CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI

Petition No. 207/GT/2015

Coram:
Shri Gireesh B. Pradhan, Chairperson
Shri A. K. Singhal, Member
Shri A.S.Bakshi, Member
Dr. M.K.Iyer, Member

Date of Order: 3rd October, 2016

In the matter of

Approval of tariff of Mejia Thermal Power Station, Unit – 7 & 8 (1000 MW) for the period 2014-19.

And in the matter of

Damodar Valley Corporation
DVC Towers, VIP Road
Kolkata-700054 **…Petitioner**

Vs

1. Delhi Transco Ltd
Shakti Sadan,
Kotla Road,
New Delhi – 110002

(a) BSES-Rajdhani Power Ltd
BSES Bhawan, Nehru Place,
New Delhi - 110019

(b) BSES-Yamuna Power Ltd
Shakti Kiran Building,
Karkardooma, Delhi- 110092

(c) Tata Power Delhi Distribution Ltd.
1st Floor, CENNET SCADA Building,
Near PP-3 Grid, Pitampura
New Delhi-110034

2. Haryana Power Generation Corporation Ltd
Shakti Bhawan, Sector – 6,
Panchkula – 134109

3. Kerala State Electricity Board
8th Floor, Vydyuthi Bhawan,
Trivananthapuram – 695004

4. Bangalore Electricity Supply Company
K.R. Circle,
Bangalore-506001
5. Hubli Electricity Supply Company

Navanagar, PB Road, Hubli - 580025,
Karnataka

6. Gulbarga Electricity Supply Corporation
Station Road, Gulbarga - 585102,
Karnataka

7. Mangalore Electricity Supply Company Paradigm Plaza,
AB Shetty Circle, Mangalore-575001

8. Chamundeshwari Electricity Supply Corporation
927, L J Avenue, GF, New Kantharaj Urs Road,
Saraswatipuram, Mysore-570009

9. Tata Steel Ltd.
PGP Works, General Office (W-175)
Jamshedpur – 831001 **…Respondents**

Parties present:

Shri. M.G. Ramachandran, Advocate DVC
Ms. Anushree Bardhan, Advocate, DVC
Shri Subrata Ghosal, DVC
Shri Jisnu Dutta, DVC
Shri Bishnu Pada Kayal, DVC

ORDER

The petitioner, DVC has filed this petition for approval of tariff of Mejia Thermal Power Station, Unit Nos. 7 & 8 (1000 MW) ('the generating station') for the period 2014-19 in terms of the provisions of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 ("the 2014 Tariff Regulations").

2. The project comprises of two units of 500 MW each. Unit No.7 had been declared under commercial operation on 2.8.2011 and Unit No. 8 on 16.8.2012.

3. The Commission vide order dated 14.9.2016 in Petition No. 206/GT/2015 had revised the tariff of the generating station for the period 2009-14 after truing-up of the additional capital expenditure in terms of Regulation 6 (1) of the 2009 Tariff Regulations, considering the capital cost of ₹497784.79 lakh as on 31.3.2014. The annual fixed charges approved by the said order dated 14.9.2016 is as under:

Annual Fixed Charges

(₹ in lakh)

	2011-12	2012-13		2013-14
	2.8.2011 to 31.3.2012	1.4.2012 to 15.8.2012	16.8.2012 to 31.3.2013	
Depreciation	15970.47	15719.02	34235.02	34802.87
Interest on Loan	15120.79	14924.81	32727.03	30333.07
Return on Equity	9033.28	11296.35	24642.82	19927.35
Interest on Working Capital	3924.85	3976.04	10326.90	10231.02
O&M Expenses	7265.00	7680.00	15360.00	16240.00
Cost of Secondary fuel oil	1833.41	1828.40	4092.01	4092.01
Total	**53147.81**	**55424.61**	**121383.78**	**115626.31**
Share of Common office expenses	50.47	95.93	95.93	80.65
Contribution and Interest on Sinking fund	0.00	1109.22	1109.22	1842.31
Adjustment Secondary fuel oil	30.91	324.84	440.24	659.48
Total	**53229.18**	**56954.60**	**123029.17**	**118208.75**

4. The petitioner vide affidavit dated 16.7.2015 has filed this petition for approval of tariff of the generating station in accordance with the provisions of the 2014 Tariff Regulations. Accordingly, the capital cost and the annual fixed charges claimed by the petitioner are as under:

Capital Cost

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital cost	493394.41	495694.47	495694.47	495694.47	495694.47
Additional capital expenditure	2300.06	0.00	0.00	0.00	0.00
Closing Capital cost	495694.47	495694.47	495694.47	495694.47	495694.47
Average Capital cost	494544.44	495694.47	495694.47	495694.47	495694.47

Annual Fixed Charges

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	38243.75	38332.68	38332.68	38332.68	38332.68
Interest on Loan	27797.82	23639.01	19671.52	15739.53	11798.98
Return on Equity	25217.94	25285.60	25285.60	25285.60	25285.60
Interest on Working Capital	10230.91	10351.22	10333.89	10323.12	10314.01
O&M Expenses	16000.00	17010.00	18080.00	19220.00	20430.00
Share of common office expenditure	208.76	194.64	248.00	363.90	412.33
Share of pension and gratuity	5760.59	12037.25	12037.25	12037.25	12037.25
Interest & Contribution on Sinking Fund	1971.27	2109.26	2256.91	2414.89	2583.93
Additional O&M due to CISF security mega insurance and share of subsidiary activities.	628.74	717.81	854.82	967.08	1027.54
Total	**126059.78**	**129677.58**	**127100.66**	**124684.05**	**122222.34**

5. In compliance with the directions of the Commission, the petitioner has filed additional information and has served copies on the respondents. The respondent KSEB has filed its reply in the matter. We now proceed to examine the claim of the petitioner based on the submissions of the parties and the documents available on record as discussed in the subsequent paragraphs.

Capital cost

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 the regulation shall form the basis of determination of tariff for existing and new projects. Clause (3) of Regulation 9 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) xxxx*
> *(c) xxxx*

7. The closing capital cost considered by the Commission as on 31.3.2014 in order dated 14.9.2016 in Petition No. 206/GT/2015 is ₹493784.79 lakh. This amount has been considered as the opening capital cost as on 1.4.2014 for computation of tariff for the period 2014-19.

Projected Additional Capital Expenditure for the period 2014-19

8. Clause (3) of Regulation 7 of the 2014 Tariff Regulations provides that the application for determination of tariff shall be based on admitted capital cost including any additional capital expenditure already admitted upto 31.3.2014 (either based on actual or projected additional capital expenditure) and estimated additional capital expenditure for the respective years of the tariff period 2014-15 to 2018-19. 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 of statutory authorities responsible for national security/internal security;*

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

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

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

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

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

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

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

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

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

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

9. The break-up details of the projected additional capital expenditure claimed by the petitioner for the period 2014-19 are as under**:**

(₹ in lakh)

Head of Work/ Equipment	Regulation under which claimed	Additional capital expenditure claimed				
		2014-15	2015-16	2016-17	2017-18	2018-19
Boiler & Auxiliary						
Quick erect scaffolding system	14(1)(iii)	281.50	0.00	0.00	0.00	0.00
Hydraulic puller	14(1)(iii)	2.87	0.00	0.00	0.00	0.00
Spares of ID fan bearing like liner assy, thrust plate, aux. seal kit, end cap kit etc.	14(1)(iii)	40.00	0.00	0.00	0.00	0.00
Mill body liner	14(1)(iii)	10.00	0.00	0.00	0.00	0.00
Wear plate of ID fan impeller	14(1)(iii)	50.00	0.00	0.00	0.00	0.00
TG & Auxiliary						
Spares for Condenser Vacuum pump	14(1)(iii)	162.91	0.00	0.00	0.00	0.00
Spares for Main MDBFP & TDBFP and their booster pump	14(1)(iii)	36.09	0.00	0.00	0.00	0.00
Spares for HP Bypass System	14(1)(iii)	78.83	0.00	0.00	0.00	0.00
Filter elements for primary water and generator seal oil system	14(1)(iii)	7.41	0.00	0.00	0.00	0.00
Spares of LP bypass Valve	14(1)(iii)	652.62	0.00	0.00	0.00	0.00
Cartridge assembly of boiler feed pump	14(1)(iii)	240.00	0.00	0.00	0.00	0.00
Electrical system(Inside power house)						
Spares for motorized actuator	14(1)(iii)	63.00	0.00	0.00	0.00	0.00
Numerical Relays for LT system	14(1)(iii)	10.00	0.00	0.00	0.00	0.00
Spares for 220V & 24V chargers	14(1)(iii)	15.00	0.00	0.00	0.00	0.00
Spare LT Motor	14(1)(iii)	43.00	0.00	0.00	0.00	0.00
Spare LT Breaker	14(1)(iii)	8.00	0.00	0.00	0.00	0.00
Spare Full Actauator	14(1)(iii)	65.00	0.00	0.00	0.00	0.00
Electronic controller for ESP	14(1)(iii)	4.85	0.00	0.00	0.00	0.00
ESP Mechanical spares	14(1)(iii)	30.00	0.00	0.00	0.00	0.00
Induction Heater	14(1)(iii)	3.50	0.00	0.00	0.00	0.00
Electrical System (400 KV Switch yard)						
400 VK Surge Arrestors	14(1)(iii)	4.52	0.00	0.00	0.00	0.00
SF6 Gas Handling and measuring devices	14(1)(iii)	42.28	0.00	0.00	0.00	0.00
Electrical System (Outside Power House)						

Three Phase Sq. Cage Induction Motor(Boiler Fill Pump & Condensate Trf. Pump)	14(1)(iii)	1.80	0.00	0.00	0.00	0.00
AHP Section						
Spares of Ash handling system	14(1)(iii)	37.00	0.00	0.00	0.00	0.00
Spares of Transport air compressor of AHP	14(1)(iii)	91.17	0.00	0.00	0.00	0.00
Mechanical Maintenance-Outside power House (CW System, plant water package, etc.)						
Different spares of plant water system	14(1)(iii)	110.00	0.00	0.00	0.00	0.00
Spares of Fire System	14(1)(iii)	20.00	0.00	0.00	0.00	0.00
Chemical Lab						
Dew point Meter	14(1)(iii)	3.00	0.00	0.00	0.00	0.00
Dissolved Oxygen Meter	14(1)(iii)	9.00	0.00	0.00	0.00	0.00
Portable Tri gas analyser	14(1)(iii)	8.00	0.00	0.00	0.00	0.00
Power House Civil						
Construction of the CHP shed	14(1)(ii)	45.00	0.00	0.00	0.00	0.00
Construction of R.C.C. pavement at the adjacent place of the both sides of track hopper : 3 along with R.C.C. drain beside fuel oil pipe line	14(1)(ii)	123.72	0.00	0.00	0.00	0.00
Total		2300.06	0.00	0.00	0.00	0.00

10. From the above table, it is observed that the petitioner has claimed projected additional capital expenditure of ₹2300.06 lakh (₹2131.34 lakh towards initial spares and ₹168.72 lakh towards deferred civil works) within the original scope of work during 2014-15 i.e. upto cut-off date of the generating station (31.3.2015). However, the petitioner has not claimed any projected additional capital expenditure for the period 2015-19. The petitioner has claimed projected additional capitalization of ₹2131.34 lakh in 2014-15 towards initial spares which includes spares of Boiler & auxiliary, TG& auxiliary, Mechanical Maintenance of outside power House (CW System, plant water package, etc.), chemical lab, Electrical system (inside and outside of power house) and Electrical system of 400 KV switchyard under Regulation 14(1)(iii) of the 2014 Tariff Regulations.

11. The petitioner was directed vide ROP of the hearing dated 12.1.2016 to furnish the details and the value of initial spares procured up to cut-off date. In response, the petitioner vide affidavit

dated 27.1.2016 has furnished the value of capital spares transferred to fixed assets as ₹9120.35 lakh up to 31.3.2015 (cut-off date). The capital cost as on 31.3.2015 is ₹484197.48 lakh. It is observed that the value of initial spares as on cut-off date constitutes 1.88% of the capital cost as on cut-off date (31.3.2015) and the same is in order and is allowed in terms of Regulation 14(1) (iii) of the 2014 Tariff Regulations.

12. The petitioner has also claimed projected additional capital expenditure of ₹168.72 lakh (₹45.00 lakh towards deferred work of CHP shed and ₹123.72 lakh towards deferred works of civil work of RCC drain beside fuel oil pipeline) in 2014-15 against deferred civil work within the cut-off date of the generating station under Regulation 14(1)(ii) of the 2014 Tariff Regulations. Since, the projected additional capital expenditure of ₹168.72 lakh in 2014-15 is within the original scope of work and the cut-off date of the generating station, the same is in order and is allowed under Regulation 14(1)(ii) of the 2014 Tariff Regulations.

13. Based on the above discussions, the projected additional capital expenditure allowed for the period 2014-19 in respect of above assets is as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
2300.06	0.00	0.00	0.00	0.00

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

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital cost	493784.79	496084.85	496084.85	496084.85	496084.85
Add: Additional Capital Expenditure	2300.06	0.00	0.00	0.00	0.00
Closing Capital cost	**496084.85**	**496084.85**	**496084.85**	**496084.85**	**496084.85**
Average Capital cost	494934.82	496084.85	496084.85	496084.85	496084.85

Debt-Equity Ratio

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

"19. Debt-Equity Ratio

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

Provided that:

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

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

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

16. Accordingly, the gross loan and equity amounting to ₹365418.25 lakh and ₹128366.53 lakh respectively as on 31.3.2014 as considered in order dated 14.9.2016 in Petition No. 206/GT/2014 has been considered as the gross normative loan and equity as on 1.4.2014. Hence, the normative debt equity ratio of 70:30 has been considered in the case of additional capital expenditure.

Return on Equity

17. 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% has been 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.

18. 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-tax return on equity = Base rate / (1-t)

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

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

19. The petitioner has claimed return on equity considering the base rate of 15.5% and effective tax rate of 19.61%. Since, no tax has been paid by the petitioner for the year 2014-15, the effective tax rate of 0.00% has been considered for the years from 2014-15 to 2018-19. This is subject to truing up. Accordingly, Return on Equity has been computed as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Notional Equity- Opening	128366.53	129056.55	129056.55	129056.55	129056.55
Addition of equity due to additional capital expenditure	690.02	0.00	0.00	0.00	0.00
Normative Equity-Closing	129056.55	129056.55	129056.55	129056.55	129056.55
Average Normative Equity	128711.54	129056.55	129056.55	129056.55	129056.55
Return on Equity (Base Rate)	15.500%	15.500%	15.500%	15.500%	15.500%
Tax Rate for respective years	0.000%	0.000%	0.000%	0.000%	0.000%
Rate of Return on Equity (Pre Tax)	15.500%	15.500%	15.500%	15.500%	15.500%
Return on Equity(Pre Tax)-Annualised	**19950.29**	**20003.77**	**20003.77**	**20003.77**	**20003.77**

Interest on loan

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

> ***26. Interest on loan capital**: (1) The loans arrived at in the manner indicated in regulation 19 shall be considered as gross normative loan for calculation of interest on loan.*
>
> *(2) The normative loan outstanding as on 1.4.2014 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2014 from the gross normative loan.*
>
> *(3) The repayment for each of the year of the tariff period 2014-19 shall be deemed to be equal to the depreciation allowed for the corresponding year/period. In case of Decapitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered up to the date of de-capitalization of such asset.*
>
> *(4) Notwithstanding any moratorium period availed by the generating company or the transmission licensee, as the case may be, the repayment of loan shall be considered from the first year of commercial operation of the project and shall be equal to the depreciation allowed for the year or part of the year.*
>
> *(5) The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio after providing appropriate accounting adjustment for interest capitalized:*
>
> *Provided that if there is no actual loan for a particular year but normative loan is still outstanding, the last available weighted average rate of interest shall be considered:*
>
> *Provided further that if the generating station or the transmission system, as the case may be, does not have actual loan, then the weighted average rate of interest of the generating company or the transmission licensee as a whole shall be considered.*
>
> *(6) The interest on loan shall be calculated on the normative average loan of the year by applying the weighted average rate of interest.*
>
> *(7) The generating company or the transmission licensee, as the case may be, shall make every effort to re-finance the loan as long as it results in net savings on interest and in that event the costs associated with such 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.*

21. Interest on loan has been worked out as mentioned below:

(a) The gross normative loan amounting to ₹365418.25 lakh has been considered as on 1.4.2014.

(b) Cumulative repayment of ₹72691.39 lakh as on 31.3.2014 has been considered as on 1.4.2014.

(c) Accordingly, the net normative opening loan as on 1.4.2014 works out to ₹292726.86 lakh.

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

(e) Depreciation allowed for the period has been considered as repayment of normative loan during the respective years.

(f) In line with the provisions of the regulation, the weighted average rate of interest has been calculated 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.

22. The necessary calculations for the interest on loan are as under:

(₹ in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Gross opening loan	365418.25	367028.29	367028.29	367028.29	367028.29
Cumulative repayment of loan up to previous year	72691.39	107528.98	142447.52	177366.05	212284.59
Net Loan Opening	292726.86	259499.31	224580.78	189662.24	154743.71
Addition due to Additional capitalisation	1610.04	0.00	0.00	0.00	0.00
Repayment of loan during the year	34837.59	34918.54	34918.54	34918.54	34918.54
Net Loan Closing	259499.31	224580.78	189662.24	154743.71	119825.17
Average Loan	276113.09	242040.05	207121.51	172202.97	137284.44
Weighted Average Rate of Interest on Loan	10.4867%	10.3821%	10.3881%	10.4261%	10.4714%
Interest on Loan	**28955.20**	**25128.79**	**21515.93**	**17954.03**	**14375.58**

Depreciation

23. 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 on1.4.2014 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 license, as the case may be, shall submit the details of proposed capital expenditure during the fag end of the project (five years before the useful life) along with justification and proposed life extension. The Commission based on prudence check of such submissions shall approve the depreciation on capital expenditure during the fag end of the project.

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

24. Depreciation has been calculated considering the weighted average rate of depreciation computed on the gross value of asset as per rates approved by C&AG. The weighted average rate of depreciation @7.0388% has been considered for calculation of depreciation. The necessary calculations in support of depreciation are as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Average Capital Cost	494934.82	496084.85	496084.85	496084.85	496084.85
Depreciable value @ 90%	445441.33	446476.36	446476.36	446476.36	446476.36
Balance depreciable value	372749.94	338947.38	304028.85	269110.31	234191.77
Rate of Depreciation	7.0388%	7.0388%	7.0388%	7.0388%	7.0388%
Depreciation (annualized)	**34837.59**	**34918.54**	**34918.54**	**34918.54**	**34918.54**
Cumulative depreciation at the end	107528.98	142447.52	177366.05	212284.59	247203.12

O&M Expenses

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

(₹ in lakh/ MW)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
O & M expense Norms for 500 MW	16.00	17.01	18.08	19.22	20.43
Total O&M Expenses	16000.00	17010.00	18080.00	19220.00	20430.00

26. Accordingly, the normative O&M expenses claimed by the petitioner in terms of the said regulation is in order and allowed.

Water Charges

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

> "*29.(2) The Water Charges and capital spares for thermal generating stations shall be allowed separately:*
>
> *Provided that water charges shall be allowed based on water consumption depending upon type of plant, type of cooling water system etc., subject to prudence check. The details regarding the same shall be furnished along with the petition:*
>
> *Provided that the generating station shall submit the details of year wise actual capital spares consumed at the time of truing up with appropriate justification for incurring the same and substantiating that the same is not funded through compensatory allowance or special allowance or claimed as a part of additional capitalisation or consumption of stores and spares and renovation and modernization*

28. 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.

29. The petitioner vide affidavit dated 16.7.2015 has not claimed projected water charges for the period 2014-19. However, the Commission vide ROP of hearing dated 12.1.2016 directed the petitioner to furnish the details of water charges, if any, type of cooling water system, water consumption, rate of water charges from COD of Unit-7 and the petitioner vide affidavit dated 27.1.2016 has submitted the details as under:

Year	Type of cooling system	Water consumed approx. in (cu mtr)	Rate of water charges (₹/cu.mtr)	Total water charges (₹)
2014-15	Closed circuit, natural cooling	25639790	5.70	146146803

30. It is evident from the above that the petitioner has not furnished details of actual water charges, water consumption etc. for the period from COD of Unit-7 (2.8.2011) to 31.3.2014, but has instead furnished the estimated water consumption, water charges for the year 2014-15 only. In the absence of water charges data relating to the year 2012-13 (i.e. from COD of station) and 2013-14 and since the generating station is new, the water charges claimed by the petitioner has been compared with the claim for water charges by NTPC for the period 2014-19 for similar capacity size project namely Talcher-I Super Thermal Power Station (1000 MW) located in the same region (Petition No. 281/GT/2014). In respect of Talcher-I STPS, NTPC had claimed the following water charges:

Description	Remarks
Type of Plant	Coal
Type of cooling water system	Closed circuit cooling
Consumption of water	27.39 Cusec (24459272 Cu. mtr)
Rate of water charges	₹5.6/Cum
Total water charges in 2013-14	₹2000.34 lakh

31. It is observed that the consumption of water by NTPC for Talcher is 24459272 cu.m as against the estimated consumption of 25639790 cu.m claimed by the petitioner for this generating station. The estimated water consumption and water charges claimed is comparable with the water charges claimed by NTPC for similar capacity plant of Talcher-I located in the same region. Accordingly, the projected water charges claimed by the petitioner for 2014-15 is allowed and considered for the period 2015-19 also. Based on this, the water charges allowed for the period 2014-19 for the generating station is as under:

Year	Projected Quantity Considered (KL) (2)	Rate (₹/KL) (3)	Projected Water charge Computed *(₹in lakh)* (4)= (2)x(3)
2014-15	25639790	5.70	1461.47
2015-16	25639790	5.70	1461.47
2016-17	25639790	5.70	1461.47
2017-18	25639790	5.70	1461.47
2018-19	25639790	5.70	1461.47

32. The water charges allowed as above is subject to truing -up at the end of the tariff period for which the petitioner is directed to place on record all relevant information.

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

(₹in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19	Total
O&M Expenses as claimed	16000.0	17010.0	18080.0	19220.0	20430.0	90740.0
O&M Expenses as allowed	16000.0	17010.0	18080.0	19220.0	20430.0	90740.0
Water Charges as claimed	1461.46	0.0	0.0	0.0	0.0	1461.47
Water Charges as allowed	1461.47	1461.47	1461.47	1461.47	1461.47	7307.35
Total O&M expenses claimed (including Water charges)	17461.46	17010.0	18080.0	19220.0	20430.0	91931.47
Total O&M expenses allowed (including Water charges)	**17461.47**	**18471.47**	**19541.47**	**20681.47**	**21891.47**	**98047.35**

Capital spares

34. 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 of tariff, shall be considered on merits, after prudence check.

Operational Norms

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

Target Availability (%)	83.00
Heat Rate (kcal/kwh)	2375.00
Auxiliary Energy Consumption (%)	5.25
Specific Oil Consumption (ml/ kwh)	0.50

36. The operational norms claimed by the petitioner are discussed as under.

Normative Annual Plant Availability Factor

37. Regulation 36 of the 2014Tariff Regulations provides as under:

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

Provided that in view of the shortage of coal and uncertainty of assured coal supply on sustained basis experienced by the generating stations, the NAPAF for recovery of fixed charges shall be 83% till the same is reviewed.

The above provision shall be reviewed based on actual feedback after 3 years from 01.04.2014.

38. The petitioner has considered the Target Availability of 83% for the period 2014-19. The Commission due to shortage of domestic coal supply has relaxed the Target Availability norm to 83% for first 3 years from 1.4.2014 and the same shall be reviewed after 3 years. Accordingly, in

terms of the Regulation 36(A) of the 2014 Tariff Regulations, the Target Availability of 83% is considered for the period 2014-17 and 85% for the period 2017-19.

Heat Rate (kcal/kwh)

39. Regulation 36(C)(a) of the 2014 Tariff Regulations provides the Gross Station Heat Rate as under:

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

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

= 1.045 X Design Heat Rate (kCal/kWh)

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

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

40. The petitioner has claimed the Gross Station Heat Rate (GSHR) of 2375 kCal/kWh. In terms of above regulation and on the basis of as submitted guaranteed design gross turbine cycle heat rate of 1944.5 kCal/kWh and boiler efficiency of 85.68%in Form-2 of the petition, the GSHR is worked out as 1.045 X (1944.5/0.8568) = 2371.61 kCal/ kWh. The Commission vide order dated 20.3.2015 in Petition No. 89/GT/2011 approved the station heat rate of 2408 kCal/kWh for the period 2009-14 which is more than 2371.61 kCal/ kWh, the station heat rate worked out for the period 2014-19 based on the 2014 Tariff Regulations. Hence, GSHR of 2371.61 lCal/kWh for the period 2014-19 is allowed in terms of above.

Auxiliary Power Consumption

41. Regulation 36(E)(a) of Tariff Regulations, 2014 provides Auxiliary Power Consumption of 5.25% for coal based generating stations of 500 MW sets with Natural Draft cooling tower or without cooling tower with steam driven BFP. Accordingly, the Auxiliary Energy Consumption considered by the petitioner is in order and is allowed.

Specific Oil Consumption

42. Regulation 36(D)(a) of the 2014 Tariff Regulations provides for secondary fuel oil consumption of 0.50 ml/kWh for coal-based generating station. Hence, the secondary fuel oil consumption considered by the petitioner is as per norms and is allowed.

Interest on Working Capital

43. 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*
>
> *(a) Coal based/lignite fired thermal generating stations*
>
> *i) Cost of coal towards stock for 15 days for pit-head generating stations and 30 days for non-pit-head generating station for generation corresponding to the normative annual plant availability factor or the maximum coal stock storage capacity whichever is lower.*
>
> *ii) Cost of coal for 30 days for generating corresponding to the normative annual plant availability factor.*
>
> *iii) Cost of secondary fuel oil for two month for generating 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.*
>
> *iii) Maintenance spares @ 20% of operation and maintenance expenses specified in regulation 29.*
>
> *iv) Receivables equivalent to two months of capacity charge and energy charge for sale of electricity calculated on normative plant availability factor; and*
>
> *vi) Operation and maintenance expenses for one month."*

Fuel Cost and Energy Charges in working capital

44. The petitioner has claimed the cost for fuel component in working capital based on price and 'as fired GCV' of coal procured and burnt for the preceding three months i.e January, 2014, February, 2014 and March, 2014 and secondary fuel oil for the preceding three months i.e. January, 2014, February, 2014 and March, 2014 as follows:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of Coal for 2 months	24750.24	24750.24	24750.24	24750.24	24750.24
Cost of Secondary fuel oil 2 months	370.37	371.39	370.37	370.37	370.37

45. The issue of 'as received' GCV for computation of energy charges was challenged by NTPC and other generating companies through writ petition in the Hon'ble High Court of Delhi. The writ

petition was heard on 7.9.2015 and Hon’ble High Court of Delhi had directed that the Commission shall decide the place from where the sample of coal should be taken for measurement of GCV of coal on as received basis within 1 month on the request of petitioners.

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

> *“58. In view of the above discussion, the issues referred by the Hon’ble High Court of Delhi are decided as under:*
>
> *(a) There is no basis in the Indian Standards and other documents relied upon by NTPC etc. to support their claim that GCV of coal on as received basis should be measured by taking samples after the crusher set up inside the generating station, in terms of Regulation 30(6) of the 2014 Tariff regulations.*
>
> *(b) The samples for the purpose of measurement of coal on as received basis should be collected from the loaded wagons at the generating stations either manually or through the Hydraulic Auger in accordance with provisions of IS 436(Part1/Section1)-1964 before the coal is unloaded. While collecting the samples, the safety of personnel and equipment as discussed in this order should be ensured. After collection of samples, the sample preparation and testing shall be carried out in the laboratory in accordance with the procedure prescribed in IS 436(Part1/Section1)-1964 which has been elaborated in the CPRI Report to PSERC.”*

47. Further, the petitioner has claimed Energy Charge Rate (ECR) of 221.78 paise/kWh based on the weighted average price, GCV of coal (as received) & oil procured and burnt for the preceding three months. It is observed that the petitioner has not placed on record the GCV of coal on “as received‟ basis taken from the loaded wagons at the unloading point, though the petitioner was statutorily required to furnish such information with effect from 1.4.2014. In compliance with the direction of the Hon’ble High Court of Delhi, the Commission in its order dated 25.1.2016 in Petition No. 283/GT/2014 has clarified that the measurement of GCV of coal on as received basis shall be taken from the loaded wagons at the unloading point either manually or through the Hydraulic Augur. The petitioner has not submitted the required data regarding measurement of GCV of coal in compliance with the directions contained in the said order dated 25.1.2016. The present petition cannot be kept pending till the petitioner submits the required information. Hence, the Commission has decided to compute the energy charges by provisionally taking the GCV of coal on as ‘billed basis’ and allowing on adjustment for total moisture as per the formula given as under:

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

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

48. In view of the above, the cost for fuel components in working capital have been computed at 83% NAPAF for the years 2014-15, 2015-16 and 2016-17 and at 85% NAPAF for the year 2017-18 & 2018-19 and based on 'as billed' GCV of coal and price of coal procured and secondary fuel oil for the preceding three months from January, 2014 to March 2014 and allowed as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of Coal for stock-30 Days	8687.16	8687.16	8687.16	8896.49	8896.49
Cost of Coal for Generation-30 Days	8687.16	8687.16	8687.16	8896.49	8896.49
Cost of Secondary fuel oil 2 months	370.37	371.39	370.37	379.30	379.30

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

Sl. No.		Unit	2014-19
1	Capacity	MW	**1000**
2	Weighted average Gross Station Heat Rate	Kcal/kWh	2371.61
3	Weighted average Aux. Energy Consumption	%	5.25
4	Weighted average GCV of oil (As fired)	Kcal/lit	10162.99
5	Weighted average GCV of Coal (As Billed)	Kcal/kg	5039
6	Adjustment on account of coal received at the generating station for equilibrated basis (Air dried) in the billed GCV of Coal India		*
7	Weighted average price of oil	Rs/KL	61127.45
8	Weighted average price of Coal	Rs/MT	3095.28
9	**Rate of energy charge ex-bus**	**Paise/kWh**	**156.648****

**to be calculated by the petitioner based on the adjustment formulae*
***to be revised as per the figures at Sr. No. 6*

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

51. 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
17980.51	18029.77	17980.51	18413.770	18413.77

52. Therefore, the Fuel Component and Energy Charges allowed in Working Capital is as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of Coal for 60 days	17374.32	17374.32	17374.32	17792.98	17792.98
Cost of Secondary fuel oil 2 months	370.37	371.39	370.37	379.30	379.30
Energy Charges for 2 months	17744.69	17745.71	17744.69	18172.28	18172.28

Maintenance Spares

53. The petitioner has claimed maintenance spares in the working capital as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
3200	3402	3616	3844	4086

54. Regulation 28(1)(a)(iv) of the 2014 Tariff Regulations provide for maintenance spares @ 20% of the operation & maintenance expenses as specified in Regulation 29. As specified in Regulation 29 (2) of the 2014 Tariff Regulations, the maintenance spares @ 20 % of the operation & maintenance expenses, including water charges, is allowed are as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
3492.29	3694.30	3908.29	4136.30	4378.30

Receivables

55. 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	17980.51	18029.77	17980.51	18413.77	18413.77
Fixed Charges – 2 months	18191.88	17742.33	17314.59	16928.90	16532.96
Total	**36172.38**	**35772.10**	**35295.10**	**35342.67**	**34946.73**

O & M Expenses (1 month)

56. O&M expenses for 1 month claimed by the petitioner for the purpose of working capital are as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
1333.33	1417.50	1506.67	1601.67	1702.50

57. Regulation 28(a)(vi) of Tariff Regulations, 2014 provides Operation and maintenance expenses for one month for coal-based generating station. The One (1) month O&M expenses including water charges as allowed for tariff purpose is as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
1455.12	1539.29	1628.46	1723.46	1824.29

Rate of interest on working capital

58. 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."*

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

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of coal – 60 days	17374.32	17374.32	17374.32	17792.98	17792.98
Cost of secondary fuel oil – 2 months	370.37	371.39	370.37	379.30	379.30
O&M expenses – 1 month	1455.12	1539.29	1628.46	1723.46	1824.29
Maintenance Spares	3492.29	3694.29	3908.29	4136.29	4378.29
Receivables – 2 months	36172.38	35772.10	35295.10	35342.67	34946.73
Total working capital	**58864.49**	**58751.39**	**58576.54**	**59374.70**	**59321.59**
Rate of interest	13.5000%	13.5000%	13.5000%	13.5000%	13.5000%
Interest on working capital	**7946.71**	**7931.44**	**7907.83**	**8015.58**	**8008.42**

Other Elements of tariff

60. In addition, the petitioner has claimed expenditure towards Cost of Common Offices, Pension & Gratuity contribution and contribution and interest on sinking funds. We now discuss and decide these elements as detailed below:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Share of Common Office Expenditure	208.76	194.64	248.00	363.90	412.33
Share of P&G & impact of pay revision	5760.59	12037.25	12037.25	12037.25	12037.25
Share of Additional O&M due to mega insurance , CISF expenditure & expenditure for subsidiary activity	628.74	717.92	854.82	967.08	1027.54

Share of Common Office Expenditure

61. The petitioner has claimed the projected expenditure of ₹208.76 lakh during 2014-15, ₹194.64 lakh during 2015-16, ₹248.00 lakh during 2016-17, ₹363.90 lakh during 2017-18 and

₹412.33 lakh during 2018-19 and apportioned to Mejia 7&8 towards Common Office Expenditure which includes expenditure on Direction Office, Central Office, Other Offices, subsidiary activities, IT and R&D. The apportioned amount of share of Common Office expenditure includes return on equity, depreciation and interest on loan on the Common assets. The generating station is a new 1000 MW station for which normative O&M as specified under the 2014 Tariff Regulation, includes Corporate Office expenses also and under Corporate Office expenses, depreciation and interest on loan has also been included. Accordingly, the normative O&M expense for 500 MW unit size as allowed to the generating station includes the expenditure for Common Offices in respect of depreciation and interest on loan. As per special provisions relating to DVC generating stations specified under the Regulation 53 of 2014 Tariff Regulations and also as per the order of Tribunal dated 27.11.2007 in Appeal no 273/2006, the Common Office expenditure are to be allowed for the purpose of determination of tariff. The petitioner has furnished the details of total 'Office Expenditure' in respect of the generating stations and T&D systems are as under:

(₹ in lakh)

	2014-15	**2015-16**	**2016-17**	**2017-18**	**2018-19**
Total Common Office Expenditure for generating stations (A)	1327.15	1237.36	1576.57	2313.40	2621.28
Total Common Office Expenditure for T&D (B)	85.96	80.15	102.12	149.84	169.79
Total Common Office Expenditure for generating stations and T&D C=(A+B)	1413.11	1317.51	1678.69	2463.24	2791.07
Total Depreciation for generating stations and T&D (D)	653.42	508.66	581.41	783.58	843.91
Total Interest on loan for generating stations and T&D (E)	170.12	178.61	314.28	631.45	757.52
Total **Return on equity** on for generating stations and T&D (F)	589.56	630.24	783.00	1048.21	1189.64
Total of Depreciation, Interest on Loan and ROE of Generating Station and T&D (G)	1413.11	1317.51	1678.69	2463.24	2791.07
Return on equity corresponding to the generating stations only **(**A/C**)***F (H)	553.17	591.67	735.37	984.25	1116.67
Apportionment of the common office expenditure as claimed to Mejia 7&8 including depreciation, interest on loan and ROE. (I)	208.76	194.64	248.00	363.90	412.33
Apportioned amount of only 'Return on Equity' corresponding to the generating station (I/A)xH (J)	87.10	93.11	115.67	154.86	175.75

62. The Commission has considered the O&M norms for this generating station as specified for 500 MW units including the expenditure for Common Offices in respect of depreciation and interest

on loan. Therefore, only return on equity has been allowed as computed in the above table. Accordingly, return on equity of ₹87.01 lakh in 2014-15, ₹93.07 lakh in 2015-16, ₹115.68 lakh in 2016-17, ₹154.82 lakh in 2017-18 and ₹175.65 lakh in 2018-19 is allowed as part of share of Common office expenditure and annual fixed charges for the generating station.

(₹ in lakh

2014-15	2015-16	2016-17	2017-18	2018-19
68.84	73.59	91.43	122.40	138.91

Share of Pension and Gratuity

63. The petitioner has claimed of ₹5760.59 lakh in 2014-15, ₹12037.25 lakh in 2015-16, ₹12037.25 lakh in 2016-17, ₹12037.25 lakh in 2017-18 and ₹12037.25 lakh in 2018-19 apportioned to the generating station towards share of Pension & Gratuity. The Commission has already considered the pension and gratuity expenses under wage revision during the period 2009-14 therefore, petitioner is not entitled to claim share of pension and gratuity separately. These expenses may be met through normative O&M expenses allowed to the generating station.

64. The Commission in order dated 29.7.2016 in Petition No. 464/GT/2014 had observed that these expenses may be met through the normative O&M Expenses allowed to the generating station. In view of this the share of pension and gratuity is not allowed.

Additional O&M due to CISF Security, Mega Insurance and share of Subsidiary Activities

65. The petitioner has claimed the following projected expenditure during 2014-19 against the additional O&M due to CISF Security, Mega Insurance and share of Subsidiary Activities.

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Mega Insurance	113.99	113.99	125.39	147.56	162.31
Additional claim for share of subsidiary activity	514.75	603.93	729.43	819.52	865.23
Total	**628.74**	**717.92**	**854.82**	**967.08**	**1027.54**

66. The Commission vide ROP of hearing dated 22.1.2016 directed the petitioner to furnish the detailed justification for the additional expenditure incurred on CISF security, details of mega insurance and details of the subsidiary activities along with the details of the O&M expenditure of the generating station during the period since COD of Unit-7. In response, the petitioner vide

affidavit dated 29.1.2016 has submitted that some items of additional O&M expenses like Mega Insurance, CISF security and subsidiary activities was allowed in order dated 9.7.2013 in Petition No. 269/GT/2012.

67. We have examined the submissions of the petitioner. In terms of the statement of reasons in support of the 2014 Tariff Regulations, the Commission observed as under:

"…29.39 Some of the generating stations have suggested that site specific factors should be taken into account and additional O&M expenses should be allowed. The Commission is of the view that the site specific norms in case of thermal generating stations may not serve much purpose as there is a set of advantages and disadvantages associated with every site, which average out, and the proposed norms are also based on multiple stations with wide geographical spread and therefore, such aspects are already factored in the norms…"

68. In line with the above observations and in accordance with the 2014 Tariff Regulations, the additional O&M expenses claimed by the petitioner has not been considered.

Contribution & interest on sinking fund

69. Section 40 of the DVC Act provides that the petitioner shall make provision for depreciation and for reserve and other funds at such rates and on such terms as may be specified by the C&AG in consultation with the Central Government. Regulation 43(2)(iv) of the 2009 Tariff Regulations provides as under:

> ***"Funds under Section 40 of the Damodar Valley Corporation Act, 1948****: The Fund(s) established in terms of section 40 of the Damodar Valley Corporation Act, 1948 shall be considered as items of expenditure to be recovered through tariff*."

70. As per judgment of the Appellate Tribunal for Electricity (Tribunal) dated 23.11.2007 in Appeal No. 273/2006, sinking fund, established with the approval of Comptroller and Accountant General of India vide letter dated December 29, 1992 under the provision of Section 40 of the DVC Act, 1948 is to be taken as an item of expenditure to be recovered through tariff. Accordingly, the contribution towards sinking fund created for redemption of bond was allowed in order dated 6.7.2015 in Petition No. 219/GT/2014. The relevant portion of the order is extracted as under:

> *"87. It emerges from the above that the funds are being managed outside and the interest which accrues on the investment are being credited to the fund annually. Hence the claim of*

the petitioner towards interest on sinking fund cannot be considered as there is no actual cash outlay towards interest. Accordingly, the amount allowed towards contribution to the sinking fund has been worked out as under"

71. Accordingly, the contribution towards sinking fund has been allowed as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
1971.27	2109.26	2256.91	2414.89	2583.93

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

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	34837.59	34918.54	34918.54	34918.54	34918.54
Interest on Loan	28955.20	25128.79	21515.93	17954.03	14375.58
Return on Equity	19950.29	20003.77	20003.77	20003.77	20003.77
Interest on Working Capital	7946.71	7931.44	7907.83	8015.58	8008.42
O&M Expenses	17461.47	18471.47	19541.47	20681.47	21891.47
Total	**109151.26**	**106454.00**	**103887.53**	**101573.38**	**99197.76**
Share of Common office expenses	68.84	73.59	91.43	122.40	138.91
Contribution and Interest on Sinking fund	1971.27	2109.26	2256.91	2414.89	2583.93
Total	**111191.37**	**108636.85**	**106235.87**	**104110.68**	**101920.61**

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

Month to Month Energy Charges

73. Clause 6 sub-clause (a) of Regulation 30 of the 2014 Tariff Regulations provides for computation and payment of Capacity Charge and Energy Charge for thermal generating stations:

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

(a) For coal based and lignite fired stations

ECR = {(GHR – SFC x CVSF) x LPPF / CVPF+SFC x LPSFi + LC x LPL} x 100 / (100 – AUX)

Where,

AUX = Normative auxiliary energy consumption in percentage.
CVPF = Gross calorific value of primary fuel as received, in kCal per kg, per litre or per standard cubic metre, as applicable.
CVSF = Calorific value of secondary fuel, in kCal per ml.
ECR = Energy charge rate, in Rupees per kWh sent out.
GHR = Gross station heat rate, in kCal per kWh.
LC = Normative limestone consumption in kg per kWh.
LPL = Weighted average landed price of limestone in Rupees per kg.
LPPF = Weighted average landed price of primary fuel, in Rupees per kg, per

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

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

Application Fee and Publication Expenses

76. The petitioner has sought the reimbursement of filing fee and also the expenses incurred towards publication of notices for application of tariff for the period 2014-19. The petitioner has deposited the filing fees of ₹44,00,000/- each for the year 2014-15 and 2015-16 in terms of the provisions of the Central Electricity Regulatory Commission (Payment of Fees) Regulations, 2012. Accordingly, in terms of Regulation 52 of the 2014 Tariff Regulations and in line with the decision in Commission's order dated 5.1.2016 in Petition No. 232/GT/2014, we direct that the petitioner shall be entitled to recover *pro rata,* the filing fees and the expenses incurred on publication of notices for the period 2014-15 directly from the respondents on submission of documentary proof. The filing fees for the remaining years of the tariff period 2015-19 shall be recovered *pro rata* after deposit of the same and production of documentary proof.

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

78. Petition No. 207/GT/2015 is disposed of in terms of the above.

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