

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 364/GT/2020**

**Coram:**

**Shri P.K.Pujari, Chairperson  
Shri I. S. Jha, Member  
Shri Pravas Kumar Singh, Member**

**Date of Order: 16<sup>th</sup> March, 2022**

**In the matter of**

Petition for truing up of annual fixed charges for the 2014-19 tariff period in respect of Feroze Gandhi Unchahar Thermal Power Station Stage-IV (500 MW)

**And**

**In the matter of**

NTPC Limited,  
NTPC Bhawan,  
Core-7, SCOPE Complex,  
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,  
(on behalf of DISCOMs of Rajasthan),  
Vidyut Bhawan, Janpath,  
Jaipur 302 005

3. Haryana Power Purchase Centre,  
Shakti Bhawan, Sector -VI,  
Panchkula,  
Haryana-134109

4. Power Development Department,  
Govt. of J&K, Civil Secretariat,  
Srinagar



5. Electricity Department,  
Union Territory of Chandigarh,  
Additional Office Building, Sector 9 D,  
Chandigarh

6. Uttarakhand Power Corporation Limited,  
Urja Bhavan, Kanwali Road,  
Dehradun-248001

....Respondents

**Parties present:**

Ms. Swapna Seshadri, Advocate, NTPC  
Shri Anand K. Ganesan, Advocate, NTPC  
Ms. Ritu Apurva, Advocate, NTPC  
Shri Manish Garg, UPPCL

**ORDER**

The Petitioner, NTPC Limited (in short 'NTPC') has filed this petition for revision of tariff of Feroze Gandhi Unchahar Thermal Power Station, Stage-IV (500 MW) (hereinafter referred to as "the generating station") for the period from the date of commercial operation of Unit-I (30.9.2017) to 31.3.2019, based on the actual additional capital expenditure incurred till 31.3.2019, in accordance with the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as 'the 2014 Tariff Regulations').

2. The generating station is located at Unchahar in Raebareli district in the State of Uttar Pradesh and comprises of one unit of 500 MW capacity. The project has been implemented as an expansion project to Feroze Gandhi Unchahar TPS-I (420 MW), Feroze Gandhi Unchahar TPS-II (420 MW) and Feroze Gandhi Unchahar TPS-III (210 MW) projects of the Petitioner. The Petitioner entered into Power Purchase Agreement (PPA) with the Respondents herein, based on the allocation made by the MOP, GOI vide its letter dated 6.7.2017. Thereafter, at the request of the then



beneficiary discoms viz., TPDDL and HPSEB and based on the willingness expressed by the Respondent UPPCL, the MOP, GOI vide its letter dated 4/10.4.2018, reallocated the total share of the beneficiary discoms TPDDL and HPSEB from the generating station to the Respondent, UPPCL.

3. Petition No. 197/GT/2017 was filed by the Petitioner for approval of tariff of the generating station for the period from anticipated date of commercial operation of Unit-I (31.7.2017) to 31.3.2019, based on the projected additional capital expenditure till 31.3.2019. Thereafter, based on the actual date of commercial operation of the generating station i.e. 30.9.2017, the Commission vide its order dated 6.12.2019 in Petition No. 197/GT/2017 approved the capital cost and annual fixed charges of the generating station for the period from 30.9.2017 till 31.3.2019 as under:

#### Capital cost allowed

	<i>(Rs. in lakh)</i>	
	<b>2017-18 (30.9.2017 to 31.3.2018)</b>	<b>2018-19</b>
Opening Capital Cost	226169.33	233986.63
Add: Projected additional capital expenditure	7817.30	37452.77
<b>Closing Capital Cost</b>	<b>233986.63</b>	<b>271439.40</b>
Average Capital Cost	230077.98	252713.02

#### Annual Fixed Charges allowed

	<i>(Rs. in lakh)</i>	
	<b>2017-18(30.9.2017 to 31.3.2018)</b>	<b>2018-19</b>
Depreciation	12395.63	13615.11
Interest on Loan	10546.21	10942.13
Return on Equity	13601.06	14979.31
Interest on Working Capital	5108.65	5207.90
O&M Expenses	9794.51	10399.51
<b>Total</b>	<b>51446.06</b>	<b>55143.97</b>



## Present Petition

4. Regulation 8(1) of the 2014 Tariff Regulations provides as follows:

*“(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.”*

5. The Petitioner has filed this petition, in terms of Regulation 8(1) of the 2014 Tariff Regulations, for truing-up of tariff of the generating station for the period from 30.9.2017 to 31.3.2019, based on the admitted capital cost as on 30.9.2017, and actual additional capital expenditure incurred from 30.9.2017 to 31.3.2019. Accordingly, the capital cost and the annual fixed charges claimed by the Petitioner from 30.9.2017 to 31.3.2019 are as follows:

### **Capital cost claimed**

	<i>(Rs. in lakh)</i>	
	<b>2017-18 (30.9.2017 to 31.3.2018)</b>	<b>2018-19</b>
Capital Cost as on COD of generating station	226169.33	-
Depreciation adjustment	278.57	-
Financial Cost	169.26	-
Opening Capital Cost	226617.16	233952.39
Add: Addition during the year / period	4489.60	6872.18
Less: Decapitalization during the year /period	1.19	60.44
Less: Reversal during the year / period	0.00	0.00
Add: Discharges during the year /period	2846.82	6672.74
<b>Closing Capital Cost</b>	<b>233952.39</b>	<b>247436.88</b>
<b>Average Capital Cost</b>	<b>230284.77</b>	<b>240694.63</b>

### **Annual Fixed Charges claimed**

	<i>(Rs.in lakh)</i>	
	<b>2017-18 (30.9.2017 to 31.3.2018)</b>	<b>2018-19</b>
Depreciation	12488.59	12847.15
Interest on loan	10476.18	10669.94
Return on equity	13613.98	14266.93
Interest on working capital	5537.74	5765.88



O&M expenses	9629.99	10279.25
<b>Total</b>	<b>51746.47</b>	<b>53829.15</b>
<b>Additional O&amp;M Expenditures</b>		
Impact of Pay Revision	1753.70	1498.35
Impact of GST	109.24	187.69
Ash Transportation expenses	0.00	3020.51
<b>Total Additional O&amp;M Expenses</b>	<b>1862.94</b>	<b>4706.55</b>
<b>Total Annual Fixed Charges</b>	<b>53609.41</b>	<b>58535.70</b>

6. The Respondent Uttar Pradesh Power Corporation Ltd (UPPCL) has filed its reply vide affidavit dated 9.12.2020 and the Petitioner has filed its rejoinder to the said replies vide affidavits dated 26.5.2021. This petition was heard along with Petition No.3/GT/2021 (approval of tariff of the generating station for the 2019-24 tariff period) on 11.6.2021 and the Commission vide Record of the Proceedings directed the Respondent UPPCL to file additional reply/document containing computation of employee cost (normative versus actuals) in respect of the generating station and reserved its order in the matter. In compliance to the said direction, the Respondent, UPPCL on 21.6.2021 has filed the additional reply and the Petitioner has filed its rejoinder to the same vide affidavit dated 9.7.2021. Based on the submissions of the parties and the documents available on record, we proceed for truing-up the tariff of the generating station for the 2014-19 tariff period, on prudence check, as stated in the subsequent paragraphs.

### **Commissioning Schedule and Time Overrun**

7. The Investment Approval (IA) of the generating station was accorded by the Petitioner's Board at its 397<sup>th</sup> meeting held on 30.7.2013 with an estimated completion cost of Rs.3471.83 crore (including IDC & FC of Rs.450.58 crore and working capital margin of Rs.89.51 crore). The scheduled COD of the generating station was 41 months from 30.7.2013 as per the IA, which works out as 31.12.2016.



However, the Petitioner has achieved the actual COD of the generating station on 30.9.2017, as against the scheduled COD of 31.12.2016, thus with a delay of 9 months (from 31.12.2016 till 30.9.2017). Hence, there is time overrun of 273 days between the actual COD of Unit-I as against SCOD. However, the Commission vide its order dated 6.12.2019 in Petition No.197/GT/2017 had condoned the delay of 116 days up to 26.4.2017. Thus, the time overrun allowed/ disallowed is summarized below:

Scheduled COD	Actual COD	Total Time overrun (days)	Time overrun allowed (days)	Time overrun disallowed (days)
31.12.2016	30.9.2017	273	116	157

8. Accordingly, the revised SCOD and the actual COD of the generating station considered by order dated 6.12.2019 is as under:

SCOD	Revised SCOD	Actual COD
31.12.2016	26.4.2017	30.9.2017

### **Capital Cost**

9. Clause (1) of Regulation 9 of the 2014 Tariff Regulations provides that the capital cost as determined by the Commission after prudence check in accordance with this regulation shall form the basis of determination of tariff for existing and new projects. Clause 2 of Regulation 9 of the 2014 Tariff Regulations provides as follows:

*“(2) The Capital Cost of a new project shall include the following:*

- a) the expenditure incurred or projected to be incurred up to the date of commercial operation of the project;*
- b) Interest during construction and financing charges, on the loans (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed;*
- c) Any gain or loss on account of foreign exchange risk variation pertaining to the*



loan amount availed during the construction period shall form part of the capital cost.

- d) Increase in cost in contract packages as approved by the Commission;
- e) Interest during construction and incidental expenditure during construction as computed in accordance with Regulation 11 of these regulations;
- f) capitalised Initial spares subject to the ceiling rates specified in Regulation 13 of these regulations;
- g) expenditure on account of additional capitalization and de-capitalization determined in accordance with Regulation 14 of these regulations;
- h) adjustment of revenue due to sale of infirm power in excess of fuel cost prior to the COD as specified under Regulation 18 of these regulations; and
- i) adjustment of any revenue earned by the transmission licensee by using the assets before COD. “

10. The Petitioner in Form 1(i) of the petition has claimed capital cost for the as follows:

	<b>2017-18 (30.9.2017 to 31.3.2018)</b>	<b>(Rs. in lakh) 2018-19</b>
Capital Cost as on COD of generating station	226169.33	0.00
Depreciation Adjustment	278.57	0.00
Financial Cost	169.26	0.00
Opening Capital Cost	226617.16	233952.39
Add: Addition during the year / period	4489.60	6872.18
Less: Decapitalization during the year /period	1.19	60.44
Less: Reversal during the year / period	0.00	0.00
Add: Discharges during the year /period	2846.82	6672.74
<b>Closing Capital Cost</b>	<b>233952.39</b>	<b>247436.88</b>
<b>Average Capital Cost</b>	<b>230284.77</b>	<b>240694.63</b>

#### Capital cost as on 30.9.2017

11. The Commission vide its order dated 6.12.2019 in Petition No.197/GT/2017 had allowed the capital cost of Rs.226169.33 lakh for the generating station as on COD. The Petitioner has claimed additional IEDC, Depreciation adjustment in IEDC, Financial cost over and above the capital cost allowed by the Commission, as on COD (30.9.2017) and the same is examined in the paragraphs below.



### IEDC

12. The Petitioner has submitted that in order dated 6.12.2019 in Petition No. 197/GT/2017 the Commission while considering the total IEDC of Rs. 11643.39 lakh, had allowed IEDC of Rs. 8354.24 lakh and disallowed IEDC of Rs. 3289.15 lakh. In this petition, the Petitioner has claimed IEDC of Rs. 8354.24 lakh as allowed in order dated 6.12.2019, as part of the capital cost as on COD of the generating station. However, on scrutiny of the Annexure-I, Form-9E and Form-9F, submitted by the Petitioner, it is observed that as against the total IEDC of Rs. 11643.39 lakh considered in order dated 6.1.2.2019 in Petition No. 197/GT/2017, the actual IEDC capitalized in books is Rs. 11649.96 lakh, which includes an amount of Rs. 6.57 lakh as part of CWIP (i.e Rs. 11643.39 lakh form part of the Gross Block and Rs. 6.57 lakh lying in CWIP). Accordingly, based, on the revised details of IEDC submitted by the Petitioner, the allowable IEDC works out to Rs. 8351.86 lakh, as against Rs. 8354.24 lakh allowed in order dated 6.12.2019 in Petition No. 197/GT/2017.

### Depreciation adjustment in IEDC

13. The Petitioner has submitted that as per the accounting policy of the Petitioner, depreciation during construction period of a project, on assets i.e land, building, roads, bridges, plant & machinery and construction equipment's', directly attributable to construction of the project, has been capitalized as IEDC. Consequently, the original cost of such assets used during the construction period, is to be brought down to its written down value, for the purpose of disclosure of the gross block of such assets, in the financial statements. Thus, the gross block of such assets, with effect from COD, would start with the depreciated value of such assets, and the same





form part of capital cost as on COD of generating station. The depreciation capitalized as IEDC of Rs.816 lakh, as shown in Annexure I (Form 13D) included depreciation to the extent of Rs.278.57 lakh on such assets, which already formed part of the capital cost, at net value. Accordingly, depreciation amount submitted vide Annexure I (Form 13D), includes depreciation on such assets also which have already been considered in the gross block, at net value. The Petitioner has also submitted that the disallowance of depreciation adjustment claimed as IEDC, will result in non-servicing of assets value to the extent of depreciation already reduced from the asset, while claiming the capital cost as on COD of generating station.

14. It is noticed from the Petitioner's submission that Rs. 278.57 lakh pertaining to depreciation adjustment in IEDC has been claimed by the Petitioner, over and above the opening capital cost of Rs.226169.33 lakh as on COD i.e 30.9.2017. The Petitioner has submitted that the claim has been made to neutralize the double deduction of depreciation, as considered in order dated 6.12.2019 in Petition No.197/GT/2017, on assets/works, which were taken in the gross block, at net value. Accordingly, the Petitioner has claimed Rs.278.57 lakh, as depreciation adjustment, over and above the capital cost as on the COD, allowed vide order dated 6.12.2019 in Petition No.197/GT/2017, and has furnished GL document number 1817024502 dated 29.9.2017 in support of the claim. In consideration of the submissions of the Petitioner, we consider the additional claim of Rs.278.57 lakh as depreciation adjustment in IEDC, over and above the opening capital cost as on COD (30.9.2017) of the generating station.



### Financial Cost

15. The Petitioner has submitted that the Commission vide its order dated 6.12.2019 in Petition No. 197/GT/2017 had not considered the claim for Rs.169.26 lakh towards Financial cost, but had granted liberty to the Petitioner, to claim the same at the time of truing up of tariff of the generating station. The relevant portion of the order dated 6.12.2019 is extracted below:

*“f) **Un-amortized Finance Cost** – The Petitioner has claimed `169.26 lakh as the un-amortized bond issue expenses corresponding to loan drawn after 1.4.2015. The Petitioner has submitted that in the erstwhile IGAAP, loan issue expenses paid upfront were accounted as and when incurred and the same used to be claimed as part of IDC. Since, the auditor certified cash capital cost of `232427.71 lakh is as per IGAAP any further adjustment to the same on account of IND AS adjustment is not justifiable, without proper documentation /justification. Hence, the Petitioner’s claim under this head has been ignored for the purpose of tariff and the same will be considered at the time of truing up of tariff, based on the documents to be furnished by the Petitioner.”*

16. In terms of the above decision, the Petitioner has claimed Rs.169.26 lakh towards un-amortized part of bond issue expenses in the capital cost. The Petitioner has further submitted that, in the erstwhile IGAAP, loan issue expenses paid upfront were accounted, as and when incurred, and the same were used to be claimed as part of IDC, wherein, under IND-AS regime, the upfront expenditure pertaining to bond issue expenses, is to be amortized over the tenure of the loan, resulting in part capitalization as IDC till the construction period. Since the actual cash expenditure is to be included in capital cost, the Petitioner has prayed to allow the un-amortized part of bond issue expenses in the capital cost. Further, in compliance to order dated 6.12.2019 in Petition No. 197/GT/2017, the Petitioner has submitted the sample payment proof of Bond Series 66.

17. We have considered the matter. It is observed that the Petitioner has claimed



Rs.169.26 lakh pertaining to financial cost over and above the opening capital cost of Rs.226169.33 as on COD (30.9.2017). The Petitioner has submitted that the claim is made due to change in the accounting policy of the Petitioner, due to introduction of Ind AS. In terms of Ind AS, the upfront expenditure pertaining to bond issue expenses is to be amortized over the tenure of the loan, i.e. the expenditure will appear in the books of accounts, over the tenure of the loan, though the actual cash outflow has already been made at the time of bond issuance. Since we allow all cash expenditure up to COD, the amount of Rs.169.26 lakh is allowed over and above the opening capital cost as on COD of the generating station.

### Initial Spares

18. Regulation 13 of Tariff Regulations 2014 provides as follows:

*“13. Initial Spares: Initial spares shall be capitalized as a percentage of the Plant and Machinery cost up to cut-off date, subject to following ceiling norms:*

- (a) Coal-based/lignite-fired thermal generating stations - 4.0%*
- (b) Gas Turbine/Combined Cycle thermal generating stations - 4.0%*

*Provided that:*

*i. where the benchmark norms for initial spares have been published as part of the benchmark norms for capital cost by the Commission, such norms shall apply to the exclusion of the norms specified above:*

*.....*

*iv. for the purpose of computing of initial the cost spares, plant and machinery cost shall be considered as project cost as on cut-off date excluding IDC, IEDC, Land Cost and cost of civil works. The transmission licensee shall submit the break-up of head wise IDC & IEDC in its tariff application.”*

19. The Commission vide order dated 6.12.2019 in Petition No. 197/GT/2017 had allowed an amount of Rs. 1773.40 lakh towards initial spares upto the COD of the generating station i.e. 30.9.2017. The Petitioner, in this petition, has claimed actual initial spares for Rs.6604.16 lakh up to 31.3.2019, based on audited financial statements (Rs.1773.40 lakh up to COD and Rs.4830.76 lakh from COD up to 31.3.2019). Further, it



has submitted that an amount of Rs.2000 lakh has been estimated to be incurred up to the cut-off date i.e. 31.3.2020 and the same will be claimed in tariff for the 2019-24 tariff period. As such, the total capitalization of initial spare works out to Rs. 8604.16 as on the cutoff date of the generating station.

20. The Petitioner has projected the Plant & Machinery cost as on the cut-off date as Rs. 222911.69 lakh. As per 4<sup>th</sup> proviso to Regulation 13(a) of the 2014 Tariff Regulations, the limit of allowable initial spares works out to as Rs. 8929.48 lakh. It is noticed that the initial spares of Rs. 8604.16 lakh indicated upto the cut-off date is lesser than the above limit of Rs. 8929.48 lakh. As such, the actual initial spares of Rs.6604.16 lakh claimed up to 31.3.2019 is allowed to be capitalized. However, the capitalization of Rs. 2000 lakh projected upto the cut-off date shall be dealt with and considered in the petition for determination of tariff of the generating station for the 2019-24 tariff period.

#### Liquidated Damages (LD)

21. The Petitioner has submitted that no LD has been recovered from the contractor till date. The Petitioner has also submitted that contract closing of some of the contract is in process and the LD deducted, if any, shall be filed. In view of this submission, no adjustment on account of LD has been considered in this order.

#### Additional Capital Expenditure

22. Regulations 14 (1) of the 2014 Tariff Regulations provides as follows:

*“14. Additional Capitalization and De-capitalization:*

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

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



- (ii) Works deferred for execution;*
- (iii) Procurement of initial capital spares within the original scope of work in accordance with the provisions of Regulation 13;*
- (iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court of law; and*
- v) Change in law or compliance of any existing law:*

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

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

- (i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court of law;*
- (ii) Change in law or compliance of any existing law;*
- (iii) Deferred works relating to ash pond or ash handling system in the original scope of work; and*
- (iv) Any liability for works executed prior to the cut-off date after prudence check of the details of such un-discharged liability total estimated cost of package reasons for such withholding of payment and release of such payments etc.*

*(3) The capital expenditure in respect of existing generating station or the transmission system including communication system incurred or projected to be incurred on the following counts after the cut-off date may be admitted by the Commission subject to prudence check:*

- (i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court of law;*
- (ii) Change in law or compliance of any existing law;*
- (iii) Any expenses to be incurred on account of need for higher security and safety of the plant as advised or directed by appropriate Government Agencies of statutory authorities responsible for national security/internal security;*
- (iv) Deferred works relating to ash pond or ash handling system in the original scope of work;*

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

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

*(vii) Any additional capital expenditure which has become necessary for efficient operation of generating station other than coal /lignite based stations or transmission system as the case may be. The claim shall be substantiated with the technical justification duly supported by the documentary evidence like test results carried out by an independent agency in case of deterioration of assets report of an independent agency in case of damage caused by natural calamities obsolescence of technology up-gradation of capacity for the technical reason such as increase in fault level;*

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



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

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

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

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

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

23. The Commission in its order dated 6.12.2019 in Petition No. 197/GT/2017 had allowed the projected additional capital expenditure of Rs.45270.07 lakh (Rs.7817.30 lakh in 2017-18 and Rs.37452.77 lakh in 2018-19) in respect of works which are within the original scope of work of the project. The Petitioner, in the present petition, has claimed the actual additional capital expenditure (on cash basis) as detailed below:

Items	(Rs. in lakh)		
	30.9.2017 to 31.3.2018	2018-19	Total
<b>Plant &amp; Equipment</b>			
Steam Generator island	40.25	474.03	514.28
Turbine & Generator island	9.39	209.34	218.72
<b>BoP Mechanical</b>			
AC & Ventilation system	22.01	-	22.01
Cooling Tower	18.64	27.10	45.75
CW system and Misc pumps	425.37	-	425.37
DM plant	786.44	199.91	986.35



Items	30.9.2017 to 31.3.2018	2018-19	Total
Station piping	0.33	210.53	210.86
<b>BoP Electrical</b>			
Station lighting	35.33	21.01	56.33
Elect equipment & cabling	-	106.13	106.13
Fire detector & Protection system	-	61.25	61.25
Switchyard	16.07	40.87	56.94
Transformer	524.64	110.81	635.45
<b>C&amp;I package</b>			
C&I system	54.99	33.32	88.32
<b>Civil works</b>			
Main plant Civil work-SG	279.84	-	279.84
Main plant Civil work-TG	279.39	-	279.39
Offsite civil	167.33	238.11	405.44
Ash Handling plant	174.57	711.28	885.85
Main Plant Structural work	36.47	133.04	169.52
Chimney	-	60.82	60.82
CHP inter connection	434.16	148.02	582.18
Road from emergency gate to Auto base turning (adjustment)	(-) 6.30	-	(-) 6.30
Boundary wall	0.05	16.61	16.66
Temporary Structures (adjustment)	(-) 243.11		(-) 243.11
Electro Static Precipitator	121.40	51.15	172.55
Locomotives	27.36	-	27.36
Inflatable jack	5.17	-	5.17
<b>Sub-total (a)</b>	<b>3209.79</b>	<b>2853.34</b>	<b>6063.13</b>
Initial spares (b)	1060.80	3608.94	4669.74
MBOA (c)	219.01	409.90	628.91
Total additional capitalization (a + b + c)	4489.60	6872.18	11361.78
<b>De-capitalization of MBOA</b>	<b>(-) 1.19</b>	<b>(-) 60.44</b>	<b>(-) 61.62</b>
<b>Net additional capitalization</b>	<b>4488.41</b>	<b>6811.75</b>	<b>11300.16</b>

24. The Petitioner has claimed additional capital expenditure towards Plant and Equipment, BOP Mechanical, BOP Electrical, C&I Package, MBOA, Initial spares, Civil Works, Electrostatic precipitator, Locomotives, inflatable jack, under Regulation 14 (1)(ii) of the 2014 Tariff Regulations and capitalization of initial spares under Regulation 14 (1)(iii) of the 2014 Tariff Regulations. In justification of the same, the Petitioner has submitted that all works claimed form part of the original scope of work of the project and is expected to be capitalized within the cut-off date of the generating station. It is pertinent to mention that the Commission in its order dated 6.12.2019 in



Petition No. 197/GT/2017 had allowed additional capital expenditure of Rs.7817.30 lakh for the period from 30.9.2017 to 31.3.2018 and Rs.37452.77 lakh for 2018-19, on projection basis. The Petitioner has also submitted that the additional capitalization for certain works within the original scope, which was projected earlier to be capitalized by 31.3.2019, are likely to get spilled into the next tariff period on account of unforeseen circumstances, beyond the reasonable control of the Petitioner, despite regular monitoring & follow-up by the Petitioner. The Petitioner has pointed out that the Commission vide its order dated 6.12.2019 had considered the delay based on the unavoidable and uncontrollable reasons like (i) Non-Availability of 'Sand and Moorum' due to ban in mining, (ii) Excess rainfall during the period from June 2016 to October 2016, etc. The Petitioner has submitted that consequent and cascading effect of these reasons had impacted the schedule of non-COD related balance works pertaining to Main Plant/ BOP Civil/ Switchyard Civil, BOP Package (CW System, Misc. pumps, Station Piping, WTP, Electrical System, HVAC, FDPS, AHP System, CHP system), Coal Transportation System, Township/colony civil works, sewerage treatment plant/ associated works, site development works etc., which are currently in progress and likely to be completed during the next tariff period.

25. We have considered the matter. It is noticed that the claim of the Petitioner for actual additional capital expenditure for the period from COD till 31.3.2019, duly certified by auditor, are lesser than the total projected additional capital expenditure of Rs.4489.60 lakh for the period from 30.9.2017 to 31.3.2018 and Rs.6872.18 lakh for 2018-19 allowed in respect of the aforesaid works/ equipment's. In view of this, claim of the Petitioner is allowed under Regulation 14(1)(ii) and Regulation 14(1)(iii) of the 2014 Tariff Regulations, respectively.





### De-capitalization

26. The Petitioner has claimed de-capitalization of Miscellaneous Bought out Assets (MBOAs) for Rs.1.19 lakh in 30.9.2017 to 31.3.2018 and Rs.60.44 lakh in 2018-19 and has submitted that MBOAs which form part of the capital cost have become unserviceable and, hence, these MBOAs have been de-capitalized in terms of Regulation 14(4) of the 2014 Tariff Regulations. In view of this, the de-capitalization of MBOAs as above, which form part of the capital cost, is allowed for the purpose of tariff.

### Reconciliation of Additional Capital Expenditure

27. The reconciliation of the actual additional capital expenditure with books of accounts as submitted by the Petitioner is as follows:

(a) Reconciliation for the period from 30.9.2017 to 31.3.2018

(Rs. in lakh)

Sr. No.	Particulars	Amount
A	Closing Gross Block as per audited balance sheet 31.3.2018 (Ind-AS)	420904.96
B	Opening Gross Block as per audited balance sheet 1.4.2017 (Ind-AS)	142132.91
C	Addition during the year (Ind-AS) (A-B)	278772.05
D	IND-AS adjustment	(-) 1869.05
E	Total Additions (C-D)	276903.00
F	Additions pertaining to other stages	5693.70
G	Addition During the Year IGAAP Unchahar IV (E-F)	271209.30
H	Gross Block as per IGAAP as on COD	267732.15
I	Gross block additions capitalized due to period prior to 2017-18 as per IGAAP	2554.49
J	Gross Block as on COD excluding additions prior to period 2017-18 (H-I)	265177.66
K	Additional Capital Expenditure on accrual basis as per IGAAP during the period COD (30.9.2017) to 31.3.2018 (G-J)	6031.64
L	Exclusions	(-) 24.59
M	Additional Capital Expenditure for Unchahar IV on accrual basis (K-L)	6056.23
N	Undischarged liability included in the above	1567.82
O	Additional Capital Expenditure for Unchahar IV on cash basis (M-N)	4488.41
P	Discharges during the period from 30.9.2017 to 31.3.2018	2846.82
Q	Net additional capital expenditure claimed for Unchahar IV, on cash basis (O+P)	7335.23



(b) Reconciliation for the period from 1.4.2018 to 31.3.2019

(Rs. in lakh)

Sr. No.	Particulars	Amount
A	closing gross block as per audited balance sheet 31.3.2019 (ind-as)	439538.68
B	Opening Gross Block as per audited balance sheet 1.4.2018 (Ind-AS)	420904.96
C	Addition during the year (Ind-AS) (A-B)	18,633.72
D	IND-AS adjustment	(3401.62)
E	Total Additions (C-D)	15232.10
F	Additions pertaining to other stages	3514.14
G	Total Addition during the year as on IGAAP for Unchahar IV (E-F)	11717.96
H	Exclusions	2056.28
I	Additional capital expenditure for Unchahar IV on accrual basis (G-H)	9661.68
J	Undischarged liability included in the above	2849.94
K	Additional Capital Expenditure for Unchahar IV on cash basis (I-J)	6811.74
L	Discharges during the period 1.4.2018 to 31.3.2019	6672.74
M	Net additional capital expenditure claimed for Unchahar IV, on cash basis (K+L)	13484.48

Exclusions

28. The admissibility of exclusions claimed by the Petitioner in 2017-18 is as follows:

(Rs. in lakh)

	Head of Work / Equipment	Accrual basis	Undischarged liability included in column 3	Cash basis	IDC included in column 3
A	Loan FERV	(-) 22.00	0.00	(-) 22.00	0.00
B	Inter Unit Transfer	(-) 2.58	0.00	(-) 2.58	0.00
<b>C</b>	<b>Total Exclusions claimed (A+B)</b>	<b>(-) 24.59</b>	<b>0.00</b>	<b>(-) 24.59</b>	<b>0.00</b>

*Loan FERV*

29. The Petitioner has excluded an amount of (-) Rs.22.00 lakh in 2017-18 on account of loan FERV. The Petitioner has submitted that it is entitled to directly claim ERV on foreign currency loans, as per the 2014 Tariff Regulations and therefore, has kept FERV under exclusion. As the Petitioner is required to bill the said amount directly on the beneficiaries, the exclusion of Loan ERV is in order and allowed.

*Inter-Unit Transfer*

30. The Petitioner has excluded an amount of (-) Rs.2.58 lakh in 2017-18 on account of



inter-unit transfer and in justification of the same, it has submitted that the items under inter-unit transfer were not considered for tariff purposes and hence kept under exclusion. We are of the considered view that both positive and negative entries arising out of inter unit transfers of temporary nature shall be ignored for the purpose of tariff. Therefore, the exclusion of inter-unit transfer as claimed by the Petitioner is allowed.

31. Accordingly, the exclusions claimed and allowed in 2017-18 is as under:

<i>(Rs. in lakh)</i>	
<b>2017-18</b>	
Exclusions claimed <b>(A)</b>	(-) 24.58
Exclusions allowed <b>(B)</b>	(-) 24.58

32. The admissibility of exclusions claimed by the Petitioner in 2018-19 is as under:

<i>(Rs. in lakh)</i>					
	<b>Head of Work / Equipment</b>	<b>Accrual basis</b>	<b>Undischarged Liability included in col. 3</b>	<b>Cash basis</b>	<b>IDC included in column 3</b>
A	Loan FERV	2242.31	0.00	2242.31	0.00
B	Inter Unit Transfer	186.03	0.00	186.03	0.00
<b>C</b>	<b>Total Exclusions claimed (A+B)</b>	<b>2056.28</b>	<b>0.00</b>	<b>2056.28</b>	<b>0.00</b>

#### *Loan FERV*

33. The Petitioner has excluded an amount of Rs.2242.31 lakh in 2018-19 on account of Loan FERV. The Petitioner has submitted that it is entitled to directly claim ERV on Foreign currency loans as per the 2014 Tariff Regulations and therefore, has kept FERV under exclusion. As the Petitioner is required to bill the said amount directly to the beneficiaries, the exclusion of Loan ERV is allowed.

#### *Inter-Unit Transfer*

34. The Petitioner has excluded an amount of Rs.186.03 lakh in 2018-19 on account of Inter-Unit Transfer and in justification has submitted that items under inter unit transfer were not considered by the Commission for tariff purpose and hence kept under



exclusion. We are of the considered view that both positive and negative entries arising out of inter unit transfers of temporary nature shall be ignored for the purpose of tariff. Therefore, the exclusion of inter-unit transfer as claimed by the Petitioner is allowed.

35. Accordingly, exclusions claimed and allowed in 2018-19 is as under:

<i>(Rs. in lakh)</i>	
	<b>2018-19</b>
Exclusions claimed <b>(A)</b>	2056.28
Exclusions allowed <b>(B)</b>	2056.28

### Discharge of Liabilities

36. The Petitioner has claimed discharge of liabilities under Regulation 14 (1) (i) as follows:

<i>(Rs. in lakh)</i>		
<b>30.9.2017 to 31.3.2018</b>	<b>2018-19</b>	<b>Total</b>
2846.82	6672.74	9519.56

37. The details of liabilities claimed by the Petitioner in Form-18 is as under:

<i>(Rs. in lakh)</i>		
	<b>30.9.2017 to 31.03.2018</b>	<b>2018-19</b>
Opening Un-discharged liabilities for the period	35025.88	33746.87
Liabilities addition during the period	1567.82	2849.94
Liabilities discharged during the period	2846.82	6672.74
Closing Un-discharged liabilities for the period	33746.87	29924.07

38. We have considered the matter. In terms of Regulation 14(1)(i) of the 2014 Tariff Regulations, discharge of liabilities as claimed by the Petitioner in paragraph 39 above is allowed.

### **Reasonableness of Capital Cost**

39. The Petitioner has submitted that the Commission had determined the benchmark capital cost of Rs.4.92 crore/ MW for single 500 MW unit (brown field) at the price level of December 2011, which is dynamic and based on market trends, indices, subject to adjustment based on inflation. The Petitioner has further submitted that the



benchmark capital cost norms represent the hard cost of the project and do not include cost of land, financing cost, interest during construction, taxes and duties, right of way charges, cost of R&R etc. Consequently, the Petitioner has submitted that the hard cost is linked to escalation in WPI for the intervening period, which has been considered to arrive at the estimated cost as on cut-off date, and the indicative benchmark norms for capital cost, based on December 2011 Index, as base, with yearly escalation of around 2.42% (as noted in paragraph 39 of the order dated 6.12.2019 in Petition No. 197/GT/2017) works out as 23.27% as on the cut-off date. Accordingly, the Petitioner has calculated the indicative benchmark hard cost as Rs.6.05 crore/MW (4.92x1.23) and the same was considered by the Commission.

40. The Petitioner has further submitted that the Commission has admitted Rs.226169.33 lakh as the capital cost of the project as on COD, which works out to Rs.4.52 crore /MW including IDC, IEDC, FC etc. The total estimated complete capital cost for the project as on cut-off date is Rs.312571.47 lakh, including IDC, FC, FERV. The estimated hard cost, as on the cut-off date, after excluding IDC, FC & FERV of Rs.17647.05 lakh works out to Rs.294924.42 lakh (Rs.5.90 crore/MW), which is within the benchmark capital cost of Rs.6.05 crore/MW, as on the cut-off date of the generating station. The Petitioner had included an estimated expenditure of Rs.25000 lakh towards Emission Control System (ECS) vide affidavit dated 24.7.2017, wherein the Petitioner had indicated that the same is not within original scope of work. However, vide affidavit dated 24.1.2019, the expenditure towards Emission Control System, based on audited figures as on COD of the project, was not considered by the Petitioner in the estimated completed hard cost of Rs.301760.61 lakh in Petition No. 197/GT/2017.



41. The Commission in its order dated 4.6.2012 had specified the Benchmark capital cost (Hard cost) for thermal power stations, with coal as fuel, in respect of extension power projects of 500 MW capacity as Rs.4.92 crore/MW, with December 2011 Indices as base. We note that the capital cost (excluding IDC, FC & WCM) of the generating station envisaged at the time of original IA was Rs.2931.74 crore, which works out to Rs.5.86 crore/MW. However, as per hard cost of the generating station, as on COD, allowed in this order, the cost per MW works out to Rs.4.17 crore/MW, which is well within the benchmark cost of Rs.4.92 cr/MW specified by the Commission. Further, the estimated hard cost of the project till the cut-off date of the generating station, as furnished by the Petitioner in Form-5B is Rs.294924.42 lakh, which works out to Rs.5.89 crore/MW.

42. Further, we note the comparison of the capital cost of the contemporary projects of the 500 MW capacity is as follows:

Sl. No.	Station	Capacity MW	COD of the station	Cut-off Date of the Station	Capital Cost (Hard cost) as on COD of the Station (Rs. in crore/MW)	Capital Cost (Hard cost) as on cut-off date of the station (Rs. in crore/MW)
1	Farakka-III	1 x 500	4.4.2012	31.3.2015	3.61	4.54
2	Vindhyachal-IV	2 x 500	27.3.2014	31.3.2017	4.21	5.12
3	Rihand-III	2 x 500	27.3.2014	31.3.2017	4.28	4.79
4	Unchahar-IV	1 x 500	30.9.2017	31.3.2020	4.17	5.89

43. It is evident from the above that the capital cost as on COD of the generating station is comparable to other contemporary projects. However, the estimated capital cost (hard cost) of the unit of the generating station as on cut-off date, is higher than the capital cost as on the cut-off date of the other projects as is seen in the table above.



44. The Petitioner has claimed hard cost of Rs.208519.90 lakh as on COD and Rs.294924.42 lakh as on the cut-off date of the generating station. Accordingly, there is increase of Rs.86404.52 lakh between the COD and the cut-off date. As stated, the Petitioner in Form-1(ii) has claimed a net additional capital expenditure of Rs.20819.72 lakh from COD (30.9.2017) to 31.3.2019. Considering this projected additional expenditure, the per MW capital cost of the generating station as on 31.3.2019 works out to Rs.4.59 crore/MW, which is lesser than the approved hard cost of Rs.5.86 crore/MW as per IA.

45. The Petitioner has not furnished the details of deferred works/liabilities, against the balance amount of Rs.65584.20 lakh (Rs.86404.52 lakh – Rs.20819.72 lakh) to be incurred between 31.3.2019 and the cut-off date (31.3.2020). However, from the submissions of the Petitioner, it appears that it has planned to incur an expenditure of Rs.25000 lakh during 2019-20 towards Emission Control System (ECS), which was not within original scope of works. In view of this, the issues regarding higher hard cost as on the cut-off date of the generating station, shall be dealt in detail, while approving the capital cost of the generating station as on cut-off date, at the time of truing -up of tariff of the generating station, for the 2019-24 tariff period, in terms of the 2019 Tariff Regulations.

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

46. Accordingly, the capital cost allowed for the 2014-19 tariff period is as under:

		<i>(Rs. in lakh)</i>	
		<b>30.9.2017 to 31.3.2018</b>	<b>2018-19</b>
A	Opening Capital Cost as on COD allowed vide order dated 6.12.2019 Petition no. 197/GT/2017	226169.33	0.00



		<b>30.9.2017 to 31.3.2018</b>	<b>2018-19</b>
B	Add: Depreciation Adjustment	278.57	0.00
C	Add: IEDC adjustment on account of revised details	(-) 2.38	0.00
D	Add: Finance charges on account of IND AS adjustment cost	169.26	0.00
E	Opening Capital Cost (A+B+C+D)	226614.78	233950.01
F	Add: Addition during the year / period (Net of exclusion not allowed)	4489.60	6872.18
G	Less: Decapitalization during the year /period	1.19	60.44
H	Add: Discharges during the year /period	2846.82	6672.74
<b>I</b>	<b>Closing Capital Cost (E+F-G+H)</b>	<b>233950.01</b>	<b>247434.50</b>
J	Average Capital Cost [(E+I)/2]	230282.39	240692.25

### **Debt-Equity Ratio**

47. Regulation 19 of the 2014 Tariff Regulations provides as follows:

*“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.”*

48. Considering the details of cash expenditure and the net loan position, as on the COD of the generating station, the debt-equity ratio, as on the COD of Unit-I, as allowed vide order dated 6.12.2019 in Petition No. 197/GT/2017 stands at 67.01:32.99, which is within the debt-equity ratio of 70:30, specified under the abovesaid regulations. Accordingly, the debt-equity ratio of 70:30 has been considered for the purpose of tariff as on COD of Unit-I and the projected additional capital expenditure for the period from COD of Unit-I to 31.3.2019.





(Rs. in lakh)

Asset	As on 30.9.2017		Net Additional Capitalization during 2014-19		As on 31.3.2019	
	Amount	%	Amount	%	Amount	%
Debt	158630.34	70.00%	14,573.80	70.00%	173204.15	70.00%
Equity	67984.43	30.00%	6,245.92	30.00%	74230.35	30.00%
<b>Total</b>	<b>226614.78</b>	<b>100.00%</b>	<b>20,819.72</b>	<b>100.00%</b>	<b>247434.50</b>	<b>100.00%</b>

## Return on Equity

49. Regulation 24 of the 2014 Tariff Regulations provides as follows:

*“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 kilometers.”*

50. Regulation 25 of the 2014 Tariff Regulations provides as follows:

*“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:

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

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

51. The Petitioner has claimed return on equity considering the base rate of 15.50% and effective tax rate of 21.3416% (MAT rate @ 18.5% plus surcharge @ 12% plus Education Cess @ 3%) and 21.5488% (MAT Rate @ 18.5% plus surcharge @ 12% plus Education Cess @ 4%) for the period from COD of Unit-I to 31.3.2018 and 2018-19 respectively. This has been considered for the purpose of tariff. Accordingly, Return on Equity has been computed as follows:

<i>(Rs. in lakh)</i>			
Sr. No.		2017-18 (30.9.2017 to 31.3.2018)	2018-19
A	Normative Equity – Opening	67984.43	70185.00
B	Addition due to additional capital expenditure	2200.57	4045.35
C	Normative Equity – Closing (C) = (A+B)	70185.00	74230.35
D	Normative Equity – Average (D) = [(A+C)/2]	69084.72	72207.68
E	Base Rate for return on equity	15.500%	15.500%
F	Effective Tax Rate for respective years	21.342%	21.549%
G	Rate of Return on Equity (Pre-tax)	19.705%	19.758%
H	<b>Return on Equity (H) = (D x G)</b>	<b>13613.14</b>	<b>14266.79</b>

### **Interest on Loan**

52. Regulation 26 of the 2014 Tariff Regulations provides as follows:



*“26. Interest on loan capital:*

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

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

*(3) The repayment for each of the year of the tariff period 2014-19 shall be deemed to be equal to the depreciation allowed for the corresponding year/period. In case of de-capitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered upto the date of de-capitalization of such asset.*

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

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

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

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

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

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

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

53. Interest on loan has been worked out as follows:

- i) Gross normative loan corresponding to admissible capital cost works out to Rs. 158630.34 lakh as on COD of Unit-I.
- ii) The net opening loan (normative) as on COD of Unit-I is same as gross normative loan, the cumulative repayment of normative loan up to the previous year/period being nil.



iii) Depreciation allowed has been considered as (normative) repayments for respective periods. Repayments have been adjusted for de-capitalization considered for the purpose of tariff.

iv) Average net loan has been calculated as average of opening and closing loan.

v) Weighted average rate of interest has been computed considering details of actual loan portfolio as submitted by the Petitioner.

54. Necessary calculation for interest on loan is as follows:

		<i>(Rs. in lakh)</i>	
Sl. No.		2017-18	2018-19
A	Gross Normative Loan	158630.34	163765.01
B	Cumulative Repayment	0.00	6211.38
C	Net Normative Loan – Opening (A-B)	158630.34	157553.62
D	Addition due to additional capital expenditure	5134.66	9439.14
E	Repayment of Normative Loan	6211.38	12841.01
F	Repayment adjustment on account of decapitalization	0.00	3.01
G	Net Repayment of Normative Loan (E-F)	6211.38	12838.00
H	Net Closing Loan (C+D-G)	157553.62	154154.76
I	Normative Loan – Average [(C+H)/2]	158091.98	155854.19
J	Weighted Average Rate of Interest	6.649%	6.784%
K	<b>Interest on Loan (I x J)</b>	<b>10512.06</b>	<b>10572.87</b>

### **Depreciation**

55. Regulation 27 of the 2014 Tariff Regulations provides as follows:

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

56. The Petitioner has claimed depreciation considering the Weighted Average Rate of Depreciation of 5.423% for the period from COD of Unit-I to 31.3.2018 and 5.338% for the period 2018-19. Considering the rates of depreciation as per Appendix-III to the 2014 Tariff Regulations, the weighted average rate of depreciation has been considered for the purpose of calculation of depreciation. Further, cumulative depreciation has been adjusted for de-capitalizations considered for the purpose of tariff. Accordingly, depreciation worked out and allowed is shown as under:



*(Rs. in lakh)*

Sl. No.		2017-18 (30.9.2017 to 31.3.2018)	2018-19
A	Average capital cost	230282.39	240692.25
B	Freehold land included in above	0.00	0.00
C	Depreciable value@ 90% [(A-B) x 90%]	207254.15	216623.03
D	WAROD	5.3798%	5.3350%
E	Remaining depreciable value [(C) - (Previous Year's K)]	207254.15	210411.64
F	Balance Useful life of the asset	24.50	23.50
G	Depreciation (Annualized) (AXD)	<b>12388.83</b>	<b>12841.01</b>
H	Depreciation for the period	6211.38	12841.01
I	Cumulative depreciation (at the end of the year/period)	6211.38	19052.40
J	Less: Cumulative Depreciation reduction due to de-capitalization	0.00	3.01
K	Cumulative depreciation (at the end of the year/period)	6211.38	19049.38

### **Operation & Maintenance Expenses**

57. Regulation 29(1) (a) of the 2014 Tariff Regulations provides for normative O&M expenses for 500 MW units of coal based generating stations as follows:

*(Rs. in lakh /MW)*

2017-18	2018-19
19.22	20.43

58. The Petitioner has claimed the following O&M expenses:

*(Rs. in lakh)*

	2017-18	2018-19
O&M Expenses under Regulation 29(1)	9610.00	10215.00
Water Charges under Regulation 29(2)	19.99	64.25
<b>Total O&amp;M Expenses</b>	<b>9629.99</b>	<b>10279.25</b>

59. The normative O&M expenses claimed by Petitioner in terms of Regulation 29(1)(a) of the 2014 Tariff Regulations as above is in order and the same is considered for purpose of tariff.

### **Water Charges**



60. The Water charges claimed by the Petitioner for the period 2017-19 in terms of Regulation 29(2) of the 2014 Tariff Regulations is as follows:

<i>(Rs. in lakh)</i>	
<b>2017-18</b>	<b>2018-19</b>
19.99	64.25

61. The Commission in its order dated 6.12.2019 in Petition No. 197/GT/2017 has accepted the Petitioner's submission that water facilities of the generating station are common for all the stages and the distribution of consumptive water among stages, is being done on the basis of stage capacity i.e. 27.10% for Stage-I, 27.10% for Stage-II, 13.55% for Stage-III and 32.26% for Stage-IV. In the present petition, the Petitioner has submitted that the payment of water charges is based on actual consumption and not on the basis of allocation. In view of this, the actual water charges of Rs.84.24 lakh (Rs.19.99 lakh + Rs.64.25 lakh) claimed by the Petitioner for the period 2017-19 is allowed for the purpose of tariff.

62. Based on the above discussions, the total O&M expenses, including water charges allowed is summarized as under:

	<i>(Rs. in lakh)</i>	
	<b>2017-18</b>	<b>2018-19</b>
O&M Expenses under Regulation 29(1)	9610.00	10215.00
Water Charges under Regulation 29(2)	19.99	64.25
<b>Total O&amp;M Expenses</b>	<b>9629.99</b>	<b>10279.25</b>

### **Additional O&M Expenditure on account of impact of GST**

63. The Petitioner has claimed additional O&M expenses on account of GST for the period 2017-18 and 2018-19. The Petitioner has claimed Rs.109.24 lakh in 2017-18 and Rs.187.69 lakh in 2018-19 on account of impact of GST. The Respondent, UPPCL has submitted that the Petitioner has not furnished any data showing the details of Plant



& Machinery or Goods which attracted the additional liability towards GST w.e.f. 1.7.2017. It has therefore, submitted that the claim may be disallowed. The Petitioner has submitted the auditor certificate in support of its claim and has clarified that GST being a change in law, falls under Regulation 3 (9) read with Regulation 14 (3) of the 2014 Tariff Regulations.

64. The submissions of the parties have been considered. It is observed that the Commission while specifying the O&M expense norms for the 2014-19 tariff period 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 para 49.6 of the SOR to the 2014 Tariff Regulations, which is extracted as follows:

*“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...”*

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

#### **Additional O&M Expenditure on account of impact of Pay revision**

66. The Petitioner has submitted, while specifying the 2014 Tariff Regulations, the Commission has noted in the Statement of Objects and Reasons (SOR) that the increase in employee expenses on account of pay revision shall be considered appropriately, on a case-to-case basis, balancing the interest of generating stations and





consumers. The Petitioner has therefore claimed Rs.3252.05 lakh (Rs.1753.70 lakh during 2017-18, Rs.1498.35 lakh during 2018-19) as impact of wage revision of employees of CISF and Kendriya Vidyalaya Staff from 1.1.2016 and the employees of the Petitioner posted in the generating station with effect from 1.1.2017.

67. The Respondent, UPPCL has submitted that the Petitioner has not placed any fact or figures to substantiate its claim that the O&M expense norms provided in the Regulations are inadequate or insufficient after factoring in pay revision. It has also submitted that the Petitioner has claimed incremental impact of pay revision, for Rs.23.78 crores and not as 'balance amount' as stated in the SOR to the 2014 Tariff Regulations. The Petitioner, in its rejoinder, has submitted that the increase in the salaries and wages form part of the O&M expenses of the project, but the said expenditure was notified, after issuance of the 2014 Tariff Regulations and therefore, was not considered for the purpose of specifying the normative O&M expenses. The Petitioner has further submitted that the implementation of the recommendations of 7th Pay Commission / Office Memorandum dated 3.8.2017, is a subsequent event which has led to wage revision, resulting in the increase in O&M expense for the Petitioner and that factoring-in of the estimated increased salary w.e.f. 1.1.2017 and 1.1.2016 of the employees and the staff of CISF respectively was deferred, at the time when the 2014 Tariff Regulations were notified. Subsequently, during the 2014-19 tariff period the increase in salary and wages were given effect to and therefore, the impact of employee pay revision in the O&M expenses has been claimed. The Petitioner has clarified that the impact of 7<sup>th</sup> Pay Commission, OM dated 3.8.2017 and 3<sup>rd</sup> Pay Revision Committee for CPSU's were not in existence and/ or incorporated while



framing of the 2014 Tariff Regulations and the impact thereof, ought to be made a pass through in tariff, in terms of Regulation 54 and Regulation 55 of the 2014 Tariff Regulations.

68. The Respondent UPPCL has filed additional reply and has submitted that the Petitioner has compared the O&M expenses of all stages of the generating station. It has also submitted that as the actual O&M expenses are higher, the under recovery claimed by the Petitioner from the total shortfall must be met by the Petitioner on additional recovery/savings on account of employee cost. The Petitioner in its rejoinder has clarified that the entire O&M expenses allowed cannot be compared to the employee cost alone. It has also submitted that in case the generating station, due to efficient operation, saves any amount allowed to it under O&M expenses, it would be unfair to penalize it, by denying the incremental expenditure incurred on account of wage revision.

69. It is pertinent to mention that for calculating the impact of wage revision the actual expenditure submitted by the Petitioner has been normalized as per the consistent methodology adopted by the Commission for formalizing normative O&M expenses. This actual O&M expenses (normalized) is then compared with the normative O&M expenses allowable as per the Tariff Regulations and in case, there is under recovery of expenses due to wage revision impact, based on the aforesaid comparison, then the wage revision impact as claimed by the Petitioner is allowable.

70. We have examined the submissions and the documents available on record. It is observed that the Petitioner, as per Form-3A, has pro-rated the claim for the period from 30.9.2017 to 31.3.2018 i.e Rs.879.25 lakh to Rs.1753.70 lakh and has claimed a



total amount of Rs.3252.05 lakh [Rs.1753.70 lakh in 2017-18 (pro-rated for 365 days), Rs.1498.35 lakh in 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, the claim as per Annexure C submitted by the Petitioner vide affidavit dated 4.6.2021, amounts to Rs.2377.60 lakh (Rs.879.25 lakh during the period from 30.9.2017 to 31.3.2018 and Rs.1498.35 lakh in 2018-19) and the same is being considered. It is noticed that the said claim of the Petitioner includes impact on account of the payment of additional PRP/ex-gratia to its employees, consequent upon wage revision. As per consistent methodology adopted by the Commission, the additional PRP/ex-gratia paid as a result of wage revision impact is excluded from the wage revision impact claimed and the same has been excluded from the wage revision impact claimed by the Petitioner in the present case also. Accordingly, the claim of the Petitioner in respect of the wage revision impact stands reduced to Rs.1900.59 lakh with the following year-wise break up:

	<i>(Rs. in lakh)</i>		
	<b>2017-18</b>	<b>2018-19</b>	<b>Total</b>
Wage revision impact claimed excluding PRP/ ex-gratia (as per Annexure C )	781.42	1119.17	1900.59

71. With respect to recovery of wage revision impact by a generator, the SOR to the 2014 Tariff Regulations stipulates as follows:

*"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 macroeconomics 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.”*

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

However, in this respect the following facts need consideration:

- (a) The norms are framed based on the averaging of the actual O&M expenses 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 the generators find that their actual expenditure has gone up 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.

73. In consideration of the above facts and as per consistent methodology, we have compared the normative O&M expenses with the actual O&M expenses incurred for the period 2017-19, in order to capture the variation in the sub-heads due to above mentioned facts. Accordingly, it is decided 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 two years i.e from 2017-18 to 2018-19, on a combined basis, which is commensurate



with the wage revision claim being spread over these two years.

74. The Petitioner vide affidavit dated 4.6.2021 has submitted the following:

- (a) The actual impact of pay revision certified by Auditor, after comparing the salaries/wages prior to and after revision of pay for the generating station.
- (b) Detailed break-up of the actual O&M expenses for the generating station as well as corporate centre and its allocation to various generating stations.

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

- (a) Comparison of the normative O&M expenses with the actual O&M expenses incurred for the period from 2015-16 to 2018-19, commensurate to the period for which wage revision impact has been claimed. For like to like comparison, the components of O&M expenses like productivity linked incentive, water charges, filing fee, ex-gratia, loss of provisions, prior period expenses, community development store expenses, ash utilization expenses, RLDC fee & charges and others (without breakup/details) which were not considered while framing the O&M expense norms for the 2014-19 tariff period, have been excluded from the yearly actual O&M expenses. Having done so, if the normative O&M expenses for the period 2015-19 are higher than the actual O&M expenses (normalized) for the said period, then the impact of wage revision (excluding PRP and ex-gratia) as claimed for the said period is not admissible/allowed as the impact of pay revision gets accommodated within the normative O&M expenses. However, in case of generating station if the normative O&M expenses for the period 2017-18 to 2018-



19 are lesser than the actual O&M expenses (normalized) for the same period, the wage revision impact (excluding PRP and ex-gratia) to the extent of under recovery or wage revision impact (excluding PRP and Ex-gratia), whichever is lower, is required to be allowed as wage revision impact for the period 2017-18 to 2018-19.

76. In this regard, the wage revision impact claimed by the Petitioner for this generating station (Unchahar Stage-IV for the period 2017-19) and wage revision impact (excluding PRP and ex-gratia) for the generating station is shown as follows:

*(Rs. in lakh)*

Year	Wage Revision impact claimed for Unchahar Stage-IV	Wage Revision impact claimed for Unchahar Stage-IV excluding PRP/Ex-gratia
2017-18	879.25	781.42
2018-19	1498.35	1119.17
<b>Total</b>	<b>2377.60</b>	<b>1900.59</b>

77. As a first step, the expenditure against O&M sub-heads as discussed above, has been excluded from the actual O&M expenses to arrive at the actual O&M expenses (normalized) for the generating station. Accordingly, the comparison of the normative O&M expenses versus the actual O&M expenses (normalized) along with the wage revision impact claimed by the Petitioner for the generating station for the 2015-19 tariff period is as follows:

*(Rs. in lakh)*

		2017-18	2018-19	2017-19
A	Actual O&M expenditure (normalized) for Unchahar Stage-IV prorated based on capacity	5684.16	15401.85	21086.01
B	Normative O&M Expenses for Unchahar Stage-IV	9629.99	10279.25	19909.24
C	Under-recovery (A-B)	(-)3945.83	5122.60	1176.77
D	Wage revision impact claimed excluding PRP/Ex-gratia	781.42	1119.17	1900.59

78. It is observed that for the period under consideration for wage revision impact i.e., 2017-18 to 2018-19, normative O&M expenses is lesser than the actual O&M expenses (normalized) incurred and the under recovery is to the tune of Rs. 1176.77 lakh, but the



under recovery claimed by the Petitioner due to wage revision impact is Rs. 1900.59 lakh. As such, in terms of methodology as discussed above, the wage revision impact (excluding PRP/incentive) of Rs.1176.77 lakh for the generating station is allowable. Accordingly, we, in exercise of the Power to relax under Regulation 54 of the 2014 Tariff Regulations, relax Regulation 29(1) of the 2014 Tariff Regulations and allow the reimbursement of the wage revision impact for this generating station, as additional O&M charges for the period 2017-19. The arrear payments on account of the wage revision impact is payable by the beneficiaries in twelve (12) equal monthly installments. Keeping in view the consumer interest, we, as a special case, direct that no interest shall be charged by the Petitioner on the arrear payments on the wage revision impact allowed in this order. This arrangement, in our view, will balance the interest of both, the Petitioner and the Respondents. Also, considering the fact that the impact of wage revision is being allowed in exercise of the power to relax, these expenses are not made part of the O&M expenses and consequent annual fixed charges being determined in this order under the 2014 Tariff Regulations.

### **Ash Transportation Expenses**

79. The Petitioner has claimed an amount of Rs.3020.51 lakh on account of Ash Transportation expenses in 2018-19 as additional O&M expenses. The Petitioner has submitted that the Ministry of Environment, Forest & Climate Change (MOEF&CC) notification dated 25.1.2016, under the statutory provisions of Environment (Protection) Act 1986, provides for transportation cost of Fly ash generated at power stations to be borne by such generating companies. The Petitioner has stated that it had filed Petition No. 172/MP/2016 before this Commission, seeking reimbursement of the additional expenses incurred towards Fly Ash transportation, directly from the beneficiaries as the



same are statutory expenses.

80. The Petitioner vide affidavit dated 4.6.2021 has submitted the following details:

- i. *Award of fly ash transportation contract through a transparent competitive bidding procedure. Alternatively, the schedule rates of the respective State Governments, as applicable for transportation of fly ash;*
- ii. *Details of the actual additional expenditure incurred on Ash transportation after 25.1.2016, duly certified by auditors;*
- iii. *Details of the Revenue generated from sale of fly ash/ fly ash products and the expenditure incurred towards Ash utilization up to 25.1.2016 and from 25.1.2016 to till date, separately;*
- iv. *Revenue generated from fly Ash sales maintained in a separate account as per the MoEF notification;*

81. The Petitioner has submitted the details along with the computation of the claimed cost towards Ash Transportation. The Petitioner has also submitted that a Memorandum of Understanding (MoU) was entered into between NTPC and National Highways Authority of India (NHAI) on 9.10.2017 for bearing the cost of transportation of ash from Uncharhar generating station, for utilization in the construction of road embankment at four-laning of Sultanpur to Varanasi section of NH-56 and four-laning of Ghaghra bridge to Varanasi section of NH-233 in the State of Uttar Pradesh, in compliance to the MOEF&CC notification dated 3.11.2009, as amended on 25.1.2016. The Petitioner has also enclosed copy of the prevailing Schedule of Rates (SoR) of the State of Uttar Pradesh in support of its claim for rate for transportation of fly ash. The Petitioner has further submitted that it had already furnished the ash transportation expenses that was charged to P&L account, over and above the amount accumulated in ash fund through sale of ash, for the generating station, duly certified by Auditor. It has claimed the same amount as additional O&M expenses on account of transportation of fly ash in terms of the MOEF&CC notification dated 25.1.2016. The





Petitioner has stated that the net expenses charged to P&L account has been arrived at by deducting the revenue earned from sale of fly ash/fly ash products after 25.1.2016, as tabulated below:

<b>(Rs. in lakh)</b>	
Revenue from Sale of Fly Ash/Fly ash products (A)	5867.38
Expenditure on Ash transportation (B)	15230.95
Ash Transportation expenses charged to P&L (B-A)	9363.57

*Note: All figures above are corresponding to 1550 MW (Stage-I, II,III,IV) whereas the claim in this petition is for Stage IV of the Unchahar Station i.e of 500 MW)*

82. The Petitioner has further submitted that it has furnished the details of the actual additional expenditure incurred towards transportation of fly ash after 25.1.2016 along with details of the revenue generated from sale of ash from 25.1.2016 to 31.3.2019 and Auditor certificate in respect of the year-wise ash transportation expenses met out of P&L accounts.

83. The Respondent, UPPCL has submitted that the Petitioner has not submitted any details of Fly Ash Transportation contract and details of actual additional expenditure incurred and the revenue generated from the sale of fly ash, duly certified by Auditors. The Respondent, UPPCL has also submitted that the net expenditure of Rs.9363.56 lakh has been apportioned, based on capacity, amongst all four Stages of the generating station and as such, the apportionment, based on capacity, per se, ignores factors like running days of unit, age of plants (Stage 4 is a very new unit, commissioned only on 30.9.2017), technological factors (500 MW units have a lower GSHR and Auxiliary consumption as compared to 210 MW units).

84. In response, the Petitioner has submitted that it has already furnished the ash transportation expenses that were charged to P&L, over and above the revenue earned



from sale of ash, duly certified by auditor. The Petitioner has further submitted that same expenses have been claimed by the Petitioner as additional O&M expenses, on account of Fly Ash transportation in terms of the MOEFCC notification dated 25.1.2016. The net expenses charged to P&L has been arrived at, as under, by deducting the revenue earned from sale of fly ash/fly ash products after 25.1.2016.

85. The Petitioner has further stated that the expenditure incurred for the entire generating station has been allocated based on the equated capacity of the stages and irrespective of the method of allocation (based on equated capacity/generation), the total expenditure claimed for the generating station will remain the same. It has added that the fly ash utilization has to be achieved for the generating station as a whole, and it is impossible to award stage-wise contracts for fly ash utilization. The Petitioner has stated that the cost towards transportation of fly ash utilization is also a common expense, and accordingly it is more prudent to be apportioned on the basis of capacity.

86. The matter has been examined. As regards the reimbursement of ash transportation expenses, the Commission in its order dated 5.11.2018 in Petition No.172/MP/2016, while directing compliance of certain conditions by the Petitioner, had granted liberty to the Petitioner to approach the Commission at the time of truing-up exercise for the 2014-19 tariff period along with all details/ information, duly certified by auditor. In compliance to the above, the Petitioner has furnished the details of the distance to which fly ash has been transported from the generating station, schedule rates applicable for transportation of fly ash, as notified by the Government of Uttar Pradesh along with details, including Auditor certified accounts. These documents have been examined and on prudence check, the reimbursement of Rs.3020.51 lakh (pro



rata based on capacity) as claimed by the Petitioner for the year 2018-19 towards fly ash transportation expenses is allowed to be recovered in 6 (six) equal monthly installments. Considering the fact that reimbursement of ash transportation expenses is being allowed based on the MOEF&CC notification, these expenses are not made part of the O&M expenses and the consequent annual fixed charges being determined in this order under the 2014 Tariff Regulations.

87. Based on the above discussions, the total O&M expenses allowed for the period 2017-19 in respect of the generating station is summarized as follows:

		<b>2017-18</b>	<b>2018-19</b>
Installed Capacity (MW) (A)		500	500
O&M Expenses under Regulation 29(1) in Rs. lakh / MW (B)		19.22	20.43
O&M Expenses (in Rs. lakh) [(C) = (A)*(B)]	Claimed	9610.00	10215.00
	Approved	9610.00	10215.00
Water Charges (in Rs. lakh) (D)	Claimed	19.99	64.25
	Approved	19.99	64.25
<b>Total O&amp;M Expenses as allowed (including Water Charges and Capital Spares consumed) (E) = (C+D)</b>	Claimed	<b>9629.99</b>	<b>10279.25</b>
	Approved	<b>9629.99</b>	<b>10279.25</b>

### **Operational Norms**

88. The operational norms considered by the Petitioner in respect of the generating station is as follows:

Normative Annual Plant Availability Factor (%)	85
Heat Rate (kcal/kwh)	2372.43
Auxiliary power consumption (%)	5.75
Specific Oil Consumption (ml/kwh)	0.50

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

89. Regulation 36 of the 2014 Tariff Regulations provides as follows:

*“(A) Normative Annual Plant Availability Factor*

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

*Provided that in view of the shortage of coal and uncertainty of assured coal supply on sustained basis experienced by the generating stations, the NAPAF for recovery of fixed*



charges shall be 83% till the same is reviewed. The above provision shall be reviewed based on actual feedback after 3 years from 1.4.2014.

The above provision shall be reviewed based on actual feedback after 3 years from 1.4.2014.”

90. In terms of the above regulation, NAPAF of 85% as claimed by the Petitioner is allowed for the period from COD till 31.3.2019.

### **Gross Station Heat Rate (GSHR)**

91. As regards Station Heat Rate, Regulation 36 (C) (b) (i) of the 2014 Tariff Regulations provides as follows:

**“Norms of operation for thermal generating station**

The norms of operation as given hereunder shall apply to thermal generating stations:

xxxx

**(C) Gross Station Heat Rate**

xxxxx.

(b) New Thermal Generating Station achieving COD on or after 1.4.2014

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

= 1.045 x Design Heat Rate (kcal/kWh)

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

Provided that the design heat rate shall not exceed the following maximum design unit heat rates depending upon the pressure and temperature ratings of the units:

Pressure Rating (Kg/cm <sup>2</sup> )	150	170	170	247
SHT/RHT (deg.C)	535/535	537/537	535/565	565/593
Type of BFP	Electrical Driven	Turbine Driven	Turbine Driven	Turbine Driven
Max Turbine Heat Rate	1955	1950	1935	1850
Minimum Boiler Efficiency				
Sub-Bituminous Indian Coal	0.86	0.86	0.86	0.86
Bituminous Imported Coal	0.89	0.89	0.89	0.89
Max Design Unit Heat Rate (kCal/kWh)				
Sub-Bituminous Indian Coal	2273	2267	2250	2151
Bituminous Imported Coal	2197	2191	2174	2078

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

Provided also that where the boiler efficiency is below 86% for Sub-bituminous Indian coal and 89% for bituminous imported coal, the same shall be considered as 86% and



*89% respectively for Sub-bituminous Indian coal and bituminous imported coal for computation of station heat rate.”*

92. The Petitioner vide affidavit dated 24.1.2019 has submitted that the Commission has prescribed boiler efficiency and turbine heat rate separately for deriving the unit heat rate where the Unit Heat Rate is not guaranteed by the suppliers. Further the Petitioner has submitted that the instant station was envisaged during the year 2013 and equipment' including SG and TG specifications for tendering or award was stipulated considering the boiler efficiency and the turbine heat rate as per the 2014 Tariff Regulations. Based on the same, the equipment were ordered through competitive bidding and it was not possible for the petitioner to specify the efficiency parameters at the time of finalizing the contracts on the instant station as per the efficiency parameters .Consequently the Petitioner has submitted that if the boiler efficiency for working out the normative heat rate is considered as 86% instead of the actual design efficiency of 85.10 % the unit heat rate would be worked out to be 2270.27 kcal/kwh and the operating margin available over the design heat rate would be around 3% only which is less than the operating margin of 4.5% allowed as per the 2014 Tariff Regulations. The Respondent UPPCL has submitted that the operational norms specified by the Commission under the 2014 Tariff Regulations may be considered and the prayer of the Petitioner for relaxation of norms may be rejected.

93. We have examined the matter. Under the 2014 Tariff Regulations, GSHR has been specified, based on the past performance data of thermal plants and after extensive stakeholder consultations. In view of this, we find no reason to consider the prayer of the Petitioner for relaxation of SHR norm. Considering the ceiling limit of 86% and Turbine Cycle Heat Rate of 1932 (kcal/kWh), the GSHR for the period from COD



till 31.3.2019 works out as 2347.60 kcal/kWh (1.045 x 1932/0.86) and the same is considered for the purpose of tariff.

### **Auxiliary Power Consumption (APC)**

94. The Petitioner has furnished the APC details as per Regulation 36(E)(a) of the 2014 Tariff Regulations which provides for APC of 5.75% for coal based generating stations of 500 MW units with Induced Draft cooling tower and steam driven BFP. Accordingly, the APC of 5.75% in terms of the aforesaid regulation is considered.

### **Specific Fuel Oil Consumption**

95. Regulation 36(D)(a) of the 2014 Tariff Regulations provides for Secondary fuel oil Consumption of 0.50 ml/kWh for coal-based generating stations. The Petitioner has claimed Specific Fuel Oil Consumption of 0.50 ml/kWh and the same has been allowed in terms of the aforesaid regulation.

96. Based on the above, the operational norms considered for the generating station are as under:

NAPAF	85%
GSHR	2347.60 kCal/kWh
APC	5.75%
Specific Fuel Oil Consumption	0.50 ml/kWh

### **Interest on Working Capital**

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

*“28. Interest on Working Capital:*

*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.”

98. Regulation 28(2) of the 2014 Tariff Regulations provides as follows:

*“(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.”*

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

99. The Commission vide order dated 6.12.2019 has directed the Petitioner to furnish the fuel data for the month of June 2017 for computation of energy charges and fuel component in working capital at the time of truing-up exercise. As such the Petitioner in the Petition has claimed cost for fuel component in working capital based on the price and “as received” GCV of coal procured and burnt for the preceding three months i.e. June 2017, July 2017, and August 2017 and secondary fuel oil for preceding three months before COD i.e. June 2017, July 2017, and August 2017 as follows:

	<i>(Rs. in lakh)</i>	
	<b>2017-18</b>	<b>2018-19</b>
Cost of Coal for stock (30 days)	7828.08	7828.08
Cost of Coal for generation (30 days)	7828.08	7828.08
Cost of Secondary fuel oil 2 months	114.64	114.64

100. The COD of the unit is on 30.9.2017. Therefore, preceding three months are June 2017, July 2017 and August 2017 excluding the month of COD i.e. September 2017. The Petitioner has furnished the fuel data for the months of June 2017, July 2017 and August 2017. In view of this, the computation of energy charges and fuel



component in working capital has been worked out based on the fuel data as furnished by the Petitioner.

101. The computation of energy charges and fuel component (coal cost) in working capital during the period 2017-19 is based on “as received GCV” of coal. The Petitioner has claimed ECR of 273.387 paise/kWh, based on the weighted average price, GCV of coal on ‘as received’ basis and oil procured and burnt for the preceding three months, prior to the COD of the generating station. The cost for fuel components in working capital has been computed at 85% NAPAF for the years 2017-18 and 2018-19 respectively based on ‘as received’ GCV of coal and price of coal procured and GCV and cost of secondary fuel oil procured for the months of June 2017, July 2017, and August 2017 as under:

	<i>(Rs. in lakh)</i>	
	<b>2017-18</b>	<b>2018-19</b>
Cost of Coal for stock- 30 days	7447.19	7447.19
Cost of Coal for generation-30 days	7447.19	7447.19
Cost of Secondary fuel oil 2 months	114.64	114.64

### **Energy Charge Rate**

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

*“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”

103. The Petitioner has claimed Energy Charge Rate (ECR) of 273.387 Paise/kWh based on the weighted average price, GCV of coal & Oil procured and burnt for the preceding three months. ECR as worked out, based on operational norms specified in 2014 Regulations and on “as received” GCV of coal for the 3 months i.e. June to August 2017, as given below has been considered for allowing 2 months Energy Charge in Working capital:

	Unit	2017-18	2018-19
Capacity	MW	500	500
Gross Station Heat Rate	Kcal/kWh	2347.60	2347.60
Auxiliary Energy Consumption	%	5.75	5.75
Weighted average GCV of oil	Kcal/lit	9799.61	9799.61
Weighted average GCV of Coal	Kcal/kg	3596.40	3596.40
Weighted average price of oil	Rs./KL	36949.78	36949.78
Weighted average price of Coal	Rs./MT	3736.13	3736.13
Rate of energy charge ex-bus	Rs./kWh	2.602	2.602

104. Accordingly, the fuel component and Energy Charges allowed in working capital is as follows:

<i>(Rs. in lakh)</i>	
2017-18	2018-19
15217.05	15217.05

### Maintenance Spares

105. The Petitioner has claimed maintenance spares in the working capital as follows:

<i>(Rs. in lakh)</i>	
2017-18	2018-19
2298.58	2997.16



106. Regulation 28(1)(a)(iv) of the 2014 Tariff Regulations provide for maintenance spares @ 20% of the O&M expenses as specified in Regulation 29. Accordingly, the maintenance spares @ 20% of O&M expenses is allowed as follows:

<i>(Rs. in lakh)</i>	
<b>2017-18</b>	<b>2018-19</b>
1926.00	2055.85

### **O & M Expenses (1 month)**

107. Regulation 28(a)(vi) of the 2014 Tariff Regulations provides for O&M expenses for one month for coal-based generating station. Accordingly, O&M expenses for 1 month for the purpose of working capital are allowed as follows:

<i>(Rs. in lakh)</i>	
<b>2017-18</b>	<b>2018-19</b>
802.50	856.60

### **Receivables**

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

	<i>(Rs. in lakh)</i>	
	<b>2017-18</b>	<b>2018-19</b>
Variable Charges -two months	15217.05	15217.05
Fixed Charges -two months	8562.53	8875.62
<b>Total</b>	<b>23779.58</b>	<b>24092.67</b>

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

109. Clause (3) of Regulation 28 of the 2014 Tariff Regulations provides as follows:

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

110. In terms of the above regulations, Bank Rate of 12.60% (i.e. SBI base rate of 9.10% as on 1.4.2017 plus 350 bps) for the period from COD of Unit-I till 31.3.2019 has



been considered for the purpose of calculating interest on working capital.

111. Accordingly, Interest on working capital has been computed as follows:

		<i>(Rs. in lakh)</i>	
Sr. No		2017-18	2018-19
A	Cost of coal for 30 days towards stock	7447.19	7447.19
B	Cost of coal for 30 days towards generation	7447.19	7447.19
C	Cost of secondary fuel oil for two months	114.64	114.64
D	Maintenance spares	1926.00	2055.85
E	Receivables for two months	23779.58	24092.67
F	O&M expenses for one month	802.50	856.60
<b>G</b>	<b>Total Working Capital</b>	<b>41517.08</b>	<b>42014.13</b>
H	Rate of interest	12.60%	12.60%
<b>I</b>	<b>Interest on working capital (I) = (G X H)</b>	<b>5231.15</b>	<b>5293.78</b>

### Annual Fixed Charges

112. Based on the above discussions, the annual fixed charges approved for the generating station is summarized as follows:

			<i>(Rs. in lakh)</i>	
	2017-18	2018-19		
Depreciation	12388.83	12841.01		
Interest on Loan	10512.06	10572.87		
Return on Equity	13613.14	14266.79		
Interest on Working Capital	5231.15	5293.78		
O&M Expenses	9629.99	10279.25		
<b>Total</b>	<b>51375.17</b>	<b>53253.71</b>		

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

113. The pro rata fixed charges shall be calculated using the bases as shown below:

	2017-18	2018-19
Number of days in year	365	365
Number of days for which tariff is to be calculated	183	365

### Summary

114. The annual fixed charges and additional expenses allowed for the generating station are summarized as follows:



	<i>(Rs. in lakh)</i>	
	<b>2017-18</b>	<b>2018-19</b>
Annual Fixed Charges allowed	51375.17	53253.71
Wage revision impact claimed (excluding PRP/ex-gratia)	781.42	395.35
Additional expenditure towards fly ash transportation	0.00	3020.51

115. Annexure-I given herein after forms part of this order.

116. Petition No. 364/GT/2020 is disposed of in terms of the above.

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

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

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



## Annexure-I

### Depreciation for the 2014-19 Period

(Rs. in lakh)

Sl. no.	Name of assets	Depreciation Rate	2017-18		2018-19	
			Gross Block as on 30.09.2017	Depreciation Amount	Gross Block as on 1.4.2018	Depreciation Amount
1	Freehold Land	0.00%	-	-	-	-
2	Leasehold Land	3.34%	-	-	-	-
3	Roads, bridges, culverts & helipad	3.34%	104.23	3.48	104.23	3.48
4	Main Plant Buildings	3.34%	14,291.83	477.35	14,291.83	477.35
5	Other Buildings	3.34%	258.22	8.62	260.31	8.69
6	Temporary erection	100.00%	627.34	627.34	377.93	377.93
7	Water supply, drainage & sewerage system	5.28%	-	-	-	-
8	MGR track and signalling system	5.28%	-	-	-	-
9	Railway siding	5.28%	-	-	-	-
10	Earth dam reservoir	0.00%	-	-	-	-
11	Plant and machinery	5.28%	250,926.07	13,248.90	256,973.91	13,568.22
12	Furniture and fixtures	6.33%	513.88	32.53	516.26	32.68
13	Other Office Equipments	6.33%	168.15	10.64	227.31	14.39
14	EDP, WP machines & SATCOM equipment	15.00%	599.30	89.90	666.01	99.90
15	Vehicles including speedboats	9.50%	-	-	0.50	0.05
16	Construction equipment	9.50%	-	-	78.88	7.49
17	Electrical installations	5.28%	36.37	1.92	36.37	1.92
18	Communication equipment	6.33%	111.28	7.04	125.85	7.97
19	Hospital equipment	5.28%	27.19	1.44	36.10	1.91
20	Laboratory and workshop equipment	5.28%	-	-	-	-
21	Leased assets - Vehicles	9.50%	-	-	-	-
22	Software	15.00%	68.29	10.24	68.29	10.24
23	Assets Not Owned By company	5.28%	-	-	-	-
24	Unserviceable/Obsolete assets	5.28%	-	-	-	-
25	5 Km Scheme	5.28%	-	-	-	-
	<b>Total</b>		<b>267,732.15</b>	<b>14,519.40</b>	<b>273,763.79</b>	<b>14,612.22</b>
	<b>Weighted Average Rate of Depreciation</b>		<b>5.3798%</b>		<b>5.3350%</b>	

