Subsequently, the Petitioner vide affidavit dated 2.11.2022 has furnished the additional information as sought by the Commission, after serving copies on the Respondents. Taking into consideration the submissions of the



parties and the documents available on record, we proceed to examine the claims of the Petitioner, in this petition, on prudence check, as stated in the subsequent paragraphs.

Capital Cost

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

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

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

(b) Additional capitalisation and de-capitalisation 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 utilisation 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 11.01.2024 in Petition No. 391/GT/2020 had allowed the closing capital cost of Rs.264610.00 lakh, as on 31.3.2019. Accordingly, in terms of Regulation 19(3) of the 2019 Tariff Regulations, the capital cost of Rs. 264610.00 lakh, as on 31.3.2019, has been considered as the opening capital cost as on 1.4.2019, on cash basis, for the purpose of determination of tariff for the period 2019-24.

Additional Capital Expenditure

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

“25. Additional Capitalisation within the original scope and after the cut-off date:



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

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

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

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

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

(e) Force Majeure events;

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

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

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

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

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

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

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

26. Additional Capitalisation beyond the original scope

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

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

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

(c) Force Majeure events;

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

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



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

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

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

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

<i>(Rs. in lakh)</i>						
	Head of Work /Equipment	2019-20	2020-21	2021-22	2022-23	2023-24
A	Works under the original scope, Change in Law etc.,					
1.	Malancha Ash dyke lagoon II	923.00	102.00	-	-	-
2.	Malancha Ash dyke lagoon I	726.79	553.21	-	-	-
3.	STP at Township	300.00	921.15	-	-	-
4.	Online Coal analyser	1928.37	-	-	-	-
5.	Submersible pump package	550.00	2500.00	4341.21	523.87	-
6.	ClO ₂ system	-	1123.56	1021.40	-	-
7.	Construction of two lane bridge	-	7001.00	-	-	-
8.	Toe drain Water Recirculation System	-	4131.70	1377.23	-	-
9.	Ash Water Recirculation	-	6500.00	1500.00	417.24	-
10.	N ₂ Sparging	-	-	894.39	-	-
11.	Total Projected additional capital expenditure claimed	4428.16	22832.62	9134.23	941.11	-

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

Malancha Ash Dyke Lagoon I and II

10. The Petitioner has claimed total projected additional capital expenditure of Rs.2305 lakh towards Malancha Ash Dyke Lagoon-I and Lagoon-II (Lagoon I: Rs.923.00 lakh in 2019-20 and Rs.102.00 lakh in 2020-21 and Lagoon II: Rs.726.79 lakh in 2019-20 and Rs.553.21 lakh in 2020-21), in terms of sub-clauses (c) and (g) of Regulations 25(1) of the 2019 Tariff Regulations. In justification for the same, the



Petitioner has submitted that the expenditure has been projected against Ash Dyke raising and associated works, which are within the original scope of work and is required for sustainable operation throughout the operating life of the plant.

11. The Respondents, BSPHCL and GRIDCO have submitted that in terms of MoEF&CC's Notification 2009, the Petitioner could have achieved 100% ash utilisation within 4 years of COD i.e. April, 2016 after MoEF&CC's Notification 2016 or if the Plant would have achieved 100% ash utilisation by December 2017, then there was no requirement for raising of any Ash dyke. The Respondents have further stated that since the Petitioner failed to comply with the above notifications, they may not be compelled to compensate for this additional work. In response, the Petitioner has clarified that:

- a) these works are original scope of works and Commission has allowed these works vide order dated 3.3.2017 in Petition No. 280/GT/2014.
- b) the raising of ash dyke is a continuous process and needs to be done in a phased manner throughout the life of plant and fly ash utilisation is a parallel process and merely achieving more ash utilisation doesn't mean that there will not be any requirement for ash dyke raising or ash related works.
- c) it is trying for 100 % ash utilisation, however, being at a remote location, only a small portion is utilised in brick industry, ash dyke raising etc, this result in supply-demand gap and therefore the Petitioner was not able to meet target of 100 %.
- d) since the legacy ash can't be disposed of immediately and further the ash is generated continuously, therefore the entire ash produced cannot be utilised right away, the same necessitates for storage of ash and ash dyke raising thereof as per requirement.
- e) the expenditure projected for planned works is required to dispose the ash for sustained and continued operation of the plant.

12. Further, the Petitioner vide its written submission dated 6.10.2022 has submitted that:

- a) Ash dyke works are deferred works within the original scope of work. These works include, Ash Dyke raising with Ash, earth covering, construction of sand blanket and sand chimney, construction of rock toe, inner slope with flat ash



brick pitching and outer slope with grass, construction of decanting well for collection of decanted water for re-use, buttressing, laying of Hume pipe for drainage of toe drain water, slope drain on each embankment to escape the rainwater from road, construction of toe guard on each embankment etc.

- b) Since the bottom ash extracted is a slurry, having high water content, the same is transported only after water is settled down, which requires dumping of this ash into ash dyke and therefore necessitates for ash dyke raising.
- c) MOEF&CC's Notification dated 31.12.2021 permits operational TPPs to construct/ establish an ash pond.

13. The Respondent, GRIDCO vide note of arguments dated 6.10.2022 has submitted that MoEF&CC Notification does not provide any relaxation to remotely located plants and these notifications stipulate for progressive utilisation of legacy ash. Thus, the claim for the ash dyke is liable to be rejected.

14. The submissions have been considered. As stated, the Petitioner has claimed total projected additional expenditure towards Malancha Ash dyke Lagoon-I and Lagoon-II, within the original scope of works, for Rs.2305.00 lakh in 2019-21, which also includes Ash dyke raising with ash, Earth covering, construction of sand blanket and Sand chimney, Construction of rock toe, inner slope with flat ash brick pitching and outer slope with grass, Construction of decanting well for collection of decanted water for re-use, buttressing, laying of Hume pipe for drainage of toe drain water, Slope drain on each embankment to escape the rainwater from road, Construction of toe guard on each embankment etc. It is noticed that the Commission vide its order dated 3.3.2017 in Petition No. 280/GT/2014 (determination of tariff of the generating station for the period 2014-19), had allowed additional expenditure of Rs.135.47 lakh, Rs.946.00 lakh and Rs.1000 lakh towards Ash dyke related works in 2014-15, 2015-16 and 2017-18, respectively. Subsequently, the Petitioner in Petition No. 391/GT/2020 (truing up of tariff of the generating station) for the period 2014-19, had claimed additional expenditure of



Rs.135.47 lakh in 2014-15 towards Ash dyke related works i.e. construction road from plant to Malancha ash dyke and the same was allowed by the Commission vide order dated 11.01.2024. It is also noticed that MoEF&CC vide its Notifications dated 25.1.2016 and 31.12.2021 has mandated the generating companies to ensure 100% ash utilisation with penalty for shortfall thereof. In line with this, the Petitioner had filed a separate Petition No. 205/MP/2021, for recovery of ash transportation charges of various plants, including Rs.52.19 crore, Rs.48.25 crore and Rs.67.35 crore in 2019-20, 2020-21 and 2021-22, respectively for the generating station. Further, the Petitioner has envisaged 7.25 lakh ton ash generation in each year of 2022-23 and 2023-24 and is expected to dispose of 8.65 lakh ton in 2022-23 and 10 lakh ton in 2023-24 with an expenditure of Rs. 21800 lakh and Rs.28050 lakh, respectively. It is pertinent to mention that the Commission vide its order dated 28.10.2022 in Petition No. 205/MP/2021 had allowed the Petitioner to recover ash transportation expenses till 2021-22 and was allowed to recover 90% of ash transportation charges, on a monthly basis, during the period 2022-24. It is also noticed that with increased contribution of renewable energy, the PLF of thermal power plants is decreasing and as per the mandate of MoEF&CC's notifications, the utilisation of ash is increasing. Accordingly, in future, it is expected that the coal based generating stations utilize/dispose the complete ash produced from these stations. On considering the generation reports and fly ash utilisation report of CEA, it is noticed that the average PLF of the generating station during 2016-21 is 72.81 % and the average ash utilisation of generating station during the same period is 88.78% and is further increasing gradually. However, as the generating station is having MGR facility, and is a pit-head station, the PLF of the generating station is envisaged to be more than other plants during the period 2019-24. But being remotely located, its ash utilisation may be lower as compared to other generating stations and the past level



of ash utilisation may or may not sustain. Accordingly, the additional capital expenditure total of Rs.2305 lakh towards Malancha Ash Dyke Lagoon-I and Lagoon-II, as claimed by the Petitioner, is allowed under Regulation 25(1)(c) of 2019 Tariff Regulations. However, the Petitioner is directed to furnish details such total ash dyke / pond / lagoon capacity, raisings and their height already completed, quantity of ash available at plant, balance capacity available at plant for ash storage, ash generated, quantity of ash utilised locally, quantity of ash transported, ash transportation charges etc, along with supporting documents, at the time of truing up of tariff.

STP at Township, Toe Drain Water Recirculation System and Ash Water Recirculation

15. The Petitioner has claimed total projected additional capital expenditure of Rs.1221.15 lakh (Rs.300 lakh in 2019-20 and Rs.921.15 lakh in 2020-21), Rs.5508.93 lakh (Rs.4131.70 lakh in 2020-21 and Rs.1377.23 lakh in 2021-22) and Rs.8417.24 lakh (Rs.6500 lakh in 2020-21, Rs.1500 lakh in 2021-22 and Rs.417.24 lakh in 2022-23) towards STP at Township, Toe Drain Water Recirculation System and Ash Water Recirculation respectively under Regulation 26(1)(b) of 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that as per clause 6(2) of Gazette Notification dated 7.10.2016 of the Ministry of Water Resources, River Development, and Ganga Rejuvenation, no person shall discharge, directly or indirectly, any untreated or treated trade effluent and industrial waste, Bio medical waste or other hazardous substances into the River Ganga or its tributaries or on their banks. It has further submitted that these works are envisaged for 'zero liquid discharge' in river Ganga and its tributaries from ash dyke of the generating station and in compliance of this statutory direction, Ash water circulation system for ash dyke, Toe drain water circulation and STP are being installed.



16. The Respondents, BSPHCL and GRIDCO have submitted that the Petitioner has not given proper justification for these works and has also not provided any details of apportionment to various stages of the generating station. In response, the Petitioner has submitted that it is mandatory to follow the notification of Ministry of Water Resources and these schemes fall under 'change in law'. Further, the Respondents have stated that the schemes are for the entire Farakka station and cannot be apportioned to Stages-I and II. In response, the Petitioner has reiterated its submissions made in original petition. The Respondent, GRIDCO vide its note of arguments has submitted that as these schemes are for all the three stages of Farakka STPS, only the cost apportioned to Stage-III may be considered.

17. The matter has been considered. It is noted that the Petitioner has claimed total projected additional expenditure of Rs 1221.15 lakh towards Ash Water Recirculation System, Toe Drain Water Recirculation System and STP at Township for achieving zero liquid discharge. As regards Ash Water Recirculation System and Toe Drain Water Recirculation System, it is noticed that the Petitioner in Petition No. 391/GT/2020, had submitted that Ash Handling System and Ash Water Recycling System form part of the original scope of work and the claim for Rs. 8506.24 lakh in 2014-19 for these works were allowed. However, the Petitioner has not furnished any information regarding the projected additional expenditure claimed over and above the claim made and allowed till 2018-19 and the apportionment of the expenditure to the various stages. As regards expenditure claimed for STP at Township, it is noticed that the clause 6(2) of notification dated 7.10.2016 is for industrial waste or biomedical waste from industries but not for domestic / township purposes. In addition, the petitioner has not submitted any documents, with regard to direction received from any statutory authorities. Considering the above, the projected additional expenses claimed towards Ash Water Recirculation



System, Toe Drain Water Recirculation System and STP at Township are not allowed. However, the Petitioner is granted liberty to claim the expenses pertaining to Ash Water Recirculation System, Toe Drain Water Recirculation System and STP in the Township at the time of truing up of tariff, for the period 2019-24 along with clear and detailed justification, including the necessity of these expenses over and above the already existing facilities.

Online Coal Analyzer

18. The Petitioner has claimed additional capital expenditure of Rs.1928.37 lakh in 2019-20 towards Online Coal Analyzer under sub-clauses (b) and (c) of Regulation 26(1) of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that MoEF&CC vide OM dated 26.8.2015 has mandated all coal based thermal power plants, with an installed capacity of 100 MW and above, located at a distance of 500 kms and above from coal source for sampling and analysis of coal and reporting of compliance w.r.t. use and supply of raw or blended coal with ash content not exceeding 34%. The Petitioner has further stated that the OM also directed for real time monitoring through auto mechanical sampling (online) from moving stream of coal. Further, the Govt. of India has approved flexible utilisation of domestic coal amongst power generating stations of single company and/ or from other GENCOs as per the prescribed methodology. The Petitioner has further stated that the generating station is sourcing coal from linked mines of other generating stations of the Petitioner, which are located at distance of more than 500 kms and also in case of coal supply constrains from linked mines, the Petitioner may have to procure through alternative routes i.e. e-auction coal, MoU route, imported coal etc, and the same may be located at a distance of 500 kms and more from the present station. Accordingly, the Petitioner has stated that online coal analyser is being installed to meet the statutory directions.



19. The Respondents, BSPHCL and GRIDCO have submitted that the Petitioner may be directed to confirm whether these Coal Analyzers have also the provision to monitor and record the GCV of coal through the said Auto Mechanical Sampling (online) from moving stream of Coal. In response, the Petitioner has submitted that the subject claim is under 'Change in law or compliance of any existing law' in accordance with OM dated 26.8.2015 of MoEF&CC and therefore the expenditure may be allowed.

20. The matter has been considered. It is noted that the MOEF&CC Notification dated 26.8.2015 mandates all coal-based thermal power plants, with an installed capacity of 100 MW & above and located at a distance of 500 kms & above from coal source, to have coal with ash content less than 34% and the same shall be complied by sampling and analysis of the coal. However, it is observed that the generating station is a pit head plant and the coal source is less than 500 kms. Moreover, the Petitioner has not demonstrated that the ash content exceeds 34% as stipulated in the said notification and has also not justified the requirement of the said expenditure for the generating station. In addition to this, the Petitioner has already been mandated to have a system for monitoring of coal and analysis of samples thereof through a third-party agency i.e., CIMFR. In this context, it is also noticed that MoEF&CC vide Notification dated 21.5.2020 has allowed the usage of coal, without any stipulation to ash content for thermal plants, subject to certain measures including setting up technology solutions for emission norms etc, and the generating station is in process of installing FGD and De-NOx system. In view of the above, the projected additional capital expenditure claimed by the Petitioner is not allowed.

Submersible Pump Package

21. The Petitioner has claimed total projected additional capital expenditure of



Rs.7915.08 lakh (Rs.550 lakh in 2019-20, Rs.2500 lakh in 2020-21, Rs.4341.21 lakh in 2021-22 and Rs.523.87 lakh in 2022-23) towards Submersible pump package under clauses (b) and (d) of Regulation 26(1) of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted the following:

- a) as per the implementation of water sharing treaty between India and Bangladesh in 1996, 35000 Cusec of water is guaranteed to each side on 10 days roaster basis from 1st March to 10th May of every year.
- b) in case of scanty rainfall in the catchment area Ganga Feeder Canal water supply affected during the roaster period of 10 day, during which guaranteed supply to Bangladesh is released, water level goes down from drawl point of existing intake structure and entire plant has to be shut down due to non-availability of water level at drawl point in Farakka feeder.
- c) in order to mitigate the problem, at the time of inception of Farakka Stage-III, the Petitioner had also envisaged for installation of lift pump by 2011–12 and same was allowed by the Commission in tariff petition. However, lift pump could not be installed due to hydrological surprises (water ingress during piling).
- d) therefore, it has filed a difficulty petition for seeking relaxation of target availability due to Force Majeure event (shortage of water in feed canal) before the Commission, however, the same was not allowed by the Commission due to non-installation of the lift pump scheme to mitigate the problem.
- e) now, to address the substantial reduction in availability of water at drawl point in Farakka feeder canal during the lean monsoon years, it is envisaged to install the Barge mounted pumps (Horizontal or Submersible)/ Submersible pumps (Floor mounted) of required capacity to meet the water requirement to ensure the availability of Plant.

22. The Respondents, BSPHCL and GRIDCO have submitted that:

- a) the above claim of the Petitioner has been dealt in order dated 17.11.2017 in Petition No. 154/MP/2016 and the subject claim does not fall under Regulation 26(1)(b) and (c) of the 2019 Tariff Regulations and hence, the claim of the Petitioner is liable to be rejected.
- b) the Petitioner in Petition No. 154/MP/2016 had made submissions that during excavation works (adjacent to canal) for lift pump house, excavation at about 10 m below ground level, heavy inflow of water from the canal to the excavation pit was noticed and this resulted in cracks in the canal embankment which happened due to sand boiling condition below the excavation pit and piping



action from the canal below the embankment.

- c) such geological behavior could not be envisaged at the planning stage. In this regard, the Petitioner has submitted the SE of Farakka Barrage Project has communicated that deep excavations for construction of lift pump house might endanger the safety of the canal embankment and stability of embankment thereof.
- d) considering the safety aspects and to preserve right bank of canal, construction of lift pump house was stopped and the lift pump scheme could not be implemented. Otherwise also, the water level in the canal fell to level of RL (+) 15.4 M during the period February and March, 2016 and the installation of lift pump could not have drawn adequate water as the minimum level of water required for the operation of lift pump was RL (+) 16.6 M. Thus, the scheme is a failure.

23. In response to the above, the Petitioner has submitted that the present claim is envisaged for the installation of Barge mounted pumps (Horizontal or Submersible)/ Submersible pumps (Floor mounted) of required capacity as an alternative to the earlier planned lift pump to meet the water requirement to ensure the availability of plant. The Petitioner has also stated that the present claim cannot be equated with the above order, the reason for installing the pump in the present case, is entirely different and necessitated due to enforcement of the Indo-Bangladesh Water Treaty under which minimum amount of water is to be released to Bangladesh even in lean periods. Therefore, the claim squarely falls under the 'change in law' event.

24. The Respondent, GRIDCO, vide written submissions dated 6.10.2022 has submitted that as per the submissions made by the Petitioner in Petition No. 154/ MP/ 2016, the scheme is a failure and in order to make a claim for the same scheme, the Petitioner must clarify as to how it is overcoming the past failure.

25. The matter has been considered. It is noted that as per the implementation of the water sharing treaty between India and Bangladesh, 35000 Cusec of water is



guaranteed to each side on 10 days roaster basis from 1st March to 10th May of every year and during release of guaranteed water supply to Bangladesh, water level may go down from drawl point of existing intake structure. In order to address this issue, Petitioner had envisaged for installation of lift pumps by 2011-12, which could, however, not be installed due to hydrological surprises (water ingress during piling) and it is also noted that in February, 2016 and March, 2016 the actual water level in reservoir went down to RL (+) 15.4 m, which is lower than the minimum water level required for lift pumps i.e. RL (+) 16.4 m. Accordingly, as the planned lift pumps could not be installed and the issue could not be addressed, the Petitioner has proposed an alternative solution of installing the Barge mounted pumps (Horizontal or Submersible) / Submersible pumps (Floor mounted) of the required capacity. It is however noticed that the Petitioner has not provided any information how the installation of barge mounted pump / submersible pumps will address the issue, the minimum water level for operation of such pumps, apportionment to various stages etc., However, considering the above submissions and the nature of works envisaged thereof, the projected additional capital expenditure of Rs.7915.08 lakh claimed towards submersible pump package is allowed under Regulation 26(1)(c) of the 2019 Tariff Regulations, in exercise of the powers under Regulation 76 of 2019 Tariff Regulations (powers to relax). The Petitioner shall furnish details as to how the installation of barge mounted pump / submersible pumps will address the issue, the minimum water level for operation of such pumps, apportionment to various stages etc, at the time of truing up of tariff.

CIO₂ System

26. The Petitioner has claimed total projected additional capital expenditure of Rs.2144.96 lakh (Rs.1123.56 lakh in 2020-21 and Rs.1021.40 lakh in 2021-22) towards CIO₂ system under clauses (b) and (d) of Regulation 26(1) of the 2019 Tariff



Regulations. In justification for the same, the Petitioner has submitted that

- a) to maintain water quality and to inhibit organic growth in the water retaining structures/equipment such as clarifiers, storage tanks, cooling towers, condenser tubes & piping etc Chlorine gas is dozed in water from chlorine stored in cylinders/tonners.
- b) this gas is very hazardous, handling and storage of same involves risk to the life of public at large and may prove fatal in case of leakage.
- c) Considering the above and in the interest of public safety, Chlorine Dioxide (ClO₂) system is proposed as an alternative to existing Chlorine dozing system, wherein, ClO₂ is produced on site by use of commercial grade HCl and sodium chlorite, which is much safer and less hazardous than chlorine. I
- d) Department of Factories, Boiler, Industrial Safety and Health, Govt of Karnataka has asked the Petitioner to replace highly hazardous gas chlorination system with ClO₂ system at Kudgi project.
- e) similarly, SPCB, Odisha while issuing consent to establish Darlipalli TPS, has asked Petitioner to explore the possibility of installing ClO₂ system instead of Chlorine gas system.

27. The Respondents, BSPHCL and GRIDCO, have submitted that the replacement of the existing chlorine dozing system with ClO₂ System does not meet the requirement of clauses (b) and (d) of Regulation 26(1) of the 2019 Tariff Regulations, as the justification provided does not satisfy the change in law or compliance of any existing law and 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.

28. In response, the Petitioner has submitted that:

- a) the "Draft Safety, Health and Working Conditions Code 2018" circulated by Ministry of Labour and Employment in March 2018 inviting comments/suggestions of various stakeholders, mentioning the responsibilities of employer.
- b) Ministry of Law & Justice, GoI dated 29.9.2020 notified "The Occupational Safety, Health and Working Conditions Code, 2020" and in line with the duties necessitated under clause 6(1)(a) and 6(1)(d) of the said Code and being a responsible employer, decided the requirement of ClO₂ System.



- c) further, it being a Maharatna company, follows best industry practices by taking steps for ensuring the safety and security of all the men and material at all its generating stations.

29. Subsequently, the Petitioner vide additional affidavit dated 22.3.2022 also submitted that:

- a) installation of ClO₂ system is in accordance with various provisions of Ministry of Labour and Employment's "National Policy on Safety, Health and Environment at Workplace" issued in Feb, 2009.
- b) further, as per Indian Explosives Act, 1884, Chlorine is deemed to be an explosive, when contained in any metal container in a compressed or liquefied state and the leakage or failure in handling of this chlorine gas may result into major accident, including loss of property and human life.
- c) in terms of Chapter 5 (Guidelines for Industrial (Chemical) Installations and Storages) of "National Disaster Management Guidelines: Chemical Disasters" released by National Disaster Management Authority (NDMA), Govt. of India, had released in April 2007, industrial systems shall be continuously re-engineered/ strengthened, including change of processes to shift to less hazardous processes for prevention and management of chemical accidents.
- d) since the Chlorine gas is heavier than air, it sticks close to the ground and spreads horizontally to the ground affecting persons in vicinity for a longer duration, irritation, coughing, altering breathing etc., and causes permanent damage and/or deaths.
- e) further, Regulation 26(1)(d) of 2019, Tariff Regulations provide for admittance of additional capital expenditure for safety and security of power stations and the safety is inclusive of people working within plant and neighboring communities and shall not affect adversely due to plant operations.

30. The Respondent, GRIDCO, vide its written submissions dated 6.10.2022 has added that in the absence of any permission from State Pollution Control Board/Central Pollution Control Board, the claim of the Petitioner cannot fall under Regulation 26(1)(b) or 26(1)(d) of 2019 Tariff Regulations.

31. The matter has been considered. It is noticed that the letter dated 23.9.2019 relied upon by the Petitioner has been addressed by the Directorate of Factories,



Industrial Safety & Health, State Government of Karnataka to the GM, NTPC, and pertains to the site clearance of the Kudgi STPS of the Petitioner, NTPC. Similarly, the Government of Orissa's suggestion to explore the possibility of installing ClO₂ system instead of Chlorine gas system pertains to Darlipalli Station, a plant located in Orissa. Thus, these letters, 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 warranting the additional capitalisation of the expenditure. Further, even though the Petitioner has contended that the Chlorine dosing system is to be replaced by the ClO₂ system, in the interest of public safety, it has not demonstrated that the projected additional capital expenditure is required for safety and security of the plant, based on the advice and or directions of the appropriate Governmental agency or statutory authorities issued to the generating station. Accordingly, the projected additional capital expenditure claimed by the Petitioner is not allowed.

N₂ Sparging

32. The Petitioner has claimed projected capital expenditure of Rs.894.23 lakh in 2021–22 towards N₂ sparging under Regulation 26 (1) read with Regulation 76 of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that dissolved oxygen and carbon dioxide enters water-steam cycle through make-up water or during the start-ups after outages. The Petitioner has also submitted 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 it causes pH swings, leading to formation of oxides, which precipitate and gets deposited causing fouling, pitting and corrosion in boilers, condensers and other steam/water handling equipment. The Petitioner has further stated that by nitrogen sparging / blanketing the storage tanks and other related systems, ingress of O₂ and CO₂ could be avoided, resulting in the increased life of



components, reduce failures, reduce start-up time and increase the system stability and reliability.

33. The Respondents, BSPHCL and GRIDCO have submitted that the claim does not fall under Regulation 26 (1) and therefore invoking power to relax under Regulation 76 may not be necessitated. The Respondent, GRIDCO, further submitted that this expenditure can be met out of O & M expenses. In response, the Petitioner has submitted that the opening portion of Regulation 26 (1) is the governing provision and the subsections underneath are only examples of the categories of additional capitalisation which may be permitted. However, the Petitioner has submitted that the Petitioner cannot be prevented from invoking the powers under Regulation 76 (power to relax) in case, it can justify that the expenditure is essential and will benefit the beneficiaries in the long term.

34. The matter has been considered. We are of the view that these expenditures are O&M in nature and the expenditure cannot be met out from the O & M expenses allowed to the generating station. Accordingly, the projected additional capital expenditure claimed by the Petitioner is not allowed.

Construction of Two-Lane Bridge:

35. The Petitioner has claimed total projected additional capital expenditure of Rs.7001 lakh in 2020-21 towards the Construction of two-lane bridge over Ganga Feeder Canal under Regulation 25(1)(e) read with Regulation 76 of the 2019 Tariff Regulations. In justification for the same, the Petitioner has submitted that:

- a) The construction of two lane Bridge is in the original scope of project and same has been allowed vide order dated 3.2.2017 under Regulation 14 (1) read with Regulation 54 (power to relax) of the 2014 Tariff Regulations, during 2016-17.
- b) The bridge is located on the land of Farakka Barrage and Farakka Feeder Canal (FFC), comes under the jurisdiction of Inland Waterways Authority of India



(IWAI). It has stated that during the launching for construction of this bridge (cantilever part) over feeder canal, due to geological changes, additional support foundation was felt necessary and the same was incorporated.

- c) The approval from Farakka Barrage Project for the same has taken substantial time and the construction of bridge is being frequently obstructed due to IR problems created by locals. The Petitioner has stated that the bridge is likely to be capitalised during 2020–21.

36. The Respondents, BSPHCL and GRIDCO have submitted that the Commission vide order dated 3.3.2017 in Petition No. 280/GT/2014 had allowed the above package in 2014-19 under Regulation 14(3)(viii) of the 2014 Tariff Regulations by exercise of the 'Power to Relax' under Regulation 54 of the 2014 Tariff Regulations. However, the Petitioner has not furnished any documentary proof to justify the delay in implementation /non-implementation of the work during the period 2014-19. The Respondents have further stated that since the 2019 Tariff Regulations do not have any provisions like Regulation 14(3)(viii) of the 2014 Tariff Regulations, the Petitioner the claimed the same under Regulation 25(1)(e) i.e. 'Force Majeure'. The Respondents have also submitted that the claim is not covered under 'Force-Majeure' and hence the same may be rejected. In response, the Petitioner has stated that IWAI carries out detailed inspections prior to issuance of approval, which consumes a lot of time. The Petitioner has further furnished certain communication with IWAI.

37. The Commission vide RoP in hearing dated 6.10.2022 directed the Petitioner to furnish the details regarding the total project cost and its allocation to various stages. In response, the Petitioner vide additional affidavit dated 2.11.2022 has submitted that:

- a) This two-lane bridge is in original scope of works and the same was allowed by the Commission in order dated 3.3.2017 for smooth movement of traffic, including employees, staff, agencies, persons from township etc.
- b) An appeal has been made before APTEL challenging the decision of the order dated 3.3.2017, wherein, apportionment associated with Stage I & Stage II is to be met out of special allowance.



- c) In regards to time overrun and cost overrun it was submitted that
- i. The Bridge is located in the land of Farakka Barrage and Farakka Feeder Canal is under the jurisdiction of IWAI.
 - ii. During the launching for construction of this bridge (cantilever part) over feeder canal, due to geological changes, additional support foundation and structural material was felt necessary.
 - iii. Accordingly, the design got reviewed by IIT Chennai and in the meantime, Petitioner requested Farakka Barrage Authority to grant permission for construction of temporary structure on cast in situ pile foundation for new bridge at RD 8.5 and the subject permission was received on 20.9.2019.
 - iv. IIT Chennai submitted its report on 2.11.2020, however, due to COVID-19, procurement of BoQ items and mobilisation was severely affected.
 - v. The above change in design, additional support, structural material and delay thereof resulted in increase in cost overrun and the bridge was likely to be capitalised in 2022-23.

38. The matter has been considered. It is noticed that the Petitioner in Petition No. 280/GT/2014, had claimed projected expenditure of Rs.5700 lakh in 2016-17 towards the Construction of two-lane bridge between Farakka Station and Farakka Township/ NH-34 and the Commission, vide its order dated 3.3.2017, had apportioned the claim to the generating station (Stage-III) and Stage-I & Stage-II for Rs.1357.00 lakh and Rs.4343.00 lakh, respectively. The Commission had also directed the Petitioner to consider the apportionment of Rs.4343.00 lakh associated with Stages I & II from the Special allowance provided for these stages. The relevant excerpts of the order 3.3.2017 is as follows:

“34. We have considered the matter. It is observed that the construction of the two lane Bridge over Ganga Feeder Canal is necessary for smooth movement of traffic as well as for the heavy trucks for works related to this generating station. It is also observed that the two-lane Bridge is common to Stages I, II and III of this generating station and accordingly serves all of the stages of this generating station. Considering the fact that the two-lane bridge is common to all the stages and is an approach bridge for employees/operating staff/agencies/person from township/, and would contribute to the efficient operation of the generation station, we are inclined to allow the additional capital expenditure of Rs. 5700.00 lakh claimed by the Petitioner. It is noticed that the provision of Regulation 14(1) or 14(3) do not provide for capitalisation of additional capital expenditure which have become necessary for successful and efficient plant operation.



Since the expenditure of the two-lane Bridge over Ganga Feeder Canal is necessary for smooth operation of the generating station as narrated above, we in exercise of the power under Regulation 54 of the 2014 Tariff Regulation, relax the provision of Regulation 14(3)(viii) and allow the additional capital expenditure incurred in respect of this generation stations. However, out of the total expenditure of Rs.5700.00 lakh claimed, only the proportionate cost of Rs.1357.00 lakh has been allowed in respect of this generating station after apportioning the cost between Stage I & Stage II and Stage III of Farakka generating station. The remaining cost of Rs.4343.00 lakh shall be considered from special allowance of Stage I and Stage II.”

39. It is noticed that the Petitioner had filed Appeal No. 178 of 2017 before APTEL on this issue and APTEL vide its judgment dated 1.12.2022 had observed that:

“70. The Appellant is agreeable to apportion the total cost of construction i.e. Rs.5700 lakh to both the stages of the project (Stage I & II and Stage III), in case the Central Commission allowed the cost by exercising its power to relax (Regulation 54), as it was necessary for the successful and efficient operation of the plant, however, the Central Commission, while admitting the proportionate cost of Rs. 1357 lakh apportioned to Stage III, remarked that the remaining cost of Rs. 4343 lakhs shall be realised from the special allowance of Stage I & II.

.....

72. It cannot be disputed that the Special allowance is a pre-emptive right of the Appellant to be obligatorily allowed for any of its generating unit which has been under commercial operation for over 25 years, whereas Regulation 14 is a provision for seeking expenditure which may be incurred by any ‘existing generating station’ during the course of its operation, therefore, any co-relation sought to be established by the Central Commission between Regulation 16 and Regulation 14 to deny legitimate expenditure to the Appellant is unjust and unreasonable.

...

74. We find merit in the submissions of the Appellant and directs the Central Commission to re-examine the case and pass fresh order(s) after duly considering the provisions and intent of Regulation 14 and Regulation 16.”

40. In this regard, it is noticed that there is time over run and cost overrun i.e. the Petitioner has revised the projected additional expenditure from Rs.5700 lakh in 2015-16 to Rs.7100 lakh in 2020-21 and to substantiate the same, the Petitioner has submitted that IWAI carried out detailed inspections prior to issuance of approval for such bridges, which consumed a lot of time and also the approval from Farakka Barrage for additional support foundation has taken substantial time which was received on 20.9.2019. In addition, due to IR problems created by locals, the construction of bridge got obstructed. Further, the final report on design review by IIT Chennai was received on 2.11.2020, however, due to COVID-19, the procurement of BoQ items and



mobilisation got delayed. In this context, considering the documents available on record, it is noted that the delay attributed to various entities does not have merit and also no information / reasons were provided for increase in projected cost from earlier approved cost of Rs. 5700 lakh to Rs. 7100 lakh. Accordingly, the projected additional capital claimed towards these works, is being restricted to Rs. 5700 lakh at present, which was allowed by order dated 3.3.2017 and the apportioned amount allowed for the generating station is Rs.1357.00 lakh under Regulation 25(2)(d) of the 2019 Tariff Regulations, in exercise of the power under Regulation 76 of 2019 Tariff Regulations. However, the Petitioner is granted liberty to claim apportioned additional expenditure beyond Rs. 5700 lakhs, along with all relevant details and justification, including IDC / IEDC for delay, at the time truing up for consideration of the same in accordance with applicable regulations.

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

<i>(Rs. in lakh)</i>						
	Head of Work /Equipment	2019-20	2020-21	2021-22	2022-23	2023-24
A	Works under the original scope, Change in Law etc.,					
1.	Malancha ash dyke Lagoon II	923.00	102.00	0.00	0.00	0.00
2.	Malancha ash dyke Lagoon I	726.79	553.21	0.00	0.00	0.00
3.	STP at Township	0.00	0.00	0.00	0.00	0.00
4.	Online Coal analyser	0.00	0.00	0.00	0.00	0.00
5.	Submersible Pump package*	550.00	2500.00	4341.21	523.87	0.00
6.	ClO ₂ system	0.00	0.00	0.00	0.00	0.00
7.	Construction of two lane bridge	0.00	1357.00	0.00	0.00	0.00
8.	Toe drain water recirculation system	0.00	0.00	0.00	0.00	0.00
9.	Ash Water Recirculation	0.00	0.00	0.00	0.00	0.00
10.	N ₂ Sparging	0.00	0.00	0.00	0.00	0.00
11.	Total (A)	2199.79	4512.21	4341.21	523.87	0.00
12.	Total Projected additional capital expenditure allowed	2199.79	4512.21	4341.21	523.87	0.00

* Eligible for return on equity at weighted average rate of interest (WAROI)



Capital cost allowed for the period 2019-24

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

	(Rs. in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Opening capital cost	264610.00	266809.79	271322.00	275663.21	276187.08
Add: Additional capital expenditure	2199.79	4512.21	4341.21	523.87	0.00
Closing capital cost	266809.79	271322.00	275663.21	276187.08	276187.08
Average capital cost	265709.89	269065.89	273492.60	275925.14	276187.08

Debt-Equity Ratio

43. 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 utilisation 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.”

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

(Rs. in lakh)

	Capital cost 1.4.2019		Estimated additional capitalisation		Capital cost as on 31.3.2024	
	Amount	(%)	Amount	(%)	Amount	(%)
Debt	185227.00	70.00%	8103.96	70.00%	193330.96	70.00%
Equity	79383.00	30.00%	3473.12	30.00%	82856.12	30.00%
Total	264610.00	100.00%	11577.08	100.00%	276187.08	100.00%

Return on Equity

45. 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 capitalisation 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 = $\text{Rs } 240 \text{ Crore} / \text{Rs } 1000 \text{ Crore} = 24\%$;

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.”

46. The Petitioner has claimed Return on Equity (ROE) considering base rate of 15.50% and effective tax rate of 17.472% for the opening equity as on 1.4.2019 and



projected additional capital expenditure claimed for the period 2019-24. The same has been considered for the purpose of tariff, subject to truing up, except for additional capital expenditure allowed beyond original scope of work (excluding additional capital expenditure due to change in law). For additional capital expenditure allowed beyond original scope of work (excluding additional capital expenditure due to change in law) ROE has been allowed after grossing up weighted average rate of interest (WAROI) claimed for the respective years of the period 2019-24 with effective tax rate of 17.472%, subject to truing up. Accordingly, ROE has been worked out and 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	79383.00	79877.93	80481.60	80481.60	80481.60
Add: Addition of Equity due to additional capital expenditure	494.94	603.66	0.00	0.00	0.00
Normative Equity – Closing	79877.93	80481.60	80481.60	80481.60	80481.60
Average Normative Equity	79630.47	80179.77	80481.60	80481.60	80481.60
Return on Equity (Base Rate)	15.500%	15.500%	15.500%	15.500%	15.500%
Effective Tax Rate for respective years	17.472%	17.472%	17.472%	17.472%	17.472%
Rate of Return on Equity (Pre-tax)	18.782%	18.782%	18.782%	18.782%	18.782%
Return on Equity (Pre-tax) - (annualised)	14956.19	15059.36	15116.05	15116.05	15116.05

ROE at WAROI Rate

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Normative Equity- Opening	0.00	165.00	915.00	2217.36	2374.52
Add: Addition of Equity due to additional capital expenditure	165.00	750.00	1302.36	157.16	0.00
Normative Equity – Closing	165.00	915.00	2217.36	2374.52	2374.52
Average Normative Equity	82.50	540.00	1566.18	2295.94	2374.52
Return on Equity (Base Rate)	8.473%	8.489%	8.488%	8.491%	8.484%
Effective Tax Rate for respective years	17.472%	17.472%	17.472%	17.472%	17.472%
Rate of Return on Equity (Pre-tax)	10.267%	10.286%	10.284%	10.289%	10.281%
Return on Equity (Pre-tax) - (annualised)	8.47	55.54	161.07	236.23	244.12

47. In view of above the total ROE allowed for the purpose of tariff, subject to truing up, for the 2019-24 tariff is as under:



(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Return on Equity					
(a) at Normal Rate	14956.19	15059.36	15116.05	15116.05	15116.05
(b) at WAROI	8.47	55.54	161.07	236.23	244.12
Total Return on Equity (Pre-tax) - (annualised)	14964.66	15114.91	15277.12	15352.28	15360.18

Interest on Loan

48. 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-capitalisation of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered upto the date of de-capitalisation of such asset.

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

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

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.”

49. Interest on loan has been computed as under:

- (i) Gross normative loan, cumulative repayment and net opening normative loan amounting to Rs.185227.00 lakh, Rs. 90337.40 lakh and Rs. 94889.60 lakh as on 31.3.2019 as considered in order dated 11.01.2024 in Petition No. 391/GT/2020 has been retained as on 1.4.2019;



- (ii) Addition to normative loan on account of additional capital expenditure approved above has been considered;
- (iii) Weighted average rate of interest (WAROI) as claimed by the Petitioner has been retained for the purpose of tariff subject to truing up
- (iv) The repayments for the respective years of the period 2019-24, has been considered equal to the depreciation allowed for that year .

50. The necessary calculation of interest of loan is as under :

		<i>(Rs. in lakh)</i>				
		2019-20	2020-21	2021-22	2022-23	2023-24
A	Gross opening loan	185227.00	186766.86	189925.40	192964.25	193330.96
B	Cumulative repayment of loan upto previous year	90337.40	103893.92	117621.66	131575.25	145652.96
C	Net Loan Opening (A-B)	94889.60	82872.94	72303.74	61389.00	47678.00
D	Addition due to additional capital expenditure	1539.85	3158.55	3038.85	366.71	0.00
E	Repayment of loan during the year	13556.52	13727.74	13953.59	14077.70	14091.06
F	Repayment adjustment on account of de-capitalisation	0.00	0.00	0.00	0.00	0.00
G	Repayment adjustment on account of discharges/reversals corresponding to un-discharged liabilities deducted as on 1.4.2009	0.00	0.00	0.00	0.00	0.00
H	Net Repayment of loan during the year (E-F+G)	13556.52	13727.74	13953.59	14077.70	14091.06
I	Net Loan Closing (C+D-H)	82872.94	72303.74	61389.00	47678.00	33586.94
J	Average Loan [(C+I)/2]	88881.27	77588.34	66846.37	54533.50	40632.47
K	WAROI	8.4734%	8.4887%	8.4875%	8.4914%	8.4843%
L	Interest on Loan (J x K)	7531.27	6586.24	5673.59	4630.66	3447.38

Depreciation

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

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

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



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

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

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

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

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

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

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

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

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

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

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

In case of de-capitalisation 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-capitalised asset during its useful services.”

52. The cumulative depreciation amounting to Rs. 90666.18 lakh as on 31.3.2019 as considered in order dated 11.01.2024 in Petition No. 391/GT/2020 has been retained for the purpose of tariff as on 1.4.2019. Since, the elapsed life of the generating as on 1.4.2019 (i.e. 5.69 years) from the effective station COD (i.e. 23.7.2013) is less than 12



years the depreciation has been calculated considering weighted average rate of depreciation (WAROD). WAROD claimed by the Petitioner has been considered, subject to truing up. Necessary calculations in support of depreciation are as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Average capital cost (A)	265709.89	269065.89	273492.60	275925.14	276187.08
Value of freehold land included above (B)	0.00	0.00	0.00	0.00	0.00
Aggregated depreciable Value [C = (A-B) x 90%]	239138.91	242159.31	246143.34	248332.63	248568.37
Remaining aggregate depreciable value at the beginning of the year (D = C – 'K' of previous year)	148472.72	137936.61	128192.90	116428.60	102586.64
Balance useful life at the beginning of the year (E)	18.01	17.01	16.01	15.01	14.01
Weighted average rate of depreciation (F)	5.102%	5.102%	5.102%	5.102%	5.102%
Depreciation during the year (G = AxF)	13556.52	13727.74	13953.59	14077.70	14091.06
Cumulative depreciation at the end of the year, before adjustment of de-capitalisation adjustment (H = G + 'K' of previous year)	104222.70	117950.44	131904.03	145981.74	160072.80
Cumulative depreciation adjustment on account of de-capitalisation (I)	0.00	0.00	0.00	0.00	0.00
Cumulative depreciation adjustment on a/c of un-discharged liabilities deducted as on 1.4.2009 (J)	0.00	0.00	0.00	0.00	0.00
Cumulative depreciation, at the end of the year (K = H-I+J)	104222.70	117950.44	131904.03	145981.74	160072.80

Operation & Maintenance Expenses

53. 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.

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

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
11255.00	11650.00	12060.00	12485.00	12920.00

55. The Respondent, GRIDCO has submitted that the generating station is an extension of Farakka STPS I & II and has common facilities such as MGR system for coal transport, common water supply and water treatment plant, common Ash Handling system, Ash pond, common employees, common security etc. Accordingly, the Respondent has submitted that in terms of proviso to 35(1)(1) of 2019, Tariff Regulations, multiplying factor may be considered. In response, the Petitioner has submitted that the subject multiplying factor is applicable for units which achieve commercial operation after 1.4.2019, and cannot be applicable for the generating station, as the COD of the unit is 4.4.2012.

56. The matter has been examined. The COD of the units is 4.4.2012 and hence the proviso to Regulation 35(1)(1) is not applicable. Accordingly, in terms of the regulation and in line with the decision of APTEL vide its common judgment dated 11.1.2022 in Appeal No. 101/2017 & Appeal No. 110/2017, the normative O&M expenses claimed



by the Petitioner in terms of Regulation 35(1)(1) of the 2019 Tariff Regulations, is allowed.

Water Charges and Security Expenses

57. Regulation 35(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 and considering the norms of specific water consumption notified by the Ministry of Environment, Forest and Climate Change. The details regarding the same shall be furnished along with the petition;

Provided further that the generating station shall submit the assessment of the security requirement and estimated expenses;

Provided also that the generating station shall submit the details of year-wise actual capital spares consumed at the time of truing up with appropriate justification for incurring the same and substantiating that the same is not funded through compensatory allowance as per Regulation 17 of Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 or Special Allowance or claimed as a part of additional capitalisation or consumption of stores and spares and renovation and modernization.”

Water Charges

58. In terms of the above, water charges are to be allowed separately, based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check. The Petitioner has furnished following details, including envisaged water consumption, for 2019–24 as under:

	Remarks
Type of Plant	Coal Based
Type of cooling water system	Closed Cycle
Consumption of Water	1939343 m ³
Rate of Water Charges	Rs. 20.82 / 1000 Gallon
Total Water Charges	1065.63 lakh

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

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
1065.63	1065.63	1065.63	1065.63	1065.63

60. Subsequently, the Petitioner vide its additional affidavit dated 28.6.2021 has furnished the actual water charges incurred for generating station during 2019-20 and



2020-21 for Rs. 1649.45 lakh and Rs. 1036.93 lakh, respectively. The Petitioner has further submitted that the claim for water charges in 2019-20 also includes the arrear payment of Rs. 762.00 lakh i.e. Rs. 312.26 lakh in 2017-18 and Rs. 449.75 lakh in 2018-19. The Petitioner has further clarified that these arrears have arisen due to retrospective implementation of revision of water charges vide Farakka Barrage Project, Ministry of Jal Shakti's letter dated 11.3.2020 and as these actual charges for 2017-18 and 2018-19 is paid in 2019-20, the same may be allowed.

61. The Respondent, BSPHCL has submitted that in terms of Regulation 35(1)(6) of 2019 Tariff Regulations, the Petitioner has not furnished any documentary evidence associated with water i.e. for rate and volume of consumption. In response, the Petitioner has submitted that Commission has changed the approach w.r.t. water charges and the same are to be allowed on actual basis.

62. The matter has been considered. It is noticed that the water charges were revised from Rs.5.20 / 1000 gallon to Rs.20.82 / 1000 gallon and the Petitioner submitted that while claim for water charges in 2019 – 20 (2019–20 includes arrears of 2017–18 and 2018 – 19) and 2020 – 21 is on actuals basis, the claim for 2019 – 24 is on projection basis. However, the Petitioner has not submitted any details such as actual generation, actual water consumption etc, or documents to substantiate the actual expenses in 2019 – 20 and 2020 – 21. The details of water charges claimed, in brief, as under :

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Water Charges for year	887.45	1036.93	1065.63	1065.63	1065.63
Arrears of 2017 – 18	312.26	-	-	-	-
Arrears of 2018 – 19	449.75	-	-	-	-
Total	1649.45	1036.93	1065.63	1065.63	1065.63

63. In view of the above, the water charges claimed in 2019 – 20 and 2020 – 21 is allowed and the claim during 2021 – 24 by considering the maximum water consumption



to the generating station as 3.5 m³ / MWhr and NAPAF is allowed, subjected to the submission of relevant documents for 2019 – 24 period at the time of truing up of tariff for further consideration of the Commission in terms of Regulation 35(1)(6) of 2019, Tariff Regulations. Thus, the water charges allowed to the generating station in 2019–24 as under:

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
887.45	1036.93	716.69	716.69	718.65

64. As regards claim of water charge arrears in 2017–18 and 2018–19, on account of the revision in rate of water charges, as stated above, it is noticed that as per pre – revised rates (Rs.5.20 per 1000 gallon), the Petitioner has paid amounts of Rs.396.22 lakh and Rs.499.11 lakh in 2017-18 (Q3 and Q4) and 2018-19 (Q1 and Q2) for the entire project (FSTPS-Stages I, II and III). Considering the above, the arrears on account of the revised water charges in 2017–18 (Q 3 and Q4) and 2018–19 (Q1 and Q2) for the entire project (FSTPS) are Rs.1190.20 lakh and Rs.1499.26 lakh, respectively. The arrears apportioned to the generating station on the basis of installed capacity, during 2017-18 (Q 3 and Q4) and 2018-19 (Q1 and Q2) are Rs.283.40 lakh and Rs.356.97 lakh, respectively. As these are arrears of water charges, the Petitioner is allowed to recover the same from the Respondent beneficiaries in terms of Regulation 10(7) of the 2019 Tariff Regulations.

<i>(Rs. in lakh)</i>	
Arrears of 2017 – 18	283.38
Arrears of 2018 – 19	356.97
Total	640.35

65. The Petitioner is directed to submit the year wise actual generation, water allocation, water consumed, rate of water charges, charges paid, bills etc, along with supporting documents at the time of truing of tariff, for further consideration of the Commission in terms of relevant regulations.



Security Charges

66. The Petitioner has claimed security expenses as under:

<i>(in Rs. lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
1213.34	1296.60	1385.70	1481.03	1583.03

67. Subsequently, the Petitioner vide additional affidavit dated 28.6.2021 has submitted that the actual security expenses incurred for the Farakka Station (2100 MW) during 2018-19 is Rs 4769.16 lakh and on pro-rata basis of the installed capacity (MW), the share for this generating station (500 MW) works out as Rs.1135.51 lakh. In order to estimate these charges for the period 2019-24, the security charges for 2018-19 were escalated suitably, as per requirement of the generating station. It has further submitted that the actual security expenses incurred for the generating station in 2019-20 and 2020-21 are Rs.3854.42 lakh and Rs.6355.15 lakh, respectively and apportioned to generating station on pro-rata basis of installed capacity (in MW) are Rs.917.72 lakh and Rs.1513.13 lakh, respectively.

68. The Respondents, GRIDCO and BSPHCL have submitted that in terms of second proviso to Regulation 35(1)(6) of 2019 Tariff Regulations, the Petitioner has not submitted the assessment of security requirement. In response, the Petitioner has submitted that the proviso to Regulation 35(1)(6) of the 2019 Tariff Regulations, has to be satisfied at the time of truing up and therefore the security expenses are being claimed on past experience and the actual security charges will be incurred during 2019-24, which shall be submitted in the truing-up petition.

69. The matter has been considered. It is noted that the Petitioner has claimed security expenses on projection basis, considering the actual security expenses incurred in 2018-19 and escalation thereof. Thereafter, the Petitioner has claimed actual



charges for Rs. 917.72 lakh in 2019-20 and Rs.1513.13 lakh in 2020-21. However, it is noted that the actual charges claimed for Rs.1513.13 lakh in 2020-21 is much higher than that those in 2018–19 (Rs. 1135.51 lakh) and in 2019–20 (Rs.917.72 lakh) and the escalation considered is higher than those specified under the 2019 Tariff Regulations for 3.51%. However, the Petitioner has neither furnished any reasons for such higher charges nor any documents, such as audited statements, substantiating the claim nor the security assessment report. In view of the above, the security charges associated with 2018-19 along with the annual escalation of 3.51% have been considered to determine the charges for the period 2019–24 for the generating station and the same is allowed as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
1175.37	1216.63	1259.33	1303.53	1349.29

70. The Petitioner is directed to submit the security assessment report, man power deployed, auditor certified actual expenditure incurred etc, along with supporting documents at the time of truing of tariff, for further consideration in terms of relevant regulations.

Capital spares

71. The Petitioner has not claimed capital spares during the period 2019-24, but has submitted that the same shall be claimed, based on actual consumption of spares at the time of truing up of tariff, in terms of proviso to Regulation 35(1)(6) of the 2019 Tariff Regulations. Accordingly, the same has not been considered in this order, however, the Petitioner is directed to submit list of items (actual name rather than code), quantity, cost, clearly indicating funding from special allowance, part of normative O & M expenses etc, The claim of the Petitioner, if any, at the time of truing-up of tariff, shall be considered on merits, after prudence check.



Fly Ash Transportation charges

72. The Petitioner vide additional affidavit dated 14.5.2021 has claimed the fly ash transportation charges, after adjusting the revenue realised on sale of ash (Rs.8.06 crore in 2019-20 and Rs.3.41 crore in 2020-21), of Rs.52.19 crore in 2019-20 and Rs.48.25 crore in 2020-21. In addition, the Petitioner has requested to allow ash transportation charges for the balance period provisionally on monthly basis on self-certification, after adjusting the revenue realised on sale and the same may be trued up at the end of tariff period.

73. The Respondents, BSPHCL and GRIDCO have submitted that the Commission vide its order dated 5.11.2018 in Petition No. 172/MP/2016 had acknowledged the claim for Ash transportation charges under “change in law”, however, the claims are admissible subject to the award of fly ash transportation contract through transparent bidding or scheduled rates, auditor certified actual expenditure for ash transportation, after 25.1.2016 and revenue generated from sale of fly ash and products, ash utilisation up to 25.1.2016 and from 25.1.2016 to till date, shall be maintained in a separate account etc. The Respondents have stated that the Petitioner has not furnished the details of competitive bidding e.g. no. of participants, no. of qualified bidders, date of price bidding, lowest bidder, work order, auditor certified actual expenditure incurred for ash transportation after 1.4.2019, revenue realised from sale of ash products, expenditure incurred towards ash utilisation after 1.4.2019 etc. Thus, the Respondents have submitted that the Petitioner has not complied with order dated 5.11.2018 and the claim is liable to be rejected. In response, the Petitioner vide additional affidavit dated 25.5.2022 has submitted that it has filed Petition No. 205/MP/2021 for recovery of ash transportation charges w.r.t. its various plants. Further, MoEF&CC vide another notification dated 31.12.2021 mandated utilisation of 100% fly ash in 3 years cycle by



engaging users in various ash related activities viz fly ash based products, cement manufacturing, construction of road, dam, low laying area, mine filling, shore line, export etc. Accordingly, additional expenditure is required to be borne by Petitioner over and above the expenditure incurred to comply with the notification dated 25.1.2016. In terms of notification dated 31.12.2021, the Petitioner has submitted the annual projected ash generation, utilisation under various heads and envisaged expenses for 2022–23 and 2023–24 as under:

(Rs. in lakh)

Year	Expected Ash generation (lakh ton)	Utilisation in road projects (lakh ton)	Utilisation in manufacturing products (lakh ton)	Utilisation in low laying areas (lakh ton)	Mine void filling (lakh ton)	Total utilisation (lakh ton)	Disposal Expenses
2022-23	7.25	6.00	0.15	0.50	0	8.65	21800
2023-24	7.25	6.00	0.25	0.50	0.50	10.00	28050

74. The matter has been examined. It is noticed that the Petitioner has filed Petition No. 205/MP/2021 for recovery of ash transportation charges and the Commission vide its order dated 28.10.2022 had allowed the Ash transportation expenses incurred by the Petitioner for the period 2019-22, in six equal monthly instalments and recover the 90% of subject expenses through supplementary bills during the 2022–24. Accordingly, the Petitioner is directed to recover the ash transportation expenses in accordance with the decision in Petition No. 205/MP/2021, pertaining to the period 2019-22 in 6 equal monthly interest free instalments. The Petitioner is also directed to submit auditor certified information such as actual generation, quantity of ash generated, quantity of ash utilised locally, quantity of ash transported and distance thereof, ash transportation charges incurred, scheduled rate, bidding etc, at the time of truing up of tariff for further consideration under relevant regulations.



Operational Norms

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

Normative Annual Plant Availability Factor (NAPAF) %	85.00
Gross Station Heat Rate (kCal / kWh)	2448.28
Auxiliary Power Consumption %	6.25
Specific Oil Consumption (ml / kWh)	0.50

(a) Normative Annual Plant Availability Factor (NAPAF)

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

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

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

77. As the Petitioner has considered the NAPAF as 85%, in terms of Regulation 49(A)(a) of the 2019 Tariff Regulations, the same is allowed.

(b) Specific Oil Consumption

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

“(D) Secondary Fuel Oil Consumption:

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

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

(c) Auxiliary Power Consumption

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

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

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



Electrically driven boiler feed pumps	8.00%
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Provided that for thermal generating stations with induced draft cooling towers and where tube type coal mill is used, the norms shall be further increased by 0.5% and 0.8%, respectively:

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

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

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

81. As the Petitioner has considered auxiliary energy consumption of 6.25 % in terms of Regulation 49(E)(a) of the 2019 Tariff Regulations, the same is allowed.

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

82. The Petitioner has claimed GSHR as 2448.28 kCal / kg for the period 2019-24. In justification for the same, the Petitioner has submitted that the Commission has prescribed boiler efficiency and turbine heat rate separately for deriving unit heat rate where the unit heat rate is not guaranteed by the suppliers. It is further that since the generating station was envisaged during 2004–09, the equipment’s including SG and TG specifications for tendering/award was stipulated considering the boiler efficiency and turbine heat rate, provided in the tariff regulations of that time. The Petitioner has stated that if the stringent unit heat rate was to be stipulated then it would have increased the capital cost and the benefit of lower capital cost due to lower efficiency was already passed onto the beneficiaries. The Petitioner has further clarified that if boiler efficiency is considered as 86% instead of actual design efficiency of 83.39%, the unit heat rate would be 2373.84 kCal/kWh and operating margin would be 1.84% only, which is much less than 5% allowed in 2019 Tariff Regulations. Therefore, gross station



heat rate based on guaranteed turbine cycle heat rate of 1944.4 and boiler efficiency of 83.39 with operating margin of 5% has been considered by the Petitioner.

83. The Respondent, GRIDCO and BSPHCL have submitted that in terms of proviso to Regulation 49(C)(b)(i) of 2019 Tariff Regulations, the minimum boiler efficiency for the generating station shall be 86%. Accordingly, GSHR claimed by the Petitioner is contrary to the above Regulations and the design heat rate is 2260.93 kCal/ kWh and the with margin of 5% GSHR shall be 2373.98 kCal/kWh. In response. the Petitioner has submitted that the project was envisaged in 2006 and SHR may be allowed on guaranteed turbine heat rate cycle of 1944.4 and boiler efficiency of 85.34% with a margin of 5%. Subsequently, Respondent GRIDCO vide its written submissions dated 6.10.2022 has also mentioned that the Petitioner in its Petition has claimed boiler efficiency as 83.39% and GSHR as 2448.28 kCal/ kWh but in rejoinder dated 30.10.2021, it has claimed boiler efficiency as 85.34%, which result in GSHR of 2392.38 kCal/ kWh.

84. The matter has been considered. It is noted that the Petitioner, in the Petition, has claimed minimum boiler efficiency as 83.39%. However, in its rejoinder, the Petitioner has claimed the same as 85.34%. Accordingly, the Petitioner is directed to submit reasons for such inconsistency along with OEM guaranteed minimum boiler efficiency, including PG test and parameters of coal considered thereof, at the truing up of tariff for information of the Commission. Regulation 49(C)(a)(i) of 2019 Tariff Regulations provides as under:

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

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

xxx



49(C)(b) Thermal Generating Stations achieving COD on or after 1.4.2009:

(i) For Coal-based and lignite-fired Thermal Generating Stations:

1.05 X Design Heat Rate (kCal/kWh)

.xxx

Provided that the design heat rate shall not exceed the following maximum design unit heat rates depending upon the pressure and temperature ratings of the units:

Pressure Rating (Kg/cm ²)	150	170	170
SHT/RHT (°C)	535 / 535	537 / 537	537 / 565
Type of BFP	Electrical Driven	Turbine Driven	Turbine Driven
Max Turbine Heat Rate (kCal / kWh)	1955	1950	1935
Min. Boiler Efficiency			
Sub-Bituminous Indian Coal	0.86	0.86	0.86
Bituminous Imported Coal	0.89	0.89	0.89
Max. Design Heat Rate (kCal/kWh)			
Sub-Bituminous Indian Coal	2273	2267	2250
Bituminous Imported Coal	2197	2191	2174

xxx

Provided also that where the boiler efficiency is lower than 86% for Subbituminous Indian coal and 89% for bituminous imported coal, the same shall be considered as 86% and 89% for Sub-bituminous Indian coal and bituminous imported coal respectively, for computation of station heat rate.

xxx

Provided also that in case of coal based generating station if one or more generating units were declared under commercial operation prior to 1.4.2019, the heat rate norms for those generating units as well as generating units declared under commercial operation on or after 1.4.2019 shall be lowest of the heat rate norms considered by the Commission during tariff period 2014-19 or those arrived at by above methodology or the norms as per the sub-clause (C)(a)(i) of this Regulation.

xxx”

85. The CoD of generating station / unit is being 4.4.2012, in terms of above Regulation 49(C)(b)(i) of the 2019, Tariff Regulations, considering the minimum boiler efficiency as 86%, the GSHR allowed for is 2373.98 kCal/kWh (1.05x1944.4 / 0.86).

86. Accordingly, the Normative Annual Plant Availability Factor, Gross Station Heat Rate, Specific Oil Consumption and Auxiliary Power Consumption allowed for the generating station for the period 2019-24 are as under:

Normative Annual Plant Availability Factor (NAPAF) %	85.00
Gross Station Heat Rate (kCal/kWh)	2373.98



Auxiliary Power Consumption %	6.25
Specific Fuel Oil Consumption (ml/kwh)	0.50

Interest on Working Capital

87. Regulation 34 of the 2019 Tariff Regulation provides as under:

“34. Interest on Working Capital: (1) The working capital shall cover:

(a) For Coal-based/lignite-fired thermal generating stations:

(i) Cost of coal or lignite and limestone towards stock, if applicable, for 10 days for pit-head generating stations and 20 days for non-pit-head generating stations for generation corresponding to the normative annual plant availability factor or the maximum coal/lignite stock storage capacity whichever is lower;

(ii) Advance payment for 30 days towards cost of coal or lignite and limestone for generation corresponding to the normative annual plant availability factor;

(iii) Cost of secondary fuel oil for two months for generation corresponding to the normative annual plant availability factor, and in case of use of more than one secondary fuel oil, cost of fuel oil stock for the main secondary fuel oil;

(iv) Maintenance spares @ 20% of operation and maintenance expenses including water charges and security expenses;

(v) Receivables equivalent to 45 days of capacity charge and energy charge for sale of electricity calculated on the normative annual plant availability factor; and

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

(b) xxx.

xxx

(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.”

88. Regulation 3(7) of the 2019 Tariff Regulations defines Bank Rate as under:

“In these regulations, unless the context otherwise requires: -
Bank Rate’ means the one-year marginal cost of lending rate (MCLR) of the State Bank of India issued from time to time plus 350 basis points;”

89. The details of interest on working capital claimed by Petitioner are as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Cost of Coal	12243.02	12243.02	12243.02	12243.02	12243.02
Cost of secondary fuel oil - 2 months	103.72	103.43	103.43	103.43	103.72
Maintenance Spares - 20% of O&M	2706.79	2802.45	2902.27	3006.33	3113.73
Receivables	17809.04	18024.83	18263.86	18271.96	18164.82
O&M expenses - 1 month	1127.83	1167.69	1209.28	1252.64	1297.39
Total Working Capital	33990.40	34341.41	34721.85	34877.38	34922.68
Rate of Interest	12.05%	12.05%	12.05%	12.05%	12.05%
Total Interest on Working capital	4095.84	4138.14	4183.98	4202.72	4208.18

Fuel Cost for computation of working capital

90. As mentioned above, Regulation 34(2) of the 2019 Tariff Regulations provides that the computation of cost of fuel as part of Interest on Working Capital (IWC) is to be based on the landed price and GCV of fuel as per actuals, for the third quarter of preceding financial year in case of each financial year for which tariff is to be determined.

91. Regulation 43 of 2019 Tariff Regulations provide as under:

43. Computation and Payment of Energy Charge for Thermal Generating Stations

(1) The energy charge shall cover the primary and secondary fuel cost and limestone consumption cost (where applicable), and shall be payable by every beneficiary for the total energy scheduled to be supplied to such beneficiary during the calendar month on ex-power plant basis, at the energy charge rate of the month (with fuel and limestone price adjustment). Total Energy charge payable to the generating company for a month shall be:

Energy Charges = (Energy charge rate in Rs./kWh) x {Scheduled energy (exbus) for the month in kWh}

(2) Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis shall be determined to three decimal places in accordance with the following formulae:

(a) For coal based and lignite fired stations:



$ECR = \{(SHR - SFC \times CVSF) \times LPPF / (CVPF + SFC \times LPSFi + LC \times LPL)\} \times 100 / (100 - AUX)$

(b) For gas and liquid fuel based stations:

$ECR = SHR \times LPPF \times 100 / \{(CVPF) \times (100 - AUX)\}$

Where,

AUX = Normative auxiliary energy consumption in percentage.

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

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

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

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

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

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

LC = Normative limestone consumption in kg per kWh;

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

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

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

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

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

(3) In case of part or full use of alternative source of fuel supply by coal based thermal generating stations other than as agreed by the generating company and beneficiaries in their power purchase agreement for supply of contracted power on account of shortage of fuel or optimisation of economical operation through blending, the use of alternative source of fuel supply shall be permitted to generating station:

Provided that in such case, prior permission from beneficiaries shall not be a precondition,

unless otherwise agreed specifically in the power purchase agreement:

Provided further that the weighted average price of alternative source of fuel shall not exceed 30% of base price of fuel computed as per clause (5) of this Regulation:

Provided also that where the energy charge rate based on weighted average price of fuel upon use of alternative source of fuel supply exceeds 30% of base energy charge rate as approved by the Commission for that year or exceeds 20% of energy charge rate for the previous month, whichever is lower shall be considered and, in that event, prior consultation with beneficiary shall be made at least three days in advance.

(4) Where biomass fuel is used for blending with coal, the landed cost of biomass fuel shall be worked out based on the delivered cost of biomass at the unloading point of the generating station, inclusive of taxes and duties as applicable. The energy charge rate of the blended fuel shall be worked out considering consumption of biomass based on blending ratio as specified by Authority or actual consumption of biomass, whichever is lower.



(5) The Commission through specific tariff orders to be issued for each generating station shall approve the energy charge rate at the start of the tariff period. The energy charge rate so approved shall be the base energy charge rate for the first year of the tariff period. The base energy charge rate for subsequent years shall be the energy charge computed after escalating the base energy charge rate by escalation rates for payment purposes as notified by the Commission from time to time under competitive bidding guidelines.

(6) The tariff structure as provided in this Regulation 42 and Regulation 43 of these regulations may be adopted by the Department of Atomic Energy, Government of India for the nuclear generating stations by specifying annual fixed cost (AFC), normative annual plant availability factor (NAPAF), installed capacity (IC), normative auxiliary energy consumption (AUX) and energy charge rate (ECR) for such stations.

92. Further, Regulation 39 of 2019, Tariff Regulations provide as under:

“39. Transit and Handling Losses: For coal and lignite, the transit and handling losses shall be as per the following norms: -

Thermal Generating Station	Transit and Handling Loss (%)
Pit head	0.20 %
Non-pit head	0.80 %

Provided that in case of pit-head stations, if coal or lignite is procured from sources other than the pit-head mines which is transported to the station through rail, transit and handling losses applicable for non-pit head station shall apply;

Provided further that in case of imported coal, the transit and handling losses applicable for pit-head station shall apply.”

93. The Petitioner, on the basis of cost and GCV of coal and oil of preceding three months i.e. October 2018 to December 2018, has claimed weighted average price of coal as Rs. 3687.34/ MT, weighted average ‘as received GCV’ of coal, after reducing the same by 85 kcal/ kWh, as 3753.07 kCal/ kg, weighted average price of oil as Rs. 33338.25 / kl and GCV of oil as 9790 kcal/ ltr. Accordingly, claimed cost of fuel components in working capital as under:

	(Rs. in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Cost of coal	12243.02	12243.02	12243.02	12243.02	12243.02
Cost of Secondary fuel oil	103.72	103.43	103.43	103.43	103.72

94. The Respondent GRIDCO has submitted that there is a large difference between billed GCV at mine end and “As received GCV” at generating station end and the same is contrary to the CEA’s opinion and the Commission’s order dated 31.8.2017 in Petition



No. 293/GT/2014, stating that despatch GCV of Coal by the coal suppliers should be approximately same as “As received GCV” of Coal. Further, it is submitted by the Respondent that there is no justification for change in heat content of the coal consignment from the mine end to generating station end on the grounds that the heat energy per kg of coal may vary from mine end to generating station end due to addition/release of moisture, which would only increase/decrease the weight of the coal consignment, but the total heat content of the coal consignment from mine end to generating station end would remain unaffected; The coal may be subjected to higher moisture levels due to addition of moisture externally, which led to increase in ECR and burdening the Consumers thereof; by allowing “GCV on Total Moisture basis” at generating station end, the Petitioner is able to factor the externalities such as ingress moisture, rain, dew etc. during transit, in addition to the Total Moisture (Surface Moisture + Equilibrated Moisture), as received by them at colliery end. Accordingly, the Respondent has stated that Commission in its Order dated 3.3.2017 in Petition No. 280/GT/2014 has determined “As received GCV” by subjecting the “billed GCV (equilibrated GCV)” to total moisture correction and the same is as per the relevant Indian Standards. Further, the Respondent, GRIDCO, has filed an Appeal No. 238 of 2017 before APTEL challenging the Order dated 25.1.2016 praying to consider “As received GCV” at the mines end for billing.

95. The Respondent, BSPHCL has submitted that the Petitioner may be directed to provide information/bills as per specified Form 15, i.e. segregated details shall be submitted for MGR and railways, GCV of opening stock as per bill of coal company and as received at station. Further, the Respondent has submitted that in terms of Regulation 38 of the 2019 Tariff Regulations, GCV shall be measured by third party sampling, but the Petitioner has not submitted any such report. Also, it has stated that



in terms of Regulation 40 of 2019 Tariff Regulations, the Commission may direct the Petitioner to furnish specific website link to access copy of bills and parameters such as GCV of fuel, price of fuel etc.

96. In response, the Petitioner has submitted that it has already furnished GCV details on 'as received' basis for the months of January 2014 to March 2014. Subsequently, the Respondent, GRIDCO has mentioned that in terms of FSA, the coal is received by Petitioner at mine end, 'as received GCV' shall be measured at mines end, but not at the generating station end. It has further submitted that average surface moisture for the months of October, 2018 to December, 2018 is 20.34%, which is around 13% higher than the moisture prescribed under Clause 9.2 of the FSA dated 16.11.2011, between Eastern Coal Fields Ltd. and the Petitioner. The Respondent has pointed out that in that event, as per this Clause of FSA, the Petitioner would get credit note and the same shall be passed on to the beneficiaries as per the terms and conditions of the FSA. In addition, the Respondent has submitted that equilibrated GCV of the coal received at Colliery End is determined through joint sampling and testing by the Petitioner & Coal Supplier as per terms and conditions of the FSA and accordingly, the Petitioner may be directed to submit the data on billed GCV, total moisture and equilibrated moisture as determined jointly by the coal supplier and the Petitioner at the colliery end.

97. The submissions have been considered. It is noticed that as per the information submitted by the Petitioner, the coal handling facility is common for the generating station (Stage-III) and Stages-I & II and the same has MGR. However, while the Petitioner has claimed fuel component for 40 days (pit head) for Stages I & II in the present petition, it has also claimed the same for 50 days (non-pit head) for the generating station. In addition, it is noticed that in Petition No. 391/GT/2020, the



Petitioner has claimed fuel components in terms of pit head. However, the Petitioner has not furnished any reasons for such inconsistencies in its claim. In this regard, in terms of CEA's 'Report on the Land Requirement of Thermal Power Stations' and Regulation 39 of the 2019 Tariff Regulations, it is noticed that the plant with MGR is considered as a pit head plant and plant having transportation of coal through rail is considered as non-pit head plant and further, the transit and handling losses are computed as per mode of transportation. However, the generating station is receiving coal through both MGR as well as Railways. However, as the plant is having MGR and receiving coal through the same and also CEA considers the entire FSTPS, including the generating station as pit head station, the plant is considered as a pit head station and the coal received through Railways is dealt with in terms of the relevant provisions of the 2019 Tariff Regulations.

98. As regards Form 15 submitted, it is noticed that the Petitioner has revised the same by providing opening stock, its value, segregated break up of quantity of coal received, adjustment and transit & handling losses for MGR and Railways etc., However, the Petitioner has not furnished the segregated information such as the amount charged by coal company, handling, sampling and such other charges, transportation charges, cost of diesel in transportation of coal, GCV billed, GCV received etc. The Petitioner has claimed more than 1000 kcal / kg drop from GCV billed to GCV as received at generating station for both domestic and imported coal, but has not furnished any reasons for the same, including the information pertaining to excess moisture, grade slippage, credit note received on account of excess moisture and grade slippage, adjustment of credit note in billing etc. It is also noticed that w.r.t. imported coal, the Petitioner has claimed same 'landed price' and 'GCV as received' for all three months, including December, 2018, wherein, the 'GCV as billed' is lower than that of



other months. Further, while the Petitioner has not considered GCV of imported coal in arriving weighted average GCV of coal, it has considered the cost of landed cost of imported coal in arriving at the weighted average cost. In addition, it is noticed that the respondent, WBSEDCL, has filed a petition no. 111/MP/2021 against the petitioner w.r.t. FSTPS stage I & II and stage III, disputing the retrospective revision in weighted average landed cost of coal, weighted average GCV of coal, quantity of coal etc, and revision in ECR thereof and the same is pending. It is further noticed that the Petitioner has claimed handling, sampling and such other similar charges for both domestic as well as imported coal, but has not furnished any break up of such expenses and supporting documents thereof.

99. Considering the above, the transit and handling losses have been restricted in terms of Regulation 39 of 2019 Tariff Regulations. In case of imported coal, the GCV measurement and billing of imported coal are being done at the Petitioner's premises, the loss of GCV in imported coal is not considered. Accordingly, the weighted average cost and weighted average GCV of coal are determined by considering GCV, the cost and blending ratio of October, 2018 to December, 2018, excluding the values associated with opening stock.

100. It is observed that the Petitioner in Form 15A has submitted the opening stock of coal, its value and GCV for the period from October, 2018 to December, 2018, but has not furnished any information regarding the quantity, cost, GCV etc, of oil received during these three months, Further, the GCV claimed for November, 2018 is lower than October, 2018 and the opening stock of oil in December, 2018 is more than that of October, 2018 and November, 2018 i.e. oil procured during the November, 2018, but not provided any reasons for such inconsistency. Considering the above and since the



tariff of generating station is tried up subsequently, the GCV and cost of oil as provided by the Petitioner for October, 2018 to December, 2018 have been considered.

101. Accordingly, the weighted average price and GCV of coal and oil claimed and allowed for the period 2019-24 are as under, subject to submission of supporting documents i.e. third party reports, bills paid to coal company, credit note, break up of sampling, handling and other charges etc, for relevant months at the time of truing up of tariff for consideration of Commission under the applicable regulations :

	Claimed	Allowed
Weighted average price of coal (Rs. / MT)	3687.34	3708.97
Weighted average GCV of coal (kCal/ kg) *	3753.07	3775.94
Weighted average price of oil (Rs. / KL)	33338.25	33617.70
Weighted average GCV of oil (kCal / Ltr.)	9790.00	9793.35

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

102. The Petitioner, on a month-to-month basis, shall compute and claim the energy charges from the beneficiaries based on formulae given under Regulation 43 of the 2019 Tariff Regulations. Further, in terms of Regulation 34(2) of 2019 Tariff Regulations, the Petitioner is directed to submit the year wise information strictly as prescribed in form 15, excluding the opening stock, along with CIMFR/third party reports, actual blending ratio etc, at the time of truing up of tariff. With regard to primary fuel, the Petitioner is directed to submit the reasons for loss in GCV of 1000 kcal/kg from as billed at mine end to as received at generating station end along with third party surface moisture, excess moisture, grade slippage, credit note received on account of excess moisture and grade slippage, adjustment of credit not in billing, detailed head wise break up of handling, sampling and such Other charges, demurrage charges, justification for claiming diesel charges for coal supplied through Railways, if any, segregated information (billed amount, cost of diesel, transportation charges, billed GCV, GCV as received, handling, sampling and such Other charges etc,) for MGR and railways etc,



along with supporting documents at the time of truing of tariff for further consideration of Commission in terms of relevant regulations. Further, in regards to secondary fuel, the Petitioner is directed to submit the month wise quantity of oil supplied by oil company, GCV of oil received, amount paid to oil company, transportation charges etc, as per the prescribed form of 2019 Tariff Regulations, along with supporting documents at the time of truing up of tariff.

103. Accordingly, 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) at NAPAF	2373.60	2373.60	2373.60	2373.60	2373.60
Advance towards cost of Coal for generation (30 days) at NAPAF	7120.80	7120.80	7120.80	7120.80	7120.80
Cost of Secondary fuel 2 Months at NAPAF	104.58	104.30	104.30	104.30	104.58

Energy Charge Rate

104. The Petitioner has claimed ECR (ex-bus) of Rs.2.578 / kWh, on the basis of 'Price' and 'as received GCV' of coal, after reducing the same by 85 kcal/ kWh, and Price and GCV of secondary fuel oil pertaining to preceding three months i.e. October 2018 to December 2018.

105. Considering the operational norms, GCV and cost of primary and secondary fuel allowed as above, the ECR (ex-bus) of the generating station, rounded off to three decimals, is determined as Rs.2.50 /kWh.

Working capital for O&M Expenses

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



(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
1127.83	1167.69	1209.28	1252.64	1297.39

107. 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 under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
1109.82	1158.63	1169.67	1208.77	1248.99

Working capital for Maintenance Spares

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

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
2706.79	2802.45	2902.27	3006.33	3113.73

109. 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 allowed is as under:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
2663.56	2780.71	2807.20	2901.04	2997.59

Working capital for Receivables

110. The Petitioner has claimed receivables, energy charges and fixed charges, for working capital 24 as under:

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Energy charges for 45 days	11095.23	11095.23	11095.23	11095.23	11095.23
Fixed charge for 45 days	6546.96	6762.29	7001.31	7009.41	6902.74
Total	17809.04	18024.83	18263.86	18271.96	18164.82

111. Regulation 34(1)(a)(v) of the 2019 Tariff Regulations provides for Receivables (Energy Charges and Fixed Charges) for 45 days. Accordingly, after taking into account the mode of operation of the generating station on secondary fuel, the Receivable components of working capital is allowed as under:



(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Energy charges for 45 days at NAPAF	10757.81	10757.81	10757.81	10757.81	10757.81
Fixed charges for 45 days	6524.28	6509.35	6432.00	6386.97	6344.30
Total	17282.09	17267.16	17189.81	17144.79	17102.11

112. The Petitioner, on a 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

113. In line with Regulation 34(3) of the 2019 Tariff Regulations, the rate of interest on working capital is considered as 12.05% (i.e. 1 year SBI MCLR of 8.55% as on 1.4.2019 + 350 bps) for the year 2019-20, 11.25% (i.e. 1 year SBI MCLR of 7.75% as on 1.4.2020 + 350 bps) for the year 2020-21, 10.50% (i.e. 1 year SBI MCLR of 7.00% as on 1.4.2021 / 1.4.2022 + 350 bps) for the period 2021-23 and 12.00% (i.e. 1 year SBI MCLR of 8.50% as on 1.4.2023 + 350 bps) for the year 2023-24. Accordingly, Interest on working capital is allowed as under :

(Rs. in lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Working Capital for Cost of Coal towards Stock - (10 days generation corresponding to NAPAF) (A)	2373.60	2373.60	2373.60	2373.60	2373.60
Working Capital for Cost of Coal towards Generation – (30 days generation corresponding to NAPAF) (B)	7120.80	7120.80	7120.80	7120.80	7120.80
Working Capital for Cost of Secondary fuel oil - (2 months generation corresponding to NAPAF) (C)	104.58	104.30	104.30	104.30	104.58
Working Capital for Maintenance Spares @ 20% of O&M expenses (D)	2663.56	2780.71	2807.20	2901.04	2997.59
Working Capital for Receivables – (45 days of sale of electricity at NAPAF) (E)	17282.09	17267.16	17189.81	17144.79	17102.11
Working Capital for O&M expenses - 1 month (F)	1109.82	1158.63	1169.67	1208.77	1248.99
Total Working Capital	30654.46	30805.20	30765.39	30853.30	30947.68
Rate of Interest	12.05%	11.25%	10.50%	10.50%	12.00%
Interest on Working Capital	3693.86	3465.59	3230.37	3239.60	3713.72



Annual Fixed Charges

114. Accordingly, the annual fixed charges approved, subject to truing up, in this petition for the period 2019-24 for the generating station is summarized as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	13556.52	13727.74	13953.59	14077.70	14091.06
Interest on Loan	7531.27	6586.24	5673.59	4630.66	3447.38
Return on Equity	14964.66	15114.91	15277.12	15352.28	15360.18
Interest on Working Capital	3693.86	3465.59	3230.37	3239.60	3713.72
O&M Expenses	13317.82	13903.56	14036.02	14505.22	14987.94
Total	53064.13	52798.03	52170.68	51805.46	51600.28

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

Application Fee and Publication expenses

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

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

118. Petition No. 454/GT/2020 is disposed of in terms of the above.

**Sd/
(Pravas Kumar Singh)
(Member)**

**Sd/
(Arun Goyal)
(Member)**

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

