

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 285/GT/2014

Coram:

Shri Gireesh B. Pradhan, Chairperson

Shri A.K. Singhal, Member

Shri A.S. Bakshi, Member

Dr. M.K. Iyer, Member

Date of Order: 18th April, 2017

In the matter of

Approval of tariff of Auraiya Gas Power Station (663.36 MW) for the period from 1.4.2014 to 31.3.2019

And

In the matter of

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

...Petitioner

Vs

1. Uttar Pradesh Power Corporation Ltd
Shakti Bhawan, 14, Ashoka Road,
Lucknow – 226001

2. Jaipur Vidyut Vitaran Nigam Ltd.,
Vidyut Bhawan, Janpath,
Jaipur – 302005

3. Jodhpur Vidyut Vitaran Nigam Ltd.
New Power House, Industrial Area,
Jodhpur-342003

4. Ajmer Vidyut Vitaran Nigam Ltd
Old Power House,
Hatthi Bhatta, Jaipur Road,
Ajmer-305001(Rajasthan)

5. Tata Power Delhi Distribution Ltd
33 kV Sub-station, Hudson Lines,
Kingsway Camp,
Delhi – 110009

6. BSES Rajdhani Power Ltd
2nd Floor, B Block, Nehru Place,
New Delhi 110019



7. BSES Yamuna Power Ltd
Shakti Kiran Building, Karkardooma,
Delhi – 110092

8. Punjab State Power Corporation Ltd
The Mall, Patiala – 147001

9. Haryana Power Purchase Centre
Shakti Bhawan, Sector VI,
Panchkula- 134019

10. Himachal Pradesh State Electricity Board Ltd
Vidyut Bhawan,
Shimla – 171004

11. Power Development Department (J&K)
Government of J&K,
Mini Secretariat, Jammu

12. Power Department
Union Territory of Chandigarh,
Additional Office Building, Sector 9D,
Chandigarh

13. Uttrakhand Power Corporation Ltd.
Urja Bhawan, Kanwali Road,
Dehradun- 248001

...Respondents

Parties present:

Shri Ajay Dua, NTPC
Shri S.K. Jain, NTPC
Shri A.K. Bisht, NTPC
Shri T. Vinod Kumar, NTPC
Shri Rajeev Choudhary, NTPC
Shri R. B. Sharma, Advocate, BRPL
Shri Pradeep Misra, Advocate, Rajasthan discoms
Shri Manish Garg, UPPCL

ORDER

This petition has been filed by the petitioner, NTPC for approval of tariff of Auraiya Gas Power Station (663.36 MW) ('the generating station') for the period 2014-19 based on the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 ("the 2014 Tariff Regulations").



2. The generating station with a capacity of 663.36 MW comprises of four Gas Turbine (GT) units of 111.19 MW each and two Steam Turbine (ST) units of 109.30 MW. The dates of commercial operation of the different units of the generating station are as under:

		Date of commercial operation (COD)
GT-I	Module / Block-I	1.10.1990
GT-II		1.10.1990
ST-I		1.11.1990
GT-III	Module / Block-II	1.11.1990
GT-IV		1.11.1990
ST-II/ generating station		1.12.1990

3. The Commission by order dated 28.6.2016 in Petition No. 335/GT/2014 had revised the tariff of the generating station for the period 2009-14, after truing-up exercise of the actual additional capital expenditure incurred in respect of the generating station for the period 2009-14 in terms of Regulation 6(1) of the 2009 Tariff Regulations. Accordingly, the capital cost and the annual fixed charges approved by order dated 28.6.2016 are as under:

Capital Cost

	(₹ in lakh)				
	2009-10	2010-11	2011-12	2012-13	2013-14
Opening Capital Cost	74427.23	74,292.38	74202.23	74095.09	74144.15
Add: Additional capital expenditure	(-) 134.85	(-) 90.15	(-) 107.15	49.06	251.64
Closing Capital Cost	74292.38	74202.23	74095.09	74144.15	74395.79
Average Capital Cost	74359.81	74247.31	74148.66	74119.62	74269.97

Annual Fixed Charges

	(₹ in lakh)				
	2009-10	2010-11	2011-12	2012-13	2013-14
Depreciation	19.33	23.36	37.87	53.84	116.01
Interest on Loan	86.79	88.11	89.25	54.92	44.56
Return on Equity	8712.85	8604.46	8499.05	8497.05	8706.52
Interest on Working Capital	4152.16	4188.80	4236.56	4270.45	4321.53
O&M Expenses	9817.73	10381.58	10971.97	11602.17	12265.53
Total	22788.86	23286.31	23834.70	24478.43	25454.14

4. The petitioner vide affidavit dated 14.8.2014 had sought approval of tariff of the generating station in accordance with the provisions of the 2014 Tariff Regulations. Thereafter, the petitioner vide affidavit dated 31.10.2014 has sought correction of minor errors in affidavit dated 14.8.2014 and has accordingly revised the claim for annual fixed charges. Accordingly, the capital cost and the annual fixed charges claimed by the petitioner for the period 2014-19 are as under:



Capital Cost

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	74594.40	125849.77	130008.49	130222.49	130306.49
Add: Additional capital expenditure	51255.37	4158.72	214.00	84.00	0.00
Closing capital cost	125849.77	130008.49	130222.49	130306.49	130306.49
Average capital cost	100222.09	127929.13	130115.49	130264.49	130306.49

Annual Fixed Charges

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	2847.29	6280.95	6595.17	6620.65	6629.52
Interest on Loan	590.6	1093.84	949.04	742.98	524.64
Return on Equity	9142.73	10836.61	10970.28	10979.39	10981.96
Interest on Working Capital	7827.22	8022.01	8060.64	8109.7	8161.5
O&M Expenses	9841.52	10458.8	11116.32	11814.12	12558.85
Total	30249.36	36692.21	37691.45	38266.84	38856.47

5. The petitioner has filed the additional information in compliance with the directions of the Commission and has served copies on the respondents. Reply has been filed by the respondents, UPPCL and BRPL and the petitioner has filed its rejoinder to the said replies. We now proceed to examine the claim of the petitioner on prudence check, based on the submissions and the documents available on record, as stated in the subsequent paragraphs.

Capital Cost as on 1.4.2014

6. Clause (1) of Regulation 9 of the 2014 Tariff Regulations provides that the capital cost as determined by the Commission after prudence check, in accordance with this regulation shall form the basis of determination of tariff for existing and new projects. Clause (3) of Regulation 9 of the 2014 Tariff Regulations provides as under:

“9(3) The Capital cost of an existing project shall include the following: (a) the capital cost admitted by the Commission prior to 1.4.2014 duly trued up by excluding liability, if any, as on 1.4.2014;

(b) additional capitalization and de-capitalization for the respective year of tariff as determined in accordance with Regulation 14; and

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

7. Clause (6) of Regulation 9 of the 2014 Tariff Regulations provides as under:

“9(6) The following shall be excluded or removed from the capital cost of the existing and new project:

(a) The assets forming part of the project, but not in use;



(b) De-capitalization of Asset;

(c) xxxxx; and

(d) The proportionate cost of land which is being used for generating power from generating station based on renewable energy:

Provided that any grant received from the Central or State Government or any statutory body or authority for the execution of the project which does not carry any liability of repayment shall be excluded from the Capital Cost for the purpose of computation of interest on loan, return on equity and depreciation;"

8. The petitioner has claimed capital cost of ₹74594.40 lakh as on 1.4.2014 based on the closing capital cost of ₹74594.40 lakh as on 31.3.2014. However, the Commission vide order dated 28.6.2016 in Petition No. 335/GT/2014 had approved the closing capital cost of ₹74395.79 lakh as on 31.3.2014. Accordingly, the opening capital cost of ₹74395.79 lakh as on 1.4.2014 is considered for determination of tariff for the period 2014-19.

Additional Capital Expenditure

9. Regulation 14 (3) of the 2014 Tariff Regulations provides as under:

"14.(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 or statutory authorities responsible for national security/internal security;

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

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

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

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

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



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

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

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

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

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

10. The break-up of the total projected additional capital expenditure claimed for the period 2014-19 is detailed as under:

	Regulation	2014-15	2015-16	2016-17	2017-18	2018-19
Phasing out of Halon fire fighting system	14(3)(ii)	15.00	20.00	0.00	0.00	0.00
Effluent Disposal Monitoring system & uses of STP water	14(3)(ii)	10.00	36.00	0.00	0.00	0.00
On line environmental monitoring	14(3)(ii)	0.00	80.50	0.00	0.00	0.00
Boundary wall (Phapund road)	14(3)(iii)	28.00	28.00	0.00	0.00	0.00
Car Shed in plant area shifting	14(3)(iii)	0.00	20.00	0.00	0.00	0.00
Patrolling road along boundary wall	14(3)(iii)	0.00	82.00	84.00	84.00	0.00
Boundary wall in acquired land	14(3)(iii)	0.00	20.00	60.00	0.00	0.00
Outer boundary wall height increase near reservoir.	14(3)(iii)	0.00	24.00	70.00	0.00	0.00
Lighting Mast	14(3)(iii)	0.00	16.22	0.00	0.00	0.00
Replacement of Hot Gas Path Components including C&I package	14(3)(vii)	51200.00	3832.00	0.00	0.00	0.00
Disturbance recorder/line protection	14(3)(vii)	2.37	0.00	0.00	0.00	0.00
Total additional capital expenditure claimed		51255.37	4158.72	214.00	84.00	0.00



11. The petitioner has claimed total projected additional capital expenditure of ₹55712.09 lakh for the period 2014-19 under sub-clauses (ii), (iii) and (vii) of Regulation 14(3) of the 2014 Tariff Regulations and the same are discussed in the succeeding paragraphs.

Regulation 14 (3) (ii)

Phasing out of Halon fire fighting system

12. The petitioner has claimed projected additional capital expenditure of ₹15.00 lakh in 2014-15 and ₹20.00 lakh in 2015-16 towards phasing out of Halon fire fighting system under Regulations 14(3)(ii) of the 2014 Tariff Regulations. In justification of the same, the petitioner has submitted that the Commission in order dated 6.8.2013 in Petition No. 28/GT/2013 had allowed the projected additional capital expenditure of ₹241.00 lakh including decapitalisation of 15% towards replacement of Halon fire fighting system for protection of ozone layer. It has further submitted that the work is still in progress and an amount of ₹193.31 lakh has been capitalised in 2013-14 and the balance work would be completed and capitalized during the years 2014-15 and 2015-16.

13. We have examined the matter. It is observed that the total additional capital expenditure towards phasing out of Halon fire fighting system claimed by the petitioner are within the original investment approval and allowed by the Commission in order dated 6.8.2013 in Petition No. 28/GT/2013. Halon gas is ozone depleting substance and its replacement by inert gas is statutory requirement. Accordingly, the projected additional capital expenditure of ₹15.00 lakh in 2014-15 and ₹20.00 lakh in 2015-16 is allowed under Regulation 14(3)(ii) of the 2014 Tariff Regulations.

Effluent Disposal Monitoring system & uses of STP water

14. The petitioner has claimed projected additional capital expenditure of ₹10.00 lakh in 2014-15, ₹36.00 lakh in 2015-16 towards Effluent Disposal Monitoring system and ₹80.50 lakh in 2015-16 towards Online Environmental Monitoring system under Regulations 14(3)(ii) of the 2014 Tariff Regulations. In justification to the same, the petitioner has submitted that in order to comply with the directions contained in the letter dated 16.4.2014 of the Uttar Pradesh Pollution Control Board (UPPCB) read with Section 33A of Water (Prevention & Control of Pollution) Act, 1981 the additional capital expenditure has been projected to be incurred towards the installation of



Continuous Stack Emission Monitoring System and Effluent disposal Monitoring system at the outlet of effluent treatment plant.

15. The respondent, BRPL has submitted that from the letter of UPPCB it perused that the compliance of the directions given in the letter was to be complied by March, 2015. It is further submitted that the letter is a routine letter emphasizing self monitoring mechanism and calling for a compliance report and has not given any detail of deficiency in prevention and control of pollution at the generating station. Accordingly, the claim of the petitioner may be rejected.

16. We have examined the matter. It is noticed from the letter dated 16.4.2014 of UPPCB that the petitioner has been directed to install Continuous Stack Emission Monitoring System and Effluent Disposal Monitoring System by March, 2015 and the same is necessary in order to maintain the environmental norms. Since the expenditure incurred is in compliance with statutory guidelines, we are inclined to allow the projected additional capital expenditure claimed by the petitioner towards Effluent Disposal Monitoring System and Online Environmental Monitoring System. However, we direct the petitioner to explain the reason(s) for the delay in execution of the above work at the time of truing-up of tariff of the generating station.

Regulation 14 (3) (iii)

17. The petitioner has claimed projected additional capital expenditure of ₹28.00 lakh each in the years 2014-15 and 2015-16 towards Boundary wall (Phapund road), ₹20.00 lakh for shifting of car shed in plant area, ₹250.00 lakh (₹82.00 lakh in 2015-16, ₹84.00 lakh in 2016-17 and ₹84.00 lakh in 2017-18) towards Patrolling road along boundary wall, ₹80.00 lakh (₹20.00 lakh in 2015-16, ₹60.00 lakh in 2016-17) towards Boundary wall in acquired land, ₹94.00 lakh (₹24.00 lakh in 2015-16 and ₹70.00 lakh in 2016-17) towards Outer boundary wall height increase near reservoir and ₹16.22 lakh in 2015-16 towards Lighting Mast. The petitioner in justification of the same has submitted that the expenditure on the above heads have been projected to be incurred as per directions of Intelligence Bureau (Govt. of India) vide its letter dated 26.4.2013 keeping in view in view of the safety & security of the plant and its personnel. Considering the fact that the expenditures are necessary for the smooth and successful operation of the generating station, the



projected additional capital expenditure is allowed under Regulation 14 (3) (iii) of the 2014 Tariff Regulations. However, the petitioner is directed to furnish the details of the expenditure incurred under this head along with documentary evidence at the time of true up of the tariff of the generating station.

Regulation 14 (3) (vii)

Additional Capital Expenditure of R&M of GTs (Replacement of Hot Gas Path components including C&I package)

18. The petitioner has claimed projected additional capital expenditure of ₹55032.00 lakh (₹51200.00 lakh in 2014-15 and ₹3832.00 lakh in 2015-16) towards Renovation & Modernization of Gas Turbines. The petitioner in justification of the said claim has submitted that the Commission vide order dated 23.5.2012 in Petition No. 270/2009 had approved R&M activities of Gas plant on the basis of CEA approved R&M schemes which were based on the recommendations of the OEM. The petitioner has further submitted that after CEA approval, the petitioner had explored around 10-12 vendors for R&M of the generating station so that there would be adequate competition during bidding, however, other than OEM, other parties expressed their inability to take up the job. Furthermore, the petitioner was exploring several routes to get the R&M executed by 3rd party for cost reduction but ultimately had to approach the OEM (M/s Mitsubishi Heavy Industries Ltd. i.e. MHI) due to no response from the other vendors. NTPC Board accorded investment approval for award of the GTs Renovation and C&I R&M packages to the OEM, MHI on single tender basis on 25.07.2011. Bid for the combined (GT Renovation + C&I R&M) package was opened on 7.1.2012 and after extensive negotiations with the OEM, the package was finally awarded on 27.11.12 for approx. ₹780 crore. The completion schedule for R&M of all 4 GTs given in the letter of Award is 28.8 months from date of LOA i.e. R&M of the last GT will be completed in April, 2015. With this schedule in place, capitalization of expenditure on GT R&M will take place beyond March, 2014 and accordingly, 'Nil' projection were given for 2012-13 and 2013-14 in the true up petition filed on 27.7.2012. For the reasons detailed above, the petitioner had further prayed for deviation and allow the expenditure claimed.



19. The respondent, UPPCL has submitted that the petitioner has failed to make adjustments for capital spares forming part of normative O&M expenses and de-capitalization. It has also submitted that the petitioner has not submitted any details as regards computation of useful life of the generating station. The respondent, BRPL has submitted that the petitioner has not furnished detailed information with regard to its claims and has not furnished the technical justification along with documentary evidence.

20. We have examined the matter. It is observed that CEA on 11.12.2007 had accorded approval of R&M schemes for an expenditure of ₹35367 lakh towards replacement of Hot Gas Path Components based on the budgetary offer of ₹41323.00 lakh from M/s Mitsubishi Heavy Industries Ltd (MHI). Accordingly, the petitioner had claimed additional capital expenditure of ₹35367.00 lakh (₹8842.00 lakh in 2012-13 and ₹26525.00 lakh in 2013-14) in Petition No. 270/2009 for determination of tariff for the period 2009-14. Against the said claim the Commission vide order dated 23.5.2012 had allowed the additional capital expenditure of ₹29436.60 lakh, after deduction of ₹5930.40 lakh towards cost of capital spares included in normative O&M expenses of the gas station and after considering de-capitalization value of ₹5334.00 (furnished by the petitioner vide affidavit dated 17.11.2011), ₹24103.00 lakh (29437.00 – 5334.00) was allowed. Accordingly, the additional capital expenditure (pro-rata) allowed for R&M of GTs was ₹6025.92 lakh in 2012-13 and ₹18077.00 lakh in 2013-14.

21. The Commission in order dated 23.5.2012 in Petition No. 270/2009 while allowing additional capital expenditure in respect of R&M of GTs had observed as under:

“23. The R&M expenditure for Hot Gas path components mainly includes expenditure on compressor components, combustion chamber components, Gas Turbine components, assembly materials, couplings, tools, insulation etc. Expenditure on insulation, tools, and part expenditure on assembly materials, couplings, combustion chambers, and Gas Turbine initial stage blades etc, which form part of major overhauls are covered under the normative O&M expenses specified by the Commission under the 2009 Tariff Regulations. As such, capitalization of the expenditure on replacement of Hot Gas path components under R&M would require the adjustment of the expenditure covered under O&M expenses allowed to the generating station during 2009-14.”

“24. In response to the directions of the Commission to furnish the detailed cost break-up of the expenditure of Rs. 35367 lakh claimed for R&M of GTs, the petitioner vide its affidavit dated 17.11.2011 has submitted that no detailed cost break-up was available with regard to approval of R&M expenditure by CEA. From the CEA approval dated 11.12.2007, it is observed that the approval for an expenditure of Rs. 35367 lakh was accorded for replacement of Hot Gas path components based on the budgetary offer of Rs. 41323.00 lakh from M/s Mitsubishi Heavy



Industries Ltd (MHI). However, from the bill of quantities furnished by the petitioner, it is noticed that the requirement for combustion liners, transition piece, cross fire tubes, Nozzles, buckets and Shrouds etc., depended upon the replacement interval after definite number of Combustion Inspection (CI) and Hot Gas Path Inspections (HGPI) of GT components. The purchase of Hot Gas path components as proposed by the petitioner also includes certain capital spares in case of Stages- I to V nozzle, Stages I to V buckets & shrouds etc, which are to be used in future. Since the R&M on GTs would be in the nature of major overhaul, suitable adjustment of capital spares included in the normative operation and maintenance expenses is required to be undertaken.”

22. The petitioner in Petition No. 28/GT/2012 has not claimed any additional capital expenditure towards R&M of GTs for the years 2012-13 & 2013-14. The petitioner has submitted that it had explored around 10-12 vendors for R&M works so as to have adequate competition during bidding, but it had to approach OEM (MHI Ltd) due to no response from the other vendors. Finally, based on investment approval from NTPC Board, the R&M package in respect of R&M of GTs & R&M of C&I was awarded to OEM on 27.11.2012 for ₹780 crore after extensive negotiation with the OEM. It is further noticed that the petitioner went ahead for negotiation with other vendors when the cost quoted by OEM of ₹41323.00 lakh was duly examined by CEA before it gave its approval for R&M schemes for ₹35367.00 lakh in December 2007. Accordingly, the delay in awarding R&M activities is attributable to the petitioner, as it has not stated the reasons for not opting the R&M schemes for the period 2009-14 when the gross expenditure allowed by the Commission of ₹353.67 crore (on net basis ₹241.03 crore) towards R&M activities was to be completed in 2009-14. The petitioner has claimed additional capital expenditure of ₹55032.00 lakh (₹51200.00 lakh in 2014-15 and ₹3832.00 lakh in 2015-16) as against the projected additional capital expenditure for ₹35367.00 lakh (₹8842.00 lakh during 2012-13 and ₹26525.00 lakh in 2013-14) allowed vide order dated 23.5.2012 in Petition No. 270/2009. This has resulted in an increase of about 55.60% in the R&M cost. This increase is on account of escalation in price of components of the gas station due to inability of the petitioner to complete R&M activities within 2009-14 and addition in scope of works. Accordingly, it would be unjust to load the beneficiaries for such huge escalation in price without knowing the assured benefits to the respondents for incurring such huge expenditure, especially in the background that major Delhi Discoms namely, BSES Rajdhani Power Limited (BRPL), BSES Yamuna Power Limited (BYPL) and Tata Power Delhi Distribution Limited (TPDDL) have filed petitions for re-allocation of power to other beneficiaries from some of the existing generating stations of the petitioner including the generating station stating that the



landed per unit cost from these stations are prohibitory expensive. In view of the above, the petitioner is directed to undertake the selective R&M activities which are essential to run the generating station for another 10 year to keep the increase in per unit cost of power to bare minimum. This is in our view justified considering the gas shortage scenario in the country which poses the challenge to schedule power from gas based station. Accordingly, the projected additional capital expenditure of ₹35367.00 lakh (approved by CEA) after deduction of cost of capital spares of ₹5930.40 lakh and after deduction of de-capitalization of ₹5334.00 lakh (35367.00 – 5930.00 – 5334.00) on net basis the additional capital expenditure of ₹24103.00 as allowed by the Commission in order dated 23.5.2012 in Petition No. 270/2009 has been allowed along with the life extension of the generating station by another 10 years from the date of completion of R&M or from the date of expiry of balance useful life as on 1.4.2014 whichever is earlier.

23. Based on the above, the pro-rata additional capital expenditure of ₹22424.65 lakh (51200/55032x24103) in 2014-15 and ₹1678.35 lakh (3832/55032x24103) in 2015-16 is allowed. The petitioner is directed to furnish the asset-wise detailed break-up of the additional capital expenditure incurred for R&M of GTs with proper justification at the time of truing-up of tariff and the same shall be considered in accordance with law.

Disturbance recorder / line protection

24. The petitioner has claimed projected additional capital expenditure of ₹2.37 lakh in 2014-15 towards Disturbance Recorder (DR). In justification to the same, the petitioner has submitted that the old DR are more than 20 years old due to ageing and obsolescence and as replacement of old DR with new DR would enhance the system reliability the expenditure is claimed under Regulation 14(3)(vii) of the 2014 Tariff Regulations.

25. The respondent BRPL has submitted that the expenditure projected to be incurred is for successful and efficient operation of plant and the claim is required to be supported by technical justification duly supported by documentary evidence like test results etc. by an independent agency. Accordingly, the claim of the petitioner may be disallowed.



26. We have examined the matter. It is observed that the petitioner has not furnished any technical justification supported by documentary evidence which is required under Regulation 14 (3) (vii) of the 2014 Tariff Regulations for the expenditure claimed under this head.

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

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Phasing out of Halon fire fighting system	15.00	20.00	0.00	0.00	0.00
Effluent Disposal Monitoring system & uses of STP water	10.00	36.00	0.00	0.00	0.00
On line environmental monitoring	0.00	80.50	0.00	0.00	0.00
Boundary wall (Phapund road)	28.00	28.00	0.00	0.00	0.00
Car Shed in plant area shifting	0.00	20.00	0.00	0.00	0.00
Patrolling road along boundary wall	0.00	82.00	84.00	84.00	0.00
Boundary wall in acquired land	0.00	20.00	60.00	0.00	0.00
Outer boundary wall height increase near reservoir.	0.00	24.00	70.00	0.00	0.00
Lighting Mast	0.00	16.22	0.00	0.00	0.00
Replacement of Hot Gas Path Components including C&I package.	22424.65	1678.35	0.00	0.00	0.00
Disturbance recorder/line protection	0.00	0.00	0.00	0.00	0.00
Total additional capital expenditure allowed	22477.65	2005.07	214.00	84.00	0.00

Capital Cost

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

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening capital cost	74395.79	96873.44	98878.51	99092.51	99176.51
Projected additional capital expenditure allowed	22477.65	2005.07	214.00	84.00	0.00
Closing capital cost	96873.44	98878.51	99092.51	99176.51	99176.51
Average capital cost	85634.62	97875.98	98985.51	99134.51	99176.51

Debt-Equity Ratio

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

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



Provided that:

- (i) where equity actually deployed is less than 30% of the capital cost, actual equity shall be considered for determination of tariff:
- (ii) the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment:
- (iii) any grant obtained for the execution of the project shall not be considered as a part of capital structure for the purpose of debt-equity ratio.

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

(1) The generating Company or the transmission licensee shall submit the resolution of the Board of the company or approval from Cabinet Committee on Economic Affairs (CCEA) regarding infusion of fund from internal resources in support of the utilisation made or proposed to be made to meet the capital expenditure of the generating station or the transmission system including communication system, as the case may be.

(2) In case of the generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, debt-equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2014 shall be considered.

(3) In case of generating station and the transmission system including communication system declared under commercial operation prior to 1.4.2014, but where debt: equity ratio has not been determined by the Commission for determination of tariff for the period ending 31.3.2014, the Commission shall approve the debt: equity ratio based on actual information provided by the generating company or the transmission licensee as the case may be.

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

30. Accordingly, the gross loan and equity of ₹37279.05 lakh and ₹37116.74 lakh respectively as on 31.3.2014 as allowed in order dated 28.6.2016 in Petition No. 335/GT/2014 has been considered as on 1.4.2014. Further, the admitted actual/ projected additional expenditure has been allocated in the debt and equity ratio of 70:30.

Return on Equity

31. Regulation 24 of the 2014 Tariff Regulations provides as under:

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

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



Provided that:

i) in case of projects commissioned on or after 1st April, 2014, an additional return of 0.50 % shall be allowed, if such projects are completed within the timeline specified in Appendix-I:

ii). the additional return of 0.5% shall not be admissible if the project is not completed within the 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.”

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

“Tax on Return on Equity

(1) The base rate of return on equity as allowed by the Commission under Regulation 24 shall be grossed up with the effective tax rate of the respective financial year. For this purpose, the effective tax rate shall be considered on the basis of actual tax paid in the respect of the financial year in line with the provisions of the relevant Finance Acts by the concerned generating company or the transmission licensee, as the case may be. The actual tax income on other income stream (i.e., income of non-generation or non-transmission business, as the case may be) shall not be considered for the calculation of “effective tax rate”.

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

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

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

33. The petitioner has claimed return on equity considering the base rate of 15.5% and effective tax rate of 23.939%. It is observed that in response to the directions of the Commission in Petition No. 290/GT/2014 (tariff of Singrauli STPS for 2014-19), the petitioner vide affidavit dated 23.9.2015 has worked out the effective tax rate as 22.584% based on the actual profit and tax paid for the year 2014-15. During the hearing of the various tariff petitions filed by the petitioner for



2014-19, the respondent beneficiaries had raised the issue regarding the computation of effective tax rate. Accordingly, in terms of the directions of the Commission, the petitioner vide affidavit dated 8.1.2016 in Petition No. 280/GT/2014 (pertaining to tariff of Farakka STPS, Stage-III) has filed the Auditor's Certificate regarding the deposit of advance tax on generation business for the year 2014-15 and Income Tax return for the year 2014-15 (AY 2015-16). We have perused these documents. Though the 2014 Tariff Regulations specify the computation of effective tax rate on the basis of tax paid, we deem it proper to allow the grossing up on MAT rate considering the fact that the matter is being decided and disposed of during 2016-17. Accordingly, for the present, the effective tax rate (MAT) of 20.961% has been considered for the year 2014-15 and 21.342% for the year 2015-16 onwards up to 2018-19 for the purpose of grossing up of the base rate of 15.5%. Based on the above, the rate of ROE works out to 19.610% for FY 2014-15 and 19.705% for FY 2015-16 onwards. This is subject to truing-up in terms of the 2014 Tariff Regulations. Accordingly, return on equity has been worked out as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Notional Equity- Opening	37116.74	43860.03	44461.55	44525.75	44550.95
Addition of Equity due to Additional capital expenditure	6743.3	601.52	64.20	25.20	0.00
Normative Equity - Closing	43860.03	44461.55	44525.75	44550.95	44550.95
Average Normative Equity	40488.39	44160.79	44493.65	44538.35	44550.95
Return on Equity (Base Rate)	15.500%	15.500%	15.500%	15.500%	15.500%
Tax Rate for respective years	20.961%	21.342%	21.342%	21.342%	21.342%
Rate of Return on Equity (Pre Tax)	19.610%	19.705%	19.705%	19.705%	19.705%
Return on Equity (Pre Tax)- annualized	7939.77	8701.88	8767.47	8776.28	8778.77

Interest on loan

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

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

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

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



(4) Notwithstanding any moratorium period availed by the generating company 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 loan.”

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

(a) The gross normative loan amounting to ₹37279.05 lakh has been considered as on 1.4.2014.

(b) Cumulative repayment amounting to ₹36063.57 lakh as on 31.3.2014 as considered in order dated 28.6.2016 in Petition No. 335/GT/2014.

(c) Addition to normative loan on account of additional capital expenditure approved above has been considered.

(d) Depreciation allowed has been considered as repayment of normative loan during the respective year of the tariff period 2014-19. Further proportionate adjustment has been made to the repayments corresponding to discharges and reversals of liabilities considered during the respective years on account of cumulative repayment adjusted as on 1.4.2014.

(e) In line with the provisions of the above regulation, the weighted average rate of interest has been calculated by applying the actual loan portfolio existing as on 1.4.2014 along with subsequent additions during the period 2014-19, if any, for the generating station. In case of



loans carrying floating rate of interest the rate of interest as provided by the petitioner has been considered for the purpose of tariff.

36. Necessary calculation for interest on loan is as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Gross opening loan	37279.05	53013.41	54416.96	54566.76	54625.56
Cumulative repayment of loan upto previous year / period	36063.57	42742.14	44144.60	45651.40	47173.86
Net Loan Opening	1215.48	10271.27	10272.36	8915.35	7451.70
Addition due to Additional capital expenditure	15734.36	1403.55	149.80	58.80	0.00
Repayment of loan during the year	6678.56	1402.46	1506.81	1522.45	1527.45
Less: Repayment adjustment on account of de-capitalisation	0.00	0.00	0.00	0.00	0.00
Add: Repayment adjustment on discharges corresponding to un-discharged liabilities deducted as on 1.4.2014	0.00	0.00	0.00	0.00	0.00
Net Repayment	6678.56	1402.46	1506.81	1522.45	1527.45
Net Loan Closing	10271.27	10272.36	8915.35	7451.70	5924.26
Average Loan	5743.38	10271.82	9593.86	8183.53	6687.98
Weighted Average Rate of Interest on Loan	3.3200%	3.3532%	3.4246%	3.5032%	3.5902%
Interest on Loan	190.68	344.44	328.55	286.68	240.11

Depreciation

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

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

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

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

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

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



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

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

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

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

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

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

(7) The generating company or the transmission 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."

38. The cumulative depreciation as per order dated 28.6.2016 in Petition No.335/GT/2014 is ₹65746.33 lakh as on 31.3.2014. Depreciation has been calculated by spreading over of the balance depreciable value. As per order dated 28.6.2016 the balance useful life of the generating station as on 1.4.2014 is 1.57 years in 2014-15 and the useful life works out to 10.57 years in 2015-16. This has been considered for calculation of depreciation. The value of freehold land on cash basis, considered in order dated 28.6.2016 is ₹932.76 lakh as on 31.3.2014. The petitioner is however directed to furnish details as regards un-recovered depreciation at the time of truing-up of tariff in terms of Regulation 8 of the 2014 Tariff Regulations. Necessary calculations in support of depreciation are as shown below:

	<i>(₹ In lakh)</i>				
	2014-15	2015-16	2016-17	2017-18	2018-19
Average Capital Cost	85634.62	97875.98	98985.51	99134.51	99176.51
Depreciable value (ex. land) @ 90%	76231.67	87248.90	88247.48	88381.58	88419.38
Balance useful life of the assets	1.57	10.57	9.57	8.57	7.57
Balance depreciable value	10485.34	14824.00	14420.13	13047.42	11562.77
Depreciation (annualized)	6678.56	1402.46	1506.81	1522.45	1527.45



Cumulative depreciation at the end	72424.89	73827.35	75334.16	76856.61	78384.06
Less: Cumulative Depreciation adjustment on account of un-discharged liabilities	0.00	0.00	0.00	0.00	0.00
Less: Cumulative Depreciation reduction due to de-capitalization	0.00	0.00	0.00	0.00	0.00
Cumulative depreciation (at the end of the period)	72424.89	73827.35	75334.16	76856.61	78384.06

O&M Expenses

39. Regulation 29 (1) (c) of the 2014 Tariff Regulations provides the year-wise O&M expense norms for the generating station as under:

(₹ in lakh/MW)				
2014-15	2015-16	2016-17	2017-18	2018-19
14.67	15.59	16.57	17.61	18.72

40. Based on the above norms, the O&M expenses claimed by the petitioner for the period 2014-19 is worked out and allowed as under:

(₹ in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
9731.49	10341.78	10991.88	11681.77	12418.10

Water Charges

41. Regulation 29(2) of the 2014 Tariff Regulations provides as under:

“29 (2) The Water Charges and capital spares for thermal generating stations shall be allowed separately:

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

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

42. The petitioner has submitted that as per Regulation 29(2) of the 2014 Tariff Regulations, water charges and capital spares consumed for the thermal generating stations are to be allowed separately. The petitioner has furnished details in respect of water charges such as type of cooling water system, total water charges as applicable for 2013-14 and has submitted that the water charges may be allowed in tariff based on actual of 2013-14. It has further stated that in accordance with provisions of the Regulations, the petitioner shall furnish the details of actuals for the relevant year at the time of truing up and the same shall be subject to retrospective adjustment. The petitioner has added that the expenditure of these nature are necessarily to be incurred by the



generating station on a continuous basis and accordingly, may be considered in the annual fixed charges as well and Working capital, in order to enable the generator to recover such expenses and pay for them on continuous basis. In terms of the above regulation, water charges are to be allowed based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check of the details furnished by the petitioner. The details regarding the same furnished by the petitioner is as under:

Description	Remarks
Type of Plant	Gas
Type of cooling water system	closed cycle
Total water charges in 2013-14	₹110.03 lakh

43. In order to examine the trend of the actual water consumption and rate of water charges, the petitioner was directed vide ROP of the hearing dated 8.10.2015 to submit the details of the actual water consumption and the water charges for the period 2009-14. In compliance, the petitioner vide affidavit dated 9.11.2015 has furnished the details of water consumption and the water charges for last 5 years as under:

	Water Consumption [Cusecs]	Total Water charges [₹]
2009-10	13	2371214.00
2010-11	13	2433827.00
2011-12	13	6620267.00
2012-13	13	14525015.00
2013-14	13	11003459.00

44. The water charges claimed by the petitioner for 2014-19 are as follows:

(₹ in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
110.03	117.02	124.45	132.35	140.75

45. The petitioner has claimed water charges for the year 2014-15 based on the water consumption and rate of water charges for the year 2013-14. The water charges for the period from 2015-16 to 2018-19 has been claimed by escalating @ 6.35% the water charges of ₹55.34 lakh in 2014-15 every year.

46. The petitioner has not furnished the details of water charges and reason(s) for variation in water charges paid during 2009-14. However, it is observed from the notification dated 15.7.2011



of UP Irrigation Department (Division – 4), that the royalty has been increased from ₹1505000.00 /cusec/year effective from 26.5.1998 to ₹600000.00 /cusec/year w.e.f 18.11.2010. It is also observed from the above notification, that in addition to Royalty, water tax has also been increased from ₹3.12 per 1000 cubic feet to ₹12.48 per1000 cubic feet. The water tax @ ₹12.48 lakh/100 cubic feet for 13 cusecs for the year 2013-14 works out ₹51.16 lakh. However, the petitioner has claimed water tax of ₹25.66 lakh. Since the water tax claimed by the petitioner is lesser than those computed for the year 2013-14, the water tax of ₹25.66 lakh is allowed. Based on the revision in water charges by UP Irrigation department (Division – 4), the water charges for the year 2013-14 is worked out as under:

	Water Consumption [Cusecs]	Royalty [Rs./cusecs]	Total Royalty (₹ in lakh) (1x2/10^5)	Water (Tax) charges [₹12.48/1000 cubic ft.]	Total Water charges [₹]
	1	2	3	4	5
2013-14	13	600000.00	78.00	25.66	103.66

47. Accordingly, water charges of ₹103.66 lakh paid in 2013-14 has been considered for allowing the water charges on projection basis during the period 2014-19 as under:

(₹ in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
103.66	103.66	103.66	103.66	103.66

48. The petitioner is directed to furnish the details such as the contracted quantity, allocation of water, the actual water consumed during 2014-19, the basis of calculation of quantity of CW and computation of water charges at the time of truing-up of tariff in terms of the 2014 Tariff Regulations. In addition, the petitioner shall also confirm / clarify as to whether the water charges have been paid on the basis of contracted quantity or on the basis of allocation / actual consumption.

49. Based on the above, the total O&M expenses including water charges as claimed by the petitioner and allowed for the purpose of tariff is as under:



Sl. No.		2014-15	2015-16	2016-17	2017-18	2018-19
1	O&M Expenses claimed	9731.49	10341.78	10991.88	11681.77	12418.10
2	O&M Expenses allowed	9731.49	10341.78	10991.88	11681.77	12418.10
3	Water Charges claimed	110.03	117.02	124.45	132.35	140.75
4	Water Charges allowed	103.66	103.66	103.66	103.66	103.66
5	Total O&M Expenses claimed (1 + 3)	9841.52	10458.80	11116.32	11814.12	12558.85
	Total O&M Expenses allowed (2 + 4)	9835.15	10445.44	11095.54	11785.43	12521.76

Enhancement of O&M expenses

50. The petitioner has submitted that the salary / wage revision of the employees of the petitioner will be due with effect from 1.1.2017. It has also submitted that the O&M expenses claimed by the petitioner are based on the 2014 Tariff Regulations. It has also submitted that the escalation of 6.35% provided in the O&M norms would not cover the enhanced employee cost w.e.f 1.1.2017. The petitioner has therefore prayed for grant of liberty to seek the enhancement in the O&M expenses with effect from 1.1.2017 towards the increased salary on account of revision in salary from 1.1.2017, based on the actual payments whenever made by it. The matter has been examined. On this issue, the Commission in the Statement of Reasons to the 2014 Tariff Regulations has observed as under:

“29.26 Some of the generating stations have suggested that the impact of pay revision should be allowed on the basis of actual share of pay revision instead of normative 40% and one generating company suggested that the same should be considered as 60%. In the draft Regulations, the Commission had provided for a normative percentage of employee cost to total O&M expenses for different type of generating stations with an intention to provide a ceiling limit so that it does not lead to any exorbitant increase in the O&M expenses resulting in spike in tariff. The Commission would however, like to review the same considering the macro economics involved as these norms are also applicable for private generating stations. In order to ensure that such increase in employee expenses on account of pay revision in case of central generating stations and private generating stations are considered appropriately, the Commission is of the view that it shall be examined on case to case basis, balancing the interest of generating stations and consumers”.

51. Accordingly, the prayer of the petitioner for enhancement of O&M expenses if any, due to pay revision may be examined by the Commission, on a case to case basis, subject to the implementation of pay revision as per DPE guidelines and filing of an appropriate application by the petitioner in this regard.



Capital spares

52. The petitioner has not claimed capital spares on projection basis during the period 2014-19. Accordingly, the same has not been considered in this order. The claim of the petitioner, if any, at the time of truing-up, shall be considered on merits, after prudence check.

Operational Norms

53. The petitioner has submitted that the Operative Norms (viz. Station Heat Rate, Auxiliary Power Consumption etc.) as per Regulation 36 of the Tariff Regulations, 2014 has been considered for tariff calculations in the petition. The petitioner has prayed that operating data for generating station during the years 2012-13 and 2013-14 when the plant was operating at lower PLF may be considered. Considering the operation of the generating station for the period 2012-13 and 2013-14, the Commission in the "Statement of Reasons" to the 2014 Tariff Regulations has prescribed Lower/ Tighter Norms for Gas Stations considering the CEA's recommendations and the operating data for the period 2008-13. It has also stated that due to lower availability of domestic gas and increase in its prices, the generation from gas stations is likely to be even less and will likely to result in lower generation from gas stations in the coming years. Accordingly, the petitioner has stated that in this event the generating station continue to operate at lower PLF and liberty may be granted to approach the Commission for seeking relaxation of operating norms as per the actual performance from 1.4.2014. The operational norms claimed by the petitioner is in accordance with Regulation 36 (vi) of 2014 Tariff Regulations and is therefore allowed as under:

Normative Annual Plant Availability Factor (NAPAF)	85.0
Gross Station Heat Rate (kcal/kwh)	2100.00
Auxiliary Power Consumption %	2.5

Interest on Working Capital

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

"28. Interest on Working Capital:

(1) The working capital shall cover



(b) Open-cycle Gas Turbine/Combined Cycle thermal generating stations

(i) Fuel cost for 30 days corresponding to the normative annual plant availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel;

(ii) Liquid fuel stock for 15 days corresponding to the normative annual plant availability factor and in case of use of more than one liquid fuel, cost of main liquid fuel duly taking into account mode of operation of the generating stations of gas fuel and liquid fuel;

(iii) Maintenance spares @ 30% of operation and maintenance expense specified in regulation 29; and

(iv) Receivables equivalent to two months of capacity charge and energy charge for sale of electricity calculated on normative plant availability factor, duly taking into account mode of operation of the generating station on gas fuel and liquid fuel;

(v) Operation and maintenance expenses for one month.”

Fuel Cost and Energy Charges

55. The petitioner vide affidavit dated 14.8.2014 has claimed the cost for fuel component in working capital based on price and GCV of APM gas, RLNG and Naphtha for preceding three months from January, 2014 to March, 2014 and the mode of operation between APM gas, RLNG and Naphtha achieved by the generating station during the year 2013-14 which was 82.90%, 4.50% and 12.60% respectively as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of Fuel (gas) – 1 month	17945.10	17945.10	17945.10	17945.10	17945.10
Cost of liquid fuel for 15 days	2611.81	2618.96	2611.81	2611.81	2611.81

56. However, the petitioner vide affidavit dated 31.10.2014 has submitted that the mode of operation based on consumption of different fuel during the year 2013-14 has erroneously been submitted as that of the year 2008-09. Accordingly, the petitioner has revised and claimed the cost of fuel component based on the mode of operation between APM gas, RLNG and Naphtha achieved by the generating station during the year 2013-14 which was 89.42%, 10.56% and 0.02% respectively as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of Fuel (gas) – 1 month	16117.91	16162.07	16117.91	16117.91	16117.91
Cost of liquid fuel for 15 days	811.55	811.55	811.55	811.55	811.55



57. The petitioner has further submitted that though the generation on Naphtha is 0.02% during the said period, the petitioner has to maintain the Naphtha stock in view of the requirement of beneficiaries for Naphtha based generation. In view of this, the stock of Naphtha has to be maintained and therefore the cost of Naphtha stock as actually maintained at the generating station may be considered while considering the working capital. The petitioner has further submitted the fuel components based on the price and GCV of APM gas, RLNG and Naphtha for preceding three months from January, 2014 to March, 2014 and revised mode of operation between APM gas, RLNG and Naphtha achieved by the generating station during the year 2013-14 was 89.42%, 10.56% and 0.02% respectively as computed below, may be considered for the purpose of tariff for the period 2014-19.

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of Fuel (gas) for 30 days	15897.23	15897.25	15897.23	15897.23	15897.23
Cost of liquid for 15 days	4.15	4.16	4.15	4.15	4.15

58. It is observed that the petitioner has considered 1 month (instead of 30 days) for computation fuel cost (gas) and the cost of liquid fuel (Naphtha) procured in 2013-14 as per Regulation 28(1)(b)(i) of the 2014 Tariff Regulations. However, considering the mode of operation as 0.02% on liquid fuel (Naphtha) the cost of liquid for 15 days works out to ₹4.15 as per Regulation 28(1)(b)(ii) of the 2014 Tariff Regulations. The NAPAF of the generating station in terms of the 2014 Tariff Regulations is 85%. It is observed from the computation of energy charges in Form-13F furnished by the petitioner that it has claimed an amount of ₹811.55 lakh as Liquid fuel stock for 15 days. In justification of the same, the petitioner has submitted that the stock of Naphtha has to be maintained and therefore the cost of Naphtha stock as actually maintained at the generating station has been considered. It is noticed that the petitioner has not supported its claim for the submissions by computation / working out at the cost of ₹811.55 lakh for the Liquid fuel stock, when there was 0.02% contribution on Naphtha for generation. In view of this, the cost of Liquid fuel (Naphtha) works out to ₹4.09 lakh for 15 days which has been considered in working capital for the purpose of tariff for the period 2014-19.



Energy/Variable Charges

59. The petitioner vide affidavit dated 14.8.2014 has claimed Energy Charge Rate (ECR) of 447.147 paisa/kWh based on the weighted average price and GCV of domestic gas, RLNG and Naphtha used for operation of the plant during the preceding three months i.e. January, 2014, February, 2014 and March, 2014 and the mode of operation for the preceding three months. Subsequently, the petitioner vide affidavit dated 31.10.2014 has submitted that the mode of operation has erroneously been submitted as that of the year 2008-09 and has accordingly submitted the revised mode of operation during the year 2013-14 for the purpose of computing the energy charge. Based on this, the revised ECR claimed by the petitioner are as under:

	Unit	2014-15, 2016-17, 2017-18, 2018-19	2015-16
Capacity	MW	663.36	663.36
Fuel		APM+RLNG+Naphtha	
Normative Heat-Rate	kcal/kWh	2100	2100
Aux. Power Consumption	%	2.5	2.5
Weighted average price of Gas	/1000SCM	14105.80	14105.80
Weighted average price of LNG	/1000SCM	44085.13	44085.13
Weighted average price of HSD	/1000SCM	54871.60	54871.60
Weighted average GCV of gas	Kcal/SCM	9325.92	9325.92
Weighted average GCV of LNG	Kcal/SCM	9107.07	9107.07
Weighted average GCV of HSD	Kcal/SCM	11439.80	11439.80
Revised Mode of Operation			
Gas		89.42%	
LNG		10.56%	
Naphtha		0.02%	
Rate of energy charge ex-bus	Paisa/kWh	401.618	401.618

60. Based on the norms of operation, the weighted average price and GCV of APM gas, RLNG and Naphtha used for operation of the plant during the preceding three months i.e. January, 2014, February, 2014 and March, 2014 and the mode of operation, the Energy Charges of 401.618 paisa/Kwh as claimed by the petitioner is allowed for the period 2014-19.

Energy Charges for two (2) months

61. Energy charges for 2 months on the basis of as billed GCV for the purpose of interest in working capital has been worked out as under:

(₹ in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
32235.81	32324.13	32235.81	32235.81	32235.81



Maintenance spares

62. The petitioner has claimed the following maintenance spares in the working capital:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
2952.46	3137.64	3334.90	3544.24	3767.66

63. Regulation 28(1)(a)(iv) of the 2014 Tariff Regulations provide for maintenance spares @ 30% of the operation & maintenance expenses as specified in Regulation 29. Accordingly, the maintenance spares claimed by the petitioner is allowed as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
2950.55	3133.63	3328.66	3535.63	3756.53

Receivables

64. Receivables equivalent to two months of capacity charge and energy charges (based on primary fuel only) has been worked out and allowed as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Variable Charges -2 months	32235.81	32324.13	32235.81	32235.81	32235.81
Fixed Charges – 2 months	5396.70	4764.74	4905.55	5026.30	5151.68
Total	37632.51	37088.87	37141.36	37262.11	37387.49

O & M Expenses (1 month)

65. The O&M expenses for 1 month claimed by the petitioner for the purpose of working capital is as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
820.13	871.57	926.36	984.51	1046.57

66. Based on the O&M norms, the year wise O&M expenses for the generating station is allowed as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
819.60	870.45	924.63	982.12	1043.48

Rate of interest on working capital

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

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



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

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Fuel Cost (APM & RLNG) - 30 days	15897.11	15897.11	15897.11	15897.11	15897.11
Liquid Fuel (Naptha) Cost - 15 days	4.09	4.09	4.09	4.09	4.09
Maintenance Spares	2950.55	3133.63	3328.66	3535.63	3756.53
O & M expenses - 1 months	819.60	870.45	924.63	982.12	1043.48
Receivables - 2 months	37632.51	37088.87	37141.36	37262.11	37387.49
Total Working Capital	57303.86	56994.16	57295.86	57681.06	58088.70
Rate of interest	13.50%	13.50%	13.50%	13.50%	13.50%
Interest on Working Capital	7736.02	7694.21	7734.94	7786.94	7841.97

Annual Fixed Charges

69. Accordingly, the annual fixed charges approved for the generating station for the period 2014-2019 is summarized as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	6678.56	1402.46	1506.81	1522.45	1527.45
Interest on Loan	190.68	344.44	328.55	286.68	240.11
Return on Equity	7939.77	8701.88	8767.47	8776.28	8778.77
Interest on Working Capital	7736.02	7694.21	7734.94	7786.94	7841.97
O&M Expenses	9835.15	10445.44	11095.54	11785.43	12521.76
Total	32380.19	28588.44	29433.30	30157.79	30910.05

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

Month to Month Energy Charges

70. Clause 6 sub-clause (b) of Regulation 30 of the 2014 Tariff Regulations provides as under:

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

(b) For gas based and liquid fuel based stations

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

Where,

AUX = Normative auxiliary energy consumption in percentage.

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

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

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

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



71. The petitioner shall compute and claim the Energy Charges on month to month basis from the beneficiaries based on the above formulae.

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

Application Fee and Publication Expenses

73. The petitioner has sought the reimbursement of tariff petition filing fee and also the expenses (₹8756368/-) incurred towards publication of notices for application of tariff for the year 2014-17. Accordingly, in terms of Regulation 52 of the 2014 Tariff Regulations and in line with the decision in Commission's order dated 5.1.2016 in Petition No. 232/GT/2014, we direct that the petitioner shall be entitled to recover *pro rata*, the filing fees and the expenses incurred on publication of notices for the period 2014-17 directly from the respondents on submission of documentary proof. The filing fees for the remaining years of the tariff period 2017-19 shall be recovered *pro rata* after deposit of the same and production of documentary proof.

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

75. Petition No. 285/GT/2014 is disposed of in terms of the above.

-Sd/-
(Dr.M.K.Iyer)
Member

-Sd/-
(A. S. Bakshi)
Member

-Sd/-
(A. K. Singhal)
Member

-Sd/-
(Gireesh B. Pradhan)
Chairperson

