

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 279/GT/2014

Coram:

**Shri A.S. Bakshi, Member
Dr. M. K. Iyer, Member**

Date of Hearing: 20.5.2016

Date of Order : 30.7.2016

In the matter of

Approval of tariff of Kahalgaon Super Thermal Power Station, Stage-I (840 MW) for the period from 1.4.2014 to 31.3.2019

And in the matter of

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

.....Petitioner

Vs

1. Bihar State Power Holding Company Limited
(erstwhile Bihar State Electricity Board)
Vidyut Bhawan, Bailey Road
Patna – 800 001
2. Jharkhand State Electricity Board,
Engineering Building,
HEC, Dhurwa, Ranchi – 834004
3. GRIDCO Limited
24, Janpath,
Bhubaneswar – 751007
4. Power Department
Govt. of Sikkim, Kazi Road,
Gangtok, Sikkim-737101
5. Assam Power Distribution Company Ltd.
Bijulee Bhawan, Paltan Bazar
Guwahati-781001.
6. Tamil Nadu Generation and Distribution Corporation Limited
NPKRP Maaligail
800, Anna Salai
Chennai – 600002



7. Uttar Pradesh Power Corp. Limited
Shakti Bhawan
14, Ashok Marg
Lucknow – 226001
8. Jaipur Vidyut Vitran Nigam Ltd (JVVN)
Vidyut Bhawan, Janpath
Jaipur 302 005
9. Ajmer Vidyut Vitran Nigam Ltd (AVVN)
Old Power House, Hathi Bhata
Jaipur Road, Ajmer
10. Jodhpur Vidyut Vitran Nigam Ltd (JdVVN)
New Power House Road, Industrial Area, Jodhpur
11. Power Development Department (J&K)
Govt. of J&K Secretariat, Srinagar
12. Haryana Power Purchase Centre (HPPC)
Shakti Bhawan, Sector-VI, Panchkula
Haryana-134109
13. Punjab State Power Corporation Limited
The Mall, Patiala- 147001
14. BSES Rajdhani Power Ltd.
BSES Bhawan, Nehru Place
New Delhi-110019
15. BSES Yamuna Power Ltd.
Shakti Kiran Bldg., Karkardooma, Delhi
16. Tata Power Delhi Distribution Ltd.
NDPL House, Hudson Lane,
Kingsway Camp,
Delhi-110009.

...Respondents

Parties present:

- For Petitioner: Shri Ajay Dua, NTPC
Shri T. Vinod Kumar, NTPC
Shri Bhupinder Kumar, NTPC
Shri Rajeev Chaudhary, NTPC
Shri Sukhjinder Singh, NTPC
- For Respondents: Shri Varun Shankar, Advocate, TPDDL
Shri Alok Shankar, Advocate, TPDDL
Shri S. Vallinayagam, Advocate, TANGEDCO
Shri Jayaprakash, TANGEDCO
Shri R.B. Sharma, Advocate, GRIDCO, BSPHCL, BRPL
Shri Manish Garg, UPPCL, BYPL
Shri Abhishek Srivastava, BYPL



Shri Kanishk Khetrapal, BRPL
Shri Nishant Grover, BYPL
Shri Sanjay Srivastava, BRPL
Shri S.R. Sarangi, GRIDCO

ORDER

This petition has been filed by the petitioner, NTPC for approval of tariff of Kahalgaon Super Thermal Power Station, Stage-I (840 MW) (hereinafter referred to as “the generating station”) for the period 2014-19 in accordance with the provisions of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as “the 2014 Tariff Regulations”).

2. The generating station with a capacity of 840 MW comprises of four units of 210 MW each and the said units were declared under commercial operation on 1.1.1995, 1.4.1995, 1.2.1996 and 1.8.1996 respectively.

3. The Commission vide order dated 23.5.2012 in Petition No. 245/2009 had approved the tariff of the generating station for the period 2009-14 considering the opening capital cost of ₹203951.87 lakh as on 1.4.2009 (after removal of un-discharged liabilities of ₹188.25 lakh as on 1.4.2009). Aggrieved by the said order dated 23.5.2012, the petitioner filed review petition (RP. No. 19/2012) and the same was allowed by order dated 3.5.2013 on the ground of “non-consideration of exclusion of de-capitalization corresponding to 10th Wagon in 2008-09” and accordingly the annual fixed charges of the generating station for 2009-14 were revised. Thereafter, in Petition No. 135/GT/2013, the Commission vide order dated 13.5.2014 revised the annual fixed charges of the generating station based on the actual additional capital expenditure incurred for the years 2009-10, 2010-11 and 2011-12 and projected additional capital expenditure for the years 2012-13 and 2013-14, based on the latest estimates and status of works. Thereafter, the Commission vide order dated 27.7.2016 in Petition No. 271/GT/2014 revised the tariff of the generating station for the period



2009-14 after truing-up in terms of Regulation 6 (1) of the 2009 Tariff Regulations, considering the capital cost of ₹213840.54 lakh as on 31.3.2014 and after deduction of un-discharged liabilities of ₹188.25 lakh as on 1.4.2009. The annual fixed charge approved by the said order dated 27.7.2016 is as under:

	(₹ in lakh)				
	2009-10	2010-11	2011-12	2012-13	2013-14
Depreciation	3789.14	3830.72	4171.99	4652.35	4850.82
Interest on Loan	38.22	0.00	11.38	7.82	0.00
Return on Equity	23867.01	23576.03	23529.99	23869.73	24566.67
Interest on Working Capital	5479.58	5524.50	5594.83	5656.96	5733.60
O&M Expenses	15288.00	16161.60	17085.60	18068.40	19101.60
Secondary fuel oil cost	1219.45	1219.45	1222.79	1219.45	1219.45
Compensation Allowance	126.00	210.00	252.00	294.00	294.00
Total	49807.40	50522.29	51868.58	53768.70	55766.13

4. The petitioner vide affidavit dated on 14.8.2014 has sought the approval of tariff in accordance with the provisions of the 2014 Tariff Regulations. Accordingly, the capital cost and the annual fixed charges claimed by the petitioner for the period 2014-19 in this petition are as under:

Capital Cost

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	218390.58	220025.58	220715.58	226855.58	228730.58
Add: Additional capital expenditure	1635.00	690.00	6140.00	1875.00	3910.00
Closing Capital Cost	220025.58	220715.58	226855.58	228730.58	232640.58
Average Capital Cost	219208.08	220370.58	223785.58	227793.08	230685.58

Annual Fixed Charges

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	5455.32	5615.05	6168.83	6961.53	7694.84
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	21663.01	21734.08	21942.85	22187.85	22364.69
Interest on Working Capital	8489.60	8591.35	8674.30	8786.93	8902.37
O&M Expenses	20076.00	21336.00	22680.00	24108.00	25628.40
Compensation Allowance	420.00	630.00	735.00	840.00	840.00
Total	56103.92	57906.47	60200.98	62884.31	65430.29

5. In compliance with the directions of the Commission, the petitioner has filed additional information and has served copies on the respondents. The respondents, TANGEDCO, GRIDCO, BRPL, BYPL and UPPCL have filed their replies in the matter. The petitioner has filed its rejoinder to the said replies of the respondents. We now proceed to examine the claim of the petitioner based



on the submissions of the parties and the documents available on record, as discussed in the subsequent paragraphs.

Capital Cost as on 1.4.2009

6. Clause 3 of Regulation 9 of the 2014 Tariff Regulations provides as under:

“The Capital cost of an existing project shall include the following:

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

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

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

7. The annual fixed charges claimed by the petitioner are based on opening capital cost of ₹218390.58 lakh as on 1.4.2014 as against the capital cost of ₹213840.54 lakh as on 31.3.2014 admitted by the Commission vide order dated 27.7.2016 in Petition No. 271/GT/2014. Further, the petitioner vide affidavit dated 13.8.2014 has furnished the value of capital cost and liabilities as on 1.4.2014 as per books of accounts in Form-9E. The details of liabilities and capital cost have been reconciled with the information available with the records of the Commission as under:

	<i>(₹ in lakh)</i>	
	As per Form-9E	As per records of Commission
Capital cost as on 1.4.2014 as per books	220037.85	220037.85
Liabilities included in the above	914.43	914.43

8. It is evident from the above that there is no variation in the capital cost and liabilities position as on 1.4.2014 as per the books and details available with the Commission. The un-discharged liabilities of ₹914.43 lakh correspond to the approved capital cost of ₹213840.54 lakh (on cash basis) as on 31.3.2014. Accordingly, the opening capital cost considered as on 1.4.2014, after removal of un-discharged liabilities works out to ₹213840.54 lakh (on cash basis).

Projected Additional Capital Expenditure

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



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

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

(ii) Change in law or compliance of any existing law;

(iii) Any expenses to be incurred on account of need for higher security and safety of the plant as advised or directed by appropriate Government Agencies of statutory authorities responsible for national security/internal security;

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

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

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

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

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

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

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

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



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

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

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

(₹ in lakh)								
Sl. No.	Head of Work /Equipment	Regulation	2014-15	2015-16	2016-17	2017-18	2018-19	Total
A	Ash dyke works							
1	Ash Dyke Lagoon- II	14 (3)(iv)	1500.00	-	-	-	-	1500.00
2	Ash Dyke Lagoon -III	14 (3)(iv)	-	-	1500.00	1700.00	-	3200.00
	Total		1500.00	0.00	1500.00	1700.00	0.00	4700.00
B	Modification in fuel receipt system							0.00
1	Wagons (58 nos)	14 (3) (x)	135.00	-	2475.00	-	-	2610.00
2	Augmentation of Railway Siding work	14 (3) (x)	-	230.00	-	-	1800.00	2030.00
	Total		135.00	230.00	2475.00	0.00	1800.00	4640.00
C	Works under Change of Law							
1	Dry Ash Evacuation system with Silo Unit #3 & 4	14 (3) (ii)	-	-	1845.00	1845.00	410.00	4100.00
2	Replacement of Halon based fire fighting system with inert gas based system	14 (3) (ii)	-	-	270.00	30.00	-	300.00
3	Fire Detection and Protection System in CHP	14 (3) (ii) & (iii)	-	460.00	50.00	-	-	510.00
	Total		0.00	460.00	2165.00	1875.00	410.00	4910.00
	Total Asset capitalisation		1635.00	690.00	6140.00	3575.00	2210.00	14250.00
	De-capitalisation		0.00	0.00	0.00	0.00	0.00	0.00
	Total Additional Capitalisation Claimed		1635.00	690.00	6140.00	3575.00	2210.00	14250.00

11. The projected additional capital expenditure claimed by the petitioner is discussed in the succeeding paragraphs.

Ash Dyke works (Lagoon II & III)-Regulation 14 (3)(iv)

12. The petitioner has claimed projected additional capital expenditure of ₹1500.00 lakh in 2014-15 towards works of Ash dyke raising for Lagoon-I, and ₹3200.00 lakh (₹1500.00 lakh in 2015-16 and ₹1700.00 lakh in 2018-19) towards works of Ash dyke raising for Lagoon-II. In justification of the same, the petitioner has submitted that the additional capital expenditure has been projected against Ash Dyke raising works within the original scope of work and the said work is already in



progress and is expected to be completed by March 2015. As regards the projected additional capital expenditure for Ash Dyke Lagoon-III, the petitioner has submitted that the amount of ₹1500.00 lakh has been projected against the next envisaged Ash Dyke raising within the original scope of work. Accordingly, the petitioner has requested to allow the capitalization for ash dyke raising under Regulation 14(3)(iv) of the 2014 Tariff Regulations.

13. The respondent, GRIDCO has submitted that as noted from the petition, the work contemplated by the petitioner in raising Ash dyke for ash disposal, ash pond work is not actually a deferred work but this is a continuous process during the entire operational life time of the station and hence it is an O&M expense for which an increased norm in the 2014 Tariff Regulations have been incorporated. The respondent has further submitted that necessary documents in support of the claim be produced by the petitioner before the Commission and also to the respondents otherwise the expenditure may be treated as of continuous nature and the same be met from the O&M expense provided for this generating station.

14. We have examined the matter. It is observed from the submissions of the petitioner that expenditure projected towards ash dyke raising is for planned works related to ash pond/ ash handling system which is of continuous nature during the operational life of generating station and the works claimed are as per the approved scheme under original scope of work. As the expenditure is covered under original scope of works and based on environmental considerations the said expenditure is allowed under Regulation 14(3)(iv) of the 2014 Tariff Regulations for the period 2014-19.

Capital Works- Regulation 14(3) (x)

Wagons

15. The petitioner has claimed a projected additional capital expenditure of ₹2610 lakh (₹135 lakh in 2014-15 and ₹2475 lakh in 2016-17) towards wagons. In view of the same, the petitioner has submitted that during operation of coal transportation system, wagons often get damaged due to



accidents, fall of boulders during loading etc. It has also submitted that presently about 100 wagons have been damaged in various accidents etc. at Kahalgaon and periodic replenishment is necessary to maintain & operate the system to meet customer requirements as well as operating norms specified by the Commission. The petitioner has further submitted that total of 58 wagons have been projected for capitalization in stage-I and 3 wagons have already been received and will be capitalised in 2014-15 and the rest are expected to be capitalised in 2016-17. Accordingly, the petitioner has prayed that the capitalization may be allowed under Regulation 14(3)(x).

16. The respondent, UPPCL has submitted vide affidavit dated 10.9.2014 that the expenditure is incurred on account of obsolescence of existing equipment and not on account of modification required in fuel receiving system arising due to non-materialization of coal supply. It has submitted that since the expenditure does not meet the prerequisite requirement, it needs to be disallowed. The petitioner has submitted vide rejoinder dated 22.9.2014 that the said expenditure is not being incurred on account of obsolescence of existing equipment as the BOBR wagons are not obsolete and are still being manufactured by various vendors in required quantity. It has submitted that the procurement of these wagons has been projected to ensure adequate fuel receipt through the fuel transportation system. Respondent GRIDCO has submitted that purchase of wagons are not permissible under Regulation 14(3)(x) of the 2014, Tariff Regulations.

17. We have considered the submissions of the parties. The petitioner has submitted vide rejoinder dated 21.6.2016 that the Commission has de-capitalized 55 nos. of wagons during the period 2009-14 while the petitioner had claimed these wagons under exclusion. It has submitted that periodic replenishment is necessary to maintain & operate the system to meet customer requirement in order to maintain depleted rolling stock and to ensure availability of sufficient number of rakes for transportation of coal so as to maximize plant generation. The petitioner has submitted that the wagons are required to maintain the coal requirement for the generating station.



18. We are not convinced with the submissions of the petitioner that the said expenditure is on account of modifications in fuel receipt system. The provisions of the 2014 Tariff Regulations do not provide for the capitalization of the expenditure towards procurement of wagons against replacement of old wagons after the cut-off date. The generating station is entitled for compensation allowance under Regulations 17 of the 2014 Tariff Regulations in order to meet the expenses on new assets of capital nature including in the nature of minor assets. Accordingly, the petitioner shall be able to meet the expenditure on this asset. Hence, capitalization of the expenditure claimed by the petitioner is not allowed. The capitalization of the expenditure claimed for these assets can be met from the compensation allowance admissible to the generating station.

Augmentation of Railway Siding work

19. The petitioner has claimed projected additional capital expenditure of ₹2030.00 lakh (230.00 lakh in 2015-16 and 1800.00 lakh in 2018-19) towards Augmentation of Railway Siding. In justification, the petitioner has submitted that this is part of the work under the Wagon tippler scheme approved by the Commission vide order dated 23.5.2012. It has also submitted that a part of the track modification work was taken up during the 2009-14 period and will be completed in 2015-16. As regards the claimed expenditure in the year 2018-19, the petitioner has submitted that the balance work of Railway siding is to be executed by the Indian Railways on deposit work basis for which the petitioner has already submitted the proposal with estimate to the Railways and the same is under discussion & negotiation. The petitioner has also submitted that considering the administrative set up of Railways, this work has been projected for completion in 2018-19 and will be reviewed at the time of truing-up based on updated progress of the work. Accordingly, the petitioner has prayed that the Commission may allow the capitalization for Augmentation of Railway siding under Regulation 14(3)(x) of the 2014 Tariff Regulations.



20. The respondent, GRIDCO has submitted that there is absolutely no justification for the works related to 'Augmentation of Railway siding' under Regulation 14(3)(x) of the Tariff Regulation, 2014 as the entire requirement for the purposes of modifications required or done in fuel receiving system arising due to non- materialization of coal supply have been already taken care and the fact is that this generating station is producing better than the target set for the year 2014-15 and even better than the last year and therefore no shortfall of coal is noticed.

21. We have examined the matter. The Commission, vide order dated 27.7.2016 in Petition No. 271/GT/2014 has approved an additional capital expenditure of ₹437.73 lakh in 2013-14 under Regulation 9(2)(vii) of the 2009 Tariff Regulations towards Augmentation of Railway Siding. The relevant para no. 5 of the order dated 27.7.2016 is extracted as under:

“As stated, the petitioner has submitted that the actual additional capital expenditure of ₹437.73 lakh claimed in 2013-14 is in respect of a part of the track modification work which was taken up during 2009-14. Since the actual expenditure incurred is in respect of part capitalisation of the railway siding works associated with Wagon Tippler, we allow the actual additional capital expenditure of ₹437.73 lakh under Regulation 9(2)(vii) of the 2009 Tariff Regulations. As regards the claim for balance works for railway siding which are expected to be completed by the Indian Railways on deposit work basis during 2014-19, the same will be considered in terms of the 2014 Tariff Regulations based on the justification submitted by the petitioner.”

22. It is evident from that above, that the petitioner was granted additional capital expenditure of ₹437.73 lakh in 2013-14 as part capitalizations of the track modification. We notice that in addition to the actual expenditure of ₹437.73 lakh approved vide order dated 27.7.2016 in Petition No. 271/GT/2014, the present projected additional capital expenditure of ₹2030.00 lakh (₹230.00 lakh in 2015-16 and ₹1800.00 lakh in 2018-19) towards the Augmentation of Railway Siding works is higher by ₹778.00 lakh which is 46% (approx.) higher from the projected expenditure of ₹1690.00 lakh and the same has not been explained by the petitioner. In view of this, the projected capitalisation of ₹1252.27 lakh (₹230 lakh during 2015-16 and ₹1022.27 lakh during 2018-19) only has been considered during 2014-19 period. The same has been allowed under Regulation 14(3)(x) of the 2014 Tariff Regulations. However, the petitioner is at liberty to claim the increased capital expenditure on actual basis towards the Augmentation of Railway Siding works with proper



justification at the time of true up. The petitioner is directed to furnish the details of the progress of the work at the time of true-up of tariff of the generating stations.

Works under Change of Law- Regulation 14(3)(ii)

Dry Ash Evacuation system with Silo Unit #3 & 4

23. The petitioner has claimed projected capital expenditure of ₹4100.00 lakh (₹1845.00 lakh during 2016-17, ₹1845.00 lakh during 2017-18 and ₹410.00 lakh during 2018-19) for commissioning of Dry Ash Evacuation system with Silo Unit No. 3 & 4. In justification of the same, the petitioner has submitted that the said work has been approved vide order dated 23.5.2012 for capitalisation in 2011-12. The petitioner has submitted that the subsequent to completion of the tendering process, it was found that the L1 party to be awarded the works, had problems with their bankers & there were doubts on its capability to execute the contract, owing to which the tender had to be cancelled at a very later stage. Thereafter, the petitioner had revised the estimates based on the elapsed time & a revised NIT was issued. It is submitted that the award for the work is expected by Feb'15 with a completion period of 37 months. Since the work would require unit shutdowns for longer periods for modification of ESP hoppers etc., the petitioner will carry out the works in a phased manner matching with unit planned shutdowns. The petitioner has submitted that the amount projected for capitalisation in 2016-17, 2017-18 and 2018-19 is respectively for Dry Ash Evacuation System with Silo Unit # 3, Silo Unit # 4, and for balance works including PG test and has requested to condone the delay considering the circumstances & allow the capitalisation of Dry Ash Evacuation system with Silo (Unit # 3 & 4) under Regulation 14(3)(ii).

24. The respondent GRIDCO has submitted that out of the total claim of ₹4101.00 lakh, the petitioner has claimed ₹2255.00 lakh during the fag end of useful life of the project and has not submitted documents indicating that the amount is required for change in law or compliance of any existing law. It has submitted that the petitioner by his own act of omission and commission has brought down the completion of the said work during the fag end of useful life of the project and thus



the additional capitalization may not be allowed by the Commission. The respondent UPPCL has submitted that against the amount approved by the Commission of ₹974.00 lakh, the petitioner has claimed ₹4100.00 lakh, which is an escalation of 4.21 times (approx.) in 4 years. It has further raised objections on the steps taken by the petitioner to mitigate financial loss due to cancellation of tender award process. The petitioner vide rejoinder dated 22.9.2014 has clarified that the projection of ₹974.00 lakh relating to expenditure on dry ash evacuation system of the generating station was made based on the expenditure incurred in dry ash evacuation system of units 1 & 2 of the generating station in the year 2002, which was meant for two fields of ESP. It has submitted that subsequently as per statutory requirement, the scheme for installation of Dry Ash Evacuation system (DAES) in the other fields of ESP was formulated and the revised estimates were based on larger distance of system for Units 3 & 4 from the ESP and the elapsed time, leading to a higher cost estimate. The respondent, UPPCL, vide rejoinder dated 22.9.2014, has pointed out that the petitioner has used the cost of the project executed in 2002 as reference value for estimation and there is difference in scope of work of earlier work (for unit 1 & 2) and for current project (unit 3 & 4). It has also submitted that the detailed assessment of work was not carried out by the petitioner, prior to approaching the commission for approval of the same and accordingly the claimed escalation is due to imprudent project planning and thus liable to be rejected.

25. We notice that the Commission vide order dated 23.5.2012 in Petition No. 245/2009 had approved the works towards Dry Ash Extraction System with and transportation plant to be used for transporting fly ash from ESP hoppers of Units-III and IV to the silos. The relevant paras of the order dated 27.7.2016 is extracted as under:

“Ash will be extracted from ESP hoppers and collected in buffer hoppers and would then be transported from buffer hoppers to the silo with the help of transport air blowers. There will be 2 nos of silos each having a storage capacity of 350 MT and 2 nos. of transport blowers each for the Units-III and IV. The petitioner vide its affidavit dated 16.11.2010 has submitted that in order to achieve the target for 100% fly ash utilization by all coal based thermal power plants in terms of the Gazette Notification of the Ministry of Environment and Forests, Government of India dated 3.11.2009, installation of dry ash system for Units –III and IV including silo is a basic requirement, since ash is to be collected in dry form. Since the expenditure is required for compliance with the guidelines of the Ministry of Environment and



Forests, Government of India notification dated 3.11.2009, the same is allowed to be capitalized.”

26. It is further noted that the petitioner had not claimed any expenditure for the period 2009-14 in the tariff Petition No. 135/GT/2013 and Petition No. 271/GT/2014 towards revision of tariff based on truing up exercise. However, in the present petition, the petitioner has claimed expenditure of ₹4100.00 lakh for the said works under Regulation 14(3)(ii) of the 2014 Tariff Regulations. The petitioner has submitted that the work got delayed due to re-tendering process. In response to query of the Commission regarding the details of the claims made and the amount received against cancellation of the contract for Dry ash evacuation system, the petitioner has submitted vide rejoinder dated 21.6.2016 that it emerged during the process of award, that the L1 party was put on notice by the bankers and therefore the petitioner did not proceed with the award of contract. It has submitted that due to financial crisis of the party and poor performance of M/s Techpro at various other projects, it was blacklisted and since the award was cancelled at very early stage, no amount was received against cancellation of the award process for Dry ash evacuation system.

27. We are not convinced with the submissions of the petitioner. Though the expenditure to be incurred is in compliance with the guidelines of MOEF, GOI dated 3.11.2015, the delay in carrying the said work due to cancellation of tender cannot be brushed while considering the claim of the petitioner, However no financial due diligence was conducted before awarding the contract to L1 party and the petitioner has also not substantiated the significant increase in the expected expenditure as against the projected expenditure of ₹974.00 lakh approved vide order dated 23.5.2012. In our view the petitioner ought to have accounted for the difference in scope of works carried out in 2002 for Units I & II and that projected for units III & IV. Accordingly, we are in view to consider only the projected expenditure of ₹974.00 lakh in 2016-17 under Regulation 14(3)(ii) of the 2014 Tariff Regulations. Any increase in the actual expenditure claim shall be substantiated with proper justification at the time of truing up. Further the petitioner is also directed to submit the details



of the claim raised and the amount received towards the order cancellation of the contract/tender at the time of truing up.

Modification/ addition/ replacement of fire detection & protection system

28. The petitioner has claimed project capital expenditure of ₹300.00 lakh (₹270.00 lakh in 2016-17 and ₹30.00 lakh in 2017-18) for replacement of Halon based fire fighting system with Inert gas based system and ₹510.00 lakh (₹460.00 lakh in 2015-16 and ₹50.00 lakh in 2016-17) for addition of Fire Detection and Protection System in Coal Handling Plant (CHP), under Regulation 14(3)(ii) and 14(3)(iii) of the 2014 Tariff Regulations. The petitioner has submitted that as per the Environment (Protection) Act 1986, the Central Government laid down rules for Ozone Depleting Substances (Regulation and Control) Rules, 2000, which discourage engagement in any activity that uses ozone depleting substances and the generating companies are allowed to continue with the existing fire fighting system for a period of 10 years (up to 1.1.2010) after which the production and servicing of the same was stopped (vide Schedule IV). Thus the petitioner has proposed to replace Halon gas fire protection system with alternate inert gas in line with Central Electricity Authority (Technical Standards for construction of Electrical Plants and Electric Lines) Regulation, 2010. The petitioner has projected capitalization this expenditure towards replacement works in 2016-17 corresponding to Units I, II, III and IV and all systems corresponding to Stage I of the generating station and has accordingly prayed the Commission to allow the capitalization of Inert gas fire extinguishing system under Regulation 14(3)(ii). Further, the petitioner has submitted that assessment of availability, reliability and design adequacy of Fire detection and Protection system of all coal based thermal stations of the petitioner company was carried out in line with Regulation 12(5) of Central Electricity Authority (Technical Standards for construction of Electrical Plants and Electric Lines) Regulations, 2010 published in the Gazette of India no. 211 dated 20.7.2010. The petitioner has accordingly projected a capitalization of a total expenditure of ₹510.00 lakh during the period 2015-17 in a phased manner. The petitioner has further submitted that the work has already



been awarded to Sterling & Wilson Ltd. in June 2014 and has prayed to allow the capitalization on account of Augmentation of fire protection system under Regulation 14(3)(ii) and Regulation 14(3)(iii) of Tariff Regulation 2014.

29. The respondent GRIDCO has submitted that no document has been filed by the petitioner and it is also not clear as to how the Halon fire protection system, if it contains Ozone depleting substance, is being continued by its manufacturers. It has also submitted that the documents filed by the petitioner including the Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric lines) Regulations, 2010 do not support the claim for augmentation of the Halon fire protection system with inert gas fire extinguishing system and thus the claim is liable to be rejected. As regards fire detection and protection system in CHP, the respondent has submitted that Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric lines) Regulations, 2010 provides for technical standards for construction of electrical plants, whereas the present generating station is a constructed plant and thus the regulations quoted by the petitioner are not applicable and thus the claims of the petitioner are liable to be rejected by the Commission. The respondent UPPCL has also submitted that the claim for additional capital expenditure can be made only under one regulation and not under multiple heads. In response, the petitioner vide rejoinder dated 22.9.2014 has submitted that the works are taken up to comply with the Central Electricity Authority (Technical Standards for Construction of Electrical Plants and Electric lines) Regulations, 2010 and if a particular claim falls under multiple regulations after meeting its stipulated conditions, the same can be claimed under multiple regulations as no regulation prevents the petitioner from doing so. Accordingly, the petitioner has claimed projected additional capital expenditure to meet the requirement of change in law and for safety & security as per the 2014 Tariff Regulations.

30. We have examined the submissions of the petitioner as per the documents available on record. On perusal of Schedule IV of the said Rules. It is noticed that the phase out time and for



switching over to non ozone depleting substance technology in respect of fire extinguishers and fire extinguishing systems is 10 years. In the circumstances, since the expenditure incurred is towards statutory compliance with the provisions of the Rules as aforesaid, we are of the view that the expenditure falls within the ambit of Change in law under Regulation 14(3)(ii) of the 2014 Tariff Regulations.

31. As regards the additional capital expenditure projected towards augmentation of fire fighting system in CHP etc. based on the Central Electricity Authority (Technical Standards for construction of Electrical Plants and Electric Lines) Regulation, 2010, it is observed that the petitioner has not demonstrated that the augmentation of a fire fighting system is on account of change in law. In our view, proper well equipped fire fighting system was the requirement in any thermal power station even prior to the CEA safety standards which came in the year 2010. Therefore the CEA Regulations, 2010 as referred by the petitioner cannot be considered as a Change-in-law. Moreover, the plant has been operating with the existing fire fighting system since its COD and therefore the submission of the petitioner that the same is required for security and safety of plant is not sustainable. The petitioner has been allowed compensation allowance for meeting such expenditure and the petitioner shall meet such expenditure from the said compensation allowance. Accordingly, expenditure of ₹510.00 lakh in 2015-18 for augmentation of a fire fighting system is not allowed

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

(₹ in lakh)

Sl. No.	Head of Work /Equipment	Regulations under which allowed	2014-15	2015-16	2016-17	2017-18	2018-19	Total
A	Ash dyke works							
1	Ash Dyke Lagoon II	14 (3)(iv)	1500.00	0.00	0.00	0.00	0.00	1500.00
2	Ash Dyke Lagoon III	14 (3)(iv)	0.00	0.00	1500.00	0.00	1700.00	3200.00
	Sub-total		1500.00	0.00	1500.00	0.00	1700.00	4700.00



B	Modification in fuel receipt system							
1	Wagons (58 nos.)	14 (3) (x)	0.00	0.00	0.00	0.00	0.00	0.00
2	Augmentation of Railway Siding work	14 (3) (x)	0.00	230.00	0.00	0.00	1022.27	1252.27
	Sub-total		0.00	230.00	0.00	0.00	1022.27	1252.27
C	Works under Change of Law							
1	Dry Ash Evacuation system with Silo Unit #3 & 4	14 (3) (ii)	0.00	0.00	974.00	0.00	0.00	974.00
2	Replacement of Halon based fire fighting system with inert gas based system	14 (3) (ii)	0.00	0.00	270.00	30.00	0.00	300.00
3	Fire Detection and Protection System in CHP		0.00	0.00	0.00	0.00	0.00	0.00
	Sub-total		0.00	0.00	1244.00	30.00	0.00	1274.00
	Total Asset capitalisation		1500.00	230.00	2744.00	30.00	2722.27	7226.27
	De-capitalisation		0.00	0.00	0.00	0.00	0.00	0.00
	Total Additional Capitalisation allowed		1500.00	230.00	2744.00	30.00	2722.27	7226.27

33. Accordingly, the capital cost approved in respect of the generating station for the period 2014-19 is as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	214765.38	216265.38	216495.38	219239.38	219269.38
Add: Additional capital expenditure	1500.00	230.00	2744.00	30.00	2722.27
Closing Capital Cost	216265.38	216495.38	219239.38	219269.38	221991.65

Debt-Equity Ratio

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

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

Provided that:



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

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

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

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

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

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

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

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

35. Accordingly, the gross normative loan and equity amounting to ₹109794.88 lakh and ₹104970.50 lakh, respectively as on 31.3.2014 as considered in order dated 27.7.2016, has been considered as gross normative loan and equity as on 1.4.2014. Hence, the normative debt equity



ratio of 70:30 has been considered in the case of additional capital expenditure. This is subject to truing-up in terms of the 2014 Tariff Regulations.

Return on Equity

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

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

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

Provided that:

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

ii). the additional return of 0.5% shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever:

iii). additional RoE of 0.50% may be allowed if any element of the transmission project is completed within the specified timeline and it is certified by the Regional Power Committee/National Power Committee that commissioning of the particular element will benefit the system operation in the regional/national grid:

iv). the rate of return of a new project shall be reduced by 1% for such period as may be decided by the Commission, if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO)/ Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system:

v) as and when any of the above requirements are found lacking in a generating station based on the report submitted by the respective RLDC, RoE shall be reduced by 1% for the period for which the deficiency continues:

vi) additional RoE shall not be admissible for transmission line having length of less than 50 kilometers.

37. 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.

38. The petitioner has claimed return on equity considering the base rate of 15.5% and effective tax rate of 23.939%. However, the petitioner in its submissions dated 21.6.2016 has submitted the effective tax rate of 22.584% based on the actual profit and tax paid for the year 2014-15. During the hearing of NTPC petitions, beneficiaries had raised an issue on the computation of effective tax rate. This issue being not confined to a single petition and being generic in nature as the issue is applicable to all NTPC petitions uniformly need deliberation. On this issue against specific query through ROP, the petitioner vide its affidavit dated 8.1.2016 in Petition no. 280/GT/2014 (Farakka STPS, Stage-III) has filed Auditor's Certificate regarding deposit of advance tax on generation business for the year 2014-15 as well as Income Tax return for the financial year 2014-15 (Assessment Year 2015-16). We have examined the documents submitted and observed that the regulation prescribe computation of effective tax rate on the basis of tax paid, still we deem it proper to allow grossing up on MAT rate considering the fact that the matter is getting decided in the year 2016-17. Accordingly, the effective tax rate (MAT) of 20.961% has been considered for the year 2014-15 and 21.342% for the year 2015-16 onwards up to the year 2018-19 for the purpose of



grossing up of base rate of 15.5%. Accordingly, the rate of Return on Equity works out to 19.610% for the year 2014-15 and 19.705% for the year 2015-16 onwards. This is however, subject to true-up. Accordingly, return on equity has been worked out as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Notional Equity- Opening	104970.50	105420.50	105489.50	106312.70	106321.70
Addition of Equity due to additional capital expenditure	450.00	69.00	823.20	9.00	816.68
Normative Equity-Closing	105420.50	105489.50	106312.70	106321.70	107138.38
Average Normative Equity	105195.50	105455.00	105901.10	106317.20	106730.04
Return on Equity (Base Rate)	15.500	15.500	15.500	15.500	15.500
Tax Rate for the year	20.961	21.342	21.342	21.342	21.342
Rate of Return on Equity (Pre Tax)	19.611	19.706	19.706	19.706	19.706
Return on Equity(Pre Tax) annualised	20629.47	20780.54	20868.45	20950.44	21031.79

Interest on Loan

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

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

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

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

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

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

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



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

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

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

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

(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.”

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

(a) The gross normative loan of ₹109794.88 lakh as on 1.4.2014 has been considered.

(b) Cumulative repayment of loan of ₹109794.88 lakh as on 31.3.2014 as considered in order dated 27.7.2016 in Petition No.271/GT/2014 has been considered as on 1.4.2014.

(c) Accordingly, the net normative opening loan as on 1.4.2014 works out to “nil”.

(d) Addition to normative loan on account of the admitted additional capital expenditure has been considered on year to year basis.

(e) Depreciation allowed for the period has been considered as repayment of normative loan during the respective year for the period 2014-19.

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



interest the rate of interest as provided by the petitioner has been considered for the purpose of tariff. The necessary calculation for interest on loan is as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Gross opening loan	109794.88	110844.88	111005.88	112926.68	112947.68
Cumulative repayment of loan upto previous year	109794.88	110844.88	111005.88	112926.68	112947.68
Net Loan Opening	0.00	0.00	0.00	0.00	0.00
Addition due to additional capital expenditure	1050.00	161.00	1920.80	21.00	1905.59
Repayment of loan during the year	1050.00	161.00	1920.80	21.00	1905.59
Less: Repayment adjustment on account of de-capitalization	0.00	0.00	0.00	0.00	0.00
Net Repayment	0.00	0.00	0.00	0.00	0.00
Net Loan Closing	1050.00	161.00	1920.80	21.00	1905.59
Average Loan	0.00	0.00	0.00	0.00	0.00
Weighted Average Rate of Interest of loan	0.00	0.00	0.00	0.00	0.00
Interest on Loan	2.340	2.340	2.340	2.340	2.340

Depreciation

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

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

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

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



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

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

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

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

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

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

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

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

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

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

42. The cumulative depreciation amounting to ₹152708.02 lakh as on 31.3.2014 as considered in order dated 27.7.2016 has been considered for the purpose of tariff. Further, the value of freehold land included in the average capital cost has been adjusted while calculating depreciable value for the purpose of tariff. Accordingly, the balance depreciable value (before providing depreciation) for



the year 2014-15 works out to ₹38378.60 lakh. Since the used life of the generating station as on 1.4.2014 exceed 12 years from the effective station COD, the depreciation for the period 2014-19 shall be calculated using spreading of the remaining depreciable value over the balance useful life for respective years.

43. Accordingly, depreciation has been computed as follows:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	214765.38	216265.38	216495.38	219239.38	219269.38
Add: Additional Capital Expenditure	1500.00	230.00	2744.00	30.00	2722.27
Closing Capital Cost	216265.38	216495.38	219239.38	219269.38	221991.65
Average Capital Cost	215515.38	216380.38	217867.38	219254.38	220630.51
Balance useful life	7.55	6.55	5.55	4.55	3.55
Depreciable value (excluding land) @ 90%	191086.63	191865.13	193203.43	194451.73	195690.25
Balance depreciable Value	38378.60	34073.84	30210.03	26015.08	21536.00
Depreciation (annualized)	5083.26	5202.11	5443.25	5717.60	6066.48
Cumulative depreciation up to previous year	152708.02	157791.28	162993.40	168436.65	174154.25
Cumulative depreciation (at the end of the period)	157791.28	162993.40	168436.65	174154.25	180220.73

Compensation Allowance

44. The petitioner has claimed compensation allowance (unit-wise) to meet expenses on new assets of capital nature including in the nature of minor assets as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19
420.00	630.00	735.00	840.00	840.00

45. Regulation 17(1) of the 2014 Tariff Regulations provides as under:

“17. Compensation Allowance: (1) In case of coal-based or lignite-fired thermal generating station or a unit thereof, a separate compensation allowance shall be admissible to meet expenses on new assets of capital nature which are not admissible under Regulation 14 of these regulations, and in such an event, revision of the capital cost shall not be allowed on account of compensation allowance but the compensation allowance shall be allowed to be recovered separately.



(2) The Compensation Allowance shall be allowed in the following manner from the year following the year of completion of 10, 15, or 20 years of useful life:”

Years of operation	Compensation Allowance (lakh/MW/year)
0-10	Nil
11-15	0.20
16-20	0.50
21-25	1.00

46. In terms of above regulation, both all the units of the generating station are in commercial operation for more than 10 years from their respective date of CODs and accordingly, the compensation allowance worked out is as under:

Description	(₹ in lakh)			
	Unit-I	Unit-II	Unit-III	Unit-IV
Capacity in MW	210	210	210	210
COD	1-Jan-95	1-Apr-95	1-Feb-96	1-Aug-96
Balance Useful life as on 1.4.2014 (yrs.)	5.74	5.99	6.82	7.32
Actual useful life				
a) 10 years	01-01-2007	01-07-2007	01-01-2007	01-07-2007
b) 15 years	01-01-2012	01-07-2012	01-01-2012	01-07-2012
c) 20 years	01-01-2017	01-07-2017	01-01-2017	01-07-2017
d) 25 years	01-01-2022	01-07-2022	01-01-2022	01-07-2022
2014-15	105.00	105.00	105.00	105.00
2015-16	210.00	210.00	105.00	105.00
2016-17	210.00	210.00	210.00	105.00
2017-18	210.00	210.00	210.00	210.00
2018-19	210.00	210.00	210.00	210.00
Total	945.00	945.00	840.00	735.00

47. Therefore, the compensation allowance of `945.00 lakh for Unit-I and Unit-II each, `840.00 lakh for Unit-III and `735.00 lakh for Unit-IV during the period 2014-19 is allowed.

O&M Expenses

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

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



23.90	25.40	27.00	28.70	30.51
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49. Accordingly, the year-wise O&M expenses claimed by the petitioner in terms of the above said norms are allowed as under:

<i>(₹ in lakh)</i>					
	2014-15	2015-16	2016-17	2017-18	2018-19
O & M Expenses	20076.00	21336.00	22680.00	24108.00	25628.40

Water Charges

50. 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”

51. 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. In the present petition, the petitioner has not made any claim for water charges and has submitted that presently the water charges are not billed by the concerned authority for consumptive water for the generating station. However, it has sought liberty to approach the Commission as and when the same is billed by the Authority and paid by the petitioner. In view of the above submission, we grant liberty to the petitioner to claim water charges and the same will be allowed in accordance with the law.

Capital spares

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



Operational Norms

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

Target Availability (%)	83.00
Heat Rate (kcal/kWh)	2450.00
Auxiliary Energy Consumption (%)	9.00
Specific Oil Consumption (ml/ kWh)	0.50

54. The operational norms claimed by the petitioner are in accordance with Regulation 36 of the 2014 Tariff Regulations and discussed as under:

Normative Annual Plant Availability Factor (NAPAF)

55. Regulation 36 (A) (a) of the 2014 Tariff 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.

56. The petitioner has considered the Target Availability norm of 83% during 2014-19 submitted as below:

“Detail of Coal linkage and Coal made available by CIL during the period of 2014- 15 & 2015-16 for Kahalgaon Stage-I and Kahalgaon Stage-II is as under:

Name of Station	Coal qty. Required for 85% NAPAF	Annual Contracted Quantity (Lakh Metric Tonnes)	Coal supplied (Lakh Metric Tonnes)	
<i>Kahalgaon STPS Stage-I & Stage-II</i>	<i>154.42</i>	<i>103.12</i>	<i>118.81</i>	<i>113.87</i>

In addition to above, NTPC put in efforts to arrange coal from other sources 15.62 LMT during 2014-15 and 12.61 LMT during 2015-16. Despite of this required coal quantity for 85% NAPAF was not achieved during 2014-16.”



In view of the above submissions, the Commission due to shortage of domestic coal supply has relaxed target availability norm to 83% for first 3 years from 1.4.2014 and the same shall be reviewed after 3 years. Hence, in view of the above provision the target availability of 83% is allowed for the period 2014-15 to 2016-17 and 85% for the period 2017-18 & 2018-19 in terms of the Regulation 36(A) (a) of the 2014 Tariff Regulations.

Heat Rate (kCal/kWh)

57. Regulation 36(C)(a) of the 2014 Tariff Regulations, provides Gross Station Heat Rate of 2450 kCal/kWh for existing coal based thermal generating stations of 210 MW sets whose CODs were before 1.4.2009. The COD of the generating station was in 1995-1996. Hence, the heat rate considered by the petitioner is as per norms and is allowed.

Auxiliary Energy Consumption

58. The petitioner has claimed Auxiliary Energy Consumption at 9.00% during 2014-19 period. Regulation 36(E)(a) of Tariff Regulations, 2014 provides Auxiliary Energy Consumption of 8.5% for coal based generating stations of 210 MW sets with Natural Draft cooling tower or without cooling tower with. It further provides that for thermal generating stations with induced draft cooling towers, the norms shall be further increased by 0.5%. Accordingly, the Auxiliary Energy Consumption to be considered is 9.00% as per the norms and the same is allowed for the purpose of tariff computations.

Specific Oil Consumption

59. Regulation 36(D)(a) of the 2014 Tariff Regulations, provides 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

60. Sub-section (1) 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 or lignite and limestone towards stock, if applicable, for 15 days for pit-head generating stations and 30 days for non-pit-head generating stations for generation corresponding to the normative annual plant availability factor or the maximum coal/lignite stock storage capacity whichever is lower;

(ii) Cost of coal or lignite and limestone for 30 days for generation corresponding to the normative annual plant availability factor;

(iii) Cost of secondary fuel oil for two months for generation corresponding to the normative annual plant availability factor, and in case of use of more than one secondary fuel oil, cost of fuel oil stock for the main secondary fuel oil;

(iv) Maintenance spares @ 20% of operation and maintenance expenses specified in regulation 29;

(v) Receivables equivalent to two months of capacity charges and energy charges for sale of electricity calculated on the normative annual plant availability factor; and

(vi) Operation and maintenance expenses for one month.

Fuel Components and Energy Charges in working capital

61. The petitioner has claimed cost for fuel components in working capital based on “as fired” GCV of coal procured and burnt for the preceding three months of January, 2014, February, 2014 and March, 2014 and secondary fuel oil for the preceding three months of January, 2014, February, 2014 and March, 2014, as under:

<i>(₹ in lakh)</i>						
Sl. No.	Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
1A	Cost of Coal for Stock for 15 days	6765.57	6784.11	6765.57	6765.57	6765.57
1B	Cost of Coal for Generation for 30 days	13531.15	13568.22	13531.15	13531.15	13531.15
2	Cost of Main Secondary Fuel Oil for 2 months	279.04	279.81	279.04	279.04	279.04

62. The Commission vide ROP of the hearing dated 20.5.2016 directed the petitioner to submit the GCV of coal on “as received” basis. In response, the petitioner vide affidavit dated 21.6.2016



has submitted that from Aug 2014, onwards sampling for measurement of 'as received' GCV is being taken from secondary crusher.

63. 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.

64. 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.”

65. Further, the petitioner has claimed energy charge rate (ECR) of 295.167 Paise/kWh based on the weighted average price, GCV of coal (as fired basis) & 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 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 Hydrolic 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 fuel components and the energy charges in the working capital by provisionally taking the GCV of coal on as “billed basis” and allowing an adjustment for total moisture as per the formula given as under:

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

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

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

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of Coal for stock– 15 days	4546.22	4558.67	4546.22	4655.77	4655.77
Cost of Coal for generation– 30 days	9092.44	9117.35	9092.44	9311.53	9311.53
Cost of secondary fuel oil – two months	279.04	279.81	279.04	285.77	285.77

67. Similarly, the energy charge rate (ECR) based on operational norms specified in 2014 Regulations and on “as billed” GCV of coal for preceding 3 months i.e. March to January 2014 is worked out as under:

	Unit	2014-19
Capacity	MW	840.00
Gross Station Heat Rate	kCal/kWh	2450.00
Aux. Energy Consumption	%	9.00%
Weighted average GCV of oil (As fired)	kCal/lt.	9718.67
Weighted average GCV of Coal (As Billed)	kCal/kg	3867.77
Adjustment on account of coal received at the generating station for equilibrated basis (Air dried) in the billed GCV Of Coal India		*
Weighted average price of oil	Rs./KL	54826.82
Weighted average price of Coal	Rs./MT	2825.90
Rate of energy charge ex-bus	Paise/kWh	199.33**

* To be calculated by the petitioner based on the adjustment formula

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



68. 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.

Maintenance spares

69. The maintenance spares in the working capital claimed by the petitioner, in line with the order dated 6.10.2015 in Petition No. 186/GT/2014, are allowed as under:

<i>(₹ in lakh)</i>				
2014-15	2015-16	2016-17	2017-18	2018-19
4015.20	4267.20	4536.00	4821.60	5125.68

Receivables

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

<i>(₹ in lakh)</i>					
	2014-15	2015-16	2016-17	2017-18	2018-19
Variable Charges (two months)	18463.92	18514.50	18463.92	18908.83	18908.83
Fixed Charges (two months)	8683.40	8954.52	9246.50	9578.01	9920.51
Total	27147.32	27469.02	27710.42	28486.84	28829.34

O&M Expenses

71. O&M expenses for 1 month claimed by the petitioner, in line with dated 6.10.2015 in Petition No. 186/GT/2014 for the purpose of working capital is allowed as under:

<i>(₹ in lakh)</i>				
2014-15	2015-16	2016-17	2017-18	2018-19
1673.00	1778.00	1890.00	2009.00	2135.70

Rate of interest on working capital

72. 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.”



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

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of coal towards stock- 15 days	4546.22	4558.67	4546.22	4655.77	4655.77
Cost of coal towards generation- 30 days	9092.44	9117.35	9092.44	9311.53	9311.53
Cost of secondary fuel oil- 2 months	279.04	279.81	279.04	285.77	285.77
Maintenance Spares	4015.20	4267.20	4536.00	4821.60	5125.68
Receivables- 2 months	27147.32	27469.02	27710.42	28486.84	28829.34
O & M expenses- 1 Month	1673.00	1778.00	1890.00	2009.00	2135.70
Total Working Capital	46753.22	47470.05	48054.11	49570.50	50343.79
Rate of Interest	13.50	13.50	13.50	13.50	13.50
Interest on Working Capital	6311.68	6408.46	6487.31	6692.02	6796.41

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

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	5083.26	5202.11	5443.25	5717.60	6066.48
Interest on Loan	0.00	0.00	0.00	0.00	0.00
Return on Equity	20629.47	20780.54	20868.45	20950.44	21031.79
Interest on Working Capital	6311.68	6408.46	6487.31	6692.02	6796.41
O&M Expenses	20076.00	21336.00	22680.00	24108.00	25628.40
Compensation Allowance	420.00	630.00	735.00	840.00	840.00
Total	52520.41	54357.11	56214.00	58308.06	60363.09

Month to Month Energy Charges

75. 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 fired, 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

76. 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, 2014 read with Commission's order dated 25.1.2016 in Petition No. 283/GT/2014.

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

Application Fee and Publication Expenses

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



79. 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.

80. Petition No. 279/GT/2014 is disposed of in terms of the above.

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

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

