

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 293/GT/2014

Coram:

Shri Gireesh B. Pradhan, Chairperson

Shri A.K. Singhal, Member

Shri A.S. Bakshi, Member

Dr. M.K. Iyer, Member

Date of Order: 16th February, 2017

In the matter of

Approval of tariff of Talcher Super Thermal Power Station, Stage-II (2000 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. AP Eastern Power Distribution Company Ltd.
Corporate office, P& T Colony, Seethammadhara
Visakhapatnam-530013
2. AP Southern Power Distribution Company Ltd.
Back side Srinivasa Kalyana Mandapam,
Tiruchhanur Road, Kesavayana Gunta,
Tirupathi- 517503
3. Telangana State Northern Power Distribution Company Ltd
H.No.2-5-31/2, Vidyut Bhavan,
Nakkalagutta, Hanamkonda
Warangal- 506001
4. Telanagana State Southern Power Distribution Company Ltd
Mint Compound, Corporate office,
Hyderabad (AP)- 500063
5. Tamil Nadu Generation & Distribution Corporation Ltd.
144, Anna Salai,
Chennai- 600002



6. Bangalore Electricity Supply Company Ltd.
Krishna Rajendra Circle,
Bangalore- 560009
7. Mangalore Electricity Supply Company Ltd.
Paradigm plaza, A.B.Shetty Circle
Mangalore- 575001
8. Chamundeshwari Electricity SupplyCorp. Ltd.
927, L.J.Avenue, New Kantharajours Road
Saraswathipuram,
Mysore- 570009
9. Gulbarga electricity Supply Company Ltd.
Main road Gulbarga- 585102, Karnataka
10. Hubli Electricity Supply Company Ltd.,
Corporate office, P.B.Road,
Navanagar, Hubli- 580025
11. Kerala state Electricity Board
Vaidyuthi Bhavanam, Pattom,
Thiruvananthapuram- 695004
12. Electricity Department,
Government of Puducherry
137, NSC Bose Salai,
Puducherry- 605001
13. Grid Corporation of Orissa Limited
Vidyut Bhavan,
Janpath, Bhubaneswar- 751022

....Respondents

Parties present:

Shri Ajay Dua, NTPC
Shri Bhupinder Kumar, NTPC
Shri Rajeev Choudhary, NTPC
Shri B.S.Rajput, NTPC
Shri Rohit Chhabra, NTPC
Shri Sameer Aggarwal, NTPC
Shri Nishant Gupta, NTPC
Shri T. Vinod Kumar, NTPC
Shri R.B.Sharma, Advocate, GRIDCO
Shri S.Vallinayagam, Advocate, TANGEDCO
Shri Jaya Prakash, TANGEDCO

ORDER

This petition has been filed by the petitioner, NTPC for approval of tariff of Talcher Thermal Power Station (2000 MW), Stage- II (hereinafter referred to as "the generating station) for the period from 1.4.2014 to 31.3.2019 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 2000 MW comprises of 4 units of 500 MW each. The dates of commercial operation (COD) of the units are as under:

Unit	COD
I	1.8.2003
II	1.3.2004
III	1.11.2004
IV	1.8.2005

3. The Commission vide order dated 28.5.2013 in Petition No. 269/2009 had determined the tariff of the generating station for the period 1.4.2009 to 31.3.2014. Against the said order, the petitioner had filed Appeal No. 173/2013 and the same was disposed of by the Tribunal vide judgment dated 8.5.2014. Thereafter, the petitioner filed Petition No. 320/GT/2013 and Petition No. 208/GT/2014 for revision of tariff of generating station in terms of Regulation 6(1) of 2009 Tariff Regulations for the period from 1.4.2009 to 31.3.2014 after truing-up exercise based on actual additional capital expenditure incurred for the period 2009-14. Accordingly, the closing capital cost and the annual fixed charges for the petitioner for the period 2009-14 as determined by Commission vide order dated 26.8.2015 in Petition Nos. 320/GT/2013 and 208/GT/2014 are as under:

	(₹ in lakh)				
	2009-10	2010-11	2011-12	2012-13	2013-14
Opening Capital Cost	496946.86	498187.69	500571.30	503990.61	512678.89
Add: Additional Capital Expenditure	1240.83	2383.61	3419.31	8688.28	16265.06
Closing Capital Cost	498187.69	500571.30	503990.61	512678.89	528943.95
Average Capital Cost	497567.28	499379.49	502280.95	508334.75	520811.42

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



Capital Cost

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening capital cost	530350.33	537912.33	551052.33	572944.33	580644.33
Add: Addition during the year/ period	7562.00	13140.00	21892.00	7700.00	23719.00
Less: De-capitalization during the year/ period	0.00	0.00	0.00	0.00	0.00
Less: Reversal during the year/ period	0.00	0.00	0.00	0.00	0.00
Add: Discharges during the year/period	0.00	0.00	0.00	0.00	0.00
Closing capital cost	537912.33	551052.33	572944.33	580644.33	604363.33
Average capital cost	534131.33	544482.33	561998.33	576794.33	592503.83

Annual Fixed Charges

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	27669.07	28205.27	29112.64	10971.06	12223.47
Interest on Loan	2381.26	731.68	0.00	0.00	183.98
Return on Equity	32654.37	33287.18	34358.03	35262.59	36223.00
Interest on Working capital	12562.07	12716.67	12870.81	12633.61	12858.17
O&M expenses	36000.68	38274.72	40684.90	43252.23	45977.81
Compensation allowance	200.00	300.00	400.00	400.00	400.00
Special Allowance	0.00	0.00	0.00	0.00	0.00
Total	111467.45	113515.52	117426.38	102519.48	107866.42

5. In compliance with the directions of the Commission, the petitioner has filed additional information and has served the copies of the same on the respondents. The respondents, KSEB, TANGEDCO and GRIDCO have filed their replies and the petitioner has filed its rejoinder to the said replies. We now proceed to examine the claim of the petitioner, on prudence check, based on the submissions of the parties and the documents available on record, as stated in the subsequent paragraphs.

Capital Cost as on 1.4.2014

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 modernization as admitted by this Commission in accordance with Regulation 15.”

7. The petitioner has claimed opening capital cost as on 1.4.2014 based on the admitted closing capital cost of ₹518916.00 lakh as on 31.3.2014 as allowed in order dated 28.5.2013 in Petition No. 269/2009. The petitioner has further adjusted the capital cost by amount ₹11351.00 lakh in accordance with the closing capital cost as on 31.3.2014 which has been worked out as ₹530350.00 lakh. The Closing Capital Cost of ₹530350.00 lakh as on 31.3.2014 claimed by the petitioner is prior to truing up of tariff based on actual additional capital expenditure for the period 2009-14.

8. The Commission vide order dated 26.8.2015 in Petition No. 320/GT/2013 and 208/GT/2014 had revised the tariff of the generating station after truing-up exercise based on the admitted closing capital cost of ₹528943.95 lakh as on 31.3.2014. The difference in the capital cost considered by the petitioner as against those admitted as on 31.3.2014 is on account of the fact that truing-up exercise for 2009-14 was revised during the pendency of this petition for determination of tariff for the period 2014-19. The corresponding un-discharged liability is ₹3244.53 lakh (₹ 2244.99 lakh pertaining to liability as on 1.4.2009 and ₹999.53 lakh pertaining to liability added during 2009-14. The closing capital cost as admitted by the Commission as on 31.3.2014 in order dated 26.8.2015 shall be considered as opening capital cost for the determination of tariff from 1.4.2014 to 31.3.2019 in terms of the above regulation.

9. The petitioner has claimed closing capital cost of ₹5303250.00 lakh as on 31.3.2014 which is higher than the closing capital cost of ₹528943.95 lakh admitted by the Commission as on 31.3.2014. However, in terms of the above regulation, the admitted closing capital cost of ₹528943.95 lakh as on 31.3.2014 has been considered as opening capital cost as on 1.4.2014.



Projected Additional Capital Expenditure during 2014-19

10. Clause 3 of Regulation 14 of 2014 Tariff Regulations provides as under:

“14. Additional Capitalization and De-capitalization: (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 49 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 50 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 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 insulators 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;

(x) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receiving system arising due to non-materialization of coal supply corresponding to full coal linkage in respect of thermal



generating station as result of circumstances not within the control of the generating station:

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

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

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

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

Sl. No	Package Name	Regulation	Projected additional capital expenditure					Total
			2014-15	2015-16	2016-17	2017-18	2018-19	
1	Work related to Ash pond/Ash handling system	14(3)(iv)	7183.00	10880.00	4352.00	2500.00	5800.00	30715.00
2	Interlocking at Exchange yard	14(3)(x)	379.00	0.00	0.00	0.00	0.00	379.00
3	Replacement of MS pipes with cast basalt pipelines and associated works	14(3)(ii)	0.00	1960.00	1866.00	0.00	0.00	3826.00
4	Installation of IP security cameras and related works towards plant safety and security	14(3)(iii)	0.00	300	0.00	0.00	0.00	300.00
5	Up-gradation of ESP of stage-II	14(3)(ii)	0.00	0.00	3750.00	3750.00	3750.00	11250.00
6	Providing fire detection & protection system in stage-II CHP	14(3)(ii) & 14(3)(iii)	0.00	0.00	159.00	0.00	0.00	159.00
7	3.5 KM MGR to Kaniha mine Signalling & Telecommunication	14(3)(x)	0.00	0.00	434.00	0.00	0.00	434.00
8	Land for left out portion of MGR	14(3)(x)	0.00	0.00	81.00	0.00	0.00	81.00
9	Wagon Tiplers and associated works	14(3)(x)	0.00	0.00	11250.00	1250.00	0.00	12500.00
10	Providing 5th pump in Ash slurry series	14(3)(iv)	0.00	0.00	0.00	200.00	400.00	600.00
11	Dry Ash transportation system	14(3)(ii)	0.00	0.00	0.00	0.00	10000.00	10000.00



12	12.5 KM MGR to Kaniha mine	14(3)(x)	0.00	0.00	0.00	0.00	3769.00	3769.00
	Total		7562.00	13140.00	21892.00	7700.00	23719.00	74013.00

12. The petitioner has claimed total projected additional capital expenditure of ₹ 74013.00 lakh for the period 2014-19 which comprises of ₹ 30715.00 lakh towards Ash Pond/ Ash handling system, ₹11250.00 lakh for up-gradation of ESP, ₹ 12500.00 lakh towards Wagon Tiplers, ₹1000.00 lakh towards Dry ash transportation system and the balance towards various other works i.e. Replacement of MS pipes with cast basalt, 12.5 km MGR to Kaniha mine, Interlocking at exchange yard etc. The projected additional capital expenditure claimed by the petitioner is examined in the subsequent paragraphs:

Regulation 14 (3) (ii)

Replacement of MS pipes with cast basalt pipelines and associated works

13. The petitioner has claimed projected additional capital expenditure of ₹1960.00 lakh in 2015-16 and ₹1866.00 lakh in 2016-17 towards Replacement of MS pipes with Cast Basalt pipelines and associated works under this head. In justification of the same, the petitioner has submitted that as per letter dated 12.7.2011 and 13.1.2012 of the Orissa State Pollution Control Board (OSPCB), the existing MS pipes are to be replaced with Cast Basalt pipes in order to avoid leakage and to protect the surroundings. Accordingly, the petitioner has prayed that the said expenditure may be allowed.

14. The respondent, KSEB has submitted that the additional capital claimed by the petitioner may be allowed in terms of the Regulation 14(3) of 2014 Tariff Regulations. The respondent, TANGEDCO has submitted that the expenditure claimed by the petitioner may be met from the O&M expenses allowed to the generating station. The respondent, GRIDCO has submitted that though the expenditure claimed by the petitioner is in accordance with the Comprehensive Environmental Pollution



Index (CEPI) action plan, no documentary evidence in respect of the same has been filed. It has also submitted that no additional capital may be allowed in the absence of the consent order and the application filed by the petitioner before OSPCB.

15. In compliance with the directions of the Commission vide ROP of the hearing dated 24.5.2016, the petitioner has submitted that in terms of Regulation 3(9)(d) of the 2014 Tariff Regulations, Change-in-law includes change by any competent authority in any condition or covenant of any consent and therefore the directions of OSPCB in its letters for controlling air and water pollution falls within the scope of change in law and the same is required to be complied for continuing the operation. The petitioner has further submitted that in terms of the order dated 26.8.2015, it has capitalized an amount of ₹1876.00 lakh in 2013-14. The petitioner has also submitted that it has claimed an amount of ₹1960.00 lakh in 2015-16 for Procurement and Replacement of 450 NB cast basalt pipe including construction of pedestal for support of basalt pipe and ₹1866.00 lakh in 2016-17 for Procurement of 450 NB Cast basalt pipe. It has further submitted that the gross block of MS pipes during the years 2015-16 and 2016-17 is ₹286.00 lakh and ₹349.56 lakh respectively.

16. We have examined the matter. It is noticed that OSPCB vide letter dated 12.7.2011 has granted consent to the petitioner to operate the units of generating station, subject to compliance of certain terms and conditions till 31.8.2011. Subsequently, OSPCB vide letter dated 13.1.2012 had extended the validity of consent order up to 31.3.2012 within which time the generating station was required to comply with the conditions in the consent order to keep the same valid. It is further noticed that the consent order relates to product quality, specific outlets, discharge quantity and quality, specified chimney/stack, emission quantity and quality of emissions.



17. Considering the fact that the petitioner is required to comply with the terms and conditions for Prevention and Control of Air and Water Pollution in terms of the provisions of Air (Prevention and Control of Pollution) Act and Water (Prevention and Control of Pollution) Act and the directions contained in the letters dated 12.7.2011 and 13.1.2012, we are inclined to allow the additional capital expenditure of ₹1674.00 lakh (₹1960.00-₹286.00 lakh) and ₹1516.44 lakh (₹1866.00-₹349.56 lakh) for the years 2015-16 and 2016-17 respectively after adjustment of the gross block of MS pipes. The petitioner is however directed to submit the valid consent order of OSPCB at the time of truing up of tariff of the generating station in terms of Regulation 8 of the 2014 Tariff Regulations.

Up gradation of ESP

18. The petitioner has claimed projected additional capital expenditure of ₹3750.00 lakh each for the years 2016-17, 2017-18 and 2018-19 as regards to Up-gradation of ESP. In justification of the same, the petitioner has submitted that the emission of particulate matter from ESP stacks are required to be reduced to 50 mg/Nm³ from 100mg/Nm³ for which up gradation is required in compliance with the directions of OSPCB letters dated 12.7.2011 and 13.1.2012 in line with Comprehensive Environmental Pollution Index (CEPI). Accordingly, the petitioner has prayed for allowing the said expenditure under Regulation 14(3)(ii) of the 2014 Tariff Regulations.

19. The respondent, TANGEDCO has submitted that the claim of the petitioner may be disallowed in the absence of non-submission of management certificate for approval of incurring the expenditure for the period 2014-19 and also since the petitioner has claimed compensation allowance, the claim may be rejected. The respondent, GRIDCO has submitted that the claim for additional amount of ₹11250.00 lakh (₹3750.00 lakh each for the years 2016-17, 2017-18 and 2018-19) proposed for up-gradation of ESP cannot be considered due to lack of documentation on the part of



the petitioner. In response, the petitioner has submitted that the projected additional expenditure claimed is for compliance with the directions of the OSPCB in order to meet the stringent emission norms of 50mg/Nm³ specified.

20. We have examined the matter. It is observed that the area around the generating station has been identified as critically polluted and therefore necessary steps are required to be taken by all stakeholders in order to implement the CEPI action plan. Accordingly, in compliance with the CEPI action plan notified by OSPCB during the year 2012, long term works of up-gradation of ESP has been proposed to be undertaken by the petitioner during the period 2016-19. Though the petitioner was directed vide ROP of the hearing dated 24.5.2016 to submit details of the emission levels of the generating station and the expected level of emission after Up-gradation of ESP, it has not furnished the same. However, considering the fact that the expenditure is incurred in compliance with the statutory guidelines of OSPCB, we are inclined to allow the projected additional capital expenditure of ₹ 3750.00 lakh each for the years 2016-17, 2017-18 and 2018-19 for Up-gradation of ESP of Stage-II under Regulation 14(3)(ii) of the 2014 Tariff Regulations. The petitioner is however directed to furnish the actual emission level of ESP during the last five years, categorically for each pass and each unit of the generating station at the time of truing up in the terms of Regulation 8 of the 2014 Tariff Regulations.

Dry Ash Transportation System

21. The petitioner has claimed additional capital expenditure of ₹10000.00 lakh in 2018-19 towards Dry Ash Transportation System (DATS) for evacuation of fly ash as per Notification dated 3.11.2009 of the Ministry of Environment & Forests (MoEF), GOI as regards utilization of dry ash. In justification of the same, the petitioner has submitted that generating station is required to achieve 100% ash utilization in stipulated time frame in compliance to the said notification. It has further submitted



that Augmentation of Dry Ash Evacuation System (DAES) is required for ash utilization as the same is not sufficient to meet the requirement of the generating station. Accordingly, the petitioner has prayed that the expenditure claimed under this head may be allowed.

22. The respondent, TANGEDCO has referred to provision 1(1) and 1(6) of the said Notification dated 3.11.2009 and has submitted that the generating station should utilize the amount collected towards infrastructure facilities until it achieves 100% level. It has also stated that claim of the petitioner is not in line with the relevant provisions of the notification and therefore the expenditure claimed may not be allowed.

23. In response to the directions of the Commission vide ROP of the hearing dated 24.5.2016, the petitioner has submitted that the generating station was envisaged to commence operation during the fag end of the year 1990 and dry ash transportation system of the generating station for 25% of capacity was proposed to be installed. Accordingly, it has submitted that as per the original scope of work, dry ash transportation system of 50% capacity was available for the two units (i.e. 25% of station capacity) for the generating station. The petitioner has further pointed out that OSPCB in its letter dated 12.7.2011 has directed that “...*the industry shall plan and implement appropriate actions to comply with the provisions of Fly Ash Notification 2009.....*”.Accordingly, the petitioner has prayed that additional capital expenditure claimed under this head may be allowed.

24. We have examined the matter.It is observed that the notification dated 3.11.2009 of MoEF, GOI provides that all coal/lignite based thermal stations would be free to sell the fly ash to user agencies subject to certain conditionsandthe amount collected from sale of fly ash or fly ash based products should be kept in a separate account head and shall be utilized only for development of infrastructure or facilities, promotion and



facilitation activities for use of fly ash until 100% fly ash utilization level is achieved. Since the expenditure is required for compliance with the guidelines with MoEF guidelines dated 3.11.2009 and is for achieving 100% ash utilization targets as per the said notification, we are inclined to allow the prayer of the petitioner. Moreover, the DATS shall also help in reducing the burden of ash disposal in the ash dyke area which will reduce the regular or time to time capitalization of expenditure for raising of ash dyke and environmental ground water pollution. In this background and since the expenditure is for compliance with the existing norms under the MoEF notification, the additional capital expenditure for DATS is allowed under Regulation 14(3)(ii) of the 2014 Tariff Regulations. However, the petitioner is directed to furnish the details of revenue earned from sale of fly ash (excluding transportation charges if any paid by the petitioner) and a copy of account duly certified by the auditor, which is mandatorily have to be maintained by the petitioner as per the said notification and the same shall be considered at the time of truing up of tariff in terms of Regulation 8 of the 2014 Tariff Regulations.

Fire detection and Protection system

25. The petitioner has claimed projected additional capital expenditure of ₹ 159.00 lakh in 2016-17 towards fire detection and protection system. In justification of the same, the petitioner has submitted that fire detection and protection system is required to be installed for safety and security in compliance with the Central Electricity Authority (Technical standards for construction of Electric plants and lines), Regulations, 2010 and the Central Electricity Authority (Safety Requirements for Construction, Operation and Maintenance of Electrical Plants and Electrical Lines) Regulations, 2011 (hereinafter called the “CEA Regulations 2010 and 2011”). Accordingly, the petitioner has prayed that the said additional capital expenditure may be allowed.



26. The respondents, TANGEDCO has submitted that the claim of the petitioner under this head may be met out of Compensation Allowance provided to the generating station under Regulation 17(2) of the 2014 Tariff Regulations. It has further submitted that no details have been furnished by the petitioner as regards to the functioning of existing fire detection devices installed in the generating station. The respondent, GRIDCO has submitted that the said CEA Regulations do not apply to the generating station as they provide technical standards for construction of electrical plants and not for already constructed ones. In response, the petitioner has clarified that the above mentioned Regulations are applicable to both new as well as existing power plants and hence the expenditure may be allowed.

27. We have examined the matter. It is observed that similar claim of the petitioner under Regulations 14(3)(ii) and 14(3)(iii) of the 2014 Tariff Regulations for Augmentation of Fire fighting system was considered by the Commission in Petition No. 270/GT/2014 (tariff of Simhadri STPS for 2014-19) and the Commission by order dated 27.6.2016 had rejected the claim of the petitioner. On a review filed by the petitioner (in Petition No.36/RP/2016), the Commission by order dated 27.1.2017 allowed the prayer of the petitioner under Regulation 14(3)(iii) of the 2014 Tariff Regulations. The petitioner in this petition has claimed the expenditure due to Change in law/compliance with existing law under Regulation 14(3)(ii) and for Safety and security of the plant under Regulation 14(3)(iii) of the 2014 Tariff Regulations in terms of the CEA Regulations 2010 and 2011. Though the prayer of the petitioner in the review petition was not allowed under Regulation 14(3)(ii) of the 2014 Tariff Regulations, the Commission is of the view that the matter needs to be examined in the larger perspective i.e whether the CEA Regulations 2010 and 2011 are applicable to the existing generating stations and if so, whether the implementation of the augmentation of fire fighting system should be considered as Change in law and is



required for Safety and security of the plant in terms of Regulation 14(3)(ii) and (iii) of the 2014 Tariff Regulations. Accordingly, the Commission has decided to consult the CEA in this regard. Therefore, the Staff of the Commission is directed to refer the matter to CEA for necessary clarification. Pending clarification in the matter, the claim of the petitioner has not been decided in this order. If on the basis of the report of the CEA, the Commission comes to a decision to allow the expenditure for augmentation of fire fighting/protection system under Change in law and for Safety and security of the plant, and in that event, the claim of the petitioner shall be considered at the time of truing-up of tariff in terms of Regulation 8 of the 2014 Tariff Regulations. The petitioner shall also place on record the confirmation that the expenditure on augmentation of fire fighting system/protection system is in compliance with the TAC guidelines and the discount, if any, received from the Insurance companies at the time of truing-up.

Regulation 14 (3) (iii)

Installation of IP security cameras and related works towards plant safety and security

28. The petitioner has claimed additional capital expenditure of ₹300.00 lakh in 2015-16 for Installation of IP security cameras and related works. In justification of the same, the petitioner has submitted that Ministry of Home Affairs (MoHA), GOI vide letter dated 3.12.2011 has directed for installation of IP security cameras at various locations of the generating station in view of its safety and security concerns and hence it may be allowed.

29. The respondent, TANGEDCO has submitted that the said expenditure is minor in nature and can be met from the Compensation Allowance admissible to the generating station. It has further submitted that the Commission vide order dated 20.5.2015 in Petition No. 260/GT/2013 had disallowed the similar claim of the petitioner in respect of Dadri stage-I GPS of the petitioner. Accordingly, the



respondent has prayed that the expenditure of ₹300.00 lakh in 2015-16 may be disallowed. In response, the petitioner has clarified that the projected expenditure has been claimed as per the directions of CISF.

30. We have examined the matter. It is noticed that Regulation 14(3)(iii) of the 2014 Tariff Regulations provides for considering the expenditure for security or safety of the plant based on the advice or direction of statutory authorities responsible for national security/ internal security. Keeping in view the present security scenario of the country and in order to modernize the security system and installation of modern electronic gadget, Ministry of Home Affairs, GOI vide letter dated 3.12.2011 has directed for installation of IP security cameras at various locations of the generating station and the installation of cameras are for internal security and safety of the plant from outside agencies/ elements. In this background, the additional capital expenditure of ₹300.00 lakh in 2015-16 is allowed under Regulation 14(3)(iii) of the 2014 Tariff Regulations.

Regulation 14 (3) (iv)

Ash Pond/ Ash handling Work

31. The petitioner has claimed additional capital expenditure of ₹7183.00 lakh in 2014-15, ₹10880.00 lakh in 2015-16, ₹4352.00 lakh in 2016-17, ₹2500.00 lakh in 2017-18 and ₹5800.00 lakh in 2018-19 for works of Ash dyke raising and associated works. In justification of the same, the petitioner has submitted that the projected additional capital expenditure is for planned works relating to Ash handling and Ash pond related works which are of continuous nature during the operational life of the generating station and is covered within the original scope of the project. Accordingly, the petitioner has prayed that the additional capital expenditure claimed may be allowed.

32. The respondent, TANGEDCO has submitted that in terms of the MoEF, GOI Notification dated 3.11.2009 the expenditure on account of evacuation of ash is to be



met by the revenue generated from the sale of Ash. Accordingly, it has submitted that the petitioner may be directed to provide the quantum of ash generated and the quantum sold for prudence check of the Commission. In response, the petitioner has clarified that no revenue is generated from sale of fly ash in the generating station. The respondent, GRIDCO has submitted that the work contemplated by the petitioner in raising ash dyke for ash disposal, ash pond work is not a deferred work but a continuous process during the entire operational life time of the generating station and hence it is an O&M expense for which an increased work is provided under the 2014 Tariff Regulations. It has further submitted that no documentary evidence has been submitted by the petitioner for claiming the said expenditure.

33. The Commission, vide ROP of the hearing dated 24.5.2016 had directed the petitioner to file additional information with regard to the additional capital expenditure of ₹307.15 crore during the period 2014-19 towards work related to Ash pond and in response the petitioner has submitted that the proposed expenditure of ₹307.15 crore is for 4th, 5th, 6th & 7th raising of Lagoon 1 and Lagoon 2 along with peripheral filling. It has further submitted that 40% of ash (approx.) is utilized at the generating station as a whole and dyke raising constitute a major part of ash utilization (95%) and the balance 5% is utilized in brick industries including ash brick plant for Talcher STPS and asbestos industries. It has further clarified that a revenue of ₹0.046 crore has been generated from sale of ash since the COD of the generating station till 31.3.2014.

34. The matter has been examined. It is observed from the submissions of the petitioner that the projected expenditure 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. Moreover, the works for which the expenditure has been claimed is as per approved scheme under the original scope of work. It is



observed that the petitioner had capitalized an expenditure of ₹151.18 crore towards Ash dyke works for the period from 1.8.2005 to 31.3.2014 and in this background the claim of the petitioner for the period 2014-19 appears to be on higher side. In the absence of comparison of the cost with similar work undertaken by the petitioner, the reasonableness of the estimated cost from the break-up of proposed ash dyke works during the period 2014-19 as submitted by the petitioner, cannot be worked out. Moreover, when the capitalization of ₹10000.00 lakh for dry Fly Ash extraction system has been proposed in 2018-19, the reason for capitalization of the said amount for 7th raising in 2018-19 is also not understood, more so, when a major portion of ash (80% approx.) generated has been disposed of in dry form. In this background, we are inclined to restrict the proposed additional capital expenditure to ₹115.98 crore which was allowed during the period 2009-14, with an annual escalation of 6.35% each year during the period 2014-19. This works out to ₹15578.68 lakh. Considering the capitalization submitted by the petitioner, this amount is pro-rated each year and accordingly the same works out to ₹3689.99 lakh in 2014-15, ₹5589.19 lakh in 2015-16, ₹2235.68 lakh in 2016-17, ₹1284.28 lakh in 2017-18 and ₹2979.54 lakh in 2018-19. The petitioner is however directed to submit the details of work orders along with complete scope of work of ash handling system, estimated cost, and actual cost incurred along with documentary proof at the time of truing up exercise in terms of Regulation 8 of the 2014 Tariff Regulations. The petitioner is also directed to furnish a certificate to the effect that Ash pond & Ash handling related works executed pertains to generating station only and no part of work is related to Stage-I.

5th pump in Ash slurry series

35. The petitioner has claimed additional capital expenditure of ₹200.00 lakh in 2017-18 and ₹400.00 lakh in 2018-19 under Regulation 14(3)(iv) towards provision for 5th pump in Ash Slurry Headers. In justification of the same, the petitioner has submitted



that a provision for 5th pump in Ash slurry series was kept in the original scope of work, which is required to be provided eventually with the planned raising of Ash dykes.

36. The respondent, TANGEDCO has submitted that the claim of the petitioner may be negated as the details regarding volume of ash generated and quantity of ash disposed by the existing pumps has not been submitted by the petitioner. In response, the petitioner has submitted that the 5th pump in Ash Slurry series was not commissioned earlier in order to avoid tariff burden on the beneficiaries.

37. The matter has been examined. It is observed that the 5th pump in Ash slurry series is required to handle the increased pumping head of ash slurry pumps consequent to raising of ash dykes and is as per approved scheme within the original scope of work relating to ash pond or ash handling system. The work relating to ash dyke raising and associated work of ash handling system form part of the original approved scope of work and are normally undertaken in stages as and when required during the life of the generating station. In this background, the expenditure incurred under this head is allowed under Regulation 14(3)(iv) of the 2014 Tariff Regulations.

Regulation 14 (3) (x)

Interlocking at Exchange yard

38. The petitioner has claimed additional capital expenditure of ₹379.00 lakh in 2014-15 in respect of the work of Interlocking at exchange yard. In justification of the same, the petitioner has submitted that the execution of the work got delayed by East Coast Railways even though the same was approved by the Commission in order dated 28.5.2013 in Petition No. 269/2009 in 2011-12. It has further submitted that the expenditure form part of the ongoing works and is required for safety of rakes and for reduction of time to increase coal receipt without the need of banking of Locos and hence the said expenditure claimed may be allowed to be capitalized during the period 2014-19.



39. The respondent, TANGEDCO has submitted that the claim under this head ought to be disallowed as the expenditure allowed earlier has not been utilized judiciously.

40. The matter has been examined. It is observed that the said work form part of the original scope of work and the Commission vide order dated 28.5.2013 in Petition No. 269/2009 had approved the capitalization of this work in 2011-12. In this background and considering the fact that the expenditure is linked to MGR system and is required for safety of railway rakes, reduction of time to increase coal receipt without the need of banking of locos, we are inclined to allow the expenditure of ₹ 379.00 lakh claimed in 2014-15 under this head.

3.5 Km MGR to Kaniha mine, Signalling and Telecommunication

41. The petitioner has claimed additional capital expenditure of ₹434.00 lakh towards Signalling and Telecommunication at 3.5 km MGR to Kaniha Mines. In justification of the same, the petitioner has submitted that works related to 3.5 Km MGR to Kaniha mines was allowed by the Commission in order dated 28.5.2013 in Petition No. 269/2009 during the period 2009-14 under Regulations 9(2)(vii).

42. The respondent, TANGEDCO has submitted that the petitioner has not furnished any details related to 3.5 km MGR to Kaniha Mines and that he may be directed to furnish the same. In response of the above, the petitioner has clarified that the auditor's certificate for actual capital expenditure towards the said work for the period 2009-14 has been submitted.

43. The matter has been examined. The Commission in order dated 26.8.2015 in Petition No. 320/GT/2013 while allowing the claim of the petitioner for 3.5 Km MGR-Kaniha Mines had observed as under:-

“It is observed that the MGR package was awarded in 2004 at a value of ₹ 767.00 lakh and there was substantial delay in the development of Kaniha mines. Accordingly, the work could be started only in the year 2011 matching with the



schedule for development of Kaniha mines. Further, due to MORTH specification for re-grading of road subsequent to the declaration of captive road of NTPC as National Highway by NHAI, there has been additional work like re-grading of road up to a distance of 1 Km, widening of road, construction of culvert in the captive road declared as National Highway. Thus, due to the high inflationary period and as the development of National Highway as per the MORTH specification did not emerge at the time of original projection; there is difference between the projected and the actual expenditure. Therefore, the claim of the petitioner is justified. In view of this, the actual expenditure of ₹2355.00 lakh in 2012-13 and ₹378.00 lakh in 2013-14 is in order and is allowed under Regulation 9(2) (vii) of the 2009 Tariff Regulation.”

44. It is noticed that the work for MGR lines to Kaniha Mines has got delayed due to delay in the development of Kaniha mines and accordingly the signalling and telecommunication activities could not be started by the petitioner. It is observed that the work of signalling and telecommunication is within the original scope of work of the project and forms an integral part of MGR system. Accordingly, we are inclined to allow the additional capital expenditure of ₹434.00 lakh in 2016-17 for the said work.

Land for left out portion of MGR and 12.5 km MGR to Kaniha Mines

45. The petitioner has claimed additional capital expenditure of ₹81.00 lakh in 2016-17 towards Land for left out portion of MGR and ₹3769.00 lakh towards work of 12.5 km MGR to Kaniha Mines. In justification of the same, the petitioner has submitted that the expenditure was allowed by the Commission in order dated 28.5.2013 in Petition No. 269/2009 during the period 2009-14. It has also submitted that the work could not be started due to delay in the process of land acquisition, the same being private land and the Govt. of Orissa is yet to disburse the amount to the land owners. Accordingly, the petitioner has prayed for grant of the said expenditure.

46. The matter has been examined. The Commission vide order dated 28.5.2013 in Petition No. 269/2009 had allowed an expenditure of ₹ 600.00 lakh and ₹3769.00 lakh towards Land for left out portion of MGR and 12.5 km MGR to Kaniha mines respectively during the period 2009-14. Thereafter the Commission vide order dated 26.8.2015 in Petition No. 320/GT/2013 had allowed the actual additional capital expenditure of ₹60.00 lakh in 2011-12, ₹9.00 lakh in 2012-13 and ₹451.00 lakh in



2013-14 (i.e. total ₹520.00 lakh) during the period 2009-14 out of the expenditure towards Land for left out portion of MGR. Since, the total amount claimed by the petitioner under this headform part of the expenditure allowed and the work has been delayed due to delay in land acquisition required for MGR system by Govt. of Odisha, we are inclined to allow the additional capital expenditure claimed under this head.

Wagon Tiplers and associated works

47. The petitioner has claimed additional capital expenditure of ₹11250.00 lakh in 2016-17 and ₹1250.00 lakh in 2017-18 towards Wagon Tiplers and associated works. In justification of the same, the petitioner has submitted that the coal field is not able to meet the supply of coal up to FSA quantity and therefore, the generating station is dependent on Railways through BOBR wagons for extra coal. It has also submitted that Railways is planning to phase out BOBR rakes and use only BOXN wagon rakes. Accordingly, it has prayed that the said expenditure may be allowed in order to carry out the works in environment friendly manner.

48. The respondent, TANGEDCO had submitted that the arrangement of fuel is generator's responsibility and that the generating station can meet the expenditure from O&M expenses allowed to the generating station. In response, the petitioner has submitted that appropriate steps to deal with the problems of the fuel shortage has been taken and due to delay in unloading BOXN type wagons, the total receipt of coal reduces in the absence of wagon tippler.

49. The matter has been examined. Though the petitioner has submitted that the Railways has been planning to phase out BOBR rakes, no documentary evidence has been furnished by the petitioner with regards to the same. It has also submitted that it has been receiving only 14.5 MTPA in place of 17.5 MTPA from MCL mines and the remaining coal is being met by importing coal as well as other domestic sources and Wagon tiplers are required to receive coal through rakes of Indian Railways which



are in BOX-N types of wagons. However, from the data furnished by the petitioner considering 85% Availability, Station Heat rate of 2375 kCal/kWh and as fired GCV of coal of 3127.66 kCal/kg (in the absence of as received GCV) in terms of the 2014 Tariff Regulations, the annual requirement of coal for the generating station is found to be 11.29 MTPA. Even if 100% availability is considered, the annual coal requirement of the generating station would be 13.28 MTPA (approx.) which is lower than 14.5 MTPA as submitted by the petitioner. In view of this, we are of the considered view that the petitioner has not made out a fit case to allow the additional capital expenditure towards Wagon Tippers and associated works. Accordingly, the claim of the petitioner under this head is not allowed.

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

(₹ in lakh)

Sl. No		Projected Capital expenditure					Total
		2014-15	2015-16	2016-17	2017-18	2018-19	
1	Work related to Ash pond/Ash handling system	3689.99	5589.19	2235.68	1284.28	2979.54	15778.68
2	Interlocking at Exchange yard	379.00	0.00	0.00	0.00	0.00	379.00
3	Replacement of MS pipes with cast basalt pipelines and associated works	0.00	1674.00	1516.44	0.00	0.00	3190.44
4	Installation of IP security cameras and related works towards plant safety and security	0.00	300	0.00	0.00	0.00	300.00
5	Up gradation of ESP of stage-II	0.00	0.00	3750.00	3750.00	3750.00	11250.00
6	Providing fire detection & protection system in stage-II CHP	0.00	0.00	0.00	0.00	0.00	0.00
7	3.5 KM MGR to Kaniha mine Signalling & Telecommunication	0.00	0.00	434.00	0.00	0.00	434.00
8	Land for left out portion of MGR	0.00	0.00	81.00	0.00	0.00	81.00
9	Wagon Tippers and associated works	0.00	0.00	0.00	0.00	0.00	0.00



10	Providing 5th pump in Ash slurry series	0.00	0.00	0.00	200.00	400.00	600.00
11	Dry Ash transportation system	0.00	0.00	0.00	0.00	10000.00	10000.00
12	12.5 KM MGR to Kaniha mine	0.00	0.00	0.00	0.00	3769.00	3769.00
	Total	4068.99	7563.19	8017.12	5234.28	20898.54	45782.12

51. Accordingly, the capital cost allowed for the purpose of tariff is as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening capital cost	528943.95	533012.94	5400576.13	548593.25	553827.53
Add: Addition during the year/ period	4068.99	7563.19	8017.12	5234.28	20898.54
Less: De- capitalization during the year/ period	0.00	0.00	0.00	0.00	0.00
Less: Reversal during the year/ period	0.00	0.00	0.00	0.00	0.00
Add: Discharges during the year/ period	0.00	0.00	0.00	0.00	0.00
Closing Capital Cost	533012.94	540576.13	548593.25	553827.53	574726.07
Average capital Cost	530978.44	536794.53	544584.69	551210.39	564276.80

Debt- Equity ratio

52. Regulation 19 of the 2014 Tariff Regulations provides that-

(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 modernization expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation.

53. Accordingly, gross normative loan and equity amounting to ₹370260.76 lakh and ₹158683.18 lakh respectively as on 31.3.2014 as considered in order dated 26.8.2015 and corrigendum order dated 16.10.2015 has been considered as gross normative loan and equity as on 1.4.2014. Further the additional capital expenditure approved above has been allocated in debt- equity ratio of 70:30.

Return on Equity

54. 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 river hydro generating stations, 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.

55. Regulation 25 of the 2014 Tariff Regulations provides that:

(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.

Illustration:

(i) In case of the generating company or the transmission licensee paying minimum Alternate tax (MAT) @ 20.96% including surcharge and cess:

$$\text{Rate of return on equity} = 15.50 / (1 - 0.2096) = 19.610\%$$

(ii) In case of generating company or the transmission licensee paying normal corporate tax including surcharge and cess:

(a) Estimated Gross Income from generation or transmission business for FY 2014-15 is ₹ 1000 Cr

(b) Estimated Advance tax for the year on above is ₹ 240 Cr

(c) Effective tax rate for the year 2014-15 = ₹ 240 Cr / ₹ 1000 Cr = 24%

(d) Rate of Return on Equity = $15.50 / (1 - 0.24) = 20.395\%$

(iii) 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 trueing 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.



56. The petitioner has claimed Return on Equity considering the base rate of 15.5% and effective tax rate of 23.939%. However, in terms of order dated 27.6.2016 in Petition No. 270/GT/2014, the effective tax Rate (MAT) of 20.961% has been considered for 2014-15 and 21.342% from the year 2015-16 onwards till the year 2018-19 for the purpose of grossing up of base rate of 15.5%. Based on the above, the rate of ROE works out to 19.610% for 2014-15 and 19.705% for 2015-16 onwards. Accordingly, return on equity is as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Normative Equity- Opening	158683.18	159903.88	162172.84	164577.97	166148.26
Addition to equity on account of additional capitalization	1220.70	2268.96	2405.14	1570.28	6269.56
Normative Equity- Closing	159903.88	162172.84	164577.97	166148.26	172417.82
Average Normative Equity	159293.53	161038.36	163375.41	165363.12	169283.04
Rate of return on Equity (Base rate)	15.500%	15.500%	15.500%	15.500%	15.500%
Effective tax Rate	20.961%	21.342%	21.342%	21.342%	21.342%
Rate of Return on Equity (pre tax)	19.610%	19.705%	19.705%	19.705%	19.705%
Return on Equity (Pre Tax)- Annualized	31237.46	31732.61	32193.12	32584.80	33357.22

Interest on Loan

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

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

(1) 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.

(2) 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 up to the date of de-capitalization of such asset.

(3) 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.

(4) 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.

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

(6) 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.

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

(8) 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”

58. The interest on loan has been worked out as mentioned below:

- i) As stated above, gross normative loan amounting to ₹ 370260.76 lakh has been considered as on 1.4.2014
- ii) Cumulative repayment amounting to ₹ 329591.39 lakh as on 31.3.2014 as considered in order dated 26.8.2015 has been considered as on 1.4.2014.
- iii) Accordingly, the net normative opening loan as on 1.4.2014 works out to ₹ 40669.38 lakh
- iv) Addition to normative loan on account of admitted additional capital expenditure has been considered.
- v) Depreciation allowed has been considered as repayment of normative loan during the respective year of the tariff period 2014-19.
- vi) In line with the provisions of the above 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 furnished by the petitioner is considered for the purpose of tariff.

59. The necessary calculation for Interest on loan is as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Normative loan-Opening	370260.76	373109.06	378403.29	384015.27	387679.27
Cumulative repayment of loan up to previous year/period	329591.39	357097.20	378403.29	384015.27	387679.27
Net Normative Loan-Opening	40669.38	16011.85	0.00	0.00	0.00
Addition to Normative loan on account of additional capitalization	2848.29	5294.23	5611.98	3664.00	14628.98
Repayment of loan during the year	27505.82	21306.09	5611.98	3664.00	10319.56
Net Loan closing	16011.85	0.00	0.00	0.00	4309.42
Average loan	28340.62	8005.93	0.00	0.00	2154.71
Weighted average Rate of Interest on Loan	8.1752%	8.1574%	8.1731%	8.2561%	8.4013%
Interest on Loan	2316.91	653.07	0.00	0.00	181.02

Depreciation

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

“27.(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.”

61. Accordingly, the cumulative depreciation of ₹297792.98 lakh as on 31.3.2014 as considered in order dated 26.8.2015 and corrigendum order dated 16.10.2015 has been retained for the purpose of tariff. Further, the value of freehold land, if any, included in the average capital cost has been adjusted while calculating depreciable value for the purpose of tariff. Accordingly, the balance depreciable value for the year 2014-15 works out to ₹179358.16 lakh. Since as on 1.4.2014, the used life of the generating station (i.e 9.71 years) is less than 12 years from the effective station COD of 16.7.2004, depreciation has been calculated by applying weighted average rate of depreciation for the period 2014-17 and for the period 2017-19 depreciation has been calculated by spreading off the balance depreciable value over the remaining useful life of the generating station. The petitioner has claimed depreciation considering weighted average rate of depreciation of 5.1802% for the period 2014-17, and



accordingly the same has been considered. Depreciation has been computed as under:

	(₹in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Average Capital Cost	530978.44	536794.53	544584.69	551210.39	564276.80
Freehold land included above	810.51	810.51	810.51	810.51	810.51
Depreciable value @ 90%	477151.14	482385.62	489396.76	495359.89	507119.66
Remaining useful life at the beginning of the year	15.29	14.29	13.29	12.29	11.29
Balance depreciable value	179358.16	157086.83	136290.87	114043.35	116525.01
Depreciation (Annualized)	27505.82	27807.10	28210.65	9278.10	10319.56
Cumulative depreciation at the end	325298.79	353105.90	381316.54	390594.65	400914.21

Operational Norms

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

Target Availability (%)	83
Heat Rate (kcal/kwh)	2375.0
Auxiliary Power Consumption (%)	5.75
Specific Oil Consumption (ml/kwh)	0.50

Target Availability

63. The Target Availability specified under the 2014 Tariff Regulations is as follows:

“(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.”

64. The petitioner has considered the Target Availability of 83% during the period 2014-19. The Commission due to shortage of domestic coal supply has relaxed Target Availability to 83% for first 3 years from 1.4.2014 and the same shall be reviewed after 3 years. In terms of the above Regulation, the Target Availability of 83% has been allowed for the period 2014-15 to 2016-17 and 85% for the period 2017-18 & 2018-19 as per Regulation 36(A) of 2014 Tariff Regulations.



Heat Rate (kcal/kwh)

65. Regulation 36(C)(a) of 2014 Tariff Regulations provides the Gross Station Heat Rate of 2375 kCal/kWh for existing coal based thermal generating station of 500 MW sets whose COD is before 1.4.2009. The COD of the generating station is 1.8.2005 and accordingly, the Heat rate considered by the petitioner is as per norms and is allowed.

Auxiliary Energy Consumption

66. Regulation 36(E)(a) of Tariff Regulations, 2014 provides Auxiliary Energy Consumption of 5.25% for coal based generating station of 500 MW sets with Natural Draft cooling tower. Further, for thermal generating stations with induced draft cooling towers, the norms shall be further increased by 0.5%. Accordingly, the Auxiliary Energy Consumption of 5.75% considered by the petitioner is as per norms and is allowed.

Specific Oil Consumption

67. Regulation 36(D)(a) of Tariff Regulations, 2014 provides Secondary fuel oil Consumption of 0.50 ml/kWh for coal-based generating station. Accordingly, the Secondary fuel oil consumption of 0.5 ml/kWh considered by the petitioner is as per norms and is allowed.

Operation & Maintenance expenses

68. Regulation 29 (1) (c) of 2014 Tariff Regulation provides the O&M expense norms claimed for the generating station as under:

(₹ in lakh)

2014-15	2015-16	2016-17	2017-18	2018-19	Total
32000	34020	36160	38440	40860	181480

69. The petitioner has claimed year-wise O&M expenses comprising of Normative O&M and Water Charges. The claim for O&M expenses, including water charges, is



found to be in order in terms of the decision of the Commission in its order dated 6.10.2015 in Petition No. 186/GT/2014 (determination of tariff of Sugem CCPP (1147.5 MW) of Torrent Power Limited for 2014-19). The normative O&M expenses claimed by the petitioner under Regulation 29(1) of the 2014 Tariff Regulations is found to be in order and accordingly allowed.

Interest on Working Capital

70. Regulation 28 of 2014 Tariff Regulations provides that:

(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 f for sale of electricity calculated on the normative annual plant availability factor; and

(vi) Operation and maintenance expenses for one month.

(2) 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.

(3) Interest on working capital shall be payable on normative basis notwithstanding that the generating company or the transmission licensee has not taken loan for working capital from any outside agency."

Fuel Components and Energy Charges in working capital

71. The petitioner has claimed the cost for fuel component in working capital based on price and 'as fired' GCV of coal procured and burnt for the preceding three months



of January, 2014, February, 2014 and March, 2014 and secondary fuel oil the preceding three months of January, 2014, February, 2014 and March, 2014, as under:

	<i>(₹ in lakh)</i>				
	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of Coal for Stock for 15 days	9021.51	9046.23	9021.51	9021.51	9021.51
Cost of Coal for Generation for 30 days	18043.02	18092.45	18043.02	18043.02	18043.02
Cost of Secondary fuel oil 2 months	578.50	580.09	578.50	578.50	578.50

72. The Commission vide ROP of the hearing dated 27.2.2015 in Petition No. 283/GT/2014 had directed the petitioner to submit the GCV of coal on 'as received' basis. In compliance to the directions, the petitioner vide affidavit dated 4.6.2015 has submitted that they did not have suitable infrastructure for measurement of representative GCV on 'as received' basis. In response, the respondent has submitted that the Energy Charge Rate (ECR) of generating station is required to be calculated in accordance with the 2014 Tariff Regulations. It has also submitted that the petitioner may realize that the substantial change in ECR would ultimately impact the Merit order Dispatch (MOD) principle.

73. The issue of "as received" GCV for computation of Energy Charges was challenged by NTPC and other generating companies through writ petition in the High Court of Delhi. The writ petition was heard and Delhi High Court 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.

74. 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.”

75. Further, the petitioner has claimed an Energy Charge Rate (ECR) of 160.511 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 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. Accordingly, 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 inherent 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

76. 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	6795.37	6795.37	6795.37	6959.11	6959.11
Cost of Coal for Generation-30 Days	13590.74	13590.74	13590.74	13918.22	13918.22
Cost of Secondary fuel oil 2 months	578.50	580.09	578.50	592.44	592.44

77. The GCV of coal as computed above shall be adjusted in the light of GCV of coal on 'as received' basis computed by the petitioner in accordance with the direction in order dated 25.1.2016 in Petition No. 283/GT/2014. The Energy Charge Rate (ECR) based on operational norms under 2014 Tariff Regulation and on 'as billed' GCV of coal for preceding 3 months (January 2014 to March 2014) is worked out as under:

Sl. No.		Unit	2014-19
1	Capacity	MW	2000
2	weighted average Gross Station Heat Rate	Kcal/kWh	2375
3	weighted average Aux. Energy Consumption	%	5.75
4	Weighted average GCV of oil (As fired)	Kcal/lit	9510
5	Weighted average GCV of Coal (As Billed)	Kcal/kg	4095.156
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	₹/KL	47739.24
8	Weighted average price of Coal	₹/MT	1964.62
9	Rate of energy charge ex-bus	Paise/kWh	120.648**

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

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

78. Energy Charges for 2 months on the basis of as billed GCV for the purpose of Interest in working capital has been worked out as under:

(₹ in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
28137.50	28214.59	28137.50	28815.51	28815.51



Water Charges

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

“29.(2) The Water Charges and capital spares for thermal generating station 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”

80. 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.

81. The water charges claimed by the petitioner for the period 2014-19 are as under:

<i>(₹ in lakh)</i>				
2014-15	2015-16	2016-17	2017-18	2018-19
4000.68	4254.72	4524.90	4812.23	5117.81

82. In order to examine the trend of water consumption and rate of water charges, the petitioner was directed vide ROP of the hearing dated 24.5.2016 to furnish the details of the actual water consumption along with the rate of water charges. The details in respect of water charges such as type of cooling water system, water consumption, rate of water charges have been furnished by the petitioner as under:

Description	Remarks
Type of Plant	Coal
Type of cooling water system	Closed circuit cooling system with induced draft cooling tower
Consumption of water	54.79 cusec
Rate of water charges	₹.5.6 /M3, however water charges are paid as per allocated quantities
Total water charges in 2013-14	₹4000.68 lakh

83. The respondents, TANGEDCO and KSEB have raised the issue of unavailability of year wise split up details and proof of previous remittances of water charges by the



petitioner. The petitioner in compliance to the above said directions, has submitted the actual water consumption, rate of water charges for the last 5 Years i.e 2009-14 along with relevant document in support of the claim as under:

	2009-10	2010-11	2011-12	2012-13	2013-14
Allocated Water Quantity for station Stage-I & II (Cusec)	75	80	85	120	120
Actual Water drawl Station Stage I& II (Cusec)	79.63	70.65	75.47	80.32	82.19
Rate or Water Charges.	From 1.4.2009 to 28.2.2010, payment on water drawl is made on Actual water consumption for drinking water & Industrial water. i) Industrial Water (@₹ 250/- per One lakh gallon) ii) Drinking Water (@ ₹30/- per Ten Thousand cubic feet) From 1.3.2010 to 30.9.2010, payment on water drawl is @₹ 250/- per one lakh gallon) on allocated quantity. From 1.10.2010 onwards payment on water drawl is @₹ 5.60/m ³ on allocated quantity.				
Actual Water Charges paid for generating station (₹ crore) based on allocation of water	4.05	22.14	42.62	60.01	60.01
Actual Water Charges paid corresponding to Stage-II (Total water charges paid *2/3) (₹ crore) (Proportionate allocation of water charges based on MW capacity)	2.70	14.76	28.42	40.01	40.01

84. The petitioner has further submitted that the payment of water charges is as per quantity of water drawn or allocated whichever is higher. It has submitted that where drawl of water is more than the allocated quantity, the penal rate is six times the rate on the quantity of excess drawl in addition to the water charges on the allocated quantity. The petitioner has also enclosed the copy of water supply agreement signed with Department of Water Resources, Govt. of Odisha dated 27.4.2013 and applicable for period April, 2013 to April, 2016. In justification of the quantity of water required for the generating station, the petitioner has submitted as under:

“As per the above, the water requirement for 3000 MW (for TSTPS Stage-I & II) @5cubic meter/hr/MW comes out to be 147 cusec (i.e. 131.4 MCM/year). Even being on conservative side with water flow @4cubic meter/hr, the water requirement for both generating stations of TSTPS (2x500MW+4x500 MW) comes out to be 118 cusec (i.e. 105.12 MCM/year).”



It is submitted that with better O&M practices, chemical dosing, Ash Water Recirculation System (A WRS) in place, the instant station has been able to reduce the raw water make-up and is maintaining its water requirement within the prescribed quantum as mentioned above.

It is further submitted that the agreement of water for a thermal generating station is carried out based on Water Balance Diagram based on various considerations like temperature and relative humidity affecting rate of evaporation of water from raw water pond, Cooling Towers etc, blowdown for design Cycle of Concentration (COC) for circulating water, drift loss of cooling tower, steam loss in the cycle, level of generation etc.

It is submitted that due to prohibitive high penal rate for consumption of water beyond allocation and for reasons as detailed above, the water allocation taken is higher than normal consumption. Therefore, Hon'ble Commission may be pleased to consider the above brought out factors behind the difference between allocated quantity and actual consumption of water and allow the expenditure pertaining to the allocated quantity of water for successful and efficient running of the station in long run.”

85. We have examined the submissions. It is noticed that the water charges claimed by the petitioner during 2014-15 is the same as the water charges paid in the year 2013-14. In other words, the total water charges claimed by the petitioner in 2014-15 is based on the water consumption and water charges paid in 2013-14 and the same has been escalated @ 6.35% as per the escalation rate in O&M norms specified by the Commission for the period 2014-19. However, the escalation rate of 6.35% considered by the petitioner is not in conformity with the Water supply agreement signed by the petitioner on 27.4.2013 with the Department of Water resources, Govt. of Odisha, which specify the rate of ₹ 5.60 /m³ on allocation of water up to 31.3.2016. Hence, the yearly escalation of water charges rate @6.35% is considered after 31.3.2016 as per the escalation rate specified by the Commission in the O&M norms under the 2014 Tariff Regulations. The water charge rate is considered @₹ 5.60/m³ up to 31.3.2016. Accordingly, water charges have been allowed with the annual escalation of 6.35% to the water charges claimed during 2016-19. Based on this, the projected water charges for the period 2014-19 is allowed as under:

	Projected Water charges (₹ in lakh)
2014-15	4000.68



2015-16	4000.68
2016-17	4254.72
2017-18	4524.90
2018-19	4812.23

86. The water charges allowed as above is subject to truing -up at the end of the tariff period 2014-19 and the petitioner is directed to place on record all relevant information.

87. Based on the above discussions, the total O&M expenses including water charges, as claimed by the petitioner and allowed are summarized as under:

(₹ in lakh)					
	2014-15	2015-16	2016-17	2017-18	2018-19
O&M Expenses claimed	32000.00	34020.00	36160.00	38440.00	40860.00
O&M Expenses allowed	32000.00	34020.00	36160.00	38440.00	40860.00
Water Charges claimed	4000.68	4254.72	4524.90	4812.23	5117.81
Water Charges allowed	4000.68	4000.68	4254.72	4524.90	4812.23
Total O&M Expenses claimed	36000.68	38274.72	40684.90	43252.23	45977.81
Total O&M Expenses allowed	36000.68	38020.68	40414.72	42964.90	45672.23

Capital Spares

88. 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. However, the claim of the petitioner, if any, shall be considered on merits at the time of truing-up after prudence check.

Maintenance spares

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

(₹ in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
7200.14	7654.94	8136.98	8650.45	9195.56

90. 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. In terms of Regulation 29(2) of the 2014 Tariff Regulations and in line with



Commission's order dated 6.10.2015 in Petition No. 186/GT/2014, the maintenance spares @ 20% of O & M expenses allowed is as under:

(₹ in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
7200.14	7604.14	8082.94	8592.98	9134.45

Receivables

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

(₹ in lakh)					
	2014-15	2015-16	2016-17	2017-18	2018-19
Variable charges- for two months	28141.87	28218.97	28141.87	28819.99	28819.99
Fixed charges- for two months	17914.28	18125.79	18583.76	15901.16	16720.56
Total	46056.16	46344.76	46725.63	44721.15	45540.56

O&M expenses

92. O&M expenses for 1 month claimed by the petitioner for the purpose of working capital in Form-13 B including water charges are as follows:

(₹ in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
3000.06	3189.56	3390.41	3604.35	3831.48

93. Based on the O&M expense norms and in terms of order dated 6.10.2015 in Petition No. 186/GT/2014, the O&M expenses for 1 month is allowed as under:

(₹ in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
3000.06	3168.39	3367.89	3580.40	3806.02

Month to Month Energy Charges

94. Clause 6 (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”

95. 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.

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

Rate of interest on working capital

97. Regulation 28 (3) 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.”

98. 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. Accordingly, Interest on Working Capital has been computed as under:



	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Cost of coal stock- 15 days	6795.35	6795.35	6795.35	6959.10	6959.10
Cost of coal towards generation- 30 days	13590.70	13590.70	13590.70	13918.19	13918.19
Cost of secondary fuel oil- 2 months	578.50	580.09	578.50	592.44	592.44
Maintenance spares- 20% of O & M	7200.14	7604.14	8082.94	8592.98	9134.45
Receivables	46056.16	46344.76	46725.63	44721.15	45540.56
O&M expenses- 1 month	3000.06	3168.39	3367.89	3580.41	3806.02
Total working Capital	77220.91	78083.43	79141.03	78364.27	79950.75
Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
Interest on working capital	10424.82	10541.26	10684.04	10579.18	10793.35

Compensation Allowance

99. 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.”

100. 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

101. 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 follows:

(₹ in lakh)					
2014-15	2015-16	2016-17	2017-18	2018-19	Total
200	300	400	400	400	1700

102. Two units of the generating station (as on 31.3.2014) and two units (as on 31.3.2015) have completed more than 10 years of commercial operation from their



respective date of COD(s). Accordingly, the Compensation allowance admissible to the petitioner is as under:

Sl.No.		Unit I	Unit II	Unit III	Unit IV
1.	Capacity in MW	500	500	500	500
2.	COD	1-8-2003	1-3-2004	1-11-2004	1-8-2005
	Useful life as on 1.4.2014	10.666	10.085	9.414	8.666
3.	Actual useful life				
	a) 10 years	1.08.2013	1.03.2014	1.11.2014	1.08.2015
	b) 15 years	1.08.2018	1.03.2019	1.11.2019	1.08.2020
	c) 20 years	1.08.2023	1.03.2024	1.11.2024	1.08.2025
	d) 25 years	1.08.2028	1.03.2029	1.11.2029	1.08.2029
	2014-15	100.00	100.00	0.00	0.00
	2015-16	100.00	100.00	100.00	0.00
	2016-17	100.00	100.00	100.00	100.00
	2017-18	100.00	100.00	100.00	100.00
	2018-19	100.00	100.00	100.00	100.00
	Total	500.00	500.00	400.00	300.00

Annual Fixed Charges

103. Accordingly, the annual fixed charges approved for the generating station for the period 2014-19 is summarized as below:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	27505.82	27807.10	28210.65	9278.10	10319.56
Interest on loan	2316.91	653.07	0.00	0.00	181.02
Return on equity	31237.46	31732.61	32193.12	32584.80	33357.22
Interest on working capital	10424.82	10541.26	10684.04	10579.18	10793.35
O&M expenses	36000.68	38020.68	40414.72	42964.90	45672.23
Compensation allowance	200.00	300.00	400.00	400.00	400.00
Special allowance	0.00	0.00	0.00	0.00	0.00
Total annual fixed charges	107685.69	109054.73	111902.53	95806.98	100723.39

Application Fee and Publication Expenses

104. The petitioner has sought the reimbursement of filing fee and also the expenses incurred towards publication of notices for application of tariff for the period 2014-19. The petitioner has deposited the filing fees of ₹ 88,00,000/- each year for the years 2014-15, 2015-16 and 2016-17 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, we direct that the petitioner shall be entitled to recover *pro rata*, the filing fee and the expenses incurred on publication of notices directly from the respondents on production 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.

105. Petition No. 293/GT/2014 is disposed of in terms of the above.

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

Sd/-
(A. S. Bakshi)
Member

Sd/-
(A. K. Singhal)
Member

Sd/-
(Gireesh B. Pradhan)
Chairperson

