

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 435/GT/2020**

**Coram:**

**Shri P.K. Pujari, Chairperson**

**Shri I.S. Jha, Member**

**Shri Arun Goyal, Member**

**Shri Pravas Kumar Singh, Member**

**Date of Order: 4<sup>th</sup> June, 2022**

**IN THE MATTER OF**

Petition for approval of tariff of Sipat Super Thermal Power Station Stage-II (1000 MW) for the period from 1.4.2019 to 31.3.2024.

**AND**

**IN THE MATTER OF**

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

**....Petitioner**

**Vs**

1. Madhya Pradesh Power Management Company Limited,  
Shakti Bhawan, Vidyut Nagar,  
Jabalpur – 482 008
2. Maharashtra State Electricity Distribution Company Limited,  
Prakashgad, Bandra (East),  
Mumbai – 400 051
3. Gujarat Urja Vikas Nigam Limited,  
Vidyut Bhawan, Race Course,  
Vadodara – 390 007
4. Chhattisgarh State Power Distribution Company Limited,  
P.O. Sundar Nagar, Dangania,  
Raipur – 492 013



5. Electricity Department,  
Government of Goa,  
Vidyut Bhawan, Panji,  
Goa – 403 001
6. Electricity Department,  
Administration of Daman & Diu,  
Daman – 396 210
7. Electricity Department,  
Administration of Dadra & Nagar Haveli,  
Silvasa

....Respondents

**Parties Present:**

Ms. Swapna Seshadri, Advocate, NTPC  
Shri Anand K. Ganesan, Advocate, NTPC  
Ms. Ritu Apurva, Advocate, NTPC  
Shri Jai Dhanani, Advocate, NTPC  
Shri Arvind Banerjee, CSPDCL  
Shri Anurag Naik, MPPMCL

**ORDER**

This petition has been filed by the Petitioner, NTPC for approval of tariff of Sipat Super Thermal Power Station Stage-II (1000 MW) (hereinafter referred to as 'the generating station') for the 2019-24 tariff period, in accordance with the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2019 (hereinafter referred to as 'the 2019 Tariff Regulations'). The generating station with a capacity of 1000 MW comprises of two units of 500 MW each. The dates of commercial operation of the different units of the generating station are as under:

Unit	Actual COD
Unit-I	20.6.2008
Unit-II/Generating Station	1.1.2009

2. The Commission vide its order dated 21.3.2017 in Petition No. 322/GT/2014 had approved the tariff of the generating station for the 2014-19 tariff period, which was subsequently revised vide order dated 15.12.2017 in 28/RP/2017 in Petition No.



322/GT/2014. Thereafter, in Petition No. 452/GT/2020, the tariff of the generating station was trued-up by order dated 29.5.2022 as under:

### Annual Fixed Charges allowed

	<i>(Rs. in lakh)</i>				
	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	22036.88	22093.65	22120.13	22109.99	22102.76
Interest on Loan	14989.08	12950.27	11211.29	8876.01	7308.38
Return on Equity	25359.12	25546.68	25578.55	25572.50	25636.32
Interest on Working Capital	6288.28	6328.71	6376.95	6539.44	6433.66
O&M Expenses	20580.07	21803.14	23294.00	25394.00	24251.64
<b>Total</b>	<b>89253.43</b>	<b>88722.45</b>	<b>88580.92</b>	<b>88491.95</b>	<b>85732.76</b>

### Capital Cost allowed

	<i>(Rs. in lakh)</i>				
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	430503.32	431612.07	432692.51	432690.17	432487.82
Add: Additional capital expenditure	1108.75	1080.45	(-) 2.35	(-) 202.35	35.08
<b>Closing Capital Cost</b>	<b>431612.07</b>	<b>432692.51</b>	<b>432690.17</b>	<b>432487.82</b>	<b>432522.90</b>
Average Capital Cost	431057.69	432152.29	432691.34	432588.99	432505.36

### Present Petition

3. The Petitioner in the present Petition, has claimed the capital cost and annual fixed charges for the 2019-24 tariff period as under:

### Annual Fixed Charges claimed

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Depreciation	22154.72	22175.16	9022.75	9022.75	9065.65
Interest on Loan	5560.76	3680.06	2324.53	1540.18	792.09
Return on Equity	24429.64	24452.18	24452.18	24452.18	24480.35
Interest on Working Capital	4688.79	4712.06	4542.68	4582.04	4621.54
O&M Expenses	27453.48	28411.04	29404.31	30433.50	31488.81
<b>Total</b>	<b>84287.39</b>	<b>83430.50</b>	<b>69746.45</b>	<b>70030.65</b>	<b>70448.43</b>

### Capital Cost claimed

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Opening capital cost	433164.73	433964.73	433964.73	433964.73	433964.73
Add: Addition during the year/ period	800.00	0.00	0.00	0.00	1000.00
Less: De-capitalization during the year/ period	0.00	0.00	0.00	0.00	0.00
Less: Reversal during the year/ period	0.00	0.00	0.00	0.00	0.00



Add: Discharges during the year/ period	0.00	0.00	0.00	0.00	0.00
<b>Closing capital cost</b>	433964.73	433964.73	433964.73	433964.73	434964.73
Average capital cost	<b>433564.73</b>	<b>433964.73</b>	<b>433964.73</b>	<b>433964.73</b>	<b>434464.73</b>

4. The Petitioner, on 12.5.2021, filed additional affidavit to place on record certain additional information, with copy to Respondents. The Respondent, MSEDCL has filed its reply affidavit on 4.6.2021. The Respondent CSPDCL and Respondent MPPMCL have also filed their separate reply affidavits on 23.7.2021. The Petitioner has filed its rejoinder affidavits to the replies of the above respondents on 30.7.2021. The Petitioner has also filed certain additional information on 4.6.2021. The Commission, after hearing the parties, on 30.11.2021, through video conferencing, reserved its order in the matter. The Petitioner has also filed its note of arguments on 1.12.2021. It has also filed certain additional information vide affidavits on 11.12.2021. Based on the submissions of the parties and the documents available on record and on prudence check, we proceed to examine the claims of the Petitioner, in this Petition, for the 2019-24 tariff period, as stated in the subsequent paragraphs.

### **Capital Cost**

5. Clause (1) of Regulation 19 of the 2019 Tariff Regulations provides that the capital cost as determined by the Commission after prudence check, in accordance with this regulation, shall form the basis of determination of tariff for existing and new projects. Clause 3 of Regulation 19 of the 2019 Tariff Regulations provides as under:

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

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



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

6. The annual fixed charges claimed by the Petitioner, is based on the opening capital cost of Rs.433164.73 lakh as on 1.4.2019. However, the Commission vide order dated 29.05.2022 in Petition No. 452/GT/2020 had approved the capital cost of Rs.432522.90 lakh, on cash basis as on 31.3.2019. The recognized un-discharged liabilities as on 31.3.2019 are Rs.1282.52 lakh (comprising of liabilities of Rs.947.98 lakh deducted as on 1.4.2009 and balance liability of Rs.334.54 lakh pertaining to assets allowed after 1.4.2009). Accordingly, in terms of Regulation 19(3) of the 2019 Tariff Regulations, the capital cost of Rs.432522.90 lakh, on cash basis, as on 31.3.2019, has been considered as the capital cost as on 1.4.2019, for the purpose of determination of tariff for the 2019-24 tariff period.

### **Additional Capital Expenditure**

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

*25. Additional Capitalization 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 Capitalization 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 Modernization (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-capitalization 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 decapitalization 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-capitalization takes place with corresponding adjustments in cumulative depreciation and cumulative repayment of loan, duly taking into consideration the year in which it was capitalized."*

8. The projected additional capital expenditure claimed by the Petitioner is as under:



(Rs. in lakh)

	Regulation	2019-20	2020-21	2021-22	2022-23	2023-24
<b>Works within original scope, change-in-law etc. eligible for ROE at normal Rate</b>						
Ash Dyke Works	25(1)(c) read with 25(1)(g)	800.00	0.00	0.00	0.00	1000.00

### **Ash Dyke Works**

9. The Petitioner has claimed projected additional capital expenditure of Rs.800.00 lakh in 2019-20 and Rs.1000.00 lakh in 2023-24, towards Ash dyke raising works, under Regulation 25(1)(c) read with Regulation 25(1)(g) of the 2019 Tariff Regulations. In justification of the same, the Petitioner has submitted that the additional capital expenditure claimed under this head, forms part of the ongoing dyke raising work and is within the original scope of project. It has submitted that as the existing capacity of the ash dyke is envisaged to get exhausted, the raising of the ash dyke is necessarily required for increasing its capacity for further disposal of ash generated from the generating station for sustained operation.

10. The Respondent CSPDCL and Respondent MPPMCL in their replies, have objected to the requirement of Ash dyke raising, in the light of 100% ash utilization to be ensured by generating stations, in terms of the MOEF& CC Notification dated 25.1.2016. They have also pointed out that the Petitioner, while on the one hand is charging fly ash transportation cost, it has, on the other hand, claimed expenditure towards ash dyke raising. In response, the Petitioner in its rejoinder has clarified that the raising of Ash dyke is undertaken in a phased manner, at intermittent intervals, during the life of the plant. It has also submitted that at any time during the operation of the plant, the rate of generation of fly ash, could be much higher than the rate of utilization of fly ash, in which case, the unutilized ash needs to be diverted to ash dyke, for a safe



disposal of ash and for continuous operation of the plant. The Petitioner has further submitted that the utilization of wet ash takes place from ash disposed in ash dyke only and the capital expenditure on this count, is necessary for the smooth operation of the plant.

11. The submission of the parties has been considered. In our view, the ash generation and ash disposal is a continuous process to be carried out from time to time during the operating life of the plant, in order to ensure the successful running of the plant. The expenditure claimed also form part of the original scope of work of the project. Accordingly, we allow the Petitioner's claim under Regulation 25(1)(g) of the 2019 Tariff Regulations.

12. Thus, projected additional capital expenditure of Rs.800.00 lakh in 2019-20 and Rs.1000.00 lakh in 2023-24 is allowed for the 2019-24 tariff period.

### **Capital Cost**

13. Accordingly, the capital cost allowed for the generating station for the 2019-24 tariff period is as under:

	(Rs. in lakh)				
	2019-20	2020-21	2021-22	2022-23	2023-24
Opening Capital Cost	432522.90	433322.90	433322.90	433322.90	433322.90
Add: Additional capital expenditure	800.00	0.00	0.00	0.00	1000.00
<b>Closing Capital Cost</b>	<b>433322.90</b>	<b>433322.90</b>	<b>433322.90</b>	<b>433322.90</b>	<b>433322.90</b>
Average Capital Cost	432922.90	433322.90	433322.90	433322.90	433822.90

### ***Debt- Equity Ratio***

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

*"18. Debt-Equity Ratio: (1) For a 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 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 modernization expenditure for life extension shall be serviced in the manner specified in clause (1) of this Regulation.*

15. The gross normative loan and equity of the generating station as on 31.3.2019 approved by order dated 29.5.2022 in Petition No. 452/GT/2020 is Rs.302766.03 lakh (i.e. 70% of the admitted capital cost as on 31.3.2019) and Rs.129756.87 lakh (i.e. 30% of the admitted capital cost as on 31.3.2019), respectively, which has been retained, as on 1.4.2019. Further, the projected additional capital expenditure approved above, has



been allocated to debt and equity in the ratio of 70:30. Accordingly, the debt: equity ratio is worked out as under:

	Capital cost as on 1.4.2019 (Rs. in lakh)	(%)	Additional capital expenditure (Rs. in lakh)	(%)	Total cost as on 31.3.2024 (Rs. in lakh)	(%)
Debt	302766.03	70.00	1260.00	70.00	304026.03	70.00
Equity	129756.87	30.00	540.00	30.00	130296.87	30.00
<b>Total</b>	<b>432522.90</b>	<b>100.00</b>	<b>1800.00</b>	<b>100.00</b>	<b>434322.90</b>	<b>100.00</b>

### **Return on Equity**

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

*“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 stations transmission system including communication system and run of river hydro generating station and at the base rate of 16.50% for the storage type hydro generating stations including pumped storage hydro generating stations and run of river generating station with pondage:*

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

*Provided further that:*

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

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

*(iii) in case of a thermal generating station with effect from 1.4.2020:*

*(a) rate of return on equity shall be reduced by 0.25% in case of failure to achieve the ramp rate of 1% per minute;*

*(b) an additional rate of return on equity of 0.25% shall be allowed for every incremental ramp rate of 1% per minute achieved over and above the ramp rate of 1% per minute subject to ceiling of additional rate of return on equity of 1.00%:*

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

17. Regulation 31 of the 2019 Tariff Regulations provides as under:



**“31. Tax on Return on Equity:**

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

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

$$\text{Rate of pre-tax return on equity} = \text{Base rate} / (1-t)$$

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

**Illustration-**

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

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

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

(a) Estimated Gross Income from generation or transmission business for FY 2019-20 is Rs 1000 crore;

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

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

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

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

18. The Petitioner has claimed Return on Equity (ROE) considering base rate of 15.50% and effective tax rate of 17.472% for the 2019-24 tariff period. Since, the additional capital expenditure approved above is under original scope of work, the same



has been considered for the purpose of tariff. Accordingly, ROE has been worked out as under:

	<i>(Rs. in lakh)</i>				
	<b>2019-20</b>	<b>2020-21</b>	<b>2021-22</b>	<b>2022-23</b>	<b>2023-24</b>
Normative Equity – Opening	129756.87	129996.87	129996.87	129996.87	129996.87
Addition of Equity due to additional capital expenditure	240.00	0.00	0.00	0.00	300.00
<b>Normative Equity – Closing</b>	<b>129996.87</b>	<b>129996.87</b>	<b>129996.87</b>	<b>129996.87</b>	<b>130296.87</b>
Average Normative Equity	129876.87	129996.87	129996.87	129996.87	130146.87
Return on Equity (Base Rate)	15.500%	15.500%	15.500%	15.500%	15.500%
Effective Tax Rate	17.472%	17.472%	17.472%	17.472%	17.472%
Rate of Return on Equity (Pre-tax)	18.782%	18.782%	18.782%	18.782%	18.782%
<b>Return on Equity (Pre-tax) - (annualized)</b>	<b>24393.47</b>	<b>24416.01</b>	<b>24416.01</b>	<b>24416.01</b>	<b>24444.19</b>

### Interest on loan

19. Regulation 32 of the 2019 Tariff Regulations provides as under:

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

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

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

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

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

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

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

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

*(7) The changes to the terms and conditions of the loan shall be reflected from the date of such re-financing.”*



20. Interest on loan has been worked out as under:

- i) The gross normative loan amounting to Rs.302766.03 lakh has been retained as on 1.4.2019.
- ii) Cumulative repayment of Rs.227410.34 lakh as on 31.3.2019 as considered in order dated 29.5.2022 in Petition No. 452/GT/2020 has been retained as on 1.4.2019.
- iii) Accordingly, the net normative opening loan as on 1.4.2019 works out to Rs.75355.68 lakh;
- iv) Addition to normative loan on account of additional capital expenditure approved above has been considered;
- v) Depreciation allowed has been considered as repayment of normative loan during the respective year of the 2019-24 tariff period;
- vi) The Petitioner has claimed tariff considering WAROI of 8.6038% in 2019-20, 8.6090% in 2020-21, 8.5625% in 2021-22, 8.4976% in 2022-23 and 8.3990% in 2023-24, the same has been considered subject to truing up.

21. Necessary calculation of interest of loan is as under:

		<i>(Rs. in lakh)</i>				
		2019-20	2020-21	2021-22	2022-23	2023-24
A	Gross opening loan	302766.03	303326.03	303326.03	303326.03	303326.03
B	Cumulative repayment of loan up to previous year	227410.34	249532.27	271674.64	280706.72	289738.79
C	Net Loan Opening (A-B)	75355.68	53793.75	31651.39	22619.31	13587.23
D	Addition on account of additional capital expenditure	560.00	0.00	0.00	0.00	700.00
E	Repayment of loan during the year	22121.93	22142.37	9032.08	9032.08	9075.00
F	Net Loan Closing (C+D-E)	53793.75	31651.39	22619.31	13587.23	5212.24
G	Average Loan [(C+F)/2]	64574.72	42722.57	27135.35	18103.27	9399.74
H	Weighted Average Rate of Interest on Loan	8.6038%	8.6090%	8.5625%	8.4976%	8.3990%
I	Interest on Loan (GxH)	5555.86	3677.98	2323.47	1538.34	789.48

### **Depreciation**

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

*“33. Depreciation:*

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



*of commercial operation of the generating station or the transmission system taking into consideration the depreciation of individual units:*

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

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

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

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

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

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

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

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

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

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

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

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

*(8) In case of de-capitalization of assets in respect of generating station or unit thereof or transmission system or element thereof, the cumulative depreciation shall be adjusted*



by taking into account the depreciation recovered in tariff by the de-capitalized asset during its useful services.”

23. The cumulative depreciation and freehold land (closing balance) amounting to Rs.228253.22 lakh and Rs.5233.47 lakh, as on 31.3.2019, as considered in order dated 29.5.2022 in Petition No. 452/GT/2020, has been retained as on 1.4.2019. The Petitioner has not considered cost of IT equipment and software while calculating depreciable value accordingly the same has been considered as nil, subject to truing up. Accordingly, the balance depreciable value before providing depreciation for the year 2019-20 works out to Rs.156667.26 lakh. Since, the elapsed life of the generating station as on 1.4.2019 (i.e. 10.52 years) is less than 12 years from the effective station COD of 25.9.2008, the depreciation for the 2019-21 tariff period has been calculated considering weighted average rate of depreciation (WAROD) of 5.1099% as claimed by the Petitioner, Also, since the elapsed life of the generating station as on 1.4.2021 (i.e. 12.52 years) exceeds 12 years from effective station COD, the depreciation for the period 2021-24 has been computed by spreading of the remaining depreciable value over the balance useful life. Necessary calculations in support of depreciation are as under:

		<i>(Rs. in lakh)</i>				
		2019-20	2020-21	2021-22	2022-23	2023-24
A	Average Capital cost	432922.90	433322.90	433322.90	433322.90	433822.90
B	Value of freehold land included above	5233.47	5233.47	5233.47	5233.47	5233.47
C	Depreciable value [(A-B) x 0.9]	384920.49	385280.49	385280.49	385280.49	385730.49
D	Remaining depreciable value at the beginning of the year [(C) – (Cumulative depreciation at the end of the preceding period, as shown at 'I')]	156667.26	134905.34	112762.97	103730.89	95148.82
E	No. of completed years	10.52	11.52	12.52	13.52	14.52



	at the beginning of the year					
F	Balance useful life at the beginning of the year (25 – E)	14.48	13.48	12.48	11.48	10.48
G	Weighted Average Rate of Depreciation (WAROD)	5.1099%	5.1099%	-	-	-
H	<b>Depreciation during the year</b> - (A x G) for the period 2019-21 - (D/F) for the period 2021-24	<b>22121.93</b>	<b>22142.37</b>	<b>9032.08</b>	<b>9032.08</b>	<b>9075.00</b>
I	Cumulative depreciation at the end of the year*	250375.15	272517.52	281549.59	290581.67	299656.67

\*Cumulative depreciation as on 31.3.2019 is Rs.228253.22 lakh.

### **O&M Expenses**

24. The O&M expenses claimed by the Petitioner are as under:

	<i>(Rs. in lakh)</i>				
	<b>2019-20</b>	<b>2020-21</b>	<b>2021-22</b>	<b>2022-23</b>	<b>2023-24</b>
Normative O&M expenses claimed under Regulation 35(1)(1) of the 2019 Tariff Regulations	22510.00	23300.00	24120.00	24970.00	25840.00
<b>O&amp;M expenses under Regulation 35(1)(6) of the 2019 Tariff Regulations:</b>					
- Water Charges	3955.40	4093.84	4237.12	4385.42	4538.91
- Security Expenses	988.08	1017.20	1047.19	1078.08	1109.90
- Capital Spares consumed	0.00	0.00	0.00	0.00	0.00
<b>Total O&amp;M Expenses</b>	<b>27453.48</b>	<b>28411.04</b>	<b>29404.31</b>	<b>30433.50</b>	<b>31488.81</b>

25. The normative O&M expenses claimed in terms of the Regulation 35(1)(1) of the 2019 Tariff Regulations is in order and hence allowed for the purpose of tariff.

### **Water Charges**

26. The first proviso to Regulation 35(1)(6) of the 2019 Tariff Regulations provides for water charges, as under:

*“35(1)(6) The Water, Security Expenses and Capital Spares for thermal generating stations shall be allowed separately and after prudence check:*

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





27. In terms of above, water charges shall be allowed separately, based on the water consumption, depending upon the type of plant, type of cooling water system etc., subject to prudence check. The details of water charges furnished by the Petitioner for the 2019-24 tariff period, is as under:

Description	Remarks
Type of plant	Coal based Thermal Power Plant
Type of cooling water system	Closed Circuit Cooling System
Consumption of water*	78.38 MCM
Rate of water charges*	Rs.12.25/m <sup>3</sup>
Total water charges**	Rs.3821.64 lakh

\* as per truing up petition filed for Sipat-I & Sipat-II;

\*\* for Sipat-I for 2018-19.

28. The Petitioner has claimed water charges on the basis of water charges of Rs.3821.64 lakh claimed for 2018-19 in Petition No. 452/GT/2020, with an annual escalation of 3.5%, as under:

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
3955.40	4093.84	4237.12	4385.42	4538.91

29. The Respondent MSEDCL has submitted that the Petitioner has not provided any valid justification towards consideration of escalation of 3.5% every year, over the water charges of 2018-19 and as the same is without any administrative or scientific proof, ought to be disallowed. The Respondent, CSPDCL has submitted that water charges of Rs.3218.07 lakh, computed based on maximum water consumption limits of 3.5 m<sup>3</sup>/MWh as per Ministry of Environment, Forest and Climate Change (MOEFCC) Notification dated 7.12.2015, may be considered for the 2019-24 tariff period, without any escalation, subject to adjustment, as per actual generation limited to 3.5 m<sup>3</sup>/MWh. Similar arguments have been made by the Respondent, MPPMCL, which recommended for admissibility of Rs.3312.00 lakh for 2019-20 and Rs.3289.00 lakh for the period 2020-24. The Petitioner in its rejoinder has submitted that the water charges



claimed are on estimated basis, subject to true up, based on actual water charges paid for 2018-19, with escalation @ 3.5%, as considered for O&M expenses in the 2019 Tariff Regulations. The Petitioner has also submitted that the water charges paid depends upon actual water consumption as well as contracted water quantity, in line with the water agreement signed with the State Water Resources Department. The Petitioner has further submitted that water is the raw material for any thermal generating plant like fuel and the generator has to ensure water and coal corresponding to the ex-bus MCR capacity or at least the normative ex-bus capacity of the station so that it can offer its availability for supply of energy to the respective beneficiaries as per their entitlements. As regards water, it is arranged, considering the peak requirements of the units, in different season, and the maximum demand envisaged. The Petitioner has added that the calculations indicated by Respondent MPPMCL are based on the actual generation of the station that varies month-on-month, based on seasonal variations, and demand of various beneficiaries. However, the Petitioner has stated that it has to arrange for water corresponding to the maximum availability of the station i.e. at the MCR/Installed capacity.

30. We have examined the matter. The water charges for the period 2019-24 has been claimed by the Petitioner on the basis of water charges of Rs.3821.64 lakh claimed for 2018-19 with annual escalation of 3.5%. It is also observed that the rate of water charges considered by the Petitioner for the 2019-24 tariff period is same as those considered for the 2014-19 tariff period. The actual consumption of water as shown by the Petitioner for the year 2018-19, is on combined basis, for both the Stages of the generating station, and is well within the maximum water consumption limits of 3.5 m<sup>3</sup>/MWh as per MOEFCC Notification dated 7.12.2015. Accordingly, for the present,



we are not inclined to allow the annual escalation of 3.5% as claimed by the Petitioner. However, we allow the actual water charges of Rs.3821.64 lakh (as allowed for the year 2018-19 in order dated 29.5.2022 in Petition No. 452/GT/2020) for each year of the 2019-24 tariff period. The Petitioner is however, directed to submit the actual bills along with other relevant details as per Regulation 35(1)(6) of the 2019 Tariff Regulations, at the time of truing-up of tariff. Accordingly, the water charges claimed and allowed, is as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
Water charges claimed	3955.40	4093.84	4237.12	4385.42	4538.91
Water charges allowed	3821.64	3821.64	3821.64	3821.64	3821.64

### **Security Expenses**

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

*“35(1)(6) The Water, Security Expenses and Capital Spares for thermal generating stations shall be allowed separately and after prudence check:*

*xxxx:*

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

*xxxxx.”*

32. The security expenses claimed by the Petitioner is as under:

	<i>(Rs. in lakh)</i>				
	2019-20	2020-21	2021-22	2022-23	2023-24
	988.08	1017.20	1047.19	1078.08	1109.90

33. The Petitioner has submitted that above expenses has been claimed on projection basis and is subject to retrospective adjustment, based on actuals at the time of truing up.

34. We have examined the matter. The Petitioner has claimed projected security expenses for the 2019-24 tariff period. However, the Petitioner has not furnished the



assessment of security requirement as required under the provisions of the 2019 Tariff Regulations. Accordingly, the Petitioner is directed to furnish the requisite details for carrying out the prudence check of security expenses at the time of truing up of tariff. For the present, the projected security expenses for the 2019-24 tariff period has been considered for the purpose of tariff. Accordingly, the security expenses claimed by the Petitioner is allowed as under:

<i>(Rs. in lakh)</i>				
<b>2019-20</b>	<b>2020-21</b>	<b>2021-22</b>	<b>2022-23</b>	<b>2023-24</b>
988.08	1017.20	1047.19	1078.08	1109.90

### **Capital Spares**

35. The Petitioner has not claimed capital spares during the 2019-24 tariff period but has submitted that the same shall be claimed based on actual consumption of spares during the 2019-24 tariff period at the time of truing up in terms of proviso to Regulation 35(1)(6) of the 2019 Tariff Regulations. Accordingly, the same has not been considered in this order. The claim of the Petitioner, if any, towards capital spares at the time of truing up shall be considered as per Regulation 35(1)(6) of the 2019 Tariff Regulations.

36. Accordingly, the total O&M expenses including water charges and security expenses, as claimed by the Petitioner and allowed for the 2019-24 tariff period is as under:

<i>(Rs. in lakh)</i>					
	<b>2019-20</b>	<b>2020-21</b>	<b>2021-22</b>	<b>2022-23</b>	<b>2023-24</b>
Normative O&M expenses claimed under Regulation 35(1)(1) of the 2019 Tariff Regulations <b>(a)</b>	22510.00	23300.00	24120.00	24970.00	25840.00
<b>Normative O&amp;M expenses allowed under Regulation 35(1)(1) of the 2019 Tariff Regulations (b)</b>	<b>22510.00</b>	<b>23300.00</b>	<b>24120.00</b>	<b>24970.00</b>	<b>25840.00</b>
Water Charges claimed under Regulation 35(1)(6) of the 2019 Tariff Regulations <b>(c)</b>	3955.40	4093.84	4237.12	4385.42	4538.91
<b>Water Charges allowed under</b>	<b>3821.64</b>	<b>3821.64</b>	<b>3821.64</b>	<b>3821.64</b>	<b>3821.64</b>



<b>Regulation 35(1)(6) of the 2019 Tariff Regulations (d)</b>					
Security Expenses claimed under Regulation 35(1)(6) of the 2019 Tariff Regulations (e)	988.08	1017.20	1047.19	1078.08	1109.90
<b>Security Expenses allowed under Regulation 35(1)(6) of the 2019 Tariff Regulations (f)</b>	<b>988.08</b>	<b>1017.20</b>	<b>1047.19</b>	<b>1078.08</b>	<b>1109.90</b>
Total O&M expenses claimed under Regulation 35 of the 2019 Tariff Regulations (a + c + e)	27453.48	28411.04	29404.31	30433.50	31488.81
<b>Total O&amp;M expenses allowed under Regulation 35 of the 2019 Tariff Regulations (b + d + f)</b>	<b>27319.72</b>	<b>28138.84</b>	<b>28988.83</b>	<b>29869.72</b>	<b>30771.54</b>

### **Additional expenditure on Emission Control System**

37. The Petitioner has submitted that it is in the process of installing the Emission Control Systems (ECS) in compliance to the revised emission standards as notified by the MOEFCC vide notification dated 7.12.2015, as amended. It is however noticed that the Petitioner had filed Petition No. 339/MP/2020, for approval of additional expenditure on installation of various Emission Control Systems at this generating station, in compliance of MOEF&CC notification dated 7.12.2015 and the Commission by a common order dated 28.4.2021 had disposed of the said petition, with certain observations. Therefore, we are not deciding this issue in this petition. The claim of the Petitioner for additional expenditure on emission control system shall therefore be guided by order dated 28.4.2021 in Petition No. 339/MP/2020.

### **Additional expenditure towards Fly Ash transportation**

38. The Petitioner vide affidavit dated 12.5.2021 has claimed recovery of additional expenditure of Rs.1.30 lakh in 2019-20 and Rs.12.75 lakh in 2020-21 from the beneficiaries on account of ash transportation charges after adjusting the revenue earned from sale of ash. We, however, note that the Petitioner has filed Petition No. 205/MP/2021 seeking reimbursement of fly ash transportation charges in respect of its



generating stations. The Petitioner has raised similar issues with regard to fly ash transportation in that petition arguing higher liability of the Respondents therein on account of interest burden and cash flow issues that may be faced by the Petitioner and the Respondents have raised the issue of 'maintainability' of the said petition. However, the Commission vide its order dated 28.5.2022 has 'admitted' the petition and directed the parties to complete their pleadings in the matter, on merits. The reimbursement of charges towards fly ash transportation shall, therefore, be governed by the final decision of the Commission in Petition No. 205/MP/2021.

### **Operational Norms**

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

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

### ***Normative Annual Plant Availability Factor***

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

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

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

### ***Gross Station Heat Rate (kCal/kWh)***

42. Regulation 49(C)(a)(i) of 2019 Tariff Regulations provides as under:

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



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

43. In terms of Regulation 49(C)(a)(i) of the 2019 Tariff Regulations, the Petitioner has considered Gross Station Heat Rate (GSHR) of 2390 kCal/kWh during the 2019-24 tariff period, and hence the same is allowed.

### **Secondary Fuel Oil Consumption**

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

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

45. In terms of Regulation 49(D)(a) of the 2019 Tariff Regulations, the Petitioner has considered secondary fuel oil consumption of 0.50 ml/kWh during the 2019-24 tariff period, the same is allowed.

### **Auxiliary Power Consumption**

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

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

<b>S. No.</b>	<b>Generating Station</b>	<b>With Natural Draft cooling tower or without cooling tower</b>
(i)	200 MW series	8.50%
(ii)	300 MW and above	
	Steam driven boiler feed pumps	5.75%
	Electrically driven boiler feed pumps	8.00%

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

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

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

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



47. In terms of Regulation 49(E)(a) of the 2019 Tariff Regulations, the Petitioner has considered APC of 6.25% during the 2019-24 tariff period and hence, the same is allowed.

### **Interest on Working Capital**

48. Sub-section (a) of clause (1) of Regulation 34 of the 2019 Tariff Regulations provides as under:

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

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

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

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

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

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

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

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

*xxxxx*

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

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

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





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

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

### **Fuel Cost and Energy Charges in Working Capital**

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

50. Regulation 43(2) of the 2019 Tariff Regulations provides as under:

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

**(a) For coal based and lignite fired stations:**

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

**(b) For gas and liquid fuel based stations:**

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

Where,

*AUX = Normative auxiliary energy consumption in percentage.*

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

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

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

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

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

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

*LC = Normative limestone consumption in kg per kWh;*

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

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

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



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

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

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

(a) Operational norms as per the 2019 Tariff Regulations;

(b) Price and 'as received GCV of coal (after reducing the same by 85 kCal/kWh in terms of above quoted Regulation) procured for the three months of October, 2018, November, 2018 and December, 2018.

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

52. Accordingly, the Petitioner has claimed ECR of Rs.1.270 per kWh and following fuel cost component in working capital for the 2019-24 tariff period:

*(Rs. in lakh)*

	<b>2019-20</b>	<b>2020-21</b>	<b>2021-22</b>	<b>2022-23</b>	<b>2023-24</b>
Cost of coal for 40 days	9486.73	9486.73	9486.73	9486.73	9486.73
Cost of secondary fuel oil for 2 months	351.13	350.17	350.17	350.17	351.13

53. On perusal of the Form-15 furnished by the Petitioner, it is observed that the Petitioner has included opening stock of coal and its corresponding value while computing weighted average price of coal for the month of October 2018, November, 2018 and December, 2018. However, in terms of Regulation 34(2) of the 2019 Tariff Regulations, the computation of cost of fuel as part of IWC, is to be based on the landed price and GCV of fuel as per actuals, which means that only fuel received during these aforesaid three months is to be considered and no opening stock, shall be included therein. Accordingly, the opening stock of coal and its corresponding values have been excluded while computing the weighted average price and GCV of coal. Similarly, while calculating normative transit and handling losses, in respect of coal, the Petitioner has



considered the same in excess of prescribed limit of 0.2%. Accordingly, the normative transit and handling losses of 0.2%, has only been considered for the purpose of tariff. Accordingly, the weighted average price and GCV of coal and oil claimed and those allowed for the 2019-24 tariff period, is as under:

	<b>Claimed</b>	<b>Allowed</b>
Weighted average price of coal (Rs./MT)	1869.33	1868.14
Weighted average GCV of coal (kCal/kg) *	3834.66	3834.62
Weighted average price of oil (Rs./KL)	56433.74	56433.74
Weighted average GCV of oil (kCal/Ltr.)	10230.00	10230.00

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

54. Accordingly, the fuel component in working capital, energy charges and ECR claimed and allowed for the 2019-24 tariff period is as under:

	<i>(Rs. in lakh)</i>			
	<b>Claimed</b>		<b>Allowed</b>	
	<b>2019-20 &amp; 2023-24</b>	<b>2020-21 to 2022-23</b>	<b>2019-20 &amp; 2023-24</b>	<b>2020-21 to 2022-23</b>
Cost of coal for 40 days of generation at NAPF	9486.73		9480.81	
Cost of secondary fuel oil for 2 months days of generation at NAPF	351.13	350.17	351.13	350.17
Energy charges for 45 days at NAPF	10931.61		10921.33	
ECR (Rs. /kWh)	1.270		1.269	

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

### ***Working Capital for Maintenance Spares***

56. The Petitioner in Form-O has claimed the maintenance spares in the working capital as under:

<i>(Rs. in lakh)</i>				
<b>2019-20</b>	<b>2020-21</b>	<b>2021-22</b>	<b>2022-23</b>	<b>2023-24</b>
5490.70	5682.21	5880.86	6086.70	6297.76



57. Regulation 34(1)(a)(iv) of the 2019 Tariff Regulations provide for maintenance spares @ 20% of the O&M expenses (including water charges and security expenses). Accordingly, maintenance spares @ 20% of the O&M expenses (including the water charges and security expenses) allowed for the 2019-24 tariff period is as under:

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
5463.94	5627.77	5797.77	5973.94	6154.31

### **Working Capital for Receivables**

58. In terms of Regulation 34(1)(a)(v) of the 2019 Tariff Regulations, the receivables equivalent to 45 days of capacity charges and energy charges for sale of electricity calculated on the normative annual plant availability factor is worked out and are allowed as under:

<i>(Rs. in lakh)</i>					
	2019-20	2020-21	2021-22	2022-23	2023-24
Energy Charges - for 45 days at NAPF	10921.33	10921.33	10921.33	10921.33	10921.33
Capacity Charges - for 45 days at NAPF	10336.48	10202.62	8468.76	8483.99	8491.77
<b>Total</b>	<b>21257.81</b>	<b>21123.95</b>	<b>19390.09</b>	<b>19405.32</b>	<b>19413.10</b>

### **Working Capital for O&M Expenses**

59. The Petitioner has claimed the working capital for O&M expenses as under:

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
2287.79	2367.59	2450.36	2536.12	2624.07

60. Regulation 34(1)(a)(vi) of the 2019 Tariff Regulations provide for O&M expenses equivalent to one (1) month of the O&M expenses (including water charges and security expenses). Accordingly, O&M expenses equivalent to one (1) month of the O&M



expenses (including water charges and security expenses) allowed for the 2019-24 tariff period is as under:

<i>(Rs. in lakh)</i>				
2019-20	2020-21	2021-22	2022-23	2023-24
2276.64	2344.90	2415.74	2489.14	2564.30

### **Rate of Interest on Working Capital**

61. In line with the Regulation 34(3) of the 2019 Tariff Regulations, the rate of interest on working capital is considered as 12.05% (i.e. 1 year SBI MCLR of 8.55% as on 01.04.2019 + 350 bps) for the year 2019-20, 11.25% (i.e. 1 year SBI MCLR of 7.75% as on 01.04.2020 + 350 bps) for the year 2020-21 and 10.50% (i.e. 1 year SBI MCLR of 7.00% as on 01.04.2021 & 01.04.2022 + 350 bps) for FY 2021-22 & for FY 2022-23 and the same has been applied for the period 2023-24.

62. Accordingly, Interest on working capital has been computed as under:

<i>(Rs. in lakh)</i>					
	2019-20	2020-21	2021-22	2022-23	2023-24
Working Capital for Cost of Coal towards Stock - 10 days of generation at NAPF	2370.20	2370.20	2370.20	2370.20	2370.20
Working Capital for Cost of Coal towards Generation - 30 days of generation at NAPF	7110.61	7110.61	7110.61	7110.61	7110.61
Working Capital for Cost of Secondary fuel oil - 2 months of generation at NAPF	351.13	350.17	350.17	350.17	351.13
Working Capital for Maintenance Spares @ 20% of O&M expenses	5463.94	5627.77	5797.77	5973.94	6154.31
Working Capital for Receivables - 45 days of Capacity Charges and Energy Charges at NAPF	21257.81	21123.95	19390.09	19405.32	19413.10
Working Capital for O&M expenses - 1 month of O&M Expenses	2276.64	2344.90	2415.74	2489.14	2564.30
<b>Total Working Capital</b>	<b>38830.34</b>	<b>38927.60</b>	<b>37434.57</b>	<b>37699.39</b>	<b>37963.65</b>
Rate of Interest	12.0500%	11.2500%	10.5000%	10.5000%	10.5000%
<b>Interest on Working Capital</b>	<b>4679.06</b>	<b>4379.36</b>	<b>3930.63</b>	<b>3958.44</b>	<b>3986.18</b>



### **Annual Fixed Charges**

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

	<i>(Rs. in lakh)</i>				
	<b>2019-20</b>	<b>2020-21</b>	<b>2021-22</b>	<b>2022-23</b>	<b>2023-24</b>
Depreciation	22121.93	22142.37	9032.08	9032.08	9075.00
Interest on Loan	5555.86	3677.98	2323.47	1538.34	789.48
Return on Equity	24393.47	24416.01	24416.01	24416.01	24444.19
Interest on Working Capital	4679.06	4379.36	3930.63	3958.44	3986.18
O&M Expenses	27319.72	28138.84	28988.83	29869.72	30771.54
<b>Total</b>	<b>84070.04</b>	<b>82754.56</b>	<b>68691.02</b>	<b>68814.58</b>	<b>69066.39</b>

**Note:** (1) All figures are on annualized basis. (2) All figures under each head have been rounded. The figure in total column in each year is also rounded. As such the sum of individual items may not be equal to the arithmetic total of the column.

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

### **Application Fee and Publication expenses**

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

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



duties, cess etc. levied by the statutory authorities in accordance with the 2019 Tariff Regulations.

67. Petition No. 435/GT/2020 is disposed of in terms of the above.

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

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

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

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

