

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 238/GT/2020**

**Coram:**

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

**Shri Arun Goyal, Member**

**Shri Pravas Kumar Singh, Member**

**Date of Order: 13<sup>th</sup> November, 2023**

**IN THE MATTER OF**

Petition for truing-up of tariff of Rihand Super Thermal Power Station, Stage-III (1000 MW) for the period 2014-19.

**AND**

**IN THE MATTER OF**

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

**.... Petitioner**

**Vs**

1. Uttar Pradesh Power Corporation Limited,  
Shakti Bhawan, 14, Ashok Marg,  
Lucknow-226001
2. Rajasthan Urja Vikas Nigam Limited,  
Vidyut Bhawan, Janpath,  
Jaipur 302 005
3. Tata Power Delhi Distribution Limited,  
Grid sub-station, Hudson Road,  
Kingsway Camp, Delhi-110009
4. BSES Rajdhani Power Limited,  
BSES Bhawan, Nehru Place,  
New Delhi -110019.
5. BSES Yamuna Power Limited,  
Shakti Kiran Building, Karkardooma,  
Delhi-110092
6. Haryana Power Purchase Centre,  
Shakti Bhawan, Sector -VI, Panchkula,  
Haryana-134109



7. Punjab State Power Corporation Limited,  
The Mall, Patiala-147001
8. Himachal Pradesh State Electricity Board Limited,  
Kumar Housing Complex Building-II,  
Vidyut Bhawan, Shimla-171004
9. Power Development Department,  
Govt of J & K, Civil Secretariat, Srinagar
10. Electricity Department,  
Union Territory of Chandigarh,  
Addl. Office Building, Sector 9 D, Chandigarh
11. Uttarakhand Power Corporation Limited,  
Urja Bhavan, Kanwali Road,  
Dehradun-248001

.....Respondents

**Parties Present:**

Shri Anand K. Ganesan, Advocate, NTPC  
Ms. Swapna Seshadri, Advocate, NTPC  
Ms. Ritu Apurva, Advocate, NTPC  
Shri Deepak Thakur, Advocate, NTPC  
Shri Mansoor Ali Shoket, Advocate, TPDDL  
Shri Nitin Kala, Advocate, TPDDL  
Shri Kunal Singh, Advocate, TPDDL  
Ms. Shefali Sobti, TPDDL  
Shri Anupam Varma, BYPL  
Shri Aditya Ajay, Advocate, BYPL  
Shri Rahul Kinra, Advocate, BYPL  
Shri Sachin Dubey, Advocate, BRPL  
Ms. Megha Bajpeyi, BRPL

**ORDER**

This petition has been filed by the Petitioner, NTPC Limited, for truing-up of tariff of Rihand Super Thermal Power Station, Stage-III (1000 MW) (in short 'the generating station') for the period 2014-19, in terms of Regulation 8(1) of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (in short 'the 2014 Tariff Regulations'). The generating station, with a total capacity of



1000 MW comprises of two units of 500 MW each and the dates of commercial operation of the units of the generating station are as under:

Unit-I	19.11.2012
Unit-II	27.03.2014

2. The Commission vide its order dated 27.12.2016 in Review Petition No. 25/ RP/ 2016 (order dated 14.3.2016 in Petition No. 205/GT/2013) had determined the capital cost and annual fixed charges for generating station for the period 2009-14, in terms of Regulation 6(1) of the 2009 Tariff Regulations. Thereafter, the Commission vide its order dated 6.2.2017 in Petition No. 372/GT/2014 had determined the tariff of the generating station for the period 2014-19, as under:

**Capital Cost allowed**

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening capital cost	467043.03	480797.03	508091.03	516469.81	523750.81
Add: Addition during the year	13754.00	27294.00	8378.79	7281.00	0.00
<b>Closing capital cost</b>	<b>480797.03</b>	<b>508091.03</b>	<b>516469.81</b>	<b>523750.81</b>	<b>523750.81</b>

**Annual Fixed Charges allowed**

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Return on Equity	27882.14	29230.54	30284.99	30747.88	30963.10
Interest on Loan	24753.01	23323.70	22031.48	20608.26	18409.98
Depreciation	26300.80	27439.81	28429.66	28864.19	29066.22
Interest on Working Capital	5386.82	5468.89	5538.37	5651.51	5674.99
O&M Expenses	14023.85	14882.35	15791.85	16760.85	17798.35
<b>Total</b>	<b>98346.62</b>	<b>100345.29</b>	<b>102076.35</b>	<b>102632.69</b>	<b>101912.64</b>

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

**“8. Truing up**

*(1) The Commission shall carry out truing up exercise along with the tariff petition filed for the next tariff period, with respect to the capital expenditure including additional capital expenditure incurred up to 31.3.2019, as admitted by the Commission after prudence check at the time of truing up:*

*Provided that the generating company or the transmission licensee, as the case may be, shall make an application for interim truing up of capital expenditure including additional capital expenditure in FY 2016-17.”*

4. In terms of the above regulations, the Petitioner vide affidavit dated 25.10.2019 has claimed capital cost and annual fixed charges for the period 2014-19 as under:



### Capital Cost claimed

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening capital cost	467043.03	490782.64	506716.76	548017.99	553116.73
Add: Addition	12763.34	13969.74	37040.42	1363.20	1585.52
Less: De-capitalization	265.88	516.99	624.82	204.52	517.19
Add: Discharges	11242.14	2481.38	4885.63	3940.06	560.55
<b>Closing capital cost</b>	<b>490782.64</b>	<b>506716.76</b>	<b>548017.99</b>	<b>553116.73</b>	<b>554745.61</b>
<b>Average capital cost</b>	<b>478912.83</b>	<b>498749.70</b>	<b>527367.38</b>	<b>550567.36</b>	<b>553931.17</b>

### Annual Fixed Charges claimed

(Rs. in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	26577.75	27710.03	29189.78	30117.14	30299.58
Interest on Loan	25049.36	22889.22	21844.28	20307.78	18429.89
Return on Equity	28175.88	29485.08	31176.90	32548.44	32833.72
Interest on Working Capital	6198.72	6281.11	6452.24	6620.37	6698.84
O&M Expenses	14286.18	15388.26	16316.79	16965.37	18316.99
<b>Total (A)</b>	<b>100287.88</b>	<b>101753.71</b>	<b>104980.00</b>	<b>106559.09</b>	<b>106579.01</b>
<b>Additional O&amp;M Expenditures</b>					
Impact of Pay Revision	-	29.80	1156.82	1435.67	1811.13
Impact of GST	-	-	-	148.60	206.47
<b>Total (Additional O&amp;M) (B)</b>	<b>-</b>	<b>29.80</b>	<b>1156.82</b>	<b>1584.27</b>	<b>2017.60</b>
<b>Total (A+B)</b>	<b>100287.88</b>	<b>101783.51</b>	<b>106136.82</b>	<b>108143.36</b>	<b>108596.61</b>

5. The Respondents, UPPCL and TPDDL have filed their replies on 6.3.2020/14.7.2021 and 30.8.2021 respectively and the Petitioner has filed its rejoinder to the same on 26.5.2021/29.10.2021 (UPPCL) and 7.1.2022 (TPDDL). The Petitioner has filed certain additional information vide affidavits dated 30.6.2021, 25.10.2021 and 16.8.2022, with a copy to the Respondents. The Petition was heard through video conferencing on 23.8.2022 and during the hearing, the learned counsel for the Petitioner circulated a note of arguments and made detailed oral submissions. The Commission after hearing the parties reserved its order in this petition. Based on the submissions of the parties and the documents available on record and on prudence check, we proceed for truing up the tariff of the generating station for the period 2014-19, as stated in the subsequent paragraphs.

### Capital Cost



6. Regulation 9(1) of the 2014 Tariff Regulations provides that the capital cost as determined by the Commission after prudence check, in accordance with this regulation, shall form the basis of determination of tariff for existing and new projects.

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

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

*(a) the capital cost admitted by the Commission prior to 1.4.2014 duly trued up by excluding liability, if any, as on 1.4.2014.*

*(b) additional capitalisation and de-capitalisation for the respective year of tariff as determined in accordance with Regulations 14.*

*expenditure on account of renovation and modernisation as admitted by this Commission in accordance with Regulation 15;”*

7. The Commission vide its order dated 6.2.2017 in Petition 372/GT/2014 had allowed the annual fixed charges of the generating station for the period 2014-19 considering the opening capital cost of Rs.467043.03 lakh (on cash basis). Accordingly, in terms of Regulation 9(3) of the 2014 Tariff Regulations, the capital cost of Rs.467043.03 lakh has been considered as opening capital cost as on 1.4.2014.

8. 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) Un-discharged liabilities recognised to be payable at a future date;*

*(ii) Works deferred for execution;*

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

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

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

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

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

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



- (ii) *Change in law or compliance of any existing law;*
- (iii) *Deferred works relating to ash pond or ash handling system in the original scope of work; and*
- (iv) *Any liability for works executed prior to the cut-off date, after prudence check of the details of such un-discharged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments etc.*
- (3) *The capital expenditure, in respect of existing generating station or the transmission system including communication system, incurred or projected to be incurred on the following counts after the cut-off date, may be admitted by the Commission, subject to prudence check:*
- (i) *Liabilities to meet award of arbitration or for compliance of the order or decree of a court of law;*
- (ii) *Change in law or compliance of any existing law;*
- (iii) *Any expenses to be incurred on account of need for higher security and safety of the plant as advised or directed by appropriate Government Agencies of statutory authorities responsible for national security/internal security;*
- (iv) *Deferred works relating to ash pond or ash handling system in the original scope of work;*
- (v) *Any liability for works executed prior to the cut-off date, after prudence check of the details of such un-discharged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments etc.;*
- (vi) *Any liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments.*
- (vii) *Any additional capital expenditure which has become necessary for efficient operation of generating station other than coal /lignite-based stations or transmission system as the case may be. The claim shall be substantiated with the technical justification duly supported by the documentary evidence like test results carried out by an independent agency in case of deterioration of assets, report of an independent agency in case of damage caused by natural calamities, obsolescence of technology, up-gradation of capacity for the technical reason such as increase in fault level;*
- (viii) *In case of hydro generating stations, any expenditure which has become necessary on account of damage caused by natural calamities (but not due to flooding of power house attributable to the negligence of the generating company) and due to geological reasons after adjusting the proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plant operation;*
- (ix) *In case of transmission system, any additional expenditure on items such as relays, control and instrumentation, computer system, power line carrier communication, DC batteries, replacement due to obsolescence 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-materialisation 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 stabilisers, refrigerators, coolers, computers, fans, washing machines, heat convectors, mattresses, carpets etc. brought after the cut-off date shall not be considered for additional capitalisation 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.”

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

	<b>(Rs. in lakh)</b>				
	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
Closing gross block as per audited books *	1080186.13	1105233.32	757168.12	765184.87	785394.17
Less: Opening gross block as per audited books *	1059905.03	1080186.13	697385.33	757168.12	765184.87
Additional capital expenditure as per audited books *	20281.10	25047.19	59782.79	8016.76	20209.30
Less: Additional capital expenditure pertaining to other stages	4268.16	2705.85	18618.02	7158.54	11198.01
Additional capital expenditure for the generating station	16012.94	22341.34	41164.77	858.22	9011.28
Less: IND AS adjustment	-	-	926.42	485.46	484.11
Additional capital expenditure as per IGAAP for the generating station	16012.94	22341.34	40238.35	372.76	8527.17
Less: Exclusions	3381.02	7727.92	(-)1976.67	(-)1364.63	6595.40
Additional capital expenditure claimed (on accrual basis)	12631.92	14613.41	42215.01	1737.39	1931.77
Less: Un-discharged liabilities included above	134.45	1160.67	5799.42	578.71	863.44
Additional capital expenditure claimed (on cash basis)	12497.47	13452.74	36415.60	1158.68	1068.33
Add: Discharges of liabilities	11242.14	2481.38	4885.63	3940.06	560.55
<b>Net additional capital expenditure claimed including discharges (on cash basis)</b>	<b>23739.61</b>	<b>15934.13</b>	<b>41301.23</b>	<b>5098.74</b>	<b>1628.88</b>

\* As per IGAAP for the period 2014-16 and as per IND AS for the period 2016-19.

10. We now examine the exclusions in following paragraphs.



## **Exclusions**

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

	<i>(Rs. in lakh)</i>				
	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
Loan FERV	5026.76	7228.40	(-) 1888.94	(-) 467.49	5969.82
Capitalization of Capital Spares	-	-	-	703.56	980.80
Inter-Unit Transfer	5.88	2162.70	(-)13.14	(-)1432.99	(-)171.96
Capitalization of MBOA	-	-	-	1.31	0.90
Reversal of Liabilities	(-)1651.62	(-)178.45	(-)74.59	(-)158.46	(-)135.59
De-Capitalization: 5 KM Electrification Scheme of GOI (not part of capital cost)	-	(-)1484.72	-	-	-
De-Capitalization of MBOA (not part of capital cost)	-	-	-	-	(-)0.60
De-capitalization of MBOA (part of capital cost)	-	-	-	(-)10.55	(-)47.98
<b>Total Exclusions Claimed</b>	<b>3381.02</b>	<b>7727.92</b>	<b>(-)1976.67</b>	<b>(-)1364.63</b>	<b>6595.40</b>

12. We examine the exclusions claimed by the Petitioner for the period 2014-19 in the subsequent paragraphs:

### **Loan FERV**

13. The Petitioner has claimed exclusion of loan FERV of Rs.5026.76 lakh in 2014-15, Rs.7228.40 lakh in 2015-16, (-) Rs.1888.94 lakh in 2016-17, (-) Rs.467.49 lakh in 2017-18 and Rs.5969.82 lakh in 2018-19. In justification for the same, the Petitioner has submitted that since, it is entitled to directly claim FERV on foreign currency loans as per the 2014 Tariff Regulations the same has been kept under exclusions. As the Petitioner is entitled to bill the claim for loan FERV, directly from the beneficiaries, the Petitioner's claim under this head is allowed.

### **Capitalisation of Capital Spares**

14. The Petitioner has claimed exclusion of capital spares of Rs.703.56 lakh in 2017-18 and Rs.980.80 lakh in 2018-19. In justification for the same, the Petitioner has





submitted that the capital spares capitalized after the cut-off date, are not allowable as per the 2014 Tariff Regulations and accordingly the same has been claimed as exclusion. As the capitalization of spares over and above the initial spares procured after the cut-off date of the generating station, is not allowed as part of capital cost, as per the 2014 Tariff Regulations, the claim of the Petitioner is allowed.

### ***Inter-Unit Transfer***

15. The Petitioner has claimed exclusion of Rs.5.88 lakh in 2014-15, Rs.2162.70 lakh in 2015-16, (-) Rs.13.14 lakh in 2016-17, (-) Rs.1432.99 lakh in 2017-18 and (-) Rs.171.96 lakh in 2018-19, on account of inter-unit transfer of assets to/from the generating station. In justification for the same, the Petitioner has submitted that since the Commission is not considering the temporary inter-unit transfer of assets, for the purpose of tariff, the same has been kept under exclusions. The Commission, in its various orders while dealing with the application for additional capitalisation in respect of other generating stations of the Petitioner had decided that both positive and negative entries arising out of inter-unit transfers of a temporary nature shall be ignored for the purposes of tariff. In line with the said decision, the exclusion of the said amounts on account of inter-unit transfer is allowed.

### ***Capitalization of MBOA***

16. The Petitioner has claimed an amount of Rs. 1.31 lakh in 2017-18 and Rs.0.90 lakh in 2018-19 as capitalisation of MBOA under exclusion. In justification for the same, the Petitioner has submitted that capitalisation of MBOAs beyond cut-off date is not admissible as per the 2014 Tariff Regulations and accordingly the capitalisation of these MBOA are claimed under exclusion. As capitalization of MBOA after the cut-off date of the generating station is not allowed as part of the capital cost, in terms of the 2014 Tariff Regulations, the claim of the Petitioner is allowed.



### ***Reversal of Liabilities***

17. The Petitioner has claimed exclusion of reversal of liabilities of (-) Rs.1651.62 lakh in 2014-15, (-) Rs.178.45 lakh in 2015-16, (-) Rs.74.59 lakh in 2016-17, (-) Rs.158.46 lakh in 2017-18 and (-) Rs.135.59 lakh in 2018-19. Since tariff is allowed on cash basis, the Petitioner's claim for reversal of liabilities is allowed.

### ***De-capitalization: 5 KM Electrification scheme of GOI (Not part of capital cost)***

18. The Petitioner has claimed exclusion of de-capitalisation of expenditure under 5 KM Electrification Scheme of GOI of Rs.1484.72 lakh in 2015-16. In justification for the same, the Petitioner has submitted that the "5 km Electrification scheme" was taken up by the Petitioner at the various generating stations including this generating station, as per MOP, GOI order dated 27.4.2010. It has further submitted that MOP, GOI vide its order dated 8.3.2014, had directed the Petitioner to complete the scheme in 8 ongoing projects (including the present generating station) and handover the assets to the concerned State Power Utilities free of cost and to capitalize the expenditure through the Commission, as per provisions of the scheme. In line with the same, the Petitioner has stated that it has claimed the expenditure for additional capital expenditure in the present generating station during 2013-14 and was allowed the same as reimbursement vide order dated 14.3.2016 in Petition No. 205/GT/2013. It is observed that since the assets have now been transferred to the distribution companies free of cost as per the MOP directive, the same has been written off in the books of accounts of the Petitioner and accordingly the same has been kept under exclusion. Since the capitalisation of this item was not allowed for the purpose of tariff, the de-capitalisation of the same is allowed under exclusion.



### **De-capitalization of MBOA (Not Part of Capital Cost)**

19. The Petitioner has claimed exclusion of de-capitalisation of MBOA's of Rs.0.60 lakh in 2018-19. In justification for the same, the Petitioner has submitted that these MBOA's do not form part of the allowed capital cost of the generating station and accordingly their de-capitalisation has been claimed as exclusions. Since these de-capitalised MBOAs do not form part of the allowed capital cost of the generating station, the exclusion claimed under this head is allowed.

### **De-capitalization of MBOA (Part of Capital Cost)**

20. The Petitioner has claimed exclusion of de-capitalisation of MBOA's of Rs.10.55 lakh in 2017-18 and Rs.47.98 lakh in 2018-19. In justification for the same, the Petitioner has submitted that as the capitalisation of expenditure against these items are not being allowed for the purpose of tariff under the 2014 Tariff Regulations, the de-capitalisation of the same has been claimed as exclusions. Since Regulation 14(4) of the 2014 Tariff Regulations provides that in case of de-capitalisation of assets, the original cost of such assets shall be removed from the admitted capital cost of the generating station, the claim of the Petitioner under this head is not allowed.

21. Based on the above, the summary of exclusions allowed and disallowed for the period 2014-19, is as under:

*(Rs. in lakh)*

	2014-15	2015-16	2016-17	2017-18	2018-19
Loan FERV	5026.76	7228.40	(-) 1888.94	(-) 467.49	5969.82
Capitalization of Capital Spares	0.00	0.00	0.00	703.56	980.80
Inter-Unit Transfer	5.88	2162.70	(-) 13.14	(-) 1432.99	(-) 171.96
Capitalization of MBOA	0.00	0.00	0.00	1.31	0.90
Reversal of Liabilities	(-) 1651.62	(-) 178.45	(-) 74.59	(-) 158.46	(-) 135.59
De-Capitalization: 5 KM Electrification Scheme of GOI (not part of capital cost)	0.00	(-) 1484.72	0.00	0.00	0.00
De-Capitalization of MBOA (not part of capital cost)	0.00	0.00	0.00	0.00	(-) 0.60
De-capitalization of MBOA (part of capital cost)	0.00	0.00	0.00	(-) 10.55	(-) 47.98



Total Exclusions claimed	3381.02	7727.92	(-) 1976.67	(-) 1364.63	6595.40
<b>Total Exclusions allowed</b>	<b>3381.02</b>	<b>7727.92</b>	<b>(-) 1976.67</b>	<b>(-) 1354.08</b>	<b>6643.38</b>
Total Exclusions Not allowed	0.00	0.00	0.00	(-) 10.55	(-) 47.98

### ***Additional Capital Expenditure***

22. The additional capital expenditure claimed by the Petitioner, on cash basis, for the period 2014-19, is as under:

<i>(Rs. in lakh)</i>						
<b>Head of Work /Equipment</b>	<b>Regulation</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
<b>Claimed/Allowed Works</b>						
Original Scope of Work within Cut-off date	14(1)(ii)	11726.69	9704.10	28579.73	-	-
Original Scope of Work beyond cut-off date and claimed Power to Relax	14(1)(ii) read with Regulation 54	-	-	-	70.86	-
Original Scope of Work beyond cut-off date and claimed Power to Relax	14(1)(ii), 14(3)(v) read with Regulation 54	-	-	-	1292.34	594.34
Capital Spares	14(1)(iii)	1036.65	4265.64	8460.69	-	-
Change in Law	14(3)(ii)	-	-	-	-	991.17
<b>Sub-total</b>		<b>12763.34</b>	<b>13969.74</b>	<b>37040.42</b>	<b>1363.20</b>	<b>1585.52</b>
De-capitalisation of Spares (part of capital cost)	14(4)	(-)262.33	(-)508.96	(-)528.09	(-)204.52	(-)517.19
Other De-capitalisation		(-)3.55	(-)8.04	(-)96.73	-	-
<b>Total De-capitalisation</b>		<b>(-)265.88</b>	<b>(-)516.99</b>	<b>(-)624.82</b>	<b>(-)204.52</b>	<b>(-)517.19</b>
Discharge of Liabilities	14(1)(i)	11242.14	2481.38	4885.63	-	-
Discharge of Liabilities	14(3)(v)	-	-	-	3940.06	560.55
<b>Total Additional capital expenditure claimed</b>		<b>23739.61</b>	<b>15934.13</b>	<b>41301.23</b>	<b>5098.74</b>	<b>1628.88</b>

### ***Works deferred for execution- Regulation 14(1)(ii) of the 2014 Tariff Regulations***

23. The Petitioner has claimed total additional capital expenditure of Rs.11726.69 lakh in 2014-15, Rs.9704.10 lakh in 2015-16 and Rs.28579.73 lakh in 2016-17, towards works within the original scope of work, but deferred for execution and within the cut-off date of the generating station under Regulation 14(1)(ii) of 2014 Tariff Regulations. In justification for the claim, the Petitioner has submitted that these items are actual capitalisation of the balance work within the original scope of work which have been deferred for execution but are within the cut-off date. The Petitioner has



further submitted that most of these items have been allowed vide order dated 6.2.2017 in Petition No. 372/GT/2014 under projected capitalization of deferred works.

24. The Respondents UPPCL and TPDDL have submitted that the Petitioner has claimed the additional capital expenditure under this head without any proper justification. Further, the Respondents have raised questions on claims of FERV variation. The Petitioner, in response, has submitted that these works were in the original scope of work and were allowed vide order dated 6.2.2017 in Petition No. 372/GT/2014. For FERV variation, the Petitioner has mentioned that the package ERV (SG Island, TG Island, CW Package and Station C&I Package) in the period 2016-17 and 2017-18 are reinstatement of liabilities due to Foreign Exchange Rate variation corresponding to the works allowed by the Commission.

25. The submissions have been considered. The COD of the generating station is 27.3.2014 and accordingly in terms of Regulation 3(11) of the 2014 Tariff Regulations, the cut-off date of the generating station is 31.3.2017 (COD in the last quarter of the year 2013-14). Regulation 14(1)(ii) of the 2014 Tariff Regulations provides for the capitalization of expenditure after the COD and upto the cut-off date in respect of works within the original scope of work and deferred for execution. On prudence check, it is observed that the projected additional capital expenditure claimed above are towards deferred works within the original scope of work. In view of this, the additional capital expenditure of Rs.11726.69 lakh in 2014-15, Rs.9704.10 lakh in 2015-16 and Rs.28579.73 lakh in 2016-17 are allowed under Regulation 14(1)(ii) of the 2014 Tariff Regulations.



***Works deferred for execution- Regulation 14(1)(ii) and Regulation 54 of the 2014 Tariff Regulations – Claimed after cut-off date***

26. The Petitioner has claimed additional capital expenditure of Rs.70.86 lakh in 2017-18, towards works within the original scope of work and deferred for execution after the cut-off date of the generating station, under Regulation 14(1)(ii) read with Regulation 54 (power to relax) of the 2014 Tariff Regulations. In justification for the same, the Petitioner has submitted that the said work is part of the original scope of work and was awarded before the cut-off date. The Petitioner has further submitted that most of the work was completed and capitalised before the cut-off date, however, some minor works got delayed due to poor mobilization/demobilization of M/s BHEL. Accordingly, the Petitioner has requested to condone the delay and allow the present capitalisation.

27. We have considered the submissions. On prudence check, it is observed that the additional capital expenditure claimed above are towards deferred works within the original scope of work claimed beyond the cut-off date. It is also noticed that the capital cost claimed till 31.3.2018, including this expenditure is within the investment approval cost. Accordingly, the additional capital expenditure of Rs.70.86 lakh in 2017-18 is allowed under Regulation 14(1)(ii) in exercise of the power under Regulation 54 of the 2014 Tariff Regulations.

***Works deferred for execution- Regulation 14(1)(ii), Regulation 14(3)(v) and Regulation 54 of the 2014 Tariff Regulations – Claimed after cut-off date***

28. The Petitioner has claimed additional capital expenditure of Rs.1292.34 lakh in 2017-18 and Rs.594.34 lakh in 2018-19 towards works within the original scope of work and deferred for execution after the cut-off date of the generating station, under Regulations 14(1)(ii) and 14(3)(v) of 2014 Tariff Regulations read with Regulation 54 (power to relax) of the 2014 Tariff Regulations. In justification for the same, the



Petitioner has submitted that the said work is part of the original scope of work and was awarded before cut-off date. The Petitioner has further submitted that these works were completed & capitalised before the cut-off date. However, the Petitioner had withheld some payments to the parties for satisfactory completion of PG test and the current additional capitalization pertains to the release of balance payments towards PG Test.

29. The Respondents UPPCL and TPDDCL have submitted that the Petitioner has claimed the additional capital expenditure under this head without any proper justification.

30. The submissions have been considered. The COD of the generating station is 27.3.2014 and accordingly in terms of Regulation 3(11) of the 2014 Tariff Regulations, the cut-off date of the generating station is 31.3.2017 (COD in the last quarter of the year 2013-14). Regulation 14(1)(ii) of the 2014 Tariff Regulations provides for the capitalisation of expenditure after the COD and upto the cut-off date in respect of works within the original scope of work and deferred for execution and Regulation 14(3)(v) of the 2014 Tariff Regulations provides for any liability for works executed prior to the cut-off date, after prudence check of the details of such undischarged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments etc. On prudence check, it is observed that the projected additional capital expenditure claimed above are towards deferred works/liabilities within the original scope of work. These are the balance payments withheld by the Petitioner in view of the PG test. In view of this, the projected additional capital expenditure of Rs.1292.34 lakh in 2017-18 and Rs.594.34 lakh in 2018-19 is allowed.



### ***Initial Spares- Regulation 14(1)(iii) of the 2014 Tariff Regulations***

31. The Petitioner has claimed projected additional capital expenditure of Rs.1036.65 lakh in 2014-15, Rs.4265.64 lakh in 2015-16 and Rs.8460.69 lakh in 2016-17 towards initial spares (SG Main Plant spares, TG mandatory spares, Cooling water system mandatory spares, Station C&I package) under Regulation 14(1)(iii) of the 2014 Tariff Regulations. In justification for the same, the Petitioner has submitted that these works pertain to the original scope of work which have been deferred for execution but within the cut-off date.

32. In response to the submissions of the Respondent TPDDL, the Petitioner has clarified that Regulation 8 of the 2009 Tariff Regulations provides for the capitalisation of initial spares at 2.5% of the original project cost for coal based/lignite fired thermal generating stations. The Petitioner has further stated that as per the Order dated 6.2.2017 in Petition No. 372/GT/2014, the amount of initial spares were allowed based on the projected capital expenditure as on 31.3.2017 (cut-off date). However, the claimed capital cost stands revised based on the actual capitalisation in the present Petition.

33. We have considered the matter. Regulation 8 of the 2009 Tariff Regulations provides for capitalisation of initial spares at 2.5% (Coal-based/ lignite-fired thermal generating stations) of the original project cost (i.e. capital cost allowed as on 31.3.2017) of the generating station. The amount of initial spares capitalised upto 31.3.2014 is Rs.2399.96 lakh and the total initial spares claimed by the Petitioner for the period from 1.4.2014 to 31.3.2017 (cut-off date) is Rs.13762.98 lakh. Thus, the total initial spares claimed up to the cut-off date of the generating station is Rs.16162.94 lakh (Rs.2399.96 lakh + Rs.13762.98 lakh). Considering the ceiling limit





of 2.5% of the original project cost i.e. allowed capital cost as on 31.3.2017, the initial spares for the generating station upto the cut-off date works out to Rs.13637.31 lakh and the same is allowed. Accordingly, the surplus additional capital expenditure claim of Rs.2525.63 lakh towards initial spares has been disallowed for the purpose of tariff. In view of the above, initial spares of Rs.1036.65 lakh, Rs.4265.64 lakh and Rs.5935.06 lakh is allowed in 2014-15, 2015-16 and 2016-17, respectively.

**Claim of additional capital expenditure under Regulation 14(3)(ii) of the 2014 Tariff Regulations- (2018-19)**

***Sewage Treatment Plant***

34. The Petitioner has claimed expenditure of Rs.991.17 lakh under Regulation 14(3)(ii) towards 'change in law or compliance of any existing law'. In justification for the same, it has submitted that as per the directions of Uttar Pradesh Pollution Control Board (UPPCB) vide its letter dated 25.7.2016, the Petitioner is implementing the sewage treatment plant for utilisation of treated sewage water for horticulture. A copy of the said letter of UPPCB has been enclosed. The Petitioner has requested to allow the same as allowed in order dated 1.6.2022 in Petition No. 2/GT/2021 (NTPC v. UPPCL & ors), for the period of 2019-24.

35. The matter has been considered. It is noticed from UPPCB letter dated 25.7.2016 that the Petitioner has been directed to install sewage treatment plant and the same is necessary in order to maintain the environmental norms. Since the expenditure incurred is in compliance with the statutory guidelines/order of UPPCB, the additional capital expenditure claimed by the Petitioner is allowed. Though the Petitioner has directed to replace the old sewerage treatment plant with new technology plant, the decapitalisation value of old asset has not been furnished by the



Petitioner. In view of this, the decapitalisation value of the old asset has been considered under 'assumed deletions.

### **Assumed Deletion**

36. As per consistent methodology adopted by the Commission, the expenditure on replacement of assets, if found justified, is allowed for the purpose of tariff provided that the capitalisation of the said asset, is followed by the de-capitalisation of the gross value of the old asset. However, in certain cases, where the de-capitalisation is proposed to be affected during the future year of capitalisation of the new asset, the decapitalisation of the old asset for the purpose of tariff is shifted to the very same year in which the capitalisation of the new asset is allowed. Such de-capitalisation which is not a book entry in the year of capitalisation is termed as 'Assumed Deletion'. Therefore, the methodology of arriving at the fair value of the decapitalised asset, i.e., escalation rate of 5% per annum from the COD has been considered in order to arrive at the gross value of the old asset under consideration as on COD as 100% and escalated it @5% per annum, till the year, during which additional capital expenditure is claimed against the replacement of the same. The amount claimed for the additional capital expenditure against the asset is multiplied by the derived ration from above values i.e., value in year of COD divided by value in capitalised year.

37. The Petitioner, in this petition, has claimed additional capital expenditure of Rs.991.17 lakh in 2018-19, towards sewage treatment plant on replacement basis, but has not furnished the de-capitalised value of the old assets. Accordingly, the de-capitalised value of the assets/works has been calculated in terms of the abovementioned methodology. Accordingly, the 'assumed deletions' allowed for the purpose of tariff is as under:



<i>(Rs. in lakh)</i>		
Year of Claim	Head	Assumed Deletion
2018-19	Sewage Treatment Plant	776.09

38. Accordingly, the additional capital expenditure allowed for the period 2014-19 is summarized as under:

Head of Work /Equipment	<i>(Rs. in lakh)</i>				
	ACE Allowed on Cash Basis				
	2014-15	2015-16	2016-17	2017-18	2018-19
Original Scope of Work within Cut-off date	11726.69	9704.10	28579.73	0.00	0.00
Original Scope of Work beyond cut-off date and claimed under Regulation 54 of the 2014 Tariff Regulations	0.00	0.00	0.00	70.86	0.00
Original Scope of Work beyond cut-off date and claimed under Regulation 54 of the 2014 Tariff Regulations	0.00	0.00	0.00	1292.34	594.34
Capital Spares	1036.65	4265.64	5935.06	0.00	0.00
Change in Law	0.00	0.00	0.00	0.00	991.17
<b>Sub-total</b>	<b>12763.34</b>	<b>13969.74</b>	<b>34514.79</b>	<b>1363.20</b>	<b>1585.52</b>
De-capitalisation of Spares (part of capital cost)	(-) 262.33	(-) 508.96	(-) 528.09	(-) 204.52	(-) 517.19
Other De-capitalisation	(-) 3.55	(-) 8.04	(-) 96.73	0.00	0.00
Assumed Deletion	0.00	0.00	0.00	0.00	(-) 776.09
<b>Total De-capitalisation</b>	<b>(-) 265.88</b>	<b>(-) 516.99</b>	<b>(-) 624.82</b>	<b>(-) 204.52</b>	<b>(-) 1293.28</b>
Discharge of Liabilities	11242.14	2481.38	4885.63	0.00	0.00
Discharge of Liabilities	0.00	0.00	0.00	3940.06	560.55
Exclusions not allowed	0.00	0.00	0.00	(-) 10.55	(-) 47.98
<b>Total additional capital expenditure allowed</b>	<b>23739.61</b>	<b>15934.13</b>	<b>38775.60</b>	<b>5088.19</b>	<b>804.81</b>

**Capital cost allowed for the period 2014-19**

39. Based on above, the capital cost allowed for the generating station for the period 2014-19, is as under:

<i>(Rs. in lakh)</i>					
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening capital cost	467043.03	490782.64	506716.76	545492.36	550580.55
Add: Additional capital expenditure	23739.61	15934.13	38775.60	5088.19	804.81
<b>Closing capital cost</b>	<b>490782.64</b>	<b>506716.76</b>	<b>545492.36</b>	<b>550580.55</b>	<b>551385.35</b>
Average capital cost	478912.83	498749.70	526104.56	548036.45	550982.95



## **Debt-Equity Ratio**

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

*“19. Debt-Equity Ratio: (1) For a project declared under commercial operation on or after 1.4.2014, the debt-equity ratio would be considered as 70:30 as on COD. If the equity actually deployed is more than 30% of the capital cost, equity in excess of 30% shall be treated as normative loan:*

*Provided that: i. where equity actually deployed is less than 30% of the capital cost, actual equity shall be considered for determination of tariff:*

*ii. the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:*

*iii. any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of debt : equity ratio.*

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

*(2)The generating company or the transmission licensee shall submit the resolution of the Board of the company or approval from Cabinet Committee on Economic Affairs (CCEA) regarding infusion of fund from internal resources in support of the 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 the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, but where debt: equity ratio has not been determined by the Commission for determination of tariff for the period ending 31.3.2014, the Commission shall approve the debt: equity ratio based on actual information provided by the generating company or the transmission licensee as the case may be.*

*(5) Any expenditure incurred or projected to be incurred on or after 1.4.2014 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernisation expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation.”*

41. The gross normative loan and equity amounting to Rs.326930.12 lakh and Rs.140112.91 lakh, respectively, as on 31.3.2014 as considered in order dated 27.12.2016 in Petition No. 25/RP/2016 in Petition No. 205/GT/2013, has been considered as gross normative loan and equity as on 1.4.2014. Further, the additional capital expenditure approved above has been allocated to debt-equity ratio of 70:30.



Accordingly, the details of debt-equity ratio in respect of the generating station as on 1.4.2014 and as on 31.3.2019, is as under:

	<i>(Rs. in lakh)</i>					
	Capital cost as on 1.4.2014	(%)	Additional capital expenditure	(%)	Total cost as on 31.3.2019	(%)
Debt	326930.12	70.00%	59039.63	70.00%	385969.75	70.00%
Equity	140112.91	30.00%	25302.70	30.00%	165415.61	30.00%
<b>Total</b>	<b>467043.03</b>	<b>100.00%</b>	<b>84342.32</b>	<b>100.00%</b>	<b>551385.35</b>	<b>100.00%</b>

### **Return on Equity**

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

*“24. Return on Equity: (1) Return on equity shall be computed in rupee terms, on the equity base determined in accordance with regulation 19.*

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

*Provided that:*

- i) in case of projects commissioned on or after 1st April, 2014, an additional return of 0.50 % shall be allowed, if such projects are completed within the timeline specified in Appendix-I:*
- ii) the additional return of 0.5% shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever:*
- iii) additional RoE of 0.50% may be allowed if any element of the transmission project is completed within the specified timeline and it is certified by the Regional Power Committee/National Power Committee that commissioning of the particular element will benefit the system operation in the regional/national grid:*
- iv) the rate of return of a new project shall be reduced by 1% for such period as may be decided by the Commission, if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO)/ Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system:*
- v) as and when any of the above requirements are found lacking in a generating station based on the report submitted by the respective RLDC, RoE shall be reduced by 1% for the period for which the deficiency continues:*
- vi) additional RoE shall not be admissible for transmission line having length of less than 50 kilometre.”*

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

*“25. Tax on Return on Equity: (1) The base rate of return on equity as allowed by the Commission under Regulation 24 shall be grossed up with the effective tax rate of the respective financial year. For this purpose, the effective tax rate shall be considered on the basis of actual tax paid in the respect of the financial year in line with the provisions of the relevant Finance Acts by the concerned generating company or the*



transmission licensee, as the case may be. The actual tax income on other income stream (i.e., income of non-generation or non-transmission business, as the case may be) shall not be considered for the calculation of “effective tax rate”

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

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

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

(3) The generating company or the transmission licensee, as the case may be, shall true up the grossed up rate of return on equity at the end of every financial year based on actual tax paid together with any additional tax demand including interest thereon, duly adjusted for any refund of tax including interest received from the income tax authorities pertaining to the tariff period 2014-15 to 2018-19 on actual gross income of any financial year. However, penalty, if any, arising on account of delay in deposit or short deposit of tax amount shall not be claimed by the generating company or the transmission licensee as the case may be. Any under- recovery or over recovery of grossed up rate on return on equity after truing up, shall be recovered or refunded to beneficiaries or the long-term transmission customers/ DICs as the case may be on year to year basis.”

44. The Petitioner has claimed tariff considering rate of Return on Equity (ROE) of 19.611% in 2014-15, 19.706% in 2015-18 and 19.758% in 2018-19. The Petitioner has arrived at these rates after grossing up base rate of ROE of 15.50% with MAT rate of 20.961% in 2014-15, 21.342% in 2015-18 and 21.5488% in 2018-19. However, after rectifying the rounding off errors, the rate of ROE to be considered for the purpose of tariff works out to 19.610% for 2014-15, 19.705% for 2015-18 and 19.758% for 2018-19. Accordingly, ROE has been worked out as under:

	<i>(Rs. in lakh)</i>				
	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
Notional Equity- Opening	140112.91	147234.79	152015.03	163647.71	165174.16
Add: Addition of Equity due to additional capital expenditure	7121.88	4780.24	11632.68	1526.46	241.44
<b>Normative Equity – Closing</b>	<b>147234.79</b>	<b>152015.03</b>	<b>163647.71</b>	<b>165174.16</b>	<b>165415.61</b>
Average Normative Equity	143673.85	149624.91	157831.37	164410.94	165294.89
Return on Equity (Base Rate)	15.500%	15.500%	15.500%	15.500%	15.500%
Effective Tax Rate for respective years	20.961%	21.342%	21.342%	21.342%	21.549%
Rate of Return on Equity (Pre-tax)	19.610%	19.705%	19.705%	19.705%	19.758%



	2014-15	2015-16	2016-17	2017-18	2018-19
Return on Equity (Pre-tax) - (annualised)	28174.44	29483.59	31100.67	32397.18	32658.96

### **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 Decapitalisation of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered up to the date of de-capitalisation of such asset*

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

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

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

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

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

*(7) The generating company or the transmission licensee, as the case may be, shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event the costs associated with such refinancing shall be borne by the beneficiaries and the net savings shall be shared between the beneficiaries and the generating company or the transmission licensee, as the case may be, in the ratio of 2:1.*

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

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

46. Interest on loan has been computed as under:



- i) The gross normative loan and cumulative repayment of Rs.326930.12 lakh and Rs.18844.57 lakh, as on 1.4.2014, as considered in order dated 6.2.2017 in Petition No. 372/GT/2014 has been retained as on 1.4.2014. Accordingly, the net normative opening loan as on 1.4.2014 works out to Rs.308085.55 lakh.
- ii) Addition to normative loan on account of additional capital expenditure approved above has been considered.
- iii) Depreciation allowed has been considered as repayment of normative loan during the respective year of the period 2014-19. Further, the repayments have been adjusted for de-capitalisation of assets considered for the purpose of tariff.
- iv) The weighted average rate of interest on loan (WAROI) has been calculated by applying the actual loan portfolio existing as on 1.4.2014, along with subsequent additions during the period 2014-19 for the generating station.

47. Accordingly, interest of loan has been worked out as under:

		<i>(Rs. in lakh)</i>				
		2014-15	2015-16	2016-17	2017-18	2018-19
A	Gross opening loan	326930.12	343547.84	354701.73	381844.65	385406.38
B	Cumulative repayment of loan upto previous year	18844.57	45429.96	73086.01	101987.98	131929.71
C	Net Loan Opening (A-B)	308085.55	298117.88	281615.72	279856.67	253476.67
D	Addition due to additional capital expenditure	16617.72	11153.89	27142.92	3561.73	563.36
E	Repayment of loan during the year	26593.24	27656.80	28943.09	29977.89	30138.31
F	Repayment adjustment on account of de-capitalisation	7.85	0.76	41.12	36.16	360.32
G	Repayment adjustment on account of discharges/reversals corresponding to un-discharged liabilities deducted as on 1.4.2009	0.00	0.00	0.00	0.00	0.00
H	Net Repayment of loan during the year (E-F+G)	26585.39	27656.05	28901.97	29941.73	29777.99
I	Net Loan Closing (C+D-H)	298117.88	281615.72	279856.67	253476.67	224262.04
J	Average Loan [(C+I)/2]	303101.72	289866.80	280736.20	266666.67	238869.36
K	WAROI	8.2617%	7.8870%	7.7408%	7.5473%	7.6323%
L	Interest on Loan (J x K)	25041.25	22861.79	21731.20	20126.22	18231.13
M	Less: Interest capitalised	0.00	0.00	0.00	2.24	141.47
<b>N</b>	<b>Net Interest on Loan (L-M)</b>	<b>25041.25</b>	<b>22861.79</b>	<b>21731.20</b>	<b>20123.98</b>	<b>18089.66</b>

### **Depreciation**

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

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





computed from the effective date of commercial operation of the generating station or the transmission system taking into consideration the depreciation of individual units or elements thereof.

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

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

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

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

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

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

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

*(5) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in Appendix-II to these regulations for the assets of the generating station and transmission system: Provided that the remaining depreciable value as on 31st March of the year closing after a period of 12 years from the effective date of commercial operation of the station shall be spread over the balance useful life of the assets.*

*(6) In case of the existing projects, the balance depreciable value as on 1.4.2014 shall be worked out by deducting the cumulative depreciation as admitted by the Commission up to 31.3.2014 from the gross depreciable value of the assets.*

*(7) The generating company or the transmission licensee, as the case may be, shall submit the details of proposed capital expenditure 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-capitalisation of assets in respect of generating station or unit thereof or transmission system or element thereof, the cumulative depreciation shall be adjusted by taking into account the depreciation recovered in tariff by the de-capitalised asset during its useful services."*

49. The cumulative depreciation amounting to Rs.18844.57 lakh, as on 1.4.2014, as considered in order dated 6.2.2017 in Petition No. 372/GT/2014, has been retained as on 1.4.2014. Since the elapsed life of the generating station as on 1.4.2014 from



effective station COD of the generating station is less than 12 years, depreciation has been computed considering weighted average rate of depreciation (WAROD).

Necessary calculations in support of depreciation are as under:

	<i>(Rs. in lakh)</i>				
	2014-15	2015-16	2016-17	2017-18	2018-19
Average capital cost (A)	478912.83	498749.70	526104.56	548036.45	550982.95
Value of freehold land included above (B)	0.00	74.45	148.90	148.90	148.90
Aggregated depreciable Value [C = (A-B) x 90%]	431021.55	448807.72	473360.09	493098.80	495750.64
Remaining Aggregate Depreciable value at the beginning of the year (D = C – 'J' of previous year)	412176.98	403377.76	400274.08	391110.82	363820.93
Balance useful life at the beginning of the year (E)	24.31	23.31	22.31	21.31	20.31
Weighted average rate of depreciation (F)	5.5528%	5.5452%	5.5014%	5.4701%	5.4699%
<b>Depreciation during the year (G = A x F)</b>	<b>26593.24</b>	<b>27656.80</b>	<b>28943.09</b>	<b>29977.89</b>	<b>30138.31</b>
Cumulative depreciation at the end of the year, before adjustment of de-capitalisation adjustment (H = G + 'J' of previous year)	45437.81	73086.76	102029.10	131965.87	162068.02
Cumulative depreciation adjustment on account of de-capitalisation (I)	7.85	0.76	41.12	36.16	360.32
Cumulative Depreciation adjustment on a/c of un-discharged liabilities deducted as on 1.4.2009 (J)	0.00	0.00	0.00	0.00	0.00
<b>Cumulative depreciation, at the end of the year (K = H – I+J)</b>	<b>45429.96</b>	<b>73086.01</b>	<b>101987.98</b>	<b>131929.71</b>	<b>161707.70</b>

### **O&M Expenses**

50. The Commission in its order dated 6.2.2017 in Petition No. 372/GT/2014 had allowed O&M expenses as under:

	<i>(Rs. in lakh)</i>				
	2014-15	2015-16	2016-17	2017-18	2018-19
O&M expenses allowed under Regulation 29(1)(a)	13600.00	14458.50	15368.00	16337.00	17365.50
Water Charges allowed under Regulation 29(2)	423.85	423.85	423.85	423.85	432.85
Capital spares	0.00	0.00	0.00	0.00	0.00
<b>Total O&amp;M Expenses</b>	<b>14023.85</b>	<b>14882.35</b>	<b>15791.85</b>	<b>16760.85</b>	<b>17798.35</b>



51. The O&M expenses claimed by the Petitioner for the period 2014-19 is as under:

	<i>(Rs. in lakh)</i>				
	2014-15	2015-16	2016-17	2017-18	2018-19
O&M expenses under Regulation 29(1)(a) of the 2014 Tariff Regulations	13600.00	14458.50	15638.00	16337.00	17365.50
- Water Charges	423.85	420.80	420.70	423.85	434.30
- Capital Spares consumed	262.33	508.96	528.09	204.52	517.19
<b>Sub-total O&amp;M Expenses</b>	<b>14286.18</b>	<b>15388.26</b>	<b>16316.79</b>	<b>16965.37</b>	<b>18316.99</b>
Impact of Wage revision	-	29.80	1156.82	1435.67	1811.13
Impact of GST	-	-	-	148.60	206.47
<b>Total O&amp;M Expenses</b>	<b>14286.18</b>	<b>15418.06</b>	<b>17473.61</b>	<b>18549.64</b>	<b>20334.59</b>

52. The Petitioner vide affidavit dated 25.10.2021 has revised its claim for normative O&M expenses under Regulation 29(1)(a) of the 2014 Tariff Regulations as under:

2014-15	2015-16	2016-17	2017-18	2018-19
16000.00	17010.00	18080.00	19220.00	20430.00

53. The normative O&M expenses claimed in terms of Regulation 29(1)(a) of the 2014 Tariff Regulations were allowed vide order dated 6.2.2017 in Petition No. 372/GT/2014 considering the multiplication factor as per the 2014 Tariff Regulations. Against this order the Petitioner had filed an appeal before the APTEL and vide judgement dated 1.12.2022, APTEL has set aside the findings of the Commission, as under:

*“Thus, the common issue of reduced allowance of Operation & Maintenance (O&M) expenses for the control period from 01.04.2014 to 31.03.2019 for the Appellant’s TPS in the five captioned Appeals, is decided accordingly with the directions that the Impugned Orders passed by CERC as are challenged by these five captioned Appeals are set aside to the extent of our findings in aforesaid judgment dated 11.01.2022.”*

54. In the light with the judgement of APTEL dated 1.12.2022 the O&M expenses for the generating station is revised and allowed as per Regulation 29(1) of the 2014 Tariff Regulations, as claimed by the Petitioner.



## Water Charges

55. 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 modernisation”.*

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

<i>(Rs. in lakh)</i>						
	Units	2014-15	2015-16	2016-17	2017-18	2018-19
Type of cooling tower	-	Closed Cycle				
Type of cooling water system	-					
Water allocation/contracted	CUSEC	37.19	37.19	37.19	37.19	37.19
Actual water consumption for Stage-III	CUSEC	37.19	37.19	37.19	37.19	37.19
Rate of water charges	Rs/kWh	2.68				
Water Charges Paid & Claimed	Rs. lakh	423.85	420.80	420.70	423.85	434.30

57. The water charges allowed, on projected basis, in order dated 6.2.2017 in Petition No. 372/GT/2014 is as under:

<i>(Rs. in lakh)</i>				
2014-15	2015-16	2016-17	2017-18	2018-19
423.85	423.85	423.85	423.85	432.85

58. It is observed that this generating station and Singrauli STPS (another power station of the Petitioner) draw their consumptive water from Rihand water reservoir. On the same reservoir two hydel power stations of UP (Rihand 6 x 50 MW) and Obra (3x30 MW) are also located, which meet the peaking/ emergency power requirement



of Uttar Pradesh. There was a dispute between UP and the Petitioner over the consumptive water drawl by the Petitioner for the two thermal power stations viz. Singrauli STPS and Rihand STPS and the same was referred to 'Umpire', wherein, it was decided that the Petitioner should pay compensation towards generation loss of hydro power plants of UP viz. Rihand and Obra. The cost of this energy would be double the rate of maximum energy charge rate charged by the Petitioner in any concerned year.

59. Further, there was an agreement between the Petitioner, Government of UP and erstwhile UPSEB, wherein the principles of consumptive water charges were decided. The Petitioner has submitted the copy of the agreement dated 3.4.1999 and the principles decided in the agreement are as follows:

- i. Water level may be taken on theoretical basis i.e., minimum 830 feet and maximum 880 feet of Rihand reservoir.
- ii. T&D losses would be considered as 12%.
- iii. Auxiliary consumption of UP Hydro stations viz., Rihand and Obra would be 0.5%.
- iv. The energy loss will be calculated taking into consideration the actual availability of Rihand hydro station of UP for the year 1998.
- v. Water charges shall be payable from the date of synchronisation of the units.
- vi. The per kilowatt hour charges to be applied will be the highest average annual rate during 1998 amongst Northern Region coal-based stations of the Petitioner and will be applicable w.e.f. 1.1.199 for next five years and there would be upward revision of 10% every 5 years.

60. Accordingly, in terms of the above agreement, the actual water charges incurred during the year 2013-14 was considered as projected water charges for the period 2014-19 in the order dated 6.4.2017 in Petition No. 58/RP/2016. The Petitioner vide its affidavit dated 4.6.2021 has furnished the Auditor certificate, in respect of the actual water charges incurred for the period 2014-19, along with the computation of the year-wise claim. After scrutiny of the said information, the audited actual water



charges claimed by the Petitioner, as above, is allowed, on prudence check. In view of above the water charges allowed for the purpose of tariff is as under:

<i>(Rs. in lakh)</i>				
<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
423.85	420.80	420.70	423.85	434.30

### **Capital Spares**

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

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

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

<i>(Rs. in lakh)</i>				
<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
262.33	508.96	528.09	204.52	517.19

63. The capital spares consumption claimed by the Petitioner, generally, comprise of two parts i.e, capital spares (forming part of allowed capital cost) and capital spares (not forming part of allowed capital cost). We have examined the list of spares furnished by the Petitioner as well as the Form-9Bi which depicts the assets decapitalised during the period. We find that the Petitioner has decapitalised the same value as that is being claimed under capital spares. Thus, it is obvious that the capital spares claimed were part of capital cost already allowed.

64. It is pertinent to mention that the term ‘capital spares’ has not been defined in the 2014 Tariff Regulations. The term capital spares, in our view, is a piece of equipment, or a spare part, of significant cost that is maintained in inventory for use in



the event that a similar piece of critical equipment fails or must be rebuilt. Keeping in view the principle of materiality and to ensure standardised practices in respect of earmarking and treatment of capital spares, the value of capital spares exceeding Rs.1.00 lakh, on prudence check of the details furnished by the Petitioner in Form-17 of the Petition, has been considered for the purpose of tariff. Based on this, the details of capital spares consumption allowed for the period 2014-19 is summarised as under:

*(Rs. in lakh)*

	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
Total capital spares consumed claimed	262.33	508.96	528.09	204.52	517.19
Total capital spares consumed (not part of capital cost)	0.00	0.00	0.00	0.00	0.00
Less: Value of capital spares below Rs.1.00 lakh disallowed on individual basis	0.00	0.00	0.00	0.00	0.00
<b>Net total value of capital spares considered</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

***Additional O&M Expenses on account of GST***

65. The Petitioner has claimed additional O&M expenses of Rs.148.60 lakh in 2017-18 and Rs.206.47 lakh in 2018-19 on account of payment of Goods and Service Tax (GST). The Respondents UPPCL and TPDDL have submitted that the Petitioner has not submitted the details of the calculation of the amount claimed towards the impact of GST. In response, the Petitioner has submitted that the details of the calculation towards impact of GST, duly certified by the auditor, has been submitted vide additional submission dated 30.6.2021.

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



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

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

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

68. The Petitioner has submitted that the Commission while specifying the 2014 Tariff Regulations applicable for the period 2014-19, had taken note in SOR to the said regulations that any increase in the employee expenses, on account of pay revision shall be considered appropriately, on case-to-case basis, balancing the interest of generating stations and consumers. The Petitioner has, therefore, claimed additional O&M expenses of Rs.29.80 lakh in 2015-16, Rs.1156.82 lakh in 2016-17, Rs.1435.67 lakh in 2017-18 and Rs.1811.13 lakh in 2018-19, towards impact of wage revision of employees of CISF and Kendriya Vidyalaya (KV) from 1.1.2016 and the employees of the Petitioner posted in the generating station with effect from 1.1.2017. In this regard the Petitioner vide affidavit dated 30.6.2021 has submitted the following:

- (a) Detailed break-up of the actual O&M expenses booked by the Petitioner for the period 2014-19, for the whole generating station;
- (b) Detailed break-up of actual O&M expense of the Corporate Centre and its allocation to various generating stations, for the period 2014-19;
- (c) Break-up of claimed wage revision impact on employee cost, expenses on corporate centre and on salaries of CISF & Kendriya Vidyalaya employee of the generating station for the period 2014-19.

69. We have examined the submissions and the documents available on record. As stated, the Petitioner has claimed total amount of Rs.4433.42 lakh (combined for





2015-16 to 2018-19) as impact of wage revision of employees of CISF and Kendriya Vidyalaya staff from 1.1.2016 and for employees of the Petitioner posted at the generating station with effect from 1.1.2017. However, it is noticed that the said claim of the Petitioner includes the impact on account of the payment of additional PRP/ex-gratia to its employees, consequent upon wage revision, of Rs.131.02 lakh in 2017-18 and Rs.515.71 lakh in 2018-19. As such, as per consistent methodology adopted by the Commission of excluding PRP/ex-gratia from actual O&M expenses of past data for finalisation of O&M norms for various tariff settings, the additional PRP/ex-gratia, paid as a result of wage revision impact has been excluded from the wage revision impact claimed by the Petitioner, in the present case. Accordingly, the claim of the Petitioner in respect of wage revision impact stand reduced to Rs.3968.83 lakh with the following year-wise break up.

	<i>(Rs. in lakh)</i>					
	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Wage revision impact claimed (excluding PRP/ex-gratia)	0.00	29.80	1156.82	1342.87	1439.35	3968.83

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

The relevant extract of the SOR is extracted under:

*“29.26. Some of the generating stations have suggested that the impact of pay revision should be allowed on the basis of actual share of pay revision instead of normative 40% and one generating company suggested that the same should be considered as 60%. In the draft Regulations, the Commission had provided for a normative percentage of employee cost to total O&M expenses for different type of generating stations with an intention to provide a ceiling limit so that it does not lead to any exorbitant increase in the O&M expenses resulting in spike in tariff. The Commission would however, like to review the same considering the macro economics involved as*



*these norms are also applicable for private generating stations. In order to ensure that such increase in employee expenses on account of pay revision in case of central generating stations and private generating stations are considered appropriately, the Commission is of the view that it shall be examined on case to case basis, balancing the interest of generating stations and consumers.*

*33.2 The draft Regulations provided for a normative percentage of employee cost to total O&M expenses for generating stations and transmission system with an intention to provide a ceiling limit so that the same should not lead to any exorbitant increase in the O&M expenses resulting in spike in tariff. The Commission shall examine the increase in employee expenses on case to case basis and shall consider the same if found appropriate, to ensure that overall impact at the macro level is sustainable and thoroughly justified. Accordingly, clause 29(4) proposed in the draft Regulations has been deleted. The impact of wage revision shall only be given after seeing impact of one full year and if it is found that O&M norms provided under Regulations are inadequate/insufficient to cover all justifiable O&M expenses for the particular year including employee expenses, then balance amount may be considered for reimbursement.”*

71. The methodology indicated in SOR quoted above suggests a comparison of the normative O&M expenses with the actual O&M expenses, on year-to-year basis.

However, in this respect the following facts needs consideration:

- (a) The norms are framed based on the averaging of the actual O&M expense of past five years to capture the year-on-year variations in sub-heads of O&M;
- (b) Certain cyclic expenditure may occur with a gap of one year or two years and as such adopting a longer duration i.e. five years for framing of norms also captures such expenditure which is not incurred on year to year basis;
- (c) When generating companies find that their actual expenditure has gone beyond the normative O&M expenses in a particular year put departmental restrictions and try to bring the expenditure for the next year below the norms.

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



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

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

74. The details as furnished by the Petitioner for actual O&M expenses incurred for Stage-I, II, III and IV (4260 MW) for the period from 1.4.2014 to 30.10.2015 and for Stages-I to V (4760 MW) for the period from 31.10.2015 to 31.3.2019, and the wage revision impact (excluding PRP and ex-gratia) for the generating station (Stage-II 1000 MW) are as under:



(Rs. in lakh)

Year	Actual O&M expenses for whole Rihand STPS, excluding water charges & capital spares	Wage revision impact claimed for the generating station i.e. Rihand STPS, Stage-III (1000 MW)
2014-15	48738.63	0.00
2015-16	55519.27	29.80
2016-17	66699.02	1156.82
2017-18	62620.94	1435.67
2018-19	62614.07	1811.13
<b>Total</b>		<b>4433.42</b>

75. As a first step, the expenditure against sub-heads of O&M expenses above have been excluded from the actual O&M expenses incurred to arrive at the actual O&M expenses (normalised) for the combined stages of the generating station (Stage-I to III). Accordingly, the comparison of the normative O&M expenses versus the actual O&M expenses (normalised) along with the wage revision impact claimed by the Petitioner for the generating station i.e. Rihand STPS, Stage-III (1000 MW) for the period 2015-19 is as under:

(Rs. in lakh)

	2015-16	2016-17	2017-18	2018-19	Total
Actual O&M expenses (normalised) for the combined stages of the generating station (Stage I to Stage III from 1.4.2015 to 31.3.2019 for 3000 MW) – (a)	49331.89	61094.40	56114.37	55509.83	222050.49
Actual O&M expenses (normalised) for the generating station i.e., Rihand STPS, Stage-I (1000 MW) pro-rated based on capacity – (b)	16443.96	20364.80	18704.79	18503.28	74016.83
Normative O&M expenses for Rihand STPS, Stage-I as per Regulation 29(1) of the 2014 Tariff Regulations – (c)	17010.00	18080.00	19220.00	20430.00	74740.00
Under/(Excess) recovery for the generating station (d)=(b)-(c)	(-)566.04	2284.80	(-)515.21	(-)1926.72	(-)723.17
Wage revision impact claimed (excluding PRP/ex-gratia)	29.80	1156.82	1342.87	1439.35	3968.84

76. It is observed that for wage revision impact during the period 2015-19, the normative O&M expenses is in excess of the actual O&M expenses (normalised) and the excess recovery is to the tune of Rs.723.17 lakh which exceeds the wage revision impact claimed (excluding PRP/ex-gratia) by the Petitioner. As such, in terms of



methodology described above, the wage revision impact (excluding PRP/ex-gratia) is not allowed for this generating station.

77. Accordingly, the total O&M expenses allowed to the generating station for the period 2014-19 is as under:

	<i>(Rs. in lakh)</i>				
	2014-15	2015-16	2016-17	2017-18	2018-19
Normative O&M expenses claimed under Regulation 29(1)(a) of the 2014 Tariff Regulations <b>(a)</b>	16000.00	17010.00	18080.00	19220.00	20430.00
Normative O&M expenses allowed under Regulation 29(1)(a) of the 2014 Tariff Regulations <b>(b)</b>	16000.00	17010.00	18080.00	19220.00	20430.00
Water Charges claimed under Regulation 29(2) of the 2014 Tariff Regulations <b>(c)</b>	423.85	420.80	420.70	423.85	434.30
Water Charges allowed under Regulation 29(2) of the 2014 Tariff Regulations <b>(d)</b>	423.85	420.80	420.70	423.85	434.30
Capital Spares consumed claimed under Regulation 29(2) of the 2014 Tariff Regulations <b>(e)</b>	262.33	508.96	528.09	204.52	517.19
Capital Spares consumed allowed under Regulation 29(2) of the 2014 Tariff Regulations <b>(f)</b>	0.00	0.00	0.00	0.00	0.00
Total O&M expenses claimed under Regulation 29 of the 2014 Tariff Regulations <b>(a + c + e)</b>	16686.18	17939.76	19028.79	19848.37	21381.49
Total O&M expenses allowed under Regulation 29 of the 2014 Tariff Regulations <b>(b + d + f)</b>	16423.85	17430.80	18500.70	19643.85	20864.30
Impact of Wage revision claimed	0.00	29.80	1156.82	1435.67	1811.13
<b>Impact of Wage revision allowed</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>
Impact of GST claimed	0.00	0.00	0.00	148.60	206.47
<b>Impact of GST allowed</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>

### **Operational Norms**

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

#### **(a) Normative Annual Plant Availability Factor (NAPAF)**

79. In terms of Regulation 36(A)(a) of the 2014 Tariff Regulations, the Commission vide its order dated 1.2.2017 in Petition No. 372/GT/2014 had allowed NAPAF of 83% for the period 2014-17 and 85% for the period 2017-19. The same is considered for the purpose of revision of tariff.



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

80. In terms of Regulation 36(C)(a) of the 2014 Tariff Regulations, the Gross Station Heat Rate (GSHR) of 2402.07 kCal/kWh as allowed in order dated 6.2.2017 in Petition No. 372/GT/2014, is considered for the purpose of revision of tariff.

**(c) Specific Oil Consumption**

81. In terms of Regulation 36(D)(a) of the 2014 Tariff Regulations, the secondary fuel oil consumption of 0.50 ml/kWh as allowed in order dated 6.2.2017 in Petition No. 372/GT/2014, is considered for the purpose of revision of tariff.

**(d) Auxiliary Power Consumption**

82. In terms of the Regulation 36(E)(a) of the 2014 Tariff Regulations, the auxiliary power consumption of 5.75% as allowed in order dated 6.2.2017 in Petition No. 372/GT/2014, is considered for the purpose of revision of tariff.

**Interest on Working Capital**

83. Regulation 28 of the 2014 Tariff Regulations provides as under:

*“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.*

*(2) The cost of fuel in cases covered under sub-clauses (a) and (b) of clause (1) of this regulation shall be based on the landed cost incurred (taking into account normative transit and handling losses) by the generating company and gross calorific value of the fuel as per actual for the three months preceding the first month for which tariff is to be determined and no fuel price escalation shall be provided during the tariff period.*



(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.

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

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

84. Regulation 28(2) of the 2014 Tariff Regulations provides that the computation of cost of fuel as part of Interest on Working Capital (IWC) is to be based on the landed price and GCV of fuel as per actuals, for the three months preceding the first month for which the tariff is to be determined.

85. Regulation 30(6)(a) of the 2014 Tariff Regulations provides as under:

*“30. 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*

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

*Where,*

*AUX = Normative auxiliary energy consumption in percentage.*

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

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

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

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

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

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

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

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

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

86. Therefore, in terms of the above regulation, for determination of the Energy Charges in working capital, the GCV on ‘as received’ basis is to be considered.

87. Regulation 30(7) of the 2014 Tariff Regulations provides as under:



*“(7) The generating company shall provide to the beneficiaries of the generating station the details of parameters of GCV and price of fuel i.e. domestic coal, imported coal, e-auction coal, lignite, natural gas, RLNG, liquid fuel etc., as per the forms prescribed at Annexure-I to these regulations:*

*Provided that the details of blending ratio of the imported coal with domestic coal, proportion of e-auction coal and the weighted average GCV of the fuels as received shall also be provided separately, along with the bills of the respective month:*

*Provided further that copies of the bills and details of parameters of GCV and price of fuel i.e. domestic coal, imported coal, e-auction coal, lignite, natural gas, RLNG, liquid fuel etc., details of blending ratio of the imported coal with domestic coal, proportion of e-auction coal shall also be displayed on the website of the generating company. The details should be available on its website on monthly basis for a period of three months.”*

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

*“58. In view of the above discussion the issues referred by the Hon’ble High Court of Delhi are decided as under:*

*“(a) There is no basis in the Indian Standards and other documents relied upon by NTPC etc. to support their claim that GCV of coal on as received basis should be measured by taking samples after the crusher set up inside the generating station in terms of Regulation 30(6) of the 2014 Tariff regulations.*

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

89. Review Petition No.11/RP/2016 filed by the Petitioner against the aforesaid order dated 25.1.2016 in Petition No. 283/GT/2014 was rejected by the Commission vide order dated 30.6.2016. The Petitioner has also filed Petition No. 244/MP/2016





before this Commission inter alia praying for removal of difficulties in view of the issues faced by it in implementing the Commission's orders dated 25.1.2016 and 30.6.2016 with regard to sampling of coal from loaded wagon top for measurement of GCV. The Commission by its order dated 19.9.2018 disposed of the preliminary objections of the Respondents therein and held that the petition is maintainable. Against this order, some of the Respondents have filed appeal before the APTEL in Appeal No. 291/2018 (*GRIDCO vs. NTPC & ors.*) and the same is pending adjudication.

90. In Petition No. 372/GT/2014 filed by the Petitioner for determination of tariff of this generating station for the period 2014-19, the Petitioner had furnished GCV of coal on 'as billed' but not 'as received' basis for the preceding 3 months i.e. for January 2014, February 2014 and March 2014 that were required for determination of Interest on Working Capital (IWC). Therefore, the Commission vide its order dated 1.2.2017 in Petition No. 372/GT/2014 had considered GCV of coal on 'as billed' basis and provisionally allowed adjustment for total moisture while allowing the cost of coal towards generation & stock and two months' energy charges in the working capital.

91. As per the Commission's order dated 25.1.2016 in Petition No. 283/GT/2014, the Petitioner, in Form-13F, has considered the average GCV of coal on "as received basis" i.e. from wagon top for the period from October 2016 to March 2019 for the purpose of computation of working capital for the period 2014-19. The Petitioner has further submitted that CEA vide letter dated 17.10.2017 has opined that a margin of 85-100 kCal/kg for pit-head station and a margin of 105-120 kCal/kg for non-pit head station is required to be considered as loss of GCV of coal on "as received" and on "as fired" basis respectively. Accordingly, the Petitioner has considered a margin of 100 kCal/kg on average GCV of coal for the period from October 2016 to March 2019 for computation of working capital of the generating station. Accordingly, the cost of



fuel component in the working capital of the generating station based on (i) 'as received' GCV of coal for 30 months from October 2016 to March 2019 with adjustment of 100 kCal/kg towards storage loss, (ii) landed price of coal for preceding three months i.e. January 2014 to March 2014 and (iii) GCV and landed price of Secondary fuel oil procured for the preceding three months i.e. January 2014 to March 2014 for the generating station, has been claimed by the Petitioner in the working capital as under:

	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of Coal towards stock (15 days)	3473.56	3473.56	3473.56	3557.26	3557.26
Cost of Coal towards Generation (30 days)	6947.12	6947.12	6947.12	7114.52	7114.52
Cost of Secondary fuel oil (2 months)	323.07	323.95	323.07	330.85	330.85

92. The Petitioner has claimed Energy Charge Rate (ECR) ex-bus of 126.17 paise/kWh for the generating station based on GCV and price of fuel (coal and secondary fuel oil) as indicated above.

93. The Petitioner, suo-moto has submitted the additional details on the GCV on 'as received' basis which is sought by the Commission in other similar matters for the months of January 2014 to March 2014, which was uploaded in the website of the Petitioner and shared with the beneficiaries. The Petitioner vide affidavit dated 30.6.2021 has submitted that though the computation of energy charges moved from 'as fired' basis to 'as received' basis with effect from 1.4.2014 in terms of Regulation 30(6) of the 2014 Tariff Regulations, for calculation of IWC under Regulation 28(2) of the 2014 Tariff Regulations, the GCV should be as per 'actuals' for the three months preceding the first month for which tariff is to be determined. It has further submitted that for the period 2014-19, Regulation 28(2) of the 2014 Tariff Regulations unequivocally provide that the actual cost and GCV of the preceding three months shall be considered and for these preceding three months (January 2014 to March



2014) by virtue of it falling under the 2009 Tariff Regulations shall be computed on the basis of 'as fired' GCV. Referring to the judgment of the Hon'ble Supreme Court in PTC India v CERC (2010) 4 SCC 603 and the judgment of APTEL in *NEEPCO v TERC (2006) APTEL 148*, the Petitioner has submitted that the Commission is bound by the provisions of the tariff regulations and that purposive interpretation ought to be given to the 2014 Tariff Regulations and interest on working capital ought to be computed in terms of Regulation 28(2) of the 2014 Tariff Regulations on actual GCV i.e. 'as fired' GCV. The Petitioner has submitted that without prejudice to the above submissions, it has furnished the details of GCV on 'as received' basis for the months of January 2014 to March 2014 in compliance with the directions of the Commission in other similar matters as under:

Sl. No.	Month	Weighted Average GCV of coal received (EM basis) (kcal/kg) (A)	Total Moisture TM) (in %) (B)	Equilibrated Moisture (EM) (in %) (C)	Weighted Average GCV of coal received (TM basis) (kcal/kg) $D=A*(1-B\%)/(1-C\%)$
1	January 2014	3826.42	8.71	4.72	3666.18
2	February 2014	3773.94	12.08	4.39	3470.40
3	March 2014	3851.40	8.12	3.91	3682.66
	<b>Average</b>				<b>3606.41</b>

94. The submissions have been considered. As stated in paragraph above, the Petitioner in Form-13F, has considered the average GCV of coal on "as received basis" i.e. from wagon top for the period from October 2016 to Mach 2019 for the purpose of computation of working capital for the period 2014-19. In addition to the average GCV, it has also considered a margin of 100 kCal/kg for computation of the working capital of the generating station.

95. Regulation 28(2) of the 2014 Tariff Regulations provides that the computation of cost of fuel as a part of IWC is to be based on the landed price and gross calorific value of the fuel, as per actuals, for the three months preceding the first month for which the tariff is to be determined. Thus, calculation of IWC for the period 2014-19 is



to be based on such values for months of January 2014, February 2014 and March 2014. The Petitioner has not been able to furnish these values at the time of determination of tariff for the period 2014-19 in Petition No. 372/GT/2014. In the present petition, the Petitioner has proposed that instead of GCV for January 2014, February 2014 and March 2014, the Commission should consider the average values for months of October 2016 to March 2019 since the measurement of 'as received' GCV has been done in accordance with directions of the Commission vide order dated 25.1.2016 in Petition No. 283/GT/2014. In our view, the proposal of the Petitioner to consider the retrospective application of 30 months' (October 2016 to March 2019) average of 'as received' GCV data in place of 'as received' GCV of the preceding three months (January 2014 to March 2014) is not acceptable, keeping in view that the average GCV for 30 months may not be commensurate to the landed cost of coal for the preceding three months to be considered for calculating IWC in terms of Regulation 28(2) of the 2014 Tariff Regulations and that due to efflux of time (gap of 30 month), the quality of coal extracted from the linked mines would have undergone considerable changes. Also, the consideration of loss of GCV of 100 kCal/kg cannot be considered, as the same is not as per provisions of the 2014 Tariff Regulations.

96. It is observed that though the Petitioner has furnished the details of 'as received' GCV for the three months of January 2014 to March 2014 as in table under paragraph 95 above, it has submitted that GCV of fuel is to be considered 'on actuals' for January 2014 to March 2014 and as such, GCV is required to be considered on an 'as fired' basis. In other words, the Petitioner has contended that since the period of January 2014 to March 2014 falls in the period 2009-14 for measurement of GCV of coal, Regulation 18(2) read with Regulation 21(6) of the 2009 Tariff Regulations was applicable which mandates that generating company shall measure GCV on 'as fired'



basis (and not on 'as received' basis). This submission of the Petitioner is also not acceptable in view of provisions of Regulation 21(6) of the 2009 Tariff Regulations that was amended on 31.12.2012, by addition of the following provisos:

*"The following provisos shall be added under Clause (6) of Regulation 21 of the Principal Regulations as under namely:*

*Provided that generating company shall provide to the beneficiaries of the generating station the details of parameters of GCV and price of fuel i.e. domestic coal imported coal e-auction coal lignite natural gas RLNG liquid fuel etc. as per the form 15 of the Part-I of Appendix I to these regulations:*

*Provided further that the details of blending ratio of the imported coal with domestic coal proportion of e-auction coal and the weighted average GCV of the fuels **as received** shall also be provided separately along with the bills of the respective month:*

*Provided further that copies of the bills and details of parameters of GCV and price of fuel i.e. domestic coal imported coal e-auction coal lignite natural gas RLNG liquid fuel etc. details of blending ratio of the imported coal with domestic coal proportion of e-auction coal shall also be displayed on the website of the generating company. The details should be available on its website on monthly basis for a period of three months."*

97. Thus, in terms of the above amendment to the 2009 Tariff Regulations, the details regarding the weighted average GCV of the fuels on 'as received' basis was also required to be provided by the Petitioner along with bills of the respective month. Also, bills detailing the parameters of GCV and price of fuel were to be displayed by the Petitioner on its website, on monthly basis.

98. As per SOR to the 2014 Tariff Regulations, we note that the main consideration of the Commission while moving from 'as fired' GCV to 'as received' GCV for the purpose of energy charges under Regulation 30(6) of the 2014 Tariff Regulations for the period 2014-19 was to ensure that GCV losses which might occur within the generating station after receipt of coal are not passed on to the beneficiaries on account of improper handling and storage of coal by the generating companies. As regards the allowable (normative) storage loss within the generating station, CEA had observed that there is negligible difference between 'as received' GCV and 'as fired' GCV. As such, for the purpose of calculating energy charges, the Commission moved from 'as fired' GCV to 'as received' GCV under Regulation 30(6) of the 2014 Tariff



Regulations without allowing any margin between the two measurements of GCV. Thus, 'as received' GCV was made applicable for the purpose of calculating working capital requirements based on the actual GCV of coal for the preceding three months of the first month for which tariff is to be determined in terms of Regulation 28(2) of 2014 Tariff Regulations. In case the submission of the Petitioner that 'as fired' is to be considered 'at actuals' for the preceding three months for purpose of IWC, the same would mean allowing (and passing through) all storage losses which would have occurred during the preceding three months (January 2014 to March 2014) for the period 2014-19. This, according to us, defeats the very purpose of moving from 'as fired' GCV to 'as received' GCV in the 2014 Tariff Regulations. In this background and keeping in view that in terms of amended Regulation 21(6) of the 2009 Tariff Regulations, the Petitioner is required to share details of the weighted average GCV of the fuel on 'as received' basis, we consider the fuel component and energy charges for two months based on 'as received' GCV of the preceding three months (January 2014 to March 2014) for the purpose of computation of IWC in terms of Regulation 28(2) of the 2014 Tariff Regulations.

99. The Petitioner has calculated GCV 3606.41 kCal/kg which represents average of GCVs of preceding three months. The weighted average GCV for three months based on the net coal quantities as per Form-15 of the petition and the monthly GCVs as submitted by the Petitioner (in table at paragraph 95 above) works out to 3668.76 kCal/kg.

100. Accordingly, the cost for fuel components in working capital has been computed considering the fuel details (price and GCV) as per Form-15 of the petition except for 'as received' GCV of coal, which is considered as 3668.76 kCal/kg as discussed above. All other operational norms such as Station Heat Rate, Auxiliary Energy



Consumption and Secondary Fuel Cost have been considered as per the 2014 Tariff Regulations for calculation of fuel components in working capital.

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

	<i>(Rs. in lakh)</i>				
	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of Coal towards stock (15 days) generation corresponding to NAPAF	3591.54	3591.54	3591.54	3678.08	3678.08
Cost of Coal towards Generation (30 days) generation corresponding to NAPAF	7183.08	7183.08	7183.08	7356.16	7356.16
Cost of Secondary fuel oil 2 months generation corresponding to NAPAF	323.02	323.90	323.02	330.80	330.80

### **Energy Charge Rate (ECR) for calculating working capital**

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

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

(b) For coal based and lignite fired stations

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

Where,

AUX = Normative auxiliary energy consumption in percentage.

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

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

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

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

LC = Normative limestone consumption in kg per kWh.

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

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

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

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

103. The Petitioner has claimed Energy Charge Rate (ECR) of 126.17 Paise/kWh for the generating station. The allowable ECR, based on the operational norms as



specified in Regulation 36(A) of the 2014 Tariff Regulations and on weighted average of 'as received' GCV of 3609.27 kCal/kg is worked out as under:

	Unit	2014-19
<b>Capacity</b>	<b>MW</b>	1000
Gross Station Heat Rate	kCal/kWh	2402.07
Aux. Energy Consumption	%	5.75%
Weighted average GCV of Oil	kCal/lit	10421.99
Weighted average GCV of Coal	Kcal/kg	3668.76
Weighted average price of Oil	Rs./KL	53312.05
Weighted average price of Coal	Rs./MT	1839.82
Rate of Energy Charge ex-bus	Rs./kWh	1.304

104. The Energy Charges for two months for computation of working capital based on ECR of Rs.1.304/kWh, has been worked out as under:

<i>(Rs. in lakh)</i>				
2014-15	2015-16	2016-17	2017-18	2018-19
14893.26	14934.07	14893.26	15252.14	15252.14

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

<i>(Rs. in lakh)</i>					
	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of Coal for 45 days (15 days for coal stock and 30 days for generation) corresponding to generation at NAPAF	10774.61	10774.61	10774.61	11034.24	11034.24
Cost of Secondary fuel oil for 2 months corresponding to generation at NAPAF	323.02	323.90	323.02	330.80	330.80
Energy Charges for 2 months	14893.26	14934.07	14893.26	15252.14	15252.14

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

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

<i>(Rs. in lakh)</i>				
2014-15	2015-16	2016-17	2017-18	2018-19
3337.24	3593.91	4037.12	4286.53	4679.82

107. Regulation 28(1)(a)(iv) of the 2014 Tariff Regulations provides for maintenance spares @ 20% of the O&M expenses as specified in Regulation 29 of the 2014 Tariff Regulations. Accordingly, maintenance spares @ 20% of the O&M expenses





(including the water charges and capital spares) allowed for the period 2014-19 is as under:

<i>(Rs. in lakh)</i>				
2014-15	2015-16	2016-17	2017-18	2018-19
3284.77	3486.16	3700.14	3928.77	4172.86

### **Working Capital for Receivables**

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

<i>(Rs. in lakh)</i>					
	2014-15	2015-16	2016-17	2017-18	2018-19
Variable Charges - for two months (A)	14893.26	14934.07	14893.26	15252.14	15252.14
Fixed Charges - for two months (B)	17113.35	17325.51	17816.21	18156.45	18097.63
<b>Total (C = A+B)</b>	<b>32006.61</b>	<b>32259.58</b>	<b>32709.48</b>	<b>33408.59</b>	<b>33349.77</b>

### **Working Capital for O&M Expenses (1 month)**

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

<i>(Rs. in lakh)</i>				
2014-15	2015-16	2016-17	2017-18	2018-19
1296.78	1385.37	1518.57	1673.37	1824.95

110. For consideration of working capital, O&M expenses of 1 month are to be considered. The normative O&M expenses allowed as per Regulation 29(1) of the 2014 Tariff Regulations, water charges and capital spares allowed as per Regulation 29(2) of the 2014 Tariff Regulations have been considered for calculating O&M expenses for 1 month as a part of working capital.

111. Accordingly, in terms of Regulation 28(1)(a)(vi) of the 2014 Tariff Regulations, one month's O&M expenses allowed is as under:

<i>(Rs. in lakh)</i>				
2014-15	2015-16	2016-17	2017-18	2018-19
1368.65	1452.57	1541.73	1636.99	1738.69



### **Rate of interest on working capital**

112. In terms of Regulation 28(3) of the 2014 Tariff Regulations, the rate of interest on working capital has been considered as 13.50% (Bank rate of 10% + 350 bps).

Accordingly, interest on working capital has been computed as under:

	<b>(Rs. in lakh)</b>				
	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
Working capital for Cost of Coal towards Stock (15 days generation corresponding to NAPAF) (A)	3591.54	3591.54	3591.54	3678.08	3678.08
Working capital for Cost of Coal towards Generation (30 days generation corresponding to NAPAF) (B)	7183.08	7183.08	7183.08	7356.16	7356.16
Working capital for Cost of Secondary fuel oil (2 months generation corresponding to NAPAF) (C)	323.02	323.90	323.02	330.80	330.80
Working capital for Maintenance Spares (20% of O&M expenses) (D)	3284.77	3486.16	3700.14	3928.77	4172.86
Working capital for Receivables (2 months of sale of electricity at NAPAF) (E)	32006.61	32259.58	32709.48	33408.59	33349.77
Working capital for O&M expenses (1 month of O&M expenses) (F)	1368.65	1452.57	1541.73	1636.99	1738.69
Total Working Capital (G = A+B+C+D+E+F)	47757.67	48296.82	49048.97	50339.39	50626.37
Rate of Interest (H)	13.50%	13.50%	13.50%	13.50%	13.50%
<b>Interest on Working Capital (I = G x H)</b>	<b>6447.28</b>	<b>6520.07</b>	<b>6621.61</b>	<b>6795.82</b>	<b>6834.56</b>

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

### **Annual Fixed Charges for the period 2014-19**

114. Accordingly, the annual fixed charges approved for the period 2014-19 for the generating station is summarised as under:

	<b>(Rs. in lakh)</b>				
	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
Depreciation	26593.24	27656.80	28943.09	29977.89	30138.31
Interest on Loan	25041.25	22861.79	21731.20	20123.98	18089.66
Return on Equity	28174.44	29483.59	31100.67	32397.18	32658.96
Interest on Working Capital	6447.28	6520.07	6621.61	6795.82	6834.56
O&M Expenses	16423.85	17430.80	18500.70	19643.85	20864.30
<b>Total</b>	<b>102680.08</b>	<b>103953.05</b>	<b>106897.28</b>	<b>108938.72</b>	<b>108585.80</b>

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



115. The difference between the annual fixed charges already recovered in terms of the Commission's order dated 6.2.2017 in Petition No. 372/GT/2014 and the annual fixed charges determined by this order shall be adjusted in terms of Regulation 8(13) of the 2014 Tariff Regulations.

116. Petition No. 238/GT/2020 is disposed of in terms of the above.

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

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

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

