

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 296/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: 28th February, 2017

In the matter of

Approval of tariff of Koderma Thermal Power Station, Units-I & II (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) North Delhi Power Ltd.,
33 kV Sub-Station Building
Hudson Lane, Kingsway Camp,
New Delhi-110009

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

...Respondents

Parties present:

For Petitioner: Shri D.K. Aich, DVC
Shri A.Biswas, DVC
Shri B.P.Kazal, DVC

For Respondents: None



ORDER

The petition has been filed by the petitioner, DVC for approval of tariff of Koderma Thermal Power Station, Unit Nos. I & II (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-I was declared under commercial operation on 18.7.2013 and Unit-II on 14.6.2014. The Commission vide order dated 6.7.2015 in Petition No.219/GT/2013 had approved the tariff of the generating station for the period from 18.7.2013 (COD of Unit-I) to 31.3.2014. Thereafter, the Commission by order dated 22.8.2016 in Petition No. 295/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 ₹241750.50 lakh as on 31.3.2014. Accordingly, the annual fixed charges approved by order dated 22.8.2016 for the period from 18.7.2013 to 31.3.2014 is as under:

	(₹ in lakh)
	2013-14
	18.7.2013 to 31.3.2014
Depreciation	16876.50
Interest on Loan	20669.88
Return on Equity	7215.17
Interest on Working Capital	4484.48
O&M Expenses	8120.00
Cost of Secondary Fuel Oil	1991.60
Total	59357.63
Share of Common Office Expenditure	40.32
Share of Pension and Gratuity	0.00
Contribution & interest on Sinking fund	4375.48
Adjustment for Secondary fuel oil	365.06
Additional O&M expenses due to CISF Security, Mega Insurance and share of Subsidiary Activities	2397.65
Total	66536.15

3. The petitioner vide affidavit dated 24.11.2015 has sought the 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)

	1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015 (COD of Unit-II)	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	241750.50	528173.14	528218.51	539018.51	582418.51	603518.51
Add: Additional capital expenditure	0.00	1751.86	10800.00	43400.00	21100.00	15500.00
Add: Discharge of Liability	13001.96	7068.13	0.00	0.00	0.00	0.00
Less: Reversal of liability	13546.86	8774.62	0.00	0.00	0.00	0.00
Closing Capital Cost	241205.60	528218.51	539018.51	582418.51	603518.51	619018.51
Average Capital Cost	241478.05	528195.82	533618.51	560718.51	592968.51	611268.51

Annual Fixed Charges

(₹ in lakh)

	1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015 (COD of Unit-II)	2015-16	2016-17	2017-18	2018-19
Depreciation	3541.60	30463.41	38602.40	40562.83	42895.83	44219.66
Interest on Loan	3370.32	28942.99	33073.71	30753.83	28675.85	25358.50
Return on Equity	2880.22	24774.44	31393.49	32987.82	34885.13	35961.75
Interest on working capital	502.77	6713.28	9739.79	9833.45	9970.86	10041.38
O & M expenses	1621.92	12756.16	17010.00	18080.00	19220.00	20430.00
Share of Common office expenses	23.55	185.21	194.64	248.00	363.90	412.33
Share of Pension and Gratuity and impact of pay revision	649.82	5110.76	12037.25	12037.25	12037.25	12037.25
Contribution & Interest on Sinking fund	528.13	4153.64	5009.49	5360.15	5735.37	6136.84
Additional O&M expenses	389.70	3064.91	3673.97	3907.27	4155.38	4419.25
Total	13508.03	116164.80	150734.74	153770.60	157939.57	159016.96

4. In compliance with the directions of the Commission, the petitioner has filed additional information and has served copies on the respondents. None of the respondents have filed replies 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.



Commissioning Schedule and Time Overrun

5. The Commission vide order dated 6.7.2015 in Petition No.219/GT/2013 had approved the tariff of the generating station for the period from 18.7.2013 (COD of Unit-I) to 31.3.2014 and had examined in detail the time overrun involved in Unit-I of the generating station. The zero date of the project has been considered as the date of issue of LOA i.e.29.6.2007 and the schedule COD has been considered as 35 months for Unit-I and 38 months for Unit-II from the date of LOA as detailed under:

Unit	Date of LOA (Form 5D)	Commissioning Schedule from LOA (months)	Schedule date of COD	Actual COD	Time overrun (months)
I	29.6.2007	35	29.5.2010	18.7.2013	37.5
II		38	29.8.2010	14.6.2014	45.5

6. It is observed from the above that out of time overrun of 37.5 months in case of Unit I, the Commission had condoned 8.5 months which were found beyond the control of the petitioner and time overrun of 29 months was disallowed. As the question of time overrun of Unit-I of the generating station was decided by Commission's order dated 6.7.2015 in Petition No.219/GT/2013, the same has not been discussed in this order.

7. As regards Unit-II of the generating station, it is observed that there is time overrun of 45.5 months. However, the petitioner has neither submitted the reasons nor any justification for the time-overrun of 45.5 months involved in the COD of Unit-II of the generating station. Accordingly, the Commission vide ROP of the hearing dated 16.2.2016 directed the petitioner to furnish additional information as under:

(iv) Reasons and the justification for time overrun (45.5 months) from the schedule COD to the actual COD of Unit-II and the agency responsible for the delay of each activity, along with PERT and Bar charts of the project commissioning activities;

(v) The implication of time overrun on cost, if any, separately indicating the details of increase in prices of different packages, increase in IDC & IEDC from the scheduled COD to the actual COD of Unit-II;

8. In response, the petitioner vide affidavit dated 21.3.2016 has furnished reasons for time overrun along with the delay analysis indicating the activities delayed, the reasons for the delay and the corresponding delay on account of the delay in each of the activities as summarized under:



(in months)

Reason for Delay										
Sl.No	Activities	Baseline duration	Actual duration	Delay	Initial land	Law& order	Land for water system	Contractor problem	Fire incident	Land for ash pond
1	Zero date	21.7.2007								
2	Boiler Erection start	12	19	7	3	4	0	0	0	0
3	Drum lifting	17	24	7	3	4	0	0	0	0
4	Boiler Hydro test	28	38	10	3	4	3	0	0	0
5	Turbine Box-up	33	60	27	3	4	0	20	0	0
6	Boiler light-up	34	57	23	3	5	15	0	0	0
7	Steam blowing completion	36	67	31	3	6	15	7	0	0
8	Oil synchronization	37	67.5	30.5	3	6	15.5	6	0	0
9	Coal synchronization	37	67.5	30.5	3	6	15.5	6	0	0
10.	COD	38	83.5	45.5	3	7	15.5	6	5	9

9. The petitioner, in justification for the delay of 45.5 months for Unit-II has submitted that the COD of Unit-I was declared on 18.7.2013 depending on the Contingency Ash pond due to non-availability of ash pond land and the same was completed during May, 2013. It has however submitted that the contingency ash pond was not sufficient for running the two units of the generating station simultaneously and this led to the delay in the declaration of COD of Unit-II of the generating station and the said unit was finally declared under commercial operation on 14.6.2014. However, despite the directions of the Commission, the petitioner has not furnished any justification for the delay in each activity resulting in the time overrun as above.

Analysis and Decision

10. We have examined the matter. The Commission vide order dated 6.7.2015 in Petition No. 219/GT/2013 had determined the tariff of Unit-I of the generating station after examining the reasons for delay in activities such as boiler drum lift and the hydro test, T.G foundation, CHP, water package, Start-up power Availability, Power evacuation work, Readiness of Rail Track and Ash pond problem which was due to un-availability of land and forest clearance. However, reasons like stiff resistance of local people, problem of law and order, delay in transportation system for coal through Rail etc. which was common for both the units for time overrun up to 18.7.2013(COD of



Unit-I) was attributed to the petitioner. Accordingly, the Commission, after examining the above reasons which affected the activities of Units-I and II, had by the said order concluded that out of the delay of 37.5 months up to COD of Unit-I, only a delay of 8.5 months (4 months due to non-readiness of Rail and 4.5 months due to strike/local disturbance) was not attributable to the petitioner. Based on this, the time overrun allowed for Unit-I in the said order was as under:

Schedule COD as per LOA	Actual COD	Time overrun considering SCOD (months)	Time over run allowed (months)	SCOD for IDC computation
29.5.2010	18.7.2013	37.5	8.5	14.2.2011

11. The petitioner in this petition has furnished selectively details of the activities which had been delayed in the commissioning of Unit-II along with reasons for the delay and number of months each activity was delayed, for various reasons. However, the petitioner has not furnished any justification and/or reasons for the problems which had arisen, details of the steps taken by the petitioner to mitigate the problem, the agency responsible for the delay along with documentary evidence to substantiate that the problems encountered during the execution of the project were beyond the control of the petitioner. In addition to this, Bar chart along with schedule start and completion date of activities has not been furnished by the petitioner, in the absence of which, it is not possible to examine/analyze the exact period of delay. Moreover, no new reason / justification has been furnished by the petitioner in support of the delay of 45.5 months in COD of Unit-II (which were discussed in case of Unit-I), except for the delay of 9 months due to non-availability of regular ash pond land and 5 months for major fire incident. As regards delay due to incidence of fire, the petitioner has not furnished any details regarding the place/area and date of fire including the activities which were affected by fire. Hence, in the absence of documentary evidence and proper justification, the delay due to fire is not considered.

12. As regards the delay of 11 months for the period from 18.7.2013 (COD of Unit-I) to 14.6.2014 (COD of Unit-II/station) in the declaration of COD of Unit-II, the petitioner has submitted that main ash pond was delayed due to non-availability of ash pond land. However, the petitioner has not furnished any justification as to why the land could not be acquired for about five years after the



LOA dated 29.6.2007 along with documentary evidence indicating the efforts taken by the petitioner with authorities/agencies for timely acquirement of land.

13. As stated, the Commission vide order dated 6.7.2015 in Petition No. 219/GT/2013 had examined/ analyzed the reasons furnished by the petitioner for delay such as non-availability of land, local disturbance, law & order problem, delay due to railway, forest clearance, teething troubles etc. common for both the units including non-availability of ash pond land for time overrun up to 18.7.2015 (COD of Unit-I) and had observed as under:

“Ash Pond Problem

31. The petitioner has submitted that the delay under this head is due to the stiff resistance by local people and delay in land acquisition, contingency pond construction, clay unavailability, restriction by the State Pollution Control Board etc. It is observed from the documents that a major portion of land for ash pond (175.09 acre) was acquired on 12.4.2012 which is 9 months (approx) after the coal synchronization of Unit-I. It is also noticed that the declaration of land acquisition was made in January, 2010 unlike other lands for power plant for which declaration was made in January/ February, 2007. Though it appears that there was delay in the initiation of land acquisition process for ash pond, no explanation has been submitted by the petitioner justifying the delay. Also, no documentary evidence showing the correspondences made and the efforts taken by the petitioner with the concerned authorities for making land available has been submitted. The petitioner has submitted that the ash disposal work within the main plant was stopped by the Jharkhand State Pollution Control Board due to overflow of water in the nearby villages. However, no documents justifying the period of stoppage of work has been furnished. In the absence of documentary evidence and information, it appears that there has been slackness in the project management and the delay on this count cannot be said to beyond the control of the petitioner. There has been lack of diligence on the part of the petitioner in project management and the consequent delay is attributable to the petitioner. Accordingly, the delay on this count has not been condoned. The delay is attributable to the petitioner and is therefore covered by the principle [(situation (i))] of the judgment of the Tribunal dated 27.4.2011 and the entire cost for time overrun for this period is required to be borne by the petitioner. However, the LD /Insurance proceeds recovered in such cases may be retained by the petitioner.

14. In line with the above decision and in the absence of any documentary evidence justifying the reasons for the delay, we are of the considered view that the delay in COD of Unit-II cannot be said to be beyond the control of the petitioner and is therefore attributable to the petitioner. Accordingly, the delay of 11 months from COD of Unit-II for the period from 18.7.2013 to 14.6.2014 is not condoned.

15. In respect of activities which are common to both units up to COD of Unit-I (18.7.2013), it is observed that out of the total time overrun of 37.5 months in the completion of Unit-I, a delay of 4 months due to non-readiness of Rail track by ECR (from 13.10.2010 to 7.2.2011) and delay of 4.5



months due to strike/local disturbances (i.e a total delay of 8.5 months) was condoned by the Commission in order dated 6.7.2015 on the ground that the delay was due to factors which were beyond the control of the petitioner and hence not attributable to the petitioner.

16. As stated above, the time overrun of 11 months from 18.7.2013 (COD of Unit-I) to 14.6.2014 (COD of Unit-II) is attributable to the petitioner and has accordingly not been condoned. Accordingly, in case of Unit-II, out of the total time overrun of 45.5 months, a delay of 8.5 months has been condoned and the balance time overrun of 37 months has not been condoned. The petitioner can retain the LD recovered if any, from the contractor, for the period of delay which has not been condoned by the Commission.

17. Based on above discussions, the time overrun allowed (against the actual time overrun) for Unit-II and the schedule COD as has been revised for the purpose of computation of IDC due to time overrun as under:

Schedule COD as per LOA	Actual COD	Time overrun considering SCOD (months)	Time over run allowed (months)	SCOD (reset) for IDC computation
29.8.2010	14.6.2014	45.5	8.5	13.5.2011

Admissibility of additional Return on Equity

18. The petitioner has submitted that the date of Investment Approval is 21.7.2007 but has not submitted any documentary evidence or the copy of the original investment approval in support of this submission. Since, the date of LOA for main plant package is shown as 29.6.2007, accordingly, this date has been considered as the date of Investment Approval, since LOA is normally placed on the date of Investment Approval or within a short time from the date of Investment Approval. The actual COD of the Unit-I and Unit-II is 18.7.2013 and 14.6.2014 respectively. Accordingly, Unit-I has been declared under commercial operation after 72.5 months and Unit-II has declared under commercial operation after 83.5 months from the date of LOA (29.6.2007). In order to avail additional ROE of 0.5%, the time line as specified under the 2009 Tariff Regulations is 44 months for the first Unit of 500 MW for Greenfield Projects and for subsequent Units at an interval of 6 months. Since, both the units have been declared under commercial operation beyond the time line



specified under the 2009 Tariff Regulations. Therefore, the generating station is not entitled to additional return of 0.5% on equity granted for timely completion in terms of the 2009 Tariff Regulations.

Impact of time overrun on contract price, IDC and IEDC

19. The Commission vide ROP of the hearing dated 16.2.2016 had directed the petitioner to submit details of implication of time overrun on cost if any, separately indicating the details of increase in price of different packages and increase in IDC & IEDC from the scheduled COD to the actual COD of Unit-II. In response, the petitioner vide affidavit dated 21.3.2016 has submitted the details of increase in price of different packages from the scheduled COD to the actual COD of Unit-II as detailed under:

	As on schedule COD	As on actual COD of Unit-II (14.6.2014)
Main Plant EPC package	3293.52	3289.11
CHP-EPC Package	329.88	331.92
Plant water system-EPC EPC package	166.77	157.47
Railway infrastructure	194.78	168.98
Township & Misc. civil work	357.00	153.28
Total	4341.95	4100.75

20. The details of the increase in price of different packages from the scheduled COD to the actual COD of Unit-II as furnished by petitioner is in terms of the revised cost approved in the 595th Board meeting of the Petitioner Company on 5.3.2011 and is not as per details of price of different packages in original Investment approval. However, the petitioner in Form-5D of the affidavit dated 30.11.2015 has furnished the package-wise cost as under:

	Value of award (in lakh)	Actual value as on COD of Unit-II (in lakh)	Price (Firm/PVC)	Variation (in lakh)
Main plant Package	328053	336539	Firm	(+) 8486
CHP Package	32988	33192	PVC	(+) 204
Plant water package	16677	15747	PVC	(-) 930

21. It is observed from the above that the petitioner has not indicated the cost of Main Plant Package as approved in the original Investment Approval. However, the petitioner in Form-5D has furnished the cost of Main Plant Package as ₹3280.53 crore which was awarded on 29.6.2007 after



original investment approval. It appears that the cost of the award of Main Plant Package is same as that of the Cost of Main plant package as per original investment approval. However, there is increase of ₹8486 lakh in the Main Plant Package despite the fact that the prices were on firm basis. The variation of ₹204 lakh in CHP package is in our view, marginal, considering the fact that CHP package was on PVC basis and that there is reduction of ₹930 lakh in Plant Water Package system.

Adjustment of increase in cost of main plant package from awarded cost to actual cost as on COD of station

22. As stated there is an increase of ₹8486 lakh in the Main Plant Package despite the fact that the prices were on the firm basis. The Commission in order dated 6.7.2015 had deducted an amount of ₹2755.00 lakh against the increase in the cost of Main Plant Package while determining the tariff of Unit-I of the generating station. The Commission in the said order had observed that the value of award of Main Plant Package was ₹328053.00 lakh (firm basis) and that the actual expenditure as on COD of Unit-I was ₹333311.00 lakh and hence the Cost overrun was ₹5258.00 lakh (333311-328053). Also, the cost overrun for Unit-I on pro rata basis is ₹2755 lakh (5258 x 174664 /333311). In view of the above, the net deduction as on COD of Unit-II in the cost of Main Plant Package is considered as ₹5731.00 lakh (8486-2755).

23. As regards increase in IEDC, the petitioner has submitted that no separate head of IEDC has been maintained. However, the petitioner has furnished the total overhead expenses as ₹32102 lakh up to COD of generating station (14.6.2014). The Commission in its order dated 6.7.2015 has undertaken a *pro rata* reduction in the increase in Overhead charges due to time overrun up to the COD of Unit-I. Therefore, the *pro rata* reduction in Overhead charges up to COD of Unit-I (18.7.2013) has been adjusted while considering the increase in total establishment charges up to COD of generating station. Accordingly, the adjustment of increase in overheads due to disallowed time overrun of 37 months is as under:

(₹ in lakh)

As on COD	Total time taken from zero date to actual COD (months)	Time overrun disallowed (months)	Overhead Expenses as on COD	Overhead Expenses for Unit-I and II separately	Pro rata reduction = (col.4x col.3) / col.2
Unit-I (18.7.2013)	72.5	29	14759	14759	5903.60
Unit-II / Station (14.6.2014)	83.5	37	32102	17343 (32102-14759)	7684.92



Capital Cost

24. The Board of the Petitioner Corporation in its resolution dated 26.8.2006 has approved the Project cost of ₹4313.00 crore, including IDC of ₹476.07 crore and Margin money of ₹100.00 crore. The same was revised by the Board of the Petitioner Corporation vide resolution dated 5.3.2011, wherein the Project cost of ₹5583.08 crore including IDC of ₹591.82 crore and Margin money of ₹158.67 crore was approved. Thereafter, by resolution dated 11.9.2015, the Board of the Petitioner Corporation had approved the Revised Cost Estimate for ₹7831.28 crore, including IDC of ₹1675.00 crore. As regards increase in the original Investment Approval (as on 26.8.2006) in comparison to Revised Cost Estimate of the Project cost (revised on 11.9.2015), the petitioner has submitted the details as under:

(₹ in crore)

	Original investment approval cost as on 26.8.2006	Revised cost as on 5.3.2011	Revised cost as on 11.9.2015	Change/variation
Land	No separate land cost was considered	85.09	296.53	296.53
Preliminary expenses on investigation and survey work	No such expenses considered	4.79	3.51	3.51
EPC	3309.45	3908.03	4010.93	701.48
Non-EPC including Overhead and others	427.01	834.68 (86.72:overhead; 747.96 :Non-EPC)	1845.31 (294.49:overhead; 1550.82 :Non-EPC)	1418.30
IDC	476.07	591.82	1675.00	1198.93
Working capital margin money	100.00	158.67	0.00	(-)100.00
Total (Including Working capital margin money)	4312.53	5583.08	7831.28	3518.75

25. It is observed from the above that there is total increase of ₹3518.75 crore from the original Investment Approval (as on 28.8.2006) as against the Revised Cost approved on 11.9.2015. The petitioner has submitted that the cost of ₹296.53 crore towards Land and ₹3.51 crore towards Preliminary expenses on investigation and survey work was not considered at the time of original Investment Approval (28.8.2006). As regards the increase of ₹701.48 crore towards EPC cost, the petitioner has clarified that the increase is based on the actual ICB tender and is attributable to the increase in market price during the intervening period from DPR (2002) to the award of contract in the years 2007 and 2008.



26. It is noticed that in the original Investment Approval, an amount of ₹427.01 crore has been envisaged by the petitioner under the common head of Non-EPC, including Overhead expenses and others. However, no bifurcation of this amount was furnished by the petitioner. In the Revised Cost approved on 11.9.2015, the Board of the Petitioner Corporation had approved an amount of ₹1845.31 crore which includes ₹446.80 crore for Township and Colony, ₹97.61 crore for Road and drainage, ₹466.65 crore for Railway Infrastructure by RITES, ₹305.23 crore for Construction and Pre-commissioning, ₹294.49 crore for Overhead expenses and ₹234.53 crore for Site development. The petitioner has submitted that the increase in non-EPC works is mainly on account of Railway and Road infrastructure as well as Township and there has been increase in the scope of work for Railway and Road based on the DPR of M/s RITES. It has also submitted that the increase in Overhead expenses is attributable to the Establishment cost due to time overrun of the Project and Start-up fuel. The petitioner has further submitted that there has been new/ additional works amounting to ₹356.38 crore, which includes amounts of ₹35.75 crore against Contingent Ash pond, ₹12.98 crore against Price Variation allowed to M/s BHEL on account of the delay in handing over of Ash pond land, ₹24.54 crore for Initial spares, ₹0.25 crore for Hospital, ₹94.00 crore for additional Wagon tippler, ₹150.71 crore for Rail linkage, ₹25.83 crore for Roads and Civil works and ₹12.32 crore for Water supply under SIP. The increase of ₹1198.93 crore in IDC is on account of time overrun of 45.5 months from the schedule COD to the actual COD. The margin money of ₹100 crore as per the original investment approval has not been considered by petitioner in the Revised Cost.

Capital Cost for Unit-I from 1.4.2014 to 13.6.2014

27. 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



28. The closing capital cost considered by the Commission in order dated 22.8.2016 in Petition No. 295/GT/2015 is ₹241750.50 lakh as on 31.3.2014 which does not include any addition for Unit-I assets during the period from 1.4.2014 to 13.6.2014 and only includes un-discharged & discharged liabilities. This amount has been considered as the opening capital cost as on 1.4.2014 for computation of tariff of the generating station for the period 2014-19.

Initial Spares

29. Regulation 13 of the 2014 Tariff Regulations provides as under:

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

(a) Coal-based/lignite-fired thermal generating stations - 4.0%

*(b) Gas Turbine/Combined Cycle thermal generating stations - 4.0%
Provided that:*

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

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

30. The Commission vide ROP of the hearing dated 16.1.2016 had directed the petitioner to furnish details of initial spares capitalized as on COD of generating station (14.6.2014) and claimed up to the cut-off date of the generating station. In response, the petitioner vide affidavit dated 21.3.2016 has submitted that the initial spares capitalized as on 14.6.2014 (COD of Unit-II) is ₹8429.27 lakh.

31. The petitioner has not furnished the cost of Plant and Machinery separately for computation of initial spares of the project. However, in terms of above regulations, the cost of Plant and Machinery for the project is worked out as under:

		(₹ in lakh)
A	Audited project cost as on (COD of Unit-II)	509705.20
B	Amount of IDC, FC & Hedging cost included in (A) above	47994.32
C	Amount of overhead included in (A) above	26199
D	Land Cost in (A) above	17491
E	Civil work in (A) above	41037
F	Plant and machinery cost as on COD(A-B-C-D-E)	376983.88
G	Admissible cost of Initial spares as on COD of Unit-II @ 4% of Plant and machinery cost (F*0.04)	15079.35
H	Initial Spares capitalized by petitioner as on COD of generating station (14.6.2014)	8429.27



32. Accordingly, initial spares of ₹8429.27 lakh capitalised by the petitioner up to the COD of the generating station is within the ceiling norm as specified under the regulations and hence allowed. However, the petitioner is directed to furnish the details of initial spares capitalized up to the cut-off date at the time of truing-up in terms of Regulation 8 of the 2014 Tariff Regulations.

Sale of infirm power

33. The Commission vide ROP dated 16.2.2016 had directed the petitioner to furnish the details of the revenue earned (excluding fuel cost) from sale of infirm power as on the COD of Unit-II. In response, the petitioner vide affidavit dated 21.3.2016 has submitted that the revenue from sale of infirm power is ₹7608.04 lakh and the same has been adjusted with the start-up fuel cost. As the revenue generated from sale of infirm power, from the date of synchronization to COD of Unit-II of the generating station has already been adjusted from the capital cost, no further deduction is made on this count.

Liquidated Damages

34. The Commission vide ROP dated 16.2.2016 had directed the petitioner to furnish the details of Liquidated Damages (LD) recovered under various packages and in response, the petitioner vide affidavit dated 21.3.2016 has submitted that till date, no LD has been recovered under any of the packages of the generating station. Accordingly, no adjustment on account of LD has been considered at this stage.

35. Accordingly, after adjustment of pro-rata reduction of overhead cost and the reduction due to increase in the Main plant package cost as on COD of Unit-II/ generating station, the capital cost is worked out as under:

		Actual capital expenditure of Unit-II/ Station as on COD (14.6.2014) (₹ in lakh)
A	Capital cost including IDC & FC, FERV & hedging cost (A)	509705.20
B	Less: deduction in cost due to increase in main plant package	5731.00
C	Less: IDC in (A) above	47994.32
D	Less: Overheads in (A) above	7684.92
E	Hard Cost	448294.96
F	Cost per MW	4.48 crore/MW



Reasonableness of Capital Cost

36. The benchmark Hard cost specified by the Commission in the order dated 4.6.2012 for coal based thermal power project is ₹4.71 crore/MW for two units of the 500MW each. Based on the information submitted by the petitioner in Form 5B, the hard cost as on COD (14.6.2014) after deduction of IDC, Overheads and Main plant civil work, on account of time overrun, is worked out as ₹4.48 crore/MW (4482.94/1000). This hard cost of ₹4.48 crore/MW as worked out is less than the benchmark cost of ₹4.71 crore/MW as specified by the Commission. Further, the capital cost of the project has been compared with other similar capacity green field projects of Durgapur Steel Thermal Power Project of DVC and Maithon Power Ltd. as under:

Station	Capacity (MW)	Station COD	Completed Cost as per Investment Approval by Board (₹ in crore)	Approved cost ₹ incrore/MW	Hard Cost as on COD of Station as approved by Commission/ as claimed by DVC/MPL/ APCPL (₹ in crore)	₹crore/ MW
					Hard Cost	
Durgapur Steel Thermal of DVC	2x500	5.3.2013	5715.62	5.72	4691.38	4.69
MTPS, Unit-7 & 8 of DVC	2x500	16.8.2012	5286.27	5.27	4298.77	4.30
Maithon Right Bank of MPL	2X525	24.7.2012	5500.00	5.24	3634.45	3.46
Indira Gandhi Super TPS of APCPL	3x500	26.4.2013	8587.96	5.72	6459.79	4.31
KodermaTPS of DVC	2x500	14.6.2014	7831.28	7.83	4482.94	4.48

37. It is observed from the above, that the hard cost of the generating station is comparable with other similar size projects of Durgapur steel thermal power project of DVC, Indira Gandhi STPS of Arawali Power Company Limited and Maithon Right Bank of MPL, etc. and is within the benchmark cost as specified by the Commission. Accordingly, in our view, the capital cost (hard cost) of this generating station as on COD, in our view, is reasonable and has been considered for the purpose of tariff.



Projected Additional Capital Expenditure for the period 2014-19

38. Regulations 14 (1) of the 2014 Tariff Regulations, provides as under:

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

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

(ii) Works deferred for execution;

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

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

(v) Change in law or compliance of any existing law.

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

39. The additional capital expenditure claimed by the petitioner for the period 2014-19 is as under:

(₹in lakh)

	Regulation	2014-15 14.6.2014 (COD of Unit-II) to 31.3.2015 (Actual)	2015-16	2016-17	2017-18	2018-19	Total
			Projected				
Plant & machinery	14(1)(ii)	1751.86	0.00	0.00	0.00	0.00	1751.86
Land	14(1)(ii)	0.00	4000.00	11000.00	0.00	0.00	15000.00
Main plant package (Ash pond spill over jobs)	14(1)(ii)	0.00	2500.00	3700.00	3600.00	0.00	9800.00
Overhead	14(1)(ii)	0.00	600.00	400.00	0.00	0.00	1000.00
Township	14(1)(ii)	0.00	1500.00	10500.00	7500.00	6500.00	26000.00
Road and other civil work	14(1)(ii)	0.00	700.00	2400.00	0.00	0.00	3100.00
R&R Compensation	14(1)(ii)	0.00	1000.00	10000.00	0.00	0.00	11000.00
Construction of Wagon tippler with allied rail linkage	14(1)(ii)	0.00	0.00	4000.00	5000.00	0.00	9000.00
Pipradih Koderma rail linkage	14(1)(ii)	0.00	0.00	1000.00	5000.00	9000.00	15000.00
Socio-Economic Infrastructure	14(1)(ii)	0.00	500.00	400.00	0.00	0.00	900.00
Total		1751.86	10800.00	43400.00	21100.0	15500.0	77051.86



2014-15

40. The cut-off date of the generating station is 31.3.2017. It is observed that the petitioner has claimed actual additional capital expenditure of ₹1751.86 lakh in the year 2014-15 (14.6.2014 to 31.3.2015) against deferred works towards Plant and Machinery under Regulation 14(1)(ii) of the 2014 Tariff Regulations. The petitioner was directed to submit the detailed break-up of additional capital expenditure (year-wise and item-wise) with justification and the provisions of Regulation 14 of the 2014 Tariff Regulations under which the said expenditure has been claimed. However, the petitioner has not furnished the details/ bifurcation of the actual additional capital expenditure of ₹1751.86 lakh and the reconciliation along with gross block for the period from 14.6.2014 to 31.3.2015. Since the said expenditure claimed in respect of Plant and Machinery which are within the scope of work and before the cut-off date, these deferred works of ₹1751.86 lakh is allowed on projected basis. Hence, the claim of ₹1751.86 lakh from 14.6.2014 to 31.3.2014 is allowed under Regulation 14(1)(ii) of the 2014 Tariff Regulations on projected basis. However, the petitioner is directed to submit the bifurcation of additional capitalization of ₹1751.86 lakh and reconciliation along with gross block at the time of truing up of tariff in terms of Regulation 8 of the 2014 Tariff Regulations.

2015-17

41. The petitioner has claimed projected additional capital expenditure of ₹10800.00 lakh in 2015-16 and ₹43400.00 lakh in 2016-17 towards deferred works in respect of Land, Main plant package, Overhead, Township, Civil work, R&R, Rail Linkage and Socio-economic Infrastructure. In justification to the same, the petitioner has submitted that these are deferred works for execution and are within the original scope of work. Since, the projected additional capital expenditure of ₹10800.00 lakh in 2015-16 and ₹43400.00 lakh in 2016-17 is within the original scope of work and before the cut-off date of the generating station, the projected additional capital expenditure is allowed under Regulation 14(1)(ii) of the 2014 Tariff Regulations.

2017-19

42. The petitioner has claimed total projected additional capital expenditure of ₹21100.00 lakh (₹3600 lakh towards Ash pond spill over jobs, ₹7500 lakh towards Township, ₹5000 lakh towards



Wagon Tippler and ₹5000 lakh towards Rail Linkage) during the year 2017-18. The petitioner has also claimed total projected additional capital expenditure of ₹15500.00 lakh (₹6500 lakh towards Township and ₹9000 lakh for Rail Linkage) in 2018-19 towards deferred works after the cut-off date under Regulation 14(1)(ii) of the 2014 Tariff Regulations.

43. It is observed that the petitioner has claimed expenditure in respect of deferred works after the cut-off date of the generating station. It is noticed that the petitioner has not furnished any reasons and/or the justification for the delay in execution of the works beyond the cut-off date. Moreover, the provisions of the Regulation 14 (2) do not provide the capitalization of the deferred works after the cut-off date of the generating station. In this background, the claim of the petitioner for projected additional capital expenditure of ₹17500.00 lakh in 2017-18 towards Township, Wagon Tippler and Rail Linkage and total claim of ₹15500.00 lakh in 2018-19 after the cut-off date is not allowed. Accordingly, the claim of ₹Rs.3600 lakh in 2017-18 towards Ash pond spill over jobs is allowed under the Regulation 14(2)(iii) of the 2014 Tariff Regulations.

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

<i>(₹ in lakh)</i>				
14.6.2014 to 31.3.2015	2015-16	2016-17	2017-18	2018-19
45.36	10800.00	43400.00	3600.00	0.00

IDC & FC and Liabilities

45. The petitioner has submitted the details of liabilities included in the capital cost and variations are noticed in the liability amount furnished in this liability flow statement with the liability details in Form No. 9E of the petition. However, the amount of un-discharged liability has been considered as per Form 9E for the purpose of tariff. Accordingly, the capital cost after considering the allowable IDC&FC and liability adjustments works out as under:



(₹ in lakh)

	As on COD of Unit-II 14.6.2014
Capital Cost excluding IDC&FC	244915.83
Add: IDC & FC	10167.84
Add: FERV Loss / (Gain)	0.00
Capital cost on accrual basis	255083.67
Less: Un-discharged liabilities included above	544.90
Capital cost on cash basis	254538.77

Capital Cost

46. As stated the Commission vide order dated 22.8.2016 in Petition No. 295/GT/2015 had allowed the capital cost as on 31.3.2014 as ₹241750.50 lakh. Therefore, the opening capital cost as on 1.4.2014 is ₹241750.50 lakh. The petitioner has claimed the capital cost of ₹528173.14 lakh as on COD of Unit-II/ generating station (14.6.2014) which includes capitalization of ₹286967.54 lakh as on COD of Unit-II. However, due to pro-rata reduction in Overhead cost by ₹7684.92 lakh and in Main plant package by ₹5731.00 lakh due to time overrun the said amounts are deducted from the capital cost as on COD of Unit-II/ generating station. Accordingly, the opening capital cost as on 14.6.2014 (COD of Unit-II/ generating station) works out to ₹514757.22 lakh.

47. As per form 9E, it has been observed that there is no additions during the period from 1.4.2014 to 14.6.2014 and also no liability was discharged during this period. According, the capital cost has been worked out as under:

(₹ in lakh)

	2014-15		2015-16	2016-17	2017-18	2018-19
	1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015				
Opening Capital cost	241750.50	496289.28	496334.64	507134.64	550534.64	554134.64
Add: Additional Capital Expenditure	0.00	45.36	10800.00	43400.00	3600.00	0.00
Closing Capital cost	241750.50	496334.64	507134.64	550534.64	554134.64	554134.64
Average Capital cost	241750.50	496311.96	501734.64	528834.64	552334.64	554134.64

Debt-Equity Ratio

48. 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.”

49. Accordingly, the gross loan and equity amounting to ₹193848.82 lakh and ₹47901.68 lakh respectively as on 31.3.2014 as considered in order dated 22.8.2016 in Petition No. 295/GT/2015 has been considered as the gross normative loan and equity as on 1.4.2014. Considering the cumulative cash expenditure & debt position as on COD of Unit-II, the actual debt equity ratio works out to 83.93:16.07 as on COD of Unit-II. Hence, the normative debt equity ratio of 70:30 has been considered in the case of additional capital expenditure which may be reviewed on actual basis at the time of truing-up.

Return on Equity

50. 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.

51. 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:

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

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

(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.

52. 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)					
	1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015	2015-16	2016-17	2017-18	2018-19
Notional Equity- Opening	47901.68	79753.69	79767.30	83007.30	96027.30	97107.30
Addition of equity due to additional capital expenditure	0.00	13.61	3240.00	13020.00	1080.00	0.00
Normative Equity-Closing	47901.68	79767.30	83007.30	96027.30	97107.30	97107.30
Average Normative Equity	47901.68	79760.49	81387.30	89517.30	96567.30	97107.30



Return on Equity (Base Rate)	15.500%	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%	0.000%
Rate of Return on Equity (Pre Tax)	15.500%	15.500%	15.500%	15.500%	15.500%	15.500%
Return on Equity(Pre Tax)- Annualised	7424.76	12362.88	12615.03	13875.18	14967.93	15051.63

Interest on loan

53. 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.



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

(a) The gross normative loan amounting to ₹193848.82 lakh has been considered as on 1.4.2014.

(b) Cumulative repayment of ₹11882.90 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 ₹181965.91 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 regulations, 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 submitted by the petitioner has been considered for the purpose of tariff.

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

	(₹ in lakh)					
	1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015	2015-16	2016-17	2017-18	2018-19
Gross opening loan	193848.82	416535.59	416567.35	424127.35	454507.35	457027.35
Cumulative repayment of loan up to previous year	11882.90	29080.03	64119.29	99541.40	136876.74	175871.16
Net Loan Opening	181965.91	387455.56	352448.05	324585.95	317630.61	281156.18
Addition due to Additional capitalisation	0.00	31.75	7560.00	30380.00	2520.00	0.00
Repayment of loan during the year	17197.13	35039.26	35422.10	37335.34	38994.42	39121.50
Net Loan Closing	164768.79	352448.05	324585.95	317630.61	281156.18	242034.68
Average Loan	173367.35	369951.81	338517.00	321108.28	299393.40	261595.43
Weighted Average Rate of Interest on Loan	10.6040%	10.6040%	10.5871%	10.5669%	10.5425%	10.5123%
Interest on Loan	18383.91	39229.77	35838.98	33931.11	31563.45	27499.83

Depreciation

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

“27. Depreciation:

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



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

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

(3) The salvage value of the asset shall be considered as 10% and depreciation shall be allowed up to maximum of 90% of the capital cost of the asset: Provided that in case of hydro generating station, the salvage value shall be as provided in the agreement signed by the developers with the State Government for development of the Plant:

Provided further that the capital cost of the assets of the hydro generating station for the purpose of computation of depreciated value shall correspond to the percentage of sale of electricity under long-term power purchase agreement at regulated tariff: Provided also that any depreciation disallowed on account of lower availability of the generating station or generating unit or transmission system as the case may be, shall not be allowed to be recovered at a later stage during the useful life and the extended life.

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

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

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

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

(8) In case of de-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.”

57. 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 @7.1136% for 2014-15(01.04.2014 to 13.06.2014) and @7.0599% for 2014-15(14.06.2014 to 31.03.2015) to 2018-19 has been considered for calculation of depreciation. The necessary calculations in support of depreciation are as under:

	(₹ in lakh)					
	1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015	2015-16	2016-17	2017-18	2018-19
Average Capital Cost	241750.50	496311.96	501734.64	528834.64	552334.64	554134.64
Value of free hold land	6337.29	13454.95	13454.95	13454.95	13454.95	13454.95



Depreciable value @ 90%	211871.89	434571.31	439451.72	463841.72	484991.72	486611.72
Balance depreciable value	199988.99	422688.41	396146.87	385114.77	368929.42	331555.00
Rate of Depreciation	7.1136%	7.0599%	7.0599%	7.0599%	7.0599%	7.0599%
Depreciation	3486.54	27935.41	35422.10	37335.34	38994.42	39121.50
Depreciation (annualized)	17197.13	35039.26	35422.10	37335.34	38994.42	39121.50
Cumulative depreciation at the end	15369.44	43304.86	78726.96	116062.30	155056.72	194178.23

O&M Expenses

58. Regulation 29 (1) (a) of the 2014 Tariff Regulations provides the following O & M expense norms for coal based generating stations of 500 MW capacity:

	(₹ 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

59. Accordingly, the petitioner has claimed O&M expenses for the period 2014-19 as under:

2014-15		2015-16	2016-17	2017-18	2018-19
1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015				
1621.92	12756.16	17010.0	18080.0	19220.0	20430.0

60. The normative O&M expenses claimed by the petitioner are in terms of the 2014 Tariff Regulations and hence allowed.

Water Charges

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

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

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

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

62. 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.



63. The petitioner vide affidavit dated 24.11.2015 has not claimed water charges (on projected basis) for the period 2014-19. However, the Commission vide ROP of hearing dated 16.2.2016 had directed the petitioner to furnish the details of water charges, if any and the petitioner vide affidavit dated 21.3.2016 has submitted the details as under:

Year	Type of cooling system	Water use	Water consumed approx. in (cu mtr)	Rate of water charges (₹/cu.mtr)	Total water charges (₹)
2014-15	Closed circuit, natural cooling	Industrial	6554777.97	5.70	37362234
		Domestic	180000	1.15	207000
Total			6734777.97		37569234

64. From the above it is observed that the petitioner has furnished allocated quantity of water, water consumption and water charges for the year 2014-15 and has not claimed projected water charges for the period 2015-19 stating that the same will be submitted at the time of truing-up. It is also evident that the petitioner has not furnished the copy of notification showing the allocated quantity of water, rate of water charges and the copy of the bill/invoice in support of the actual water consumption/charges for the year 2014-15.

65. Considering the fact that water consumption data for only one year (2014-15) is not sufficient to project the water consumption for the period 2014-19, the water consumption of the generating station for the year 2014-15 has been compared with the water consumption norm as recommended by CEA. The CEA has recommended water consumption for 500 MW thermal power plant as under:

Plant water requirement in m³/h for 1000 MW station

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

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



66. Accordingly, the annual water consumption for 1000 MW thermal power station with wet cooling tower is worked out as $3 \times 1000 \times 8760 = 26280000$ KL (cu-m). The petitioner has furnished the total water consumption during 2014-15 as 6734777.97 Cu-m which is well within the CEA recommended water consumption norms.

67. The petitioner has claimed water charges for the generating station and has submitted that the water charges allowed by the Commission in Order dated 29.7.2016 in Petition No 294/GT/2014 (Simhadri STPS Stage-II) and Order dated 27.6.2016 in Petition No 270/GT/2014 (Simhadri STPS Stage-I) for the period 2014-19 are of the similar capacity (1000 MW) as of this generating station as under:

(₹ in lakh)

	Water charges claimed in the petition	Water charges allowed vide order dated 29.7.2016 in Petition No 294/GT/2014 (Simhadri-STPS-II)	Water charges allowed vide order dated 27.6.2016 in Petition No 270/GT/2014 (Simhadri-STPS-I)
2014-15	375.69	496.16	526.32
2015-16	0.00	520.97	552.64
2016-17	0.00	547.02	580.27
2017-18	0.00	574.37	609.28
2018-19	0.00	603.09	639.75

68. It is observed that the water charges claimed by the petitioner for the year 2014-15 is less than those allowed in respect of plants with similar capacity plants namely, Simhadri STPS Stage-I and Simhadri STPS Stage-II. Accordingly, the actual water consumption and actual water charges claimed by the petitioner for the year 2014-15 is allowed and the same is extended for the period 2015-19 on projected basis without any year-wise escalation. Based on this, the water charges allowed for the period 2014-19 is under:

Year	Type of water	Projected Quantity Considered (KL) (3)	Rate (₹/KL) (4)	Projected Water charge Computed (₹ in lakh) (5) = (3)x(4)	Total Water charge computed (₹ in lakh)
2014-15	Industrial	6554777.97	5.70	37362234	375.69
	Domestic	180000	1.15	207000	
2015-16	Industrial	6554777.97	5.70	37362234	375.69
	Domestic	180000	1.15	207000	
2016-17	Industrial	6554777.97	5.70	37362234	375.69
	Domestic	180000	1.15	207000	
2017-18	Industrial	6554777.97	5.70	37362234	375.69
	Domestic	180000	1.15	207000	
2018-19	Industrial	6554777.97	5.70	37362234	375.69
	Domestic	180000	1.15	207000	



69. 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.

70. 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)					
	1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015	2015-16	2016-17	2017-18	2018-19
O&M Expenses as claimed	1621.92	12756.16	17010.0	18080.0	19220.00	20430.00
O&M Expenses as allowed	1621.92	12756.16	17010.0	18080.0	19220.00	20430.00
Water Charges as claimed	0.00	0.00	0.00	0.00	0.00	0.00
Water Charges as allowed	42.38	333.31	375.69	375.69	375.69	375.69
Total O&M expenses claimed (including Water charges)	1621.92	12756.16	17010.00	18080.00	19220.00	20430.00
Total O&M expenses allowed (including Water charges)	1664.3	13089.47	17385.69	18455.69	19595.69	20805.69

Capital spares

71. 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

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

Target Availability (%)	83.00
Heat Rate (kcal/kwh)	2369.00
Auxiliary Energy Consumption (%)	5.25
Specific Oil Consumption (ml/ kwh)	0.50

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

Normative Annual Plant Availability Factor

74. 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.



75. 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)

76. Regulation 36(C)(b) (i) of the 2014 Tariff Regulations provides the Gross Station Heat Rate as under:

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

Provided also that where the boiler efficiency is below 86% for Sub-bituminous Indian coal and 89% for bituminous imported coal, the same shall be considered as 86% and 89% respectively for Sub-bituminous Indian coal and bituminous imported coal for computation of station heat rate.”

77. The petitioner has claimed the Gross Station Heat Rate (GSHR) of 2369kCal/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 83.23% in Form-2 of the petition. However, Regulation 36 (C) (b) (i) of the 2014 Tariff Regulations provides minimum boiler efficiency. Accordingly, the GSHR is worked out as $1.045 \times (1944.5/0.86) = 2362.79 \text{ kCal/kWh}$. The Commission vide order dated 6.7.2015 in Petition No. 219/GT/2013 had approved the Station Heat Rate of 2425kCal/kWh for the period 2013-14 which is more than the Station Heat Rate worked out as above for the period 2014-19 based on the 2014 Tariff Regulations. Hence, GSHR of 2362.79 kCal/kWh for the period 2014-19 has been allowed.

Auxiliary Power Consumption

78. 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

79. 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

80. 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

81. The petitioner has claimed the cost for fuel component for working capital for the period 1.4.2014 to 13.6.2014 based on price and “as received” GCV of coal procured and price and GCV of secondary fuel oil for the preceding three months of January, 2014, February, 2014 and March, 2014 for Unit-I and price & GCV of coal and price & GCV of secondary fuel oil for the preceding three months of March, 2014, April, 2014 and May, 2014 from the COD of Unit-II/generating station for computation of energy charges for the period from 14.6.2014 to 31.3.2015 as follows:



(₹ in lakh)

	1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015	2015-16	2016-17	2017-18	2018-19
Cost of Coal for 2 months	2459.39	16466.01	20709.83	20653.24	20653.24	20653.24
Cost of Secondary fuel oil 2 months	39.68	312.05	392.48	391.41	391.41	391.41

82. 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.

83. 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."

84. Further, the petitioner has claimed Energy Charge Rate (ECR) of 211.30paise/kWh for the period from 1.4.2014 to 13.6.2014 and 179.88 Paise/kWh for the period from 14.6.2014 to 31.3.2019 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

85. 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)					
	1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015	2015-16	2016-17	2017-18	2018-19
Cost of Coal for stock-60 Days	1983.24	15496.17	19436.77	19436.77	19905.13	19905.13
Cost of Secondary fuel oil 2 months	39.68	312.05	392.48	391.41	400.84	400.84

86. 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 for the period from 1.4.2014 to 13.6.2014 and March 2014 to May 2014 for the period from 14.6.2014 to 31.3.2019 is worked out as under:

Sl.No.	Description	Unit	1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015
1	Capacity	MW	1x500	2x500
2	Gross Station Heat Rate	Kcal/kWh	2362.79	2362.79
3	Aux. Energy Consumption	%	5.25	5.25
4	Weighted average GCV of oil (As fired)	Kcal/lit	10540	10540
5	Weighted average GCV of Coal (As Billed)	Kcal/kg	3802.12	3540.00
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	64599.17	64599.18
8	Weighted average price of Coal	Rs/MT	2639.95	2441.92
9	Rate of energy charge ex-bus	Paise/kWh	176.2**	175.0 **

*to be calculated by the petitioner based on the adjustment formulae

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



87. 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.

88. 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)

1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015	2015-16	2016-17	2017-18	2018-19
2050.46	16023.44	20153.20	20098.13	20582.43	20582.43

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

(₹ in lakh)

	1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015	2015-16	2016-17	2017-18	2018-19
Cost of Coal for 60 days	1983.24	15496.17	19436.77	19436.77	19905.13	19905.13
Cost of Secondary fuel oil 2 months	39.68	312.05	392.48	391.41	400.84	400.84
Energy Charges for 2 months	2022.92	15808.22	19829.25	19828.18	20305.97	20305.97

Maintenance Spares

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

(₹ in lakh)

1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015	2015-16	2016-17	2017-18	2018-19
1600	3200	3402	3616	3844	4086

91. 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)

1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015	2015-16	2016-17	2017-18	2018-19
1675.14	3275.14	3477.14	3691.14	3919.14	4161.14

Receivables

92. 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)

	1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015	2015-16	2016-17	2017-18	2018-19
Variable Charges -2 months	2050.81	16019.48	20148.21	20093.16	20577.33	20577.33
Fixed Charges – 2 months	8909.09	18402.51	18299.02	18702.92	18992.37	18549.65
Total	10959.90	34421.98	38447.23	38796.08	39569.70	39126.98

O & M Expenses (1 month)

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

(₹ in lakh)

1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015	2015-16	2016-17	2017-18	2018-19
666.67	1333.33	1417.50	1506.67	1601.67	1702.50

94. 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)

1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015	2015-16	2016-17	2017-18	2018-19
138.69	1090.78	1448.80	1537.97	1632.97	1733.81

Rate of interest on working capital

95. 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.”

96. 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)

	1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015	2015-16	2016-17	2017-18	2018-19
Cost of coal – 60 days	1983.24	15496.17	19436.77	19436.77	19905.13	19905.13
Cost of secondary fuel oil – 2 months	39.68	312.05	392.48	391.41	400.84	400.84
O&M expenses – 1 month	697.97	1364.64	1448.81	1537.97	1632.97	1733.81
Maintenance Spares	1675.14	3275.14	3477.14	3691.14	3919.14	4161.14
Receivables – 2 months	10959.90	34421.98	38447.23	38796.08	39569.70	39126.98
Total working capital	15355.92	54869.98	63202.43	63853.37	65427.78	65327.90
Rate of interest	13.5000%	13.5000%	13.5000%	13.5000%	13.5000%	13.5000%
Interest on working capital	2073.05	7407.45	8532.33	8620.20	8832.75	8819.27

Other Elements of tariff

97. 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)

	1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015	2015-16	2016-17	2017-18	2018-19
Share of Common Office Expenditure	23.55	185.21	194.64	248.00	363.90	412.33
Share of P&G & impact of pay revision	649.82	5110.76	12037.25	12037.25	12037.25	12037.25
Share of Additional O&M due to mega insurance, CISF expenditure & expenditure for subsidiary activity	389.70	3064.91	3673.97	3907.27	4155.38	4419.25

Share of Common Office Expenditure

98. The petitioner has claimed the projected expenditure of ₹208.76 lakh in 2014-15, ₹194.64 lakh in 2015-16, ₹248.00 lakh in 2016-17, ₹363.90 lakh in 2017-18 and ₹412.33 lakh in 2018-19 and has apportioned the same 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 capacity station and the normative O&M expense norm specified under the 2014 Tariff Regulations, includes Corporate Office expenses. Also the Corporate Office expenses include depreciation and interest on loan. As per Regulation 53 of 2014 Tariff Regulations relating to the generating station of the



petitioner and as per Order of the Appellate Tribunal of Electricity (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
Apportionment of the common office expenditure as claimed to generating station 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)	208.76	194.64	248.00	363.90	412.33

99. 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. Accordingly, Return on equity has been allowed as part of the share of Common office expenses and annual fixed charges for the generating station as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Total Return on equity for generating stations and T&D (F)	589.56	630.24	783.00	1048.21	1189.64
Return on equity corresponding to the generating stations only	553.17	591.67	735.37	984.25	1116.67
Apportionment of the common office expenditure as claimed to Koderma TPS including depreciation, interest on loan and ROE.	208.76	194.64	248.00	363.90	412.33
Return on equity corresponding to the Koderma TPS (1000MW) proportionate to the capacity of generating station.	87.10	93.11	115.67	154.86	175.75

100. Based on this, the amount allowed towards Return on equity element for allocation to this generating station under the head of cost of Common Offices Expenditure is as under:



(₹ 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

101. The petitioner has claimed expenditure 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 towards share of Pension & Gratuity apportioned to this generating station. Considering the fact that the P&G expenditure had been considered by the Commission under the wage revision during the period 2009-14 the petitioner is not entitled to claim share of pension and gratuity separately and these expenses may be met through normative O&M expenses allowed to the generating station. Also, 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

102. The petitioner has claimed the following projected expenditure during the period 2014-19 towards the additional O&M due to CISF Security, Mega Insurance and share of Subsidiary Activities as under:

(₹ in lakh)					
	2014-15	2015-16	2016-17	2017-18	2018-19
Ash Evacuation	0.03	0.0319	0.0339	0.0361	0.0384
Addl. O&M expenses for CISF	1815.43	1930.71	2053.30	2183.69	2322.35
Addl. Claim for share of subsidiary activity	1639.15	1743.23	1853.93	1971.65	2096.85
Total	3454.60	3673.97	3907.27	4155.38	4419.25

Ash Evacuation

103. The petitioner has claimed additional O&M expenses of ₹0.03 lakh in 2014-15 on actual basis and ₹0.0319 lakh in 2015-16, ₹0.0339 lakh in 2016-17, ₹0.0361 lakh in 2017-18 and ₹0.0384 lakh in 2018-19 on projected basis towards Ash evacuation. The generating station is a new station commissioned on 14.6.2014 and the petitioner was fully aware of the MOEF Notification 2009 (3.11.2009) that mandate 100% ash utilization to be ensured by the generator within a specific period by installation of dry ash and wet ash disposal system. The petitioner in our view should have taken necessary steps for installation of the evacuation system at the inception stage. Having not



done so, we find no reason to allow the said claim. Accordingly, the claim of additional O&M for ash evacuation is not allowed.

Additional O&M expenses for CISF

104. The petitioner has claimed additional O&M of ₹1815.43 lakh in 2014-15, ₹1930.71 lakh in 2015-16, ₹2053.30 lakh in 2016-17, ₹2183.69 lakh in 2017-18 and ₹2322.35 lakh in 2018-19 as additional O&M expenses towards deployment of CISF. It has submitted that the deployment of additional CISF personnel was to ensure security as the plant is situated in high alert security zones and adequate security measures have been recommended by appropriate authority.

105. It is noticed that the petitioner has not furnished the detailed bifurcation of the CISF manpower and the expenditure for deployment of CISF. The petitioner in our view, ought to have furnished the details of the expenditure incurred due to normal deployment of CISF required for the generating station in the undisturbed area and also the additional manpower and expenditure incurred for the deployment of the additional CISF personnel. In the absence of any details of deployment of additional CISF personnel and the expenditure to be incurred on them, we are not inclined to cover the claim of additional O&M expenses for deployment of CISF. However, the petitioner is granted liberty to approach the Commission with necessary details of deployment of CISF personnel and the expenditure incurred on deployment of CISF by appropriate authority at the time of truing-up of tariff in terms of Regulation 8 of the 2014 Tariff Regulations.

Additional Claim for share of Subsidiary activity

106. The petitioner has claimed additional O&M expenses of ₹1639.15 lakh in 2014-15, ₹1743.23 lakh in 2015-16, ₹1853.93 lakh in 2016-17, ₹1971.65 lakh in 2017-18 and ₹2096.85 lakh in 2018-19 towards share of subsidiary activity. It is noticed that the petitioner has not furnished the detailed bifurcation of the subsidiary activities. It is further noticed that the Commission in respect of generating station of the petitioner had allowed the additional O&M expenses pertaining to Conservation of Soil erosion. In the absence of any expenditure being proposed/ incurred towards conservation of soil erosion, the claim of the petitioner for additional O&M expenses towards



subsidiary activity is not allowed. Also, the Commission in the Statement of Reasons in support of the 2014 Tariff Regulations, has 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...”

107. In line with the above and in accordance with the provisions of the 2014 Tariff Regulations, the claim of additional O&M expenses has not been considered.

Contribution & Interest on sinking fund

108. 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.”

109. As per judgment of the 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 29.12.1992 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”

110. Based on the above, the contribution towards sinking fund has been allowed as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
4681.77	5009.49	5360.15	5735.37	6136.84



111. 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)					
	1.4.2014 to 13.6.2014	14.6.2014 to 31.3.2015	2015-16	2016-17	2017-18	2018-19
Depreciation	17197.13	35039.26	35422.10	37335.34	38994.42	39121.50
Interest on Loan	18383.91	39229.77	35838.98	33931.11	31563.45	27499.83
Return on Equity	7424.76	12362.88	12615.03	13875.18	14967.93	15051.63
Interest on Working Capital	2073.05	7407.45	8532.33	8620.20	8832.75	8819.27
O&M Expenses	1664.30	13089.47	17385.69	18455.69	19595.69	20805.69
Total	53454.54	110415.04	109794.13	112217.52	113954.24	111297.92
Share of Common office expenses	13.96	54.88	73.59	91.43	122.40	138.91
Share of Pension and Gatuity	0.00	0.00	0.00	0.00	0.00	0.00
Contribution and Interest on Sinking fund	4681.77	4681.77	5009.49	5360.15	5735.37	6136.84
Adjustment of O&M CISF security	0.00	0.00	0.00	0.00	0.00	0.00
Total	58205.15	115165.65	114877.21	117669.11	119812.01	117573.67

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

112. 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

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

Where,

AUX = Normative auxiliary energy consumption in percentage.

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

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

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

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

LC = Normative limestone consumption in kg per kWh.

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

LPPF = Weighted average landed price of primary fuel, in Rupees per kg, per

113. 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 in respect of tariff of Kahalgaon STPS (NTPC) for the period 2014-19.



114. The NTPC had 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 by the petitioner with the beneficiaries at the Senior Management level.

Application Fee and Publication Expenses

115. 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 total filing fees of ₹10439453/- each for the year 2014-15, 2015-16 and 2016-17 for Units-I & II 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 2017-19 shall be recovered *pro rata* after deposit of the same and production of documentary proof.

116. 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.

117. Petition No. 296/GT/2015 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

