

**CENTRAL ELECTRICITY REGULATORY COMMISSION  
NEW DELHI**

**Petition No. 252/GT/2014**

**Coram:**

**Shri Gireesh. B. Pradhan, Chairperson  
Shri A.S. Bakshi, Member  
Dr. M.K. Iyer, Member**

**Date of Order : 29.3.2017**

**In the matter of:**

Approval of generation tariff of Chutak Power Station (4x11MW) for the period 2014-19.

**And in the matter of:**

NHPC Ltd NHPC Office Complex,  
Sector-33 Faridabad-121003 Haryana

**...Petitioner**

Vs

Power Development Department of Govt. of J&K

**...Respondents**

**Parties present:**

**For Petitioner:** Shri Piyush Kumar, NHPC  
Shri Naresh Bansal, NHPC  
Shri A.K. Pandey, NHPC  
Shri Jitendra Kumar Jha, NHPC

**For Respondents:** None



## ORDER

This petition has been filed by the petitioner, NHPC Ltd., for determination of tariff of Chutak Power Station (4x11MW) ("the generating station"), for the period 2014-19 in accordance with the provisions of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 ("the 2014 Tariff Regulations").

2. The generating station with a total capacity of 44 MW comprises of four units of 11 MW each. The dates of commercial operation of units of the generating station are given below:

Unit I	29.11.2012
Unit II	29.11.2012
Unit III	29.11.2012
Unit IV	1.2.2013

3. The Commission vide order dated 21.3.2017 in Petition No. 190/GT/2015 had revised the Capital Cost and Annual Fixed Charges of the generating station for the period 2012-14 after truing up exercise in terms of Regulation 6(1) of the 2009 Tariff Regulations as summarized under.

### Capital Cost

	<i>(₹ in lakh)</i>		
	<b>29.11.2012 to 31.1.2013 (3 Units)</b>	<b>1.2.2013 to 31.3.2013 (4 Units)</b>	<b>2013-14 (4 Units)</b>
Opening Capital cost	59721.34	81401.35	84247.63
Additional capital expenditure	0.00	2846.28	2617.83
<b>Closing capital cost</b>	59721.34	84247.63	86865.46
Average Capital cost	59721.34	82824.49	85556.54



## Annual Fixed Charges

	(₹ in lakh)		
	29.11.2012 to 31.1.2013	1.2.2013 to 31.3.2013	2013-14
	(3 Units) (Prorata)	(4 Units) (Prorata)	(4 Units)
Depreciation	524.35	669.78	4284.97
Interest on Loan	111.27	335.59	2054.82
Return on Equity	608.73	778.26	5033.29
Interest on Working Capital	40.18	56.53	363.02
O&M Expenses	208.92	280.19	1832.55
<b>Total</b>	<b>1493.46</b>	<b>2120.36</b>	<b>13568.65</b>

4. Before proceeding with the determination of tariff for the period 2014-19, we notice that the Commission in its order dated 21.3.2017 in Petition No. 190/GT/2015 had considered the capital cost of ₹86865.46 lakh as on 31.3.2014 in absence of actual capital cost as on the cut-off date for the purpose of calculating the O&M expenses for the generating station. As the Commission in this order has approved the capital cost as on cutoff date, we are inclined to revise the O&M expenses and consequently the fixed charges for the period from 29.11.2012 to 31.3.2014 allowed in the Commission's order in Petition No. 190/GT/2015. We do so accordingly in the relevant paragraph of this order.

5. The petitioner has filed the present petition for determination of tariff for Chutak Power Project (4x11 MW) for the period 2014-19 in accordance with the provisions of the 2014 Tariff Regulations. The capital cost and the annual fixed charges claimed by the petitioner for the period 2014-19 are as under:



## Capital Cost

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital Cost	87000.46	92133.17	94124.88	94124.88	94124.88
Addition during the year / period	2595.49	1991.71	0.00	0.00	0.00
Discharges during the year / period	2537.22	0.00	0.00	0.00	0.00
Net Additional capitalisation during the year	5132.71	1991.71	0.00	0.00	0.00
<b>Closing Capital Cost</b>	<b>92133.17</b>	<b>94124.88</b>	<b>94124.88</b>	<b>94124.88</b>	<b>94124.88</b>
Average Capital Cost	89566.82	93129.03	94124.88	94124.88	94124.88

## Annual Fixed Charges

(₹ in lakh)

Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	4493.56	4672.28	4722.24	4722.24	4722.24
Interest on Loan	2873.47	2673.29	2363.03	2034.05	1741.58
Return on Equity	5269.22	5478.78	5537.37	5537.37	5537.37
Interest on Working Capital	404.87	416.77	420.20	421.24	423.69
O&M Expenses	2063.83	2200.86	2347.00	2502.84	2669.03
<b>Total</b>	<b>15104.94</b>	<b>15441.99</b>	<b>15389.84</b>	<b>15217.74</b>	<b>15093.90</b>

6. In response to the directions of the Commission, the petitioner has submitted additional information and has served copies of the same on the respondent. None of the respondents have filed reply to the petition. Based on the submissions and the documents available on record, we proceed to determine the tariff of the generating station for the period 2014-19 as stated in the subsequent paragraphs.

## Capital Cost

7. 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*



8. The annual fixed charges claimed by the petitioner are based on the opening capital expenditure as on 1.4.2014, as ₹87000.46 lakh based on closing capital cost as on 31.3.2014 in true-up petition 190/GT/2015. The Commission has considered the closing capital cost of ₹86865.46 lakh as on 31.3.2014 as approved in the Commission's order in Petition No. 190/GT/2015 as the opening capital cost as on 1.4.2014 for computation of tariff for the period 2014-19.

### **Projected Additional capital expenditure during 2014-19**

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

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

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

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

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

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

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

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

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



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

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

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

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

.....

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

(₹ in lakh)

	2014-15	2015-16	2016-17	2017-18	2018-19	Total
Addition during the year / period	2595.49	1991.71	0.00	0.00	0.00	4587.20
Discharges during the year / period	2537.22	0.00	0.00	0.00	0.00	2537.22
<b>Net Additional capitalisation during the year</b>	<b>5132.71</b>	<b>1991.71</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>7124.42</b>

11. The details of the additional capital expenditure claimed by the Petitioner is shown under:



2014-15

(₹ in lakh)

Sl. No.	Assets/Works	Actual Capitalisation	Regulation under which claim is made	Justification
1	Land – Leasehold and Right of use	32.00	Regulation 14 (1)(ii)	Within original scope under revised cost estimates
2	Roads and Bridges (other than Kutcha Road)	108.00		
3	Buildings-Others	523.77		
4	Dam and Barrages, Power Channels, Power Tunnels and Pipelines, Penstocks, Tailrace Channels, Hydro-mechanical works- Dams and Barrages, Hydro-mechanical works- Tunnels and canals, Hydro-mechanical works- Tail race including Draft Tube Gates	299.09		
5	Main Generating Equipment, Generator step up transformer , Other power plant transformer, Cooling water systems, EHV Switchgear systems, DC Systems / Battery systems, Power and control cables, Air conditioning and ventilation, Control, Metering and Protection	881.10		
6	Construction equipments	145.00		
7	Electrical installations	93.19		
8	Furnitures and fixtures	30.00		
9	I.T. Equipment – Computers	20.00		
10	Communication Equipments	20.00		
11	Office Equipments	5.00		
12	I.T. Equipments – Intangible Assets	3.00		
13	Other Assets	183.00		
14	Fixed Assets of Minor Value	4.00		
15	Environment and Ecology	248.35		
	<b>Total</b>	<b>2595.49</b>		



2015-16

(₹ in lakh)

Sl. No.	Assets/Works	Actual Capitalisation	Regulation under which claim is made	Justification
1	Roads and Bridges (other than Kutcha Road)	100.00	Regulation 14 (1)(ii)	Within original scope under revised cost estimates
2	Buildings-Others	108.17		
3	Dam and Barrages, Power Channels, Power Tunnels and Pipelines, Penstocks, Tailrace Channels, Hydro-mechanical works- Dams and Barrages, Hydro-mechanical works- Tunnels and canals, Hydro-mechanical works- Tail race including Draft Tube Gates	165.00		
4	Main Generating Equipment, Generator step up transformer , Other power plant transformer, Cooling water systems, EHV Switchgear systems, DC Systems / Battery systems, Power and control cables, Air conditioning and ventilation, Control, Metering and Protection	1196.45		
5	Construction equipments	45.00		
6	Water supply system / Drainage and sewerage	50.00		
7	Electrical installations	5.00		
8	Furniture's and fixtures	30.00		
9	Other Assets	83.00		
10	Fixed Assets of minor value	1.00		
11	Environment and Ecology	208.09		
	<b>Total</b>	<b>1991.71</b>		

12. The petitioner has projected additional capital expenditure (including discharge of liabilities) of ₹7124.42 lakh in the 2014-19 tariff period out of which the petitioner has claimed ₹2595.49 lakh in 2014-15 and ₹1991.71 lakh in 2015-16 as additional capital expenditure and ₹2537.22 lakh as discharge of un-discharge liability in 2014-15 The petitioner has not claimed any additional capital expenditure during 2016-19 period. The petitioner vide affidavit dated 25.4.2016 has submitted that RCE has been approved by





MoP, Gol for an amount of ₹89376 lakh. The Commission has already approved capital cost of ₹ 86865.46 lakh as on 31.3.2014. The Commission has therefore restricted the additional capital expenditure in consideration of the approved RCE completion cost of ₹89425.65 lakh (including normative IDC of ₹50.00 lakh)

13. The Closing capital cost of ₹ 86865.46 lakh on 31.3.2014 as approved in the Commission's order in Petition No. 190/GT/2015 has been considered as the opening capital cost as on 1.4.2014. Further, out of the projected additional capital expenditure of ₹ 5132.71 lakh during 2014-15 for the works within the original scope of work carried out before the cut off date, we have considered ₹ 2560.19 lakh. Accordingly, the capital cost considered for the purpose of tariff for the period 2014-19 is as under:

Particulars	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Opening Capital cost	86865.46	89425.65	89425.65	89425.65	89425.65
Additional Capital expenditure allowed	2560.19	0.00	0.00	0.00	0.00
Capital cost as on 31 march of the year	89425.65	89425.65	89425.65	89425.65	89425.65

14. The capital cost, including the projected additional capital expenditure allowed as above, is subject to revision based on the actual expenditure incurred at the time of truing-up of tariff in accordance with Regulation 8 of the 2014 Tariff Regulations.

#### **Debt: Equity**

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

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



*Provided that:*

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

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

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

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

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

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

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

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



16. Accordingly, the gross normative loan and equity amounting to ₹60805.82 lakh and ₹ 26059.64 lakh, respectively, as on 31.3.2014 as considered in the Commission's order in Petition No. 190/GT/2015 has been considered as normative loan and equity as on 1.4.2014. The normative debt equity ratio of 70:30 has been considered for admitted additional capital expenditure. This is subject to truing-up in terms of Regulation 8 of the 2014 Tariff Regulations. The opening and closing debt and equity is as under:

*(₹ in lakh)*

Asset	As on 1.4.2014		Net Additional Capitalisation during 2014-19		As on 31.3.2019	
	Amount	%	Amount	%	Amount	%
Debt	60805.82	70%	1792.13	70%	62597.96	70%
Equity	26059.64	30%	768.06	30%	26827.70	30%
<b>Total</b>	<b>86865.46</b>	<b>100%</b>	<b>2560.19</b>	<b>100%</b>	<b>89425.65</b>	<b>100%</b>

### Return on Equity

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

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

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

*Provided that:*

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

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



iii). *additional RoE of 0.50% 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.*

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

***“Tax on Return on Equity***

*(1) The base rate of return on equity as allowed by the Commission under Regulation 24 shall be grossed up with the effective tax rate of the respective financial year. For this purpose, the effective tax rate shall be considered on the basis of actual tax paid in the respect of the financial year in line with the provisions of the relevant Finance Acts by the concerned generating company or the transmission licensee, as the case may be. The actual tax income on other income stream (i.e., income of non-generation or non-transmission business, as the case may be) shall not be considered for the calculation of “effective tax rate”.*

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

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

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



company or transmission licensee paying Minimum Alternate Tax (MAT), "t" shall be considered as MAT rate including surcharge and cess.

19. The base rate of ROE 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:

Particulars	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Notional Equity-Opening	26059.64	26827.70	26827.70	26827.70	26827.70
Addition of Equity due to additional capital expenditure	768.06	0.00	0.00	0.00	0.00
Normative Equity-Closing	26827.70	26827.70	26827.70	26827.70	26827.70
Average Normative Equity	26443.67	26827.70	26827.70	26827.70	26827.70
Return on Equity (Base Rate)	15.50%	15.50%	15.50%	15.50%	15.50%
Tax Rate for the year	20.960%	20.960%	20.960%	20.960%	20.960%
Rate of Return on Equity (Pre Tax)	19.610%	19.610%	19.610%	19.610%	19.610%
<b>Return on Equity</b>	<b>5185.60</b>	<b>5260.91</b>	<b>5260.91</b>	<b>5260.91</b>	<b>5260.91</b>

20. The petitioner is however directed to furnish on affidavit the effective tax rates along with the Tax Audit Report for the period 2014-19 at the time of revision of tariff based on truing-up in terms of Regulation 8 of the 2014 Tariff Regulations.

### Interest on Loan

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

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

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

(3) The repayment for each of the year of the tariff period 2014-19 shall be deemed to be equal to the depreciation allowed for the corresponding



*year/period. In case of de-capitalization of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered upto the date of de-capitalization of such asset.*

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

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

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

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

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

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

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

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

*Provided that the beneficiaries or the long term transmission customers /DICs shall not withhold any payment on account of the interest claimed by the*



*generating company or the transmission licensee during the pendency of any dispute arising out of re-financing of loan.”*

22. The opening gross normative loan as on COD of each unit has been arrived at in accordance with Regulation 26 of the 2014 Tariff Regulations. It is observed that the petitioner has considered the interest on normative loan @ 10.36% with the actual loan portfolio to work out the weighted average rate of interest. The Regulation 26(5) of the 2014 Tariff Regulations clearly states for the consideration of actual loan portfolio at the beginning of each year for the computation of weighted average rate of interest. Accordingly, the Commission has worked out weighted average rate of interest on the basis of the actual loan portfolio of respective year applicable to the project. The repayment for the period 2014-19 has been considered equal to the depreciation allowed for that year. Interest on loan has been calculated on the normative average loan of the year by applying the weighted average rate of interest. The calculations for weighted average rate of interest are enclosed as Annexure-I to this order. As such, Interest on loan for the period 2014-19 is worked out as under:

<i>(₹ in lakh)</i>					
<b>Particulars</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
Gross opening loan	60805.82	62597.96	62597.96	62597.96	62597.96
Cumulative repayment of loan upto previous year	5479.10	9901.36	14387.84	18874.32	23360.79
Net Loan Opening	55326.72	52696.60	48210.12	43723.64	39237.16
Addition due to additional capital expenditure	1792.13	0.00	0.00	0.00	0.00
Repayment of loan during the year	4422.26	4486.48	4486.48	4486.48	4486.48
Net Loan Closing	52696.60	48210.12	43723.64	39237.16	34750.68
Average Loan	54011.66	50453.36	45966.88	41480.40	36993.92
Weighted Average Rate of Interest of loan	3.561%	3.459%	3.324%	3.190%	3.094%
<b>Interest on Loan</b>	<b>1923.36</b>	<b>1745.18</b>	<b>1527.94</b>	<b>1323.22</b>	<b>1144.59</b>



## Depreciation

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

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

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

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

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

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

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

*Provided also that any depreciation disallowed on account of lower availability of the generating station or generating unit or transmission system as the case may*





be, shall not be allowed to be recovered at a later stage during the useful life and the extended life.

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

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

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

(6) In case of the existing projects, the balance depreciable value as 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.”

24. In terms of above regulations, the weighted average rate of depreciation 5.017% is calculated and the same has been considered for FY 2014-15 to FY 2018-19.

Accordingly, depreciation has been computed as follows:

(₹ in lakh)					
Details of Depreciation	2014-15	2015-16	2016-17	2017-18	2018-19
Gross block as on 31.3.2014	86865.46	89425.65	89425.65	89425.65	89425.65
Additional capitalization during 2014-19	2560.19	0.00	0.00	0.00	0.00
Closing Gross block	89425.65	89425.65	89425.65	89425.65	89425.65
Average gross block	88145.55	89425.65	89425.65	89425.65	89425.65
Rate of Depreciation	5.017%	5.017%	5.017%	5.017%	5.017%



Details of Depreciation	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciable Value	79331.00	80483.09	80483.09	80483.09	80483.09
Remaining Depreciable Value	73851.90	70582.39	66095.91	61609.43	57122.95
<b>Depreciation</b>	<b>4422.26</b>	<b>4486.48</b>	<b>4486.48</b>	<b>4486.48</b>	<b>4486.48</b>

### O&M Expenses

25. The Commission in its order in petition no. 190/GT/2015 had considered the capital cost of ₹86865.46 lakh as on 31.3.2014 in absence of the actual capital cost as on the cut-off date for the purpose of calculating the O&M expenses for the generating station. The Commission had approved O&M expenses for the period 29.11.2012 to 31.3.2014 as under:

	(₹ in lakh)		
	29.11.2012 to 31.1.2013	1.2.2013 to 31.3.2013	FY 2013-14
	3 Units (Pro-rata)	4 Units (pro-rata)	4 Units
Allowed Project cost	59,721.34	86,865.46	
Less: R&R cost	146.62	195.50	
Capital cost for the purpose of O&M	59,574.71	86,669.96	
Annualised O&M expenses @ 2% of capital cost	1,191.49	1,733.40	1832.55*
<b>O&amp;M expenses (Pro rata)</b>	<b>208.92</b>	<b>280.19</b>	<b>1832.55</b>

\* After escalation of annualized O&M expenses of FY 2012-13 (₹1733.40 Lakh) at the rate of 5.72%

26. The Commission in this order has allowed the completion cost of the generating station as ₹ 89425.65 lakh. Accordingly, O&M expenses allowed in petition no. 190/GT/2015 for the period 29.11.2012 to 31.3.2014 stands revised as under:

	(₹ in lakh)		
	29.11.2012 to 31.1.2013	1.2.2013 to 31.3.2013	FY 2013-14
	3 Units (Pro-rata)	4 Units (pro-rata)	4 Units
Allowed Project cost	67,069.24	89,425.65	



	29.11.2012 to 31.1.2013	1.2.2013 to 31.3.2013	FY 2013-14
	3 Units (Pro-rata)	4 Units (pro- rata)	4 Units
Less: R&R cost	146.63	195.50	
Capital cost for the purpose of O&M	66,922.61	89,230.15	
Annualised O&M expenses @ 2% of capital cost	1,338.45	1,784.60	1,886.68*
<b>O&amp;M expenses (Pro rata)</b>	<b>234.69</b>	<b>288.47</b>	<b>1,886.68</b>

\* After escalation of annualized O&M expenses of FY 2012-13 (₹1784.60 Lakh) at the rate of 5.72%

27. The above O&M expenses have been considered for revision of annual fixed charges for the period 29.11.2012 to 31.3.2014.

28. Regulation 29 (3) (c) of the 2014 Tariff Regulations provides as under:

*“(c) In case of the hydro generating stations, which have not been in commercial operation for a period of three years as on 1.4.2014, operation and maintenance expenses shall be fixed at 2% of the original project cost (excluding cost of rehabilitation and resettlement works) for the first year of commercial operation. Further, in such case, operation and maintenance expenses in first year of commercial operation shall be escalated @6.04% per annum up to the year 2013- 14 and then averaged to arrive at the O&M expenses at 2013-14 price level. It shall be thereafter escalated @ 6.64%per annum to arrive at operation and maintenance expenses in respective year of the tariff period.”*

29. The generating station is not in commercial operation for a period of three years as on 1.4.2014. Accordingly, in terms of sub-section (c) 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)
Complete capital cost allowed by the Commission	89,425.65
Less: R&R cost submitted by the petitioner	195.5
<b>Capital cost for the purpose of O&amp;M</b>	<b>89,230.15</b>



(₹ in lakh)	
<b>FY 2012-13</b>	<b>Amount</b>
O&M Expenses (@ 2% of ₹89180.50 lakh (N1))	1,784.60
<b>FY 2013-14</b>	
O&M Expenses (Escalated @6.04 % of O&M Expenses of 2012-13) (N2)	1,892.39
<b>O&amp;M Expenses @ 2013-14 Price Level (N=(N1+N2)/2)</b>	<b>1,838.50</b>

(₹ in lakh)								
	29.11.2012 to 31.1.2013	1.2.2013 to 31.3.2013	2013-14	2014-15	2015-16	2016-17	2017-18	2018-19
O&M expenses	234.69	288.47	1,886.68	1960.57	2090.76	2229.58	2377.63	2535.50

### Interest on Working Capital

30. Based on revision in O&M expenses for the period 2012-14 (29.11.2012 to 31.3.2014) in above section revised Interest on working capital is summarized as under:

	29.11.2012 to 31.1.2013	1.2.2013 to 31.3.2013	FY 2013-14
	2 Units (Pro-rata)	3 Units (pro-rata)	3 Units
O & M expenses- 1 Month	19.56	24.04	157.22352
Maintenance Spares	35.20	43.27	283.00
Receivables- 2 months	253.44	354.85	2,270.96
<b>Total Working Capital</b>	<b>308.20</b>	<b>422.16</b>	<b>2711.19</b>
Rate of Interest	13.50%	13.50%	13.50%
<b>Interest on Working Capital</b>	<b>41.61</b>	<b>56.99</b>	<b>366.01</b>

31. 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.”

32. Accordingly, Receivables component of working capital has been worked out on the basis of two months of fixed cost as under:

(₹ in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
2310.92	2327.23	2314.60	2305.74	2303.04

33. Maintenance spares @ 15% of O&M expenses are worked out and allowed as under:

(₹ in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
294.09	313.61	334.44	356.64	380.33

34. O&M expenses for 1 month for the purpose of working capital are as under:

(₹ in lakh)				
2014-15	2015-16	2016-17	2017-18	2018-19
163.38	174.23	185.80	198.14	211.29

35. 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."*

36. 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 in the calculations for the purpose of tariff.



37. Accordingly, interest on working capital is shown below:

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
O & M expenses- 1 Month	163.38	174.23	185.80	198.14	211.29
Maintenance Spares	294.09	313.61	334.44	356.64	380.33
Receivables- 2 months	2310.92	2327.23	2314.60	2305.74	2303.04
Total Working Capital	2768.39	2815.07	2834.84	2860.51	2894.66
Rate of Interest	13.50%	13.50%	13.50%	13.50%	13.50%
<b>Interest on Working Capital</b>	<b>373.73</b>	<b>380.03</b>	<b>382.70</b>	<b>386.17</b>	<b>390.78</b>

### Annual Fixed charges

38. Accordingly, annual fixed charges approved for the generating station for the period 2012-14 (29.11.2012 to 31.3.2014) and for the period 2014-19 are summarized as under:

#### 2012-14 (29.11.2012 to 31.3.2014)

	(₹ in lakh)		
	29.11.2012 to 31.1.2013 (3 Units) (Pro-rata)	1.2.2013 to 31.3.2013 (4 Units) (Pro-rata)	2013-14 (4 Units)
Depreciation	524.35	669.78	4284.97
Interest on Loan	111.27	335.59	2054.82
Return on Equity	608.73	778.26	5033.29
Interest on Working Capital	41.61	56.99	366.01
O&M Expenses	234.69	288.47	1886.68
<b>Total</b>	<b>1520.65</b>	<b>2129.10</b>	<b>13625.77</b>

#### 2014-19

	(₹ in lakh)				
Particulars	2014-15	2015-16	2016-17	2017-18	2018-19
Depreciation	4422.26	4486.48	4486.48	4486.48	4486.48
Interest on Loan	1923.36	1745.18	1527.94	1323.22	1144.59
Return on Equity	5185.60	5260.91	5260.91	5260.91	5260.91



<b>Particulars</b>	<b>2014-15</b>	<b>2015-16</b>	<b>2016-17</b>	<b>2017-18</b>	<b>2018-19</b>
Interest on Working Capital	373.73	380.03	382.70	386.17	390.78
O&M Expenses	1960.57	2090.76	2229.58	2377.63	2535.50
<b>Total</b>	<b>13865.52</b>	<b>13963.36</b>	<b>13887.61</b>	<b>13834.41</b>	<b>13818.26</b>

### **Auxiliary Consumption**

39. The petitioner in its petition has sought relaxation in the auxiliary consumption norms and has submitted that generating station is being located at very high altitude, where weather remains at sub-zero temperature for almost seven months in a year from October to April and the minimum temperature has dropped to (-) 26° C in winter months. The petitioner has also submitted that in order to maintain water flow for power generation, substantial quantum of power is required for deicing arrangement of radial gates and in addition, substantial quantum of power is required to maintain various auxiliary equipment and systems when the units are running and also when units are not running. It has further submitted that continuous power is required to maintain a minimum working temperature in the power house and all this is achieved through various heating arrangements and by continuous running of one or more unit even when not supplying load to consumers. The petitioner has submitted that this results in very high auxiliary consumption with respect to any other conventional hydro generating stations.

40. The petitioner has also submitted that the generating station is operating in isolation and not connected with national grid and enough load is also not available in the Kargil area to absorb the entire generation from the project. The petitioner has submitted that considering this fact, the Commission had allowed the deemed generation benefit vide order dated 31.12.2012 in I.A No. 15/2012 in Petition No.23/GT/2011, as under:

*“19. Taking into consideration that the recovery of energy charges shall be less if the beneficiary demands/schedules for lesser energy (than declared by the generator) due to non-availability of load, we, in exercise of power under Regulation 44 of the 2009 Tariff Regulations, relax the provisions of Clause (4) of Regulation 22 of the 2009 Tariff Regulations and allow the recovery of energy charges, corresponding to difference between energy declared to be generated and the energy scheduled by the beneficiary (due to non-*



*availability of load) as deemed generation along with recovery of monthly energy charges for scheduled energy to be calculated as per provisions of the 2009 Tariff Regulations. The prayer of the petitioner is allowed in terms of the above.”*

41. Further, the petitioner has submitted the calculations of auxiliary energy consumption under different load conditions and sessions. The petitioner submitted that Auxiliary energy consumption has been calculated based on running hours of auxiliary and other essential heating system. The petitioner submitted that as per present situation, grid is not likely to be available in this tariff period and therefore, maximum load will be of two units only. During winters, load availability is there but generation is less as per availability of water and so actual auxiliary consumption will be higher in terms of percentage of generation (approx. 16%). The petitioner further submitted that considering maximum load availability equivalent to two units only auxiliary energy consumption works out to 8%. The petitioner has submitted that it has claimed 6% auxiliary energy consumption on annual average which is calculated on total design energy (212.93 MU) of the generating station.

42. The petitioner has stated that due to the above facts i.e. very high auxiliary consumption requirement and less isolated load, the existing normative auxiliary consumption of 1.2% under Regulation 37(6)(a)(ii) of the 2014 Tariff Regulations, is highly inadequate in respect of the generating station. Accordingly, the petitioner has prayed to relax & fix average auxiliary consumption at 6% for the generating station as a special case, by exercising the powers under Regulation 54 (power to relax) and Regulation 55 (power to remove difficulty) of the 2014 Tariff Regulations so as to schedule the generation realistically and achieve PAF based on realistic auxiliary consumption and not to gain any other benefit.





43. It is observed that the petitioner vide affidavit dated 25.4.2016 has submitted the month-wise actual auxiliary consumption data for the period 2012-16 as under:

	Auxiliary Consumption (%)
FY 2012-13( Average of last two months)	1.88
FY 2013-14	2.74
FY 2014-15	5.00
FY 2015-16	7.90

44. We have examined the matter. Considering the location of plant, the extreme weather condition and the data submitted by the petitioner, we, in exercise of the power under Regulation 54 of the 2009 Tariff Regulations, and as a special case relax the provisions of Clause (6) sub-clause (a)(ii) of Regulation 37 of the 2014 Tariff Regulations allow the auxiliary consumption of up to 5% based on average actual auxiliary consumption for the period 2013-16 as against the claim of the petitioner for 6%. The relaxation granted for this generating station cannot be cited as precedent in future.

#### **Normative Annual Plant Availability Factor**

45. Clause (4) of Regulation 37 of the 2014 Tariff Regulations provides for the Normative Annual Plant Availability Factor (NAPAF) for hydro generating stations already in operation. Accordingly, the NAPAF of 50% has been considered for this generating station.

#### **Design Energy**

46. The Commission in its order dated 23.1.2015 in Petition No.3/GT/2013 had approved the annual Design Energy (DE) of 212.93 Million units(MUs) for the period 2009-14 in respect of this generating station. This DE has been considered for this generating station for the period 2014-19 as per month-wise details as under:



Month		Design Energy (MUs)
April	I	3.29
	II	3.30
	III	3.92
May	I	5.07
	II	6.64
	III	9.67
June	I	10.03
	II	10.03
	III	10.03
July	I	10.03
	II	10.03
	III	11.04
August	I	10.03
	II	9.93
	III	11.04
September	I	10.03
	II	9.15
	III	7.75
October	I	6.17
	II	4.50
	III	4.40
November	I	4.38
	II	3.96
	III	3.78
December	I	2.86
	II	2.76
	III	3.02
January	I	2.75
	II	2.75
	III	3.02
February	I	2.75
	II	2.75
	III	2.20
March	I	2.97
	II	3.19
	III	3.69
<b>Total</b>		<b>212.93</b>

### Application Fee and Publication Expenses

47. 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.



48. As the petitioner has deposited the filing fees of ₹ 1,93,600 for the period 2014-15 in terms of the provisions of the Central Electricity Regulatory Commission (Payment of Fees) Regulations, 2012. Accordingly, in terms of Regulation 52 of the 2014 Tariff Regulations and in line with the decision in Commission's order dated 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 recovered *pro rata* after deposit of the same and production of documentary proof.

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

50. Petition No. 252/GT/2014 is disposed of in terms of the above.

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

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

**Sd/-**  
**(Gireesh B. Pradhan)**  
**Chairperson**



## Annexure I

### DETAILS OF LOAN BASED ON ACTUAL LOAN PORTFOLIO (2014-19)

	Interest rate					Loan deployed as on 1.4.2014	(₹ in lakh)	
	2014-15	2015-16	2016-17	2017-18	2018-19		Addition during tariff period	Total
PFC	10.03%	10.05%	10.00%	9.95%	9.88%	7,000.00	0.00	7,000.00
Sub-ordinate debt Govt. Of India	2.50%	2.51%	2.50%	2.50%	2.54%	36,400.00	0.00	36,400.00
Corporation Bank Loan	10.31%	10.17%	10.14%	10.12%	10.11%	88.00	0.00	88.00
Q Series Bonds	9.25%	9.63%	9.64%	9.68%	9.73%	500.00	0.00	500.00
R-1 Series Bonds	8.98%	9.03%	9.03%	9.07%	9.12%	192.00	0.00	192.00
State Bank Of India Loan	10.49%	10.52%	10.59%	10.60%	10.62%	358.00	0.00	358.00
<b>Total</b>						<b>44,538.00</b>	<b>0.00</b>	<b>44,538.00</b>

### WEIGHTED AVERAGE RATE OF INTEREST ON LOAN DURING 2014-19 TARIFF PERIOD

	(₹ in lakh)				
	2014-15	2015-16	2016-17	2017-18	2018-19
Gross Opening Loan	44538.00	44538.00	44538.00	44538.00	44538.00
Cumulative Repayment of loan upto previous year	1750.00	2467.83	3232.83	4027.66	4822.50
Net Loan Opening	42788.00	42070.17	41305.17	40510.34	39715.50
Additions during the year	0.00	0.00	0.00	0.00	0.00
Repayment during the year	717.83	765.01	794.82	794.84	2311.51
Net Loan Closing	42070.17	41305.16	40510.35	39715.50	37403.99
Average Loan	42429.09	41687.67	40907.76	40112.92	38559.75
Interest on actual loan	1510.99	1441.99	1359.74	1279.42	1192.97
<b>Weighted Average Rate of Interest</b>	<b>3.561%</b>	<b>3.459%</b>	<b>3.324%</b>	<b>3.190%</b>	<b>3.094%</b>

