

**CENTRAL ELECTRICITY REGULATORY COMMISSION
NEW DELHI**

Petition No. 280/GT/2018

Coram:

Shri P.K. Pujari, Chairperson

Dr. M.K. Iyer, Member

Shri I.S. Jha, Member

Date of Order: 31st December, 2019

In the matter of

Revision of tariff of Teesta Low Dam Hydroelectric Power Station-III (132 MW) for the period from 1.4.2013 to 31.3.2014-Truing-up of tariff determined by Commission's order dated 22.1.2015 in Petition No. 115/GT/2013

And

In the matter of

NHPC Limited,
NHPC Office Complex, Sector-33,
Faridabad (Haryana) - 121003

.....Petitioner

Vs

West Bengal State Electricity Distribution Company Limited,
Vidyut Bhawan, 8th Floor, Block DJ,
Sector-II, Salt Lake, Kolkata,
West Bengal - 700091

....Respondent

Parties Present:

Shri A.K.Pandey, NHPC

Shri Piyush Kumar, NHPC

Shri Prashant Kaul, NHPC

Shri Jitender Kumar, NHPC

Shri V.N.Tripathi, NHPC

Shri M.G.Ramachandran, Senior Advocate, WBSEDCL

Ms. Tanya Sareen, Advocate, WBSEDCL

Ms. Anushree Bardhan, Advocate, WBSEDCL

Shri S. Choudhury, WBSEDCL

Shri S.Debsarma Biswas, WBSEDCL

ORDER

The Petitioner, NHPC has filed this Petition for determination of tariff of Teesta Low Dam Hydroelectric Project, Stage-III (4 x 33 MW) (hereinafter referred to as the 'generating station') for the period from 1.4.2013 to 31.3.2014 in terms of the Central



Electricity Regulatory Commission (Terms and Condition of Tariff) Regulations, 2009 ('the 2009 Tariff Regulations').

2. The generating station is a run-of-the-river type project, with pondage for 3 hours peaking, with provision of 10% overloading on continuous basis. Ministry of Power, Govt. of India, vide letter dated 30.10.2003 had accorded Investment Approval (IA) for setting up of the generating station at the total estimated cost of ₹76892.00 lakh, including IDC of ₹6041.00 lakh, based on December 2002 price level. As per the administrative approval, the generating station was scheduled to be commissioned within 4 years and 5 months from the date of IA i.e., by 31.3.2007. All the units of the generating station were under commissioning during March, 2013. As such, the delay in achieving COD of the generating station is 72 months. The generating station has been declared under commercial operation with the dates of commercial operation of each unit given below:

Unit 2	1.4.2013
Unit 3	1.4.2013
Unit 4	1.5.2013
Unit 1 / Generating Station	19.5.2013

Background

3. Petition No. 115/GT/2013 was filed by the Petitioner for approval of annual fixed charges of the generating station for the period from 1.4.2013 to 31.3.2014 based on the capital cost of ₹192580 lakh as on 1.4.2013 (expected COD of the generating station). However, the Commission after considering the deduction of un-discharged liabilities, the report on capital cost by the Designated Independent Agency (M/s Tata Consulting Engineers) and the capital cost of ₹90386.58 lakh for two units (1.4.2013 to 30.4.2013), ₹135579.87 lakh for three units (1.5.2013 to 18.5.2013) and ₹180773.16 lakh for four units (19.5.2013 to 31.3.2014) by order dated 22.1.2015 determined the annual fixed charges of the generating station as



under:

(₹ in lakh)

	1.4.2013 to 30.4.2013 (2 Units)	1.5.2013 to 18.5.2013 (3 Units)	19.5.2013 to 31.3.2014 (4 Units)
Return on Equity	5045.83	7568.74	10255.50
Interest on Loan	5800.61	8269.87	10711.95
Depreciation	4533.27	6799.90	9213.74
Interest on Working Capital	443.48	655.56	880.37
O & M Expenses	1806.19	2710.05	3731.32
Total	17629.37	26004.12	34792.88

4. The Commission in the said order also directed the Petitioner to ensure the submission of Revised Cost Estimate (RCE) at the time of truing-up of tariff of the generating station. The relevant portion of the order dated 22.1.2015 is extracted as under:

“24. The RCE approved by the Govt. of India is not yet available. Pending approval of RCE, we proceed to determine tariff of the generating station based on the appraisal of capital cost vetted by DIA. However, the Petitioner is directed to place on record the approval of Board of Directors of the Petitioner Company for the RCE within 3 months. The Petitioner is also directed to ensure the submission of RCE approved by the MOP, Govt. of India at the time of truing-up of tariff of the generating station in terms of Regulation 6 of the 2009 Tariff Regulations.”

5. Aggrieved by the said order, the Petitioner had filed Review Petition (Petition No 5/RP/2015) on certain issues and the Commission by order dated 18.9.2015 disposed of the same by directing that the error in the calculation of interest on loan and O&M expenses shall be considered on merits, at the time of revision of tariff of the generating station, based on truing-up exercise, in terms of the Regulation 6(1) of the 2009 Tariff Regulations. Against the said orders dated 22.1.2015 and 18.9.2015, the Respondent, WBSEDCL had also filed appeals (Appeal Nos. 212/2015 and 282/2015) before the Appellate Tribunal for Electricity (Tribunal). During the Pendency of these appeals, the Petitioner had filed Petition No.193/ GT/ 2015 for revision of the annual fixed charges of the generating station for the period 2013-14 in terms of the 2009 Tariff Regulations and Petition No. 248/GT/2014 for determination of tariff of the generating station for the period 2014-19 in accordance



with the provisions of the 2014 Tariff Regulations. Both the tariff petitions filed by the Petitioner were clubbed and the Commission by a common order dated 6.2.2017 disposed of the same as under:

“9..... we are inclined to dispose of this Petition, with liberty to the Petitioner to approach the Commission with fresh tariff Petition in respect of the generating station after approval of RCE by the Central Government. We direct accordingly. We also direct that the annual fixed charges determined by order dated 22.1.2015 and 18.9.2015 shall however continue to be in operation till the tariff of the generating station for the period 2009-14 and 2014-19 is determined based on the approved RCE. This is however subject to final decision of the Tribunal in the appeals filed by the Respondent. The filing fees deposited by the Petitioner shall be adjusted against the fresh Petition to be filed for the period 2014-19 in terms of the liberty granted above.”

6. Thereafter, by communication dated 3.7.2018, the Petitioner was advised to file tariff petitions in respect of their generating stations, by enclosing (i) Board approval of the actual cost of the Company and (ii) at least one of the documents namely (a) the DIA report or cost approved by CEA/PIB or cost approved by CCEA. Subsequently, the Tribunal, placing reliance of the aforesaid communication dated 3.7.2018 and the submissions of the parties therein, by its order dated 24.10.2018 disposed of the above mentioned appeals filed by the Respondent WBSEDCL, as under:

“7. In the light of the communication dated 03.07.2018 issued by Mr. T. Rout, Chief (Law), Central Electricity Regulatory Commission and also the submissions made by the learned counsel appearing for the Respondent No.2, as stated above, the instant appeal filed by the Appellant stands disposed of reserving liberty to the Appellant to file necessary application for seeking appropriate relief. In the event such application is filed for seeking relief, the first Respondent, CERC is directed to dispose of the same in accordance with law after affording reasonable opportunity to the Appellant and the Respondent No.2 without being influenced of the impugned order dated 22.01.2015 in Petition No. 115/GT/2013 and shall be disposed of as expeditiously.”

Present Petition

7. The Petitioner, in terms of the liberty granted by Commission's order dated 6.2.2017, has filed this Petition (280/GT/2018) for revision of tariff of the generating station for the period 2013-14. It has also filed Petition No. 320/GT/2018 for determination of tariff of the generating station for the period 2014-19. The Petitioner has submitted that the capital expenditure considered in the tariff petition is required



to be duly certified by Auditors. It has further submitted that since the present petition is a resubmission of the earlier petition (Petition No. 193/GT/2015), which was duly certified by statutory auditor and as there is no change in the financial data in the present petition, no re-auditing of the same data has been undertaken. The capital cost and the annual fixed charges as claimed by the Petitioner are as under:

Capital Cost

	<i>(₹ in lakh)</i>		
	1.4.2013 to 30.4.2013	1.5.2013 to 18.5.2013	19.5.2013 to 31.3.2014
	(2 units)	(3 units)	(4 units)
Capital Expenditure as on COD	95696.89	148733.93	192114.31
Less: Un-discharged liability	6623.72	9800.32	13071.39
Opening Capital cost as on COD	89073.17	138933.61	179042.92
Additional Capital Expenditure	0.00	0.00	3876.53
Closing capital cost as on COD	89073.17	138933.17	182919.45

Annual Fixed Charges

	<i>(₹ in lakh)</i>		
	1.4.2013 to 30.4.2013	1.5.2013 to 18.5.2013	19.5.2013 to 31.3.2014
	(2 units)	(3 units)	(4 units)
Return on Equity	465.13	391.55	7948.23
Interest on Loan	603.38	505.47	10589.41
Depreciation	574.11	483.40	9843.93
Interest on Working Capital	46.14	39.33	832.68
O&M Expenses	170.25	153.22	3597.86
Total	1859.01	1573.07	32812.11

8. The Petitioner, in compliance with the directions of the Commission, has filed the additional information vide its affidavit dated 6.3.2019. Reply has been filed by the Respondent WBSEDCL vide its affidavit dated 6.4.2019. The Commission, after hearing the parties on 14.5.2019, reserved its order in the Petition, with directions to the Petitioner, to file certain additional information. The Petitioner has filed the additional information vide its affidavit dated 11.6.2019 and the Respondent has filed its reply to the same vide affidavit dated 28.6.2019. The Petitioner has filed its rejoinder vide affidavits dated 3.7.2019 to the aforesaid replies. In terms of the observations of the Tribunal and based on the submissions of the parties & documents available on record, we proceed to revise the tariff of the generating



station for the period 2013-14 in terms of Regulation 6(1) of the 2009 Tariff Regulations, on prudence check, as stated in the subsequent paragraphs.

Time Overrun

9. The Ministry of Power, Govt. of India, vide letter dated 30.10.2003 had accorded Investment Approval (IA) for setting up of the generating station at the total estimated cost of ₹76892 lakh, including IDC of ₹6041 lakh, based on December, 2002 Price Level. As per administrative approval, the generating station was scheduled to be commissioned within 4 years and five months from the date of IA, that is, by 31.3.2007. The generating station has achieved COD on 19.5.2013. Thus, the total delay upto the COD of the generating station is 73 months 18 days.

10. The Commission vide its order dated 22.1.2015 in Petition No. 115/GT/2013 after considering submissions of the parties and the DIA report on capital cost, had held that the delay in completion of the project resulting in time and cost overrun was for reasons beyond the control of the Petitioner and the Petitioner cannot be made responsible for the same. The observations of the Commission with regard to time and cost overrun is as under:

“18. M/s Tata Consulting Engineers have studied the construction schedule as per DPR, actual time line for completion of various activities, reasons for delays such as acquisition of land, slope failures, floods, strikes, additional works etc. to work out total time overrun. Also, detailed analysis of the cost data under various heads has been made, to work out the overall completion cost and cost overrun. The cost appraised by M/s Tata Consulting Engineers appears to be the completion cost of the generating station and not cost on the date of commercial operation because the revised cost of Rs.197299 lakh includes the cost of all additional works occurring under various heads, after accounting for change in scope, inadequate provisions, enhanced IDC & FC, etc. It is also noted that nearly 26% of the total cost overrun (Rs.31355 lakh) is accounted for IDC & FC, which shows the direct impact of time overrun of 74 months.

19. The Respondent in its various affidavits filed before the Commission from time to time has raised a number of issues, scattered into different documents, objecting to cost and time overrun. In our view, these issues have been deliberated by the Petitioner in its various rejoinders filed vide affidavits dated 9.1.2013, 6.9.2013, 3.2.2014, 29.5.2014 and 7.10.2014. These issues have also been considered by M/s Tata Consulting Engineers in their appraisal report and they have given categorical findings on each issue. In view of this, we accept the appraisal report of the DIA, M/s Tata Consulting Engineers. Accordingly, we hold that the delay in completion of the



project resulting in time overrun and the consequent Cost overrun is for reasons beyond the control of the Petitioner and the Petitioner cannot be made responsible for the same.”

11. The Petitioner has submitted that in view of the Tribunal's order dated 24.12.2018 in Appeal No. 212/2015 directing the Commission to look into the matter afresh, the documents justifying time & cost overrun of the project, as submitted in Petition No. 115/MP/2013 may be considered while revising the tariff of the generating station for the year 2013-14. The delay in completion of the generating station as attributed by the Petitioner in the said petition is as under:

(a) Delay in transfer of forest land: The delay in acquisition of forest land as submitted by the Petitioner was 9 months. Subsequently, the Petitioner in its rejoinder affidavit dated 6.9.2013 had clarified that as per DPR, the acquisition of land for construction was to be completed by January, 2003, but the same was completed in April, 2004. According to the Petitioner, the delay of 15 months has a direct impact on the completion of the project as all the construction activities/ award of packages were directly linked with the availability of forest land.

(b) Delay due to slope failures in the right bank area: The major right bank slope failures occurred during the monsoon of 2005 and 2006 resulting in a delay of 9.5 months.

(c) Delay due to flash floods: The Petitioner has submitted that unprecedented flash floods had occurred during the years 2007, 2008, 2009 and 2010. It has submitted that during the year 2007, the whole barrage and power house area were submerged and restoration of same took one year. In the year 2008, closure of dyke could not be achieved because of flash rains resulting in delay in start of work of barrage way S1 and S2. In the year 2009, the work at the project area was stalled from June, 2009 to October, 2009 and the clearing of which took additional five months. In 2010, the left bank barrage area got filled up with muck and debris. Accordingly, the Petitioner has submitted that the above activities resulted in a total delay of more than 24 months.

(d) Execution for additional works: The Petitioner has submitted that the damage due to flash floods and occurrence of slides had caused the Petitioner to undertake additional works which required additional funds of `17600 lakh along with an additional time of 16 months (approx.).

(e) Strike call by local Political Party GJMM & GNLF and earthquake: Though the Petitioner has submitted that the delay due to strike by political parties was 14 months, it has in its rejoinder affidavit dated 6.9.2013 clarified that the actual delay on this ground was 7.5 months. The Petitioner has also stated that due to massive



earthquake in Sikkim in September 2011, most of the labourers left the site due to panic situation/ fear psychosis which resulted in delay of two months.

(f) Delay due to Frequent thefts: The Petitioner has in the discussions before Standing Committee submitted that there is a delay of 2 months in commissioning of the Project due to re-execution of stringing of power evacuation system as there were frequent theft of conductors etc. It had also stated that in PKG-2 of power evacuation works, FIR was lodged in various sections of power evacuation system due to theft of conductor.

12. The Respondent WBSEDCL vide its affidavit dated 6.4.2019 has submitted as under:

(a) In the Commission's order dated 22.1.2015 in Petition No. 115/GT/2013, the Petitioner had stated that the time overrun was 72 months. The commissioning of the generating station has been declared on 31.3.2013 as against the scheduled commissioning date of 31.3.2007. The COD of the generating station was achieved in the month of May, 2013. The Commission has to consider afresh, uninfluenced by the order dated 22.1.2015 on the justification for the delay of 72 months claimed by the Petitioner and particularly, individually the delay in each of the milestones of the project to be achieved by the Petitioner.

(b) WBSEDCL had engaged M/s. WAPCOS Limited as Consultant for detailed analysis on delayed completion of the generating station. WAPCOS in its final report of December, 2016 has concluded as under:

10. CONCLUSIONS

Based on above deliberations following can be concluded:

- a) NHPC has delayed appointment of DIA and as such DIA could not get opportunity to independently analyse reasons for time and cost overrun.*
- b) Further, DIA has relied on inputs provided by NHPC and report was prepared by DIA in co-ordination with NHPC.*
- c) Moreover, DIA has not carried out studies/analysis as mandated by CERC to substantiate their conclusions.*

In view of the above, DIA report cannot be relied upon.

b) DIA in their report has not elaborated/carried out activity wise delay analysis in respect of various items falling on critical path. Probably they have relied on input provided by NHPC. A critical delay analysis of various activities/items falling on critical path considering BAR chart as enclosed with DPR and PERT/BAR Chart based on actual execution (as submitted in CERC) indicates that period of delay which can be considered as beyond the control of NHPC is 23 months as against 72 months as allowed by CERC. Details are tabulated below:



S. No.	Activity	Delay allowed by CERC	Proposed Delay which can be considered to be allowed	Proposed Delay to be disallowed
1	Acquisition of Forest Land	15	4	11
2	II Phase Diversion	5	0	5
3	Power House Substructure Concreting	6	0	6
4	III Phase Diversion including Dykes and Filing	19	8	11
5	Barrage Bays S1 & S2 Concreting upto EL 194 (During Phase-III Diversion)	17	8	9
6	Balance Barrage Bays S1 & S2 Concreting up to Bridge Deck EL 210M including Left Abutment (During III Phase Diversion)	3	0	3
7	Erection of Gates	2	0	2
8	Pre-Commissioning Activities & Reservoir Filling	5	3	2
	Total (Months)	72	23	49

In view of above, matter needs to be taken up with CERC/APTEL for review of time overrun allowed to NHPC.

a) Even though project cost increased by about 2.5 times of the investments approval accorded by CCEA, no approval of Revised Cost Estimate was obtained by NHPC.

b) Completed cost of TLDP-III HEP as allowed by CERC works out to Rs. 14.14 Cr/MW. Persual of the data in respect of similar projects completed during this period/similar projects cleared by CEA shows the cost/MW ranges between Rs. 7.67 Cr/MW to Rs. 10.55 Cr/MW. As such, CERC allowed capital cost to TLDP-III needs a review.

c) CCEA while according investment approval for TLDP-III restricted the expenditure to be incurred under head "Establishment" as Rs 16.18 Cr i.e. 3.6% of cost of "I-Works" whereas, CERC has allowed an expenditure of Rs. 216.26 Cr. In case percentage as allowed by CCEA is maintained then Rs 37.33 can only be allowed under head "Established". Similarly, expenditure allowed by CERC under head "O-Miscellaneous", "Environment & Ecology" and "Initial Spares" is also very high. If considered and adopted, this will result in substantial reduction in completed cost of project.

NHPC in their submission to CERC have categorized overall delay under five major heads, namely Delay in Forest Clearance, Slope Failure, Frequent Floods, GJMM strike/Bundh and Additional Works. The same were considered by CERC. However, NHPC in their submission to Standing Committee on Time and Cost Overrun of Ministry of Power (GOI) submitted entirely different period of delays under above heads and also introduced a new head of "Frequent Thefts". As such correctness of data as submitted NHPC to CERC is doubtful.

In view of above, WBSEDCL may take the up matter with CERC/APTEL for review.

We may request CERC to decide on NHPC petition on Tariff Petition 2014-19 only after finalization of Capital Cost to be allowed needs review for determining tariff for the year 2013-14.



(c) The WAPCOS report considered allowable time overrun of only 23 months against 72 months delay claimed by the Petitioner. It is, therefore, submitted that on the basis of information submitted by the Petitioner in its tariff petition as well as Detailed Project Report (DPR) of the generating station, the Commission may strictly consider the time overrun of 23 months and not 72 months in regard to the tariff determination of the above power station.

(d) WBSEDCL has further analysed data/information submitted by the Petitioner in the petition as well as DPR of the project and discharge data of River Teesta received by Government of West Bengal from Central Water Commission to examine the extent to which the Time overrun and Cost overrun may be allowed for the project. On the basis of the analysis as mentioned below, relevant reports were sent to the Ministry of Power, Government of India by the Government of West Bengal. Summary of analysis of WBSEDCL is as under:

S. No	Major Milestones	Completion Dates		Time Overrun (in Months)	
		Scheduled as per DPR	Actual	Claimed by NHPC	The maximum that may be allowed
1	Acquisition of Forest Land	31.1.2003	30.4.2004	15	The date of commissioning of the project should have been 31.12.2009. Thus, the time overrun that may be allowed as beyond the control of NHPC is for the period from 1.4.2007 to 31.12.2009 i.e. for 33 months.
2	2nd Phase Diversion	31.3.2004	30.11.2005	5	
3	Power House Substructure Concreting	31.5.2005	27.7.2007	6	
4	3rd Phase Diversion including Dykes and Filling	28.2.2006	30.11.2009	19	
5	Barrage Bays S1 & S2 Concreting upto EL 194 (During Phase-3 Div)	30.6.2006	31.8.2011	17	
6	Balance Bays S1 & S2 Concreting up to Bridge Deck EL 210 m including Left Abutment (During III Phase Div)	31.12.2006	31.5.2012	3	
7	Erection of Gates	31.3.2007	31.10.2012	2	
8	Pre-Commissioning Activities and Reservoir Filling	31.12.2006	31.12.2012	5	
	Total			72	33

(e) In terms of the above, the claim made by the Petitioner of time overrun to the extent of 72 months is not justified. There are major anomalies in the claim of NHPC, as analysed hereinabove apart from the analysis done by WAPCOS and therefore the Petitioner has not given adequate or sufficient reason to allow such time overrun for the period of 72 months claimed by it. The analysis mentioned hereinabove, justifies, even taking a liberal view, delay of only 33 months. Accordingly, the time overrun should not in any event be allowed beyond 33 months from the scheduled commissioning date.



(f) It is evident from the table below that the Petitioner has been changing its stand before different forums and in fact appears to be basing its claims of delay in project completion on incompatible data rather than on realities.

Sl. No	Reasons for Delay	Net Delay (in months)		Deviation (months)
		Submissions in Petition No. 115/GT/2013	Before Standing Committee	
1	Due to delay in transfer of Forest Land	15	6	Decreased by 9 months
2	Slope Failure in Right Bank Area	9.5	6	Decreased by 3.5 months
3	Delay due to Floods	24	28	Increased by 4 months
4	Time for execution of additional works	16	14	Decreased by 2 months
5	<ul style="list-style-type: none"> Strike called by local Political party GJMM & its effect and Earthquake effects 	7.5	16	Increased by 8.5 months
	<ul style="list-style-type: none"> Frequent thefts 	0	2	Increased by 2 months
Total		72	72	No deviation

(g) The Petitioner did not raise 'frequent theft' as a reason for time overrun in the Petition No.115/GT/2013. The same was raised by the Petitioner for the first time before the Standing Committee. In any event, the Petitioner is entirely responsible for the delay caused by frequent theft as appropriate security arrangement was required to taken by the Petitioner.

(h) The Standing Committee on Time and Cost overrun has recommended the entire project cost, as claimed by the Petitioner ignoring the fact that CEA/CWC did not recommend the said project cost. The same can be ascertained from the letter dated 23.3.2015 of CEA. In view of the above, the said Committee has not undertaken any prudence check before recommending the project cost. CEA and CWC have made adverse comments on the technical prudence of NHPC in its note of observations enclosed with the said letter:

(j) The TEC issued by CEA on 28.11.2002 required the Petitioner to constitute an expert committee consisting of representation of Govt. of West Bengal, Geological Survey of India, Central Water Commission and CEA. In case of geological surprises, the Petitioner was required to submit its proposal for the enhanced cost due to occurrence of geological surprise to such expert committee for examination and recommendation of the cost thereof. However, the Petitioner did not constitute the said expert committee and thus the enhanced project cost related to geological surprises could not be examined by the expert committee. Had there been an expert committee, views/ advices of the committee could be helpful to stall unnecessary increase in project cost. The Petitioner cannot take advantage of its own defaults and claim the amount to be passed through in the tariff.



(k) Further, by order dated 2.8.2010, the Commission laid down guidelines for vetting of capital cost of Hydel Power projects by the DIA. In pursuance of the above Guidelines and 2009 Tariff Regulations, the Petitioner entered into contract with M/s. Tata Consulting Engineers Limited (TCEL). It is submitted that the Petitioner's reliance on the report of TCEL is not correct in view of the detailed aspect dealt in the WAPCOS report of the December, 2016.

(l) TCEL's report on the time overrun was objected to by WBSEDCL in the submissions filed on 9.1.2014 in Petition No.115/GT/2013. In this regard, it is also relevant that when there are such discrepancies, and when the Petitioner has not so far obtained and placed on record the RCE as approved by GOI, the Commission need to take a stricter approach while dealing with the cost and time over run aspect.

(m) In this regard, the Petitioner filed a rejoinder dated 7.10.2014 in the Petition no. 115/GT/2013 dealing with some of the issues relating to TCEL's report raised by WBSEDCL, but did not satisfactorily explain the Petitioner's stand on the objections raised by WBSEDCL.

(n) Further, WBSEDCL is placing on record the following table giving an indicative list of discrepancies in the data provided by NHPC with respect to time overrun and cost overrun and the corresponding objections raised by WBSEDCL before the Commission in the earlier proceedings of Petition No. 115/GT/2013.

S. No.	Particulars	Objections made by WBSEDCL
1	Activity 1030 as per PERT Chart (Construction of roads to major works)	Explanation not provided for delay as the activity was not related to acquisition of forest land.
2	Activity 1040 as per PERT chart (Construction of residential and non-residential building and other roads)	Explanation not provided for delay as the activity was not related to acquisition of forest land.
3	Activity A-1010- Construction of Approaches (1 st stage diversion)	No explanation provided for delay in commencement for the completion of the activity
4	A-1020 – Excavation of channels.	No explanation provided for delay in commencement for the completion of the activity
5	A-1030 – Permeation grouting of construction coffer dyke.	No explanation provided for delay in commencement for the completion of the activity
6	A-1040 – Erection of Bailey Bridge	No explanation provided for delay in commencement for the completion of the activity. Further, data inconsistent with the dates provided in TCEL report.
7	A-1050 – Excavation of coffer wall and stopping of left bank.	No explanation provided for delay in execution of activity.
8	A-1060 – Construction of coffer wall (concreting)	No explanation provided for delay in execution of activity. Further, the activity is shown to have commenced even before completion of excavation for coffer wall.



9	A-1070 – Permeation grouting and construction of coffer dyke (U/s & D/s)	No explanation provided for delay in commencement and execution of activity.
10	A-1085-Excavation (Cellular Wall)	No explanation provided for delay in commencement and execution of activity. Further, data inconsistent with TCEL report.
11	A-1080 – Concerting (Cellular Wall)	No explanation provided for delay in commencement and execution of activity. Further, data inconsistent with TCEL report.
12	A-1100 – Compacted Random Fill and A – 1105 – Backfill of earth (Cellular Wall)	No explanation provided for delay in commencement and execution of activity. Further, data inconsistent with TCEL report.
13	A – 1220 – Excavation with slope protection works	No explanation provided for delay in execution of activity. Further, data inconsistent with TCEL report.
14	A – 1225 – Drilling and grouting (Intake structure) and A-1230 – Concreting (Intake structure)	Explanation provided for delay in commencement and execution of activity.
15	A-1235 – 2 nd stage concerting, Erection and T&C of Gates	No explanation provided for delay in execution of activity. Further, data inconsistent with TCEL report.
16	A1270- Excavation with slope protection works, A 1280 – Erection of Penstocks and concreting and A 1290 – Drilling, grouting and backfill (Water Conductor)	No explanation provided for delay in execution of activity.
17	A 1315 – Excavation up to EL 197M, A 1320 – Excavation up to EL 174 M and A 1325 – Balance excavation up to EL 163M and backfill (Power House Works)	No explanation provided for delay in commencement and execution of activity.
18	A 1330- Raft connecting and column concreting in service bay up to EOT level	No explanation provided for delay in commencement and execution of activity.
19	A 1335- E&C of EOT crane in service bay	No explanation provided for delay in commencement and execution of activity.
20	A1340-Collumns concerting up to EOT level and extension of EOT rails including rooting in Unit-I, Unit-II, Unit-III and Unit-IV	No explanation provided for delay in execution of activity.
21	A1345& A 1355 – Concreting and Installation of scroll case of Unit-I& Unit II, A 1350 & A1360 – Generator Barrel Concreting of Unit I & Unit II	No explanation provided for delay in commencement of activity
22	A1385 – Construction of platforms of transformers, A 1390 Creation of Unit & Auxiliaries upto dry testing of all four units, A 1395-Erection, T&C of 8 nos. DT gates with gantry crane and concreting and A1290-Drilling, grouting and backfill (Water Conductor)	No explanation provided for delay in execution of activity.
23	A1430-Excavation with slope protection works and A1440 – Concerting, grouting and backfilling.	No explanation provided for delay in commencement and execution of activity.
24	A1450, A1455, A1460 and A1465- Concreting up to gap level in barrage Block III to VII and backfilling.	No explanation provided for delay in execution of activity.
25	A1475-2 nd stage concreting, Erection, Testing and Commissioning of gates in block No. V, VI & Vii, A1480-2 nd stage concreting, Erection, Testing and commissioning of gates in block No. III & IV	No explanation provided for delay in commencement and execution of activity.
26	A1485-Construciton of coffer Dam/Dykes.	No explanation provided for delay in



		execution of activity. Further, data inconsistent with TCEL report.
27	A1500- Excavation (barrage block no. I and II)	No explanation provided for delay in commencement and execution of activity.
28	A1510- Concerting up to gate level (barrage block no. I & II)	No explanation provided for delay in commencement and execution of activity. Further, data inconsistent with TCEL report.
29	A1555- Construction of foundation for GSI and other Electrical equipment (Pot Head Yard).	No explanation provided for delay in commencement and execution of activity.
30	A1565-Escalation and A1570- Concreting (L/B Guide/Retaining Wall). The abovementioned activity was scheduled to finish within a period of 12 months i.e. December, 2006 to November 2007. However, the Petitioner took approximately 30 months and finished these activities between the period from February, 2010 to May, 2012.	No explanation provided for delay in commencement and execution of activity.

(o) WBSEDCL placed before the Tribunal the following discrepancies in the data provided by the Petitioner with respect to time and cost overrun:

i) Construction of coffer wall was scheduled to be completed between January and May 2005 i.e. over a period of 4.5 months. However, the same was completed over a period of 8 months. Further, construction of coffer wall has been shown to have started in November, 2004 which is before the start of excavation of coffer wall before December 2004, such situation improbable and ought to have been explained by the Petitioner and gone into by the Commission.

ii) Concreting of cellular wall took 83 months instead of 20 months as was originally envisaged, thereby resulting in additional delay of 63 months. However, the Petitioner failed to provide any justification which caused such delay especially in view of the fact that coffer dyke had been completed in May 2006.

iii) Construction of roads to major work and construction of residential and non-residential building were scheduled to commence before acquisition of forest land and were scheduled to be completed by December 2003. However, these activities were commenced with approximate delay of 20 months and no explanation was provided by the Petitioner.

iv) Raft connecting and column concreting in service bay up to EOT level was scheduled to have been completed within a period of 3 months. However, the activity took 16 months to complete.

(p) Further, there were serious discrepancies in the PERT chart/bar charts provided by the Petitioner for explaining the delay in the earlier proceedings. The discrepancies as put forth by WBSEDCL before the Tribunal are as under:



- (i) A 1080 – Scheduled completion period 1 month, time taken – 2 months – 1 months – 1 month to be deducted from additive delay.
- (ii) Period of delay in phase II Diversion work completion date shown as 20 months attributable to flood of 2005, but no data of prolonged monsoon provided.
- (iii) A 1090 – Scheduled period – 2 months (01-12-2003 to 31-01-2004), actual time taken – 4 months (01-01-2005 to 30-04-2005), however no flood occurred during such time.
- (iv) A1100 – Scheduled period – 2 months (16-12-2003 to 15-02-2004), actual time taken – 9 months (01-03-2005 to 30-11-2005). No explanation for extension of time by 7 months. Activity, should have been completed by 30-04-2005 i.e. before monsoon. Therefore, monsoon cannot be cited for seeking extension of time.
- (v) A 1110 – Scheduled period – 3 months (02-01-2004 to 31-03-2004), actual time taken – 4 months (15-02-2005 to 25-06-2005). Activity should have been completed by 15-05-2005.
- (vi) A 1290 - Excavation for Power House was scheduled to start on 01-04-2004 i.e. immediately after completion of Phase-II Diversion. Scheduled period – 8 months (01-04-2004 to 30-11-2004). However, activity started with delay on 01.12.2005 since there was unexplained delay of 6-1/2 months on the part of NHPC without explanation for such delay.
- (vii) A 1300 – Power House Substructure, scheduled period for activity was 1 year (01-06-2004 to 31-05-2005), actual start on 01-04-2006 and time taken 16 months (01-04-2006 to 27-07-2007) with an additive delay of 4 months. Accordingly to NHPC, there was no flood situation in 2006. Therefore, even by their own version, there was no reason for the delay.
- (viii) A 1120 – Scheduled period was 3 months (01-10-2005 to 31-12-2005), actual time taken 4 months (01-02-2008 to 31-05-2008). The NHPC has not provided any explanation for not starting Phase-III after 6 months of completion of Power House Substructure. Further, there is no reason for delay of 1 month – May 2008 since alleged flood on 2008 was admittedly in June 2008 (TCEL report).
- (ix) A 1130 – Scheduled period - 3 months (01-12-2005 to 28-02-2006), actual period - 10 months (01-02-2008 to 30-11-2008). Delay of 7 months not explained by NHPC, since the activity ought to have been completed by 30-04-2008, before the occurrence of floods in 2008. Therefore, the period of 7 months from May to November 2008 should have been ignored by this Hon'ble Commission for the purpose of extension of time.
- (x) A 1140 – Scheduled period - 3 months (01-03-2004 to 31-05-2004) i.e. activity was to be started on completion of Phase II Diversion work. However actual time taken was 17.5 months i.e. Excavation for S3 to S7 – 2-1/2 months (14-11-2005 to 31-01-2006) and Excavation for S1 & S2 – 15 months (01-12-2008 to 28-02-2010). It may be noted that no reason was provided by NHPC for starting excavation of S1 and S2 in December 2008, that's a delay of 36 months in starting the activity. Further, delay of 12 months in completing activity without reason since activity would have completed by February 2009 taking scheduled period of 3 months i.e. much before alleged 2009 monsoon.



(xi) A 1155 – Scheduled period was 4 months (01-03-2006 to 30-06-2006), actual time taken 43 months (01-02-2008 to 30-08-2011). There is no rationale for the delay of 39 months – activity should have been completed by 31-05-2008 i.e. before the alleged flood in 2008. Therefore, a delay of 48 months (A 1143) upto 28.02.2010 and a further delay of 18 months (A 1155) from 28-02-2010 till 31-08-2011 has to be ignored for extension of time.

A 1170 – Erection of Gates – Scheduled period was 17 months (01-11-2005 to 31-03-2007), actual time in two phase (A 1152 – Erection of Gates S3 to S7 – 38 months (01-03-2009 to 30-04-2012) & A 1170 – Erection of Gates S1 & S2 – 10 months (01-01-2012 to 31-10-2012) taken was 44 months from 01-03-2009 to 31-10-2012. Accordingly, there is an unexplained delay of 27 months – Explanation shown as labour disturbance in 2011 and monsoon in 2012 – Considering actual start on 01-03-2009, activity should have been completed by August 2010 for a 1152, similarly only 5 months required for 2 gates proportionately and work on S1 & S2 should have been completed by May 2012.

(xii) 1290 – Excavation – Scheduled period was 8 months (01-04-2004 to 30-11-2004) and work was to be started immediately after completion of Phase II of Diversion work. However, work actually started with a delay of 5 months on 01-12-2005 even though activity A 1110 completed on 25-06-2005.

(xiii) A 1330 – Scheduled period was 10 months (01-04-2004 to 31-01-2005), actual time taken – 76 months (01-12-2005 to 31-03-2012). However, NHPC failed to provide any explanation for delay of 66 months.

(xiv) A 1340 – Scheduled period was 5 months (01-01-2005 to 31-05-2005), actual time taken – 29 months (01-12-2009 to 31-04-2012). However, NHPC failed to provide any explanation for delay of 24 months.

(q) In view of the above discrepancies, it is submitted that the Commission ought to undertake strict prudence check and disallow the time overrun of the project beyond 33 months. In this regard, WBSEDCL would crave leave to refer to the submissions filed in the earlier proceedings in Petition No. 115/GT/2013 with regard to the time overrun and cost overrun and the same may be read as a part of the present reply.

(r) In view of the admissible time overrun being restricted to 33 months, the consequential cost overrun by way of Interest during construction (IDC) can be considered only to the extent of 33 months and the cost overrun related to 39 months is required to be rejected being not admissible.

(s) Furthermore, the Petitioner did not mention the extent of Insurance Coverage and amount claimed from the Insurance Company regarding damage of the project component & ancillaries caused by Flood, cyclone Aila etc. Also, the Petitioner did not provide detail breakup of Insurance realization amounting to ₹10 crore. The Insurance coverage seems to be on the lower side considering the volume of project expenditure. However, the realized amount of ₹10 crore from the Insurance Company has to be deducted from the derived project cost. The Petitioner may be directed to provide documents of Insurance Policy and details of claim lodged to Insurance Company including breakup of Insurance realization amounting to ₹10 crore. The Insurance claims which have



not been accepted or yet to be accepted by the Insurance Company may also be considered for deduction from the project cost, as the Petitioner considered that amount covered under Insurance.

(t) The Petitioner has claimed project cost/ opening capital cost as on 1.4.2013 for two units of the generating station at ₹89073.18 lakh and as on 1.7.2013 for three units at ₹133988.61 and as on 19.5.2013 a sum of ₹179042.97 lakh for four units. In view of the above, objection in regard to the cost overrun being allowed as a result of time overrun of 72 months claimed by the Petitioner, the above capital cost may be rejected and capital cost considering 33 months' time overrun may only be allowed. Accordingly, the closing capital cost as on 30.4.2013, 18.5.2013 and 31.3.2014 may be revised. The tariff in regard to other elements needs to be considered by the Commission in accordance with the applicable regulations. Any claim made by the Petitioner for any tariff elements or charges in deviation of the 2009 Tariff Regulations may be rejected.

(u) The Petitioner has been recovering substantially higher tariff than what is admissible to the Petitioner. The capital cost admissible to the Petitioner with 33 months' time overrun would work out to be ₹1392.95 crore. The Commission may therefore consider to issue provisional/interim tariff, considering the project cost as originally approved by CEA/CCEA pending the determination of final tariff in this Petition and Petition No. 320/GT/2018 relating to control period 2014-19 and to give directions to the Petitioner to give effect to the same from COD and to adjust the additional amount so far realized along with interest thereof with subsequent power purchase bills of WBSEDCL.

13. The Petitioner vide its rejoinder affidavit dated 3.7.2019 has submitted as under:

(a) WBSEDCL is time and again raising the same issues against which the Petitioner has already submitted all relevant documents. Subsequently, the following developments have taken place which may be taken into consideration while determining tariff for the project as under:

i) Approval of RCE by NHPC Board of Directors

As directed by the Commission in its order dated 22.1.2015, the RCE of the project was approved by Board of Directors of NHPC in its 385th Board meeting held on 29.6.2015.

ii) Approval of RCE

Revised Cost Estimate (RCE) amounting to Rs.1972.99 crore has been vetted by CEA and CEA has provided its report on analysis of cost estimate vide its letter dated 23.3.2015. The Standing Committee on time & cost overrun, in its meeting held on 8.3.2016 has recommended the RCE amounting to Rs.1972.99 crore with time overrun of 72 months & cost overrun of Rs.1204.07 crore. Subsequently, PIB meeting was held on 29.11.2017 and the recommendation of PIB is awaited.

(b) With regard to the observations/views of Government of West Bengal, the Petitioner has explained its position to MoP vide its letter dated 6.6.2017 and



subsequently the same was conveyed by MoP to Department of Power & NES, GoWB vide letter dated 14.6.2017.

(c) In terms of the 2009 Tariff Regulations, the regulatory requirement for determination of tariff is cost appraisal by DIA, approval of RCE by GOI & certification of Audited balance sheet by statutory auditors. In view of the above, any report prepared by external agency should not be taken into cognizance. The time and cost aspect of project have already been examined in CEA and standing Committee for approval of RCE. The Petitioner has further submitted that during the PIB meeting held on 29.11.2017 under the chairmanship of Secretary (Expenditure), a committee comprising members from CEA, CWC, NHPC and WBSEDCL was constituted to arrive at the flood values during construction period i.e. flood which results into cost overrun. In the Minutes of Meeting, it was mentioned that once the Committee's recommendation is available, the PIB will consider the RCE of the Project. In this regard, a report on flood peak values was finalized during meetings of Member (Hydro), CEA and representative of Govt. of West Bengal, WBSEDCL, CWC, CEA and NHPC. Subsequently, report has been forwarded by CEA vide letter dated 9.2.2018 to MoP for further action.

(d) The submission of WBSEDCL on the nature of PERT chart is ambiguous. The Petitioner has provided PERT chart on specific request of WBSEDCL. The questions set by WBSEDCL are fresh doubts over details provided in PERT chart.

(e) The submission of WBSEDCL for considering time overrun to the tune of 23 months is arbitrary. In this regard, it is pertinent to mention that DIA as well as Standing Committee have already recommended time overrun of 72 months.

(f) WBSEDCL has raised the observation without going through the information submitted by the Petitioner in Form 9 of Petition No. 280/GT/2018 and Form 9B(i) of Petition No. 320/GT/2018. The contractor had taken insurance coverage for expected risk (flood) during execution of major civil work. In respect of loss due to flood in 2009, the Contractor, M/s Patel Engineering Ltd has realized the claim amount from the Insurance Company. Since, the Petitioner has paid the cost of restoration and hence recovered ₹11.57 crore from contractor. Accordingly, the amount has been de-capitalized in Form 9 of Petition No. 280/GT/2018. As per the final survey report, insurance settlement was finalized at ₹10.26 crore. However, the recovery was made from contractor based on the actual restoration work

(g) Based on documents submitted by the Petitioner vide affidavits dated 9.1.2013, 6.9.2013, 3.2.2014, 29.5.2014 and 7.10.2014 and the DIA report, the Commission has considered the time overrun of 72 months in its order dated 22.1.2015. Further, the Standing Committee has also recommended the time overrun of 72 months. In view of above, the Commission may consider the time over run of 72 months and allow capital cost accordingly.



Cost overrun

14. There is a cost overrun of ₹1204.07 crore between the original capital cost approved by CEA and the completion cost recommended by the Standing Committee. The breakup details are as under:

(₹ in crore)

Description	Approved Cost (PL Dec. 2002)	Completion Cost	Variation
A-CIVIL WORKS			
DIRECT CHARGES			
I - WORKS			
A - Preliminary	4.64	4.59	(-)0.05
B-Land	4.53	17.90	13.37
C - Works	244.58	528.69	284.11
J - Civil Works of Power Plant	124.98	296.72	171.74
K - Buildings	12.06	20.63	8.57
M- Plantation	0.53		(-)0.53
O - Miscellaneous	20.55	71.44	50.89
P - Maintenance	3.89	7.76	3.87
Q - Special Tools and Plants	3.69	6.39	2.70
R - Communication	7.22	8.55	1.33
X - Environment & Ecology	17.83	76.11	58.28
Y - Losses on Stock	0.97	0.84	(-)0.13
TOTAL OF I - WORKS	445.47	1039.60	594.13
II - Establishment	16.18	140.05	123.87
III - Tools and Plants	4.45	0	(-)4.45
IV - Suspense			
V - Receipts & Recoveries (-)	(-)0.47	(-)9.52	(-)9.05
TOTAL DIRECT CHARGES	465.63	1170.13	704.49
INDIRECT CHARGES			
I - Capitalized Value of abatement			
II - Audit & Account Charges	4.45	18.87	14.42
Total indirect charges	4.45	18.87	14.42
Total direct & indirect charges	470.09	1189.01	718.91
B - electrical works	238.42	410.02	171.60
Total - civil + electrical	708.51	1599.03	890.51
C- IDC &FC	60.41	373.96	313.55
TOTAL	768.92	1972.99	1204.07

15. The Respondent WBSEDCL had filed its reply on 24.7.2013 (in Petition No. 115/GT/2013) and the Petitioner had filed its detailed rejoinder to the same, along with documentary evidences, with copy to the Respondent. Pursuant to the DIA report, the Respondent on 9.1.2014 had submitted objections and pointed out



certain inconsistency between the document / PERT chart submitted by the Petitioner and the report submitted by the DIA. To this, the Petitioner had submitted that the Respondent had overlooked their clarification submitted vide its rejoinder dated 6.9.2013. However, on 4.2.2014, the Petitioner had submitted rejoinder to the reply of the Respondent dated 9.1.2014, wherein it was informed by the Petitioner that the project was still under construction, when the petition was filed in November 2012 and that all data/ information were not fully updated. Subsequently, the Petitioner updated the records at the time of vetting of project completion cost by DIA. Thereafter, the Respondent through its counsel had forwarded letters dated 23.4.2014 & 30.4.2014 requesting the submission of PERT chart as per DPR and the actual completion of the project, as it could not analyze the reasons for time & cost overrun. In response, the Petitioner on 24.4.2014 informed the Respondent regarding the submissions of the above documents. However, on 29.5.2014, the Petitioner in its rejoinder enclosed the copy of PERT chart as per DPR and the actual completion of the project, as desired by the Respondent. In response to this, the Respondent in its reply dated 1.7.2014 had again cited inconsistency in the data / documents furnished by the Petitioner. The Petitioner had submitted that it had furnished all information / justification as and when requested by the Respondent, but the Respondent had been repeatedly raising the same objections in different forums, ignoring the fact that the Petitioner had been supplying power from 1.4.2013. In response to the above reply, the Petitioner vide affidavit dated 7.10.2014 had made detailed submissions on the issues raised by the Respondent.

16. The Respondent vide its reply affidavit dated 6.4.2019 in the present petition has made detailed submissions with regard to time & cost overrun involved in the project. It has also pointed out certain discrepancies and has submitted that the Commission ought to undertake strict prudence check and disallow the time overrun



of the project beyond 33 months. The Respondent has also stated that the submissions filed by it in Petition No. 115/GT/2013 with regard to time overrun and cost overrun may be read as part of the present reply. The Respondent has further submitted that in terms of the directions of the Tribunal in its order dated 24.10.2018 in Appeal No. 212/2015, all issues for which liberty was granted in the said order, has been filed by this affidavit (6.4.2019), instead of filing the separate application. Accordingly, the Respondent has prayed that the Commission may consider its objections on specific aspects raised in the said affidavit.

17. In response, the Petitioner vide its rejoinder affidavit dated 3.7.2019 has pointed out that the Respondent has been raising the same issues against which the Petitioner has already submitted the relevant documents. The Petitioner has however informed the subsequent developments along with relevant documents stating that the RCE of the Project was approved by the Board of Directors of the Petitioner Company in its 385th meeting held on 29.6.2015. It has also stated that the RCE for Rs 1972.99 crore has been vetted by CEA and the Standing Committee in its meeting held on 8.3.2016 has recommended the RCE for Rs 1972.99 crore with time overrun of 72 months and cost overrun of Rs 1204.07 crore. The Petitioner has added that subsequently PIB meeting was held on 29.11.2017 and the recommendations of PIB are awaited. The Petitioner has submitted that in response to the Respondent letters/affidavits, the desired documents had already been furnished vide affidavits dated 9.1.2013, 6.9.2013, 3.2.2014, 29.5.2014 and 7.10.2014.

18. The Petitioner has claimed time overrun of 72 months in the completion of the project and the DIA (M/s TCEL) in its report on capital cost dated September 2013 has allowed the time overrun as claimed by the Petitioner. The Respondent WBSEDCL had engaged M/s WAPCOS Ltd, as Technical Consultant for a detailed



analysis of the delay in the completion of the project and the said Consultant has submitted its report to the Respondent in December 2016 and the same has been relied upon by the Respondent in justification of its submissions on time & cost overrun. While WAPCOS in its report has considered the allowable time overrun of only 23 months against the delay of 72 months claimed by the Petitioner, the Respondent has submitted that taking a liberal view, the time overrun beyond 33 months from the scheduled commissioning date may not be allowed. The Respondent has submitted that it noticed that WAPCOS in its report has pointed out to the report of TCEL and stated that the report prepared by DIA (TCEL) in coordination with the Petitioner does not fulfill the mandate as per CERC notification dated 2.8.2010 as the same has been prepared with inputs from the Petitioner and in coordination with the project team from the Petitioner. Accordingly, it has submitted that the DIA report may not be considered.

19. The Respondent has submitted that while the Petitioner was seeking time & cost overruns before this Commission only on five grounds [grounds (a) to (e) in para 11 above], the ground (f) 'namely 'the 'Frequent thefts and earthquake' was added subsequently. Accordingly, the Respondent has submitted that the Petitioner had presented inconsistent facts before the Commission and the Standing Committee and misled both forums, while scrutinizing the increase in capital expenditure made by the Petitioner.

20. The Respondent has also referred to the letter dated 23.3.2015 of the CEA and has contended that the Standing Committee on time & cost overrun has recommended the entire project cost as claimed by the Petitioner, ignoring the fact that the CEA/CWC did not recommend the said project cost. It has also stated that CWC/CEA has made adverse comments on the technical prudence of the Petitioner in its note of observations enclosed with the said letter. The relevant portion is



extracted under:

“The revised cost at completion level comprises of expenditure already incurred by the project authorities and CEA/CWC has no mechanism to examine/ vet such a cost. As such, cost part in the proposal of revised cost at completion level has not been examined/ vetted by CEA/CWC.”

Note of observations

3.1.1: *“The Proposal of Revised Cost Estimate at completion level submitted by NHPC Ltd. has been examined in respect of hydel civil related aspects...”*

“...have been examined in respect of design related aspects of dam Gates Design Directorate of CWC and clearance given ...with following observation.

‘...Hence, the justification seems to be fallacious.....The said statement is flawed as the gate could have been self-closing even with approved weight at DPR stage.....it is likely that the Project developer might not have conducted any modelling studies to establish the vibration limit.’

‘....The proposition of simultaneous operation of gantry crane seems to be erroneous.’

‘.....It is advised that a suitable mechanism be established so that appropriate sanctions may be taken from CEA/CWC for major deviation for under construction projects at an early stage.’

The Govt. of West Bengal had also raised the aforesaid issues in its letter dated 31.1.2017.

21. The Petitioner, in its clarifications to the MOP, GOI had submitted the following:

“In line with its obligations, NHPC first submission of RCE of Project was done on 1.6.2009, when the project was under construction. CEA on 03.07.2009 advised to update the RCE at current PL. The updated RCE was submitted to CEA on 10.12.2009. On this RCE, MoP advised that RCE should not be more than 6 months old. Thereafter second submission of RCE was made on 04.11.2010. CEA on 03.1.2013 advised to submit RCE at completion cost. Accordingly, the third submission of RCE amounting to Rs. 1972.99 crore at completion cost was made on 30.12.2013. CEA concurred memorandum of changes on 23.03.2015.

The chronology mentioned above with regard to processing of RCE shows that the matter has been taken up consistently with appropriate authority while the project was under construction by NHPC.

Earlier, the RCE was submitted to MoP on 04.11.2010, which was forwarded to CEA by MoP on 19.11.2010 for examination. CEA carried out detailed examination and sought various clarifications time to time from Feb, 2011 to Dec, 2012. The cognizance to these observations was taken care by NHPC and suitable replies were made. Finally, CEA on 03.01.2013 asked to submit Revised Cost Estimate at completion, as the project was nearing completion.”

Thus, the Petitioner has contended that it has complied with the directions/ clarifications made by CEA from time to time.



Analysis of Time Overrun

22. The Techno- Economic Clearance based on the DPR was accorded by CEA on 28.11.2002 with completion schedule of 58 months from zero date of 1.6.2002 i.e. start date of acquisition of land. Accordingly, the scheduled project commissioning date was 31.3.2007 as per TEC. The Investment Approval was granted to the project on 30.10.2003 keeping the scheduled commissioning date as 31.03.2007, thereby reducing the scheduled period to 41 months only. The project was commissioned on 31.3.2013. As such, there is a total time overrun of 72 months till commissioning of the project in March, 2013 and the COD of the generating station is 19.5.2013. The Respondent has submitted that the actual date of commissioning of the project should have been 30.11.2009 and the time overrun which can be considered as beyond the control of the Petitioner is 33 months (1.4.2007 to 31.12.2009) against the claim for 72 months, based on the major milestones as per DPR and documents furnished by the Petitioner as tabulated below:

Sl. No.	Major milestones	Completion dates	
		Schedule as per DPR	Actual
1	Acquisition of forest land	31.1.2003	30.4.2004
2	2 nd Phase diversion	31.3.2004	30.11.2005
3	Powerhouse substructure concreting	31.5.2005	27.7.2007
4	3 rd phase diversion including dykes and fillings	28.2.2006	30.11.2009
5	Barrage bays S1 & S2 concreting upto EL 194 (during 3 rd phase diversion)	30.6.2006	31.8.2011
6	Balance bays S1 & S2 concreting upto bridge deck EL 210m including left abutment (during 3 rd phase diversion)	31.12.2006	31.5.2012
7	Erection of gates	31.3.2007	31.10.2012
8	Pre-commissioning activities and reservoir filling	31.12.2006	31.12.2012

23. The Respondent has tabulated the list of discrepancies in the data provided by the Petitioner with respect to the activities relating to time & cost overrun and the corresponding objections raised by it before the Commission in the earlier



proceedings in Petition No. 115/GT/2013. According to the Respondent, objections as submitted on 9.1.2014 in each of the activities (Sl. No. 1 to 30) referred therein, the Petitioner has either not provided an explanation or that the data furnished is inconsistent with the dates mentioned in the DIA report. It is noticed that the Petitioner in its affidavit dated 7.10.2014 had submitted that the inconsistencies highlighted by the Respondent is only the mode of interpreting the data during the technical appraisal by the DIA. The Petitioner has clarified that the DIA has evaluated the time overrun specifically with respect to major activities and timeline provided in the DPR and these activities governed the critical path and also all such activities not falling in the critical path, but essential for completion of the project. Accordingly, it has stated that comparing the two sets of data is meaningless. We further notice that the Petitioner has given explanation to the activities (A1000, A1030, A1040, A1010, A1020, A1030, A1040, A1050, A1060, A1070, A1085, A1090, A1100, A1220, A1225, A1235, A1270, A1315, A1330, A1335, A1340, A1345 & A1355, A1385, A1430, A1450, A1460, A1465, A1475, A1485, A1500, A1510, A1555, A1565) as referred to by the Respondent. It is noticed that the Department of Power & NES, Govt. of West Bengal had raised the issues (as raised by the Respondent herein) to the MOP, GOI in relation to the Project of the Petitioner vide its letter dated 31.1.2017 and the MOP, GOI, after obtaining clarification from the Petitioner, vide its letter dated 14.6.2017, has informed the same to the Govt. of West Bengal. As the issues raised by the Respondent in this Petition is same as those raised in the aforesaid letters, we consider the above submissions for the purpose of examining the time & cost overrun. Accordingly, we examine the issue of time & cost overrun, considering the submissions of the parties, including the DIA report and the Standing Committee report on time overrun as under:



Delay in transfer of forest land

24. The Petitioner had submitted that as per DPR, the acquisition of forest land should have been completed by 31.1.2003, however the same was completed on April 2004 (30.4.2004) and hence the delay is for 15 months from February 2003 to April 2004 considering the delay with respect to DPR. The Petitioner has however modified the delay on this count to 6 months (30.10.2003 to 30.4.2004) before the Standing Committee considering the fact that the delay had been considered from the date of accord of CCEA approval to the land acquisition in April, 2004. The Petitioner has submitted that the delay had a direct impact on the completion of the project as all the construction activities / award of other packages were directly linked with the availability of forest land and progress of civil works. The Petitioner has clarified that the diversion of forest land involves multiple agencies like various forest divisions of the State Forest Department of West Bengal and Sikkim, State Land Revenue Department, MOEF, GOI and the West Bengal State Pollution Control Board. The Respondent WBSEDCL has submitted that the acquisition of forest land was completed in 23 months against the planned period of 8 months. It has stated that if the Petitioner had acted diligently, the acquisition of forest land would have been completed by 31.10.2003, by allowing one and a half months' time for deposition of NPV by the Petitioner from the date of issue of letter of AIG, Forest, i.e from 11.8.2013 and another one month time for the issuance of forest clearance by the Forest department. Accordingly, the Respondent has submitted that for this activity, the period from 1.6.2002 to 31.10.2003 may be allowed. It is noticed from the submissions of the Petitioner that after issuance of in-principle forest clearance (Stage-I) by MOEF, for diversion of forest land for the project on 9.6.2003 and payment of amount of ₹5.65 crore towards compensatory afforestation on 30.10.2003, the final approval by Central Government to hand over forest land to the



Petitioner was given on 7.4.2004. Thereafter, the forest area at right bank was handed over to the Petitioner on 30.4.2004. The issue of payment of NPV for final forest clearance was received by the Petitioner from the authorities of the Govt. of West Bengal only on 12.12.2003 and after clarification by the AIG, Forests on 11.2.2014, NPV was paid by the Petitioner on 26.3.2004. We notice that the process involved compliance with the directives of the agencies and there was no delay on the part of the Petitioner with regard to the submission and compliance of all directives and hence the delay due to transfer of forest land to the Petitioner cannot be attributed to the Petitioner. The DIA in its report has also examined this issue and had recommended that the time overrun on account of delay in transfer of forest land was beyond the control of the project authorities. However, the Standing Committee in its report dated 8.3.2016 based on consideration of the period from the date of accord of CCEA approval (30.10.2003) to the handing over of forest land to the Petitioner, after resolving the NPV issues (30.4.2004) had condoned the time overrun of 6 (six) months. For these reasons, we find no grounds to differ from the report of the Standing Committee and therefore the period of delay of 6 months for the delay in the transfer of forest land is condoned.

Delay due to slope failures in the right bank area

25. The Petitioner has submitted that the components of the project lying on the right bank are Intake structure, Powerhouse, Cellular wall and Tail race of the Project. It has stated that for accommodating these components, a huge quantity of excavation which would be permanent in nature had to be carried out and measure for keeping it stable throughout the life of the project were arrived at after detailed geological and topographical studies at the time of preparation of DPR. It has further submitted that keeping in view the changing geology during the course of execution, the design of the rock support was adapted as the excavation proceeded



downwards, considering the fresh geological information obtained during excavation. Thus, the Petitioner has submitted that there efforts were made by it so as not to aggravate the slope failure with further excavations by prudent planning and also expeditiously complete construction of intended structures for long term stability. The Petitioner has stated that the regular preventive steps were in process since the occurrence of initial failure during 2005 and the various remedial measures adopted since 2005 to stabilize the slope have been detailed by the Petitioner. In support of its contentions, the Petitioner has furnished documentary evidence in the form of photographs vis-à-vis progress of Powerhouse back slope excavation to corroborate the slope failures of 2005 and 2006. Accordingly, the Petitioner has submitted that there were major right bank slope failures which occurred during the monsoon of 2005 & 2006 resulting in a delay of 9.5 months. However, during the reconciliation before the Standing Committee, the delay on this count has been revised by the Petitioner to a period of 6 months.

26. As stated, the Department of Power & NES, Govt. of West Bengal in its letter dated 31.1.2017 had raised this issue and had contended the following:

“NHPC in their submission to CERC had submitted 9.5 months delay on account to right bank slide which was subsequently changed to 6 months by NHPC. CERC has also allowed 6 months delay in its order dated 22nd Jan 2015 while computing time overrun. NHPC has maintained the same 6 months delay in their submission to 'Standing Committee' in MoP. However, they have covered up the disallowed period under other heads of delay. Break up of occurrence of slope failure on right bank as given by NHPC is submitted in following table:

Sl. No	Period of occurrence	Duration (days)
1	June-July 2005	54
2	25 th July-13 th Aug 2005	21
3	11 th Nov2005 to 17 th Jan 2006	68
4	4 th April-22 nd April 2006	19
5	25 th May-2 nd Jun 2006	9
6	31 st July-8 th Aug 2006	9

Analysis

As per PERT chart for actual execution submitted by NHPC, activity of Power House excavation and concreting of structure has been completed in 20 months (with 1 month of overlap working) (i.e. w.e.f 1.12.2005 to 27th July 2007). However, as per the



DPR, the same was planned in 14 months (with 6 months of overlap working). The delay of 6 months has been attributed to right bank slope failure in 2005 and right bank slope failure in 2006 especially during monsoon.

In this regard it may be noted that as per 'PERT chart of actual execution', actual excavation has been completed in 5 months (1.12.2005 to 30.4.2006) as against planned 8 months in DPR. It is not understandable, how slope failure of Nov 2005 to 17th Jan 2006 can affect excavation activity which actually started in Dec 2005. Further, how slide of 2006 monsoon could affect excavation when excavation got completed in 5 months before monsoon itself. Further, had substructure concreting been started with overlap as planned in DPR, the overall delay would have been arrested/reduced. Thus, allowing 6 months delay needs to be reviewed and disallowed.

Moreover NHPC had indicated about poor geological conditions in project area in their DPR itself (Ref P-6-2 of vol-IV of DPR-site investigation and geology). NHPC was fore warned right at the time of appraisal of DPR by CEA/CWC/GSI/ to carry out adequate protection/support system to stabilise the steep banks. Had these, protection works been undertaken and completed before excavation or execution of any project works in river near the banks, slope failure would have been avoided. NHPC has not indicated what protective steps were taken in this regard. Even if steps were taken, it is clear that these were not taken in a timely manner and in an appropriate manner having regard to the advice of CEA, which resulted in the alleged slope failure."

27. In response to the above, the MOP, GOI had sought clarifications from the Petitioner and has accordingly vide its letter dated 14.6.2017 informed the Govt. of West Bengal, the following:

"Major right bank slope failure occurred during 2005 & 2006. 6 months delay due to Right bank slope failure during 2005 was considered overlapping with 7 months delay due to flood & restoration in barrage during 2005. As such, only right bank slope failure (6 months) from June'06 to Nov'06 was considered for calculation of delay as excavation of TRC, Intake structure, Penstock and concreting of Powerhouse were affected.

However, as per DPR, the same was planned in 36 months (from 1 April 2004 to 31 march 2007) and not 14 months as mentioned in WBSEDCL letter. The 5 months period shown is for the pit excavation of power house, whereas abutment stripping was already started much earlier to Dec 2005. The slope failure occurred in Nov 2005 to Jan 2006 severely affected the excavation activities of Power House substructure.

WBSEDCL has stated that NHPC was forewarned right at the time of appraisal of DPR by CEA/CWC/GSI to carryout adequate protection/ support system to stabilize the steep banks is not the appropriate interpretation, which does not give factual position. Rather, there were some suggestions (not forewarning) by GSI during TEC (Annex-III) which were duly complied with by NHPC. The Project has been developed in a planned way and all recommendations of CWC/GSI has been incorporated in the detailed design and the project has been developed as per relevant IS codes & best engineering practices which has been duly approved by CWC while approving the Memorandum of changes.

It is to state that all the structures/diversion schemes have been designed as per the relevant India/ International codes, practices in vogue, NHPC had taken all the possible measures to circumvent the issues like slope failures and flash floods by augmenting the rock support systems as per site conditions.



During the tender stage more investigations were carried out and provisions envisaged in the DPR like rock anchors, shotcrete were increased to cater the needs for a stable slope. Further, as the excavation commenced, the requirement of rock support measures were reviewed and longer rock supports, thicker shotcrete, windows in shotcrete, wider bearing plates, bio-engineering measure etc. were deployed in order to keep the rock slope stable. Despite deployment of best engineering practices, the possibility of encountering slides cannot be totally ruled out. With the construction of TRC gravity wall, extensive drainage network on the right bank, and concrete claddings at locations, the slope is now stable. All these preventive and corrective measures were taken by NHPC with highest regard to slope stability.

Further, it may be relevant to quote that Himalayas are often called the "Young mountains", because a constant process of stress redistribution going on inside them, which sometimes leads to slope failures even at the locations with least human interference. This is of course known, but what is not known is that which part of slope would behave differently than its anticipated behaviour. One small/ thin shear seam underlying in these fragile formations is enough to trigger a slide. Besides the above, slope failures may be triggered by heavy precipitation during the excavation process and as such it can be said that, slope failures cannot be predicted, lest these would have been taken care of at the DPR stage itself. Given the fact that Himalayas have the most heterogeneous strata, therefore, the situation calls for tackling the situation as it emerges during excavation. Adaptation of the rock support measures to suit the local geological and site conditions is always necessary in such huge excavations."

28. It is evident from the above submissions that though the delay due to right bank slope failure had occurred during the period 2005 and 2006, the Petitioner has revised the period of delay to 6 months (from June 2006 to November 2006) caused by the right bank slope failure before the Standing Committee. This delay of 6 months, in our view, has affected the progress of excavation of TRC, Intake structure, Penstock and concreting of Power house. It is observed that the Standing Committee in its report has also recognized the fact that due to right bank slope failure in June 2006 on account of heavy rains, the concreting work of Power House sub-structure suffered badly which was delayed and could only be resumed in December 2006. It is also observed from the analysis of the Respondent that there was heavy rain/monsoon during 2006. Accordingly, based on the above discussions, we are of the considered view that the right bank slope failure occurred due to heavy rainfall, despite all possible measures taken by the Petitioner to avoid slope failures. We, therefore hold that the delay of 6 months claimed by the Petitioner due to right



bank slope failure was caused by heavy rainfall/monsoon during 2006 and the same was beyond the control of the Petitioner. Hence, the delay of 6 months is condoned.

Delay due to flash floods

29. The Petitioner had claimed delay of 24 months in completion of Project due to flash floods. It has stated that the construction of the Project envisaged the river diversion in three phases namely, Phase-I: for enabling construction of Phase-II diversion channel comprising of concrete coffer wall and earthen dykes, Phase-II: for enabling the construction of 5 nos. barrage spillways, cellular wall between powerhouse and barrage and other components of right bank, and Phase-III: for enabling construction of 2 nos. left bank barrage spillways, cellular wall on the left bank and left bank retaining wall. As regard Phase-I, the Petitioner has submitted that the channel was designed for passing only the non- monsoon discharge for the period from December to May and was thus meant for only one working season. It has stated that during the flow of river through first stage diversion channel, the second phase diversion channel on the left bank comprising of both PCC coffer wall and earthen dyke on upstream and downstream with part concrete lining was required to be completed. The Petitioner has stated that the first phase diversion channel was completed during December 2004 and the river was diverted through this channel on 21.12.2004. As regards Phase-II, the Petitioner has submitted that the channel was initially designed for passing one in five years monsoon flow of 3710 cumec as provided in DPR. However, the discharge capacity of this channel was enhanced to 4700 cumec, considering the post DPR discharge data. The Petitioner has also stated that after completion of all the parameters, the river was diverted through this channel on 30.5.2005. However, as the river closure could not become feasible in June 2005 due to high discharge and collapse of Bailey bridge, the final diversion was achieved during November 2005. As regards Phase-III, the



Petitioner has submitted that the diversion dykes were largely completed before monsoon of 2008. However, the river closure could not be achieved due to high discharge and thus the Phase-III diversion could only become functional from November 2008. The Petitioner has added that the initial delay due to diversion of forest land for 15 months and the right bank area could be made available for filing of trees/ making access from May 2004 onwards. Despite this delay, Phase-I diversion was achieved during December 2004 and the works of Phase-II diversion started from January 2005. The Petitioner has stated that it had made efforts to achieve Phase-II diversion by May, 2005 and after repeated efforts to close the river during June 2005, the access through Bailey bridge collapsed on 26.6.2005 and the river could not be closed and therefore no work in the river bed area could be carried out till November 2005 till Phase-II diversion of river. The Petitioner has submitted that despite initial delay of 15 months in diversion of forest land, the barrage excavation was achieved in January 2006 and concreting started from February 2006 whereas the Project passed through two monsoon seasons of 2004 and 2005 with unworkable months of about 10 months. Accordingly, the Petitioner has submitted that it is imprudent on part of the Respondent to contend that the Petitioner has failed to carry out basic prudence exercises before starting the Project. The Petitioner has stated that after the flood of 2007, the works got restored from November 2007 but started suffering due to frequent strikes by GJMM from January 2008 rendering the non- achievement of river closure in 2008 for Phase-III diversion and affecting other works also. It has submitted that the Phase-III diversion was deferred, but due to river flowing both through Phase-II & III diversion channel activities for left bank base were completely at halt till October 2008. The Petitioner has further stated that concreting in foundation of S1& S2 bay were started from March 2009 and was in progress when a massive flood breached the upstream and downstream dykes and flooded the entire left bank barrage pit on 26.5.2009 due to



Aila cyclone in Darjeeling hills and heavy rains in the upstream catchment. The Petitioner has added that considering the breaching of dykes in flood of the years 2007, 2008 & 2009, it was decided to construct the concrete coffer wall in the upstream of bay to facilitate construction activities in the monsoon period of 2010. The Petitioner has submitted that when the work was under progress an indefinite strike was announced by GJJM with effect from 10.5.2010. Due to this strike, the project works were suddenly stopped and hence the coffer wall could be only raised up to EL $\pm 194.0\text{m}$. Though the strike was lifted from 19.7.2010, the river again overflowed the coffer wall on 21.7.2010 and no work in the left bank barrage area could be done till October 2010 due to monsoon and high discharge. The Petitioner has stated that the works were again resumed from November 2010 after de-watering and removal of debris. The Petitioner has submitted documents in support of stoppage of work due to flood including photographs of the event in its affidavit filed before the Commission. As stated, the Petitioner during reconciliation before the Standing Committee has revised the period of delay to 28 months on this count.

30. The Respondent has submitted that the Phase-II diversion (including Phase-I diversion) was completed in 14 months against the planned period of 6 months. It has stated that the claim of the Petitioner for delay of 5 months for this activity due to flood of 2005- breach of river closure dyke and failure of Bailey bridge cannot be considered since the same was not supported by facts. The Respondent has also submitted that from the flood discharge data received from CWC by Govt. of West Bengal on 30.8.2017, it is observed that maximum gauge discharge data of River Teesta at Teesta Bazar site observed in 2005 was in July 2005 which is 2568 cumec, whereas the design diversion flood is 4700 cumec as revised by the Petitioner and thus the discharge data of the concerned period was well below the design diversion flood. The Respondent has stated that the delay in Phase-II



diversion is due to improper planning and extra time taken in dyke filling. Accordingly, the Respondent has stated that for the above activities (Phase-I & Phase-II diversion) only 6 months period (1.11.2003 to 30.4.2004) may be allowed. As regards Phase-III diversion, the Respondent has contended that the delay should be restricted for the period from 16.9.2005 to 15.6.2006 (9 months) and the remaining period should be disallowed. The Respondent has added that the activity of barrage bays S1 & S2, concreting should have been completed in 4 months and if the 4 months monsoon period is considered, the activity should have been completed by 8 months from 16.6.2006.

31. As stated, the Department of Power & NES, Govt. of West Bengal in its letter dated 31.1.2017 had raised this issue and had contended the following:

iii) Delay due to Flash Floods:

NHPC in his petition before CERC had reported periods of occurrence -of flash floods totalling to 24 months. Summary of the same is given in Table below:

	<i>Period of occurrence of flood</i>	<i>Duration (months)</i>
1	<i>Mid June to Oct,2005</i>	<i>4.5</i>
2	<i>June to Sept., 2006</i>	<i>4</i>
3	<i>August to Oct., 2007</i>	<i>3</i>
4	<i>Mid June to Oct,2008</i>	<i>4.5</i>
5	<i>June to Oct,2010</i>	<i>5</i>
6	<i>Mid July to Mid Oct, 2010</i>	<i>3</i>
	<i>Total</i>	<i>24</i>

However, NHPC in their submission before 'Standing Committee' of MoP on time and cost overrun have reported a delay period of 28 months. This change, made by NHPC is without any justification/ facts and as such cannot be relied upon and need to be reviewed

Design of Diversions Channel

Diversion channel to be constructed in 2nd phase diversion was initially designed for passing 1 in 5 years monsoon flow of 3700m³/s as provided in DPR. However, NHPC has claimed that the discharge capacity of this channel was enhanced to 4300 m³/s considering the post DPR discharge data.

Magnitudes of flood occurrence

However, from the flood hydrograph for the year 2002,2006,2008,2010 and 2011 placed by NHPC before CERC, it is observed that maximum magnitude of floods observed during these years were 3916 m³ /s (on 27.07.2002), 2936 m³ /s (on 04.08.2006), 2752 m³/s(on 18.06.2008), 4751 m³/s (23.08.2010) and 3243 m³/s (on 23.07.2011) respectively.



Analysis

With prudent design of Diversion scheme, magnitude of flood greater than the enhanced design flood of 4700 m³ /s can contribute damages such as coffer dam failure etc. resulting in delay. However, as could be seen from (c) above magnitudes of all observed discharges in these years were lower than the discharge of 4700 m³/s except in year 2010, which is nearer to 4700 m³/s. The flood hydrograph of 2009 has not been given by NHPC in which the Aila cyclone is stated to have occurred on 26.05.2009.

It can be concluded that flood discharges should have successfully passed over without causing damages and time delay as claimed by NHPC needs to be reviewed

Moreover, even if it assumed for the sake of arguments that there were indeed flooding of the project area during monsoons, NHPC should have taken all necessary precautions during every monsoon period after observing the first damages during the first time so that damage due to subsequent floods could be obviated. Clearly, this has not been done by NHPC if they claim flooding of the project area every consecutive monsoon.

NHPC should have made the diversion dyke strong enough to withstand floods' of magnitudes mentioned above and also should have taken protective measures to keep already constructed structures safe from flood.

Time of execution of extra work has been reported as 16 months in the petition before CERC while the same has been stated as 14 months (without furnishing any breakup details) in their submission to Standing Committee on Time and Cost overrun in MoP. Different stands taken by NHPC while submission of different documents at different forums creates doubts in respect of correctness of data. As such needs review.

32. In response to the above, the MOP, GOI had sought clarifications from the Petitioner and has accordingly vide its letter dated 14.6.2017 informed the Govt. of West Bengal the following:

There were major floods from the year 2005 to 2010 during construction of the project which severely impacted the work of Project. Accordingly, during submission to CERC delay of 24 months have been considered for flood period only. However, during deliberation of Standing Committee the subsequent impact of the flood on the works has also been taken into account for delay due to flash floods of 28 months.

The 2nd stage diversion channel was initially designed for 3710 cumecs which was based on flood frequency analysis of data from 1972 to 2000, but NHPC acted pro-actively and suo-moto reviewed to 4700 cumecs based on revised flood frequency analysis of the data from the period of 1972 to 2004 in the year 2004.

Out of the years mentioned, damages were caused to diversion arrangement in 2010 when the flood values exceeded the design flood while in 2008 flooding occurred due to other reasons which was non-closure of dykes linked with strikes called by GJMM at crucial time of dyke closure. Hydrograph for 2009, wherein Aila occurred is being enclosed as Annex-VI

Further, it is relevant to quote that the diversion channels served the purpose almost throughout their existence when the flood magnitudes were less than design flood.

NHPC has taken all necessary precautions during monsoons. It is pertinent to mention here that although this project has faced flooding events but none of them



has caused damages to already constructed structures, Once a diversion strategy and scheme is finalized and implemented, there is no scope for making major changes except raising the level of dikes, providing better protection on the channel sides etc., which was indeed done.

The diversion dykes were constructed strong enough to withstand design floods and many additional strengthening measures were also taken during the course of construction of this project. Among them were providing RCC lining on water face of coffer dykes in reaches, polymer gabions and tetrapods. Even wire crates at some locations of the channel were clad with concrete so as to enable the flood to pass successfully without causing any damages. It is pertinent to mention that many of these measures put in place by NHPC were beyond the provisions of DPR and even tenders.

Further, the project authorities were on high alert along with necessary equipment for dumping/lowering of tetrapods, polymer gabions, rip rap etc to prevent a failure during crucial monsoon periods.

33. The matter has been examined. It is evident from the above deliberations that due to delay on account of handing over of forest land, subsequent monsoons and slope failures and thereafter the flash floods, the schedule for completion of the Project had got deferred. Also, despite all possible measures being taken by the Petitioner, the abnormal flash floods of 2010 had caused damages to the diversion arrangement, since flood values exceeded the design diversion flood. In addition to the flash floods, reasons such as non-closure of dykes coupled with the strikes called by GJMM at crucial juncture of dyke closure had caused delay in the completion of the Project activities as above, which in our view was beyond the control of the Petitioner. It is observed that CEA in the minutes of 2nd meeting of Standing Committee had observed that it was unfortunate that the project experienced such a huge cyclonic storm "Aila", which badly affected the project and vicinity area and has agreed that while designing diversion structures, higher appropriate diversion flood may be considered for future projects. It is further observed that the Standing Committee has considered the period of 28 months (i.e. Flood 2005- 7 months, Flood 2007- 8 months, storm Aila- 8 months, Flood 2010- 5 months) as delay due to floods and has condoned the delay due to hindrances faced by the Petitioner during the execution of the Project. In view of the above, the period of 28 months as allowed by the Standing Committee is condoned as the delay on



this count was not attributable to the Petitioner.

Execution for additional works

34. The Petitioner has submitted that in the Civil works package deviation of about ₹176 crore has taken place on account of execution of additional works, which got necessitated on account of flash floods, slope failures, site conditions, design changes based on additional investigations, geological reasons etc. after accounting for delays on account of floods, slope failure, strikes etc., 16 months has been considered by the Petitioner for additional works. The Petitioner has stated that after occurrence of flood, the removal of debris/ slush was started after receding of flood / monsoon and work remained suspended during flood peak months. For the period of 24 months (during the years from 2005 to 2010), no work of restoration was possible and hence overlapping of delays are ruled out. The Petitioner has furnished in detail the additional works required to be carried out due to slope failure, floods, strike by local political party and for various other reasons. Accordingly, the Petitioner has submitted that there was delay of 16 months due to execution of additional works. As stated, the Petitioner during reconciliation before the Standing committee has revised the delay to 14 months on this count.

35. The Respondent has pointed out that the Petitioner has not furnished detailed component wise quantity break-up of additional works carried out and as such the time required and additional work has been computed on pro-rata basis of increase in cost vis-à-vis original cost. It has stated that the time required for additional civil works in two barrage bays can be considered as 64 days and the same may be allowed as time overrun for additional works. According to the Respondent considering an allowable delay of 7 months (4 months for monsoon, 9 days for slope failure on right bank area and 64 days for additional works and 17 days for



remobilization), these activities should have been completed by 15.5.2007 and the delay beyond the above period should not be condoned.

36. As stated, the Department of Power & NES, Govt. of West Bengal in its letter dated 31.1.2017 had raised this issue and had contended the following:

Time of execution of extra work has been reported as 16 months in the petition before CERC while the same has been stated as 14 months (without furnishing any breakup details) in their submission to Standing Committee on Time and Cost overrun in MoP. Different stands taken by NHPC while submission of different documents at different forums creates doubts in respect of correctness of data. As such needs review.

37. In response to the above, the MOP, GOI had sought clarifications from the Petitioner and has accordingly vide its letter dated 14.6.2017 informed the Govt. of West Bengal the following:

The period of 14 months has been taken for execution of additional works for the completion of the project.

The occurrence of slides and flash floods repeatedly damaged the executed works and inundated the project area with slush/muck/debris. This has led to construction of dykes including modification/ strengthening of the same, construction of concrete claddings for protection of intake area, slope protection works in the form of crate works, drifts, micro-piling, Sal Ballah piling, reinforced grouted piling, catch water drains, Jute Geo-textile, grouting etc.

Further, during the construction stage, as per direction of PMO, a high level team under the chairmanship of DG MORTH experts from IIT, Delhi, BRO, W.B. PWD & NHPC was constituted. The team visited the site on 29.11.2009 and suggested for taking up extensive drainage network on the right bank, building up TRC gravity wall & other measures. Reference of committee's suggestion viz-a-viz steps taken by NHPC is tabulated at Sr. No. 10-2(b) of main reply.

Accordingly TRC gravity wall was constructed near Powerhouse for the right bank stability.

The delay of 2 months for commissioning of the project is due to re-execution of stringing work of Power Evacuation System as there were frequent thefts of conductors etc. This period has been indicated separately at Sl. No.(vi)

38. We have considered the matter. It is evident from the above that the additional works were required to be carried out by the Petitioner due to slope failures, wherein additional support such as rock anchors, shotcrete, pressure relief holes, additional instrumentation and removal of debris/ slided muck etc were carried out. Also, due to floods, additional works like dewatering, removal of slush and debris, reconstruction



of coffer dykes, restoration of access roads were required. Moreover, the collapse of Bailey bridge required procurement of additional Bailey bridge and repeated flooding necessitated making platforms by RBM filling for enabling smooth execution of HM works. In addition to this, the strike by the local political party not only resulted in stoppage of works but also resulted in non-completion of important activities related to diversion, de-mobilization of entire work force etc. It is therefore, evident that the additional works which were necessarily required to be executed by the Petitioner due to damages caused by flood, slope failures etc. had caused delay in the completion of the project and the same is not within the control of the Petitioner. The Standing Committee in its report had considered the delay of 14 months for execution of extra works and recognized that due to repeated massive floods along with slope failures, lot of additional works at site were required, which included removal of slush, cleaning of sites, protection of right bank like bamboo piling, cleaning & maintenance of existing drains, catch water drain, crate wall protection, jute Geotextile and TRC protection wall as proposed by IIT Delhi on the insistence of PMO, for protecting NH-31A. In view of the above, we hold that the delay of 14 months due to execution of additional works was beyond the control of the Petitioner.

Strike/Bandh by GJMM and Earthquake

39. The Petitioner has submitted that the demand for separate statehood in Darjeeling hills, where the project is located was under strikes/bandhs repeatedly. The Petitioner has also submitted that the resultant delays on account of strikes on various occasions are for more than 14 months overall. It has stated that there was a direct loss of 225 days during the construction stage from January, 2008 to February, 2011 and due to repeated strikes the manpower of the contracting agencies left the project area and was hesitant to come back to the project for fear of man handling and non-availability of work. The Petitioner has further submitted that



entire works except dewatering in critical areas remained closed during the strike. The Petitioner has added that there were three major strikes by GJMM and GNLF during the years 2008, 2009 and 2010 and also intermittent strikes from 2008 to 2011 which resulted in delay of 14 months. In addition to this, the Petitioner has stated that massive earthquake in Sikkim in September, 2011 created panic situations/fear psychosis and most of the laborers left the site which resulted in the delay of 2 months. Accordingly, the Petitioner has submitted that considering the above facts the delay of 16 months due to strike/earthquake and its effects have been considered for calculations of time overrun. It has also stated that the period of time overrun does not overlap with other reasons of time overrun.

40. As stated, the Department of Power & NES, Govt. of West Bengal in its letter dated 31.1.2017 had raised this issue and had contended the following:

NHPC in his Petition before CERC had reported 7.5 months (225 days) as delay due to strikes/bandhs called by local Political parties GJMM and GNLF comprising of the following:

- 6 months (181 days) delay due to strikes/bandhs
- 1.5 months (3x15 = 45 days) considering 15 days in each mobilization of work force & other resources after 3 major strikes of 12/2008, 10/2009 and 01-02/2011.

However, NHPC in his Petition before Standing Committee on Time and Cost over Run in MoP> have reported a delay period of 16 months due to Strikes called by local Political party GJMM and Earthquake. The reference for this increase in delay by 8.5 months is not traceable.

Analysis

Out of 6 months (181 days) delay due to strikes, 114 days are overlapping with delay due to occurrence of floods, which has already been accounted for.

Sl. No. of Table on Page 1037 before CERC	Nos. of days of Strikes/ Bandhs	Overlapping with (Page 1035 before CERC)
S.No.5to9	29	Overlapping with duration of flood from mid-June to October, 2008
S. No.11	14	Overlapping with duration of flood from June to October, 2009
S. No.13	71	Overlapping with duration of flood from mid-July to mid-October, 2010
Total	114	



In view of above 16 months delay in project execution due to strikes/bandhs by local parties like GJMM and GNLF needs to be reviewed.”

41. In response to the above, the MOP, GOI had sought clarifications from the Petitioner and has accordingly vide its letter dated 14.6.2017 informed the Govt. of West Bengal the following:

“Due to demand of separate statehood, the local political parties like GJMM & GNLF have called intermittent strikes on various occasions since inception i.e. Apr’ 04 of the project resulting in stoppage of project work on various occasions. The strikes/bandhs further intensified after formation of new political party GJMM in 2008.

Further, the strikes have not only resulted in stoppage of works but delays have also been caused due to its effect such as non-completion of important activities related diversion which were time bound, demobilization of entire work force due to fear psychosis and inordinate delays in bringing back the work to normal pace, inability to execute preparatory works for avoiding monsoon disasters and resultant disasters etc.

There were three major strikes by GJMM & GNLF during 2008, 2009 & 2010 and also intermittent strikes from 2008 to 2011 which resulted in 14 months delay.

Further, massive earthquake in Sikkim in Sep 2011 created panic situation/ fear psychosis and resulted in leaving the site by most of the labourers, which caused 2 month delays.

Considering the above facts, 16month delay due to strike / earthquake and its effects has been considered for calculation of time overrun.

These periods of time overrun are not overlapping with other”

42. The matter has been examined. In our considered view, the delay due to strike by local political parties coupled with the natural calamity-earthquake have contributed to the delay in completion of the project of the Petitioner. Accordingly, we hold that the delay of 16 months i.e. 14 months due to GJMM strike and 2 months due to Earthquake in 2011, was beyond the control of the Petitioner. The Standing Committee has also considered the effects of strike/bandh by GJMM and its effects during the execution of work since 2008 to the completion of work in 2013 and has accordingly, recommended the delay of 14 months. Also, earthquake resulting in labourers leaving the site due to panic situation which has resulted in the delay of 2 months has also been considered by the Standing Committee. In view of



this, the total delay of 16 months, which was beyond the control of the Petitioner is condoned.

Frequent Thefts

43. The Petitioner in its submission before the Standing Committee on time and cost overrun has reported a delay of 2 months due to frequent thefts of conductors etc. The Respondent has objected to the above and has stated that this item was never reported by the Petitioner in its earlier petition and the details of theft, including FIR is not traceable. Accordingly, the Respondent has submitted that the delay on this count may not be considered.

44. The matter has been considered. As stated, the Department of Power & NES, Govt. of West Bengal in its letter dated 31.1.2017 had raised this issue and had contended the following:

“NHPC in his submission before Standing Committee on Time and Cost overrun in MoP have reported 2 months delay due to frequent thefts as a fresh item, which was never reported by NHPC in his earlier Petition/ Appeal. Details of thefts are not traceable in any Petitions/ Appeal of NHPC. Further, no correspondence/ FIR are traceable in the document submitted by NHPC in regard to such theft. Therefore, the delay on account of frequent thefts needs to be reviewed.”

45. In response to the above, the MOP, GOI had sought clarifications from the Petitioner and has accordingly vide its letter dated 14.6.2017 informed the Govt. of West Bengal the following:

“The delay of 2 months for commissioning of the project was considered due to re-execution of stringing work of Power Evacuation System as there were frequent thefts of conductors etc. In PKG-2 of Power Evacuation works for which FIR was lodged in the various sections of Power Evacuation System due to theft of the conductor.”

46. Considering the fact that the delay of 2 months in the completion of the project was caused on account of frequent theft of conductors, for which FIRs were lodged, we have no hesitation to accept the submission of the Petitioner and condone the delay of 2 months for re-execution of stringing of power evacuation system.



Issues raised by Govt. of West Bengal

47. The Govt. of West Bengal vide its letter dated 17.6.2016 addressed to the MOP, GOI had indicated gross discrepancies in the submissions of the Petitioner before these forums in relation to time and cost overrun. Subsequently, the Govt. of West Bengal vide its letter dated 31.1.2017 had again raised this issue, in its comments on the PIB note of Revised Cost (completion cost) of the Project. In response, the MOP, GOI vide its letter dated 14.6.2017 had conveyed its observations/comments, amongst others, on the issue of gross discrepancies on both forums. It is observed from the comments that the issue of 'delay due to frequent thefts and earthquake' which had contributed to the Time & cost overrun and inadvertently not included was considered during the deliberations before the Standing Committee and later added in the subsequent petition. The relevant extract from letter dated 14.6.2017 is as under:

"The GoWB statement that NHPC misled both forums, viz. Central Electricity Regulatory Commission (CERC) and Standing Committee, is not true. The fact is that M/s TCE (the Delegated Independent Agency (DIA) of CERC submitted its report to CERC based on required input collected from NHPC. As per report, zero date of the project was considered as date of Forest Clearance in DPR. The same report was appended with the tariff petition by NHPC.

During the deliberation before Standing Committee meeting, it was noted that the start date of the project (zero date) was not taken as CCEA sanction date, as such, the facts and figures for time overrun were reconciled. During, reconciliation, it was also noted that the reason for time overrun i.e. frequent theft and earthquake have not been considered inadvertently.

Accordingly, the reasons of time overrun along with its quantum were modified during deliberation of Standing Committee and the same was recommended."

48. The MOP, GOI in the said letter had observed that the time overrun of 72 months (from scheduled date of commissioning to actual date of commissioning) as submitted before the Standing Committee and the Commission were the same i.e. 72 months and that there were no glaring discrepancies in the information submitted by the Petitioner. It is noticed that the total quantum of time overrun as claimed by the Petitioner remained as 72 months and the scheduled date of the commissioning of the Project also remain the same i.e. 31.3.2007. Moreover, the event of 'Delay



due to Theft and Earthquake' towards Time & Cost Overrun', which was inadvertently not considered by the Petitioner, was included during final reconciliation before the Standing Committee.

49. Based on the above discussions, we condone the total delay of 72 months in the commissioning of the project.

50. Further, the time of one month and eighteen days taken by the Petitioner between the commissioning and COD of the generating station is considered to be reasonable. As such, the Petitioner is entitled for capital expenditure including IDC and IEDC till the COD of the generating station.

Analysis of Cost overrun

51. As already noted, the original project cost of ₹768.92 Crore was sanctioned by CCEA vide its letter dated 30.10.2003. Further, Standing Committee in its report has recommended completion cost of the project for ₹1972.99 crore. As such, there is a total cost overrun of ₹1204.07 crore. The breakup of same, as submitted by the Petitioner and considered by the Standing Committee in its report is as under:

S. No	Description	Increase Over Sanctioned cost	% of total increase	Increase in % age of total sanctioned cost
1.	Price Escalation	401.22	33.32%	52.18%
2.	Exchange Rate Variation	4.07	0.33%	0.53%
3.	Statutory Levies	54.42	4.52%	7.08%
4.	Change in Scope / Design Addition/Deletion, Over/ Under Estimation & Others	430.81	35.78%	56.02%
5.	IDC&FC	313.55	26.04%	40.78%
	Total	1204.07	100.00%	156.59%

52. The recommendations of the Standing Committee constituted by Ministry of Power, Government of India regarding fixing responsibility for time and cost overrun



of the instant generating station are as under:

“Deliberations of the Standing Committee

1. *The project was commissioned on 31.03.2013 and since then is under commercial operation. As per information furnished by NHPC, it has generated 1051 MUs worth Rs.756.55 crore till 31st Jan 2016.*
2. *The Committee noted that the Revised Cost at Completion of the Project comes to Rs.1972.99 crore, which implies cost overrun of Rs. 1204.07 crore i.e. 156.59% of sanctioned cost of Rs.768.92 crore. The total completion cost after deduction of cost on account of Price Escalation (PE), Statutory Levies (SL) & Exchange Rate Variation (ERV) within the originally approved time cycle comes out to Rs. 1937.80 Crore. Corresponding net increase in cost comes to Rs. 1168.88 Crore which is 152.01% higher than the CCEA approved cost. The Committee noted that the cost overrun is mainly due to increase in IDC & FC, price escalation, variation in quantity and over/under estimation.*
3. *The Committee noted that the time overrun of 72 months was due to uncontrollable factors as discussed at para2.1 above,*
4. *Chairman of the Committee impressed upon that learning from this project should be used for other upcoming projects during planning & designing stage. It was mentioned in the meeting that diversion floods are decided as per IS codes, accordingly diversion structures are designed. With the learning from TLDP-III while designing diversion structures, higher appropriate diversion flood may be considered for future projects. The Committee was informed by CEA officials that Mangdechu Diversion flood was increased suitably with having Aila experience and, therefore, river bed work was successfully completed.*
5. *On examining the reasons of cost and time overrun, Committee-was of the opinion that reasons for cost and time overrun were beyond the control of any agency or person, hence no individual / agency can be held responsible for the same.*

5.0 *Recommendations of Standing Committee.*

In view of above deliberations, Standing Committee recommends the revised cost of TLD-III HE Project amounting to Rs.1972.99 crore including IDC & FC amounting to Rs. 373.96 crore at Completion with Time overrun of 72 months for consideration of the PIB.”

53. With regard to above cost overrun, the Department of Power & NES, Govt. of West Bengal in its submission vide letter dated 31.1.2017 to MOP has raised the issue of expenditure on “Establishment cost” submitted as under:

Glaring discrepancies in the “Establishment Cost” submitted by NHPC

a) It may be mentioned that in head wise break up of revised cost of Rs 1972.99 crore as submitted by NHPC to Standing Committee of MoP, Gol, amount under head "II-Establishment" and "Electrical Works" were projected as Rs. 140.05 crore and Rs. 410.02 crore contrary to the values under these heads as submitted in CERC of Rs. 216.26 crore and 346.32 crore respectively (copy of both documents are enclosed for ready reference as Annexure-2). It seems that NHPC has wilfully reduced the value under head “Establishment” to misguide MoP and to avoid criticism 'of MoP/PIB/CCEA on glaring increase in "Establishment Cost". In this process the value of Electrical works increases from



Rs. 346.32 to Rs. 410.02 crore i.e. cost of "Electrical works" shall work out as Rs.3.11 Cr/MW, which from any standard is unreasonable.

b) CEA while according investment approval for the Generation Project in 2003 restricted the Expenditure to be incurred under head "Establishment" as Rs 16.18 Crore i.e 3.6% of cost of "I- works". In case percentage as allowed by CCEA is maintained then the value under above head in RCE should be Rs,37.75 Crore only and not Rs 140.05 Crore as being submitted to PIB for approval. Similarly, provision under head "O-Miscellaneous", "Environment and Ecology" and "Initial Spares" as being submitted to PIB for approval are disproportionately higher and unreasonable."

54. In response to the above, the MOP, GOI vide its letter dated 14.6.2017 has clarified the following:

The details of amount under head II. Establishment and E&M works are as under:
(Rs. in Crore)

Description	As per DPR	As per CCEA	As per RCE at completion
II Estb. (A)	37.86	16.18	140.05
E&M Works(B)	248.03	238.42	410.02
Estb. in E&M Works (C)	12.45	11.96	63.70
E&M works without Estb.(B-C)	235.58	226.46	346.32

As per CERC requirement, II Establishment and E&M Establishment has to be clubbed together, therefore E&M works cost will be reduced in comparison to actual. However, sum of Composite Establishment (II Establishment and E&M Establishment) and balance E&M works cost remains same as in case of II Establishment and E&M works cost. The present case is illustrated as below:

Description	As per Standing Committee	As per CERC
II Establishment (A)	140.05	140.05
Establishment in E&M Works (B)	-	63.70
Sub Total (Establishment) - (C)		203.75
E&M Works (D)	410.02	346.32
Total	550.07 (A+D)	550.07 (C+D)

In view of above, there is no discrepancy, but two different method of presentation.

The cost estimates are prepared as per "Guidelines for preparation of Project Estimates for River Valley Projects", issued by Central Water Commission, Govt, of India in March, 1997. As per guidelines, the provision for Establishment has been mentioned from 8-12% depending upon the nature of work. Central Electricity authority (CEA), Govt, of India, while according Techno Economic Clearance (TEC) on 28.11.2002, considered Establishment @ 9% of (I Works - B Land) amounting to Rs. 37.86 crore. However, CCEA while according sanction to the project, reduced Establishment cost to Rs. 16.18 crore, which was less than 50% of above sanctioned cost.

Further, as per actual, cost incurred upto completion is Rs. 140.05 crore. The reasons for cost overrun for head Establishment beyond control of NHPC, has already been deliberated by Standing Committee."



55. Accordingly, the issues raised by the Department of Power & NES, Govt. of West Bengal pertaining to cost overrun stands clarified by e MOP, GOI. It is noticed that in the total cost overrun of ₹1204.07 crore, the major heads under which there is increase in cost are Civil Works, Electrical Works, Civil- Electrical, and IDC &FC. The reason for increase in cost under these heads is primarily due to delay in construction and commissioning faced by the project and additional expenditure incurred due to execution of additional works which became necessary due the unforeseen events such as slope failure, floods, earthquake, etc. which have been found to be beyond the control of the Petitioner. Also, the increase in establishment in IDC & FC was due to the time overrun faced by the project. In our considered view the reasons for cost overrun as mentioned above are not attributable to the Petitioner. The DIA and the Standing Committee in its report on time & cost overrun have recognized that the time overrun and the corresponding cost overrun were beyond the control of the Petitioner. Accordingly, we are of the considered view that the cost overrun of ₹1204.07 crore on account of the time overrun of 72 months was beyond the control of the Petitioner and therefore allow the completion cost of ₹1972.99 crore for the project.

Capital Cost

56. Regulation 7 of the 2009 Tariff Regulations provides as under:

(1) Capital cost for a project shall include:-

a) the expenditure incurred or project to be incurred, including interest during construction and financing charges, any gain or loss on account of foreign exchange risk variation during construction on the loan- (i) being equal to 70% of the funds deployed, in the event of the actual equity in excess of 30% of the funds deployed, by treating the excess equity as normative loan, or (ii) being equal to the actual amount of loan in the event of the actual equity less than 30% of the funds deployed, - up to the date of commercial operation of the project, as admitted by the Commission, after prudence check;

(b) capitalised initial spares subject to the ceiling rates specified in regulation 8; and (c) additional capital expenditure determined under regulation 9: Provided that the assets forming part of the project, but not in use shall be taken out of the capital cost. (2) The capital cost admitted by the Commission after prudence



check shall form the basis for determination of tariff:

.....

Provided also that the Commission may issue guidelines for vetting of capital cost of hydro-electric projects by independent agency or expert and in that event the capital cost as vetted by such agency or expert may be considered by the Commission while determining the tariff for the hydro generating station:

Provided also that the Commission may issue guidelines for scrutiny and commissioning schedule of the hydro-electric projects in accordance with the tariff policy issued by the Central Government under section 3 of the Act from time time.

Provided also that in case the site of a hydro generating station is awarded to a developer (not being a State controlled or owned company), by a State Government by following a two stage transparent process of bidding, any expenditure incurred or committed to be incurred by the project developer for getting the project site allotted shall not be included in the capital cost: Provided also that the capital cost in case of such hydro generating station shall include: (a) cost of approved rehabilitation and resettlement (R&R) plan of the project in conformity with National R&R Policy and R&R package as approved; and (b) cost of the developer's 10% contribution towards Rajiv Gandhi Grameen Vidyutikaran Yojana (RGGVY) project in the affected area:

Provided also that the capital cost of the generating station shall include the cost for creating infrastructure for supply of power to the rural households located within a radius of five kilometres of the power station if, the generating company does not intend to meet such expenditure as part of its Corporate Social Responsibility.

Provided also that where the power purchase agreement entered into between the generating company and the beneficiaries or the implementation agreement and the transmission service agreement entered into between the transmission licensee and the long-term transmission customer, as the case may be, provide for ceiling of actual expenditure, the capital expenditure admitted by the Commission shall take into consideration such ceiling for determination of tariff."

57. The capital cost as on actual COD of units/station as claimed by the Petitioner is as under:

	<i>(₹ in lakh)</i>		
	1.4.2013 (two units)	1.5.2013 (three units)	19.5.2013 (all four units)
Capital Expenditure as on CODs (including the un-discharged liability as on CODs)	95696.89	143788.93	192114.31
Less Un-discharged liabilities as on CODs	6623.72	9800.32	13071.39
Net capital cost as on CODs (excluding un-discharged liability as CODs)	89073.18	133988.61	179042.92
Additional capital expenditure from 19.5.2013 to 31.3.2014			3876.53
Capital Cost as on 31.3.2014			182919.45



IDC and Normative IDC

58. The Petitioner, in the Petition, has furnished the details of amount, date of drawl, rate of interest etc. in respect of loans. In addition to above and in terms of Regulation 9 (2) (b) (ii) of the 2014 Tariff Regulations, the Normative IDC over and above the actual IDC has been worked out up to COD, considering the quarterly debt-equity position corresponding to actual cash expenditure as per Form-14A duly certified by the auditor. Based on the above details, IDC and normative IDC have been calculated up to the COD of the generating station as stated below:

	(₹ in lakh)		
	As on 1.4.2013 (2 Units)	As on 1.5.2013 (3 Units)	As on 19.5.2013 (All 4 Units)
IDC	18432.98	27842.38	37366.17
Normative IDC	4313.62	6521.25	8762.44
Total	22746.60	34363.63	46128.61

Financing Charges

59. The Petitioner has claimed financial charges amounting to Rs.366.42 lakh as on the COD of the generating station, duly certified by Auditor. The same has been considered in the capital cost of the generating station.

Capital Cost for purpose of tariff

60. Based on the above, the capital cost approved for the purpose of tariff is as under:

	(₹ in lakh)		
	As on 1.4.2013 (2 Units)	As on 1.5.2013 (3 Units)	As on 19.5.2013 (All 4 Units)
Hard Cost	72766.65	109149.83	145618.40
IDC	18432.98	27842.38	37366.17
Normative IDC	4313.62	6521.25	8762.44
Financial Charges	183.21	274.82	366.42
Total Capital cost	95696.46	143788.27	192113.43
Liabilities	6623.72	9800.32	13071.39
Capital Cost	89072.74	133987.95	179042.04

Initial spares

61. Regulation 8 of the 2009 Tariff Regulations provides for ceiling norms for



capitalization of initial spares. These norms in respect of hydro generating stations are as under:

“8 Initial spares: Initial spares shall be capitalized as a percentage of the original project cost subject to following ceiling norms:

(iii) Hydro generating stations- 1.5%

Provided that where the benchmark norms for initial spares have been published as part of the benchmark norms for capital cost under first proviso to clause (2) of regulation 7, such shall apply to the exclusion of the norms specified herein.”

62. The Petitioner has claimed initial spares amounting to Rs.1334.68 lakh as part of capital expenditure up to the date of commercial operation of the generating station. The claim of the Petitioner works out to 0.6% of the original project cost and is within the permissible ceiling limit. Accordingly, the claim is allowed.

Discharge of liabilities

63. The Petitioner has claimed discharge of liabilities amounting to Rs.2517.52 lakh during the year 2013-14 and has submitted the liability flow statement, duly certified by Chartered Accountant in support of the same. The details are as under:

	<i>(₹ in lakh)</i>
Un-discharged liabilities as on COD	13071.39
Less: Liability discharged during 2013-14	2517.52
Less: Liability adjusted during 2013-14	12.43
Un-discharged liabilities as on 31.3.2014 (out of COD liabilities)	10541.44
Add: Liabilities addition during 2013-14 (out of additional capex)	4138.87
Total un-discharged liabilities as on 31.3.2014	14680.31

The same has been considered for the purpose of tariff.

Additional Capital Expenditure during 2013-14

64. The Petitioner has claimed additional capital expenditure of `3876.53 lakh (including discharge of liabilities amounting to `2517.52 lakh) for the period from 19.5.2013 to 31.3.2014. The details of the additional capital expenditure claimed are as under:



(₹ in lakh)

S. No.		Amount
1	Building containing Hydro Electric Generating Plant	2200.60
2	Buildings	78.76
3	Hydraulic Works(Dams, Water Conductor system, Hydro mechanical gates, tunnels)	1312.47
4	Generating Plant and machinery	1849.64
5	Plant and Machinery Sub station	0.44
6	Plant and Machinery Others	(-)0.34
7	Construction Equipment	3.41
8	Water Supply System/Drainage and Sewerage	6.01
9	Vehicles	(-)4.64
10	Furniture and fixture	10.91
11	Computers	8.97
12	Communication Equipment	(-)0.08
13	Office Equipment	8.38
14	Other assets	14.88
15	Tangible Assets of minor value >750 and <₹5000	8.47
	Total Additional Capital expenditure claimed under Regulation 9(1)(ii) of the 2009 Tariff Regulations (a)	5497.88
	Add: Liability discharged claimed under Regulation 9(1)(ii) of the 2009 Tariff Regulations (b)	2517.52
	Less: un-discharged liability pertaining to Additional Capital Expenditure (c)	4138.87
	Net Total capital expenditure (d)=(a)+(b)-(c)	3876.53

65. We have examined the above additional capital expenditure claimed by the Petitioner from 19.5.2013 to 31.3.2014. The Petitioner has claimed additional capitalization of ₹1359.01 lakh (5497.88-4138.87) under various heads such as, Buildings, Hydraulic Works, Generating Plant and machinery, Plant & Machinery Sub-station, Construction Equipment, Water Supply System/Drainage and Sewerage, Vehicles, Furniture and fixture, Computers, Communication Equipment, Office Equipment, Other assets such as LCD Projector, Laboratory Equipment, Fire Extinguisher, door frame and metal detector, portable security cabin, etc. and Tangible Assets of minor. It has also submitted that the above claim of ₹1359.01 lakh is in respect of the assets/works which are under the original scope of work of the project and is within the cut-off date of the generating station. In view of this, the claim for additional capital expenditure is allowed under Regulation 9(1)(ii) of the 2009 Tariff Regulations. Further, the Petitioner has claimed an amount of ₹2517.52 lakh towards discharge of liabilities and the same is allowed under Regulation



9(1)(i) of the 2009 Tariff Regulations. In view of above, the additional capital expenditure of ₹3876.53 lakh claimed by the Petitioner for the period 19.5.2013 to 31.3.2014 is allowed for the purpose of tariff.

Capital Cost for 2013-14

66. Accordingly, the capital cost allowed for the purpose of tariff for the year 2013-14 is as under:

	(₹ in lakh)		
	1.4.2013 to 30.4.2013 (2 Units)	1.5.2013 to 18.5.2013 (3 Units)	19.5.2013 to 31.3.2014 (All 4 Units)
Opening Capital Cost	89072.74	133987.95	179042.04
Admitted additional Capital expenditure	-	-	3876.53
Closing Capital Cost	89072.74	133987.95	182918.57

Debt Equity Ratio

67. Regulation 12 of the 2009 Tariff Regulations provides as under:

“12. Debt-Equity Ratio (1) For a project declared under commercial operation on or after 1.4.2009, 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 where equity actually deployed is less than 30% of the capital cost, the actual equity shall be considered for determination of tariff:

Provided further that the equity invested in foreign currency shall be designated in Indian rupees on the date of each investment.

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, provided such premium amount and internal resources are actually utilized for meeting the capital expenditure of the generating station or the transmission system.*

(2) In case of the generating station and the transmission system 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 shall be considered.

(3) Any expenditure incurred or projected to be incurred on or after 1.4.2009 as may be admitted by the Commission as additional capital expenditure for determination of tariff, and renovation and modernization expenditure for life extension shall be serviced in the manner specified in clause (1) of this regulation.”



68. Accordingly, the debt equity ratio of 70:30 has been considered in terms of the above regulation for the purpose of tariff.

Return on Equity

69. Regulation 15 of the 2009 Tariff Regulations 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 1st 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:”

70. In accordance with the above regulations, Return on Equity has been computed as follows:

	<i>(₹ in lakh)</i>		
	1.4.2013 to 30.4.2013 (2 Units)	1.5.2013 to 18.5.2013 (3 Units)	19.5.2013 to 31.3.2014 (All 4 Units)
Opening Equity	26721.82	40196.39	53712.61
Addition due to additional capitalisation	0.00	0.00	1162.96
Closing Equity	26721.82	40196.39	54875.57
Average Equity	26721.82	40196.39	54294.09
Return on Equity (Base Rate)	16.500%	16.500%	16.500%
Tax rate for the year	20.961%	20.961%	20.961%
Rate of Return on Equity (Pre Tax)	20.876%	20.876%	20.876%
Return on Equity (Pre Tax)	458.50	413.82	9843.88

Interest on Loan

71. Regulation 16 of the 2009 Tariff Regulations provides as under:

“(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.”

72. The Commission in its order dated 18.9.2015 in Review Petition no. 5/RP/2015 had observed as follows:

“11. We have examined the matter. It is noticed that while working out calculations for interest on loan, the repayment of loan has also been inadvertently considered on annualized basis. In our view, the pro-rata depreciation is to be considered for the respective period for the calculation of interest on loan. This according to us is error apparent on the face of the order and the same is required to be reviewed.”

73. The pro-rata depreciation considered for the respective period for calculation of



interest on loan as in the aforesaid order is and inadvertent error and the same has been rectified and tariff has been worked out on annual basis, in this order. The salient features of computation of interest on loan allowed in tariff are summarized as under:

(i) The opening gross normative loan has been arrived at in accordance with Regulation 16 of the 2009 Tariff Regulations.

(ii) The weighted average rate of interest has been worked out on the basis of actual loan portfolio of respective tear applicable to the project.

(iii) The repayment for the year 2013-14 has been considered equal to the depreciation allowed for that period.

(iv) The interest on loan has been calculated on the normative average loan of the year by applying the weighted average rate of interest.

74. In terms of the above regulations, Interest on loan has been computed as under:

	<i>(₹ in lakh)</i>		
	1.4.2013 to 30.4.2013 (2 Units)	1.5.2013 to 18.5.2013 (3 Units)	19.5.2013 to 31.3.2014 (All 4 Units)
Gross Normative Loan	62350.92	93791.57	125329.43
Cumulative Repayment up to Previous Year	0.00	371.47	706.75
Net loan-opening	62350.92	93420.10	124622.69
Repayment during the period	371.47	335.28	7948.19
Additional Capitalization	0.00	0.00	2713.57
Net Loan-Closing	61979.45	93084.82	119388.06
Average Loan	62165.18	93252.46	122005.37
Weighted Average Rate of Interest on Loan	9.431%	9.412%	10.006%
Interest on loan	481.88	432.84	10602.40

Depreciation

75. Regulation 17 of the 2009 Tariff Regulations provides as under:

“(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 31st 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.”

76. The weighted average rate of depreciation calculated in terms of the above regulation has been considered for calculation of depreciation as under. Accordingly, depreciation has been worked out and allowed as under:

	(₹ in lakh)		
	1.4.2013 to 30.4.2013 (2 Units)	1.5.2013 to 18.5.2013 (3 Units)	19.5.2013 to 31.3.2014 (All 4 Units)
Opening Gross Block	89072.74	133987.95	179042.04
Additional Capitalization	0.00	0.00	3876.53
Closing Gross Block	89072.74	133987.95	182918.57
Average Gross Block	89072.74	133987.95	180980.31
Rate of Depreciation	5.074%	5.074%	5.057%
Depreciable Value	80165.46	120589.16	162882.28
Remaining Depreciable Value	80165.46	120217.69	162175.53
Depreciation	371.47	335.28	7948.19

O&M Expenses

77. Regulation 19(f) (v) of the 2009 Tariff Regulations provides as under:

“In case of hydro generating station 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 rehabilitation & resettlement works) and shall be subject to annual escalation of 5.72% per annum for subsequent years.”

78. The Petitioner has claimed O&M expenses based on the capital cost of ₹208328.42 lakh as on the cut-off date and R&R expenses of ₹1195.82 lakh



(₹38.68 lakh before COD and ₹1157.14 lakh after COD of the generating station).

Accordingly, the O&M expenses claimed by the Petitioner are as under:

(₹ in lakh)		
1.4.2013 to 30.4.2013	1.5.2013 to 15.5.2013	19.5.2013 to 31.3.2014
170.25	153.22	3597.86

79. However, considering the fact that the original project cost (cut-off date cost) is not available in this petition, the capital cost as on COD of the units and the closing capital cost as on 31.3.2014, excluding proportionate R&R cost, have been considered for the purpose of calculating the allowable O&M expenses. Based on the above, the admissible O&M expenses are worked out as under:

(₹ in lakh)			
	1.4.2013 to 30.4.2013 (2 Units)	1.5.2013 to 18.5.2013 (3 Units)	19.5.2013 to 31.3.2014 (All 4 Units)
Capital cost considered as on COD of Units/station	89072.74	133987.95	182918.57
Less: R&R expenses	597.91	896.87	1195.82
Capital cost for the purpose of O&M expenses	88474.83	133091.08	181722.75
Annualized O&M expenses @ 2% of above	1769.50	2661.82	3634.46
Number of days	30	18	317
O&M expenses allowed for the period	145.44	131.27	3156.50

Interest on Working Capital

80. Regulation 18(1)(c) of the 2009 Tariff Regulations provides that the working capital for hydro based generating stations shall cover:

“(i) Cost of coal for 1.5 months for pit-head generating stations and two months for non-pithead generating stations, for generation corresponding to the normative annual plant availability factor;

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

(iii) Maintenance spares @ 20% of operation and maintenance expenses specified in regulation 19.

(iv) Receivables equivalent to two months of capacity charge and energy charge for sale of electricity calculated on normative plant availability factor; and

(v) O&M expenses for one month.”



Rate of interest on working capital

81. Clause (3) of Regulation 18 of the 2009 Tariff Regulations as amended on 21.6.2011 provides as under:

"Rate of interest on working capital shall be on normative basis and shall be considered as follows: (i) SBI short-term Prime Lending Rate as on 01.04.2009 or on 1st April of the year in which the generating station or unit thereof or the transmission system, as the case may be, is declared under commercial operation, whichever is later, for the unit or station whose date of commercial operation falls on or before 30.06.2010.

(ii) SBI Base Rate plus 350 basis points as on 01.07.2010 or as on 1st April of the year in which the generating station or a unit thereof or the transmission system, as the case may be, is declared under commercial operation, whichever is later, for the units or station whose date of commercial operation lies between the period 01.07.2010 to 31.03.2014.

Provided that in cases where tariff has already been determined on the date of issue of this notification, the above provisions shall be given effect to at the time of truing up."

82. The SBI PLR as on 1.4.2013 was 9.70%. As such, the interest rate of 13.20% has been considered in tariff. In line with the above Regulations, Interest on working capital has been calculated as follows:

	(₹ in lakh)		
	1.4.2013 to 30.4.2013 (2 Units)	1.5.2013 to 18.5.2013 (3 Units)	19.5.2013 to 31.3.2014 (All 4 Units)
Maintenance Spares	21.82	19.69	473.47
O & M expenses	12.12	10.94	263.04
Receivables	249.11	224.48	5393.35
Total	283.04	255.11	6129.87
Interest Rate	13.20%	13.20%	13.20%
Interest on Working Capital	37.36	33.67	809.14

Annual Fixed Charges

83. Based on the above, the fixed charges allowed for the purpose of tariff for the period from 1.4.2013 to 31.3.2014 are summarized as under:

	(₹ in lakh)		
	1.4.2013 to 30.4.2013 (2 Units)	1.5.2013 to 18.5.2013 (3 Units)	19.5.2013 to 31.3.2014 (All 4 Units)
Return on Equity	458.50	413.82	9843.88
Interest on Loan	481.88	432.84	10602.40
Depreciation	371.47	335.28	7948.19
Interest on Working Capital	37.36	33.67	809.14
O & M Expenses	145.44	131.27	3156.50
Total	1494.65	1346.89	32360.11



Normative Annual Plant Availability Factor (NAPAF)

84. The Commission in its order dated 22.1.2015 in Petition No. 115/GT/2013 has approved the NAPAF of the generating station as under:

“54. The Petitioner has submitted sediment data from the year 2001 to 2011. From this data it follows that monthly observed suspended sediment concentration at the project site was as high as 16613 PPM in the year 2002, 14253 PPM in 2003, 13580 PPM in 2009, 12521 PPM in 2006. Also, frequency of suspended sediment concentration above 5000 PPM was as high as 15 times in the year 2010. Thus, based on the available past data, the Petitioner has been able to make out a case of the existence of high sediment and silt at the project site. In view of this, relaxation of 5% in NAPAF on account of high silt content is allowed. Accordingly, NAPAF of 85% will be considered for the generating station. However, NAPAF presently allowed shall be reviewed for the next tariff period, based on actual data of PAF for the year 2013-14.”

In line with the above, NAPAF of 85% has been allowed for the period 2013-14.

Design Energy

85. The CEA in TEC dated 3.7.2014 had approved the annual Design Energy as 594.07 MUs. Accordingly, the same has been considered for the generating station as detailed under:

Month	10 Daily	Design Energy (MUs)
April	I	6.91
	II	8.73
	III	14.36
May	I	10.37
	II	10.59
	III	20.15
June	I	19.03
	II	29.04
	III	28.76
July	I	30.10
	II	30.10
	III	33.11
August	I	30.10
	II	30.10
	III	33.11
September	I	28.37
	II	20.60
	III	25.50
October	I	22.54
	II	23.69
	III	24.55
November	I	13.03
	II	7.27
	III	6.20
December	I	8.78
	II	8.09



	III	6.35
January	I	8.13
	II	7.52
	III	7.92
February	I	6.06
	II	6.01
	III	4.70
March	I	7.36
	II	7.72
	III	9.02
Total		594.07

86. The tariff recovered by the Petitioner in terms of the Commission's order dated 22.1.2015 shall be adjusted against the tariff determined by this order.

87. Petition No.280/GT/2018 is disposed of in terms of the above.

Sd/-
(I.S Jha)
Member

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

Sd/-
(P.K Pujari)
Chairperson

