CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 239/GT/2020

Coram:

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

Date of Order: 5th April, 2023

In the matter of:

Petition for revision of tariff of Vindhyachal Super Thermal Power Station Stage-V (500 MW) for the period from COD (30.10.2015) to 31.3.2019, after truing up exercise.

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,
   2nd Floor, Sardar Patel Vidyut Bhawan, Race Course,
   Vadodara – 390 007

4. Chhattisgarh State Power Distribution Company Limited,
   Vidyut Sewa Bhawan, Dagania, Raipur – 492 001

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 and Nagar Haveli,
   Silvassa **…. Respondents**

Parties Present:

Shri Shri Venkatesh, Advocate, NTPC
Shri Siddharth Joshi, Advocate, NTPC
Shri Abhiprav Singh, Advocate, NTPC
Shri Rishub Kapoor, Advocate, NTPC
Shri Aashwyn Singh, Advocate, NTPC
Shri A.S.Pandey. NTPC
Shri Parimal Piyush, NTPC
Shri Anurag Naik, MPPMCL
Shri Arvind Banerjee, CSPDCL

ORDER

This petition has been filed by the Petitioner, NTPC Limited, for revision of tariff of Vindhyachal Super Thermal Power Station, Stage-V (500 MW) (in short 'the generating station') after truing up, for the period from 30.10.2015 to 31.3.2019, in accordance with Regulation 8(1) of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as 'the 2014 Tariff Regulations').

2. The generating station is an expansion project of NTPC in the existing Stages-I, II, III & IV of Vindhyachal STPS, located at Singrauli District, in the State of Madhya Pradesh. The Investment approval of the project was accorded by Board of NTPC Ltd., at its 376th meeting held on 28.12.2011. The generating station, with an installed capacity of 500 MW achieved COD on 30.10.2015. The Commission vide its order dated 31.8.2016 in Petition No. 234/GT/2015, had approved the capital cost and annual fixed charges of the generating station from COD (30.10.2015) to 31.3.2019. The approved opening capital cost as on Station COD (i.e., 30.10.2015) was Rs. 196131.68 lakh. The capital cost and

annual fixed charges allowed by order dated 31.8.2016 in Petition No. 234/GT/2015, from COD (30.10.2015) to 31.3.2019 are as under:

Capital Cost

(Rs. in lakh)

	2015-16 (31.10.2015-31.3.2016)	2016-17	2017-18	2018-19
Opening capital cost	196131.68	206091.68	262612.70	288118.95
Add: Projected additional capital expenditure	9960.00	56521.02	25506.25	0.00
Closing capital cost	206091.68	262612.70	288118.95	288118.95
Average capital cost	201111.68	234352.19	275365.83	288118.95

Annual Fixed Charges

(Rs. n lakh)

	2015-16 (31.10.2015-31.3.2016)	2016-17	2017-18	2018-19
Depreciation	10418.09	12146.17	14278.36	14941.35
Interest on loan	10878.34	12022.71	13179.67	12676.59
Return on Equity	12272.51	14300.96	16803.75	17581.99
Interest on Working Capital	2962.53	3142.80	3351.39	3408.85
O&M Expenses	8102.81	8613.03	9156.53	9733.52
Total	**44634.28**	**50225.68**	**56769.69**	**58342.30**

3. Regulation 8(1) of the 2014 Tariff Regulations provides as under:

> ***"8. Truing up***
>
> *(1) The Commission shall carry out truing up exercise along with the tariff petition filed for the next tariff period, with respect to the capital expenditure including additional capital expenditure incurred up to 31.3.2019, as admitted by the Commission after prudence check at the time of truing up:*
>
> *Provided that the generating company or the transmission licensee, as the case may be, shall make an application for interim truing up of capital expenditure including additional capital expenditure in FY 2016-17."*

4. In terms of Regulation 8(1) of the 2014 Tariff Regulations, the Petitioner has filed the present Petition, for truing-up of tariff of the generating station from 30.10.2015 to 31.3.2019 and has claimed the capital cost and annual fixed charges as under:

Capital Cost claimed

(Rs. in lakh)

	2015-16 (31.10.2015-31.3.2016)	2016-17	2017-18	2018-19
Opening capital cost	196131.68	207592.17	253805.13	292138.16
Add: Addition during the year	1570.62	43660.69	31235.30	7014.34
Less: De-capitalisation during the year	(-) 482.59	(-)78.60	(-)164.85	(-)796.62
Add: Discharges during the year	9929.65	2630.87	7262.58	2051.36
Closing capital cost	207149.36	253805.13	292138.16	300407.24
Average capital cost	201640.52	230477.24	272971.64	296272.70

Annual Fixed Charges claimed

(Rs. in lakh)

	2015-16 (31.10.2015-31.3.2016)	2016-17	2017-18	2018-19
Depreciation	10517.54	12046.39	14325.86	15528.25
Interest on Loan	10960.15	11774.52	12130.15	12005.49
Return on Equity	12304.79	14078.08	16657.73	18127.35
Interest on Working Capital	3557.02	3746.73	3976.47	4127.85
O&M Expenses	9268.45	8592.72	9116.27	10290.74
Sub-total	**46607.96**	**50238.45**	**56206.48**	**60079.68**
O&M Expenses for FGD	0.00	910.00	967.79	1029.24
Impact of Pay Revision	20.03	718.48	964.58	1185.78
Impact of GST	0.00	0.00	69.61	104.75
Ash Transportation Expenditure	0.00	0.00	0.00	0.00
Total	**46627.99**	**51866.88**	**58208.34**	**62399.45**

5. The Respondents, Maharashtra State Electricity Distribution Company Limited (MSEDCL), Madhya Pradesh Power Management Company Limited (MPPMCL) and Chhattisgarh State Power Distribution Company Limited (CSPDCL) filed their replies vide affidavit dated 6.1.2021, 23.7.2021 and 23.7.2021 respectively and the Petitioner vide its affidavit dated 20.5.2021, 13.8.2021 and 13.8.2021 has filed its rejoinder to the reply of MSEDCL, MPPMCL and CSPDCL respectively. The Petition was heard through video conferencing on 24.8.2021, along with Petition No. 415/GT/2020 (petition for approval of tariff of the generating station for the period 2019-24) and the Commission reserved its

order in the matter. However, since order in the petition could not be issued prior to the then Chairperson demitting office, the Petition was re-listed and the Commission after hearing the parties, reserved its order in the Petition. Based on the submissions of the parties and the documents available on record and on prudence check, we proceed for truing up the tariff of the generating station for the period 2014-19, as stated in the subsequent paragraphs.

Capital Cost

6. Regulation 9(1) of the 2014 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. Regulation 9(3) of the 2014 Tariff Regulations provides as under:

> *"(3) The Capital cost of an existing project shall include the following:*
>
> *(a) the capital cost admitted by the Commission prior to 1.4.2014 duly trued up by excluding liability, if any, as on 1.4.2014;*
>
> *(b) additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with Regulations 14;*
>
> *(c) expenditure on account of renovation and modernization as admitted by this Commission in accordance with Regulation 15."*

7. The Commission vide its order dated 31.8.2016 in Petition No. 234/GT/2015 had approved the annual fixed charges of the generating station for the 2014-19 tariff period considering the opening capital cost of Rs. 196131.68 lakh (on cash basis) as on 1.4.2014. Accordingly, in terms of Regulation 9(3) of the 2014 Tariff Regulations, the capital cost of Rs. 196131.68 lakh has been considered as opening capital cost as on 1.4.2014.

Additional Capital Expenditure

8. Regulation 14 of the 2014 Tariff Regulations, provides as under:

> *"14. Additional Capitalization and De-capitalization:*

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

(i) Un-discharged liabilities recognized to be payable at a future date;

(ii) Works deferred for execution;

(iii) Procurement of initial capital spares within the original scope of work, in accordance with the provisions of Regulation 13;

(iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court of law; and

(v) Change in law or compliance of any existing law:

Provided that the details of works asset wise/work wise included in the original scope of work along with estimates of expenditure, liabilities recognized to be payable at a future date and the works deferred for execution shall be submitted along with the application for determination of tariff."

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

(i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court of law;

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

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

(iv) Any liability for works executed prior to the cut-off date, after prudence check of the details of such un-discharged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments etc.

(3) 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 after the cut-off date, may be admitted by the Commission, subject to prudence check:

(i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court of law;

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

(iii) Any expenses to be incurred on account of need for higher security and safety of the plant as advised or directed by appropriate Government Agencies of statutory authorities responsible for national security/internal security;

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

(v) Any liability for works executed prior to the cut-off date, after prudence check of the details of such un-discharged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments etc.;

(vi) Any liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments;

(vii) Any additional capital expenditure which has become necessary for efficient operation of generating station other than coal /lignite based stations or transmission system as the case may be. The claim shall be substantiated with the technical justification duly supported by the documentary evidence like test results carried out by

an independent agency in case of deterioration of assets, report of an independent agency in case of damage caused by natural calamities, obsolescence of technology, up-gradation of capacity for the technical reason such as increase in fault level;

(viii) In case of hydro generating stations, any expenditure which has become necessary on account of damage caused by natural calamities (but not due to flooding of power house attributable to the negligence of the generating company) and due to geological reasons after adjusting the proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plant operation;

(ix) In case of transmission system, any additional expenditure on items such as relays, control and instrumentation, computer system, power line carrier communication, DC batteries, replacement due to obsolesce of technology, replacement of switchyard equipment due to increase of fault level, tower strengthening, communication equipment, emergency restoration system, insulators cleaning infrastructure, replacement of porcelain insulator with polymer insulators, replacement of damaged equipment not covered by insurance and any other expenditure which has become necessary for successful and efficient operation of transmission system; and

(x) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receiving system arising due to non-materialization of coal supply corresponding to full coal linkage in respect of thermal generating station as result of circumstances not within the control of the generating station:

Provided that any expenditure on acquiring the minor items or the assets including tools and tackles, furniture, air-conditioners, voltage stabilizers, refrigerators, coolers, computers, fans, washing machines, heat convectors, mattresses, carpets etc. brought after the cut-off date shall not be considered for additional capitalization for determination of tariff w.e.f. 1.4.2014:

Provided further that any capital expenditure other than that of the nature specified above in (i) to (iv) in case of coal/lignite based station shall be met out of compensation allowance:

Provided also that if any expenditure has been claimed under Renovation and Modernization (R&M), repairs and maintenance under (O&M) expenses and Compensation Allowance, same expenditure cannot be claimed under this regulation."

9. The Commission vide its order dated 31.8.2016 in Petition No. 234/GT/2015, had allowed the projected additional capital expenditure as under:

(Rs. in lakh)

Sl. No	Head of Work	Regulation	2015-16 (31.10.2015 to 31.3.2016)	2016-17	2017-18	2018-19	Total
1	Steam Generator Island including ESP	14(1)(ii)	0.00	4500.00	1819.00	0.00	6319.00
2	Turbine Generator Island	14(1)(ii)	0.00	2009.00	1425.00	0.00	3434.00
3	CW system including make-up water system	14(1)(ii)	0.00	1161.00	0.00	0.00	1161.00

Sl. No	Head of Work	Regulation	2015-16 (31.10.2015 to 31.3.2016)	2016-17	2017-18	2018-19	Total
4	Clarification plant (PT plant)	14(1)(ii)	0.00	1555.00	0.00	0.00	1555.00
5	Ash Handling System	14(1)(ii)	0.00	6946.00	0.00	0.00	6946.00
6	Coal Handling Plant	14(1)(ii)	0.00	3760.00	3940.00	0.00	7700.00
7	Rolling Stock and Locomotives (Wagon & loco)	14(1)(ii)	0.00	0.00	4719.00	0.00	4719.00
8	Air Condition & Ventilation System	14(1)(ii)	0.00	785.00	0.00	0.00	785.00
9	Firefighting System (FDPS)	14(1)(ii)	0.00	580.00	490.00	0.00	1070.00
10	HP/LP Piping (Stn Piping)	14(1)(ii)	0.00	335.00	0.00	0.00	335.00
11	FGD system,	14(1)(ii)	0.00	11632.00	4472.00	0.00	16104.00
12	Switch Yard Package (incl construction power)	14(1)(ii)	0.00	1666.00	0.00	0.00	1666.00
13	Transformer Package	14(1)(ii)	50.00	895.00	0.00	0.00	945.00
14	Switch gear Package	14(1)(ii)	40.00	118.00	0.00	0.00	158.00
15	Cables, Cable facilities & grounding	14(1)(ii)	0.00	917.00	0.00	0.00	917.00
16	Control & Instrumentation (C & I) Package	14(1)(ii)	0.00	800.00	140.00	0.00	940.00
17	Main plant/Admin. Building	14(1)(ii)	1040.00	5000.00	0.00	0.00	6040.00
18	CW system	14(1)(ii)	0.00	0.00	0.00	0.00	0.00
19	Cooling Towers	14(1)(ii)	290.00	0.00	0.00	0.00	290.00
20	Township & Colony	14(1)(ii)	0.00	300.00	0.00	0.00	300.00
21	Temp. construction & enabling works	14(1)(ii)	0.00	0.00	0.00	0.00	0.00
22	Road & Drainage	14(1)(ii)	40.00	0.00	0.00	0.00	40.00
23	Tools & Plant	14(1)(ii)	0.00	400.00	240.00	0.00	640.00
24	Initial Spares	14(1)(iii)	0.00	4002.00	2280.03	0.00	6282.03
25	EDC	14(1)(iii)	0.00	950.75	300.22	0.00	1250.97
26	IDC, FC & ERV	14(1)(iii)	0.00	1209.27	381.00	d0.00	1590.27
	Sub-Total		**1460.00**	**49521.02**	**20206.25**	**0.00**	**71187.27**
27	Discharge of Un-discharged Liabilities	14(1)(i)	8500.00	7000.00	5300.00	0.00	20800.00
	Total Additional Capital Expenditure		**9960.00**	**56521.02**	**25506.25**	**0.00**	**91987.27**

10. The additional capital expenditure claimed by the Petitioner, duly supported by auditor certificate, is as under:

(Rs. in lakh)

Sl No		2015-16 (31.10.2015 to 31.3.2016)	2016-17	2017-18	2018-19
A	Closing Gross Block as per audited books	1623909.36	1721932.06	1793245.04	1814772.49
B	Opening Gross Block as per audited books	1584310.50	1625185.77	1716415.34	1786659.20
C	Additional capital expenditure as per audited books (A-B)	39598.86	96746.28	76829.71	28113.29
D	Additional capital expenditure pertaining to other Stages	38210.67	43758.37	37561.93	21731.82
E	Additional capital expenditure for the generating station (D-C)	1388.19	52987.91	39267.78	6381.47
F	IND AS Adjustment	-	(-) 5516.72	(-) 6585.85	4308.22
G	Additional capital expenditure as per IGAAP for the generating station (E+F)	1388.19	47471.19	32681.93	10689.69
H	Exclusions	173.41	(-) 446.53	(-) 44.35	4048.52
I	Additional capital expenditure claimed for the generating station (on accrual basis) (G-H)	1214.78	47917.72	32726.28	6641.17
J	Un-discharged liabilities included above	126.77	4335.62	1655.82	423.46
K	Net additional capital expenditure claimed for the generating station (on cash basis) (I-J)	1088.01	43582.10	31070.46	6217.71
L	Discharges of liabilities	9929.65	2630.87	7262.58	2051.36
M	**Net additional capital expenditure claimed including discharges for the generating station (on cash basis) (K+L)**	**11017.66**	**46212.97**	**38333.04**	**8269.07**

<u>Exclusions</u>

11. The summary of exclusions from the books of accounts, as claimed by the Petitioner, on accrual basis, is as under:

(Rs. in lakh)

	2015-16 (31.10.2015 to 31.3.2016)	2016-17	2017-18	2018-19
Loan FERV	173.71	(-) 480.15	(-) 36.66	2154.30
Inter-unit transfer of assets	(-) 0.30	33.63	(-) 7.68	(-) 331.33
Miscellaneous Bought Out Assets	0.00	0.00	0.00	2272.67
De-cap of Miscellaneous Bought Out Assets (not part of capital cost)	0.00	0.00	0.00	0.00
De-cap of Miscellaneous Bought Out Assets (part of capital cost)	0.00	0.00	0.00	(-) 55.41
Reversal of liabilities	0.00	0.00	0.00	0.00
Total Exclusions claimed	**173.41**	(-) **446.52**	(-) **44.34**	**4040.23**

12. We first examine the exclusions claimed by the Petitioner in the subsequent paragraphs.

(a) Loan FERV

13. The Petitioner has claimed exclusion of loan FERV of Rs. 173.71 lakh in 2015-16, (-) Rs. 480.15 lakh in 2016-17, (-) Rs.36.66 lakh in 2017-18 and Rs.2154.30 lakh in 2018-19. In justification for the same, the Petitioner has submitted that since the loan FERV, is billed directly to the beneficiaries as per extant regulations, the same has been kept under exclusion. As the Petitioner is required to bill the claim for loan FERV directly from the beneficiaries, the claim under this head is allowed.

(b) Inter-unit transfer of assets

14. The Petitioner has claimed exclusion of (-) Rs.0.30 lakh in 2015-16, Rs.33.63 lakh in 2016-17, (-) Rs.7.68 lakh in 2017-18 and (-) Rs. 331.33 lakh in 2018-19, on account of inter-unit transfer of assets to/from the generating station. In justification of the same, the Petitioner has submitted that temporary inter-unit transfer of assets is not allowed for the purpose of tariff and accordingly, the same has been kept under exclusion. The Commission in its various orders while dealing with the application for additional capitalization in respect of other generating stations of the petitioner had decided that both positive and negative entries arising out of inter-unit transfers of a temporary nature shall be ignored for the purposes of tariff. In line with the said decision, the exclusion of the said amounts on account of inter-unit transfer is allowed.

(c) Capitalization of Miscellaneous Bought Out Assets (MBOA's)

15. The Petitioner has claimed exclusion of the capitalization of MBOA's amounting to Rs. 2272.67 lakh in 2018-19. In justification of the same, the Petitioner has submitted that

MBOAs capitalized after the cut-off date are not allowed as per the 2014 Tariff Regulations and, accordingly, the same has been claimed as exclusions. Since capitalization of MBOA's after the cut-off date of the generating station is not allowed as part of capital cost as per the 2014 Tariff Regulations, the Petitioner's claim for exclusion under this head is allowed.

(d) De-capitalization of MBOA's (forming part of capital cost)

16. The Petitioner has claimed exclusion of de-capitalization of MBOA's forming part of admitted capital cost of the generating station amounting to Rs. 55.41 lakh in 2018-19. In justification of the same, the Petitioner has submitted that as the capitalization of expenditure against these items after the cut-off date is not allowed, the de-capitalization of the same has been claimed as exclusions. Since Regulation 14(4) of the 2014 Tariff Regulations provides that in case of de-capitalization of assets, the original cost of such assets shall be removed from the admitted capital cost of the generating station, the claim of the Petitioner under this head is not allowed.

17. Based on above, the summary of exclusions allowed and disallowed is as under:

(Rs. in lakh)

	2015-16 (31.10.2015 to 31.3.2016)	**2016-17**	**2017-18**	**2018-19**
Loan FERV	173.71	(-) 480.15	(-) 36.66	2154.30
Inter-unit transfer of assets	(-) 0.30	33.63	(-) 7.68	(-) 331.33
Miscellaneous Bought Out Assets	0.00	0.00	0.00	2272.67
De-capitalization of Miscellaneous Bought Out Assets (not part of capital cost)	0.00	0.00	0.00	0.00
De-capitalization of Miscellaneous Bought Out Assets (part of capital cost)	0.00	0.00	0.00	0.00
Reversal of liabilities	0.00	0.00	0.00	0.00
Total Exclusions allowed	**173.41**	**(-) 446.52**	**(-) 44.34**	**4095.64**
Total Exclusions disallowed	**0.00**	**0.00**	**0.00**	**(-) 55.41**

Additional Capital Expenditure

18. The Petitioner, in Form-9A submitted vide affidavit dated 30.7.2021, has submitted the actual additional capital expenditure claimed for the 2014-19 tariff period, as under:

(Rs. in lakh)

Sl. No.	Head of Work /Equipment	Additional Capital Expenditure claimed (on cash basis)				
		Regulations	**2015-16 (31.10.2015 to 31.3.2016)**	**2016-17**	**2017-18**	**2018-19**
	Claimed/Allowed Works					
1	Original Scope of Work/ Ash related works (a)	14(1)(ii) Regulation 54	1570.62	24226.12	29415.82	6953.68
	Works related to FGD (b)	14(1)(ii)	0.00	19149.45	1753.60	16.51
	Sub-Total (a)+(b)		1570.62	43375.57	31169.42	6970.19
	New claims (c)		0.00	285.13	65.88	44.15
	Subtotal (a)+(b)+(c)		1570.62	43660.69	31235.30	7014.34
2	Decapitalisation of Spares & Others (part of capital cost)	14(4)	(-)482.59	(-)78.60	(-)164.85	(-)796.62
3	Discharge of liability	14(3)(vi)	9929.65	2630.87	7262.58	2051.36
Total Additional Capital expenditure claimed			**11017.67**	**46212.97**	**38333.04**	**8269.07**

Additional capital expenditure within original scope of works within cut-off date (from COD to 31.3.2018)

19. The Petitioner has claimed additional capital expenditure of Rs. 1570.62 lakh in 2015-16, Rs. 43375.57 lakh in 2016-17, Rs. 31169.42 lakh in 2017-18, and Rs. 6970.19 lakh in 2018-19 under Regulation 14(1)(ii) of the 2014 Tariff Regulations, towards expenditure within original scope of work and initial spares and the same is examined below.

2015-18 (COD to 31.3.2018)

20. The Petitioner has claimed additional capital expenditure claim of Rs. 1570.62 lakh in 2015-16, on cash basis (after removal of un-discharged liabilities of Rs.126.77 lakh), Rs. 43375.57 lakh in 2016-17, on cash basis (after removal of un-discharged liabilities of

Rs. 4309.63 lakh), and Rs. 31169.43 lakh in 2017-18 (after removal of un-discharged liabilities of Rs. 1642.46 lakh).

21. The Respondent MPPMCL has submitted that, additional capitalization towards following items have not been allowed in order dated 31.8.2016 in Petition No.234/GT/2015:

(Rs in lakh)

Name of the Item	Claimed
Land	9.79
AAQMS	17.88
Condensate Polishing Unit	271.21
Offsite Civil	1244.4
Roof Top Solar	373.64
Lighting Installations	610.05
Emission Quality Monitoring System	53
Hospital related Items	0.78
Boundary wall	13.41
MBOA	3050.22
Chimney	549.01
contractor's ERV	49.22
Package ERV	87.44
TOTAL	**6330.05**

22. The Respondent MPPMCL has submitted that the Petitioner has claimed amount of Rs. 6330.05 lakh under original scope of works, which should be supported by relevant documents. It has further submitted that the Petitioner has claimed capitalization cost of Emission Quality Monitoring System (EQMS) which has been rejected by the Commission in the earlier order. In response, the Petitioner submitted that, the expenditures/ adjustments being claimed against various packages pertains to the contract closing process and some payments have been released after defect rectification, reconciliation etc., as per the contractual obligation of the agencies.

23. We have considered the matter. Considering the combined additional capital expenditure for the period 2015-18, under each of the above-mentioned heads, the

additional capital expenditure claimed is well within the projected additional capital expenditure, as allowed in order dated 31.8.2016 in Petition No. 234/GT/2015, except for works related to Main plant civil works, Off-site civil works, lightning installations, land, condensate polishing unit, capital spares, MBOA and Chimney. For the above heads, although the actual capital expenditure exceeds the projected additional capital expenditure in range of 26% during the period 2015-18, yet the same being within the original scope and within cut-off date is allowed, except for initial spares which has been discussed separately.

2018-19

24. The Petitioner has claimed amount of Rs. Rs. 6970.19 lakh in 2018-19, towards works related original scope of work, which includes an amount of Rs.3855.52 lakh towards Capital spares. In justification to the works claimed under original scope of work, the Petitioner has submitted that these works were completed and capitalized prior to cut off date, however, certain balance payments were made towards defect liability and retention, which have been claimed in 2018-19. The Petitioner has prayed for the extension of cutoff date under power to relax, for the works related to Railway siding and rolling stock.

25. We have considered the matter. Since these items are within the original scope of work and since most of the works, except for the Railway siding and rolling stock related works, have been completed prior to the cut-off date, the expenditure claimed by the Petitioner which are within the original scope of work, is allowed. The Petitioner has sought extension of the cut-off date for Railway siding and rolling stock related works, which we are not inclined to extend. However, the Petitioner is granted liberty to approach

the Commission, as and when these works get completed and the same will be considered in accordance with law.

New Claims beyond the original scope of work, but within the cut-off date

26. The Petitioner has claimed amounts for Rs. 285.12 lakh, Rs. 65.88 lakh and Rs. 44.15 lakh, on cash basis, for 2015-16, 2016-17, 2017-18 and 2018-19 respectively, as under:

(Rs. in lakh)

	New Claims	**Cash basis**	**Liabilities**	**IDC**
2016-17	AAQMS	16.72	0.00	0.00
	Roof top Solar	268.40	25.97	3.19
	Sub-Total (2016-17)	**285.12**	**25.97**	**3.19**
2017-18	Solar PV Plant	65.88	13.38	0.00
	Sub-Total (2017-18)	**65.88**	**13.38**	**0.00**
2018-19	Ambient Air Quality Monitoring System (AAQMS)	1.16	0.00	0.00
	Emission Quality Monitoring System (EQMS)	42.99	10.01	0.00
	Sub-Total (2018-19)	**44.15**	**10.01**	**0.00**

27. The additional capital expenditure claimed towards AAQMS, EQMS, Solar PV plant and Roof top solar, are beyond the original scope of work and has been claimed within the cut-off date. The same has been discussed in the paragraphs as stated below:

Effluent Quality Monitoring System

28. The Petitioner has claimed additional capital expenditure for Rs.42.99 lakh, on cash basis, towards Effluent Quality Monitoring System (EQMS), under Regulation 14(3)(ii) of the 2014 Tariff Regulations. In justification for the same, the Petitioner has submitted that EQMS is necessitated for monitoring the various effluent parameters, such as pH, Total suspended solids (TSS), Biochemical Oxygen Demand (BOD), Chemical Oxygen Demand (COD), before discharging the effluent water, out of the plant premises, to avoid environment and water pollution. It has submitted that the expenditure claimed is for

works which was carried out in terms of the Notification dated 5.2.2014 of the Central Pollution Control Board (CPCB).

29. The Petitioner has claimed the said expenditure under change in law and in support of its claim, has furnished a copy of the CPCB Notification dated 5.2.2014. Since the claim of the Petitioner is in terms of the statutory directions of the CPCB vide notification dated 5.2.2014, the claim of the Petitioner is allowed.

Installation of Solar PV Plant & Roof top Solar

30. The Petitioner has claimed additional capital expenditure for Rs.268.40 lakh in 2016-17 and Rs.65.88 lakh in 2017-18 towards Solar PV Plant & Roof top Solar. In justification to the same, the Petitioner has submitted that in view of the Government of India target for installation of 175 GW of Renewable power, by the end of 2022, and as the measure of energy conservation, the Petitioner has taken initiative by installing Rooftop Solar & Solar PV plant. It has submitted that this initiative shall not only help reduce the coal consumption, thereby reducing the CO_2 emission, but also contribute to decrease in auxiliary power consumption (APC). The Petitioner has pointed out that while on one hand it will help pass on the benefit of saving in APC to the beneficiaries of the station, on the other hand, it shall contribute towards the cleaner environment for the benefit of the public at large. It has also stated that presently, MOEF, GOI is also prescribing the installation of renewable generation plants in the premises of thermal generating station, while granting MOEF clearance for new projects. The Petitioner has also stated that as the installation of Rooftop Solar PV/Solar PV plant, was an initiative towards Environment and Energy Conservation measures, to reduce Green House Gases (GHG), and to save electricity, any saving in APC on account of these PV plants shall be passed on to

beneficiaries including the Respondent herein, as per the existing regulatory provisions of sharing of gain in efficiency parameters.

31. The matter has been considered. It has been observed that the Petitioner has not submitted any documentary evidence in order to substantiate its claim under change in law. Also, the Petitioner has not furnished any details of the savings, on account of APC reduction etc. In view of this, the claim of the Petitioner is not allowed.

Installation of Ambient Air Quality Monitoring System

32. The Petitioner has claimed additional capital expenditure for Rs. 16.72 lakh in 2016-17 and Rs.1.16 lakh in 2018-19 towards Installation of Ambient Air Quality Monitoring System (AAQMS). In justification for the same, the Petitioner has submitted that as per Central Pollution Control Board (CPCB) Notification dated 18.11.2009, on revised Ambient Air Quality Standards (NAAQS), the Petitioner has installed AAQMS, for the real time monitoring, of the prescribed levels of pollutants. It has further submitted that the generating station was declared under commercial operation on 15.10.2015, and subsequently, the AAQMS has been installed for the compliance of existing law as per the said notification of CPCB. Since the expenditure claimed is based on the statutory directions of the CPCB, the claim of the Petitioner is allowed.

Initial Spares

33. The Petitioner has claimed amount of Rs. 8978.73 lakh, towards initial spares for the period 2015-19. The Petitioner has however, not furnished the revised Form 5B, with the breakup up of Plant & Machinery cost. The Commission vide its order dated 31.8.2016 in Petition 234/GT/2015, had allowed initial spares for Rs. 7757.44 lakh. However, it has been observed that in the aforesaid order, the Commission has considered the capital

expenditure towards FGD, to the extent of 80% of the projected additional capital expenditure only. The Petitioner, in the present Petition, has claimed the actual expenses towards FGD as Rs. 20919.57 lakh. Based on the above, the Initial spares (4% of the Plant & Machinery cost) works out to Rs. 7950.06 lakh. Accordingly, the claim for initial spares has been restricted to Rs. 7950.06 lakh in 2018-19 and the excess initial spares for Rs. 1028.67 lakh (Rs. 8978.73 lakh – Rs. 7950.06 lakh) has been reduced from the additional capital expenditure claimed in 2018-19.

Discharges of liabilities

34. The discharges of liabilities claimed by the Petitioner is allowed as under:

(Rs. in lakh)

2015-16 (31.10.2015-31.3.2016)	**2016-17**	**2017-18**	**2018-19**
9929.65	2630.87	7262.58	2051.36

35. Accordingly, the additional capital expenditure allowed for the period from 31.10.2015 to 31.3.2019, is summarized as under:

S No		**Regulation**	**2015-16 (31.10.2015 to 1.3.2016)**	**2016-17**	**2017-18**	**2018-19**
1	Assets Within the original scope of work	14(1)(ii)	1021.49	43392.29	31169.42	5985.66**
2	New Claims		549.12	0.00	0.00	0.00
3	De-capitalization	14(4)	(-)482.59	(-)78.60	(-)164.85	(-)796.62
4	Discharge of Liabilities	14(1)(i)	9929.65	2630.87	7262.58	2051.36
5	Exclusion Not allowed		0.00	0.00	0.00	(-)55.41
	Total		**11017.67**	**45944.57**	**38267.15**	**7184.99**

***After deducting initial spares of Rs. 1028.67 lakh*

<u>Capital cost allowed for the period 2015-19</u>

36. Based on above, the capital cost allowed for the period from 31.10.2015 to 31.3.2019 is as under:

(Rs. in lakh)

	2015-16 (31.10.2015 to 31.3.2016)	2016-17	2017-18	2018-19
Opening Capital Cost	196131.38	207149.05	253093.61	291360.76
Add: Additional capital expenditure	11017.67	45944.57	38267.15	7184.995
Closing Capital Cost	**207149.05**	**253093.61**	**291360.76**	**298545.76**
Average Capital Cost	201640.21	230121.33	272227.19	294953.26

Debt Equity Ratio

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

> *"19. Debt-Equity Ratio: (1) For a project declared under commercial operation on or after 1.4.2014, the debt-equity ratio would be considered as 70:30 as on COD. 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 shall submit the resolution of the Board of the company or approval from Cabinet Committee on Economic Affairs (CCEA) regarding infusion of fund 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 1.4.2014, debt-equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2014 shall be considered.*
>
> *(4) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, but where debt: equity ratio has not been determined by the Commission for determination of tariff for the period ending 31.3.2014, the Commission shall approve the debt: equity ratio based on actual information provided by the generating company or the transmission licensee as the case may be.*
>
> *(5) Any expenditure incurred or projected to be incurred on or after 1.4.2014 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.*

38. Accordingly, the gross normative loan and equity amounting to Rs.137292.18 lakh and Rs.58839 lakh, respectively as on 30.10.2015, as considered in order dated 31.8.2016 in Petition No. 234/GT/2015, has been considered as gross normative loan and equity as on 1.4.2014. Further, the additional capital expenditure approved above has been allocated to debt and equity in debt-equity ratio of 70:30. Accordingly, the details of debt-equity ratio in respect of the generating station as on 30.10.2015 and as on 31.3.2019 are as follows:

Funding	**Capital cost as on COD (30.10.2015)** ***(Rs. in lakh)***	**(%)**	**Additional capital expenditure** ***(Rs. in lakh)***	**(%)**	**Total cost as on 31.3.2019** ***(Rs. in lakh)***	**(%)**
Debt	137292.18	70.00	71690.07	70.00	208982.25	70.00
Equity	58839.50	30.00	30724.31	30.00	89563.81	30.00
Total	**196131.38**	**100.00**	102414.38	**100.00**	**298545.76**	**100.00**

<u>Return on Equity</u>

39. Regulation 24 of the 2014 Tariff Regulation provides as under:

> *"24. Return on Equity: (1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with regulation 19.*
>
> *(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 the 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:*
>
> *i) in case of projects commissioned on or after 1st April, 2014, an additional return of 0.50 % shall be allowed, if such projects are completed within the timeline specified in Appendix-I:*
>
> *ii) the additional return of 0.5% shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever:*
>
> *iii) additional RoE of 0.50% may be allowed if any element of the transmission project is completed within the specified timeline and it is certified by the Regional Power Committee/National Power Committee that commissioning of the particular element will benefit the system operation in the regional/national grid:*
>
> *iv) the rate of return of a new project shall be reduced by 1% 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)/ Free Governor Mode Operation*

(FGMO), data telemetry, communication system up to load dispatch centre or protection system:

v) as and when any of the above requirements are found lacking in a generating station based on the report submitted by the respective RLDC, RoE shall be reduced by 1% for the period for which the deficiency continues:

vi) additional RoE shall not be admissible for transmission line having length of less than 50 kilometer."

40. Regulation 25 of the 2014 Tariff Regulations provides as under:

"25. Tax on Return on Equity: (1) The base rate of return on equity as allowed by the Commission under Regulation 24 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 the 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 income on other income stream (i.e., income of non-generation or non-transmission business, as the case may be) shall not be considered for the calculation of "effective tax rate"

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

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

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

(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 2014-15 to 2018-19 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/DICs as the case may be on year to year basis."

41. The Petitioner has claimed tariff considering rate of return on equity of 20.3412% in 2015-18 and 20.3949% in 2018-19. The Petitioner has arrived at these rates after grossing up the base rate of return on equity of 16.00% with MAT rate of 21.342% in 2015-18 and 21.5489% in 2018-19. In line with the provisions of Regulation 24(2) read with Appendix-I of the 2014 Tariff Regulations, the project has been completed within 42

months and hence, an additional ROE of 0.5% is allowed. Thus, ROE has been trued up on the basis of the ROE (base rate) allowed vide order dated 31.8.2016 and the MAT rate applicable in the respective years and is allowed for the generating station as under:

(Rs in lakh)

	2015-16 (31.10.2015 to 31.3.2016)	**2016-17**	**2017-18**	**2018-19**
Notional Equity- Opening	58839.50	62144.80	75928.17	87408.32
Addition of Equity due to additional capital expenditure	3305.30	13783.37	11480.15	2155.50
Normative Equity – Closing	62144.80	75928.17	87408.32	89563.81
Average Normative Equity	60492.15	69036.48	81668.24	88486.06
Return on Equity (Base Rate)	16.000%	16.000%	16.000%	16.000%
Effective Tax Rate	21.342%	21.342%	21.342%	21.549%
Rate of Return on Equity (Pre-tax)	20.341%	20.341%	20.341%	20.395%
Return on Equity (Pre-tax) - (annualized)	**12304.71**	**14042.71**	**16612.14**	**18046.73**

Interest on loan

42. Regulation 26 of the 2014 Tariff Regulations provides as under:

"26. Interest on loan capital: (1) The loans arrived at in the manner indicated in regulation 19 shall be considered as gross normative loan for calculation of interest on loan.

(2) The normative loan outstanding as on 1.4.2014 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2014 from the gross normative loan.

(3) The repayment for each of the year of the tariff period 2014-19 shall be deemed to be equal to the depreciation allowed for the corresponding year/period. In case of Decapitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered up to the date of de-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 generating company or the transmission licensee, as the case may be, shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event the costs associated with such refinancing shall be borne by the beneficiaries and the net savings shall be shared between the beneficiaries and the generating company or the transmission licensee, as the case may be, in the ratio of 2:1.

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

(9) In case of dispute, any of the parties may make an application in accordance with the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999, as amended from time to time, including statutory re-enactment thereof for settlement of the dispute: Provided that the beneficiaries or the long term transmission customers /DICs shall not withhold any payment on account of the interest claimed by the generating company or the transmission licensee during the pendency of any dispute arising out of re-financing of loan."

43. Interest on loan has been computed as under:

i) The gross normative loan amounting to Rs. 137292.18 lakh as on 30.10.2015, as considered in order dated 31.8.2016 in Petition No. 234/GT/2015, has been considered as on 30.10.2015.

ii) Addition to normative loan on account of additional capital expenditure approved above have been considered.

iii) The Petitioner has claimed interest on loan considering weighted average rate of interest (WAROI) of 7.8791% in 2015-16, 7.7768% in 2016-17, 7.2248% in 2017-18 and 7.0780% in 2018-19. However, it is observed that, the Petitioner in Form 13, has not considered the amount of interest of few actual loans while computing WAROI. Accordingly, after correction the interest rates of 7.9359% for 2015-16, 7.7710% for 2016-17, 7.1894% for 2017-18 and 7.5288% for 2018-19 have been considered for the purpose of calculation of interest on loan.

iv) Depreciation allowed has been considered as repayment of normative loan during the respective year of the period 2015-19. Further, repayments have been adjusted for de-capitalization of assets considered for the purpose of tariff.

v) Further, in terms of provisions of Regulations 26(7) and Regulation 26(8) of the 2014 Tariff Regulations the beneficiaries and the Petitioner shall mutually share the net savings on account of refinancing of loan in the ratio 2:1. In the event of any dispute regarding sharing of net saving on account of refinancing any of the parties may approach the Commission for its resolution. However, the beneficiaries shall not withhold any payment on account of the interest claimed by the generating company during the pendency of dispute.

44. Accordingly, Interest on loan has been worked out as under:

(Rs. in lakh)

	2015-16 (31.10.2015 to 31.3.2016)	2016-17	2017-18	2018-19
Gross opening loan	137292.18	145004.55	177165.74	203952.75
Cumulative repayment of loan upto previous year	-	10480.75	22489.14	36712.08
Net Loan Opening	137292.18	134523.80	154676.60	167240.67
Addition due to additional capital expenditure	7712.37	32161.20	26787.01	5029.50
Repayment of loan during the year	10486.00	12012.15	14239.44	15421.80
Less: Repayment adjustment on account of de-capitalization	5.25	3.76	16.50	129.84
Net Repayment of loan during the year	10480.75	12008.39	14222.94	15291.96
Net Loan Closing	134523.80	154676.60	167240.67	156978.20
Average Loan	135907.99	144600.20	160958.63	162109.44
Weighted Average Rate of Interest of loan	7.9359%	7.7710%	7.1894%	7.5288%
Interest on Loan	**10785.46**	**11236.82**	**11571.94**	**12204.88**

Depreciation

45. Regulation 27 of the 2014 Tariff Regulations provides as under:

"27. Depreciation:

(1) Depreciation shall be computed from the date of commercial operation of a generating station or unit thereof or a transmission system including communication system or element thereof. 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 or elements thereof.

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 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 in case of hydro generating station the salvage value shall be as provided in the agreement signed by the developers with the State Government for development of the Plant:

Provided further 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 generating unit or transmission system as the case may be shall not be allowed to be recovered at a later stage during the useful life and 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-II 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 1.4.2014 shall be worked out by deducting the cumulative depreciation as admitted by the Commission upto 31.3.2014 from the gross depreciable value of the assets.

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

(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 decapitalized asset during its useful services."

46. The value of freehold land amounting to Rs.714.20 lakh, as on 30.10.2015, as considered in order dated 31.8.2016 in Petition No. 234/GT/2016, along with additions during the period 2014-19, has been considered for the purpose of tariff. Accordingly, depreciation has been computed by considering weighted average rate of depreciation and is enclosed as Annexure-I to this order. Necessary calculations in support of depreciation are as under:

(Rs. in lakh)

	2015-16 (31.10.2015 to 31.3.2016)	**2016-17**	**2017-18**	**2018-19**
Average capital cost (A)	201640.21	230121.33	272227.19	294953.26
Value of freehold land included above (B)	714.20	714.20	714.20	714.20
Aggregated depreciable Value [C = (A-B) x 90%]	180833.41	206466.42	244361.69	264815.16

	2015-16 (31.10.2015 to 31.3.2016)	2016-17	2017-18	2018-19
Remaining Aggregate Depreciable value at the beginning of the year (D = C – 'J' of previous year)	180833.41	202082.93	227966.05	234180.07
Balance useful life at the beginning of the year (E)	25.00	24.50	23.50	22.50
Weighted average rate of depreciation (F)	5.2188%	5.2362%	5.2445%	5.2412%
Depreciation during the year (G = A x F)	4383.49	12012.15	14239.44	15421.80
Depreciation (annualized)	**10486.00**	**12012.15**	**14239.44**	**15421.80**
Cumulative depreciation at the end of the year, before adjustment of de-capitalisation adjustment (H = G + 'J' of previous year)	4383.49	16395.64	30635.08	46056.88
Cumulative depreciation adjustment on account of de-capitalisation (I)	5.25	3.76	16.50	129.84
Cumulative depreciation, at the end of the year (J = H - I)	**4378.24**	**16391.88**	**30618.58**	**45927.04**

<u>Operation & Maintenance Expenses</u>

47. Regulation 29(1)(a) of the 2014 Tariff Regulations specifies the following norms for O&M expenses for coal based/lignite fired generating station:

"Normative Operation and Maintenance expenses of thermal generating stations shall be as follows:

(a) Coal based and lignite fired (including those based on Circulating Fluidized Bed Combustion (CFBC) technology) generating stations, other than the generating stations/units referred to in clauses (b) and (d):

(in Rs. lakh/MW)

Year	*200/210/250 MW Sets*	*300/330/350 MW Sets*	*500 MW Sets*	*600 MW Sets and above*
FY 2014-15	*23.90*	*19.95*	*16.00*	*14.40*
FY 2015-16	*25.40*	*21.21*	***17.01***	*15.31*
FY 2016-17	*27.00*	*22.54*	***18.08***	*16.27*
FY 2017-18	*28.70*	*23.96*	***19.22***	*17.30*
FY 2018-19	*30.51*	*25.47*	***20.43***	*18.38*

Provided that the norms shall be multiplied by the following factors for arriving at norms of O&M expenses for additional units in respective unit sizes for the units whose COD occurs on or after 1.4.2014 in the same station:

200/210/250 MW	*Additional 5th & 6th units*	*0.90*
	Additional 7th & more units	*0.85*
300/330/350 MW	*Additional 4th & 5th units*	*0.90*
	Additional 6th & more units	*0.85*
500 MW and above	*Additional 3rd & 4th units*	*0.90*
	Additional 5th & above units	*0.85*

48. The Commission vide its order dated 31.8.2016 in Petition No. 234/GT/2015, had allowed O&M expenses as under:

(Rs. in lakh)

	2015-16 (31.10.2015 to 31.3.2016)	2016-17	2017-18	2018-19
O&M expenses allowed under Regulation 29(1)(a)	7229.25	7684.00	8168.50	8682.75
Water Charges allowed under Regulation 29(2)	873.56	929.03	988.03	1050.77
Total O&M expenses allowed	**8102.81**	**8613.03**	**9156.53**	**9733.52**

49. The O&M expenses claimed by the Petitioner is as under:

(Rs. in lakh)

	2015-16 (31.10.2015 to 31.3.2016)	2016-17	2017-18	2018-19
O&M expenses under Regulation 29(1)(a) of the 2014 Tariff Regulations	7229.25	7684.00	8168.50	8682.75
O&M expenses under Regulation 29(2) of the 2014 Tariff Regulations:				
- Water charges	892.46	835.87	785.52	811.37
- Capital spares consumed	1146.74	72.85	162.26	796.62
Sub-total O&M Expenses	**9268.45**	**8592.72**	**9116.27**	**10290.74**
O&M expenses of FGD system	0.00	910.00	967.79	1029.24
Impact of wage revision	20.03	718.48	964.58	1185.78
Impact of GST	0.00	0.00	69.61	104.75
Total O&M Expenses	**9288.48**	**10221.20**	**11118.25**	**12610.51**

50. The normative O&M expenses claimed in terms of the Regulation 29(1)(a) of the 2014 Tariff Regulations were allowed by the Commission vide order dated 31.8.2016 in Petitioner No. 234/GT/2015. Accordingly, the same is allowed.

Water Charges

51. Regulation 29(2) of the 2014 Tariff Regulations provide as under:

> *"29.(2) The Water Charges and capital spares for thermal generating stations shall be allowed separately:*

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:

52. In terms of the above regulation, water charges are to be allowed based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check. The Petitioner has claimed water charges based on actual water consumption of the generating station as under:

(Rs. in lakh)

	Units	**2014-15**	**2015-16 (31.10.2015 to 31.3.2016)**	**2016-17**	**2017-18**	**2018-19**
Type of cooling tower	-	Induced Draft Cooling Tower (IDCT)				
Type of cooling water system	-	Closed Cycle				
Water allocation/contracted*	MCM	-	160.00	160/149	149.00	149.00
Actual water consumption for Vindhyachal Stage-V	MCM	-	5.46	15.37	11.49	10.81
Rate of water charges	-	Rs.5.5/m^3				
Total water charges paid Vindhyachal Stage V	Rs. in lakh	-	892.46	835.87	785.52	811.37
Water charges paid for Vindhyachal as whole	Rs. in lakh	-	7979.31	7957.51	7478.13	7381.94

53. The water charges allowed, on projected basis, by the Commission in order dated 31.8.2016 in Petition No. 234/GT/2015 is as under:

(Rs. in lakh)

2015-16 (31.10.2015 to 31.3.2016)	**2016-17**	**2017-18**	**2018-19**
873.56	929.03	988.03	1050.77

54. We have examined the matter. The water charges for Rs.3325.22 lakh, claimed in the present Petition is lower than the water charges allowed for Rs.3841.39 lakh, on projection basis in order dated 28.7.2016 in Petition No. 234/GT/2015 for the period 2015-19. Further, the water charges claimed is in accordance with the auditor certified financial statements for the relevant financial years of the period 2015-19. Accordingly, the water charges claimed by the Petitioner is allowed as under:

(Rs. in lakh)

2015-16 (31.10.2015 to 31.3.2016)	2016-17	2017-18	2018-19
892.46	835.87	785.52	811.37

Capital Spares

55. The last proviso to Regulation 29(2) of the 2014 Tariff Regulations provides as under:

> *"Provided that the generating station shall submit the details of year wise actual capital spares consumed at the time of truing up with appropriate justification for incurring the same and substantiating that the same is not funded through compensatory allowance or special allowance or claimed as a part of additional capitalization or consumption of stores and spares and renovation and modernization".*

56. In terms of the above proviso, capital spares consumed are admissible separately, at the time of truing up of tariff, based on the details furnished by the Petitioner. The capital spares claimed by the Petitioner are as under:

(Rs. in lakh)

2015-16 (31.10.2015 to 31.3.2016)	2016-17	2017-18	2018-19
482.51	72.85	162.26	796.62

57. We have also examined the list of spares furnished by the Petitioner along with the de-capitalization details, furnished in Form-9Bi. The capital spares consumption claimed by the Petitioner comprise of two categories as under:

(Rs. in lakh)

	2015-16 (31.10.2015-31.3.2016)	2016-17	2017-18	2018-19
Capital spares (part of capital cost)	482.51	72.85	162.26	796.62
Total capital spares consumed claimed	482.51	72.85	162.26	796.62

58. We have examined the list of spares furnished by the Petitioner. It is observed that the Petitioner has claimed the same amount of decapitalization in Form 9Bi and has claimed the same as capital spares. It is evident from the above that all the capital spares form part of the capital cost and therefore, cannot be allowed on consumption basis. Accordingly, the capital spares allowed for the purpose of tariff as under:

(Rs. in lakh)

	2015-16	2016-17	2017-18	2018-19
Net total value of capital spares considered	0.00	0.00	0.00	0.00
Less: Salvage value @ 10%	0.00	0.00	0.00	0.00
Net capital spares allowed	0.00	0.00	0.00	0.00

<u>Additional O&M Expenses on account of Goods and Service Tax</u>

59. The Petitioner has claimed additional O&M expenses of Rs.69.61 lakh in 2017-18 and Rs.104.75 lakh in 2018-19, on account of payment of Goods and Service Tax (GST). The Respondent, MSEDCL has submitted that the Petitioner's claim for payment of GST as additional O&M expenses, will lead to additional burden on the consumers and the GST expenses towards O&M expenses are applicable only if the service is outsourced. Respondent MSEDCL has also submitted that the services are outsourced, due to efficiency issues or lack of expertise within the company, and it will obviously be lower than the cost of doing that job internally. It has further submitted that the O&M operating norms are the ceiling norms, and the generating companies are required to manage within these limits. The Respondent, MPPMCL has submitted that through enactment of GST the GOI has rationalized the tax regime, by subsuming various taxes/cess/duties and this has generally resulted in the reduction of overall applicable tax rate in the country and hence, the claim of the Petitioner is not in order. In response, the Petitioner has submitted that it is a settled position of law that the promulgation of GST, is change in law event, and falls within the purview of Regulation 3(9) read with Regulation 14(3) of the 2014

Tariff Regulations. The Petitioner has further submitted that the amount claimed is only on account of differential rate of tax for taxable services relating to O&M i.e. the erstwhile service tax 15% and in GST 18%.

60. The submissions have been considered. It is observed that the Commission while specifying the O&M expense norms for the period 2014-19 had considered taxes to form part of the O&M expense calculations and accordingly, had factored the same in the said norms. This is evident from paragraph 49.6 of the SOR (Statement of Objects and Reasons) issued with the 2014 Tariff Regulations, which is extracted hereunder:

> *"49.6 With regards to suggestion received on other taxes to be allowed, the Commission while approving the norms of O&M expenses has considered the taxes as part of O&M expenses while working out the norms and therefore the same has already been factored in..."*

61. Further, the escalation rates considered in the O&M expense norms is only after accounting for the variations during the past five years of the 2014-19 tariff period, which in our view, takes care of any variation in taxes also. It is pertinent to mention that in case of reduction of taxes or duties, no reimbursement is ordered. In this background, we find no reason to grant additional O&M expenses towards payment of GST.

Additional O&M Expenses on account of impact of Wage Revision

62. The Petitioner has submitted that the Commission while specifying the 2014 Tariff Regulations applicable for the period 2014-19, had taken note in Statement of Objects and Reasons (SOR) to the said regulations that any increase in the employee expenses, on account of pay revision shall be considered appropriately, on a case to case basis, balancing the interest of generating stations and consumers. The Petitioner has, therefore, claimed additional O&M expenses of Rs.59.79 lakh in 2015-16, Rs.3241.46 lakh of in 2016-17, Rs.4054.76 lakh in 2017-18 and Rs.5286.19 lakh in 2018-19 towards

impact of wage revision of employees of CISF from 1.1.2016 and the employees of the Petitioner posted in the generating station, with effect from 1.1.2017. In this regard the Petitioner vide affidavit dated 4.6.2021 has submitted the following:

(a) Detailed break-up of the actual O&M expenses booked by the Petitioner for the 2014-19 tariff period for the whole generating station (i.e. all Stages of Sipat STPS).

(b) Detailed break-up of actual O&M expense of the Corporate Centre and its allocation to various generating stations, for the 2014-19 tariff period.

(c) Break-up of claimed wage revision impact on employee cost, expenses on corporate center and on salaries of CISF employee of the generating station for the 2014-19 tariff period.

63. We have examined the submissions and the documents available on record. As stated, the Petitioner has claimed total amount of Rs.2877.27 lakh (Rs.8.43 lakh in 2015-16, Rs.718.48 lakh of in 2016-17, Rs.964.58 lakh in 2017-18 and Rs.1185.78 lakh in 2018-19) as impact of wage revision of employees of CISF from 1.1.2016 and for employees of the Petitioner posted at the generating station, with effect from 1.1.2017. However, it is noticed that the said claim of the Petitioner includes the impact on account of the payment of additional PRP/ex-gratia to its employees, consequent upon wage revision, of Rs.89.88 lakh in 2017-18 and Rs.341.41 lakh in 2018-19. As such, as per consistent methodology adopted by the Commission of excluding PRP/ex-gratia from actual O&M expenses of past data for finalization of O&M norms for various tariff settings, the additional PRP/ex-gratia, paid as a result of wage revision impact has been excluded from the wage revision impact claimed by the Petitioner, in the present case. Accordingly, the claim of the Petitioner in respect of wage revision impact stand reduced to Rs.2445.98 lakh with the following year-wise break up.

(Rs. in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**	**Total**

Wage revision impact claimed (excluding PRP/ex-gratia)	0.00	8.43	718.48	874.70	844.37	2445.98

64. The Commission while specifying the O&M expense norms under the 2014 Tariff Regulations had considered the actual O&M expense data for the period from 2008-09 to 2012-13. However, considering the submissions of the stakeholders, the Commission, in the SOR to the 2014 Tariff Regulations, had observed that the increase in employees cost due to impact of pay revision impact, will be examined on a case to case basis, balancing the interest of generating stations and the consumers. The relevant extract of the SOR is extracted under:

> *"29.26. Some of the generating stations have suggested that the impact of pay revision should be allowed on the basis of actual share of pay revision instead of normative 40% and one generating company suggested that the same should be considered as 60%. In the draft Regulations, the Commission had provided for a normative percentage of employee cost to total O&M expenses for different type of generating stations with an intention to provide a ceiling limit so that it does not lead to any exorbitant increase in the O&M expenses resulting in spike in tariff. The Commission would however, like to review the same considering the macro economics involved as these norms are also applicable for private generating stations. In order to ensure that such increase in employee expenses on account of pay revision in case of central generating stations and private generating stations are considered appropriately, the Commission is of the view that it shall be examined on case to case basis, balancing the interest of generating stations and consumers.*
>
> *33.2 The draft Regulations provided for a normative percentage of employee cost to total O&M expenses for generating stations and transmission system with an intention to provide a ceiling limit so that the same should not lead to any exorbitant increase in the O&M expenses resulting in spike in tariff. The Commission shall examine the increase in employee expenses on case to case basis and shall consider the same if found appropriate, to ensure that overall impact at the macro level is sustainable and thoroughly justified. Accordingly, clause 29(4) proposed in the draft Regulations has been deleted. The impact of wage revision shall only be given after seeing impact of one full year and if it is found that O&M norms provided under Regulations are inadequate/insufficient to cover all justifiable O&M expenses for the particular year including employee expenses, then balance amount may be considered for reimbursement."*

65. The methodology indicated in SOR quoted above suggests a comparison of the normative O&M expenses with the actual O&M expenses, on year to year basis. However, in this respect the following facts needs consideration:

(a) The norms are framed based on the averaging of the actual O&M expense of past five years to capture the year on year variations in sub-heads of O&M;

(b) Certain cyclic expenditure may occur with a gap of one year or two years and as such adopting a longer duration i.e. five years for framing of norms also captures such expenditure which is not incurred on year to year basis;

(c) When generating companies find that their actual expenditure has gone beyond the normative O&M expenses in a particular year put departmental restrictions and try to bring the expenditure for the next year below the norms.

66. In consideration of above facts, we find it appropriate to compare the normative O&M expenses with the actual O&M expenses for a longer duration so as to capture the variation in the sub-heads. Accordingly, it is decided that for ascertaining that the O&M expense norms provided under the 2014 Tariff Regulations are inadequate/ insufficient to cover all justifiable O&M expenses, including employee expenses, the comparison of the normative O&M expenses and the actuals O&M expenses incurred shall be made for 2015-19 on a combined basis, which is commensurate with the wage revision claim being spread over these four years.

67. The Petitioner has furnished the detailed breakup of the actual O&M expenses incurred during the 2014-19 tariff period for combined stages i.e. Stage-I and II of the Sipat STPS. It is noticed that the total O&M expenses incurred for generating station is more that the normative O&M expenses recovered during each year of the 2014-19 tariff period. The impact of wage revision/ pay revision could not be factored by the Commission while framing the O&M expense norms under the 2014-19 Tariff Regulations since the pay/ wage revision came into effect from 1.1.2016 (CISF & KV employees) and 1.1.2017 (employees of the Petitioner) respectively. As such, in terms of SOR to the 2014 Tariff Regulations, the following approach has been adopted for arriving at the allowable impact of pay revision:

(a) Comparison of the normative O&M expenses with the actual O&M expenses incurred for the period from 2015-16 to 2018-19, commensurate to the period for which wage revision impact has been claimed. For like-to-like comparison, the components of O&M expenses like productivity linked incentive, water charges, filing fee, ex-gratia, loss of provisions, prior period expenses, community development store expenses, ash utilization expenses, RLDC fee & charges and others (without breakup/details) which were not considered while framing the O&M expense norms for the 2014-19 tariff period, have been excluded from the yearly actual O&M expenses. Having done so, if the normative O&M expenses for the period 2015-19 are higher than the actual O&M expenses (normalized) for the said period, then the impact of wage revision (excluding PRP and ex-gratia) as claimed for the said period is not admissible/allowed as the impact of pay revision gets accommodated within the normative O&M expenses. However, if the normative O&M expenses for the period 2015-19 are lesser than the actual O&M expenses (normalized) for the same period, the wage revision impact (excluding PRP and ex-gratia) to the extent of under recovery or wage revision impact (excluding PRP and Exgratia), whichever is lower, is required to be allowed as wage revision impact for the period 2015-19.

68. The details as furnished by the Petitioner for actual O&M expenses incurred for all the stages for the period 2014-19, and the wage revision impact (excluding PRP and ex-gratia) for the generating station (Stage-V 500 MW) are as under:

(Rs. in lakh)

Year	**Actual O&M expenses for whole Vindhyachal STPS, excluding water charges & capital spares**	**Wage revision impact claimed for the generating station i.e. Vindhyachal STPS, Stage-V (500 MW)**
2014-15	80913.30	0.00
2015-16	89415.35	8.43
2016-17	97410.68	718.48
2017-18	125046.98	964.58
2018-19	107332.31	1185.78
Total		**2877.27**

69. As a first step, the expenditure against sub-heads of O&M expenses as indicated above have been excluded from the actual O&M expenses incurred to arrive at the actual O&M expenses (normalized) for the combined stages of the generating station (Stage-I & II). Accordingly, the comparison of the normative O&M expenses versus the actual O&M expenses (normalized) along with the wage revision impact claimed by the Petitioner for the generating station i.e. Vindhyachal STPS for the period 2015-19 is as follows:

(Rs. in lakh)

	2015-16 (31.10.2015 to 31.3.2016)	2016-17	2017-18	2018-19	Total
Actual O&M expenses (normalized) for the combined stages of the generating station (Stage-I to V) – (a)	75822.61	84219.10	85727.08	90590.91	336359.70
Actual O&M expenses (normalized) for the generating station i.e., Vindhyachal STPS, Stage-V (500 MW) pro-rated based on capacity – (b)	7759.61	7119.65	7169.34	7564.70	29613.30
Normative O&M expenses for Vindhyachal STPS, Stage-V as per Regulation 29(1) of the 2014 Tariff Regulations – (c)	7229.25	7684.00	8168.50	8682.75	31764.50
Under/(Excess) recovery for the generating station (d)=(b)-(c)	530.36	(-) 564.35	(-) 999.16	(-) 1118.05	(-) 2151.20
Wage revision impact claimed (excluding PRP/ex-gratia)	0.00	8.43	718.48	874.70	844.37

70. It is observed that for the wage revision impact during the period 2015-19, the normative O&M expenses is more than the actual O&M expenses (normalized) incurred and the over recovery is to the tune of Rs.2151.20 lakh. As such, in terms of methodology described above, the wage revision impact (excluding PRP/ex-gratia) of Rs.2877.77 lakh is **not allowed** for this generating station.

O&M expenses of FGD system

71. The Petitioner has claimed the amount of Rs. 910.00 lakh during 2016-17, Rs. 967.79 lakh during 2017-18 and Rs. 1029.24 lakh during 2018-19. As regards the additional O&M expenses for FGD, the Commission vide its order dated 31.8.2016 in Petition No. 234/GT/2015, had directed the Petitioner to submit the actual O&M expenses of FGD system at the time of truing-up of tariff. The Petitioner has submitted that actual additional O&M expenses incurred for FGD system as under.

(Rs. in lakh)

2015-16 (31.10.2015 to 31.3.2016)	2016-17	2017-18	2018-19
0.00	910.00	967.79	1029.24

72. In view of the above, the actual additional O&M expenses, incurred towards FGD system, as above, is allowed.

73. Accordingly, the total O&M expenses allowed to the generating station for the period 2015-19 is as under:

(Rs. in lakh)

	2015-16 (31.10.2015 to 31.3.2016)	2016-17	2017-18	2018-19
O&M expenses under Regulation 29(1)(a) of the 2014 Tariff Regulations claimed	7229.25	7684	8168.5	8682.75
O&M expenses under Regulation 29(1)(a) of the 2014 Tariff Regulations **allowed**	7229.25	7684	8168.5	8682.75
O&M expenses under Regulation 29(2) of the 2014 Tariff Regulations				
- Water charges claimed	892.46	835.87	785.52	811.37
- Water Charges **allowed**	892.46	835.87	785.52	811.37
- Capital spares consumed	482.51	72.85	162.26	796.62
- Capital Spares **allowed**	0.00	0.00	0.00	0.00
Sub-total O&M Expenses claimed	9268.45	8592.72	9116.28	10290.7
Sub-total O&M Expenses **allowed**	**8121.71**	**8519.87**	**8954.02**	**9494.12**
O&M expenses of FGD system-claimed	0.00	910	967.79	1029.24
O&M expenses of FGD system-**allowed**	0.00	910	967.79	1029.24
Impact of wage revision claimed	20.03	718.48	964.58	1185.78
Impact of wage revision **allowed**	0.00	0.00	0.00	0.00
Impact of GST claimed	0.00	0.00	69.61	104.75
Impact of GST **allowed**	0.00	0.00	0.00	0.00
Total O&M Expenses claimed	9288.48	10221.2	11118.3	12610.5
Total O&M Expenses allowed	**8121.71**	**9429.87**	**9921.81**	**10523.4**

Operational Norms

74. The operational norms in respect of the generating station i.e. normative annual plant availability factor, gross station heat rate, specific fuel oil consumption and auxiliary power consumption are discussed as under:

Normative Annual Plant Availability Factor

75. In terms of Regulation 36(A)(a) of the 2014 Tariff Regulations, the Commission vide its order dated 31.8.2016 in Petitioner No. 234/GT/2015, had allowed the Normative Annual Plant Availability Factor (NAPAF) of 83% for the period 2014-17 and 85% for the period 2017-19. The same is considered for the purpose of revision of tariff.

Gross Station Heat Rate (kCal/kWh)

76. In terms of Regulation 36Petitioner(a) of the 2014 Tariff Regulations, the Gross Station Heat Rate (GSHR) of 2351.25 kCal/kWh as allowed vide order dated 31.8.2016 in Petitioner No. 234/GT/2015, is considered for the purpose of revision of tariff.

Specific Oil Consumption

77. In terms of Regulation 36(D)(a) of the 2014 Tariff Regulations, the secondary fuel oil consumption of 0.50 ml/kWh as allowed vide order 31.8.2016 in Petitioner No. 234/GT/2015, is considered for the purpose of revision of tariff.

Auxiliary Power Consumption

78. In terms of the Regulation 36(E)(a) of the 2014 Tariff Regulations, the auxiliary power consumption of 5.75% as allowed vide order dated 31.8.2016 in Petitioner No. 234/GT/2015, is considered for the purpose of revision of tariff. Further, the Commission in its order dated 31.8.2016 has allowed an additional 1% of auxiliary consumption on account of FGD. The Petitioner, in the present Petition, has claimed additional auxiliary consumption of 1.11% on account of FGD, and has submitted the PG test certificate to substantiate its claim.

79. As regards additional auxiliary consumption of 1.11% on account of FGD, the Commission vide its order dated 31.8.2016 in Petition No. 234/GT/2015, had allowed the additional auxiliary consumption of 1.0% on account of FGD, subject to revision at the time of truing-up of tariff. The Commission had also directed the Petitioner to submit the actual Auxiliary Consumption of FGD at the time of truing-up. The Petitioner has submitted that the additional auxiliary consumption is 1.11%, on account of FGD and has also submitted the PG test report of FGD. Based on the documentary evidence submitted by the Petitioner, the Auxiliary Consumption is allowed as 5.75% for 2015-16 and 6.86% for the period from 2016-17 to 2018-19.

Interest on Working Capital

80. Sub-section (a) of clause (1) of Regulation 28 of the 2014 Tariff Regulations provides as under:

> *"28 (1) The working capital shall cover:*
>
> *(b) Coal-based/lignite-fired thermal generating stationi) Cost of coal or lignite and limestone towards stock, if applicable, for 15 days for pit-head generating stations and 30 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) Cost of coal or lignite and limestone for 30 days 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* specified in regulation 29;
>
> *(v) Receivables equivalent to two months of capacity charges and energy charges for sale of electricity calculated on the normative annual plant availability factor; and*
>
> *(vi) Operation and maintenance expenses for one month."*

Fuel Component and Energy Charges in Working Capital

81. Regulation 28(2) of the 2014 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 three months preceding the first month for which the tariff is to be determined. In terms of Regulation 30(6) of the 2014 Tariff Regulations, for determination of the energy charges in working capital, the GCV on 'as received' basis is to be considered. Regulation 30(7) of the 2014 Tariff Regulations provides as under:

> *"(7) The generating company shall provide to the beneficiaries of the generating station the details of parameters of GCV and price of fuel i.e. domestic coal, imported coal, eauction coal, lignite, natural gas, RLNG, liquid fuel etc., as per the forms prescribed at Annexure-I to these regulations:*
>
> *Provided that the details of blending ratio of the imported coal with domestic coal, proportion of e-auction coal and the weighted average GCV of the fuels as received shall also be provided separately, along with the bills of the respective month:*
>
> *Provided further that copies of the bills and details of parameters of GCV and price of fuel i.e. domestic coal, imported coal, e-auction coal, lignite, natural gas, RLNG, liquid fuel etc., details of blending ratio of the imported coal with domestic coal, proportion of e-auction coal shall also be displayed on the website of the generating company. The details should be available on its website on monthly basis for a period of three months."*

82. The issue of 'as received' GCV for computation of energy charges was challenged by the Petitioner and other generating companies through various writ petitions filed before the Hon'ble High Court of Delhi (W.P. No.1641/2014-NTPC v CERC) challenging Regulations 30(6) of the 2014-19 Tariff Regulations with regard to measurement of GCV of coal on 'as received' basis for purpose of energy charges and the Hon'ble Court had directed the Commission to decide the place from where the sample of coal should be taken for measurement of GCV of coal on 'as received' basis on the request of Petitioners. In terms of the directions of the Hon'ble High Court, the Commission vide its order dated 25.1.2016 in Petition No. 283/GT/2014 (approval of tariff of Kahalgaon STPS for the period 2014-19) decided as under:

> *"58. In view of the above discussion the issues referred by the Hon'ble High Court of Delhi are decided as under:*
> *"(a) There is no basis in the Indian Standards and other documents relied upon by NTPC etc. to support their claim that GCV of coal on as received basis should be measured by*

taking samples after the crusher set up inside the generating station in terms of Regulation 30(6) of the 2014 Tariff regulations.

(b)The samples for the purpose of measurement of coal on as received basis should be collected from the loaded wagons at the generating stations either manually or through the Hydraulic Auger in accordance with provisions of IS 436(Part1/Section1)-1964 before the coal is unloaded. While collecting the samples the safety of personnel and equipment as discussed in this order should be ensured. After collection of samples the sample preparation and testing shall be carried out in the laboratory in accordance with the procedure prescribed in IS 436(Part1/Section1)-1964 which has been elaborated in the CPRI Report to PSERC."

83. The review petition filed by the Petitioner against the aforesaid order dated 25.1.2016 was rejected by the Commission vide order dated 30.6.2016 in Petition No.11/RP/2016. The Petitioner has filed Petition No. 244/MP/2016 before this Commission praying for removal of difficulties and the issues faced by it in implementing the Commission's orders dated 25.1.2016 and 30.6.2016 with regard sampling of coal from loaded wagon top for measurement of GCV and the Commission by its order dated 19.9.2018 had disposed of the preliminary objections of the respondents therein and held that the petition is maintainable. Against this order, some of the respondents have filed appeal before the APTEL in Appeal Nos. 291/2018 (GRIDCO v NTPC & ors) and the same is pending.

84. In Petition No. 234/GT/2015 filed by the Petitioner for determination of tariff of this generating station for the 2014-19 tariff period, the Petitioner had not furnished GCV of coal on 'as billed' and on 'as received' basis for the preceding 3 months i.e. for July 2015, August, 2015 and September, 2015 that were required for determination of Interest on Working Capital (IWC). Therefore, the Commission vide its order dated 29.3.2017 in Petition No.337/GT/2014 had considered GCV of coal on 'as billed' basis and provisionally allowed adjustment for total moisture while allowing the cost of coal towards generation & stock and two months' energy charges in the working capital.

85. The Petitioner, in this petition, has claimed the fuel related components of working capital based on GCV of coal as 3637.30 Kcal/kg (as indicated at Form-13F) consequent to the order of the Commission dated 29.3.2017 in Petition No. 337/GT/2014. This 'as received' GCV of 3730.70 kcal/kg, represents the average of monthly as received GCVs for period from July, 2015, August, 2015 and September, 2015. Further, the Petitioner has submitted that CEA vide letter dated 17.10.2017 has opined that 85-100 kcal/kg for a pit-head station and a margin of 105-120 kcal/kg for non-pit head station may be considered as a loss of GCV of coal between 'as received' and 'as fired'. Accordingly, the Petitioner has considered 100 kcal/kg margin on the average GCV of the period from July 2015 to Sept 2015 for computing working capital. Accordingly, the cost of fuel component in the working capital of the generating station claimed by the Petitioner is as under:

(Rs. in lakh)

	2015-16 (31.10.2015 to 31.3.2016)	**2016-17**	**2017-18**	**2018-19**
Cost of Coal towards stock (30 days)	3874.46	3874.44	3967.80	3967.80
Cost of Coal towards Generation (30 days)	3874.46	3874.44	3967.80	3967.80
Cost of Limestone for stock	0.00	73.00	74.76	74.76
Cost of Limestone for generation	0.00	73.00	74.76	74.76
Cost of Secondary fuel oil 2 months	159.11	158.68	162.50	162.50

86. The submissions have been considered. As discussed above, the Petitioner in Form-13F, has considered the average GCV of coal on 'as received basis' from July, 2015 to September, 2015 for the purpose of computation of working capital for the period 2015-19. In addition to the average GCV, it has also considered a margin of 100 kCal/kg for computation of the working capital of the generating station.

87. The Petitioner has calculated GCV 3637.30 kCal/kg which represents the average of GCVs of preceding three months. The weighted average GCV for three months, based

on the net coal quantities, as per Form-15 of the petition, and the monthly GCVs, as submitted by the Petitioner as above, works out to 3573.91 kCal/kg.

88. Accordingly, the cost for fuel components in working capital, has been computed considering the fuel details (price and GCV) as per Form-15 of the petition, except for ‘as received’ GCV of coal, which is considered as 3573.91 kCal/kg, as discussed above. All other operational norms such as Station Heat Rate, Auxiliary Energy Consumption and Secondary Fuel Cost, have been considered as per the 2014 Tariff Regulations, for calculation of fuel components in working capital.

89. Based on the above discussion, the cost for fuel component in working capital is worked out and allowed as under:

(Rs. in lakh)

	2015-16 (31.10.2015 to 31.3.2016)	**2016-17**	**2017-18**	**2018-19**
Cost of Coal towards stock (30 days)	5528.58	5528.58	5661.80	5661.80
Cost of Coal towards Generation (30 days)	5528.58	5528.58	5661.80	5661.80
Cost of Limestone Stock (30 days)	0.00	77.45	79.32	79.32
Cost of Limestone (Generation)	0.00	77.45	79.32	79.32
Cost of Secondary fuel oil 2 months	159.11	158.68	162.50	162.50

90. Regulation 30(6)(a) of the 2014 Tariff Regulations provides for computation and payment of Energy Charge for thermal generating stations:

Month to Month Energy Charges

91. Regulation 30(6)(a) of the 2014 Tariff Regulations provides for computation and payment of Energy Charge for thermal generating stations:

> *“(6) : Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis shall be determined to three decimal place in accordance with the following formula:*
>
> *(a) For coal based and lignite fired stations*
>
> *ECR = {(GHR – SFC x CVSF) x LPPF / CVPF+SFC x LPSFi + LC x LPL} x 100 / (100 – AUX)*
>
> *Where,*

AUX = Normative auxiliary energy consumption in percentage.

CVPF = Gross calorific value of primary fuel as received, in kCal per kg, per litre or per standard cubic metre, as applicable.

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

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

GHR = Gross station heat rate, in kCal per kWh.

LC = Normative limestone consumption in kg per kWh.

LPL = Weighted average landed price of limestone in Rupees per kg.

LPPF = Weighted average landed price of primary fuel, in Rupees per kg, per litre or per standard cubic metre, as applicable during the month.

SFC= Normative specific fuel oil consumption, in ml/ kWh

LPSFi= Weighted average landed price of secondary fuel in Rs/ ml during the month".

Energy Charge Rate (ECR) for computation of working capital

92. The Petitioner has claimed Energy Charge Rate (ECR) of 140.357 Paise/kWh for the generating station. The allowable ECR, based on the operational norms as specified in Regulation 36(A) of the 2014 Tariff Regulations and on weighted average of 'as received' GCV of 3573.91 kCal/kg is worked out as under:

	Unit	**2015-16 (31.10.2015 to 31.3.2016)**	**2016-19**
Capacity	MW	500	500
Gross Station Heat Rate	kCal/kWh	2351.25	2351.25
Aux. Energy Consumption	%	5.75	6.86
Weighted average GCV of oil	kCal/lit	9712.49	9712.49
Weighted average GCV of Coal	Kcal/kg	3573.91	3573.91
Specific Limestone Consumption	Kg/kWh	0	0.0162
Weighted average price of oil	Rs./KL	52378.04	52378.04
Weighted average price of Coal	Rs./MT	2818.30	2818.39
Weighted Average Price of Limestone	Rs./MT	1600	1600
Rate of Energy Charge ex-bus	Rs./kWh	1.99	2.015

93. The Energy Charges for two months for computation of working capital based on ECR of in above table has been worked out as under:

(Rs. in lakh)

2015-16 (31.10.2015 to 31.3.2016)	**2016-17**	**2017-18**	**2018-19**
11400.97	11371.36	11645.36	11645.36

94. Accordingly, the fuel component and energy charges for two months in working capital is allowed as under:

(Rs. in lakh)

	2015-16 (31.10.2015 to 31.3.2016)	2016-17	2017-18	2018-19
Cost of Coal for 60 days (30 days for coal stock and 30 days for generation)	11057.78	11057.78	11324.24	11324.24
Cost of Secondary fuel oil for 2 months	159.11	158.68	162.50	162.50
Cost of Limestone (60 days)	0.00	154.90	158.63	158.63
Energy Charges for 2 months	11400.97	11371.36	11645.36	11645.36

Working Capital for Maintenance Spares

95. The Petitioner in Form-13B has claimed the maintenance spares in the working capital as under:

(Rs. in lakh)

2015-16 (31.10.2015 to 31.3.2016)	2016-17	2017-18	2018-19
1857.70	2044.24	2223.65	2522.10

96. Regulation 28(1)(a)(iv) of the 2014 Tariff Regulations provide for maintenance spares @ 20% of the O&M expenses, as specified under Regulation 29 of the 2014 Tariff Regulations. Accordingly, maintenance spares @ 20% of the O&M expenses (including the water charges and capital spares) allowed for the 2014-19 tariff period is as under:

(Rs. in lakh)

2015-16 (31.10.2015 to 31.3.2016)	2016-17	2017-18	2018-19
1624.34	1885.97	1984.36	2104.67

Working Capital for Receivables

97. Receivables equivalent to two months of capacity charges and energy charges has been worked out duly taking into account mode of operation of the generating station on secondary fuel, is allowed as under:

(Rs. in lakh)

	2015-16 (31.10.2015 to 31.3.2016)	**2016-17**	**2017-18**	**2018-19**
Variable Charges - for two months	11400.97	11371.36	11645.36	11645.36
Fixed Charges - for two months	7683.20	8551.15	9525.85	10186.45
Total	**19084.16**	**19922.51**	**21171.21**	**21831.82**

Working Capital for O&M Expenses (1 month)

98. The O&M expenses for 1 month as claimed by the Petitioner in Form-13B is as under:

(Rs. in lakh)

2015-16 (31.10.2015 to 31.3.2016)	**2016-17**	**2017-18**	**2018-19**
774.04	851.77	926.52	1050.88

99. For consideration of working capital, O&M expenses of 1 month are to be considered. The normative O&M expenses allowed as per Regulation 29(1) of the 2014 Tariff Regulations, water charges and capital spares allowed as per Regulation 29(2) of the 2014 Tariff Regulations have been considered for calculating O&M expenses for 1 month as a part of working capital. Accordingly, in terms of Regulation 28(1)(a)(vi) of the 2014 Tariff Regulations, one month's O&M expenses allowed is as under:

(Rs. in lakh)

2015-16 (31.10.2015 to 31.3.2016)	**2016-17**	**2017-18**	**2018-19**
676.81	785.82	826.82	876.95

100. In terms of Regulation 28(3) of the 2014 Tariff Regulations, the rate of interest on working capital has been considered as 13.50% (Bank rate 10% as on 1.4.2015 + 350 bps). Accordingly, Interest on working capital has been computed as under:

(Rs. in lakh)

	2015-16 (31.10.2015 to 31.3.2016)	2016-17	2017-18	2018-19
Cost of Coal towards Stock (15 days)	5528.89	5528.89	5662.12	5662.12
Cost of Coal towards Generation (30 days)	5528.89	5528.89	5662.12	5662.12
Cost of Limestone towards Stock (30 days)	-	77.45	79.32	79.32
Cost of Limestone towards generation (30 days)	-	77.45	79.32	79.32
Cost of Secondary fuel oil (2 months)	159.11	158.68	162.50	162.50
Maintenance Spares @ 20% of O&M expenses	1624.34	1885.97	1984.36	2104.67
Receivables – 2 months	19084.16	19922.51	21171.21	21831.82
O&M expenses – 1 month	676.81	785.82	826.82	876.95
Total Working Capital	**32602.21**	**33965.67**	**35627.76**	**36458.80**
Rate of Interest	13.5000%	13.5000%	13.5000%	13.5000%
Interest on Working Capital	**4401.30**	**4585.36**	**4809.75**	**4921.94**

Annual Fixed Charges for the period 2015-19

101. Accordingly, the annual fixed charges approved for the period 2015-19 for the generating station is summarized below:

(Rs. in lakh)

	2015-16 (31.10.2015 to 31.3.2016)	2016-17	2017-18	2018-19
Depreciation	10486.00	12012.15	14239.44	15421.80
Interest on Loan	10785.46	11236.82	11571.94	12204.88
Return on Equity	12304.71	14042.71	16612.14	18046.73
Interest on Working Capital	4401.30	4585.36	4809.75	4921.94
O&M Expenses	8121.71	9429.87	9921.81	10523.36
Total	**46099.17**	**51306.92**	**57155.07**	**61118.71**

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.

102. The calculation of interest on working capital and energy charge calculated as above are subject to the final decision of the Commission in Petition No. 244/MP/2016.

103. The difference between the annual fixed charges already recovered in terms of the Commission's order dated 31.8.2016 in Petition No. 234/GT/2015 and the annual fixed charges determined by this order shall be adjusted in terms of Regulation 8(13) of the 2014 Tariff Regulations.

104. Annexure-I enclosed form part of this order.

105. Petition No. 239/GT/2020 is disposed of in terms of the above.

Sd/-	Sd/-	Sd/-
(Pravas Kumar Singh)	**(Arun Goyal)**	**(I.S Jha)**
Member	**Member**	**Member**

Annexure I – Weighted Average Rate of Depreciation for 2014-19 Tariff Period

Sl. no.	Name of the Assets1	Depreciation Rates as per CERC's Depreciation Rate Schedule	Total Gross Block as on 30.10.15	Depreciation Amount	Total Gross Block as on 31.03.2016	Depreciation Amount	Total Gross Block as on 31.03.2017	Depreciation Amount	Total Gross Block as on 31.03.2018	Depreciation Amount
1	Land-Free Hold	0.00%	0.00	0.00		0.00	0.00	0.00		0.00
2	Land- Lease Hold	3.34%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Land- Right of Use	3.34%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Plant & Machinery	5.28%	188259.49	9933.56	188011.80	10838.61	222541.72	12417.22	247807.47	13084.23
5	Cooling Towers & CW System.	5.28%	6790.49	366.01	7073.40	404.02	8230.55	437.90	8356.66	441.23
6	Air conditioning.	5.28%	21.15	1.12	21.17	21.97	810.90	46.88	964.67	50.93
7	Chimney	5.28%	5801.94	312.91	6050.70	322.41	6161.69	327.15	6230.43	328.97
8	Main Plant Building & other Ser Buildings	3.34%	4813.85	165.40	5090.08	176.10	5454.97	182.14	5451.76	182.09
9	Ash Dyke/Disposal Area	5.28%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
10	S-Yard	5.28%	0.00	0.02	0.64	52.13	1973.96	104.23	1974.29	104.24
11	Raw Water Reservoir	5.28%	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
12	Locomotive & Wagons	5.28%	2343.18	123.72	2343.18	153.00	3452.41	268.05	6700.89	353.81
13	MGR & Marshalling Yard/Railway siding	9.50%	0.00	0.00	0.00	43.95	925.36	43.95	0.00	0.00
14	Residential Blg & other Build	3.34%	1181.22	39.47	1181.97	44.20	1464.64	55.89	1881.86	62.85
15	Road/Bridge	3.34%	2051.43	78.17	2629.22	108.57	3872.17	131.32	3991.44	133.31
16	Water Treatment Plant	5.28%	2811.09	148.49	2813.50	199.87	4757.19	252.75	4816.55	254.31
17	Spares	5.28%	0.00	0.00	0.00	32.91	1246.51	160.59	4836.52	255.37
18	Furniture & Fixtures, Office Equip.	6.33%	0.00	4.05	127.96	20.02	504.63	43.79	878.84	55.63
19	Other MBOAs / T&Ps.	6.33%	728.14	48.18	794.07	50.99	817.07	52.23	833.29	52.75
20	EDP, WP & SATCOM.	15.00%	111.42	18.51	135.34	47.94	503.84	86.73	652.54	97.88
21	Construction equip.	5.28%	77.91	4.11	77.91	4.11	77.91	4.11	77.91	4.11
22	Temp. Constructions	100.00%	0.00	12.47	24.94	24.94	24.94	24.94	24.94	24.94

Sl. no.	Name of the Assets1	Depreciation Rates as per CERC's Depreciation Rate Schedule	Total Gross Block as on 30.10.15	Depreciation Amount	Total Gross Block as on 31.03.2016	Depreciation Amount	Total Gross Block as on 31.03.2017	Depreciation Amount	Total Gross Block as on 31.03.2018	Depreciation Amount
23	Central Repair/Workshop	5.28%	0.00	0.10	3.60	0.89	30.05	2.26	55.42	2.93
26	Software	15.00%	0.00	0.00	0.01	0.02	0.20	0.13	1.56	0.23
	TOTAL		**214991.32**	**11256.26**	**216379.50**	**12546.66**	**262850.70**	**14642.26**	**295537.05**	**15489.83**
	Weighted Average Depreciation Rate (%)			**5.2188%**		**5.2362%**		**5.2445%**		**5.2412%**