# CENTRAL ELECTRICITY REGULATORY COMMISSION NEW DELHI

# Petition No. 27/GT/2013

Coram:

Shri V.S.Verma, Member Shri M.Deena Dayalan, Member

Date of Hearing: 16.7.2013
Date of Order: 23.1.2014

#### In the matter of

Approval of generation tariff of Teesta-V Hydroelectric Station (3 x 170 MW) of NHPC for the period of 1.4.2009 to 31.3.2014

#### And in the matter of

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

.....Petitioner

Vs

- West Bengal State Electricity Distribution Company Ltd, Bidyut Bhawan, 8<sup>th</sup> Floor, Block DJ, Sector II, Salt Lake, Kolkata – 700091
- Damodar Valley Corporation DVC Towers, VIP Road, Kolkata – 700054
- 3. Power Department, Government of Sikkim Kazi Road, Gangtok 737101
- 4. Jharkhand State Electricity Board, Doranda, Ranchi 834002
- 5. Bihar State Electricity Board Vidyut Bhawan, Bailey Road, Patna 800001

Grid Corporation of Orissa Ltd (GRIDCO)
 4<sup>th</sup> Floor, Bidyut Bhawan,
 Janpath, Bhubaneshwar - 751022

....Respondents

For Petitioner: Shri Parag Saxena, NHPC

Shri S.K. Meena, NHPC Shri J.K. Jha, NHPC

For Respondent: Shri R.B. Sharma, Advocate, GRIDCO & JSEB

#### ORDER

This petition has been filed by the petitioner, NHPC Ltd, a generating company owned and controlled by the Central Government, for determination of tariff in respect of Teesta–V Hydroelectric Station (3 x 170 MW) (the generating station) for the period 1.4.2009 to 31.3.2014 based on the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 (the Tariff Regulations 2009).

- 2. The generating station has been declared under commercial operation on 10.4.2008. The Ministry of Power, Govt of India vide its letter No. 8/1/2002-NHPC-Vol.-II dated 13.9.2012 has approved the completion cost of the generating station at ₹265695.00 lakh.
- 3. The tariff for the generating station for the period 10.4.2008 to 31.3.2009 was approved by the Commission vide order dated 5.1.2010 in Petition No.132/2009, based on capital cost of ₹248943.71 lakh as on 31.3.2008 (excluding the un-discharged liabilities of ₹13015.87 lakh). Further, the Commission vide its order dated 25.3.2013 in Petition No. 229/GT/2012, approved the additional capitalization of ₹13942.40 lakh for the year 2008-09 (including discharged liabilities of ₹10063.80 lakh) and revised the annual fixed charges of the generating station. Subsequently, by order dated 15.10.2013 in Review Petition No. 4/RP/2013 (in Petition No. 229/GT/2012) the annual fixed charges were further revised based on the capital cost of ₹262886.11 lakh as on 31.3.2009. The annual fixed charges determined by order dated 15.10.2013 were as under:

(₹in lakh
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	2008-09
	All Units (10.4.2008 to 31.3.2009)
Depreciation	6057.30
Interest on Loan	8079.60
Return on Equity	15006.89
Advance Against Depreciation	0.00
Interest on Working Capital	1024.92
O & M Expenses	3642.08
TOTAL	33810.79

4. The annual fixed charges claimed by the petitioner vide affidavit dated 22.4.2013 for 2009-14 is as under:

				(	(₹In lakh)
	2009-10	2010-11	2011-12	2012-13	2013-14
Return on Equity	19261.85	19397.26	19507.18	19544.01	19600.40
Interest on Loan	7505.27	6955.72	6342.98	5646.76	4977.60
Depreciation	13568.10	13772.02	13879.23	13915.16	13970.16
Interest on Working Capital	1198.48	1214.56	1227.95	1237.83	1250.39
O & M Expenses	7152.98	7562.13	7994.69	8451.98	8935.43
Total	48686.68	48901.70	48952.03	48795.74	48733.99

5. Replies have been filed by the respondents GRIDCO and Jharkhand State Electricity Board and the petitioner has filed its rejoinder to the same. We now proceed to determine the tariff for the generating station.

# **Capital Cost**

#### (A) Capital Cost as on 1.4.2009

- 6. The last proviso of Clause 2 of Regulation 7 of the 2009 Regulations provides as under:
  - "Provided also that in case of the existing projects, the capital cost admitted by the Commission prior to 1.4.2009 and the additional capital expenditure to be incurred for the respective year of the tariff period 2009-14, as may be admitted by the Commission, shall form the basis for determination of tariff."
- 7. As stated above, the Commission vide its order dated 15.10.2013 in Review Petition No.4/RP/2012 (in Petition No. 229/GT/2012) had approved the capital cost of ₹262886.11 lakh as on 31.3.2009, after taking into account the additional capital expenditure for the period 2008-09. Accordingly, in terms of the above proviso, the capital cost of ₹262886.11 lakh as on 31.3.2009, has been considered as the opening capital cost as on 1.4.2009, in respect of the generating station for the period 2009-14.

#### **Additional Capital Expenditure**

- 8. Regulation 9 of the 2009 Tariff Regulations, as amended on 21.6.2011 and 31.12.2012, provides as under:
  - "9. **Additional Capitalisation.** (1) The capital expenditure incurred or projected to be incurred, on the following counts within the original scope of work, after the date of commercial operation and up to the cut-off date may be admitted by the Commission, subject to prudence check:

- (i) Un-discharged liabilities;
- (ii) Works deferred for execution;
- (iii) Procurement of initial capital spares within the original scope of work, subject to the provisions of regulation 8;
- (iv) Liabilities to meet award of arbitration or for compliance of the order or decree of a court; and
- (v) Change in law:

Provided that the details of works included in the original scope of work along with estimates of expenditure, un-discharged liabilities and the works deferred for execution shall be submitted along with the application for determination of tariff.

- (2) The capital expenditure incurred or projected to be incurred on the following counts after the cut-off date may, in its discretion, 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;
- (ii) Change in law;
- (iii) Deferred works relating to ash pond or ash handling system in the original scope of work;
- (iv) 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) including due to geological reasons after adjusting for proceeds from any insurance scheme, and expenditure incurred due to any additional work which has become necessary for successful and efficient plant operation; and
- (v) 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 of switchyard equipment due to increase of fault level, emergency restoration system, insulators cleaning infrastructure, replacement of damaged equipment not covered by insurance and any other expenditure which has become necessary for successful and efficient operation of transmission system:

Provided that in respect sub-clauses (iv) and (v) above, any expenditure on acquiring the minor items or the assets like tools and tackles, furniture, air-conditioners, voltage stabilizers, refrigerators, coolers, 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. 1.4.2009.

(vi) In case of gas/liquid fuel based open/ combined cycle thermal generating stations, any expenditure which has become necessary on renovation of gas turbines after 15 year of operation from its COD and the expenditure necessary due to obsolescence or non-availability of spares for successful and efficient operation of the stations.

Provided that any expenditure included in the R&M on consumables and cost of components and spares which is generally covered in the O&M expenses during the major overhaul of gas turbine shall be suitably deducted after due prudence from the R&M expenditure to be allowed.

- (vii) Any capital expenditure found justified after prudence check necessitated on account of modifications required or done in fuel receipt system arising due to non-materialisation of full coal linkage in respect of thermal generating station as result of circumstances not within the control of the generating station.
- (viii) Any un-discharged liability towards final payment/withheld payment due to contractual exigencies for works executed within the cut-off date, after prudence check of the details of such

deferred liability, total estimated cost of package, reason for such withholding of payment and release of such payments etc.

- (ix) Expenditure on account of creation of infrastructure for supply of reliable power to rural households within a radius of five kilometers of the power station if, the generating company does not intend to meet such expenditure as part of its Corporate Social Responsibility"
- 9. The projected additional capital expenditure claimed by the petitioner for 2009-14 is as under:

					(₹	fin lakh)
	2009-10	2010-11	2011-12	2012-13	2013-14	Total
Projected additional capital expenditure	4711.23	3261.86	929.80	474.84	1675.68	11053.41

- 10. We notice that the petitioner has claimed additional capital expenditure considering the cut-off date of the generating station as 31.3.2011. As already stated, the generating station has been declared under commercial operation on 10.4.2008. As per provisions of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2004, in force up to 31.3.2009, the cut-off date for the generating station is worked out to be 31.3.2010. Accordingly, the Commission while determining the annual fixed charges for the generating station for 2008-09 had decided the cut-off date as 31.3.2010 in terms of the 2004 Tariff Regulations vide order dated 25.3.2013 in Petition No. 229/GT/2012. This order has attained finality. Therefore, the claim of the petitioner indicating the 'cut-off date' of the generating station as 31.3.2011 cannot be accepted. We therefore, proceed to examine the admissibility of the year-wise claims for additional capital expenditure for 2009-14, based on the submissions of the parties and on prudence check, as stated in the subsequent paragraphs.
- 11. The category-wise breakup of the additional capital expenditure claimed by the petitioner for 2009-10 is as given under:

	(₹in lakh)
Description	
Works within original scope but deferred for execution, up to the	1497.89
cut-off date - Regulation 9(1)(ii)	
Liabilities to meet award of arbitration - Regulation 9(1)(iv)	1727.16
Works beyond original scope -Regulation 9(2)(iv)	222.01
Sub-total	3447.06
Less :Deletions	112.94

Less :Un-discharged liabilities	52.16
Add: Release of Un-discharged liabilities	1429.27
Net additional capital Expenditure	4711.23

# Works within original scope but deferred for execution- Regulation 9(1)(ii)

12. The petitioner has claimed expenditure of ₹1497.89 lakh under this head in respect of works such as spillway works, purchase of dewatering pumps, installation of CCTV for security purpose, construction of hydro metrological laboratory at dam site, works in penstock erection gallery, R&R works, construction of guest house & transit camp, office equipment, computer, etc. Since these works are within the original scope and the expenditure has been incurred up to the cut-off date, the expenditure of ₹1497.89 lakh claimed has been allowed under Regulation 9(1)(ii).

# Liabilities to meet award of arbitration- Regulation 9(1)(iv)

13. The petitioner has claimed expenditure of ₹1727.16 lakh to meet contingent liability for payment of sales tax, royalty etc. The same has been allowed as it is an obligatory expenditure.

# Works beyond original scope

14. The petitioner has claimed expenditure of ₹222.01 lakh under this head in respect of the works not included in the original scope of work but the expenditure is said to have been necessary for plant operation. The works include boat for inspection of reservoir and removal of trash, construction of Dyke, construction of store in Power House, boring of wells at Power House colony for water supply, hydrographic survey of flood and seepage for safety of dam and Power House, Inter-unit transfer of assets, stabilization of hill slopes over GIS & TRT, provision for Reservoir RIM treatment works & damage compensation. Since these works are either essentially required for satisfactory operation of the generating station or are for the benefit of employees of the generating station, the expenditure for ₹148.39 lakh claimed has been allowed under Regulation 9(2)(iv) of the 2009 Tariff Regulations. However, an expenditure of ₹73.62 lakh (₹37.36 lakh on Stabilization of hill slope over GIS & TRT and

₹36.26 lakh on Reservoir RIM treatment work and damage compensation) which are of recurring nature and can be met under O&M, has not been allowed.

#### **Deletions**

15. The petitioner has claimed de-capitalization of assets such as furniture & fixture, refrigerator, trippers, jeeps, computer, power tunnels & pipelines, amounting to ₹112.94 lakh. The same has been allowed.

# **Un-discharged liabilities**

16. The petitioner has indicated un-discharged liabilities amounting to ₹52.16 lakh included in the additional capital expenditure for the year 2009-10. The petitioner has not submitted the asset-wise list of un-discharged liabilities. As such, it is not possible to verify the quantum of un-discharged liabilities against the assets amounting to ₹73.62 lakh disallowed. Therefore, no adjustments can be made in the un-discharged liabilities of ₹52.16 lakh to be deducted for the purpose of tariff. Accordingly, un-discharged liabilities amounting to ₹52.16 lakh has been allowed to be deducted. The petitioner shall, however, provide the asset-wise details of un-discharged liabilities at the time of truing up, in order to make necessary adjustments against the works disallowed for capitalization.

#### Release of Un-discharged Liabilities

- 17. The petitioner has claimed release of un-discharged liabilities amounting to ₹1429.27 lakh. The same has been allowed to be added for arriving at the permissible additional capital expenditure for the year 2009-10.
- 18. In the light of foregoing discussions, the total additional capital expenditure of ₹4637.61 lakh has been allowed, during the year 2009-10, against the claim of ₹4711.23 lakh.

#### 2010-11

19. The petitioner has claimed total additional capital expenditure of ₹3261.86 lakh during the year and the category-wise breakup of the expenditure is as under:

		(₹ in lakh)
	Description	Amount
1	Works within original scope but deferred for execution up	1577.58
	to cut off date - Regulation 9(1)(ii)	
2	Works beyond original scope	1504.00
3	Less: Capital spares included in Sl.No.2 above -	83.00
	Regulation 9(1)(iii)	
4	Add: Release of Un-discharged liabilities	263.28
5	Net additional capitalization	3261.86

#### Works within the original scope, but deferred for execution

The petitioner has claimed expenditure of ₹1577.58 lakh under this head in respect of the works which are within the original scope but deferred for execution under Regulation 9(1)(ii) of 2009 Tariff Regulations up to the cut-off date. We have in this order held that the cut-off date of the generating station is 31.3.2010. Moreover, the provisions of the 2009 Tariff Regulations allow such expenditure only upto the cut-off date. Hence, the expenditure claimed by the petitioner for 2010-11 on these works within the original scope and deferred for execution fall beyond the 'cut-off date' of the generating station. It is noticed that the works include the purchase of capacitance measurement instrument, construction of security barrack at dam site, spillway bridge/dam top works, remote data monitoring system, R&R works, automatic filter as capital spare, purchase of excavator cum loader, grout pump, mobile crane, tractor & car for providing conveyance to VIPs, purchase of thermo vision camera, telephone and telex machine, hydro-mechanical tools, computer & installation of CCTV for security purpose, CAT plan as per directive from Ministry of environment and Forests and Govt. of Sikkim, etc. It is also observed that the above said works which are within the original scope of work could not be completed by the petitioner within the cut-off date (31.3.2010). On scrutiny, we find that these works/assets are necessary for the efficient and successful operation of the generating station. Considering the factors in totality and as a special case, we, in exercise of "Powers to relax" under

Regulation 44 of the 2009 Tariff Regulations, relax the cut-off date of the generating station from 31.3.2010 to 31.3.2011. Accordingly, the expenditure for ₹1577.58 lakh is allowed to be capitalized in terms of Regulation 9(1)(ii) of the 2009 Tariff Regulations.

# Works beyond original scope

The petitioner has claimed expenditure of ₹1504.00 lakh under this head in respect of works not included in original scope of works but are said to be required for plant operation. These works include heat exchanger plates for cooling water system claimed as capital spares, stabilization of hill slope over GIS, TRT and main access tunnel to arrest rock fall, laying of anti skid floor tiles for dam, construction of office building at dam site, purchase of bus for employees, construction of iron removal plant for proper drinking water supply for employees at the Power House site, TRT outlet training work, water treatment plant at the colony, BIO engineering works for left bank slope, provision for Reservoir RIM treatment works and damage compensation, etc. The additional capital expenditure claimed for the works/assets essentially required for satisfactory operation of the generating station and for benefit of employees of the project amounting to ₹126.00 lakh is allowed in terms of Regulation 9(2)(iv) of the 2009 Tariff Regulations. However, expenditure for ₹1295.00 lakh for works/assets which are of recurring nature to be met under O & M and expenditure for ₹83.00 lakh towards capitalization of spares (Heat exchanger plate for cooling water system) has not been allowed. Accordingly, an expenditure of ₹1378.00 lakh has not been allowed as given under:

	(₹ in lakh)
Works/Assets	Amount
Stabilization of hill slope over GIS & TRT	620.00
Stabilization of hill slope over APS and main access tunnel	300.00
Reservoir RIM treatment work & damage compensation	150.00
TRT outlet strengthening, training work up to dumping yard	150.00
BIO engineering works for left bank slope protection works	75.00
Heat exchanger plate for cooling water system	83.00
Total	1378.00

# **Deletions**

22. The petitioner has not claimed any expenditure on de-capitalization of assets.

# Release of Un-discharged liability

- 23. The petitioner has claimed release of un-discharged liability amounting to ₹263.28 lakh, pertaining to the previous period, which has been allowed to be added to arrive at the permissible additional capital expenditure for the year 2010-11.
- 24. Based on the above, the total additional capital expenditure of ₹1966.86 lakh, has been allowed against the claim of ₹3261.86 lakh, for the year 2010-11.

#### 2011-12

25. The petitioner has claimed total additional capital expenditure of ₹929.80 lakh in terms of clause (2) of Regulation 9 of the 2009 Tariff Regulations as the expenditure has been incurred after the cut-off date. The category-wise breakup of the additional capital expenditure is as under:

(₹ in lakh)

Sr.	Description	Amount
No.		
1.	Works beyond original scope - Regulation 9(2)(iv)	976.50
2.	Less :Deletions	6.70
3.	Less: Capital spares in projected additional capital expenditure at SI. No 1	40.00
4.	Net additional capitalization	929.80

# Works beyond original scope-Regulation 9(2)(iv)

26. The petitioner has claimed expenditure of ₹976.50 lakh under this head in respect of works not included in original scope of works but are stated to be necessary for successful and efficient plant operation. The details of the works, additional capital expenditure claimed, admissibility/inadmissibility of capitalization of the expenditure in terms of the 2009 Tariff Regulations is shown as under:

Assets/works	Amount (₹in lakh)	Reasons for admissibility/ inadmissibility
Purchase of hydro-mechanical tools and equipment	50.00	<b>Not allowed</b> as the asset is within the category Tools and tackles.
Reservoir RIM treatment work & damage compensation	100.00	<b>Not allowed</b> as the expenses are of recurring nature and can be met under O&M.
Shaft seal drum/ sleave	25.00	<b>Not allowed</b> as capitalization of spares after the cut-off date is not permissible.
Hydraulic jack	20.00	<b>Not allowed</b> as the asset comes under the category Tools and tackles.

Station service transformer	15.00	<b>Not allowed</b> as capitalization of spares after the cut-off date is not permissible.
Construction of canteen in PH	12.50	Allowed under Regulation 9(2)(iv) as the expenditure is incurred for the benefit of
		employees of the generating station.
Primary cooling water pump	5.75	Allowed under Regulation 9(2)(iv) against
		replacement of old pump.
Raw cooling water pump of AC	5.50	Allowed under Regulation 9(2)(iv) against
&V system		replacement of old pump.
Drainage pump	10.75	<b>Allowed</b> under Regulation 9(2)(iv) against replacement of old pump.
Generator transformer	350.00	Not allowed as one spare Generator
Generator transformer	330.00	transformer is available and thus claim for
		other spare GT is not justified.
Purchase of 1 MVA DG set	75.00	Not allowed as two DG sets of 500 kVA
Fulchase of T WVA DG set	73.00	capacity each are available and thus claim for
		another spare DG of 1 MVA capacity is not
		justified.
Grouting, hill slope stabilization	100.00	Not allowed as the expenses are of recurring
Grouting, thii slope stabilization	100.00	nature, and can be met under O&M.
Left bank slope protection works	50.00	Not allowed as the expenses are of recurring
		nature, and can be met under O&M.
BIO engineering works for left	10.00	Not allowed as the expenses are of recurring
bank slope protection works		nature, and can be met under O&M.
Spillway glacis rebuilding works	100.00	Not allowed as the expenses are of recurring
		nature, and can be met under O&M.
Purchase of 2 dewatering pumps	25.00	Allowed under Regulation 9(2)(iv) against
		replacement of old pump.
Purchase of bus & pick up van	12.00	Allowed under Regulation 9(2)(iv) against
, ,		replacement of old vehicle.
Laptops & Computers	10.00	Not allowed being minor assets.

27. Accordingly, the additional capital expenditure of ₹71.50 lakh has been allowed against the claim for ₹976.50 lakh under this head.

# **Deletion**

- 28. The petitioner has claimed de-capitalization of assets amounting to ₹6.70 lakh for replacement of old assets such as cooling water pumps, drainage pump, dewatering pump, bus, laptops and computers. Since replacement of laptops and computers has not been allowed being minor assets, the corresponding de-capitalization of ₹0.89 lakh has been ignored. Thus, deletion of ₹5.81 lakh is allowed against the claim of ₹6.70 lakh.
- 29. In view of above, during the year 2011-12 the petitioner is allowed total additional capital expenditure of ₹ 65.69 lakh, against its net claim of ₹929.80 lakh.

#### 2012-13

30. The petitioner has claimed total additional capital expenditure of ₹474.84 lakh during the year in terms of clause (2) of Regulation 9 of the 2009 Tariff Regulations. The categorywise breakup of additional capital expenditure claimed is as under:

	₹ in lakh)
Description	Amount
Works beyond original scope- Regulation 9(2)(iv)	1131.00
Less :Capital spares in projected additional capital expenditure included at Ser No. 1	652.00
Less :Deletions	4.16
Net additional capitalization	474.84

# Works beyond original scope- Regulation 9(2)(iv)

31. The petitioner has claimed expenditure of ₹1131 lakh under this head in respect of the works which are not included in original scope of works but are stated to have been necessitated for successful and efficient plant operation. The details of the works, additional capital expenditure claimed, the admissibility/inadmissibility of capitalization of the expenditure in terms of the 2009 Tariff Regulations is shown as given under:

Assets/works	Amount (₹ <i>in lakh</i> )	Reasons for admissibility/ inadmissibility
BIO engineering works for left bank slope protection works	10.00	Not allowed as the expenses are of recurring
Spillway glacis rebuilding works	100.00	nature, and can be met under O&M.
Reservoir RIM treatment work & damage compensation	100.00	
Components for pressure monitoring & other equipment of GIS.	25.00	
Portable UHF partial discharge monitoring units with software	45.00	Not allowed as capitalization of capital spares
Optional primary cooling system of AC system	25.00	after the cut-off date is not permissible.
Bearing pads (UGB, LGB, TGB)	517.00	
Cards for excitation system	35.00	
Purchase of 66 kV sf6, 11 kV VCB < ACB	15.00	Not allowed. The petitioner has justified the proposed procurement by indicating that the present equipment is insufficient for further extension. The reason given is vague as the need for extension has not been elaborated. The petitioner may claim capitalization with proper justification at the time of truing up.
Purchase of 250 KVA & 100 KVA	4.00	Not allowed as capitalization of capital spares
transformer Grouting, hill slope stabilization	100.00	after the cut-off date is not permissible.
Grouting, thin stope stabilization	100.00	

Left bank slope protection works	50.00	Not allowed as the expenses are of recurring				
		nature, and can be met under O&M.				
Purchase of irregular spares other	50.00	Not allowed as capitalization of capital spares				
than mandatory spares		after the cut-off date is not permissible.				
Purchase of dewatering pump	20.00	Allowed under Regulation 9(2)(iv) against				
		replacement of old pump.				
Purchase of pick up van	25.00	Allowed under Regulation 9(2)(iv) against				
		replacement of old vehicle.				
Laptops & Computers	10.00	Not allowed, being minor asset.				

32. Accordingly, the additional capital expenditure of ₹45.00 lakh has been allowed against the claim of ₹1131.00 lakh.

#### **Deletion**

- 33. The petitioner has claimed de-capitalization of assets amounting to ₹4.16 lakh. The old assets such as dewatering pump, pick up van, laptops and computers have been decapitalized. Since replacement of laptops and computers has not been allowed, being minor assets, the corresponding de-capitalization of ₹1.72 lakh against these assets has been ignored. Thus, deletion of ₹2.44 lakh has been allowed against the claim of ₹4.16 lakh.
- 34. Accordingly, the total additional capital expenditure of ₹42.56 lakh, is allowed against the claim of ₹474.84 lakh, during the year 2012-13.

#### 2013-14

35. The petitioner has claimed total additional capital expenditure of ₹1675.68 lakh during the year. The category wise break-up of additional capital expenditure is as under:

(₹in lakh)

Description	Amount
Works beyond original scope- Regulation 9(2)(iv)	440.00
Less :Deletions	2.71
Less: Capital spares in projected additional capital expenditure included	120.00
at Sl. No.1	
Add: Release of Un-discharged liabilities	1358.39
Net additional capitalization	1675.68

# Works beyond original scope- Regulation 9(2)(iv)

36. The petitioner has claimed expenditure of ₹440.00 lakh under this head in respect of works/assets which are not included in original scope of works but are stated to have been



necessitated for successful and efficient plant operation. The details of assets/ works, additional capital expenditure claimed, admissibility/inadmissibility of capitalization of the expenditure in terms of the 2009 Tariff Regulations are as shown below:

Assets/works	Amount <i>(₹in lakh)</i>	Reasons for admissibility/ inadmissibility
BIO engineering works for left bank slope protection works	10.00	Not allowed as the expenses are of recurring nature, and can be met under O&M.
Spillway glacis rebuilding works	50.00	Not allowed as the expenses are of recurring nature, and can be met under O&M.
Reservoir RIM treatment work & damage compensation	100.00	Not allowed as the expenses are of recurring nature, and can be met under O&M.
Import substitution of Automatic filter for sec. water	50.00	Not allowed as capitalization of capital spares after the cut-off date is not permissible.
Numerical, Static & Electro- mechanical relays	20.00	Not allowed as capitalization of capital spares after the cut-off date is not permissible.
Grouting, hill slope stabilization, TRT strengthening etc.	100.00	Not allowed as the expenses are of recurring nature, and can be met under O&M.
Left bank slope protection works-Engineering measures	50.00	Not allowed as the expenses are of recurring nature, and can be met under O&M.
Purchase of irregular spares other than mandatory spares and erection of the same.	50.00	Not allowed as capitalization of capital spares after the cut-off date is not permissible.
Purchase of Dewatering Pump	10.00	Allowed under Regulation 9(2)(iv) against replacement of old pump.

37. Accordingly, additional capital expenditure of ₹10.00 lakh has been allowed against the claim of ₹440.00 lakh.

#### **Deletion**

38. The petitioner has claimed de-capitalization amounting to ₹2.71 lakh for replacement of old dewatering pump, and the same is allowed.

# Release of Un-discharged liability

- 39. The petitioner has claimed release of un-discharged liability amounting to ₹1358.39 lakh, pertaining to the prior period. The same has been allowed to be added for arriving at the permissible additional capital expenditure for the year 2013-14.
- 40. Accordingly, the total additional capital expenditure of ₹1365.68 lakh is allowed against the claim of ₹1675.68 lakh during 2013-14.

41. In view of the above discussions, the year-wise additional capital expenditure allowed for the purpose of determination of tariff after adjustment of un-discharged/discharged liabilities is summarized as under:

					(₹in lakh)
	2009-10	2010-11	2011-12	2012-13	2013-14
Regulation 9 (1) (ii)	1497.89	1577.58	0.00	0.00	0.00
Regulation 9 (2) (iv)	1727.16	0.00	0.00	0.00	0.00
Works beyond original scope	148.39	126.00	71.50	45.00	10.00
Sub-Total	3373.44	1703.58	71.50	45.00	10.00
Less: Deletion	112.94	0.00	5.81	2.44	2.71
Sub-Total	3260.50	1703.58	65.69	42.56	7.29
Add: Liability discharged	1429.27	263.28	0.00	0.00	1358.39
Less: Liability Un-discharged	52.16	0.00	0.00	0.00	0.00
Total	4637.61	1966.86	65.69	42.56	1365.68

# **Capital Cost**

42. As such, the capital cost considered for the purpose of the annual fixed charges is as given below:

					(₹In lakh)
	2009-10	2010-11	2011-12	2012-13	2013-14
Opening Capital Cost	262886.11	267523.72	269490.58	269556.27	269598.83
Additional Capital	4637.61	1966.86	65.69	42.56	1365.68
Expenditure					
Closing Capital Cost	267523.72	269490.58	269556.27	269598.83	270964.51

#### **Debt-Equity Ratio**

- 43. In accordance with clause (2) of Regulation 12 of the Tariff Regulations 2009, in case of the generating stations declared under commercial operation prior to 1.4.2009, debt-equity ratio allowed by the Commission for determination of tariff for the period ending 31.3.2009 is considered.
- 44. In the order dated 5.1.2010, while approving tariff for the generating station for the period ending 31.3.2009 the Commission had directed as under:
  - "42. The un-discharged liability of ₹13015.87 lakh as on the date of commercial operation of the project shall be considered as debt as and when the same is discharged. As the equity amounting to ₹109902.02 lakh has been considered, any additional expenditure incurred and admitted by the Commission after the date of commercial operation up to the approved revised capital for the generating station shall also be considered as debt for the purpose of tariff.

45. In line with the above decision, the entire additional capital expenditure up to the Revised Cost Estimate (RCE) amount of ₹265695.00 lakh has been considered as debt. The additional capital expenditure in excess of this RCE amount has been considered in the normative debt-equity ratio of 70:30.

#### **Return on Equity**

- 46. Regulation 15 of the Tariff Regulations 2009 provides as under:
  - "15. **Return on Equity**. (1)Return on equity shall be computed in rupee terms, on the equity base determined in accordance with regulation 12.
  - (2) Return on Equity shall be computed on pre-tax basis at the base rate of 15.5% for thermal generating stations, transmission system and run of the river generating station, and 16.5% for the storage type generating stations including pumped storage hydro generating stations and run of river generating station with pondage and shall be grossed up as per clause (3) of this regulation:

Provided that in case of projects commissioned on or after 1<sup>st</sup> April, 2009, an additional return of 0.5% shall be allowed if such projects are completed within the timeline specified in **Appendix-II**:

Provided further that the additional return of 0.5% shall not be admissible if the project is not completed within the timeline specified above for reasons whatsoever.

- (3) The rate of return on equity shall be computed by grossing up the base rate with the Minimum Alternate/Corporate Income Tax Rate for the year 2008-09, as per the Income Tax Act, 1961, as applicable to the concerned generating company or the transmission licensee, as the case may be.
- (4) Rate of return on equity shall be rounded off to three decimal points and be computed as per the formula given below:

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

Where "t" is the applicable tax rate in accordance with clause (3) of this regulation.

(5) The generating company or the transmission licensee, as the case may be, shall recover the shortfall or refund the excess Annual Fixed Charge on account of Return on Equity due to change in applicable Minimum Alternate/Corporate Income Tax Rate as per the Income Tax Act, 1961 (as amended from time to time) of the respective financial year directly without making any application before the Commission:

Provided further that Annual Fixed Charge with respect to the tax rate applicable to the generating company or the transmission licensee, as the case may be, in line with the provisions of the relevant Finance Acts of the respective year during the tariff period shall be trued up in accordance with Regulation 6 of these regulations.

#### Illustration.-

(i) In case of the generating company or the transmission licensee paying Minimum Alternate Tax (MAT) @ 11.33% including surcharge and cess:

Rate of return on equity = 15.50/ (1-0.1133) = 17.481%

(ii) In case of generating company or the transmission licensee paying normal corporate tax @ 33.99% including surcharge and cess:

Rate of return on equity = 15.50/ (1-0.3399) = 23.481%"

47. The Base Rate of 16.50% for the purpose of calculation of Rate of Return on Equity for the storage type generating stations including pumped storage hydro generating stations and run of river generating station with pondage is effective from 1.1.2013 and prior thereto the Base Rate of 15.5% was applicable. Accordingly, the Return on Equity has been computed by taking Base Rate of 15.5% applicable from 1.4.2012 to 31.12.2012 and Base Rate of 16.5% from 1.1.2013 to 1.4.2013 and accordingly the rate of return for the year 2012-13 works out at 17.762%. The petitioner is entitled to Return on Equity as shown below:

					(₹In lakh)
	2009-10	2010-11	2011-12	2012-13	2013-14
Gross Notional Equity	109902.00	110450.62	111040.67	111060.38	111073.15
Addition due to	548.62	590.06	19.71	12.77	409.70
additional capital					
expenditure					
Closing Equity	110450.62	111040.67	111060.38	111073.15	111482.85
Average Equity	110176.31	110745.65	111050.53	111066.77	111278.00
Base Rate of Return	15.500%	15.500%	15.500%	15.750%	16.500%
on Equity					
Tax rate for the year	11.330%	11.330%	11.330%	11.330%	11.330%
2008-09 (MAT)					
Rate of Return on	17.481%	17.481%	17.481%	17.762%	18.608%
Equity					
Return on Equity	19259.92	19359.45	19412.74	19727.68	20706.61

# Interest on Loan

- 48. Regulation 16 of the Tariff Regulations provides as under:
  - "16. **Interest on loan capital.** (1) The loans arrived at in the manner indicated in regulation 12 shall be considered as gross normative loan for calculation of interest on loan.
  - (2) The normative loan outstanding as on 1.4.2009 shall be worked out by deducting the cumulative repayment as admitted by the Commission up to 31.3.2009 from the gross normative loan.
  - (3) The repayment for the year of the tariff period 2009-14 shall be deemed to be equal to the depreciation allowed for that year:
  - (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 annual depreciation allowed.

(5) The rate of interest shall be the weighted average rate of interest calculated on the basis of the actual loan portfolio at the beginning of each year applicable to the project.:

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 beneficiary or the transmission customers 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."

- 49. The petitioner's entitlement to interest on loan has been worked out in accordance with Regulation 16 *ibid*. The salient features of computation of interest on loan allowed in tariff are summarized below:
  - (i) The opening gross normative loan as on the date of commercial operation of each unit has been arrived at in accordance with Regulation 16.
  - (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 2009-14 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.

50. The calculations in support of Interest on Loan are appended below:

					(₹In lakh)
	2009-10	2010-11	2011-12	2012-13	2013-14
Gross Normative Loan	152984.11	157073.10	158449.91	158495.89	158525.68
Cumulative Repayment	593.15	14159.36	27894.50	41681.62	55471.51
up to Previous Year					
Net Loan-Opening	152390.96	142913.74	130555.41	116814.27	103054.17
Repayment during the	13566.21	13735.14	13787.12	13789.89	13825.91
year					
Addition due to	4088.99	1376.80	45.98	29.79	955.98
Additional					
Capitalization(2009-14)					
Net Loan-Closing	142913.74	130555.41	116814.27	103054.17	90184.24
Average Loan	147652.35	136734.58	123684.84	109934.22	96619.20
Weighted Average Rate	5.221%	5.246%	5.280%	5.318%	5.371%
of Interest on Loan					
Interest	7708.92	7173.27	6530.77	5846.09	5189.86

#### **Depreciation**

- 51. Regulation 17 of the 2009 Tariff Regulations provides as under:
  - "17. **Depreciation.** (1) The value base for the purpose of depreciation shall be the capital cost of the asset admitted by the Commission.
  - (2) 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 stations, the salvage value shall be as provided in the agreement signed by the developers with the State Government for creation of the site:

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

- (3) 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.
- (4) Depreciation shall be calculated annually based on Straight Line Method and at rates specified in **Appendix-III** to these regulations for the assets of the generating station and transmission system:

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

- (5) In case of the existing projects, the balance depreciable value as on 1.4.2009 shall be worked out by deducting 3[the cumulative depreciation including Advance against Depreciation] as admitted by the Commission up to 31.3.2009 from the gross depreciable value of the assets.
- (6) 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."

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52. The weighted average rate of depreciation of 5.115%, calculated in accordance with Regulation 17 has been considered for the calculation of depreciation component of tariff. The petitioner's entitlement to depreciation has been worked out as under:

					(₹in lakh)
	2009-10	2010-11	2011-12	2012-13	2013-14
Gross Block as on 31.3.2009	262886.11	267523.72	269490.58	269556.27	269598.83
Additional capital expenditure	4637.61	1966.86	65.69	42.56	1365.68
during 2009-14					
Closing gross block	267523.72	269490.58	269556.27	269598.83	270964.51
Average gross block	265204.92	268507.15	269523.43	269577.55	270281.67
Rate of Depreciation	5.115%	5.115%	5.115%	5.115%	5.115%
Depreciable Value	238684.42	241656.44	242571.08	242619.80	243253.50
Balance Useful life of the asset	34.0	33.0	32.0	31.0	30.0
Remaining Depreciable Value	232376.54	221790.80	208970.31	195232.92	182077.29
Depreciation	13566.21	13735.14	13787.12	13789.89	13825.91

#### O & M Charges

- 53. Clause (f) of Regulation 19 of the Tariff Regulations 2009 which makes provisions for the generating company's entitlement to O & M expenses in respect of hydro generating stations is extracted hereunder:
  - "(f) Hydro generating station
  - (i) Operation and maintenance expenses, for the existing generating stations which have been in operation for 5 years or more in the base year of 2007-08, shall be derived on the basis of actual operation and maintenance expenses for the years 2003-04 to 2007-08, based on the audited balance sheets, excluding abnormal operation and maintenance expenses, if any, after prudence check by the Commission.
  - (ii) The normalised operation and maintenance expenses after prudence check, for the years 2003-04 to 2007-08, shall be escalated at the rate of 5.17% to arrive at the normalized operation and maintenance expenses at the 2007-08 price level respectively and then averaged to arrive at normalized average operation and maintenance expenses for the 2003-04 to 2007-08 at 2007-08 price level. The average normalized operation and maintenance expenses at 2007-08 price level shall be escalated at the rate of 5.72% to arrive at the operation and maintenance expenses for year 2009-10:

Provided that operation and maintenance expenses for the year 2009-10 shall be further rationalized considering 50% increase in employee cost on account of pay revision of the employees of the Public Sector Undertakings to arrive at the permissible operation and maintenance expenses for the year 2009-10.

- (iii) The operation and maintenance expenses for the year 2009-10 shall be escalated further at the rate of 5.72% per annum to arrive at permissible operation and maintenance expenses for the subsequent years of the tariff period.
- (iv) In case of the hydro generating stations, which have not been in commercial operation for a period of five years as on 1.4.2009, operation and maintenance expenses shall be fixed at 2% of the original project cost (excluding cost of rehabilitation & resettlement works). Further, in such case, operation and maintenance expenses in first year of commercial operation shall be escalated @5.17% per annum up to the year 2007-08 and then averaged to arrive at the O&M expenses at 2007-08 price level. It shall be thereafter

escalated @ 5.72% per annum to arrive at operation and maintenance expenses in respective year of the tariff period. The impact of pay revision on employee cost for arriving at the operation and maintenance expenses for the year 2009-10 shall be considered in accordance with the procedure given in proviso to sub-clause (ii) of clause (f) of this regulation.

(v) In case of the hydro generating stations declared under commercial operation on or after 1.4.2009, operation and maintenance expenses shall be fixed at 2% of the original project cost (excluding cost of rehabilitation & resettlement works) and shall be subject to annual escalation of 5.72% per annum for the subsequent years."

54. The year-wise O & M expenses claimed by the petitioner are as under:

_					(₹In lakh)
Ī	2009-10	2010-11	2011-12	2012-13	2013-14
	7152.98	7562.13	7994.69	8451.98	8935.43

55. The petitioner vide affidavit dated 2.8.2013 has provided following information on employee cost and actual O&M expenses for the year 2008-09 after excluding provision/wage hike:

(i) Employee cost : ₹ 3739.13 lakh

(ii) Net O&M expenses : ₹8012.87 lakh

(iii) % Employee cost : 46.66%

56. On prudence check, the following expenses on account of Productivity linked incentive, VRS and ex-gratia, which are not allowed in O&M for tariff purposes, have been excluded from the data of employee cost and net O&M expenses furnished by the petitioner:

(i) Productivity linked incentive : ₹150.81 lakh

(ii) VRS : ₹3.78 lakh

(iii) Ex-gratia : ₹1.26 lakh

Total : ₹155.85 lakh

57. Accordingly, the employee cost and O&M expenses considered for giving effect to 50% increase in employee cost as per sub-clause (ii) of clause (f) of Regulation 19(2) ibid are as follows:

(i) Employee cost : ₹3739.13 lakh -₹155.85 lakh= ₹3583.28 lakh

(ii) Net O&M expenses : ₹8012.87 lakh - ₹155.85 lakh= ₹7857.02 lakh

(iii) % Employee cost : 45.61%

58. The allowable O&M expenses for the generating station for the tariff period 2004-09 have been worked out as follows:

		(₹ in lakh)
SI.No.	Description	Amount
1.	10.4.2008 to 31.3.2009	
(i)	Capital cost on COD (10.4.2008), allowed vide order dated 5.1.2010 in Petition No. 132/2009	248943.71
(ii)	Additional capital expenditure for 2008-09 allowed vide order dated 25.3.2013 in Petition No. 229/2012	13942.40
	Capital cost as on 31.3.2009	262886.11
(iii)	Capital expenditure allowed during 2009-10 and 2010-11	4637.61+1966.86
		= 6604.47
(iv)	Capital expenditure allowed up to cut-off date (31.3.2011)	269490.58
(v)	Less : R & R Expenses	554.26
(vi)	Total capital expenditure up to cut-off date considered for	268936.32
	calculation of O&M expenses for the first year of operation (iv –v)	
(vii)	Capital expenditure for the purpose of O&M Expenses	268936.32
(viii)	O & M expenses for 2008-09 [2% of (vii)]	5378.73
2.	2009-10	
(i)	O&M expenses for the year 2009-10 before salary hike	5378.73 x 1.0572 = 5686.39
(ii)	Effect of Salary hike on O&M Expenses (50 % of 5686.39) x (3583.28 /7857.02)	1296.67
(iii)	O & M expenses for 2009-10 after salary hike (i+ ii)	6983.06

59. O&M expenses of the year 2009-10 have been successively escalated @ 5.72% per annum to arrive at O&M of each year of the period 2009-14. Accordingly, the year-wise O&M expenses allowed for the period 2009-14 are as under:

					(₹ In Iakn)
20	009-10	2010-11	2011-12	2012-13	2013-14
69	983.06	7382.49	7804.77	8251.20	8723.17

# **Interest on Working Capital**

60. The petitioner is entitled to claim interest on working capital as per Regulation 18 of the Tariff Regulations 2009. The components of the working capital and the petitioner's entitlement to interest thereon are discussed hereunder.

#### (i) Receivables

As per Regulation 18(1) (c) (i) of the 2009 Tariff Regulations, receivables as a component of working capital will be equivalent to two months' of fixed cost. The petitioner has claimed the receivables on the basis of 2 months' of annual

transmission charges claimed in the petition. In the tariff being allowed, receivables have been worked out on the basis of 2 months' transmission charges.

# (ii) Maintenance spares

Regulation 18 (1) (c) (ii) of the tariff regulations provides for maintenance spares @ 15% per annum of the O & M expenses as part of the working capital from 1.4.2009. The value of maintenance spares has accordingly been worked out.

# (iii) O & M expenses

Regulation 18(1) (c) (iii) of the tariff regulations provides for operation and maintenance expenses for one month to be included in the working capital. The petitioner has claimed O&M expenses for 1 month of the respective year. This has been considered in the working capital.

# (iv) Rate of interest on working capital

In accordance with clause (3) of Regulation 18 of the tariff regulations, as amended, rate of interest on working capital shall be on normative basis and shall be equal to the short-term Prime Lending Rate of State Bank of India as on 1.4.2009 or on 1st April of the year in which the generating station or a unit thereof is declared under commercial operation, whichever is later. In the instant case, SBI PLR on 1.4.2009 was 12.25%. This has been considered in tariff.

# 61. Necessary computations in support of interest on working capital are appended hereunder:

(₹ in lakh)

	2009-10	2010-11	2011-12	2012-13	2013-14
Maintenance Spares	1047.46	1107.37	1170.72	1237.68	1308.48
O & M Expenses	581.92	615.21	650.40	687.60	726.93
Receivables	8118.71	8143.15	8125.65	8141.34	8284.97
Total	9,748.09	9,865.73	9,946.76	10,066.62	10,320.37
Rate of Interest	12.25%	12.25%	12.25%	12.25%	12.25%
Interest	1194.14	1208.55	1218.48	1233.16	1264.25

# **Annual Fixed Charges**

62. The annual fixed charges approved for the generating station for 2009-14 are summarized as under:

					(₹ in lakh)
	2009-10	2010-11	2011-12	2012-13	2013-14
Return on Equity	19259.92	19359.45	19412.74	19727.68	20706.61
Interest on Loan	7708.92	7173.27	6530.77	5846.09	5189.86
Depreciation	13566.21	13735.14	13787.12	13789.89	13825.91
Interest on Working Capital	1194.14	1208.55	1218.48	1233.16	1264.25
O & M Expenses	6983.06	7382.49	7804.77	8251.20	8723.17
Total	48712.25	48858.89	48753.88	48848.02	49709.79

- 63. The petitioner shall be entitled to recover the Annual Fixed Charges and Energy charges in accordance with Regulation 22 of the 2009 Tariff Regulations.
- 64. The recovery of the annual fixed charges shall be subject to truing up in terms of Regulation 6 of the 2009 Tariff Regulations.

# **Design Energy**

65. The month-wise details of design energy in respect of the generating station are indicated in the following table:

Month	Design Energy (MU)			
April	160.13			
May	226.23			
June	314.28			
July	360.47			
August	360.47			
September	348.84			
October	284.31			
November	172.48			
December	119.08			
January	77.07			
February	63.35			
March	85.99			

#### **Application Fee and Publication Expenses**

66. The petitioner has sought the reimbursement of fees paid by it for filing the petition, and also the publication expenses. The petitioner shall be entitled for reimbursement of fee directly from the beneficiaries in accordance with Regulation 42A of the Tariff Regulations. Similarly, the petitioner shall also be entitled to recover the publication expenses incurred in

connection with the present petition. The reimbursement of filing fee and the publication expenses shall be on *pro rata* basis in the same ratio as the Annual Fixed Charges.

- 67. The difference between the provisional annual fixed charges already recovered by the petitioner and the annual fixed charges determined under this order shall be mutually settled between the petitioner and the respondents within a period of six months from the date of this order, in terms of the proviso to clause (3) of Regulation 5 of the 2009 Tariff Regulations.
- 68. Petition No. 27/GT/2013 is disposed of in above terms.

Sd/-(M. Deena Dayalan) Member Sd/-(V. S. Verma) Member