

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 265/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 Hearing: 22.09.2015

Date of Order: 31.05.2016

In the matter of

Approval of tariff of Indra Sagar Power Station for the period 1.4.2014 to 31.3.2019

AND

In the matter of

NHDC Limited
(A JV of NHPC & GOMP)
NHDC Parisar,
Shyamla Hills
Bhopal - 462013 (M.P)

....Petitioner

Vs

1. Madhya Pradesh Power Management Company Ltd,
Shakti Bhawan, Vidyut Nagar
Jablapur (M.P)

2. Narmada Valley Development Department,
Govt. of Madhya Pradesh,
Mantralaya, Vallabh Bhawan,
Bhopal (M.P)

....Respondents

Parties Present:

Shri S. Sanyal, NHDC
Shri Ashish Jain, NHDC
Shri Y.N. Rao, NHDC
Shri V.K. Singh, NHDC
Shri Prabhakar Rai, NHDC
Shri Sarthak Lazarus, MPPMCL
Shri M.L. Agarwal, NVDD



ORDER

This petition has been filed by the petitioner, NHDC Ltd for approval of generation tariff of Indra Sagar Project (1000 MW) (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 (the 2014 Tariff Regulations).

2. This multipurpose project has been constructed by the petitioner, which is a joint venture company of NHPC Ltd and the Government of Madhya Pradesh (GoMP). The generating station was declared under commercial operation on 25.8.2005. The generating station comprises of three units, of which Unit-I comprise of dam and appurtenant works, Unit-II comprise of irrigation system and Unit-III is dedicated to power generation. Unit-I is common to both power generation and irrigation system. Unit-III comprises of power station with installation of 8 machines each of 125 MW installed capacity, associated water conductor system and switchyard.

3. The Units – I & III are mainly for power generation and named as '*Power Component*' and Unit - II is for irrigation system and named as '*Irrigation Component*' of this multi-purpose project. Since Unit - I i.e. Dam and appurtenant works contributes for power generation as well as for irrigation purpose, its cost has been apportioned for power generation and irrigation system depending upon the proportion of water utilization for two systems. Secondly, Indira Sagar being the mother reservoir for downstream projects also contributes to Sardar Sarovar Project (SSP) by its regulated water releases. Accordingly, an apportioned cost towards SSP is credited to Indira Sagar Project as sub-vention. Only the balance cost is accounted towards cost of the *Power Component*.

4. The apportioned cost with respect to Unit-I (Dam) has been arrived at after deducting 17.63% and 16.75% on account of Sardar Sarovar Component and Irrigation Component respectively. These percentages of apportionment are as per CCEA Approval as conveyed by MoP, Gol vide No. 2/3/2000-DO(NHPC) dated 28-03-2002 and it is based on water usages as envisaged in Narmada Water Disputes Tribunal (NWDT) Award and subsequently approved by the CWC.



5. The Commission by order dated 13.6.2012 in Petition No. 154/2010 had determined the annual fixed charges of the generating station for the period from 1.4.2009 to 31.3.2014 based on the projected additional capital expenditure during the respective years of the tariff period. The tariff of the generating station for the period 2009-14 was determined vide order dated 26.5.2016 in Petition No. 461/GT/2014. Accordingly, the Annual Fixed Charges is as under:

	(₹ in lakh)				
	2009-10	2010-11	2011-12	2012-13	2013-14
Return on Equity	21878.49	22785.95	22901.92	23406.74	25009.96
Interest on Loan	13200.99	12473.63	13235.12	13599.23	12326.33
Depreciation	13002.61	13063.61	13126.53	12779.51	12872.74
Interest on Working Capital	1249.84	1269.03	1303.61	1330.32	1355.89
O & M Expenses	4951.87	5235.12	5534.57	5851.14	6185.83
Total	54283.79	54827.35	56101.74	56966.95	57750.75

6. The annual fixed charges claimed by the petitioner for the period 2014-19 are as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Return on Equity	12961.08	13128.51	13579.85	14065.88	6805.38
Interest on Loan	10947.85	9777.48	9054.36	8011.63	6807.67
Depreciation	25247.14	25531.45	26209.69	26686.30	26744.02
Interest on Working Capital	1606.99	1622.04	1665.09	1699.17	1543.99
O & M Expenses	8607.73	9179.63	9789.52	10439.94	11133.57
Total	59370.79	59239.11	60298.51	60902.93	53034.63

7. Reply to the petition has been filed by the respondent Nos.1 & 2. The matter was heard on 22.9.2015 and the Commission after directing the petitioner to file certain additional information, reserved its orders in the petition. In response, the petitioner vide affidavit dated 4.12.2015 has filed the additional information with copy to the respondents. Reply has been filed by the respondents and the petitioner has filed its rejoinder to the said replies.

8. Based on the submissions of the parties, the documents available on record and after prudence check, we proceed to determine the tariff of the generating station for the period 2014-19 as stated in the subsequent paragraphs.

Capital Cost

9. Clause (1) of Regulation 9 of the 2014 Tariff Regulations provides that the capital cost as determined by the Commission after prudence check in accordance with this regulation shall form



the basis of determination of tariff for existing and new projects. Clause (3) of Regulation 9 provides as under:

“9(3) The Capital cost of an existing project shall include the following:

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

(b) xxxx

(c) xxxx

10. The petitioner has claimed the opening capital cost of ₹327814.17 lakh as on 1.4.2014 for the purpose of tariff for Power component. The closing capital cost for the purpose of tariff as on 31.3.2014 is ₹320700.09 lakh as per Commission's order dated 26.5.2016 in Petition No. 461/GT/2014. Accordingly, this amount has been considered as the opening capital cost as on 1.4.2014 for the purpose of tariff of the generating station

Additional Capital Expenditure

11. Clause (3) of Regulation 7 of the 2014 Tariff Regulations provides that the application for determination of tariff shall be based on admitted capital cost including any additional capital expenditure already admitted upto 31.3.2014 (either based on actual or projected additional capital expenditure) and estimated additional capital expenditure for the respective years of the tariff period 2014-15 to 2018-19. Clause 3 of Regulation 14 of the 2014 Tariff Regulations, provides as under:

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

- (i) Liabilities to meet award of arbitration or for compliance of the order or decree of a court of law;*
- (ii) Change in law or compliance of any existing law;*
- (iii) Any expenses to be incurred on account of need for higher security and safety of the plant as advised or directed by appropriate Government Agencies of statutory authorities responsible for national security/internal security;*
- (iv) Deferred works relating to ash pond or ash handling system in the original scope of work;*
- (v) Any liability for works executed prior to the cut-off date, after prudence check of the details of such un-discharged liability, total estimated cost of package, reasons for such withholding of payment and release of such payments etc.;*
- (vi) Any liability for works admitted by the Commission after the cut-off date to the extent of discharge of such liabilities by actual payments;*



- (vii) Any additional capital expenditure which has become necessary for efficient operation of generating station other than coal / lignite based stations or transmission system as the case may be. The claim shall be substantiated with the technical justification duly supported by the documentary evidence like test results carried out by an independent agency in case of deterioration of assets, report of an independent agency in case of damage caused by natural calamities, obsolescence of technology, up-gradation of capacity for the technical reason such as increase in fault level;
- (viii) In case of hydro generating stations, any expenditure which has become necessary on account of damage caused by natural calamities (but not due to flooding of power house attributable to the negligence of the generating company) and due to geological reasons after adjusting the proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plant operation;
- (ix) In case of transmission system, any additional expenditure on items such as relays, control and instrumentation, computer system, power line carrier communication, DC batteries, replacement due to obsolescence of technology, replacement of switchyard equipment due to increase of fault level, tower strengthening, communication equipment, emergency restoration system, insulators cleaning infrastructure, replacement of porcelain insulator with polymer insulators, replacement of damaged equipment not covered by insurance and any other expenditure which has become necessary for successful and efficient operation of transmission system; and
- (x) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receiving system arising due to non-materialization of coal supply corresponding to full coal linkage in respect of thermal generating station as result of circumstances not within the control of the generating station: Provided that any expenditure on acquiring the minor items or the assets including tools and tackles, furniture, air-conditioners, voltage stabilizers, refrigerators, coolers, computers, fans, washing machines, heat convectors, mattresses, carpets etc. brought after the cut-off date shall not be considered for additional capitalization for determination of tariff w.e.f. 1.4.2014:

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

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

12. The petitioner has submitted that during the period 2014-19, the total additional capital expenditure of ₹35911.35 lakh is projected up to 31.3.2019 under various provisions of Regulation 14, sub-clause (3) of the 2014 Tariff Regulations. Out of the above, some of the projected items as claimed under additional capital expenditure are the admitted capital works which have spilled over from previous tariff period 2009-14.

13. Based on justification against each item, the additional capital expenditure of ₹35911.35 lakh is projected during respective years for the period 2014-19 under different categories and accordingly, the Gross Cumulative Capitalized Cost up to 31.3.2019 is anticipated to be ₹493242.11 lakh. The year-wise details of additional capital expenditure claimed by the petitioner are as under:



		2014-15	2015-16	2016-17	2017-18	2018-19
Gross Capital Cost as on 31.3.2014: 457330.76						
Opening Cumulative Capitalized Expenditure projected at the beginning of respective years		457330.76	460924.04	469898.78	491398.86	491475.86
Regulation						
14(3) (i)	Liabilities to meet award of arbitration or for compliance of the order or decree of a court of law (R&R balance expenditure) –	3351.78	4459.83	0.00	0.00	0.00
14(3)(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	215.50	95.00	0.00	0.00	0.00
14(3)(viii)	In case of hydro generating stations, any expenditure which has become necessary on account of damage caused by natural calamities (but not due to flooding of power house attributable to the negligence of the generating company) and due to geological reasons after adjusting the proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plant operation	26.00	4419.91	21500.08	77.00	1766.25
Total Capital Expenditure projected to be incurred during respective years		3593.28	8974.74	21500.08	77.00	1766.25
Closing Cumulative Capitalized Expenditure projected at the end of respective years		460924.04	469898.78	491398.86	491475.86	493242.11

14. After deducting the SSP Component, Irrigation Component and GoMP's 50% Subvention towards increased R&R Cost, the Cumulative Capitalized Cost as projected up to 31.3.2019 i.e. ₹493242.11 lakh has been apportioned. Thus, the projected cost of Power Component works out



to ₹350319.73 lakh as on 31.3.2019. The details of cumulative Capitalized cost *vis-à-vis* Power component during respective years for the period 2014-19 are given as below:

(₹ in lakh)

Period		Additional Cost Capitalized*		Capitalized Expenditure at the end of Period*	
From	To	Gross	Power Component	Gross	Power Component
1.4.2014	31.3.2015	3593.28	1309.42	460924.04	327814.17
1.4.2015	31.3.2016	8974.74	5836.87	469898.78	333651.04
1.4.2016	31.3.2017	21500.08	14819.48	491398.86	348470.52
1.4.2017	31.3.2018	77.00	77.00	491475.86	348547.77
1.4.2018	31.3.2019	1766.25	1766.25	493242.11	350319.73

Note:* Inclusive of Un-discharged Liabilities

15. The petitioner has submitted the details of projected un-discharged liabilities in Power component as on 31st March of the financial year for the period 2014-19 as under:

(₹ in lakh)

	Carried Forward as on 1.4.2014	Projected as on				
		31.3.2015	31.3.2015	31.3.2015	31.3.2015	31.3.2015
Un-discharged Liabilities attributable to Power component	2307.37	1052.92	373.92	49.87	49.87	49.87

16. The net power component claimed by the petitioner for the period 2014-19, after considering the un-discharged liabilities is as under:

(₹ in crore)

	2014-15	2015-16	2016-17	2017-18	2018-19
Net Power component at the beginning of the year	3217.12	3242.75	3307.91	3459.35	3460.12
Additions to Power Component	13.09	58.37	148.19	0.77	17.66
Undischarged liabilities attributable to Power component at beginning of the year	23.07	10.53	3.74	0.50	0.50
Undischarged liabilities attributable to Power component at end of the year	10.53	3.74	0.50	0.50	0.50
Undischarged Liabilities Discharged	12.54	6.79	3.24	0.00	0.00
Additions in Net Power component	25.63	65.16	151.43	0.77	17.66
Net Power component for Tariff at end of the year	3242.75	3307.91	3459.35	3460.12	3477.78



Projected Additional Capital Expenditure for 2014-19

17. The year-wise details of projected additional capital expenditure claimed by the petitioner during 2014-19 under various clauses of Regulation 14(3) of the 2014 Tariff Regulations are as under:

a) Gross projected additional capital expenditure claimed is as under:

(₹ in lakh)					
		Regulation 14(3)(i) (R&R Expenses)	Regulation 14(3)(iii) (Higher security & safety)	Regulation 14(3)(viii) (Expenditure necessary for successful & efficient plant operation)	Total
2014-15	Unit-I	3351.78	258.64	0.00	3610.42
	Unit-III	0.00	(-)43.14	26.00	(-)17.14
	Total	3351.78	215.50	26.00	3593.28
2015-16	Unit-I	4459.83	10.00	649.19	5119.02
	Unit-III	0.00	85.00	3770.72	3855.72
	Total	4459.83	95.00	4419.91	8974.74
2016-17	Unit-I	0.00	0.00	21257.53	21257.53
	Unit-III	0.00	0.00	242.55	242.55
	Total	0.00	0.00	21500.08	21500.08
2017-18	Unit-I	0.00	0.00	0.00	0.00
	Unit-III	0.00	0.00	77.00	77.00
	Total	0.00	0.00	77.00	77.00
2018-19	Unit-I	0.00	0.00	0.00	0.00
	Unit-III	0.00	0.00	1766.25	1766.25
	Total	0.00	0.00	1766.25	1766.25

b) Net Power component claimed excluding undischarged & discharge of liabilities is as under:

(₹ in lakh)					
		Regulation 14(3)(i) (R&R Expenses)	Regulation 14(3)(iii) (Higher security)	Regulation 14(3)(viii) (Expenditure necessary for successful & efficient plant operation)	Total
2014-15	Unit-I	1149.21	177.36	0.00	1326.57
	Unit-III	0.00	(-)43.14	26.00	(-)17.14
	Total	1149.21	134.22	26.00	1309.43
2015-16	Unit-I	1529.12	452.03	0.00	1981.15
	Unit-III	0.00	85.00	3770.72	3855.72
	Total	1529.12	537.03	3770.72	5836.87
2016-17	Unit-I	0.00	0.00	14576.93	14576.93
	Unit-III	0.00	0.00	242.55	242.55
	Total	0.00	0.00	14819.48	14819.48



2017-18	Unit-I	0.00	0.00	0.00	0.00
	Unit-III	0.00	0.00	77.00	77.00
	Total	0.00	0.00	77.00	77.00
2018-19	Unit-I	0.00	0.00	0.00	0.00
	Unit-III	0.00	0.00	1766.25	1766.25
	Total	0.00	0.00	1766.25	1766.25

18. The summary of the net projected additional capital expenditure (Power component) after considering relevant subventions for R&R expenses and for Unit-I (Dam) expenses claimed by the petitioner during 2014-19 is as under:

	<i>(₹ in lakh)</i>				
	2014-15	2015-16	2016-17	2017-18	2018-19
Unit-I (Dam excluding R&R) Booked to Power component (a)	177.36	452.03	14576.93	0.00	0.00
Unit-III Booked to Power component (b)	-17.14	3855.72	242.55	77.00	1766.25
R&R expenses Booked to Power component (c)	1149.21	1529.12	0.00	0.00	0.00
Additional Capital Expenditure (power component) claimed (excluding Un-discharged & Discharged Liabilities) (d)=(a)+(b)+(c)	1309.43	5836.87	14819.48	77.00	1766.25
Un-discharged liabilities discharged (e)	1254.45	679.00	324.05	0.00	0.00
Net projected additional capital expenditure (Power component) (f)=(d)+(e)	2563.88	6515.86	15143.53	77.00	1766.25

19. The respondent MPPMCL has submitted that many of the projected additional capital expenditure claimed under Regulation 14 (3) (iii) and 14 (3) (viii) are of routine nature and are not covered under expenditure allowed under such regulation. It has also submitted that the petitioner has not furnished proper documents regarding expenses on account of higher safety and security of the plant. The respondent has further submitted that the petitioner has not submitted the calculations on how the efficiency in plant operations would be achieved and how the benefit of tariff would be provided. Accordingly, it has prayed for the disallowance of the expenditure.

20. In response the reply of MPPMCL, the petitioner in its rejoinder has clarified that it has given proper justification in Form-9 of the original tariff petition and has also enclosed documents for claims under Regulation 14 (3) (iii) of the 2014 Tariff Regulations.

21. We have examined the matter. It is noticed that the petitioner in its original petition and in the additional submissions vide affidavit dated 4.12.2015 has submitted justifications in respect of



the additional capital expenditure under Regulation 14(3) (i), Regulation 14(3) (iii) and 14 (3) (viii) of the 2014 Tariff Regulations. The submissions made by the parties have been considered and the additional capital expenditure has been allowed on prudence check in the table below.

2014-15

(₹ in lakh)

Sl. No.	Works	Unit-I (Dam)	Unit-III (Power House)	Total	Reason for admissibility
Additional Capital Expenditure claimed under Regulation 14(3)(i)					
1	Expenditure on R&R works	3351.78	0.00	3351.78	The expenditure is on account of balance R&R works which is to be incurred in compliance with the directions of the Court, the same is allowed under Regulation 14(3)(i) of the 2014 Tariff Regulations.
	Amount claimed under 14(3)(i)-(A)	3,351.78	0.00	3351.78	
	Amount Allowed under 14(3)(i)-(B)	3,351.78	0.00	3351.78	
Additional Capital Expenditure claimed under Regulation 14(3)(iii)					
2	Providing of fire protection arrangement for radial gates, GNT and intake gates.	38.25	(-)16.25	22.00	The assets/works claimed under this head were allowed on projected basis vide order dated 13.6.2012 in Petition No. 154/2010.
3	Fire Fighting system for central stores.	104.31	(-)44.31	60.00	Considering the fact that the assets/works are considered necessary for safety of the plant, the same is allowed under Regulation 14(3)(iii), of the 2014 Tariff Regulations.
4	Supply, installation, testing and commissioning of wireless system for CISF at the generating station.	6.08	(-)2.58	3.50	The petitioner has submitted that these capital expenditures relate to the Project Security as per requirement / recommendation of Security Agency i.e. CISF. Considering the fact that the assets/works are considered necessary for safety of the plant, the same is allowed under Regulation 14(3)(iii), of the 2014 Tariff Regulations.
5	Construction of Double Layer Concertina coil RR Masonry Fencing on Right Bank of Upstream of Indira Sagar Reservoir at the generating station.	80.00	0.00	80.00	
6	Construction of protection wall near TRC and Providing fencing for Protection on HLB above TRC of ISPS.	0.00	20.00	20.00	
7	Providing and fixing 04 nos automatic	30.00	0.00	30.00	



	sliding gates & 03 nos automatic boom barrier.				
	Amount claimed under 14(3)(iii)-(C)	258.64	(-)43.14	215.50	
	Amount Allowed under 14(3)(iii)-(D)	258.64	(-)43.14	215.50	
Additional Capital Expenditure claimed under Regulation 14(3)(viii)					
8	Requirement of Winding Resistance Meter at ISPS	0.00	19.00	19.00	Considering the fact that these assets are in the nature of 'Tools & Tackles', the capitalization of the same is not allowed .
9	Procurement of motors for Intake & Draft Tube Gate Gantry Crane.	0.00	7.00	7.00	The petitioner has submitted that the operation of Intake Gates / Draft Tube Gates is necessitated in the eventuality of emergency situations so as to isolate the Generating Units from any untoward incidence. As such, redundancy of drive motors for Gantry Crane of Intake Gates and Draft Tube Gates has been felt necessary for the successful and efficient performance of the generating station. Considering the fact that the assets/works is considered necessary for the successful and efficient operation of the plant, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations.
	Amount claimed under 14(3)(viii)-(E)	0.00	26.00	26.00	
	Amount Allowed under 14(3)(viii)-(F)	0.00	7.00	7.00	
Total amount claimed during 2014-15 (A+C+E)		3610.42	(-)17.14	3593.28	
Total amount allowed during 2014-15 (B+D+F)		3610.42	(-)36.14	3574.28	

2015-16

(₹ in lakh)

Sl. No.	Works	Unit-I (Dam)	Unit-III (Power House)	Total	Reason for admissibility
Additional Capital Expenditure claimed under Regulation 14(3)(i)					
1	Expenditure on R&R works	4459.83	0.00	4459.83	The expenditure is on account of balance R&R works which is to be incurred in compliance with the directions of the Court, the same is allowed under Regulation 14(3)(i) of the 2014 Tariff Regulations.
	Amount claimed under 14(3)(i)-(G)	4459.83	0.00	4459.83	
	Amount Allowed under 14(3)(i)-(H)	4459.83	0.00	4459.83	



Additional Capital Expenditure claimed under Regulation 14(3)(iii)					
2	Providing, fabrication and fixing of Railing of MS steel Member on top of cantilever portion of dam at EL 264.00 M.	10.00	0.00	10.00	The petitioner has submitted that this work is warranted for the safety of the Operational Staff. Considering the fact that the work is of O&M in nature, the same is not allowed .
3	Construction of security wall near Switchyard of ISPS, Narmada Nagar.	0.00	85.00	85.00	The petitioner has submitted that these capital expenditures relate to the Project Security as per requirement / recommendation of Security Agency i.e. CISF. Considering the fact that the assets/works are considered necessary for safety of the plant, the same is allowed under Regulation 14(3)(iii), of the 2014 Tariff Regulations.
	Amount claimed under 14(3)(iii)-(I)	10.00	85.00	95.00	
	Amount Allowed under 14(3)(iii)-(J)	0.00	85.00	85.00	

Additional Capital Expenditure claimed under Regulation 14(3)(viii)						
4	Replacement of existing SCADA system with upgraded SCADA.	0.00	1200.00	1200.00	The assets/works claimed under this head were allowed on projected basis vide order dated 13.6.2012 in Petition No. 154/2010. Considering the fact that the assets/works are considered necessary for safety of the plant, the same is allowed under Regulation 14(3)(iii), of the 2014 Tariff Regulations.	
4(a)	De-capitalisation of Existing SCADA	0.00	(-)414.00	(-) 414.00		
5	Development of online condition monitoring facilities of generator.	0.00	1200.00	1200.00		
6	Providing dedicated local control panel to each intake gate with recording facility.	0.00	54.00	54.00		
7	Online EMS / Automatic downloading of Energy meter	0.00	85.00	85.00		
8	Purchase of Gantry crane for Draft Tube Gate.	0.00	133.00	133.00		
9	Water supply system including overhead tank.	86.00	39.00	125.00		
						The capitalization of the asset is not allowed , since the petitioner has not submitted proper justification. However, in case the expenditure is incurred, the petitioner shall provide proper details/justification at the time of truing up.
						The work/asset was not allowed vide order dated 13.6.2012 in Petition No. 154/2010 due to incomplete justification submitted by the petitioner. Though the petitioner has now anticipated



					completing the work in 2015-16, but no proper justification including gross value of de-capitalized asset, if any, has been submitted. Hence, the same is not allowed . However, the petitioner shall provide proper justification including gross value of de-capitalized asset at the time of truing up.
10	Retrofitting of GE make air circuit breakers installed at UAB & SSB (1250 A & 3200A) of power house with modern air circuit breakers.	0.00	50.00	50.00	The petitioner has submitted that modern circuit breakers have the advantages of in-built logic controls and high safety features which will enhance the reliability of the system. Considering the fact that the asset is considered necessary for successful and efficient operation of plant, capitalization of new asset is allowed with de-capitalization of old asset under Regulation 14(3)(viii) of the 2014 Tariff Regulations.
10(a)	De-capitalisation of above	0.00	(-)29.05	(-)29.05	
11	Modification of illumination of power House with modern luminaries.	0.00	30.00	30.00	The petitioner has submitted that modern LED luminaries have advantages of low power consumption and long life compared to existing conventional luminaries. Further the low power demand of the system shall improve the reliability and availability of the power supply system of power house. The same is not allowed as the asset is of minor/O&M nature.
12	Purchase of portable vacuum plant for maintenance of generator transformers.	0.00	2.00	2.00	The capitalization of the said asset/ work is not allowed since the expenditure is of minor in nature.
13	Up gradation of the instrumentation system of Intake gate & Radial gates.	27.52	12.48	40.00	The petitioner has submitted that these up-gradations will enable the Operating Crew to have vital feedback / signals at Control Rooms located at remote location and thereby will enhance the reliability of the system.
13(a)	De-capitalization of above	(-)15.99	(-)7.25	(-)23.24	Considering the fact that the asset is considered necessary for successful and efficient operation of plant, capitalization of new asset with de-capitalization of old asset is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations.
14	Providing, fabrication and fixing of platform in Intake Gate groove at EL 263.5 M	0.00	7.00	7.00	The petitioner has submitted that this work is warranted for the safety of the operation Staff. Considering the fact that the work is of O&M in nature, capitalization of the same is not allowed .
15	Construction of left bank spillway channel guide wall from LT wall to HLB at downstream of	313.00	0.00	313.00	The petitioner has submitted that while passing of High Floods through Radial Gates of Dam, some portion of Left Bank of River Narmada got eroded in the monsoon of 2012, which got further deteriorated



	Dam, ISPS, Narmada Nagar.				during next monsoon of 2013. If such erosions of left bank continue further, it may endanger the stability of left bank downstream to Dam. Thus, in order to provide safe passage to the spillage water without any further erosion to left bank, construction of a Guide Wall from left Training Wall of Dam to HLB has been envisaged. Considering the fact that the work is of O&M in nature, capitalization of the same is not allowed .
16	Construction of additional Bathroom in H Type Quarters in NHDC area at ISPS.	93.57	42.43	136.00	The petitioner has submitted that GoMP handed over the partially constructed ISPS at the time of formation of NHDC during August 2000. Accordingly, NHDC acquired the Colony of ISPS as well, which was constructed by GoMP about 30 years back.
17	Construction of Parking shed in H-type colony area.	68.80	31.20	100.00	The H-Type Quarters of this Colony are being allotted to the Worker Staff and there had been continuous demand for construction of additional Toilet as the existing one no. toilet does not suffice for the family members as well as visiting guests. In addition, there has been demand for construction of Parking Sheds in colony area for the safety of the vehicles. Considering the fact that the expenditure is for the benefit of the employees working in the power plant which will facilitate successful and efficient operation of the plant, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations.
18	Supply, Installation, Testing and Commissioning of 11/0.433 kV oil Filled copper Wound Distribution Transformer and its associated equipments for Colony.	12.38	5.62	18.00	The petitioner has submitted that GoMP handed over the partially constructed ISPS at the time of formation of NHDC during August 2000. Accordingly, NHDC acquired the Colony of the generating station as well, which was constructed by GoMP about 30 years back. Accordingly, in order to meet the increased load demand of the township, the existing transformers needs replacement with higher rated transformers.
18(a)	De-capitalisation of above	(-)1.24	(-)0.56	(-)1.80	Considering the fact that the expenditure is for the benefit of the employees working in the power plant which will facilitate successful and efficient operation of the plant, capitalization of new asset with de-capitalization of old asset is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. However, de-capitalization value of ₹11.05 lakh (₹7.60 lakh for Unit-I and ₹3.45 lakh for Unit-III) for old replaced assets/works has been considered under 'Assumed Deletions'. As such, allowed



					amount is ₹6.95 lakh (₹4.78 lakh for Unit-I and ₹2.17 lakh for Unit-III).
19	Supply, Installation, Testing and Commissioning of 125 MVAR Shunt Reactor at Switchyard	0.00	1250.00	1250.00	<p>The petitioner has submitted that, the case of persistent High Voltage Problem at Sarni - Indira Sagar 400 kV line was referred to CEA by MP Power Transmission Company. CEA, after requisite study and analysis has recommended the installation of reactors at 3 locations including installation of 125 MVAR Shunt Reactor at 400 kV Switchyard to be commissioned by NHDC.</p> <p>Considering the fact that the asset is considered necessary for successful and efficient operation of plant, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations.</p>
20	Supply, Installation, Testing and Commissioning of Numerical Relay for Bus Protection	0.00	20.00	20.00	The petitioner has submitted that existing static relays installed for bus bar protection are not having the facility of event/disturbance recorder. As per latest guidelines, Numerical Relays are to be installed for Bus Protection.
20(a)	De-capitalisation of above	0.00	-2.00	-2.00	<p>Considering the fact that the asset is considered necessary for successful and efficient operation of plant, capitalization of new asset with de-capitalization of old asset has been allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations. However instead of ₹2.00 Lakh as per the petition, de-capitalization value of ₹12.28 lakh (for unit-III) for old replaced assets/works is considered under 'Assumed Deletions'. As such, allowed amount is ₹7.72 (20.00-12.28) lakh.</p>
21	Purchase of Spring for PG Isolator	0.00	40.00	40.00	<p>The petitioner has submitted that design modification of spring being used in PG isolator is to be done by OEM to improve the reliability of operation.</p> <p>Since the justification submitted by the petitioner is inadequate, capitalization of asset is not allowed. However, if expenditure is actually incurred, petitioner shall submit the proper justification including details of the operational problems requiring such modification and gross value of de-capitalized asset, if any, during truing up.</p>
22	Scissors Lift hydraulic operated Ladder for maintenance of electrical and electro-mechanical Equipments at power house,	15.14	6.86	22.00	The petitioner has submitted that for optimization of the manpower, improvement in work efficiency and minimization of downtime, Scissors Lift hydraulic operated Ladder is required for maintenance of electrical and electro-mechanical Equipments at Switchyard and power house.



	switchyard and residential electro-mechanical fixtures.				Capitalization of asset is not allowed as the asset is of minor in nature.
23	Procurement of Power factor Improvement Equipment for Right Bank.	0.00	15.00	15.00	<p>The petitioner has submitted that in order to Stabilize the Power Factor of the System within permissible Limit, the APFC Equipments are also necessary for Right Bank installations.</p> <p>The justification submitted by the petitioner is inadequate. As such, capitalization of asset is not allowed. However, if expenditure is actually incurred, the petitioner shall submit the proper justification including details of the operational problems being faced in absence of this equipment and gross value of de-capitalized asset, if any, during truing up.</p>
24	Development of facilities for the inspection of EDA system of ISP Dam.	50.00	0.00	50.00	<p>The petitioner has submitted that Energy Dissipation Arrangement (EDA) of any Dam is a vital component and invariably needs inspection on regular basis for safety reasons. As of now, the inspections of EDA of ISPS dam have been enabled through construction of temporary approaches in downstream river course area. In this regard, it is to mention that at the FRL of downstream cascading Project OSP, the backwaters will submerge the downstream river course area through which the temporary approaches have so far been managed.</p> <p>Considering the fact that the expenditure is for safety of the dam and surrounding area which will facilitate efficient operation of the plant, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations.</p>
	Amount claimed under 14(3)(viii)-(K)	649.18	3770.73	4419.91	
	Amount Allowed under 14(3)(viii)-(L)	228.68	3484.70	3713.38	
	Total amount claimed during 2015-16 (G+I+K)	5119.01	3855.73	8974.74	
	Total amount allowed during 2015-16 (H+J+L)	4688.51	3569.70	8258.21	



Sl. No.	Assets/Works	Unit-I (Dam)	Unit-III (Power House)	Total	Reason for Admissibility
Additional Capital Expenditure claimed under Regulation 14(3)(viii)					
1	Auditorium & recreation hall	159.32	40.68	200.00	The works/assets were allowed on projection basis vide order dated 13.6.2012 in Petition No. 154/2010. However, the petitioner has now anticipated completing this work during 2016-17.
2	Sewage Treatment Plant	95.59	24.41	120.00	Since the expenditure is for the benefit of the employees working in the power plant which will facilitate successful and efficient operation of the plant, the same is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations.
3	Up gradation of seismological observatories	100.00	0.00	100.00	The work/asset was not allowed on projection basis vide order dated 13.6.2012 in Petition No. 154/2010. However, the petitioner was allowed to re-submit the details including gross value of replaced assets during truing up.
3(a)	De-capitalisation of the above	-58.10	0.00	-58.10	The petitioner has now anticipated completing this work during 2016-17. Considering the fact that the asset is considered necessary for successful and efficient operation of plant, capitalization of new asset with de-capitalization of old asset is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations.
4	Replacement of starter panels of drainage and dewatering pumps from conventional starters to VVVF drive starter.	0.00	40.00	40.00	The petitioner has submitted that VVVF drives enhance smooth starting and stopping of motors with high reliability and, require very low maintenance. Reliability of power house dewatering system and safety of the power house shall be improved due to this modification.
4(a)	De-capitalisation of the above	0.00	(-)23.24	(-)23.24	Considering the fact that the asset is considered necessary for successful and efficient operation of plant, capitalization of new asset considering de-capitalization of old asset has been allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations.



5	Up gradation of Automation system of 20 nos. Radial gates installed at ISPS.	75.00	0.00	75.00	<p>The petitioner has submitted that this replacement of the existing PLC with the PLC of latest technology will enable to have automatic control and monitoring from Dam Control Room as well as from Power House. This will improve operational efficiency and also facilitate event recording for post fault analysis.</p> <p>Considering the fact that the asset is considered necessary for successful and efficient operation of plant, capitalization of new asset considering de-capitalization of old asset is allowed under Regulation 14(3)(viii) of the 2014Tariff Regulations.</p>
5(a)	De-capitalisation of the above	-43.58	0.00	-43.58	
6	Construction of 5 New blocks (30 units) of F Type Quarters	398.29	101.71	500.00	<p>The petitioner has submitted that GoMP handed over the partially constructed ISPS at the time formation of NHDC during August 2000. Accordingly, NHDC acquired the Colony of ISPS as well, which was constructed by GoMP about 30 years back. This Old Colony does not have sufficient numbers of F-Type Quarters to cater the entitled class of Residential Quarters to the Officers Posted at the Generating Station.</p> <p>Considering the fact that the expenditure is for the benefit of the employees working in the power plant which will facilitate successful and efficient operation of plant, capitalization of asset/work is allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations.</p>
7	Conversion of old 415 V Overhead Distribution System with underground distribution System with modern age protection system in NHDC Colony Premises.	238.97	61.03	300.00	<p>The petitioner has submitted that GoMP handed over the partially constructed ISPS at the time formation of NHDC during August 2000. Accordingly, NHDC acquired the Colony of ISPS as well, which was constructed by GoMP about 30 years back, wherein old overhead conductor</p>



7(a)	De-capitalisation of the above	(-7.97	(-)2.03	(-)10.00	<p>system without any protection are installed which are not fulfilling the increased load demand and are not safe for residential areas. Hence to minimize the fault, improve the reliability of the electrical distribution System, Optimize manpower, reduce power losses, better voltage stabilization and Better Safety of residents and their electrical equipments, new modern age distribution system is essential.</p> <p>Considering the fact that the asset is considered necessary for successful and efficient operation of plant, capitalization of new asset considering de-capitalization of old asset has been allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations.</p>
8	Up gradation of EDA System for bucket.	20000.00	0.00	20000.00	<p>The petitioner has submitted that during Monsoon of 2013, the extensive damages were caused to the existing slotted roller bucket type Energy Dissipation Arrangement of ISPS Dam, while passing the heavy floods through radial gates. The matter was referred to the CWC, GoI, New Delhi, the Designer of ISP Dam to investigate the cause of such extensive damages. CWC, after carrying out the studies /analysis has now suggested modifying the existing Slotted Roller Bucket Type EDA to Ski-jump Type EDA. Considering the fact that the asset is considered necessary for successful and efficient operation of plant, the same has been allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations.</p>
9	Slope protection work by providing shotcreting and construction of toe wall at different location near auxiliary bay and DT Outlet (D/S of Dam)	300.00	0.00	300.00	<p>The petitioner has submitted that this work is necessary to prevent debris and muck from falling into TRC from nearby area and causing blockage of DT gates.</p> <p>Since the work is of O&M in nature, capitalization of the same is not allowed.</p>
	Amount claimed during 2016-17	21257.52	242.56	21500.08	
	Amount Allowed during 2016-17	20957.52	242.56	21200.08	



2017-18

(₹ in lakh)

Sl. No.	Assets/Works	Unit-I (Dam)	Unit-III (Power House)	Total	Reason for Admissibility
Additional Capital Expenditure claimed under Regulation 14(3)(viii)					
1	Purchase of Tan delta and capacitance measurement kit for maintenance of generator and transformers.	0.00	25.00	25.00	The petitioner has submitted that in order to develop in-house capabilities for monitoring of generating equipment and transformers to reduce the down time of generating units, these Capital Expenditures have been envisaged.
2	Purchase of moisture measurement equipment for transformer oil.	0.00	5.00	5.00	The measuring instruments which are proposed to be procured will help increase the availability and reduce O&M expenditure. As such, since both availability and O&M expense are normative in nature, any benefit from acquisition such assets accrue solely to the generator.
3	Purchase of Portable DGA kit for transformer oil test.	0.00	30.00	30.00	
4	Purchase of Digital PLCC Signal Level Meter	0.00	10.00	10.00	
5	Purchase of Step & Touch Monitor	0.00	7.00	7.00	The assets/works are in the nature of tools & tackles, hence capitalization of the same is not allowed .
	Amount claimed during 2017-18	0.00	77.00	77.00	
	Amount Allowed during 2017-18	0.00	0.00	0.00	

2018-19

(₹ in lakh)

Sl. No.	Assets/Works	Unit-I (Dam)	Unit-III (Power House)	Total	Reason for Admissibility
Additional Capital Expenditure claimed under Regulation 14(3)(viii)					
1	Up-gradation of numerical relays installed at GRP of generating units (REG 316 & RET 316 with REG 670 & RET 670.)	0.00	300.00	300.00	The work/asset was not allowed on projection basis vide order dated 13.6.2012 in Petition No. 154/2010. However, the petitioner was allowed to submit the details of gross value of old asset during truing up. The petitioner has now anticipated completing this work during 2018-19 and submitted the gross value of old asset. Considering the fact that the asset is considered necessary for successful and efficient operation of plant, capitalization of new asset considering de-capitalization of old asset has been allowed under Regulation 14(3)(viii) of the 2014 Tariff Regulations.
1(a)	De-capitalization of above	0.00	(-)198.75	(-)198.75	



2	Replacement of existing Governing System with Electronic Governor.	0.00	2000.00	2000.00	The assets/works claimed under this head were allowed on projection basis vide order dated 13.6.2012 in Petition No. 154/2010. Considering the fact that the assets/works is in compliance with IEGC, 2010, capitalization of new asset considering de-capitalization of old asset has been allowed under Regulation 14(3)(ii) of the 2014 Tariff Regulations.
2(a)	De-capitalization of above	0.00	(-)335.00	(-)335.00	
	Amount claimed during 2018-19	0.00	1766.25	1766.25	
	Amount Allowed during 2018-19	0.00	1766.25	1766.25	

Assumed Deletion

22. As per the methodology adopted by the Commission, the expenditure on replacement of assets, if found justified is allowed for the purpose of tariff provided that the capitalization of the said asset is followed by the de-capitalization of the original value of the old asset. However, in certain cases where de-capitalization is proposed as deletion in the books of account subsequent to the year of capitalization of new asset, the de-capitalization of the old asset for the purpose of tariff is considered in the year in which the capitalization of the new asset is allowed. Such de-capitalization of old asset which is not considered in the books of account in the year of capitalization of new asset is termed as "Assumed deletion".

23. It has been observed that the petitioner has claimed ₹38.00 lakh against capitalization for Supply, Installation, Testing and Commissioning of 11/0.433 kV oil Filled copper Wound Distribution Transformer and its associated equipments for Colony and Supply, Installation, Testing and Commissioning of Numerical Relay for Bus Protection on replacement basis during the year 2015-16. The petitioner has indicated the gross value of the old assets as 10% value of new capitalized assets. Considering that the generating station is only 11 years old, the de-capitalization value provided by the petitioner seems to be less. Therefore, the methodology of arriving at the fair value of the de-capitalized asset, i.e. escalation rate of 5 % per annum from the COD has been considered in order to arrive at the gross value of old asset in comparison to the cost of new asset. The gross value of the old assets considered for the purpose of tariff for the



allowed assets/works is indicated against individual assets as in para 21 above. However, the petitioner is at liberty to provide the actual gross value of replaced assets at the time of truing up.

24. Based on the above discussions, the projected additional capital expenditure allowed before adjustment of subventions is as under:

(₹ in lakh)

Regulation		2014-15		2015-16		2016-17		2017-18		2018-19		Total
		Unit-I	Unit-III	Unit-I	Unit-III	Unit-I	Unit-III	Unit-I	Unit-III	Unit-I	Unit-III	
14(3)(i) (R&R expenses)	claimed	3351.78	0.00	4459.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7811.61
	allowed	3351.78	0.00	4459.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	7811.61
14(3)(iii)	claimed	258.64	(-)43.14	10.00	85.00	0.00	0.00	0.00	0.00	0.00	0.00	310.50
	allowed	258.64	(-)43.14	0.00	85.00	0.00	0.00	0.00	0.00	0.00	0.00	300.50
14(3)(viii)	claimed	0.00	26.00	649.18	3770.73	21257.52	242.56	0.00	77.00	0.00	1766.25	27789.24
	allowed	0.00	7.00	228.68	3484.70	20957.52	242.56	0.00	0.00	0.00	1766.25	26686.71
Total Claimed		3610.42	(-)17.14	5119.01	3855.73	21257.52	242.56	0.00	77.00	0.00	1766.25	35911.35
Total Allowed		3610.42	(-)36.14	4688.51	3569.70	20957.52	242.56	0.00	0.00	0.00	1766.25	34798.82

R&R Expenses

25. The petitioner has submitted that expenditure of ₹1924.07 crore has already been incurred on R&R works of the generating station upto 31.3.2014 and the balance expenditure amounting to ₹ 78.12 crore is likely to be incurred during the period 2014-19. As per the terms of the Cabinet Committee of Economic Affairs (CCEA) clearance, 50% increase in R&R cost beyond the approved cost of ₹1160 crore is required to be borne by the Government of Madhya Pradesh (GoMP) as "Subvention" and the balance 50% shall be borne by the project which is booked to cost of Unit-I (Dam). These details are as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19	Total
R&R expenses (gross) (a)	3351.78	4459.83	0.00	0.00	0.00	7811.61
Less 50% subvention from GoMP (b)	1675.89	2229.92	0.00	0.00	0.00	3905.81
(c)=(a)-(b)	1675.89	2229.92	0.00	0.00	0.00	3905.81
Less SSP @17.63% (d)	295.46	393.13	0.00	0.00	0.00	688.59
(e)=(c)-(d)	1380.43	1836.79	0.00	0.00	0.00	3217.22
Less Irrigation component @16.75 % (f)	231.22	307.66	0.00	0.00	0.00	538.88
R&R expense share to Power Component (g)= (e)-(f)	1149.21	1529.12	0.00	0.00	0.00	2678.33



26. Similarly, the additional capitalization allowed to Unit-I (dam) has further been apportioned to SSP and Irrigation and its contribution to Power component is as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Unit-I (Dam) (a)	258.64	228.68	20957.52	0.00	0.00	21444.84
Less SSP @17.63% (b)	45.60	40.32	3694.81	0.00	0.00	3780.73
(c)=(a)-(b)	213.04	188.36	17262.71	0.00	0.00	17664.11
Less Irrigation component @16.75 % (d)	35.68	31.55	2891.50	0.00	0.00	2958.74
Unit-I (Dam) share to Power Component (e)=(c)-(d)	177.36	156.81	14371.21	0.00	0.00	14705.38

27. Based on the above discussions, the additional capital expenditure allowed for 2014-19, power component allowed excluding liabilities is as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19	Total
R&R expenses (Unit-1) share for power component allowed	1149.21	1529.12	0.00	0.00	0.00	2678.33
Unit-I expenses(Dam excluding R&R) share for power component allowed	177.36	156.81	14371.21	0.00	0.00	14705.38
Unit-III expenses share for power component allowed	-36.14	3569.70	242.56	0.00	1766.25	5542.37
Net Projected ACE (power component) allowed excluding liabilities.	1290.43	5255.63	14613.77	0.00	1766.25	22926.07

Un-discharged liabilities

28. Considering actual un-discharged liabilities in Power component as on 31.3.2014 as allowed vide order dated 26.5.2016 in Petition No.461/GT/2014, the position of un-discharged liability as on 31st March of the financial year of the tariff period 2014-19 as under:

(₹ in lakh)

	Carried forward as on 1.4.2014	Projected as on				
		31.3.2015	31.3.2016	31.3.2017	31.3.2018	31.3.2019
Un-discharged Liabilities attributable to Power Component	2401.94	1147.49	468.49	144.44	144.44	144.44

29. The projected additional capital expenditure (Power component) after adjustment of discharged and undischarged liabilities is as under:



(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Net projected additional capital expenditure (Power component) allowed excluding liabilities.	1290.43	5255.63	14613.77	0.00	1766.25	22926.07
Un discharge Liabilities discharged during year	1254.45	679.00	324.05	0.00	0.00	2257.50
Net additional capital expenditure (Power component) allowed	2544.88	5934.63	14937.82	0.00	1766.25	25183.57

30. The additional capital expenditure for power component, allowed after adjustment of un-discharged liabilities/discharge of liabilities is as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Additional capital expenditure (Power component) [A]	1290.43	5737.84	14714.23	0.00	2300.00
Deletion during the year [B]	0.00	482.21	100.46	0.00	533.75
Un-discharged liabilities at the beginning of the year	2307.37	1052.92	373.92	49.87	49.87
Un-discharged liabilities at the ending of the year	1052.92	373.92	49.87	49.87	49.87
Un-discharged liabilities discharged [C]	1254.45	679.00	324.05	0.00	0.00
Additional capital expenditure (Power component) allowed for tariff [A-B+C]	2544.88	5934.63	14937.82	0.00	1766.25

Note: The liabilities pertain to power component only. In the absence of asset-wise details of liabilities, the position of overall liabilities has been considered.

Capital Cost for 2014-19

31. As stated, the closing capital cost as on 31.3.2014 is ₹320700.09 lakh vide order dated 26.5.2016 in petition no. 461/GT/2014. The same has been considered as the opening capital cost as on 1.4.2014. Accordingly, the capital cost considered for the purpose of tariff for the period 2014-19 is as under:

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	320700.09	323244.97	329179.60	344117.42	344117.42
Additional Capital Expenditure	2544.88	5934.63	14937.82	0.00	1766.25
Closing Capital Cost	323244.97	329179.60	344117.42	344117.42	345883.67

Debt- Equity Ratio

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

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



Provided that:

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

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

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

33. The petitioner has stated in the petition that funding of the additional capital expenditure has been made through internal resources and others. In terms of the above regulations, the debt equity ratio of 70:30 has been considered on the additional capital expenditure, after adjustment of the un-discharged liability for the purpose of tariff.

Return on Equity

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

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

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

Provided that:

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

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

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

iv). the rate of return of a new project shall be reduced by 1% for such period as may be decided by the Commission, if the generating station or transmission system is found to be declared under commercial operation without commissioning of any of the Restricted Governor Mode Operation (RGMO)/ Free Governor Mode Operation (FGMO), data telemetry, communication system up to load dispatch centre or protection system: v) as and when any of the above requirements are found lacking in a generating station based on the report submitted by the respective RLDC, RoE shall be reduced by 1% for the period for which the deficiency continues: vi) additional RoE shall not be admissible for transmission line having length of less than 50 kilometers.

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

Tax on Return on Equity:

(1) The base rate of return on equity as allowed by the Commission under Regulation 24 shall be grossed up with the effective tax rate of the respective financial year. For this purpose, the effective tax rate shall be considered on the basis of actual tax paid in the respect of the financial year in line with the provisions of the relevant Finance Acts by the concerned generating



company or the transmission licensee, as the case may be. The actual tax income on other income stream (i.e., income of non generation or non transmission business, as the case may be) shall not be considered for the calculation of “effective tax rate”.

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

Rate of pre-tax return on equity = Base rate / (1-t)

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

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

36. The base rate has been grossed up with the MAT rate for the year 2013-14. Accordingly, in terms of the above regulations, return on equity has been computed as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Notional Equity	120250.57	121014.03	122794.42	127275.77	127275.77
Addition due to additional capital expenditure	763.46	1780.39	4481.35	0.00	529.88
Closing Equity	121014.03	122794.42	127275.77	127275.77	127805.64
Average Equity	120632.30	121904.23	125035.10	127275.77	127540.71
Rate of ROE (pre-tax)	20.876%	20.876%	20.876%	20.876%	20.876%
Return on Equity	25183.20	25448.73	26102.33	26570.09	26625.40

37. The petitioner is directed to furnish on affidavit, the effective tax rates along with the Tax Audit Report for the period 2015-19 at the time of truing-up of tariff of the generating station in terms of the 2014 Tariff Regulations.

Interest on loan

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

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

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



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

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

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

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

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

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

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

(8) *The changes to the terms and conditions of the loans shall be reflected from the date of such re-financing.*

(9) *In case of dispute, any of the parties may make an application in accordance with the Central Electricity Regulatory Commission (Conduct of Business) Regulations, 1999, as amended from time to time, including statutory re-enactment thereof for settlement of the dispute:*

Provided that the beneficiaries or the long term transmission customers /DICs shall not withhold any payment on account of the interest claimed by the generating company or the transmission licensee during the pendency of any dispute arising out of re-financing of loan.

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

- i. The opening gross normative loan as on 1.4.2014 has been arrived at in accordance with Regulation 26 of the 2014 Tariff Regulations.
- ii. The weighted average rate of interest has been worked out on the basis of the actual loan portfolio of respective year applicable to the project.
- iii. The repayment for the year of the tariff period 2014-19 has been considered equal to the depreciation allowed for that year.
- iv. The interest on loan has been calculated on the normative average loan of the year by applying the weighted average rate of interest considering the time factor.



40. Accordingly, Interest on loan is computed as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Normative Loan	200449.52	202230.94	206385.18	216841.65	216841.65
Cumulative Repayment	104828.81	117748.84	130824.41	144335.47	158325.86
Net Loan-Opening	95620.71	84482.10	75560.77	72506.18	58515.80
Repayment during the year	12920.03	13075.57	13511.07	13990.38	6804.07
Addition due to Additional Capitalization	1781.42	4154.24	10456.47	0.00	1236.38
Net Loan-Closing	84482.10	75560.77	72506.18	58515.80	52948.11
Average Loan	90051.41	80021.44	74033.48	65510.99	55731.95
Weighted Average Rate of Interest	12.201%	12.196%	12.189%	12.173%	12.125%
Interest on Loan	10986.86	9759.52	9023.59	7974.72	6757.36

Depreciation

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

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

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

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

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

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

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

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

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

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



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

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

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

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

42. The COD of the generating station is 25.8.2005. Since the generating station shall be completing 12 years of commercial operation as on 25.8.2017, the weighted average rate of depreciation has been considered for the calculation of depreciation during the years 2014-15 to 2017-18. The remaining depreciable value has been spread over the balance useful life of the project from 2018-19 onwards. Accordingly, depreciation has been worked out as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Gross block	320700.09	323244.97	329179.60	344117.42	344117.42
Additional capital expenditure during 2014-19	2544.88	5934.63	14937.82	0.00	1766.25
Closing gross block	323244.97	329179.60	344117.42	344117.42	345883.67
Average gross block	321972.53	326212.29	336648.51	344117.42	345000.55
Rate of Depreciation	4.013%	4.008%	4.013%	4.066%	
Depreciable Value	289775.28	293591.06	302983.66	309705.68	310500.49
Balance useful Life	26.40	25.40	24.40	23.40	22.40
Remaining Depreciable Value	184947.14	175842.89	172345.54	165606.66	152411.09
Depreciation	12920.03	13075.57	13511.07	13990.38	6804.07

Operation & Maintenance Expenses

43. The generating station is in operation for three or more years as on 1.4.2014. Accordingly, in terms of sub-section (a) of clause (3) of Regulation 29 of the 2014 Tariff Regulations, the year-wise O&M expense norms considered for the generating station of the petitioner for the period 2014-19 is as under:

(₹ in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
8607.73	9179.63	9789.52	10439.94	11133.57



Interest on Working Capital

44. Sub-section (c) of Clause (1) of Regulation 28 of the 2014 Tariff Regulations provides as under:

28 (1) (c) Hydro generating station including pumped storage hydro electric generating station and transmission system including communication system:

- (i) Receivables equivalent to two months of fixed cost;*
- (ii) Maintenance spares @ 15% of operation and maintenance expenses specified in regulation 29; and*
- (iii) Operation and maintenance expenses for one month.*

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

"(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.

46. Working capital has been calculated considering the following elements:

Maintenance Spares in working capital

47. Maintenance spares have been worked out on the basis of 15% of O & M Expenses as under:

<i>(₹ in lakh)</i>				
2014-15	2015-16	2016-17	2017-18	2018-19
1291.16	1376.94	1468.43	1565.99	1670.04

Receivables

48. Receivable component of the working capital has been worked out on the basis of two months of fixed cost as under:

<i>(₹ in lakh)</i>				
2014-15	2015-16	2016-17	2017-18	2018-19
9883.88	9846.99	10014.47	10111.51	8810.08

O&M Expenses

49. O & M expenses for one month for the purpose of working capital is as under:

<i>(₹ in lakh)</i>				
2014-15	2015-16	2016-17	2017-18	2018-19
717.31	764.97	815.79	870.00	927.80



50. In terms of the above regulations, the Bank Rate of 13.50% (Base Rate + 350 Basis Points) as on 1.4.2014 has been considered by the petitioner. This has been considered for the purpose of tariff.

51. Necessary computations in support of interest on working capital are as below:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Maintenance Spares	1291.16	1376.94	1468.43	1565.99	1670.04
O & M expenses	717.31	764.97	815.79	870.00	927.80
Receivables	9883.88	9846.99	10014.47	10111.51	8810.08
Total	11892.35	11988.90	12298.69	12547.49	11407.91
Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
Interest on Working Capital	1605.47	1618.50	1660.32	1693.91	1540.07

Annual Fixed Charges for 2014-19

52. The Annual Fixed Charges for the period 2014-19 in respect of the generating station is summarized as under:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Return on Equity	25183.20	25448.73	26102.33	26570.09	26625.40
Interest on Loan	10986.86	9759.52	9023.59	7974.72	6757.36
Depreciation	12920.03	13075.57	13511.07	13990.38	6804.07
Interest on Working Capital	1605.47	1618.50	1660.32	1693.91	1540.07
O & M Expenses	8607.73	9179.63	9789.52	10439.94	11133.57
Total	59303.28	59081.94	60086.83	60669.04	52860.46

Design Energy

53. The petitioner has submitted that the NCA has so far notified the Water Accounting for the Water Year 2011-12 & 2012-13. Based on the formula derived in Petition No. 154/2010, the Commission has approved the following Firm power and Design Energy for the year 2011-12 and 2012-13:

Particulars	FY 2011-12	FY 2012-13
Utilization of Water by GoMP as Notified by NCA (BM ³)	7.0567	8.09841
Firm Power (MW)	210.753	195.723
Month-wise Design Energy		
April	151.74	140.92
May	156.80	145.62
June	151.74	140.92
July	156.80	145.62
August	156.80	145.62
September	151.74	140.92
October	156.80	145.62



November	151.74	140.92
December	156.80	145.62
January	156.80	145.62
February	141.63	131.53
March	156.80	145.62
Annual Design Energy	1846.19	1714.55

54. Accordingly, the modified design energy for the year 2012-13 i.e. 1714.55 MU may be allowed provisionally for the period 2014-19, subject to submission of actual consumptive water utilization by GoMP for the years 2014-19, certified by Narmada Control Authority.

Application Fee and Publication Expenses

55. The petitioner has deposited the filing fees for the period 2014-19 in terms of the provisions of the Central Electricity Regulatory Commission (Payment of Fees) Regulations, 2012. The petitioner has published the notice of the tariff petition for 2014-19 in the newspapers in terms of the Central Electricity Regulatory Commission (Procedure for making of application for determination of tariff, publication of the application and other related matters) Regulation, 2004 and has vide affidavit dated 5.12.2014 submitted that it has incurred an expenditure of `421679/- for the same. Accordingly, in terms of Regulation 52 of the 2014 Tariff Regulations and in line with the decision in order dated 6.1.2016 in Petition No.232/GT/2014, the petitioner shall be entitled to recover the filing fees for the year 2014-15 and the expenses incurred on publication of notices for the period 2014-19 directly from the respondents. The filing fees for the remaining years of the tariff period 2015-19 shall be reimbursed after deposit of the same and subject to production of documentary proof.

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

57. Petition No. 265/GT/2014 is disposed of in terms of above.

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

-Sd/-
(A.S Bakshi)
Member

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

-Sd/-
(Gireesh B Pradhan)
Chairperson

