CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 337/GT/2014

Coram:

Shri Gireesh B. Pradhan, Chairperson
Shri A. K. Singhal, Member
Dr. M. K. Iyer, Member

Date of Order : 29.3.2017

In the matter of

Approval of tariff of Sipat Super Thermal Power Station Stage – I (1980 MW) for the period from 1.4.2014 to 31.3.2019

And in the matter of

NTPC Ltd
NTPC Bhawan,
Core-7, SCOPE Complex,
7, Institutional Area, Lodhi Road,
New Delhi-110003) **.....Petitioner**

Vs

1. Madhya Pradesh Power Management Company Ltd.,
   Shakti Bhawan, Vidyut nagar,
   Jabalpur-482008

2. Maharashtra State Electricity Distribution Company Ltd.,
   Prakashgad, Bandra (East),
   Mumbai-400051

3. Gujarat Urja Vikas Nigam Limited,
   Vidyut Bhawan, Race Course
   Vadodora-390007

4. Chhattisgarh State Power Distribution Company Ltd,
   Sundar Nagar,
   Danganiya, Raipur-492013

5. Electricity Department, Govt. of Goa,
   Vidyut Bhawan, Panji
   Goa

6. Electricity Department,
Administration of Daman & Diu,
Daman-396210

7. Electricity Department,
Administration of Dadra and Nagar Haveli,
Silvassa **...Respondents**

Parties present:

For Petitioner: Shri Bhupinder Kumar, NTPC
Shri Rajeev Chaudhary, NTPC
Shri Parimal Piyush, NTPC
Shri Ajay Dua, NTPC
Shri Nishant Gupta, NTPC

For Respondents: None

ORDER

This petition has been filed by the petitioner, NTPC for approval of tariff of Sipat Super Thermal Power Station Stage-I (3 x 660 MW) (hereinafter referred to as "the generating station") for the period 2014-19 in accordance with the provisions 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 comprises of three units of 660MW each. The Unit -I, Unit -II and Unit -III of the generating station have been declared under commercial operation on 1.10.2011, 25.5.2012 and 1.8.2012 respectively.

3. Petition No. 28/GT/2011 was filed by the petitioner for determination of tariff of the generating station for the period from 1.10.2011 to 31.3.2014 and the Commission vide order dated 22.8.2013 had determined the annual fixed charges based on actual additional capital expenditure incurred for the period from 1.10.2011 to 31.7.2012 and projected additional capital expenditure for the period from 1.8.2012 to 31.3.2013 and 2013-14. Thereafter, the Commission vide order dated 6.12.2016 in

Petition No. 295/GT/2014 had revised the capital cost and annual fixed charges of the generating station for the period from 1.10.2011 to 31.3.2014 after truing-up exercise in terms of Regulation 6 (1) of the 2009 Tariff Regulations, as under:

Capital Cost

(₹ in lakh)

	2011-12	2012-13			2013-14
	1.10.11 - 31.3.12	1.4.12 - 24.5.12	25.5.12 - 31.7.12	1.8.12 - 31.3.13	1.4.13 - 31.3.14
Opening Gross Block	370660.80	379850.22	610474.71	817335.28	853259.28
Net Additional capital expenditure	9189.42	15257.62	3506.73	35924.00	24467.87
Closing Gross Block	379850.22	395107.84	613981.44	853259.28	877727.16
Average Gross Block	375255.51	387479.03	612228.08	835297.28	865493.22

Annual Fixed Charges

(₹ in lakh)

	2011-12	2012-13			2013-14
	1.10.11 - 31.3.12	1.4.12 - 24.5.12	25.5.12 - 31.7.12	1.8.12 - 31.3.13	1.4.13 - 31.3.14
Depreciation	19145.18	19710.14	31051.62	42438.78	43990.79
Interest on Loan	19743.55	20015.77	31535.14	42244.78	41368.02
Return on Equity	25829.59	26670.96	42140.88	57495.18	60967.94
Interest on Working Capital	3504.94	3560.04	7257.77	12834.61	13025.25
O&M Expenses	8632.80	9121.20	18242.40	26451.48	27982.68
Cost of secondary fuel oil	1900.68	1895.49	4711.09	7704.43	7704.43
Total	**78756.74**	**80973.59**	**134938.90**	**189169.27**	**195039.11**

4. Before we proceed to determine the tariff of the generating station for the period of 2014-19, we intend to rectify an inadvertent clerical error in the table regarding interest on loan in para 46 and O&M expenses in para 51 approved vide order dated 6.12.2016 in Petition No. 295/GT/2014.

5. Regulation 103(A) of the Central Electricity Regulatory Commission (Conduct of Business) Regulation, 1999, as amended from time to time (Conduct of Business Regulation) provides as under: -

> *"Clerical or arithmetical mistakes in the orders or errors arising therein from any accidental slip or omission may at any time be corrected by the Commission either of its own motion or on the application of any of the parties."*

6. The above provision enables the Commission to correct any accidental omission or error in an order at any time on its own motion. Hence, we consider it appropriate to correct the inadvertent clerical errors in the interest on loan and depreciation of this generating station as approved in table in para 46 and para 47 of order dated 6.12.2016 in Petition No. 295/GT/2014. Accordingly, in exercise of our power under Regulation 103(A) of Conduct of Business Regulations, table regarding interest on loan in para 46 of order dated 6.12.2016 in Petition No. 295/GT/2014 is revised as under:-

(₹ in lakh)

	2011-12	2012-13			2013-14
	1.10.11 - 31.3.12	**1.4.12 - 24.5.12**	**25.5.12 - 31.7.12**	**1.8.12 - 31.3.13**	**1.4.13 - 31.3.14**
Gross opening loan	259462.56	265895.15	427332.30	572134.70	597281.50
Cumulative repayment of loan upto previous year	0.00	9572.59	12488.61	18273.57	46428.89
Net Loan Opening	259462.56	256322.56	414843.68	553861.13	550852.61
Addition due to additional capital expenditure	6432.59	10680.33	2454.71	25146.80	17127.51
Repayment of loan during the year	9572.59	2916.02	5784.96	28253.77	43990.79
Less: cumulative repayment adjustment on account of de-capitalization	0.00	0.00	0.00	98.44	14.41
Net Loan Closing	256322.56	264086.88	411513.43	550655.72	523974.92
Average Loan	257892.56	260204.72	413178.56	552258.42	537413.77
Weighted Average Rate of Interest of loan	7.6557%	7.6923%	7.6323%	7.6488%	7.6975%
Interest on Loan	**19743.55**	**20015.77**	**31535.14**	**42241.02**	**41367.47**

7. The depreciation in Para 47 of order dated 6.12.2016 in Petition No. 295/GT/2014 is revised as under:-

	2011-12	2012-13			2013-14
	1.10.11 - 31.3.12	**1.4.12 - 24.5.12**	**25.5.12 - 31.7.12**	**1.8.12 - 31.3.13**	**1.10.11 - 31.3.12**
Opening Capital Cost	370660.80	379850.22	610474.71	817335.28	853259.28
Add: Additional Capital Expenditure	9189.42	15257.62	3506.73	35924.00	24467.88
Closing Capital Cost	379850.22	395107.84	613981.44	853259.28	877727.16
Average Capital Cost	375255.51	387479.03	612228.08	835297.28	865493.22
Depreciation Rate	5.1019%	5.0868%	5.0719%	5.0807%	5.0827%
Depreciable value @ 90%	335805.76	345621.62	547895.76	748613.04	775789.39
Balance depreciable Value	335805.76	336049.03	535407.15	730339.47	729360.49
Depreciation for the period	**9572.59**	**2916.02**	**5784.96**	**28253.77**	**43990.79**
Depreciation (Annualized)	**19145.18**	**19710.14**	**31051.62**	**42438.78**	**43990.79**

	2011-12	2012-13			2013-14
	1.10.11 - 31.3.12	1.4.12 - 24.5.12	25.5.12 - 31.7.12	1.8.12 - 31.3.13	1.10.11 - 31.3.12
Cumulative Depreciation	9572.59	12488.61	18273.57	46527.34	90419.69
Less: Cumulative depreciation adjustment on account of de-capitalization		0.00	0.00	98.44	14.41
Cumulative depreciation after adjustment (at the end of the period)	9572.59	12488.61	18273.57	46428.89	90405.28

8. Further, the O&M expenses approved to this generating station in table in para 51 in order dated 6.12.2016 in Petition No. 295/GT/2014 is revised as under:-

(₹ in lakh)

2011-12	2012-13			2013-14
1.10.11 - 31.3.12	1.4.12 - 24.5.12	25.5.12 - 31.7.12	1.8.12 - 31.3.13	1.4.13 - 31.3.14
7769.52	8209.08	16418.16	24171.18	25570.38

9. Further, the computation of interest on working capital approved to this generating station in table in paras 60 (Maintenance Spares), 61 (Receivables), 62 (O&M expenses for 1 month) and 63 (Interest on working capital) in order dated 6.12.2016 in Petition No. 295/GT/2014 is revised as under:-

Maintenance Spares

(₹ in lakh)

2011-12	2012-13			2013-14
1.10.11 - 31.3.12	1.4.12 - 24.5.12	25.5.12 - 31.7.12	1.8.12 - 31.3.13	1.4.13 - 31.3.14
1553.90	1641.82	3283.63	4834.24	5114.08

Receivables

(₹ in lakh)

	2011-12	2012-13			2013-14
	1.10.11 - 31.3.12	1.4.12 - 24.5.12	25.5.12 - 31.7.12	1.8.12 - 31.3.13	1.4.13 - 31.3.14
Variable Charges - 2 months	7965.97	7944.21	14467.18	31293.89	31293.89
Fixed Charges - 2 months	13121.24	13490.44	22477.92	31512.70	32490.69
Total	**21087.21**	**21434.64**	**36945.10**	**62806.59**	**63784.58**

O & M expenses for 1 month

(₹ in lakh)

2011-12	2012-13			2013-14
1.10.11 - 31.3.12	**1.4.12 - 24.5.12**	**25.5.12 - 31.7.12**	**1.8.12 - 31.3.13**	**1.4.13 - 31.3.14**
647.46	684.09	1368.18	2014.27	2130.87

Interest on working capital

(₹ in lakh)

	2011-12	2012-13			2013-14
	1.10.11 - 31.3.12	**1.4.12 - 24.5.12**	**25.5.12 - 31.7.12**	**1.8.12 - 31.3.13**	**1.4.13 - 31.3.14**
Cost of coal for 1.5 months	5974.48	5958.15	10850.38	23470.41	23470.41
Cost of Secondary fuel oil for 2 months	316.78	315.91	785.18	1284.07	1284.07
O & M expenses for 1 month	647.46	684.09	1368.18	2014.27	2130.87
Maintenance Spares	1553.9	1641.82	3283.63	4834.24	5114.08
Receivables for 2 months	21087.21	21434.64	36945.10	62806.59	63784.58
Total Working Capital	**29579.83**	**30034.62**	**53232.48**	**94409.58**	**95784.01**
Rate of interest (%)	11.75%	11.75%	13.50%	13.50%	13.50%
Interest on working capital	**3475.63**	**3529.07**	**7186.38**	**12745.29**	**12930.84**

10. Accordingly, the Annual Fixed Charges approved in table in para 67 in order dated 6.12.2016 in Petition No. 295/GT/2014 are revised as under:

(₹ in lakh)

	2011-12	2012-13			2013-14
	1.10.11 - 31.3.12	**1.4.12 - 24.5.12**	**25.5.12 - 31.7.12**	**1.8.12 - 31.3.13**	**1.4.13 - 31.3.14**
Depreciation	19145.18	19710.14	31051.62	42438.78	43990.79
Interest on Loan	19743.55	20015.77	31535.14	42241.02	41367.47
Return on Equity	25829.59	26670.96	42140.88	57495.18	60967.94
Interest on Working Capital	3475.63	3529.07	7186.38	12745.29	12930.84
O&M Expenses	8632.80	9121.20	18242.40	26451.48	27982.68
Cost of secondary fuel oil	1900.68	1895.49	4711.09	7704.43	7704.43
Total	**78727.43**	**80942.62**	**134867.52**	**189076.19**	**194944.15**

11. The petitioner vide affidavit dated on 13.8.2014 has filed the petition for determination of tariff for the period 2014-19 in accordance with the provisions of the 2014 Tariff Regulations. The capital cost and the annual fixed charges claimed by the petitioner for the period 2014-19 are as under:

Capital Cost

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	869326.17	903133.17	916680.17	918480.17	918480.17
Add: Additional capital expenditure	33807.00	13547.00	1800.00	0.00	2000.00
Closing Capital Cost	**903133.17**	**916680.17**	**918480.17**	**918480.17**	**920480.17**
Average Capital Cost	**886229.67**	**909906.67**	**917580.17**	**918480.17**	**919480.17**

Annual Fixed Charges

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	45011.61	46214.16	46603.90	46649.61	46700.40
Interest on Loan	39297.08	37472.66	34817.83	31656.83	28486.79
Return on Equity	54180.06	55627.57	56096.69	56151.71	56212.85
Interest on Working Capital	12975.34	13156.83	13244.67	13334.71	13433.10
O&M Expenses	36071.14	38352.95	40764.23	43346.53	46062.31
Total	**187535.22**	**190824.16**	**191527.32**	**191139.39**	**190895.45**

12. In compliance with the directions of the Commission, the petitioner has filed additional information and has served copies of the same on the respondents. The respondent, Madhya Pradesh Power Management Company Ltd. (MPPMCL) has filed its reply to the the petition. We now proceed to examine the claim of the petitioner based on the submissions of the parties and the documents available on record, as discussed in the subsequent paragraphs.

Capital Cost as on 1.4.2014

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

> *"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 Regulation 14; and*
>
> *(c) expenditure on account of renovation and modernisation as admitted by this Commission in accordance with Regulation 15."*

14. The capital cost claimed by the petitioner as on 1.4.2014 is ₹869326.17 lakh. In accordance with Clause 3 of Regulation 9 of the 2014 Tariff Regulations, the capital cost admitted as on

31.3.2014 shall be considered as opening capital cost as on 1.4.2014. Accordingly, the closing capital cost of ₹877727.16 lakh as on 31.3.2014 as admitted vide order dated 6.12.2016 has been considered as the opening capital cost as on 1.4.2014.

Projected Additional Capital Expenditure

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

"***14. Additional Capitalisation and De-capitalisation:***

(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) Undischarged 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, inaccordance with the provisions of Regulation 13;
(iv) Liabilities to meet award of arbitration or for compliance of the order ordecree 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 payableat a future date and the works deferred for execution shall be submitted along with theapplication for determination of tariff.

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

(i) Liabilities to meet award of arbitration or for compliance of the order ordecree 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 theoriginal scope of work; and
(iv) Any liability for works executed prior to the cut-off date, after prudencecheck of the details of such undischarged liability, total estimated cost ofpackage, 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 Modernisation (R&M), repairs and maintenance under (O&M) expenses and Compensation Allowance, same expenditure cannot be claimed under this regulation."

16. The total additional capital expenditure allowed for the period from 1.8.2012 to 31.3.2014 in order dated 6.12.2016 in Petition No. 295/GT/2014 are as under:

(₹ in Lakh)

Sl.No		Actual Additional Capital expenditure allowed		Total
		1.8.2012 - 31.3.2013	2013-14	
1	DM water plant	-	-	0.00
2	765 KV AC Switchyard	23.67	14.16	37.83
3	Wagons	-	-	0.00
4	SG+ESP	2025.94	2373.99	4399.93
5	TG-PM& LMZ	1325.57	228.14	1553.71
6	MGR	622.09	269.24	891.33
7	Wagon Tippler	-	-	0.00
8	CHP	21.84	985.33	1007.17
9	AHP	108.37	10.95	119.32
10	Ash Dyke	184.54	100.73	285.27
11	Ash water recirculation System	-	7.06	7.06
12	Cooling Towers	13.50	-	13.50
13	CW System	74.66	14.72	89.38
14	PT Plant & DM Plant	-	5.43	5.43
15	Fire Protection	2.03	36.17	38.20
16	A/C Ventilation	10.24	9.19	19.43
17	Simulator	27.81	7.55	35.36
18	Switch gear Package	37.99	86.67	124.66
19	Lighting/Cabling	134.64	142.25	276.89
20	Construction Tools & Plants workshop lab. equipment.	57.99	-	57.99
21	Town ship	351.62	3001.93	3353.55
22	Off-Site civil works, Road & Drainage	2566.87	3102.95	5669.82
23	Main Plant civil work	707.09	386.21	1093.30
24	Raw water reservoir	140.20	155.39	295.59
25	Land & Infrastructure	-	19.15	19.15
26	MBOA	665.68	1078.35	1744.03
27	Chimney	-	2.06	2.06
28	Fuel Handling & storage system	29.41	11.70	41.11
29	Software	4.40	-	4.40
30	Transformer package	20.11	23.59	43.70
31	Package ERV	-	1173.64	1173.64
32	Make-up Water Pump House	8907.28	0.00	8907.28
33	Capital Spares	2697.28	4187.51	6884.79
A	**Total additional capital expenditure in original scope of work**	**20760.80**	**17434.07**	**38194.88**
B	De-capitalization of assets	1989.70	1348.62	3338.32
C	**Total additional capital expenditure (net of de-capitalization)**	**18771.09**	**16085.45**	**34856.56**
D	Discharge of Un-discharged Liability	17152.91	8382.42	25535.33
E	**Total Additional capital expenditure allowed**	**35924.00**	**24467.87**	**60391.87**

17. The break-up of the projected additional capital expenditure claimed for the period 2014-19 under Regulation 14(i) of the 2014 Tariff Regulation are as under:

(₹ in lakh)

Sl. No.	Head of Work /Equipment	Regulations under which claimed	Projected Additional capital expenditure claimed (Projected)
2014-15			
1	Land & Infrastructure	14(1)(ii)	700
2	Steam Generator	14(1)(ii)	3640
3	Turbine Generator	14(1)(ii)	2000
4	Ash Handling System	14(1)(ii)	110
5	Coal Handling Plant	14(1)(ii)	134
6	Wagon Tippler	14(3)(ii) & 14(3)(x)	2500
7	Fire Fighting System	14(1)(ii)	79
8	Misc Tools & Plants	14(1)(ii)	808
9	Transformers Package	14(1)(ii)	824
10	Lighting	14(1)(ii)	60
11	C&I Package	14(1)(ii)	150
12	Initial Spares	14(1)(ii)	12700
13	Main Plant Civil	14(1)(ii)	300
14	Township & Colony	14(1)(ii)	5590
15	Offsite Civil Works	14(1)(ii)	2170
16	Chimney	14(1)(ii)	42
17	Ash Dyke	14(1)(ii)	2000
18	**Total**		**33807**
2015-16			
19	Steam Generator	14(1)(ii)	30
20	Ash Handling System	14(1)(ii)	5000
21	Wagon Tippler	14(3)(ii) & 14(3)(x)	5980
22	Township & Colony	14(1)(ii)	1100
23	Offsite Civil Works	14(1)(ii)	1057
24	Ash Dyke	14(1)(ii)	380
25	**Total**		**13547**
2016-17			
26	Ash Dyke	14(1)(ii)	1800
27	**Total**		**1800**
2018-19			
28	Ash Dyke	14(1)(ii)	2000
29	**Total**		**2000**
30	**Total Additional Capital expenditure**		**51154**

18. The petitioner has submitted that expenditure of ₹7200 lakh in respect of certain balance works like civil works, Works related to Ash handling system, etc are under original scope of work for this generating station are envisaged to get spill over beyond cut-off date on account of the

various reasons beyond the reasonable control of the petitioner. The petitioner submitted that its prime concern was to commence the commercial operation of the unit to serve the beneficiaries at the earliest and therefore, it should not be penalized for its work efficiency in declaring the COD at the earliest also when the Non-COD related balance works got delayed due to the reasons not attributable to the petitioner. Therefore, the petitioner has requested to condone the delay in completion of above works and allow the capitalization of the claimed projected additional capital expenditure for the tariff period 2014-19 by relaxing the cut-off date beyond 31.3.2015 exercising its power under Power to Relax under Regulation 54 of the 2014 Tariff Regulations. Further, the petitioner has not submitted any detailed justification and reasons for the deferment of work. We now proceed to discuss the projected additional capital expenditure claimed by the petitioner in the succeeding paragraphs.

19. We have examined the matter. The COD of the generating station is 1.8.2012 and accordingly the cut-off date of the generating station is 31.3.2015. It is noticed that most of the works which are within the original scope of work are at an advanced stage of completion is likely to get completed during the year 2015-16. It is observed that some of the works which was envisaged by the petitioner to be completed had spill over beyond the cut-off date of 31.3.2015 on account of un-controllable reasons. In consideration of the above, and keeping in view that the expenditure is executed for efficient operation of the generating station that it is a fit case for relaxation of cut-off date of the generating station for a period of one year from 31.3.2015 to 31.3.2016. Accordingly, in exercise of the 'Power to relax' in terms of Regulation 44 of the 2009 Tariff Regulations, we relax the cutoff date as above of the generating station from 31.3.2015 to 31.3.2016, for the purpose of additional capital expenditure. We make it clear that relaxation of cut-off date as above is allowed as a special case and shall not be considered as precedent in future.

20. No additional capital expenditure has been claimed for the year 2017-18. We now examine the claim of the petitioner for additional capital expenditure under Regulation 14(1)(ii) of the 2014 Tariff Regulations for the period 2014-15 to 2018-19 (except 2017-18) as stated below:

Steam Generator, Turbine Generator, Ash Handling System, Township and Colony and Office Civil Works

21. The petitioner has claimed total additional capital expenditure of ₹3670 lakh towards Steam Generator and ₹2000 lakh towards Turbine Generator, ₹5110 lakh towards Ash handling system, ₹6690 lakh towards Township and Colony and ₹3227 lakh towards Offsite Civil works during the year 2014-15 and 2015-16 respectively. The petitioner in justification has submitted that these works are executed within the original scope of work and is within the cut-off date of the generating station.

22. The respondent, MPPMCL has submitted that claimed projected additional capital expenditure for 2014-15 should not be allowed as the total cost till 2014-15 including the approved cost is exceeding the amount provided in original scope of work. The respondent, MPPMCL has further submitted that since the cut-off date of the plant is 31.3.2015, petitioners claim towards steam generator, township & colony is beyond the scope of the Regulation 14(1)(ii) and therefore should not be allowed.

23. We have examined the matter. It is observed that the above additional expenditure claimed by the petitioner for 2014-15 and 2015-16 are for the works within the original scope of work and considering the fact that the extended cut-off date of the generating station is 31.3.2016, the admissibility of the additional capital expenditure claimed has been considered in terms of the provisions of Regulation 14(1)(ii) of the 2014 Tariff Regulations.

Ash Dyke

24. The petitioner has claimed an amount of ₹2000 lakh in 2014-15, ₹380 lakh in 2015-16, ₹1800 lakh in 2016-17 and ₹2000 lakh in 2018-19 towards Ash Dyke raising during 2014-19 period under Regulation 14(1)(ii) of the 2014 Tariff Regulations. The petitioner in its justification has submitted

that these works are executed within the original scope of work and is within the cut-off date of the generating station. The petitioner was directed to submit the details of estimated expenditure of Ash dyke raising, along with the scope of work and justification for undertaking such expenditure. In response, the petitioner has submitted that the estimated expenditure for Ash Dyke related works for the period 2014-19 is ₹6180 lakh. The petitioner has submitted that as the Ash Dyke related work is a continuous activity, being executed intermittently during the life of the plant as and when necessitated, the capitalization of the same depends upon the execution of the same. The petitioner has further submitted that the ash related work is to be taken up during the period 2014-19 for this generating station and comprises of first Raising of Lagoon-1 and creation of starter Dyke for Lagoon-2. As regards the scope of work for ash dyke related works, the petitioner has submitted that it includes excavation & stacking of ash, foundation preparation, formation of dyke section, formation of dyke sand chimney, construction of dyke slope drain & road work etc. The petitioner has also stated that the construction of Starter dyke of Lagoon-2 and the dyke raising of Lagoon-1 are envisaged to create adequate volume/capacity to cater the disposal of ash during the period 2014-19. The petitioner has also submitted that the Starter dyke of Lagoon-2 constructed during October, 2015 is in service after the full capacity of Lagoon-1 Starter dyke getting exhausted.

25. The petitioner was further directed to furnish details as to how the fund from ash sale has been utilized along with a statement of Income and expenditure towards sale of ash. In response the petitioner has submitted that the sale of fly ash has been started for this generating station during the year 2015-16 and has been sold for an amount of ₹4.97 lakh. The petitioner has further submitted that the other overheads expenses with respect to the sale of fly ash are much higher than this earning and therefore, there is no net earnings from the sale of fly ash.

26. We have examined the matter. With regard to additional capital expenditure claimed towards ash dyke upto 2015-16 i.e. within cut-off date, we are of the view that such works are within the original scope of work and considering the fact that the extended cut-off date of the generating station is 31.3.2016, the admissibility of the additional capital expenditure claimed towards ash dyke

upto 2015-16 has been considered in terms of the provisions of Regulation 14(1)(ii) of the 2014 Tariff Regulations.

27. With regard to additional capital expenditure claimed towards ash dyke beyond 2015-16 i.e. after cut-off date, we are of the view that the petitioner has claimed it under Regulations 14(1)(ii) instead of Regulation 14(3)(iv) which specifically provides for additional capital expenditure towards ash pond and ash handling system beyond cut-off date. We have therefore considered the same under Regulation 14(3)(iv) of the 2014 Tariff Regulations.

Other additional capital expenditure claimed towards Misc tools and plants, Land & Infrastructure, Coal handling Plant, Fire fighting system, Transformer Package, Lighting, C&I Package, Main Plant Civil and Chimney

28. The petitioner has claimed total additional capital expenditure of ₹700 lakh towards Land & Infrastructure, ₹134 lakh towards Coal handling plant, ₹79 lakh Fire fighting system, ₹824 lakh towards Transformers package, ₹60 lakh towards Lighting, ₹150 lakh towards C&I package, ₹300 lakh towards Main plant civil and ₹42 lakh towards Chimney during the year 2014-15 respectively. The petitioner in justification has submitted that these works are executed within the original scope of work and is within the cut-off date of the generating station.

29. Further, the petitioner has claimed ₹808 lakh towards Misc tools and plants in 2014-15. The respondent, MPPMCL has submitted that no provision has been made by the petitioner in original estimate as per investment approval and thus these expenditure are beyond the original scope of work and therefore the Commission may disallow the projected additional capital expenditure claimed for 2014-15.

30. We have examined the matter. With regard to the additional capital expenditure claimed towards the said works in 2014-15, we are of the view that since the works are within the original scope of work and considering the fact that the extended cut-off date of the generating station is

31.3.2016, the admissibility of the said additional capital expenditure has been considered in terms of the provisions of Regulation 14(1)(ii) of the 2014 Tariff Regulations.

Capitalisation of Initial Spares

31. As regards capitalization of initial spares, the Commission in order dated 6.12.2016 in Petition No. 295/GT/2014 had allowed the capitalization of ₹2697.28 lakh and ₹4187.51 lakh for the period 1.8.2012 to 31.3.2013 and for 2013-14 respectively towards initial spares, as claimed by the petitioner. The petitioner in instant petition has claimed ₹12700 lakh towards Initial spares in 2014-15. The respondent, MPPMCL has submitted that the petitioner has not submitted the details of Plant and Machinery cost considered for the computation of initial spares and therefore the Commission may direct the petitioner to submit the said details.

32. We have examined the matter. It is observed that the total expenditure on initial spares of the generating station upto 31.3.2015 is within the ceiling limit of 2.5% of the capital cost as on extended cut-off date (i.e., 31.3.2016). Hence, the claimed initial spares is allowed to be capitalized.

Regulation 14(3)(ii) and 14(3)(x)

Wagon Tippler

33. Against the amount of ₹1500.00 lakh allowed towards Wagon tippler in 2013-14 in order dated 22.8.2013 in Petition No. 28/2011, the petitioner has claimed projected additional capital expenditure of ₹2500.00 lakh in 2014-15 and ₹5980.00 lakh in 2015-16 under Regulation 14(3)(ii) & 14(3)(x) of the 2014 Tariff Regulations. In justification of the same, the petitioner has submitted that as per the Presidential directive for New Fuel Security Agreement (FSA), the receipt of coal at the generating station through MGR system is not sufficient to run the plant at PLF/PAF of 85%, necessary for the generator for fixed charge recovery as per the 2014 Tariff Regulations. The petitioner has also submitted that as per the presidential directive, the coal company is bound to supply only upto 80% of the Annual Contracted Quantity (ACQ) without penalty, which does not secure the availability of fuel to the generator even to the extent of generation corresponding to

NAPAF required for Fixed Cost recovery of the plant. The petitioner has further submitted that the non availability of coal shall also not ensure the supply of power at sustainable basis to the beneficiaries at higher PLF. The petitioner has submitted that the Wagon Tippler and associated accessories/locos is required to overcome the deficiency in coal receipt system so that the quantum of coal being received from non linked mines through Box-N wagons of Indian Railways, may be unloaded properly at site. Accordingly, the petitioner has submitted that the Commission may allow the expenditure against the augmentation of fuel receipt system under the Regulation 14(3)(x) as well as under the Regulation 14(3)(ii) of the 2014 Tariff Regulations.

34. The respondent, MPPMCL has submitted that the petitioner has not submitted any proper justification for claiming such expenditure even when the petitioner has achieved Target Availability during the years 2013-14, 2014-15 and 2015-16 as noticed from the REA prepared by WRPC. Accordingly, it has submitted that the claim for the year 2014-15 may be disallowed as Regulation 14(3)(x) is applicable only after cut-off date of the generating station. The respondent has further submitted that there is sufficient coal available to the petitioner for the period 2013-14 to 2015-16 and therefore the claim may be disallowed.

35. We have examined the matter. It is noticed that the petitioner in support of its claim for Capitalization of Wagon Tippler had not substantiated the shortage of coal experienced by the generating station and its impact on the Plant Availability Factor for the period 2012-13 to 2014-15. As pointed out by the respondent, MPPMCL the Plant Availability Factor of the generating station has been above the normative availability since 2013-14. The details of the cumulative plant availability factor for the year 2012-13 to 2015-16 is as under:

	Cumulative plant availability factor (%)
2012-13	83.3533
2013-14	89.6247
2014-15	89.0274
2015-16	87.8533

36. It is evident from the above that the cumulative Plant Availability Factor for the generating station is well above the normative plant availability factor, except for the year 2012-13. The petitioner has also not substantiated the shortage of coal for the generating station. In this background, we are not inclined to allow the additional capital expenditure of ₹2500 lakh in 2014-15 and ₹5980 lakh in 2015-16 claimed by the petitioner. We direct accordingly.

37. Based on the above discussions, the projected additional capital expenditure allowed for the period 2014-19 is summarized as under:

(₹ in lakh)

Sl. No.	Head of Work /Equipment	Additional capital expenditure allowed
2014-15		
1	Land & Infrastructure	700
2	Steam Generator	3640
3	Turbine Generator	2000
4	Ash Handling System	110
5	Coal Handling Plant	134
6	Fire Fighting System	79
7	Misc Tools & Plants	808
8	Transformers Package	824
9	Lighting	60
10	C&I Package	150
11	Initial Spares	12700
12	Main Plant Civil	300
13	Township & Colony	5590
14	Offsite Civil Works	2170
15	Chimney	42
16	Ash Dyke	2000
17	**Total**	**31307**
18	**2015-16**	
19	Steam Generator	30
20	Ash Handling System	5000
21	Township & Colony	1100
22	Offsite Civil Works	1057
23	Ash Dyke	380
24	**Total**	**7567**
25	**2016-17**	
26	Ash Dyke	1800
27	**Total**	**1800**
28	**2017-18**	**-**
29	**2018-19**	
30	Ash Dyke	2000
31	**Total**	**2000**
32	**Total Additional Capitalization**	**42674**

38. Accordingly, the capital cost approved in respect of the generating station for the period 2014-19 is as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	877727.16	909034.16	916601.16	918401.16	918401.16
Add: Additional capital expenditure	31307.00	7567.00	1800.00	0.00	2000.00
Closing capital cost	909034.16	916601.16	918401.16	918401.16	920401.16
Average capital cost	893380.66	912817.66	917501.16	918401.16	919401.16

Debt-Equity Ratio

39. Regulation 19 of the 2014 Tariff Regulations provides as under:

(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-equtiy 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 f 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 utilisation made or proposed to be made to meet the capital expenditure of the generating station or the transmission system including communication system, as the case may be.

(3) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, 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 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 ration 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 modernisation expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation.

40. Accordingly, the gross normative loan and equity amounting to ₹614409.02 lakh and ₹263318.14 lakh, respectively as on 31.3.2014, has been considered as gross normative loan and equity as on 1.4.2014. The normative debt:equity ratio of 70:30 has been considered in the case of additional capital expenditure. This is subject to truing-up in terms of Regulation 8 of the 2014 Tariff Regulations.

	Capital cost upto COD 1.4.2014		**Estimated completion cost including additional capitalization**		**Capital cost as on 31.3.2019**	
	Amount (₹ in lakh)	**(%)**	**Amount (₹ in lakh)**	**(%)**	**Amount (₹ in lakh)**	**(%)**
Debt	614409.02	70.00%	29871.80	70.00%	644280.82	70.00%
Equity	263318.14	30.00%	12802.20	30.00%	276120.34	30.00%
Total	**877727.16**	**100.00%**	**42674.00**	**100.00%**	**920401.16**	**100.00%**

Return on Equity

41. Regulation 24 of the 2014 Tariff Regulations 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 time line 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 thereport submitted by the respective RLDC, RoE shall be reduced by 1% for the period for which thedeficiency continues:

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

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

"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 perthe 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.

43. The petitioner has claimed return on equity considering the base rate of 15.5% and effective tax rate of 23.939%.

44. This issue being not confined to a single petition and being generic in nature as the issue is applicable to all NTPC petitions uniformly need deliberation. On this issue against specific query

through ROP, the petitioner vide its affidavit dated 8.1.2016 in Petition no. 280/GT/2014 (Farakka STPS, Stage III) has filed Auditor's Certificate regarding deposit of advance tax on generation business for the year 2014-15 as well as Income Tax return for the financial year 2014-15 (Assessment Year 2015-16). We have examined the documents submitted and observed that the Regulation prescribe computation of effective tax rate on the basis of tax paid, still we deem it proper to allow grossing up on MAT rate considering the fact that the matter is getting decided in the year 2016-17. Accordingly, the effective tax rate (MAT) of 20.961% has been considered for the year 2014-15 and 21.342% for the year 2015-16 onwards up to the year 2018-19 for the purpose of grossing up of base rate of 15.50%. Accordingly, the rate of Return on Equity works out to 19.610% for the year 2014-15 and 19.705% for the year 2015-16 onwards. This is however, subject to true-up. Accordingly, return on equity has been worked out as under:

(₹ in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Notional Equity- Opening	263318.14	272710.24	274980.34	275520.34	275520.34
Addition of Equity due to additional capital expenditure	9392.10	2270.10	540.00	0.00	600.00
Normative Equity-Closing	272710.24	274980.34	275520.34	275520.34	276120.34
Average Normative Equity	268014.19	273845.29	275250.34	275520.34	275820.34
Return on Equity (Base Rate)	15.500	15.500	15.500	15.500	15.500
Tax Rate for the year	20.961	21.342	21.342	21.342	21.342
Rate of Return on Equity (Pre Tax)	19.610	19.705	19.705	19.705	19.705
Return on Equity (Pre Tax)	**52557.58**	**53961.21**	**54238.08**	**54291.28**	**54350.40**

Interest on Loan

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

(4) Notwithstanding any moratorium period availed by the generating company orthe 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 re-financing 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 refinancing.

(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."

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

(a) The gross normative loan of ₹614409.02 lakh (on cash basis) as approved as on 1.4.2014 in order dated 6.12.2016 in Petition No. 295/GT/2014 has been considered. In addition to this, loan component towards additional capitalization has been considered as per the debt equity ratio of 70:30.

(b) Cumulative repayment of loan approved as on 31.3.2014 has been considered as on 1.4.2014.

(c) Addition to normative loan on account of the admitted additional capital expenditure has been considered on year to year basis.

(d) Depreciation allowed has been considered as repayment of normative loan during the respective year of the tariff period 2014-19.

(e) In line with the provisions of the regulations, the weighted average rate of interest has been calculated by applying the actual loan portfolio existing as on 1.4.2014 along with subsequent additions during the period 2014-19, if any, for the generating station. In case of loans carrying floating rate of interest the rate of interest as provided by the petitioner has been considered for the purpose of tariff. The necessary calculation for interest on loan is as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Gross opening loan	614409.02	636323.92	641620.82	642880.82	642880.82
Cumulative repayment of loan upto previous year	90405.28	135783.04	182148.07	228751.00	275399.63
Net Loan Opening	524003.74	500540.88	459472.75	414129.82	367481.19
Addition due to additional capital expenditure	21914.90	5296.90	1260.00	0.00	1400.00
Repayment of loan during the year	45377.76	46365.03	46602.92	46648.64	46699.43
Net Loan Closing	500540.90	459472.70	414129.80	367481.20	322181.80
Average Loan	512272.32	480006.79	436801.27	390805.51	344831.49
Weighted Average Rate of Interest of loan(%)	7.7371%	7.8253%	7.9524%	8.0792%	8.2366%
Interest on Loan	**39635.02**	**37561.97**	**34736.18**	**31573.96**	**28402.39**

Depreciation

47. 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 tomaximum 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 12years 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 on1.4.2014 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 de-capitalized asset during its useful services."

48. The petitioner was directed to furnish a statement showing the year-wise details of depreciation un-recovered if any till 31.3.2014 on account of availability lower than NAPF for this generating station. In response the petitioner has submitted details of unpaid portion of the depreciation which is to be recovered after the plant has outlived its designated useful life as under:

(₹ in lakh)

Year	Target Availability	Annual Availability	AFC for the period	Depreciation included in AFC for the period	Disincentive for the period	Depreciation unrecovered due to disincentive
1.10.2011 - 31.3.2012	85%	71%	39486.26	9572.59	3252.9	790.76
1.4.2012 - 24.5.2012	85%		11979.66	2916.02		
25.5.2012 - 1.8.2012	85%	83.35%	25139.3	5784.96	1574.69	356.59
1.8.2012 - 31.3.2013	85%		125446.5	28253.77		

49. The cumulative depreciation as on 31.3.2014 as considered in order dated 6.12.2016 has been considered for the purpose of tariff. Further, the depreciation has been calculated by applying the weighted average rate of depreciation as on 1.4.2014 for the period 2014-19. Accordingly, depreciation has been computed as follows:

(₹ in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Opening Capital Cost	877727.16	909034.16	916601.16	918401.16	918401.16
Add: Additional Capital Expenditure	31307.00	7567.00	1800.00	0.00	2000.00
Closing Capital Cost	909034.16	916601.16	918401.16	918401.16	920401.16
Average Capital Cost	893380.66	912817.66	917501.16	918401.16	919401.16
Value of Freehold Land included in Gross Block	3505.01	3505.01	3505.01	3505.01	3505.01
Depreciable value (excluding land)@ 90%	800888.09	818381.39	822596.54	823406.54	824306.54
Balance depreciable Value	710482.80	682598.34	640448.46	594655.54	548906.90
Rate of Depreciation	5.0793	5.0793	5.0793	5.0793	5.0793
Depreciation	**45377.76**	**46365.03**	**46602.92**	**46648.64**	**46699.43**
Cumulative depreciation at the end of the period (before adjustment)	135783.04	182148.07	228751.00	275399.63	322099.06
Less: Cumulative depreciation adjustment on account of de-capitalization	0.00	0.00	0.00	0.00	0.00
Cumulative depreciation (at the	135783.04	182148.07	228751.00	275399.63	322099.06

	2014-15	2015-16	2016-17	2017-18	2018-19
end of the period)					

O&M Expenses

50. Regulation 29(1)(a) of the 2014 Tariff Regulations provides as under:

"29. Operation and Maintenance Expenses:

(1) Normative Operation and Maintenance expenses of thermal generating stations shall be as follows:

(a) Coal based and lignite fired (including those based on Circulating Fluidised 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 and above sets*
2014-15	*23.90*	*19.95*	*16.00*	*14.40*
2015-16	*25.40*	*21.21*	*17.01*	*15.31*
2016-17	*27.00*	*22.54*	*18.08*	*16.27*
2017-18	*28.70*	*23.96*	*19.22*	*17.30*
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:

500 MW and above	Additional 3rd & 4th units	0.90
	Additional 5th& above units	0.85

…"

51. The petitioner has claimed O&M expenses under Regulation 29 (1) (a) and (b) of the 2014 Tariff Regulations as under:-

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
28512.00	30313.80	32214.60	34254.00	36392.40

52. Regulation 29 (1) (a) and 29 (1) (b) of the 2014 Tariff Regulations provides the year-wise O&M expense norms claimed for the generating station of the petitioner as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
14.40	15.31	16.27	17.30	18.38

53. Accordingly, the year-wise O&M expenses allowed in terms of the above said norms and also considering the multiplying factor of 0.9 for the 3rd and 4th units and 0.85 for 5th unit are allowed as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
25185.60	26777.19	28456.23	30257.70	32146.62

Water Charges

54. 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:*
>
> *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 capitalisation or consumption of stores and spares and renovation and modernization"*

55. 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 of the details furnished by the petitioner. In the present petition, the petitioner has submitted the details of type of cooling water system, water consumption, rate of water charges as applicable for 2013-14. The petitioner has claimed water charges based on the expected water consumption of the generating station.

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
7559.14	8039.15	8549.63	9092.53	9669.91

56. The respondent, MPPMCL has submitted that as per Regulation 3(42) and 29(2) of the 2014 Tariff Regulations, water charges has to be recovered separately. The respondent, MPPMCL has requested the Commission to disallow the same as it is beyond the scope of the Regulation. The respondent, MPPMCL further submitted that the Commission may direct the petitioner to recover water charges from the beneficiaries on

actual basis for the year 2014-15 and 2015-16. The respondent has further submitted that as against the allocated capacity of 120 MCM and liability of 90% minimum charge payment, the petitioner is able to consume only about 60-70% of water, and hence the petitioner is paying enormous extra amount as water charges. Accordingly, the respondent has requested the Commission to disallow the excess water charges claimed by the petitioner.

57. The petitioner was directed to submit the details of contracted quantum of water, the allocated quantity and the actual water consumption for the period 2009-16 along with the rate of water charges, with relevant notification in support of the same. The petitioner was also directed to submit the details of the actual water charges paid to Water Resource Department/ State Government duly certified by Auditor. In response the petitioner vide affidavit dated 29.8.2016 has furnished the details of contracted quantity, water allocated quantity and the actual water consumption and the water charges paid. The petitioner has submitted that water charges forms part of audited financial statement. It has also submitted that the Cooling water system in the generating station is the Closed Circulating Water system with Induced Draft Cooling Tower (IDCT). The petitioner has also submitted that water agreement has been executed with state of Govt. of MP for this generating station for the period of 30 years based on the allocation of water quantity on daily basis for 0.328 MCM and aggregated billing for water consumption is carried out on monthly basis. The petitioner has also submitted that in case the actual drawl is less than contracted quantity, the minimum payment of water charges is to be made based on allocation equivalent to 90% of the monthly contracted quantity of 10 MCM i.e. 9 MCM for Stage-I & Stage-II of the generating station and if the actual drawl exceeds the contracted quantity on monthly basis, the water charges are payable to the Govt. of MP @1.5 times the applicable rate of water charges. The petitioner has further submitted that the water agreement for thermal generating station is executed for water requirement based on Water Balance Diagram which is based on various considerations like temperature and relative humidity affecting rate of evaporation of water from raw water pond, Cooling Towers etc, blow-down for design Cycle of Concentration (COC) for circulating water, drift loss of cooling tower, steam loss

in the cycle, level of generation etc. The petitioner has also stated that with better O&M practices like Chemical Dosing, Ash Water Recirculation System (AWRS) etc., in place the generating station will be able to reduce the raw water make-up and maintain its water requirement within the allocated quantity. The petitioner has also submitted that it would not be possible to reduce the allocation, as against the monthly allocation of 10 MCM, as the actual consumption is in the range or 9 to 10 MCM in certain months. The petitioner submitted that in case, the contracted quantity is reduced from 10 MCM, there would be a likely loss of generation due to reduced availability of water and therefore, the Commission may allow the expenditure pertaining to the allocated quantity for successful and efficient running of the generating station.

58. The details of water charges submitted by the petitioner for Stage-I & Stage-II of the generating station for the tariff period 2009-14 is as under:

(₹ in lakh)

2009-10	2010-11	2011-12	2012-13	2013-14	2014-15	2015-16
2223.00	7254.00	8600.00	10209.00	11377.00	13086.00	13368.00

59. We have examined the matter. It is noticed that the petitioner has claimed water charges for the period 2009-16 as per the actual water charges incurred for the said period. Further the petitioner has claimed an amount of ₹7559.14 lakh as Water charges in 2014-15 based on the total water charges paid for combined Sipat STPS (stage-I and II) amounting to ₹11377 lakh in 2013-14. The petitioner has also considered the amount of ₹11377 lakh as Water charges in 2014-15 as against the claim of ₹13086 lakh in 2014-15. The water charges paid in 2014-15 and 2015-16 as submitted vide affidavit dated 23.6.2016 are based on actuals and hence the same has been considered for granting water charges for the years 2014-15 and 2015-16. Further, the water charges paid during the year 2015-16 has been considered for the period 2016-19.

60. In this regard, the report of CEA on minimization of water requirement in coal based thermal power generating stations along with the water requirement in plant is extracted as under:

"As per the above study, the recommended plant consumptive water for different types of plants is indicated as below:-

Table- 2, Plant water requirement in ***m³/h*** for 2x500 MW plant.

S.No.	Description	In-land plants using indigenous coal		Sea water based coastal plants (fresh water requirement)
		Plant with wet cooling tower	Plant with dry cooling system	
1	Water requirement for first year of plant operation	3600* (3.6)	750$ (0.75)	400 (0.4)
2	Water requirement during subsequent period	3000 (3.0)	550$ (0.55)	

Figures within bracket indicate water requirement in m3/h per MW of the plant.

Notes:

i) *The above plant water requirements are for normal sources of raw water with COC of 5 for CW system. In case, treated sewage water or high TDS water is used as source for raw water or plant is required to be provided with FGD plant, the plant water requirement could be higher which needs to be worked out on case to case basis. In some cases, it may be possible to increase COC of CW system above 5.0 based on quality of raw water and feasibility of cooling water treatment. In such case, plant consumptive water would reduce according to CT blow down reduction.*

ii) ** The indicated figure of 3600 m3/h is for fly ash disposal in wet slurry mode. In case HCSD system is used for fly ash disposal, the plant consumptive water requirement shall be 3000 m3/h (3m3/h per MW) right from first year of plant operation.*

ii) *$ It is presumed that dry cooling system based plants would be designed with fly ash disposal in dry mode right from initial period of plant operation. In case, HCSD system is used for fly ash disposal, additional raw water to the tune of 150 m3/h (0.15 m3/h per MW) would be required.*

iii) *In case CMB water is treated using R.O. plant, the requirement of plant input water shall get further reduced as per recovery of permeate water and scheme for utilisation of waste waters including R.O. reject."*

61. The petitioner has submitted the details of the water requirement for Combined Sipat STPS Stage I and II, out of which the yearly water requirement for the generating station is as under:

(MCM/year)

Combined for Sipat	69.27	89.90	89.90	89.90	89.90
Capacity of Stage-I	1980.00	1980.00	1980.00	1980.00	1980.00
Capacity of Stage-II	1000.00	1000.00	1000.00	1000.00	1000.00
Total Capacity	2980.00	2980.00	2980.00	2980.00	2980.00
Water Charge for Stage-I	46.03	59.73	59.73	59.73	59.73

62. In terms of the report of the CEA, the consumptive water charges requirement for the generating station at the rate of 3 m^3/hr/MW works out as 0.142 MCM/day and the yearly water requirement for Combined Sipat STPS (Stage-I and II) (2980MW) for the year 2014-15 is 69.27

MCM and 89.90 MCM in 2015-16 respectively. Further, pro rata yearly water requirement based on combined requirement for Sipat STPS Stage-I (1980 MW) for the year 2014-15 is 46.03 MCM and 59.73 MCM in 2015-16. As per CEA report of 3 m^3/hr/MW, the average water requirement works out to be 52.04 MCM. The actual water consumption of 46.03 MCM as submitted by the petitioner is within the CEA report during 2014-15, and for the year 2015-16 the water consumption of 59.73 MCM is slightly higher, which is acceptable. The petitioner has claimed an amount of ₹13086 lakh and ₹13368 lakh as Water charges during the years 2014-15 and 2015-16 for combined Sipat STPS (Stage-I and II) (2980 MW). Further, the petitioner has submitted the pro-rata water charges for the generating station as ₹8694.72 lakh in 2014-15 and ₹8882.09 lakh in 2015-16 respectively. Since water charges claimed by the petitioner in 2014-15 and 2015-16 is the actual water charges, We are inclined to allow the said amount claimed by the petitioner. However the petitioner is directed to furnish the details of the actual water charges paid at the end of the tariff period along with the measures taken to minimize the consumptive water requirement for the generating station at the time of truing up of tariff.

63. The detailed computation for water charges for this generating station is shown under:

(₹ in lakh)

Actual Water Charges	2014-15	2015-16	2016-17	2017-18	2018-19
Combined for Sipat	13086.00	13368.00	13368.00	13368.00	13368.00
Capacity of Stage-I	1980.00	1980.00	1980.00	1980.00	1980.00
Capacity of Stage-II	1000.00	1000.00	1000.00	1000.00	1000.00
Total Capacity	2980.00	2980.00	2980.00	2980.00	2980.00
Water Charge for Stage-I	8694.72	8882.09	8882.09	8882.09	8882.09

64. The total water charges worked out for the year 2014-15 as per the actual water charges paid by the petitioner is approximately closer to the consumptive water requirement as mentioned in the CEA report. In view of the above, we have considered the actual water charges paid by the petitioner for the years 2014-15 and 2015-16. Further, the water charges considered for the period 2016-19 is same as the actual water charges paid by the petitioner in the year 2015-16. The water charges allowed as above is subject to truing -up at the end of the tariff period.

65. Based on the above, the total O&M expenses including water charges as allowed for the purpose of tariff is as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Water charges as allowed	8694.72	8882.09	8882.09	8882.09	8882.09
O&M expenses as allowed	25185.60	26777.19	28456.23	30257.70	32146.62
Total O&M Expenses as allowed (including Water charges)	33880.32	35659.28	37338.32	39139.79	41028.71

Enhancement of O&M Expenses

66. The petitioner has prayed to allow the revision of O&M charges including the revised salary of the employee's with effect from 1.1.2017 as and when it is finalized. The respondent, MPPMCL has submitted that the petitioners company is a profit making Public Sector Company and therefore petitioner should bear the burden of wage revision of its employees. Accordingly, the respondent has submitted that the petitioner's prayer for revision in O&M norms should not be allowed. In response, the petitioner has clarified that it is a government company and the salary revision of its employees is carried out as per the recommendations of Department of Public Enterprises, Govt of India. The petitioner has further submitted that during the finalization of these regulations, different stakeholders had pointed out the issue of salary & wage revision and inclusion of the same in comprehensive manner for allowing the O&M expenditure.

67. We have examined the matter. Accordingly, the prayer of the petitioner for enhancement of O&M expenses if any, due to pay revision may be examined by the Commission, on a case to case basis, subject to the implementation of pay revision as per DPE guidelines and the filing of an appropriate application by the petitioner in this regard. The O&M Expenses have been worked out as per the norms specified under the 2014 Tariff Regulations.

Capital spares

68. The petitioner has not claimed capital spares on projection basis during the period 2014-19. Accordingly, the same has not been considered in this order.

Operational Norms

69. The operational norms in respect of the generating station claimed by the petitioner are as under:

Target Availability (%)	83.00
Heat Rate (kcal/kWh)	2306.34
Auxiliary Energy Consumption (%)	5.75
Specific Oil Consumption (ml/ kWh)	0.50

Normative Annual Plant Availability Factor (NAPAF)

70. Regulation 36 (A) (a) of the 2014 Tariff Regulations provides as under:

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

Provided that in view of the shortage of coal and uncertainty of assured coal supply on sustained basis experienced by the generating stations, the NAPAF for recovery of fixed charges shall be 83% till the same is reviewed.
The above provision shall be reviewed based on actual feedback after 3 years from 01.04.2014.

71. The respondent, MPPMCL has submitted that there is no shortage of coal and the availability details of the plant for the past 3 years are as under:-

2013-14	2014-15	2015-16
89.62%	89.03%	87.85%

72. The respondent, MPPMCL has submitted that petitioner has not submitted any justification for considering target availability of 83% and therefore the Commission may disallow the petitioners claim for Target availability of 83%. It has also requested that the Commission may direct the petitioner to revise target availability to 85% with retrospective effect.

73. We have examined the matter. The petitioner has considered the Target Availability norm of 85% during the period 2014 - 19. In terms of the above Regulations, Target Availability of 83% is considered for the period 2014-15 to 2016-17 and 85% for the period 2017-18 and 2018-19.

Heat Rate (kCal/kWh)

74. Regulation 36(C)(c)(i) of the 2014 Tariff Regulations, provides as follows:

*"(c) **Thermal Generating Station having COD on or after 1.4.2009 till 31.03.2014***

(i) Coal-based and lignite-fired Thermal Generating Stations = 1.045 X Design Heat Rate (kCal/kWh)

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

Provided that the heat rate norms computed as per above shall be limited to the heat rate norms approved during FY 2009-10 to FY 2013-14."

75. It has been observed that the petitioner has considered Gross Station Heat Rate (GSHR) of 2306.34 kCal/kWh (=1.045x1904/0.8627) for the period 2014-19 with Boiler Efficiency of 86.27%.

76. In view of above, the design heat rate of 2306.34 kCal/kWh (=1.045x1904/0.8627) during the period 2014-19 has been computed based on Turbine Cycle Heat Rate of 1904 Kcal/kWh and Boiler Efficiency of 86.27%, and also considering margin of 4.50% as specified in the 2014 Tariff Regulations.

Auxiliary Energy Consumption

77. The petitioner has claimed Auxiliary Energy Consumption at 5.75% {5.25% for Steam driven BFP as per Regulation 26(E)(a)(ii) of the 2014 Tariff Regulations + 0.5% for induced draft cooling tower as per first proviso to Regulation 26(E)(a) of the 2014 Tariff Regulations} during 2014-19 period. The claimed Auxiliary Energy Consumption is in accordance with the Regulation 26(E)(a) of the 2014 Tariff Regulations and accordingly the Auxiliary Energy Consumption of 5.75% is as per the norms and is allowed for the purpose of tariff.

Specific Oil Consumption

78. Regulation 36(D)(a) of the 2014 Tariff Regulations, provides secondary fuel oil consumption of 0.50 ml/kWh for coal-based generating station and the same has been allowed for 2014-19 tariff period.

Interest on Working Capital

79. Sub-section (1) of clause (1) of Regulation 28 of the 2014 Tariff Regulations provides asunder:

"28. Interest on Working Capital:
(1) The working capital shall cover
(a) Coal-based/lignite-fired thermal generating stations

(i) 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.

80. The respondent, MPPMCL has submitted that the petitioner has claimed O & M expenses for working capital including the expenditure of water charges, but the 2014 Tariff Regulations provides that water charges should be recovered separately. In this background, the respondent, has submitted that the Commission may exclude water charges from O&M expense while calculating Interest on Working Capital. The respondent, has submitted that annual fixed charges which is a part of receivable comprises of return on equity is inclusive of grossing up of income tax and thus petitioner is earning interest on amount of income tax also towards interest on working capital. The respondent has further submitted that the 2014 Tariff Regulations do not provide to pass on such an extra interest on amount of income tax and therefore the Commission to exclude amount of grossing up of income tax while calculating the receivable component. It has also requested for consideration of 83% Target availability for computation of interest in working capital. The respondent has also stated that demurrage has been levied/imposed on the petitioner for its default in handling the racks and therefore the beneficiaries are not liable to bear the demurrage charges. It has therefore submitted that the Commission may disallow the demurrage charges claimed by the petitioner in landed cost of fuel. The respondent, MPPMCL has requested the Commission to direct the petitioner to review all the bills wherein demurrage and penalties has been included in landed

cost of fuel and pass on the corresponding adjustment to the beneficiaries. We have examined the matter. The interest on working capital worked out in accordance with Regulation 28 of the 2014 Tariff Regulations is as under:

Fuel Components and Energy Charges in working capital

81. The petitioner has claimed cost for fuel components in working capital based on the average fuel data for preceding three months of January, 2014, February, 2014 and March, 2014 and has considered the same for each year of the tariff period as under:

(₹in lakh)

Sl. No.	Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
1A	Cost of Coal for Stock for 15 days	7628.45	7649.35	7628.45	7628.45	7628.45
1B	Cost of Coal for Generation for 30 days	15256.90	15298.70	15256.90	15256.90	15256.90
2	Cost of Main Secondary Fuel Oil for 2 months	619.21	620.91	619.21	619.21	619.21

82. The respondent, MPPMCL has submitted that the petitioner has not furnished the details of GCV of coal on as received basis and therefore has requested the Commission to direct the petitioner to provide the GCV of coal on as received basis. The respondent, MPPMCL has submitted GCV of primary fuel as billed by the coal company may be considered in absence of GCV of coal on as received basis for calculation of energy charges. The respondent, MPPMCL has further submitted that the petitioner is charging ECR on as fired basis and therefore has requested the Commission to direct the petitioner to revise all its bill w.e.f. 1.4.2014 on the basis of GCV of primary fuel on as received basis.

83. The issue of “as received” GCV for computation of energy charges was challenged by NTPC and other generating companies through writ petition in the Hon’ble High Court of Delhi. The writ petition was heard on 7.9.2015 and Hon’ble High Court of Delhi had directed that the Commission shall decide the place from where the sample of coal should be taken for measurement of GCV of coal on as received basis within 1 month on the request of petitioners.

84. As per the directions of the Hon'ble High Court, the Commission vide order dated 25.1.2016 in Petition No. 283/GT/2014 has decided as under:

> *"58. In view of the above discussion, the issues referred by the Hon'ble High Court of Delhi aredecided 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 takingsamples after the crusher set up inside the generating station, in terms of Regulation 30(6) of the2014 Tariff regulations.*
> *(b) The samples for the purpose of measurement of coal on as received basis should becollected from the loaded wagons at the generating stations either manually or through theHydraulic Auger in accordance with provisions of IS 436(Part1/Section1)-1964 before the coal isunloaded. While collecting the samples, the safety of personnel and equipment as discussed inthis order should be ensured. After collection of samples, the sample preparation and testingshall be carried out in the laboratory in accordance with the procedure prescribed in IS436(Part1/Section1)-1964 which has been elaborated in the CPRI Report to PSERC."*

85. Further, the petitioner has claimed energy charge rate (ECR) of ₹1.377/kWh based on the weighted average price, GCV of coal (as received basis) & oil procured and burnt for the preceding three months. It is observed that the petitioner has not placed on record the GCV of coal on "as received" basis taken from the loaded wagons at the unloading point, though the petitioner was statutorily required to furnish such information with effect from 1.4.2014. In compliance with the direction of the Hon'ble High Court of Delhi, the Commission in its order dated 25.1.2016 in Petition No. 283/GT/2014 has clarified that the sample for measurement of GCV of coal on "as received" basis shall be taken from the loaded wagons at the unloading point either manually or through the Hydraulic Augur. The petitioner has not submitted the required data regarding measurement of GCV of coal in compliance with the directions contained in the said order dated 25.1.2016. The present petition cannot be kept pending till the petitioner submits the required information. Hence, the Commission has decided to compute the energy charges by provisionally taking the GCV of coal on as "billed basis" and allowing on adjustment for total moisture as per the formula given as under:

$$\frac{GCV \times (1-TM)}{(1 - IM)}$$

Where: GCV=Gross Calorific value of coal
TM=Total moisture
IM= Inherent moisture

86. In view of the above, the cost for fuel components in working capital have been computed at 85% NAPAF for the tariff period 2014-19 and based on “as billed” GCV of coal and price of coal procured and secondary fuel oil for the preceding three months from January 2014 to March 2014 and allowed as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of Coal for stock– 15 days	6231.30	6231.30	6231.30	6381.45	6381.45
Cost of Coal for generation– 30 days	12462.59	12462.59	12462.59	12762.90	12762.90
Cost of secondary fuel oil – two months	619.21	620.91	619.21	634.13	634.13

87. Similarly, the Energy Charge Rate (ECR) based on operational norms specified in 2014 Regulations and on “as billed" GCV of coal for preceding 3 months i.e. March to January 2014 is worked out as under:

Sl. No		Unit	2014-19
1	Capacity	MW	1980.00
2	Gross Station Heat Rate	kCal/kWh	2306.34
3	Aux. Energy Consumption	%	5.75%
4	Weighted average GCV of oil (As fired)	kCal/lt.	10130.00
5	Weighted average GCV of Coal (As Billed)	kCal/kg	4523.49
6	Adjustment on account of coal received at the generating station for equilibrated basis (Air dried) in the billed GCV Of Coal India		*
7	Weighted average price of oil	₹/kl	51614.61
8	Weighted average price of Coal	₹/MT	2070.32
9	Rate of energy charge ex-bus	Rs./kWh	1.145**

** To be calculated by the petitioner based on the adjustment formula*

*** To be revised as per the figures at Sr. No. 6*

88. The GCV of coal as computed above shall be adjusted in the light of the GCV of coal on “as received basis” computed by the petitioner as per our directions in order dated 25.1.2016 in Petition No. 283/GT/2014.

Maintenance spares

89. The petitioner has claimed the maintenance spares as under:-

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
7214.23	7670.59	8152.85	8669.31	9212.46

90. The Maintenance spares in the working capital has been worked out in accordance with Regulation 28(1)(1) of the 2014 Tariff Regulations and are allowed as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
6776.06	7131.86	7467.66	7827.96	8205.74

Receivables

91. Receivables equivalent to two months of capacity charge and energy charges has been worked out and allowed as under:

(₹in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Variable Charges (two months)	25890.57	25961.50	25890.57	26514.44	26514.44
Fixed Charges (two months)	30494.31	30865.09	30766.61	30588.29	30400.65
Total	**56384.88**	**56826.60**	**56657.19**	**57102.73**	**56915.09**

O&M Expenses

92. O&M expenses for 1 month claimed by the petitioner is as under:

(₹in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
3005.93	3196.08	3397.02	3612.21	3838.53

93. O&M expenses for 1 month is worked out in accordance with Regulation 28(1)(1) of the 2014 Tariff Regulations for the purpose of working capital and is allowed as under:

(₹in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
2823.36	2971.61	3111.53	3261.65	3419.06

Rate of interest on working capital

94. Clause (3) of Regulation 28 of the 2014 Tariff Regulations provides as under:

> *"Interest on working Capital: (3) Rate of interest on working capital shall be on normative basis and shall be considered as the bank rate as on 1.4.2014 or as on 1st April of the year during the tariff period 2014-15 to 2018-19 in which the generating station or a unit thereof or the transmission system including communication system or element thereof, as the case may be, is declared under commercial operation, whichever is later."*

95. In terms of the above regulations, SBI PLR of 13.50% (Bank rate 10.00 + 350 bps) has been considered for the purpose of calculating interest on working capital. Interest on working capital has been computed as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of coal towards stock- 15 days	6231.30	6231.30	6231.30	6381.45	6381.45

Cost of coal towards generation- 30 days	12462.59	12462.59	12462.59	12762.90	12762.90
Cost of secondary fuel oil- 2 months	619.21	620.91	619.21	634.13	634.13
O & M expenses- 1 Month	2823.36	2971.61	3111.53	3261.65	3419.06
Maintenance Spares	6776.06	7131.86	7467.66	7827.96	8205.74
Receivables- 2 months	56384.88	56826.60	56657.19	57102.73	56915.09
Total Working Capital	**85297.40**	**86244.86**	**86549.48**	**87970.81**	**88318.37**
Rate of Interest (%)	13.5000	13.5000	13.5000	13.5000	13.5000
Interest on Working Capital	**11515.15**	**11643.06**	**11684.18**	**11876.06**	**11922.98**

96. Accordingly, annual fixed charges approved for the generating station for the period from 1.4.2014 to 31.3.2019 is summarized as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	45377.76	46365.03	46602.92	46648.64	46699.43
Interest on Loan	39635.02	37561.97	34736.18	31573.96	28402.39
Return on Equity	52557.58	53961.21	54238.08	54291.28	54350.40
Interest on Working Capital	11515.15	11643.06	11684.18	11876.06	11922.98
O&M Expenses	33880.32	35659.28	37338.32	39139.79	41028.71
Total	**182965.84**	**185190.56**	**184599.69**	**183529.73**	**182403.91**

Month to Month Energy Charges

97. Clause 6 sub-clause (a) of Regulation 30 of the 2014 Tariff Regulations provides for computation and payment of Capacity Charge and 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"*

98. The petitioner shall compute and claim the Energy Charges on month to month basis from the beneficiaries based on the formulae given under Regulation 30(6)(a) of the 2014 Tariff Regulations, 2014 read with Commission's order dated 25.1.2016 in Petition No. 283/GT/2014.

99. The petitioner has been directed by the Commission in its order dated 19.2.2016 in Petition No. 33/MP/2014 to introduce helpdesk to attend to the queries of the beneficiaries with regard to the Energy Charges. Accordingly, contentious issues if any, which arise regarding the Energy Charges, should be sorted out with the beneficiaries at the Senior Management level.

Application Fee and Publication Expenses

100. The petitioner has sought the reimbursement of filing fee and also the expenses incurred towards publication of notices for application of tariff for the period 2014-19. The petitioner has deposited the filing fees for the period 2014-15 in terms of the provisions of the Central Electricity Regulatory Commission (Payment of Fees) Regulations, 2012. Accordingly, in terms of Regulation 52 of the 2014 Tariff Regulations and in line with the decision in Commission's order dated 5.1.2016 in Petition No. 232/GT/2014, we direct that the petitioner shall be entitled to recover pro rata, the filing fees and the expenses incurred on publication of notices for the period 2014-17 directly from the respondents on submission of documentary proof. The filing fees for the remaining years of the tariff period 2017-19 shall be recovered pro rata after deposit of the same and production of documentary proof.

101. The annual fixed charges approved for the period 2014-19 as above are subject to truing-up in terms of Regulation 8 of the 2014 Tariff Regulations.

102. Petition No. 337/GT/2014 is disposed of in terms of the above.

Sd/-	Sd/-	Sd/-
(Dr. M. K. Iyer)	**(A. K. Singhal)**	**(Gireesh B. Pradhan)**
Member	**Member**	**Chairperson**