

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 489/GT/2020

Coram:

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

Date of Order: 22nd September, 2022

In the matter of:

Petition for approval of tariff of Indira Gandhi Super Thermal Power Project Stage-I (1500 MW) for the period from 1.4.2019 to 31.3.2024

And

In the matter of:

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

.....Petitioner

Vs

1. Haryana Power Purchase Centre,
Shakti Bhawan, Sector-VI, Panchkula,
Haryana-134109.
2. Tata Power Delhi Distribution Limited,
Grid Substation, Hudson Road, Kingsway Camp,
New Delhi- 110009.
3. BSES Rajdhani Power Limited,
BSES Bhawan, Nehru Place,
New Delhi-110019.
4. BSES Yamuna Power Limited,
Shakti Kiran Building, Karkardooma,
Delhi-110092

...Respondents

Parties Petitioner:

Ms. Swapna Seshadri, Advocate, APCPL
Shri Anand K. Ganesan, Advocate, APCPL
Ms. Ritu Apurva, Advocate, APCPL
Shri Jai Dhanani, Advocate, APCPL
Shri R.B. Sharma, Advocate, BRPL



Ms. Megha Bajpeyi, BRPL
Shri Buddy Ranganathan, Advocate, BYPL
Ms. Ranjana Roy Gawai, Advocate, TPDDL
Ms. Vasudha Sen, Advocate, TPDDL
Shri Shikher Upadhyay, Advocate, TPDDL
Shri Anurag Bansal, Advocate, TPDDL
Ms. Shefali Sobti, TPDDL
Shri Samir Malik, Advocate, HPPC
Ms. Nikita Choukse, Advocate, HPPC

ORDER

This petition has been filed by the Petitioner, Aravali Power Company Private Limited (in short 'APCPL'), for determination of tariff of Indira Gandhi Super Thermal Power Project, Stage-I (3 x 500 MW) (hereinafter referred to as 'the generating station') for the period from 1.4.2019 to 31.3.2024, in accordance with the provisions of the Central Electricity Regulatory Commission (Terms & Conditions of Tariff) Regulations, 2019 (hereinafter referred to as 'the 2019 Tariff Regulations').

2. The Petitioner, APCPL is a Joint Venture company incorporated under the Companies Act, 1956 with NTPC holding 50% share and 25% shares each being held by Haryana Power Generation Company Ltd (HPGCL) and Indraprastha Power Generation Company Ltd (IPGCL) respectively. The management and control of APCPL is vested with NTPC Ltd, a company owned and controlled by the Government of India. The generating station, with a capacity of 1500 MW, comprises of three units of 500 MW each and is located in the Jhajjar District of the State of Haryana. The dates of commercial operation of these units of the generating station are as under:

	Date of Commercial Operation
Unit-I	5.3.2011
Unit-II	21.4.2012
Unit-III	26.4.2013



3. The Commission vide its order dated 20.9.2022 in Petition No.157/GT/2020 had approved the capital cost and annual fixed charges of the generating station for the 2014-19 tariff period as under:

Capital Cost allowed

	<i>(Rs. in lakh)</i>				
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost (A)	761233.37	801272.07	830580.56	843914.05	874245.10
Add: Admitted Additional capital expenditure (B)	40038.70	29308.48	13333.49	30331.06	678.88
Closing Capital cost (C) = (A+B)	801272.07	830580.56	843914.05	874245.10	874923.98
Average Capital cost (D) = (A+C)/2	781252.72	815926.32	837247.30	859079.58	874584.54

Annual Fixed Charges allowed

	<i>(Rs. in lakh)</i>				
	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	37154.82	38665.93	38430.49	39514.44	40339.43
Interest on Loan	49402.53	47523.17	45273.22	34501.00	31999.28
Return on Equity	45961.10	48233.48	49493.87	50784.49	51840.12
O&M Expenses	24922.37	26299.80	28243.05	29990.86	32272.71
Interest on Working Capital	18316.23	18464.81	18538.24	18784.09	18911.61
Total	175757.04	179187.19	179978.87	173574.88	175363.14

Present Petition

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

Capital cost claimed

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Opening capital cost	880149.69	888349.69	899913.69	907832.69	908428.69
Add: Addition during the year/period	8200.00	11564.00	7919.00	596.00	0.00
Closing Capital Cost	888349.69	899913.69	907832.69	908428.69	908428.69
Average Capital Cost	884249.69	894131.69	903873.19	908130.69	908428.69

Annual Fixed Charges claimed

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	40127.25	40575.70	41017.77	41210.97	41224.49
Interest on Loan	29683.47	26789.31	23851.63	20549.69	16996.82



	2019-20	2020-21	2021-22	2022-23	2023-24
Return on Equity	49823.93	50379.77	50927.70	51167.62	51184.43
Interest on Working Capital	15279.67	15334.69	15384.91	15414.36	15429.61
O&M Expenses	36752.57	38292.52	39892.75	41354.75	42865.20
Annual Fixed Charges	171666.89	171371.99	171074.75	169697.39	167700.56

5. The Petitioner vide affidavit dated 30.6.2021 has filed the additional information and has served copies of the same on the Respondents. The Respondent HPPC has filed its reply vide affidavit dated 24.9.2021 and the Respondent BRPL and Respondent BYPL has filed their replies vide affidavits dated 17.8.2021 and 25.8.2021 respectively. The Petitioner vide its affidavits dated 11.11.2021 has filed its rejoinder to replies of the Respondents HPPC and BRPL. The Commission vide Record of the Proceeding (ROP) of the hearing dated 18.11.2021 directed the Petitioner to submit certain additional information and reserved its order in the matter. In response, the Petitioner vide affidavit dated 7.2.2022 has furnished the additional information after serving copies of the same 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, on prudence check, as stated in the subsequent paragraphs.

Capital Cost

6. Clauses (1), (3), and (5) of Regulation 19 of the 2019 Tariff Regulations provides for the following:

“19. Capital Cost: (1) The Capital cost of the generating station or the transmission system, as the case may be, as determined by the Commission after prudence check in accordance with these regulations shall form the basis for determination of tariff for existing and new projects.

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

- (a) Capital cost admitted by the Commission prior to 1.4.2019 duly trued up by excluding liability, if any, as on 1.4.2019;*
- (b) Additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with these regulations;*
- (c) Capital expenditure on account of renovation and modernisation as admitted*



- by this Commission in accordance with these regulations;
- (d) Capital expenditure on account of ash disposal and utilization including handling and transportation facility;
 - (e) Capital expenditure incurred towards railway infrastructure and its augmentation for transportation of coal upto the receiving end of generating station but does not include the transportation cost and any other appurtenant cost paid to the railway; and
 - (f) Capital cost incurred or projected to be incurred by a thermal generating station, on account of implementation of the norms under Perform, Achieve and Trade (PAT) scheme of Government of India shall be considered by the Commission subject to sharing of benefits accrued under the PAT scheme with the beneficiaries.

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(5) The following shall be excluded from the capital cost of the existing and new projects:

- (a) The assets forming part of the project, but not in use, as declared in the tariff petition;
- (b) De-capitalised Assets after the date of commercial operation on account of replacement or removal on account of obsolescence or shifting from one project to another project:
 - Provided that in case replacement of transmission asset is recommended by Regional Power Committee, such asset shall be de-capitalised only after its redeployment;
 - Provided further that unless shifting of an asset from one project to another is of permanent nature, there shall be no de-capitalization of the concerned assets.
- (c) In case of hydro generating stations, any expenditure incurred or committed to be incurred by a project developer for getting the project site allotted by the State Government by following a transparent process;
- (d) Proportionate cost of land of the existing project which is being used for generating power from generating station based on renewable energy; and
- (e) Any grant received from the Central or State Government or any statutory body or authority for the execution of the project which does not carry any liability of repayment.”

7. The Petitioner has claimed capital cost of Rs.880149.69 lakh as on 1.4.2019. However, the closing capital cost approved vide order dated 20.9.2022 in Petition No. 157/GT/2020 was of Rs. 874923.98 lakh as on 31.3.2019 and the same has been considered as the opening capital cost as on 1.4.2019, for determination of tariff for the 2019-24 tariff period, in accordance with the 2019 Tariff Regulations.

Additional Capital Expenditure



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

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

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

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

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

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

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

(e) Force Majeure events;

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

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

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

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

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

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

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

26. Additional Capitalisation beyond the original scope

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

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

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

(c) Force Majeure events;

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



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

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

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

(2) In case of de-capitalisation of assets of a generating company or the transmission licensee, as the case may be, the original cost of such asset as on the date of 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.”

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

<i>(Rs. in lakh)</i>							
	Head of Work /Equipment	Regulation	2019-20	2020-21	2021-22	2022-23	2023-24
A	Works within original scope, Change in law etc. eligible for ROE at normal Rate						
1.	Enhanced Land Compensation	25 (1) (a)	8000.00	8000.00	7245.00	0.00	0.00
2.	Installation of LED Lights	26 (1) (b)	200.00	100.00	0.00	0.00	0.00
3.	Track electrification	26 (1) a & 26 (1) b	0.00	918.00	0.00	0.00	0.00
4.	Chlorine Dioxide plant	26 (1) (b) & 26 (1) (d)	0.00	750.00	0.00	0.00	0.00
5.	Implementation of 'Enterprise Resource Planning'	25 (2) c	0.00	919.00	0.00	0.00	0.00
6.	Procurement & installation of Coal Ash Analyser	26 (1) b	0.00	134.00	0.00	0.00	0.00
7.	Standard BOXN Rail Wagon (1 No) for testing requirement	26 (1) (b)	0.00	50.00	0.00	0.00	0.00
8.	Replacement of DCS HMI	25 (2) c	0.00	502.00	564.00	596.00	0.00
9.	Procurement of Fire Tender (4 No)	25 (2) b	0.00	110.00	110.00	0.00	0.00
	Subtotal (A)		8200.00	11483.00	7919.00	596.00	0.00
B	Works beyond original scope						
1.	Implementation of 'Energy Management System'	26 (1) with 76	0.00	81.00	0.00	0.00	0.00
	Total Projected additional capital expenditure claimed		8200.00	11564.00	7919.00	596.00	0.00



(a) Enhanced Land Compensation

10. The Petitioner has claimed total projected additional capital expenditure of Rs.23245.00 lakh during 2019-22 (Rs. 8000.00 lakh in 2019-20, Rs. 8000.00 lakh in 2020-21 and Rs. 7245.00 lakh in 2021-22) under Regulation 25(1)(a) of the 2019 Tariff Regulations towards enhanced land compensation. The Petitioner has submitted that Special Leave Petitions were filed before the Hon'ble Supreme Court for setting aside the enhanced Land Compensation as decided by the Hon'ble High Court. It has also submitted that the compensation was finally decided by the Hon'ble Court vide its judgement dated 5.9.2017 and the present additional capitalization claimed is towards the payment of compensation in terms of the said judgement. The petitioner has stated that enhanced compensation is being released to the landowners, as and when they approach the Petitioner for the same. The Respondents HPPC and BRPL have submitted that the details submitted by the Petitioner are incomplete with respect to the additional capitalisation claimed.

11. The matter has been considered. It is observed that the projected additional capital expenditure of Rs.23245.00 lakh claimed during 2019-22 is towards enhanced land compensation as finally decided by the Hon'ble Supreme Court vide its judgement dated 5.9.2017. In view of this, the total additional capital expenditure of Rs.23245.00 lakh claimed by the Petitioner is allowed under Regulation 25(1)(a) of the 2019 Tariff Regulations.

(b) Installation of LED Lights

12. The Petitioner has claimed projected additional capital expenditure of Rs.300 lakh during 2019-21 (i.e Rs.200 lakh in 2019-20 and Rs.100 lakh in 2020-21) towards



installation of LED lights under Regulation 26(1)(b) of the 2019 Tariff Regulations towards work. The Petitioner has submitted that the Hon'ble Prime Minister of India, on 5.1.2015, launched National LED Programme with an objective to reduce energy consumption by using energy efficient lighting and in line with this objective, Unnat Jyoti by Affordable LEDs for all (UJALA) and Street Lighting National Programme is being implemented by M/s EESL. The Petitioner has also stated that subsequently, the Govt of Haryana vide gazette notification dated 29.6.2016, has made it mandatory for all Central Govt/ State Govt/ Public Sector establishments, located in the state of Haryana to use LED lights.

13. The Respondents HPPC, BRPL and BYPL have submitted that the adoption of the energy conservation measure, is in the interest of the Petitioner, as the savings in energy would benefit the Petitioner, from the power generated and thus, the burden cannot be passed on to the beneficiaries, on this count. They have further submitted that the Petitioner may be directed to submit the details of energy savings as a result of the installation of LED lights and may be subject to prudence check.

14. The matter has been considered. It is observed that the Petitioner, in Petition No. 157/GT/2020 had claimed total additional capital expenditure for Rs. 124.06 lakh during 2017-19 towards installation of LED lighting and the Commission vide its order dated 20.9.2022 had not allowed the claim of the Petitioner as under:

“49.....It is noticed that the additional capital expenditure incurred towards installation of LED lighting is in terms of the MOP, Gol letter dated 2.8.2017, which recommends the replacement of existing old bulbs with LED bulbs, resulting in reduction of about 50% to 90% in energy consumption by lighting. In our view, the letter of the MOP, GOI, as referred to by the Petitioner, is recommendatory in nature. Also, the Govt of Haryana gazette notification dated 29.6.2016, is applicable only for new plants. In view of this, the recommendations/gazette notification, cannot be construed as a 'change in law' event or for compliance to an existing law, for this generating station, in order to permit the additional capital expenditure claimed by the Petitioner. Moreover, the benefits of the replacement of incandescent light with the LED lighting system, accrues only to the benefit of the Petitioner. In view of these, the additional capital expenditure of Rs. 124.06



lakh in 2017-18 and Rs. 93.07 lakh in 2018-19 towards Installation of LED Lighting claimed by the Petitioner is not allowed.”

15. Further the Petitioner has also submitted that, the Govt of Haryana vide gazette notification dated 29.6.2016, has made it mandatory for all Central Govt/ State Govt/ Public Sector establishments, located in the State of Haryana to use LED lights. In this regard it is to mention that the above notification dated 29.6.2016 is mandatory for new plants only. Accordingly, the same is not applicable in the instant case.

16. In line with the above decision, the total additional capital expenditure of Rs.300 lakh claimed during 2019-21 for the said item/asset is not allowed.

(c) Track Electrification

17. The Petitioner has claimed projected additional capital expenditure of Rs.918 lakh in 2020-21 for the Track Electrification work under Regulations 26(1)(a) and Regulation 26(1)(b) of the 2019 Tariff Regulations. The Petitioner has submitted that Railway siding of the generating station to receive coal from Indian Railways takes off from Sudhrana Station situated at Rewari - Hissar section. It has also submitted that Indian Railways is carrying out electrification of Rewari - Hissar railway line and therefore the electrification of APCPL's Railway Siding is also required to be carried out. The Petitioner has also submitted that Indian Railway has indicated that subsequent to electrification of its part, coal would be supplied through electric locos only and that vide letter dated 12.11.2012 also indicated that the cost of electrification of the said Railway Siding is to be borne by the Petitioner and conveyed the estimated cost of Rs 918 lakh towards the same. It has further submitted that the requirement of capitalization is due to the direction of Indian Railways and the Petitioner has no other option, but to agree for electrification of the section for receipt of coal.



18. The Respondents HPPC, BPRL and BYPL have stated that as the electrification cost for siding also include Rewari-Manharee-Hissar section of Railways, which is used by general public, this amount may be met from the Corporate Social Responsibility (CSR) fund of the Petitioner. They have further submitted that no details/ justifications have been submitted by the Petitioner with regards to change in law event and hence, the additional capitalisation is not covered under Regulation 26(1) (a) or Regulation 26(1)(b). In response, the Petitioner has submitted that the amount of additional capitalisation claimed under this head is only for electrification of the Rewari-Hissar section of the Railway line since, after electrification, the coal supply would only be through electric locos. It has also pointed out that the letter dated 12.11.2012 from Indian Railways clearly states that the cost of electrification of the APCPL Railway siding is to be borne by the Petitioner. This is a clear decision of a Government Authority and needs to be allowed to be capitalised in tariff. The Petitioner has denied that the expenditure is met through Corporate Social Responsibility ('CSR') fund since is not a social responsibility but a cost to be incurred necessarily to receive uninterrupted coal supply at the generating station.

19. The matter has been considered. The projected additional capital expenditure of Rs.918 lakh 2020-21 claimed by the Petitioner is based on the Indian Railways letter dated 12.11.2012, wherein the cost of electrification of Railway Siding which is required to be borne by APCPL has been indicated. In view of this, the projected additional capital expenditure of Rs.918 lakh 2020-21 claimed for Track electrification works is allowed under Regulation 26(1)(b) of the 2019 Tariff Regulations.

(d) Chlorine Dioxide plant



20. The Petitioner has claimed projected additional capital expenditure of Rs.750.00 lakh in 2020-21 under Regulation 26(1)(b) and Regulation 26(1)(d) of the 2019 Tariff Regulations for Chlorine Dioxide (ClO₂) plant. The Petitioner has submitted that chlorine gas is being dozed directly at various stages of water treatment to maintain water quality and to inhibit organic growth in the water retaining structures/ equipment such as clarifiers, storage tanks, cooling towers, condenser tubes & piping etc. It has also stated that Chlorine dosing is done from chlorine stored in cylinders/ tonners and Chlorine gas is very hazardous and may prove fatal in case of leakage; handling and storage of same involves risk to the life of public at large. Therefore, in the interest of public safety, the chlorine dosing system is being replaced by Chlorine Dioxide (ClO₂) system, which is much safer and less hazardous than chlorine. The Petitioner has stated that in the proposed scheme, ClO₂ shall be produced on site by use of commercial grade HCl and sodium chlorite and as ClO₂ is generated at site, avoids handling and storage risk. The Petitioner has further submitted that at Kudgi NTPC project, Department of Factories, Boiler, Industrial Safety and Health, Govt of Karnataka, had asked NTPC to consider the replacement of highly hazardous gas chlorination system with ClO₂ system. Also, SPCB, Odisha while issuing consent to establish in case of Darlipalli Station, had asked NTPC to explore the possibility of installing ClO₂ system, instead of Chlorine gas system. Accordingly, the Petitioner has submitted that in view of the directions of various statutory authorities, in different states of the country and for enhancing the safety of O&M personnel, the Petitioner has considered replacing the chlorination system with ClO₂ system.

21. The Respondents HPPC, BRPL and BYPL have submitted that none of the letters (i.e. State Pollution Control Board, Odisha and the Government of Karnataka)



referred to by the Petitioner is pertaining to the State of Haryana, and hence they may be ignored. They have also submitted that there is no change in law event, which has occurred for allowing the said claim under Regulation 26(1)(b) of 2019 Tariff Regulations and Regulation 26(1)(d) of 2019 Tariff Regulations is also not applicable. As the Petitioner has not placed on record any documentary evidence to show that there is requirement of CIO2 plant as a measure for higher security and safety of the generating station. In response, the Petitioner has submitted that "Draft Safety, Health and Working Conditions Code 2018" was put up by the Ministry of Labour and Employment in March 2018, inviting comments/ suggestions of various stakeholders, wherein the responsibilities of various faculties of industries/factories was mentioned including the employer APCPL, as a responsible employer and took cognizance of the requirement of CIO2 system in a safe manner. It has also submitted that "The Occupational Safety, Health and Working Conditions Code, 2020" was notified by Ministry of Law & Justice, GoI vide Gazette Notification dated 29.9.2020. Accordingly, the Petitioner, has submitted that being under the NTPC management, it has decided the requirement of CIO2 System, in line with the duties necessitated by the Clauses 6(1)(a) and 6(1)(d) of the said Code.

22. The matter has been considered. It is observed that the letter dated 23.9.2019 addressed by the Directorate of Factories, Industrial Safety & Health, State Government of Karnataka to the GM, NTPC, pertains to the site clearance of the Kudgi Super Thermal Power station of NTPC. This letter, in no manner, can be termed as a change in law event or for compliance with any existing law in respect of this generating station warranting the additional capitalization of the expenditure. In regard to Government of Orissa consent to Darlipalli Station, it is noted that the same is applicable only to thermal plants located in the State of Odisha. As there is no specific direction or advice from



any of the Governmental or statutory authorities as regards the requirement of this system for this generating station, the claim of the Petitioner is not allowed

(e) Implementation of 'Enterprise Resource Planning'

23. The Petitioner has claimed projected additional capital expenditure of Rs.919.00 lakh in 2020-21 towards Implementation of 'Enterprise Resource Planning' under Regulation 25(2)(c) of the 2019 Tariff Regulations. The Petitioner has submitted that the generating station is having standalone IT systems for automation of various processes like HR, Finance, Fuel Management, Operation Management, Material Management, Maintenance management etc. It has however submitted that in view of the increased flexibility of generation at non-pit head stations due to increased RE capacity addition and SCED, it is necessary to integrate all the systems and deploy the latest state of art software for managing all the processes at one platform. The Petitioner has also submitted that the proposed implementation of ERP is for integrating all the systems for managing all processes at one platform and since the earlier systems are obsolete; the ERP has been proposed under Regulation 25(2)(c) of the 2019 Tariff Regulations

24. The Respondents HPPC, BRPL and BYPL have submitted that the generating station is in operation since 2011 and there was no support felt for ten years, as such functions were inherent in the operation of the generating station. They have further submitted that no sufficient documents have been submitted by the Petitioner in support of the said claim and hence, the additional capital expenditure claimed may be rejected. In response, the Petitioner has reiterated that the earlier systems are obsolete and hence the ERP has been proposed under Regulation 25(2)(c) of the 2019 Tariff Regulations.



25. The matter has been considered. It is evident from the Petitioner's submission that the claim is for replacement of existing equipment which are obsolete. As the old asset has completed its useful life and the additional capitalization is for replacement of the same, the claim of the Petitioner for additional capital expenditure of Rs.919.00 lakh in 2020-21 is allowed under Regulation 25(2)(c) of the 2019 Tariff Regulations. This is, however, subject to the Petitioner furnishing Management certificate/ OEM certificate for obsolescence at the time of truing-up of tariff, failing which the expenditure may not be considered.

(f) Procurement & installation of Coal Ash Analyser

26. The Petitioner has claimed projected additional capital expenditure of Rs.134.00 lakh in 2020-21 towards Procurement & installation of Coal Ash Analyser under Regulation 26(1)(b) of the 2019 Tariff Regulations. The Petitioner has submitted that MoEF&CC vide its OM dated 26.8.2015, had mandated all coal based thermal power plants with 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 in respect of use and supply of raw or blended coal with ash content not exceeding 34% as content in coal. It has also been directed that real time monitoring using auto mechanical sampling (online) from moving stream of coal to be used for sampling fuels. The Petitioner has submitted that as the present station is located at a distance of about 1000 kms from the linked mine and also source coal from other mines, the Petitioner has to necessarily incur the expenditure for installation of on online coal analyzer, to comply with the directions of MoEF&CC.

27. The Respondents BRPL and BYPL have submitted that the Petitioner was required to comply with the statutory requirement from 5.6.2015. They have also



submitted that the Petitioner was required to measure the GCV on “as received” basis from the samples drawn from wagons, which has not been done till date. In response, the Petitioner has clarified that it has complied with the semi-automated system, which needs to be improved and therefore the online coal analyser has been mandated to be installed.

28. The matter has been considered. It is observed that OM dated 26.8.2015 of the MOEF&CC GOI, mandates all coal-based thermal power plants with an installed capacity of 100 MW & above and located at a distance of 500 km & 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. With regard to Ash content monitoring, clause 5.0 of the said OM mandates as under:

“5.0 Ash content monitoring (sampling and analysis) technique of coal:

Coal is highly heterogeneous in nature consisting of particles of various shapes and sizes each having different physical characteristics, chemical properties and residual ash content: Sampling is further complicated by the sampling equipment available, the quantity to be represented by the sample mass, and the degree of precision required. In addition, the coal to be sampled may be a blend of different coal types and how the coal is blended has a profound effect on the way a representative sample is obtained. National and international standards have been developed to provide guidelines for coal sampling procedures under different conditions, sample preparation and bias test procedures for the purpose of obtaining unbiased samples.

Real Time monitoring using auto mechanical sampling (online) from moving streams shall be used for sampling fuels. This shall be effective from a date not later than 01 September, 2016 in order to enable the Coal Companies and thermal power plants to install and operationalize the real time monitoring system. Manual sampling and analysis may be done so as to verify the online monitoring results.

*In case of manual monitoring, coal samples may be taken from a moving conveyor belt since sampling from stationary coal such as a coal storage pile or railcars may be problematic. **The analysis of samples shall be carried out by third party** appointed by the respective thermal power plant/coal mine or company, as applicable, as per the guidelines of Coal Controller.”*

29. It is pertinent to mention that the Petitioner has already been mandated to have a system for monitoring of coal through a third-party agency i.e. CIMPFR. Moreover, the Petitioner has also not submitted any reason for the Procurement of Online



Analysed. Accordingly, the projected additional capital expenditure claimed by the Petitioner is not allowed.

(g) Standard BOXN Rail Wagon (1 No) for testing requirement

30. The Petitioner has claimed projected additional capital expenditure of Rs.50.00 lakh in 2020-21 towards Standard BOXN Rail Wagon (1 No) for testing requirement under Regulation 25(1)(b) of 2019 Tariff Regulations. The Petitioner has submitted that testing of weighbridge is necessary to ensure the quantity of coal receipts at the generating station. It has also submitted that as per the Legal Metrology (Government Approved Test Centre) Rules, 2013, notified by the Ministry of Consumer Affairs, Food and Public Distribution, GOI, on 5.9.2013, the testing of the automatic rail weighbridges, is to be carried out by Government approved test centers. The Petitioner has also submitted that to simulate the actual conditions, testing of weighbridges is carried out with standard wagons and therefore, 1 No. BOXN standard wagon is being procured for testing of weighbridges, installed at the generating station, which will help in correct weighing of coal received at generating station and for ensuring proper billing and payment of coal.

31. The matter has been considered. It is observed that as per the Legal Metrology (Government Approved Test Centre) Rules, 2013, notified by Ministry of Consumer Affairs, Food and Public Distribution, GOI, on 5.9.2013, the testing of the automatic rail weighbridges is to be carried out by Government approved test centers. In view of this, there is no requirement of Standard BOXN Rail Wagon (1 No) for testing as the same can be carried out by Government approved test centers. In view of this, the additional capital expenditure claimed is not allowed.



(h) Replacement of DCS HMI

32. The Petitioner has claimed projected additional capital expenditure of Rs.1662.00 lakh during 2010-23 (Rs. 502.00 lakh in 2020-21, Rs. 564.00 lakh in 2021-22 and Rs. 596.00 lakh in 2022-23) towards Replacement of Distributed Control System (DCS) HMI under Regulation 25(2)(c) of the 2019 Tariff Regulations. The Petitioner has submitted that DCS has been supplied and installed by M/s Yokogawa India limited (Centum CS 3000) and M/s BHEL (Max DNA) at the generating station. It has also submitted that the Human Machine Interface (HMI) system, is the frontend interface of DCS and comprises of many operating work stations, servers, LAN switches & firewalls and Yokogawa HMI systems are used to control and monitor the operations of Units, AHP, CHP and other off-site systems and BHEL HMI system is used to control and monitor operations of Main turbine, TDBFPs, FSSS and FOPH. It has further submitted that Data recording, trending, archival, sequence of event recording and report generation functions are performed through these HMI systems and these DCS HMI software of Centum and Max DNA are based on windows XP/Server 2003 operating systems. The Petitioner has pointed out that Microsoft has ended support and security updates for windows XP/ server 2003 operating systems, resulting in increased vulnerability of HMI systems to cyber threats. It has also stated that workstation manufactures are not providing any spares/ replacement of windows XP/2003 machines and up-to-date antivirus software are also not available for these workstations. Accordingly, the Petitioner has submitted that there is a need to replace the existing DCS HMI system software along with workstations and related hardware to overcome obsolescence.



33. The Respondents HPPC, BRPL and BYPL have submitted that no details or documents have been submitted by the Petitioner for carrying out prudence check of the said claim.

34. The matter has been examined. It is observed that the Petitioner has claimed projected additional capital expenditure towards Replacement of DCS HMI as Microsoft has ended support and security updates for windows XP/ server 2003 operating systems. It is noticed that the Petitioner has not provided any obsolescence certificate from the OEM as per Regulation 25(2)(c) of the 2019 Tariff Regulations. However, considering the fact that Microsoft has ended support and security updates for windows XP/ server 2003 operating systems, we allow additional capitalisation claimed by the Petitioner towards Replacement of DCS HMI. The Petitioner is however, directed to submit the obsolescence certificate from the OEM at the time of truing -up of tariff.

(i) Procurement of Fire Tender (4 No.'s)

35. The Petitioner has claimed projected additional capital expenditure of Rs.220.00 lakh (Rs.110.00 lakh in 2020-21 and Rs.110.00 in 2021-22) under Regulation 25(2)(b) of 2019 Tariff Regulations for procurement of fire tender (4 No.). The Petitioner has submitted that in terms of the NGT order dated 11.12.2015, CISF, the agency which is responsible for fire safety and security, vide their letter dated 20.1.2020, has directed the Petitioner, to procure 4 No.s new fire tenders. The Petitioner has submitted that the replacement of the asset/item is being carried out in compliance of NGT order, which is a change in law event.

36. The Respondents HPPC and BRPL have submitted that the proposal is based on a letter from the Deputy Commandant CISF, which has specified that these fire tenders will be used, inside and outside, the plant area, for general public and



accordingly, this amount can be met from Corporate Social Responsibility (CSR) fund of the Petitioner. In response, the Petitioner has submitted that the work is essentially required to prevent any catastrophic damage. It has also submitted that the work is a mandate by the Government instrumentality and is also required from the safety point of view of the generating station.

37. The matter has been considered. It is observed that CISF, which is a statutory agency, responsible for the safety and security of the generating station, vide their letter dated 20.1.2020, has directed the Petitioner to procure 4 No.'s of new fire tenders. As the Petitioner's claim is for capitalisation of new assets, the additional capitalisation claimed is allowed under Regulation 26(1)(b) of 2019 Tariff Regulations.

(j) Implementation of 'Energy Management System'

38. The Petitioner has claimed projected additional capital expenditure of Rs.81.00 lakh in 2020-21 under Regulation 26(1)(d) read with Regulation 76 of the 2019 Tariff Regulations towards the Implementation of 'Energy Management System'. The Petitioner has submitted that the generating station, being a non-pithead generation, is subject to wide load variation and load on auxiliaries also changes accordingly. It has also submitted that with varying loads or with wear and tear, it becomes necessary to monitor the efficiency of auxiliaries and decision to run the most efficient auxiliary is taken. The Petitioner has also submitted that Energy Management System is being installed for 'online monitoring of power consumption (APC)' of the auxiliaries and it will result in saving of APC and any gain on this count, will be shared with the beneficiaries in terms of the regulations. The Respondent BYPL has submitted that in the absence of detailed justification / requisite information, the proposed additional expenditure may be rejected.



39. The matter has been considered. As per Regulation 26(1)(d) of the 2019 Tariff Regulations, any additional capital expenditure for higher security and safety of the plant, is required to be based on the advice or directions of the appropriate Indian Government Instrumentality or statutory authorities responsible for national or internal security. It is not clear from the submissions of the Petitioner as to how the additional system sought to be installed, would contribute to the higher security and safety of the generating station, specially keeping in view that the energy meters installed by CTU for the purpose of energy accounting are already in place. Moreover, the benefits of Energy Management System, accrues only to the Petitioner. In view of this, we find no reason to allow the additional capital expenditure claimed under this head, in exercise of the power to relax under Regulation 76 of the 2019 Tariff Regulations. Accordingly, the claim of the Petitioner is not allowed

Assumed Deletions

40. As per consistent methodology adopted by the Commission, the expenditure on replacement of assets, if found justified, is allowed for the purpose of tariff, provided that the capitalization of the said asset is followed by de-capitalization of the original value of the old asset. However, in certain cases where de-capitalization is affected in books during the following years, to the year of capitalization of new asset/COD of the generating station, the de-capitalization of the old asset for the purpose of tariff is shifted to the very same year in which the capitalization of the new asset is allowed. Such de-capitalization which is not a book entry in the year of capitalization is termed as "Assumed deletion". Further, in the absence of the gross value of the asset being de-capitalized, the same is calculated by de-escalating the gross value of new asset @ 5% per annum till the year of capitalization of the old asset.



41. It is observed that the Petitioner has claimed the Implementation of 'Enterprise Resource Planning' for Rs. 81.00 lakh in 2020-21 and Replacement of DCS HMI of Rs 502.00 in 2020-21, of Rs 564.00 in 2021-22 and of Rs 596.00 in 2022-23 on being obsolete. However, the Petitioner has not provided the de-capitalization value of the old asset/work which are being replaced. Accordingly, based on above methodology, the assumed deletion considered for these assets are as under:

(Rs. in lakh)

Year of claim	Head	Additional Capital Expenditure claimed	Assumed deletion
2020-21	Implementation of 'Enterprise Resource Planning'	919.00	592.40
2020-21	Replacement of DCS HMI	502.00	323.59
2021-22	Replacement of DCS HMI	564.00	346.25
2022-23	Replacement of DCS HMI	596.00	348.47

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

(Rs. in lakh)

	Head of Work /Equipment	2019-20	2020-21	2021-22	2022-23	2023-24
A	Works within original scope, Change in law etc. eligible for ROE at normal Rate					
1.	Enhanced Land Compensation	8000.00	8000.00	7245.00	0.00	0.00
2.	Installation of LED Lights	0.00	0.00	0.00	0.00	0.00
3.	Track electrification	0.00	918.00	0.00	0.00	0.00
4.	Chlorine Dioxide plant	0.00	0.00	0.00	0.00	0.00
5.	Implementation of 'Enterprise Resource Planning'	0.00	919.00	0.00	0.00	0.00
6.	Procurement & installation of Coal Ash Analyser	0.00	0.00	0.00	0.00	0.00
7.	Standard BOXN Rail Wagon (1 No)	0.00	0.00	0.00	0.00	0.00



	Head of Work /Equipment	2019-20	2020-21	2021-22	2022-23	2023-24
	for testing requirement					
8.	Replacement of DCS HMI	0.00	502.00	564.00	596.00	0.00
9.	Procurement of Fire Tender (4 No)	0.00	110.00	110.00	0.00	0.00
	Subtotal (A)	8000.00	10449.00	7919.00	596.00	0.00
B	Works beyond original scope excluding additional capitalization due to Change in law eligible for ROE at Weighted Average Rate of Interest (WAROI)					
1.	Implementation of 'Energy Management System'	0.00	0.00	0.00	0.00	0.00
C	Assumed Deletion	0.00	915.99	346.25	348.47	0.00
D	Total Projected additional capital expenditure claimed (A+B-C)	8000.00	9533.01	7572.75	247.53	0.00

Capital cost allowed for the 2019-24 Tariff Period

43. Based on the above, the capital cost approved for the generating station for the 2019-24 tariff period is summarized as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Capital Cost (A)	874923.98	882923.98	892457.00	900029.75	900277.28
Add: Admitted Additional capital expenditure (B)	8000.00	9533.01	7572.75	247.53	0.00
Closing Capital Cost (C) = (A+B)	882923.98	892457.00	900029.75	900277.28	900277.28
Average Capital cost (D) = (A+C)/2	878923.98	887690.49	896243.37	900153.51	900277.28

Debt-Equity Ratio

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

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

Provided that:

- i. where equity actually deployed is less than 30% of the capital cost, actual equity shall be considered for determination of tariff:*
- ii. the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:*
- iii. any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of debt: equity ratio.*



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

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

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

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

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

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

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

45. The debt-equity ratio for the allowed projected additional capital expenditure has been considered as 70:30, subject to truing up. The details of the debt and equity in respect of the generating station is as follows:

	Capital Cost as on 1.4.2019 (Rs. in lakh)		Additional Capital Expenditure 2019-24 (Rs. in lakh)		Capital Cost as on 31.3.2024 (Rs. in lakh)	
Debt	612446.79	70.00%	17747.31	70.00%	630194.10	70.00%
Equity	262477.19	30.00%	7605.99	30.00%	270083.18	30.00%
Total	874923.98	100.00%	25353.29	100.00%	900277.28	100.00%



Return on Equity

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

“30. Return on Equity:

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

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

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

Provided further that:

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

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

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

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

“31. Tax on Return on Equity. (1) The base rate of return on equity as allowed by the Commission under Regulation 30 of these regulations shall be grossed up with the effective tax rate of the respective financial year. For this purpose, the effective tax rate shall be considered on the basis of actual tax paid in respect of the financial year in line with the provisions of the relevant Finance Acts by the concerned generating company or the transmission licensee, as the case may be. The actual tax paid on income from other businesses including deferred tax liability (i.e. income from business other than business of generation or transmission, as the case may be) shall be excluded for the calculation of effective tax rate.

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

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



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

Illustration-

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

$$\text{Rate of return on equity} = 15.50 / (1 - 0.2155) = 19.758\%$$

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

Estimated Gross Income from generation or transmission business for FY 2019-20 is Rs 1,000 crore;

Estimated Advance Tax for the year on above is Rs 240 crore;

Effective Tax Rate for the year 2019-20 = Rs 240 Crore / Rs 1000 Crore = 24%;

Rate of return on equity = $15.50 / (1 - 0.24) = 20.395\%$.

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

47. The Respondents HPPC and BRPL have submitted that the Petitioner has not submitted complete details; viz., the station wise and corporate audited balance sheet and profit & loss account etc. for the existing stations, for 2018-19 as per the 2014 Tariff Regulations and accordingly the ROE for grossing up during the 2019-24 tariff period, may be considered only after the said documents are filed. The Respondent BRPL has submitted that annual truing up of the grossed-up rate of Return on Equity (ROE) should be carried out by the Petitioner, at the end of every financial year, as per Regulation 31(3) of the 2019 Tariff Regulations, based on actual tax. In response, the Petitioner has stated that all documents have been filed as required under the 2014 Tariff



Regulations and grossing up of ROE is as per Regulation 24 of the 2014 Tariff Regulations.

48. The submissions have been considered. As per proviso to Regulation 30 of the 2019 Tariff Regulations, the ROE in respect of the additional capitalization, after the cut-off date, and beyond the original scope of work, excluding the additional capitalization due to change in law, shall be computed at the weighted average rate of interest on actual loan portfolio of the generating station. For grossing up of Return on Equity during the 2019-24 tariff period, the Petitioner has applied the MAT rate of 17.472% and the same is allowed. This is, however, subject to revision, if any, at the time of truing up of tariff. Accordingly, Return on Equity has been worked out and allowed as follows:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Normative Equity-Opening (A)	262477.19	264877.19	267737.10	270008.92	270083.18
Addition of Equity due to additional capital expenditure (B)	2400.00	2859.90	2271.83	74.26	0.00
Normative Equity-Closing (C) = (A) + (B)	264877.19	267737.10	270008.92	270083.18	270083.18
Average Normative Equity (D) = (A+C)/2	263677.19	266307.15	268873.01	270046.05	270083.18
Return on Equity (Base Rate) (E)	15.500%	15.500%	15.500%	15.500%	15.500%
Effective Tax Rate (F)	17.472%	17.472%	17.472%	17.472%	17.472%
Rate of Return on Equity (Pre-Tax) (G) = (E)/(1-F)	18.782%	18.782%	18.782%	18.782%	18.782%
Return on Equity (Pre-Tax) annualised (H) = (D)x(G)	49523.85	50017.81	50499.73	50720.05	50727.02

Interest on Loan

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

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

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



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

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

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

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

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

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

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

50. Interest on loan has been computed as under:

- (i) The gross normative loan amounting to Rs. 612446.79 lakh as on 31.3.2019 as considered in order dated 20.9.2022 in Petition No. 157/GT/2020 has been considered as on 1.4.2019;
- (ii) Cumulative repayment amounting to Rs. 265586.95 lakh as on 31.3.2019 as considered in order dated 20.9.2022 in Petition No. 157/GT/2020 has been considered as on 1.4.2019;
- (iii) Accordingly, the net normative opening loan as on 1.4.2019 works out to be Rs. 346859.84 lakh;
- (iv) Addition to normative loan on account of additional capital expenditure approved above has been considered;
- (v) Depreciation allowed has been considered as repayment of normative loan during the respective years of the 2019-24 tariff period.

51. The Petitioner has claimed interest on loan by applying the weighted average rate of interest 8.8505% for the year 2019-20, 8.8720% for the year 2020-21, 8.9007% for the year 2021-22, 8.9408% for the year 2022-23 and 9.001% for the year 2023-24.



The same has been considered for the purpose of tariff. The Petitioner, is however, directed to submit documentary evidence for the rate of interest considered in Form-13 and repayment schedule of loan, at the time of truing up of tariff. Interest on loan has been worked out as follows:

	(Rs. in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Gross opening loan (A)	612446.79	618046.79	624719.90	630020.82	630194.10
Cumulative repayment of loan upto previous year (B)	265586.95	305472.52	345352.48	385855.79	426519.66
Net Loan Opening (C) = (A) - (B)	346859.84	312574.27	279367.42	244165.03	203674.44
Addition due to additional capital expenditure (D)	5600.00	6673.11	5300.93	173.27	0.00
Repayment of Loan during the period (E)	39885.57	40283.39	40671.52	40848.97	40854.58
Less: Repayment adjustment on a/c of decap (F)	0.00	403.43	168.21	185.10	0.00
Net Repayment of Loan during the period (G) = (E) - (F)	39885.57	39879.96	40503.31	40663.86	40854.58
Net Loan Closing (H) =(C) +(D) -(G)	312574.27	279367.42	244165.03	203674.44	162819.86
Average Loan (I) = (C+H)/2	329717.05	295970.84	261766.22	223919.74	183247.15
Weighted Average Rate of Interest of loan (J)	8.8505%	8.8720%	8.9007%	8.9408%	9.0010%
Interest on Loan (K) = (I)*(J)	29181.67	26258.60	23299.01	20020.29	16494.15

Depreciation

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

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

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

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



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

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

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

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

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

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

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

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

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

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

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

53. Cumulative depreciation amounting to Rs. 266070.15 lakh as on 31.3.2019, as considered in order dated 20.9.2022 in Petition No. 157/GT/2020, has been considered for the purpose of tariff. Since, as on 1.4.2019, the used life of the generating station is 6.98 years, which is less than 12 years from the effective station COD of 6.4.2012, depreciation has been calculated by considering the weighted average rate of



depreciation (WAROD) of 4.538% as claimed by the Petitioner. Accordingly, depreciation has been worked out and allowed as follows:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Average Capital Cost (A)	878923.98	887690.49	896243.37	900153.51	900277.28
Value of freehold land included in average capital cost (B)	88623.45	96623.45	104245.95	107868.45	107868.45
Aggregated Depreciable Value (D)= (A-B-C) x90%	711270.48	711960.33	712797.68	713056.55	713167.94
Remaining aggregate depreciable value at the beginning of the year (E) = (D) - (M)	445200.33	406004.61	366961.99	326717.56	286165.09
No. of completed years at the beginning of the year (F)	6.98	7.98	8.98	9.98	10.98
Balance useful life at the beginning of the year (G) = 25 - (F)	18.02	17.02	16.02	15.02	14.02
Weighted Average Rate of Depreciation (WAROD) (H)	4.5380%	4.5380%	4.5380%	4.5380%	4.5380%
Depreciation during the year/ period (I) = (A) x (H)	39885.57	40283.39	40671.52	40848.97	40854.58
Depreciation during the year/ period (annualized) (J) = (I)	39885.57	40283.39	40671.52	40848.97	40854.58
Cumulative depreciation at the end of the year (before adjustment for de-capitalisation) (K) = (J) + (Cumulative Depreciation, at the end of the previous year)	305955.72	346239.12	386507.21	427187.96	467857.44
Less: Depreciation adjustment on account of de-capitalisation (L)	0.00	403.43	168.21	185.10	0.00
Cumulative depreciation at the end of the year (M) = (K) - (L)	305955.72	345835.68	386338.99	427002.86	467857.44

O&M Expenses

54. 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:

	<i>(in Rs lakh/MW)</i>				
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



Year	200/210/ 250 MW Series	300/ 330/ 350 MW Series	500 MW Series	600 MW Series	800 MW Series and above
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.

55. The Petitioner has claimed normative O&M expenses in Form 3A as per Regulation 35(1)(1) of the 2019 Tariff Regulations, which is as under:

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
33765.00	34950.00	36180.00	37455.00	38760.00

56. As the normative O&M expenses claimed by the Petitioner are in accordance with Regulation 35(1)(1) of the 2019 Tariff Regulations and for 2014-19 tariff period.

Water Charges

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

“(6) The Water Charges, Security Expenses and Capital Spares for thermal generating stations shall be allowed separately after prudence check:

Provided that water charges shall be allowed based on water consumption depending upon type of plant and type of cooling water system, subject to prudence check. The details regarding the same shall be furnished along with the petition;

xxxxx.”

58. In terms of the first proviso to Regulations 35(1)(6) of the 2019 Tariff Regulations, water charges shall be allowed separately, based on water consumption depending



upon type of plant, type of cooling water system etc., subject to prudence check. The details furnished by the Petitioner in respect of water charges as applicable for 2018-19 are as under:

Description	Remarks
Type of Plant	Coal Based
Type of cooling water system	Closed Cycle
Consumption of Water	21973 TMC
Rate of Water charges	Rs 300 per 2500 Cubic feet/ Rs 1000 per 100 Cubic Meter
Total Water Charges	Rs. 1469.16 Lakh

59. Accordingly, the Petitioner has claimed water charges for the 2019-24 tariff period as follows:

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
1400.00	1600.00	1800.00	1800.00	1800.00

60. The Petitioner in its additional submission vide affidavit dated 30.6.2021, has submitted that the actual water charges for the generating station is Rs. 1436.29 lakh in the year 2019-20 and Rs. 1229.14 lakh in 2020-21. Accordingly, the actual water charges of Rs. 1436.29 lakh in 2019-20 and Rs. 1229.14 lakh in 2020-21 are allowed. For the remaining period i.e. 2021-24, the water charges of Rs.1229.14 lakh (actual for 2020-21) is allowed. However, the Petitioner, at the time of truing up of tariff, shall furnish the details of the actual water consumption (in cubic meters), rate (Rs/ cubic meter) and power charges separately. The water charges allowed as under, are subject to the truing up, as per actual water charges paid, after prudence check.

(Rs. In lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
1436.29	1229.14	1229.14	1229.14	1229.14

Security Charges

61. The Petitioner has claimed total security expenses of Rs. 9647.78 lakh (i.e. Rs. 1587.57 lakh in 2019-20, Rs. 1742.52 lakh in 2020-21, Rs. 1912.75 lakh in 2021-22,



Rs.2099.75 lakh in 2022-23 and Rs. 2305.20 lakh in 2023-24) for the 2019-24 tariff period, in terms of the second proviso to Regulation 35(1)(6) of the 2019 Tariff Regulations. The Petitioner in its additional submission vide affidavit dated 4.2.2022, has submitted that the actual security expenses are Rs. 3171.77 lakh in 2019-20 and Rs. 3218.36 lakh for 2020-21. This has been considered and allowed. For the remaining period i.e. 2021-24, we allow the security expenses of Rs. 3218.36 lakh (actual for 2020-21). However, the Petitioner at the time of truing up shall furnish the detail of actual security expenses. The security expenses allowed as under, are subject to the truing up, as per actual security expenses incurred and after prudence check.

(in Rs. lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Security expenses claimed	1587.57	1742.52	1912.75	2099.75	2305.20
Security expenses allowed	3171.77	3218.36	3218.36	3218.36	3218.36

Capital spares

62. The Petitioner has not claimed any capital spares, on projection basis, during the 2019-24 tariff period and has submitted that the same shall be claimed at the time of truing up of tariff, in terms of the last proviso to Regulation 35(1)(6) of the 2019 Tariff Regulations, based on actual consumption of spares. Accordingly, the same has not been considered in this order. The claim of the Petitioner, if any, at the time of truing-up, of tariff, shall be considered on merits, after prudence check.

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

(Rs. in lakh)

		2019-20	2020-21	2021-22	2022-23	2023-24
Installed Capacity (MW) (A)		1500	1500	1500	1500	1500
O&M Expenses under Reg.35(1) in Rs lakh / MW (B)	Claimed	22.51	23.30	24.12	24.97	25.84
	Allowed	22.51	23.30	24.12	24.97	25.84
	Claimed	33765	34950	36180	37455	38760



		2019-20	2020-21	2021-22	2022-23	2023-24
Total O&M Expenses (in Rs lakh) (C) = (A)*(B)	Allowed	33765	34950	36180	37455	38760
Water Charges (in Rs lakh) (D)	Claimed	1400.00	1600.00	1800.00	1800.00	1800.00
	Allowed	1436.29	1229.14	1229.14	1229.14	1229.14
Security Expenses (in Rs lakh) (E)	Claimed	1587.57	1742.52	1912.75	2099.75	2305.20
	Allowed	3171.77	3218.36	3218.36	3218.36	3218.36
Total O&M Expenses as allowed (F) = (C+D+E)	Claimed	36752.57	38292.52	39892.75	41354.75	42865.20
	Allowed	38373.06	39397.50	40627.50	41902.50	43207.50

Ash Transportation charges

64. The Petitioner has submitted that additional capital expenditure towards the ash transportation charges are recurring in nature. Further, the Petitioner submitted that it will be incurring ash transportation expenditure in its generating station for 2019-24 tariff period. In case the same is allowed to be recovered at the end of the 2019-24 tariff period, there will be additional liability on the beneficiaries on account of the interest payment for the period till the time the true-up petition for the 2019-24 tariff period is decided. The Petitioner submitted that to avoid the interest payment liability of the beneficiaries, the petitioner may be allowed to recover/ pass on the ash transportation charges after adjusting the revenue earned from sale of ash at the end of each quarter of financial year subject to true-up at the end of the period.

65. The matter has been considered. In this regard it is to mention that Petition no. 205/MP/2021 filed by NTPC seeking recovery of Fly Ash Transportation charges for its various generating stations for the 2019-24 tariff period, is under consideration of the Commission. Since, the issue of Ash Transportation Charges in this petition is similar to the issue under consideration in Petition No. 205/MP/2021, the prayer of the Petitioner, in this petition, seeking the recovery of fly ash transportation charges are not being considered. However, the Petitioner is granted liberty to approach the



Commission with all relevant details, based on the decision of this Commission in Petition No. 205/MP/2021.

Operational Norms

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

Normative Annual Plant Availability Factor (NAPAF) %	85.00
Gross Station Heat Rate (kcal/kwh)	2374.30
Auxiliary Power Consumption %	5.75
Specific Oil Consumption (ml/kwh)	0.50

(a) Normative Annual Plant Availability Factor

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

(A) Normative Annual Plant Availability Factor (NAPAF)

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

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

Station Heat Rate

69. The Petitioner has submitted that the generating station was envisaged during the year 2007 and specifications of equipment's including SG and TG for tendering were stipulated considering the boiler efficiency and the turbine heat rate prevailing in the market at that time. It has submitted that based on the same, the equipment's were ordered through competitive bidding. The Petitioner has stated that it was not possible for the Petitioner to specify the efficiency parameters at the time of finalizing the contracts for the generating station, as per efficiency parameters specified under the 2019 Tariff Regulations, which are more stringent and had it stipulated more stringent unit heat rate, this would have increased the capital cost commensurate to the efficiency parameters sought. The Petitioner has stated that the benefit of lower capital cost, due



to lower efficiency parameters, has already been passed on to the beneficiaries, in terms of lower capital cost and therefore, the Petitioner has requested that that Gross Station Heat Rate may be allowed, based on guaranteed turbine cycle heat rate of 1932 kcal/kwh and boiler efficiency of 85.44% with an operating margin of 5% over and above the guaranteed design value.

70. The Respondents HPPC, BRPL and BYPL have submitted that the sole responsibility of arranging coal lies with the Petitioner and hence the claim for relaxing the boiler efficiency may be rejected. The Respondents BRPL and BYPL have also submitted that certain additional data like month wise comparison of cost of fuel incurred (both coal and oil) with the energy charge and Compensation charge billed on to the beneficiaries and month-wise Gross Station Heat Rate for the entire period are required to be provided by the Petitioner, for prudence check of the Commission.

71. The matter has been examined. Regulation 49(C)(b)(i) of the 2019 Tariff Regulations provides as follows:

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

1.05 X Design Heat Rate (kCal/kWh)

Where the Design Heat Rate of a generating unit means the unit heat rate guaranteed by the supplier at conditions of 100% MCR, zero percent make up, design coal and design cooling water temperature/back pressure.

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:

<i>Pressure Rating (Kg/cm²)</i>	<i>150</i>	<i>170</i>	<i>170</i>
<i>SHT/RHT (°C)</i>	<i>535/535</i>	<i>537/537</i>	<i>537/565</i>
<i>Type of BFP</i>	<i>Electrical Driven</i>	<i>Turbine Driven</i>	<i>Turbine Driven</i>
<i>Max Turbine Heat Rate (kCal/kWh)</i>	<i>1955</i>	<i>1950</i>	<i>1935</i>
<i>Min. Boiler Efficiency</i>			
<i>Sub-Bituminous Indian Coal</i>	<i>0.86</i>	<i>0.86</i>	<i>0.86</i>
<i>Bituminous Imported Coal</i>	<i>0.89</i>	<i>0.89</i>	<i>0.89</i>
<i>Max. Design Heat Rate (kCal/kWh)</i>			
<i>Sub-Bituminous Indian Coal</i>	<i>2273</i>	<i>2267</i>	<i>2250</i>



<i>Bituminous Imported Coal</i>	2197	2191	2174
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Provided further that in case pressure and temperature parameters of a unit are different from above ratings, the maximum design heat rate of the unit of the nearest class shall be taken:

Provided also that where heat rate of the unit has not been guaranteed but turbine cycle heat rate and boiler efficiency are guaranteed separately by the same supplier or different suppliers, the design heat rate of the unit shall be arrived at by using guaranteed turbine cycle heat rate and boiler efficiency:

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:

Provided also that maximum turbine cycle heat rate shall be adjusted for type of dry cooling system:

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:

Provided also that in case of lignite-fired generating stations (including stations based on CFBC technology), maximum design heat rates shall be increased using factor for moisture content given in sub-clause (C)(a)(iv) of this Regulation:

Provided also that for Generating stations based on coal rejects, the Commission shall approve the Station Heat Rate on case to case basis.

Note: In respect of generating units where the boiler feed pumps are electrically operated, the maximum design heat rate of the unit shall be 40 kCal/kWh lower than the maximum design heat rate of the unit specified above with turbine driven Boiler Feed Pump.”

72. The Petitioner has considered the Gross Station Heat Rate of 2374.30 kCal/kWh. However, the Gross Station Heat Rate computed based on the above regulation works out as 2358.84 Kcal/kWh ($1.05 \times 1932 \text{ Kcal/kWh} / 0.86$) which is lower than the earlier approved GSHR of 2362.99 Kcal/kWh for the 2014-19 tariff period. In line with the above, the GSHR of 2358.84 Kcal/ kWh is considered for the 2019-24 tariff period.



(b) Auxiliary Power Consumption:

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

“49(E) Auxiliary Energy Consumption

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

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

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:

74. The Petitioner has claimed Auxiliary Power Consumption (APC) of 5.75% as per Regulation 49(E)(a)(ii) of the 2019 Tariff Regulations, and therefore same has been allowed.

(c) Specific Oil Consumption

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

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

Normative Annual Plant Availability Factor (NAPAF) (%)	85
Heat Rate (kCal/kWh)	2358.84
Auxiliary Power Consumption (%)	5.75
Specific Oil Consumption (ml/kWh)	0.50



Interest on Working Capital

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

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

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

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

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

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

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

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

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

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

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

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

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



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

a) Working capital for Fuel Cost and Cost of Liquid stock

78. The Petitioner has claimed ECR of 3.475 Rs./kWh and fuel component in working capital as follows:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Cost of coal for 50 days generation corresponding to NAPAF	49738.00	49738.00	49738.00	49738.00	49738.00
Cost of Secondary fuel oil for 2 months generation corresponding to NAPAF	449.02	447.79	447.79	447.79	449.02

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

- a) Operational norms as per 2019 Tariff Regulations.
- b) Price and “as received” GCV of coal {after reducing the same by 85 kcal/kWh in terms of Regulation 43(2)(b)} procured for the three months of October 2018, November 2018, and December 2018, and
- c) Price and GCV of secondary fuel oil for the three months of October 2018, November 2018, and December 2018.

80. It is observed that the Petitioner, in its additional submission vide affidavit dated 30.6.2021 has submitted revised Form-15, indicating the opening stock of coal and coal received during the months of October, November and December 2018, separately.

81. We have computed the fuel components based on the price as well as GCV of coal as received and secondary fuel oil for the preceding three months from October 2018 to December 2018, as submitted by the Petitioner in Form 15, for the 2019-24 tariff period. As per sub-clauses (i), (ii) and (iii) of Regulation 34(1)(a) of the 2019 Tariff Regulations, coal cost for 30 days, the cost of coal stock for 20 days and cost of secondary fuel oil for 2 months, are allowed as part of working capital as follows:



(Rs. in Lakh)

	2019-20	2020-21	2021-22	2022-23	2023-24
Cost of Coal for stock (20 days generation corresponding to NAPAF)	19847.48	19847.48	19847.48	19847.48	19847.48
Advance towards cost of Coal for generation (30 days generation corresponding to NAPAF)	29771.21	29771.21	29771.21	29771.21	29771.21
Cost of Secondary fuel (2 Months generation corresponding to NAPAF)	449.02	447.79	447.79	447.79	449.02

b) Energy Charge Rate (ECR) for Working Capital

82. The Petitioner has claimed ECR (ex-bus) of 3.475 Rs/kWh, based on the weighted average price, GCV of coal & oil procured and burnt for the preceding months of October 2018, November 2018 and December 2018. The ECR, as worked out, based on the operational norms specified under the 2019 Regulations and on “as received” GCV of coal for the preceding three months i.e., October 2018 to December 2018 have been considered for allowing two months of energy charge in working capital as follows:

Description	Unit	2019-24
Capacity	MW	1500.00
Gross Station Heat Rate	Kcal/kWh	2358.84
Auxiliary Energy Consumption	%	5.75
Weighted average GCV of oil	Kcal/lit	9450.00
Weighted average GCV of coal	Kcal/kg	3819.85
Weighted average price of oil	Rs/KL	48110.79
Weighted average price of Coal	Rs/MT	5262.26
Rate of energy charge ex-bus	Rs/kWh	3.466

c) Working capital for O&M Expenses

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

(Rs. in lakh)

2019-20	2020-21	2021-22	2022-23	2023-24
3062.71	3191.04	3324.40	3446.23	3572.10



84. 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 component of working capital is allowed as follows:

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
3197.76	3283.13	3385.63	3491.88	3600.63

d) Working capital for Maintenance Spares

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

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
7674.61	7879.50	8125.50	8380.50	8641.50

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

e) Working capital for Receivables

87. Regulation 34(1)(a)(v) of the 2019 Tariff Regulations provides for Receivables for 45 days of capacity charge and energy charge for sale of electricity calculated on the normative annual plant availability factor. Accordingly, after taking into account the mode of operation of the generating station on secondary fuel, the Receivable component of working capital is allowed as follows:

<i>(Rs. in lakh)</i>					
	2019-20	2020-21	2021-22	2022-23	2023-24
Energy charge (45 days sale of electricity on NAPAF)	44982.53	44982.53	44982.53	44982.53	44982.53
Fixed charge (45 days sale of electricity on NAPAF)	21182.00	20991.91	20769.96	20574.10	20246.91
Total	66164.53	65974.44	65752.48	65556.63	65229.44



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

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

f) Rate of Interest on working capital

90. In accordance with Regulation 34(3) of the 2019 Tariff Regulations, the Petitioner has claimed rate of interest on working capital as 12.05% (i.e., 1 year SBI MCLR of 8.55% as on 1.4.2019 + 350 basis points) on projection basis, for the 2019-24 tariff period. However, as the tariff of the generating station for 2019-24 tariff period is being determined during the year 2021-22, the SBI MCLR as on 1.4.2020 (7.75%) and as on 1.4.2021 (7.00%) is also available, which is lower in comparison to the same, as on 1.4.2019 (8.55%). Since the rate of interest on working capital is subject to revision at the time of truing-up of tariff, based on the bank rate as on 1st April of each financial year, we find it prudent to allow the rate of interest as on 1.4.2020 ,1.4.2021 and 1.4.2022, for the subsequent financial years. Accordingly, the rate of interest for the year 2019-20 is 12.05%, 2020-21 is 11.25% ,2021-22 is 10.50% and for the subsequent years, the rate of interest of 10.50% has been considered (i.e., 1 year SBI MCLR of



7.75% as on 1.4.2020 + 350 basis points, 1 year SBI MCLR of 7.00% as on 1.4.2021 + 350 basis points, and 1 year SBI MCLR of 7.00% as on 1.4.2022 + 350 basis points).

Accordingly, Interest on working capital is allowed as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Working capital for coal cost stock (20 days of generation corresponding to NAPAF)	19847.48	19847.48	19847.48	19847.48	19847.48
Working capital for advance payment of coal (30 days of generation corresponding to NAPAF)	29771.21	29771.21	29771.21	29771.21	29771.21
Working capital for cost of secondary oil (2 months of generation corresponding to NAPAF)	449.02	447.79	447.79	447.79	449.02
Working capital for O & M expenses (1 month of O&M Expenses)	3197.76	3283.13	3385.63	3491.88	3600.63
Working capital for Maintenance Spares (20% of O&M expenses)	7674.61	7879.50	8125.50	8380.50	8641.50
Working capital for Receivables (45 days of capacity and energy charges for sale of electricity on NAPAF)	66164.53	65974.44	65752.48	65556.63	65229.44
Total Working Capital	127104.60	127203.54	127330.09	127495.48	127539.27
Rate of Interest	12.05%	11.25%	10.50%	10.50%	10.50%
Total Interest on Working capital	15316.10	14310.40	13369.66	13387.03	13391.62

Annual Fixed Charges

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

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation (A)	39885.57	40283.39	40671.52	40848.97	40854.58
Interest on Loan (B)	29181.67	26258.60	23299.01	20020.29	16494.15
Return on Equity (C)	49523.85	50017.81	50499.73	50720.05	50727.02
O&M Expenses (D)	38373.06	39397.50	40627.50	41902.50	43207.50
Interest on Working Capital (E)	15316.10	14310.40	13369.66	13387.03	13391.62
Total AFC (F) = (A+B+C+D+E)	172280.26	170267.70	168467.42	166878.83	164674.88



Filing fees and Publication charges

92. The Petitioner has sought reimbursement of fees paid by it for filing the tariff petition and for publication expenses. The Petitioner is 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.

93. The annual fixed charges approved above are subject to truing-up in terms of Regulation 13 of the 2019 Tariff Regulations.

94. Petition No. 489/GT/2020 is disposed of in terms of the above.

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

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

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

