

**Central Electricity Regulatory Commission
New Delhi**

Petition No.222/MP/2018

Coram:

**Shri P. K. Pujari, Chairperson
Dr. M.K. Iyer, Member
Shri I.S. Jha, Member**

Date of Order: 7.10.2019

In the matter of

Application under Regulation-31(6) of CERC (Terms and Conditions of Tariff) Regulations,2014 for recoupment of under recovered energy charges due to shortfall in energy generation for reasons beyond the control of generating station during FY 2016-17 in respect of Teesta Low Dam – III Power Station.

And

In the matter of

NHPC Limited
(A Govt of India Enterprise)
NHPC Office Complex,
Sector – 33,
Faridabad –121 003

...Petitioner

Vs

The Chairman & Managing Director
WBSEDC Ltd.,
Vidyut Bhawan, 8th Floor, Block -DJ, Sector –II,
Salt Lake, Kolkata-700091(West Bengal).

...Respondents

Parties present:

Shri Prashant Kaul, NHPC
Shri A.K. Pandey, NHPC
Shri V.N. Tripathi, NHPC
Shri Jitender Kumar, NHPC
Shri Piyush Kumar, NHPC

Ms. Seema Mishra, NHPC
Shri Dhanush C.K, NHPC
Shri M G Ramachaandran, Senior Advocate, WBSEDCL
Ms. Tanya Sareen, Advocate, WBSEDCL
Ms. Anushree Bardhan, Advocate, WBSEDCL

ORDER

The Petitioner, NHPC Ltd. (hereinafter referred to as NHPC) has filed this petition seeking the following relief(s):

- (a) *Hon'ble Commission may kindly consider the deviation under regulation 54 & 55 of CERC Tariff Regulations'2014 as mentioned in para- XII of the petition allowing recovery of energy charges of ₹165.16 Crs {₹164.96 Crs (already recovered energy charges) + ₹0.20 Crs (unrecovered energy charges due to reasons beyond the control of petitioner)} against approved energy charges of ₹180.355 Crs in the FY 2016-17 itself.*
- (b) *Hon'ble Commission may kindly allow recovery of energy charges through actual sale of energy (i.e. 532.64 MU) in FY 2016-17 as mentioned in **para-XII**.*
- (c) *To allow revision of energy bills for the period 2016-17 for recovery of energy charges of ₹165.16 Crs {₹164.96 Crs (already recovered energy charges) + ₹0.20 Crs (unrecovered energy charges due to reasons beyond the control of petitioner)}.*
- (d) *To allow issuance of supplementary bill for recovery of balance energy charges directly from beneficiaries after determination of final tariff by Hon'ble Commission as mentioned in **para-IX**.*
- (e) *Pass such other and further order / orders as are deemed fit and proper in the facts and circumstances of the case.*

Background

2. The Teesta Low Dam-III Power Station (hereinafter called ' TLDP-III ' / 'power station') (4 x 33 = 132 MW) located in the State of West Bengal is under commercial operation w.e.f. 19.05.2013. The approved annual Design Energy (DE) of the generating station is 594.09 MU and keeping in view the provision of auxiliary losses (1.0%) and LADF (1%), the saleable energy works out to be 582.27 MU.

3. The provisions of the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2014 (hereinafter referred to as “the 2014, Tariff Regulations”) dealing with the methodology for computation of energy charges and billing in respect of hydro-generating stations are as under:

“31(4) The energy charge shall be payable by every beneficiary for the total energy scheduled to be supplied to the beneficiary, excluding free energy, if any, during the calendar month, on ex power plant basis, at the computed energy charge rate. Total Energy charge payable to the generating company for a month shall be:

(Energy charge rate in Rs. / kWh) x {Scheduled energy (ex-bus) for the month in kWh} x (100 – FEHS) / 100

“31(5) Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis, for a hydro generating station, shall be determined up to three decimal places based on the following formula, subject to the provisions of clause (7):

$$ECR = AFC \times 0.5 \times 10 / \{DE \times (100 - AUX) \times (100 - FEHS)\}$$

Where,

DE = Annual design energy specified for the hydro generating station, in MWh, subject to the provision in clause (6) below.

FEHS = Free energy for home State, in per cent, as defined in Regulation 42.

“31(6) In case the actual total energy generated by a hydro generating station during an year is less than the design energy for reasons beyond the control of the generating station, the following treatment shall be applied on a rolling basis on an application filed by the generating company:

(a) In case the energy shortfall occurs within ten years from the date of commercial operation of a generating station, the ECR for the year following the year of energy shortfall shall be computed based on the formula specified in clause (5) with the modification that the DE for the year shall be considered as equal to the actual energy generated during the year of the shortfall, till the energy charge shortfall of the previous year has been made up, after which normal ECR shall be applicable:

Provided that in case actual generation from a hydro generating station is less than the design energy for a continuous period of 4 years on account of hydrology factor, the generating station shall approach CEA with relevant hydrology data for revision of design energy of the station.”

(b) In case the energy shortfall occurs after ten years from the date of commercial operation of a generating station, the following shall apply.

Explanation: Suppose the specified annual design energy for the station is DE MWh, and the actual energy generated during the concerned (first) and the following (second) financial years is A1 and A2 MWh respectively, A1 being less than DE. Then, the design energy to be considered in the formula in clause (5) of these regulations for calculating the ECR for the third financial year shall be moderated as (A1 + A2 – DE) MWh, subject to a maximum of DE MWh and a minimum of A1 MWh.

(c) Actual energy generated (e.g. A1, A2) shall be arrived at by multiplying the net metered energy sent out from the station by $100 / (100 - AUX)$.

“31(7) In case the energy charge rate (ECR) for a hydro generating station, computed as per clause (5) of this regulation exceeds ninety paise per kWh, and the actual saleable energy in a year exceeds $\{DE \times (100 - AUX) \times (100 - FEHS) / 10000\}$ MWh, the Energy charge for the energy in excess of the above shall be billed at ninety paise per kWh only:

Provided that in a year following a year in which total energy generated was less than the design energy for reasons beyond the control of the generating company, the energy charge rate shall be reduced to ninety paise per kWh after the energy charge shortfall of the previous year has been made up.

Submissions of the Petitioner

4. The Petitioner in this petition has submitted as under:
- a) The present petition has been filed in order to suitably modify the Energy Charge Rate (ECR) in terms of Regulation 31(6)(a) of the 2014, Tariff Regulations for FY 2016-17 for recovery of under-recovered energy charges in FY 2017-18 due to shortfall in generation. The breakup of actual generation vis-à-vis Design Energy is tabulated below:

S.No.	Month	Design Energy (MU)	Actual energy at GT (MU)	Shortfall/ Excess	Actual PAF (%)
1	2	3	4	5=4-3	6
1	Apr-16	30.11	28.77	-1.34	79.41
2	May-16	41.12	45.21	4.09	81.95
3	Jun-16	76.83	72.02	-4.81	93.92
4	Jul-16	93.30	76.89	-16.41	91.11
5	Aug-16	93.30	78.50	-14.8	86.50
6	Sep-16	74.47	81.64	7.17	89.99
7	Oct-16	70.78	78.97	8.19	102.94
8	Nov-16	26.50	32.29	5.79	102.08
9	Dec-16	23.23	20.12	-3.11	101.01
10	Jan-17	23.57	10.64	-12.93	52.48
11	Feb-17	16.78	11.57	-5.21	87.65
12	Mar-17	24.10	17.05	-7.05	103.13
Total		594.09	553.67	-40.42	

- b) Petitioner submitted that based on the actual inflow data maximum possible energy generation for the year 2016-17 is 637.67 MU.
- c) The total shortfall in generation during FY 2016-17 is 40.42 MU (594.09 MU –

553.67 MU).

- d) Out of the total shortfall of 40.42 MU, shortfall of 0.52 MU was beyond the control of Petitioner while balance shortfall of 39.90 MU was not uncontrollable. Hence, as per Regulation 31(6)(a) of the 2014, Tariff Regulations, the shortfall of 0.52 MU needs to be recovered by the Petitioner during FY 2017-18. The details of the shortfall and reasons for the shortfall are as under:

Sl No	Description	Generation (in MU)
A	Shortfall due to reasons beyond the control of petitioner	
i.	Energy shortfall due to less inflow from design inflow	(-) 36.39
ii.	Energy generated due to excess inflow from design inflow	79.99
iii.	High Trash	(-) 24.02
iv.	Silt Flushing	(-) 16.31
v.	Transmission Constraints	(-) 3.79
	Total (A)	(-) 0.52
B	Shortfall due to reasons within the control of petitioner	
i.	In order to meet grid requirement (excess generation), the petitioner has to deplete the reservoir level with marginal increase in generation and had to operate the machines at lower head. Subsequently, at appropriate time, the reservoir level has been maintained with less generation. The overall operation has caused generation loss of approximately 10.71 MU, which is detailed as under.	
ii.	Energy generated by depleting reservoir level on some days	2.27
iii.	Less generation for increasing reservoir level on some days	(-) 12.98
iv.	Unit Outages	(-) 15.30
v.	Other constraint (Partial load/ramping up/down during peaking etc.)	(-) 13.89
	Total (B)	(-) 39.90
	Grand Total (A+B)	(-) 40.42

- e) The truing up of AFC for the period 2013-14 and tariff petition for the period 2014-19 in case of TLDP-III have not been allowed by the Commission due

to non-submission of approved Revised Cost Estimates (RCE). The tariff petition no. 193/GT/2015 and 248/GT/2014 had been disposed of by Commission vide order dated 06.02.2017.

- f) In view of above, the present claim for recovery of energy charge is based on interim tariff allowed by the Commission for FY 2013-14 vide order dated 22.01.2015 in petition no. 115/GT/2013. The present submission for recovery of shortfall in energy charge is based on energy charge allowed for the FY 2013-14. The relevant data for decision on recovery is as below:

Schedule Energy (Ex-Bus) (MU)	Free Energy (MU)	Net Energy Billed (MU)	ECR (Rs/Unit)	Annual Fixed Charges (₹ Cr)	Energy Charges to be recovered (₹ Cr)	Energy Charges actually recovered (₹ Cr)	Under recovery of Energy (₹ Cr)
1	2	3=1-2	4	5	6=50% of 5	7=3*4/10	8=7-6
538.02	5.38	532.64	3.097	360.71	180.355	164.96	- 15.40

- g) Out of the total generation loss of 40.42 MU, the loss of 0.52 MU was due to uncontrollable factors. Therefore, shortfall of energy charges amounting to ₹ 0.20 Cr corresponding to 0.52 MU may be allowed, which was due to reasons beyond the control of the Petitioner. Details are as under:

Sl No	Description	Calculation basis	Generation / Amount
i.	Total Shortfall in generation during FY 2016-17	A	40.42 MU
ii.	Total under recovery of energy charges during FY 2016-17	B	₹ 15.40 Cr
iii.	Shortfall in generation due to reasons beyond control	D	0.52 MU
iv.	Shortfall in energy charges to be recovered during FY 2016-17	E=D*B/A	₹ 0.20 Cr

- h) Under prevailing mechanism of Regulation 31(6) of the 2014, Tariff Regulations, the Petitioner is not in a position to recover the shortfall allowed by CERC. For example, in case of order dated 17.04.2017 in petition no. 251/MP/2015 for Chamera-III Power station for FY 2014-15, the petitioner could only recover ₹ 14.92 Cr against allowed recovery of ₹ 19.04 Cr. The same is the position in the instant case also. Secondly, if there is continuous

shortfall in generation for 2-3 years, the recovery mechanism becomes more complicated. In the instant case of TLDP-III Power Station, the actual generation in 3 financial years starting 2017-18 against the design energy of 594.09 MU is as under:

Year	Actual Generation (MU)	Schedule Generation (MU)
2015-16	514.69	496.20
2016-17	553.67	538.02
2017-18	386.88	374.04

- i) Further, CEA / CWC were requested to certify the actual inflow data but vide letter dated 31.01.2017, they have expressed inability to certify the inflow series on year to year basis as under:

“The hydrological uncertainties on year to year basis are part of the planning process which can be assessed from the departure of the annual rainfall from the normal. Further the consistency of inflow series of the project can be carried out using relevant hydro-meteorological data for longer period such as more than 5 years. In view of the above it may not be possible to certify the inflow series as requested vide above referred letter.”

5. The matter was heard on 09.01.2019 and petitioner was directed to submit the additional information vide technical validation letter dated 31.01.2019 as under:

- a. *Planned / forced machine outage data certified by CEA / NRLDC and its correlation with energy generation data vis-à-vis available average inflows during the period of such outages;and*
- b. *IMD rain fall data to co-relate low inflows.*

Hearing was held on 02.05.2019 and the Petitioner was directed to submit additional information vide technical validation letter dtd 24.05.2019 as under:

- a. *Documents to validate the energy loss due to transmission constraints.*

Reply of WBSEDCL, Respondent

6. WBSEDCL vide its affidavit dated 13.03.2019, has submitted as under:

- a) Any claim of NHPC in regard to the shortfall in generation need to be adjusted only in terms of Regulation 31 (6) (a) or (b) of the 2014 Tariff Regulations, namely, adjustments to be done in the revenue requirements of the future years as provided in the said Regulation.
- b) Regulation 31 of the 2014, Tariff Regulations has been specifically incorporated to deal in an equitable manner, the issue of shortfall in

generation in the Hydro Power Projects which may occur on account of the reasons not attributable to the generator such as Force Majeure, reason beyond the control of the generator or when generator establishes to the satisfaction of the Commission that the shortfall in generation in any financial year was beyond the control of the generator.

- c) This mechanism has been designed in order to balance the interest of the generator and also the Procurers/Consumers at large, namely, that heavy burden is not caused on the Procurers/Consumers at large on account of the shortfall in generation, considering the fact that such shortfall in generation was not in any manner attributable to the Procurers/Consumers at large. There is, therefore, a clear concept of adjustment for shortfall in generation incorporated in the 2014, Tariff Regulations. Such a requirement provided under Regulation 31 for adjustment of the shortfall cannot be a subject matter of relaxation or removal of difficulties under Regulations 54 or 55 of the 2014, Tariff Regulations.
- d) WBSEDCL has requested NHPC for providing Daily Discharge Data for the generating station for the financial year 2014-15 as well as for other financial years involved in the various petitions filed before this Commission. Without prejudice to the above, Government of West Bengal sought for the Daily Discharge Data for the period 2014-18 in respect of River Teesta from the Central Water Commission (**CWC**) vide letter dated 02.11.2018. CWC has provided the Data for the financial years 2013-14, 2014-15, 2015-16, 2016-17 and 2017-18 related to monsoon period i.e. May to October by letter dated 30.1.2019. WBSEDCL has compared the inflow data provided by the NHPC in the proceedings with the data made available by the CWC. Comparison table made by respondent shows that on some days, more water was available for generation as compared to claim by NHPC, It clearly indicates the operational inefficiency of NHPC.
- e) Petitioner has claimed that there were transmission constraints even when machine and water was available for generation. Being generating company, the petitioner is required to coordinate with transmission licensee for availability of transmission system.
- f) As regards claim against slit flushing by Petitioner, silt flushing is a normal activity in Hydro Plants, during monsoon for 8 to 20 hrs to reduce the silt

accumulation in Barrage and the same has been factored by NHPC for the operation of Hydro Plant. In this regard Clause 7.4.5 (iii) of Volume VI of the Detailed Project Report (**DPR**) provides as under:

“iii. The barrage will be emptied for about 8 to 20 hours in Monsoon months to generate the retrogressive erosion in order to remove the silt deposited in the barrage and specifically near the intake of the powerhouse. The discharge requirement for such flushing will be finalized after the hydraulic model study.”

Accordingly silt flushing operation cannot be claimed additionally for adjustment for shortfall in generation in the TLDP-III.

- g) WBSEDCL does not admit the claim for the shortfall due to Trash. NHPC has failed to install Trash Rack Cleaning Machine despite the same has been provided in the DPR (at **Page 6-23 of Vol II**). The cost of installation of the Trash Rack Cleaning Machine (TRCM) had been duly considered in the DPR as a part of the project cost. In view of the above, the shortfall in generation due to Trash is for reasons attributable to NHPC and, therefore, cannot be claimed in the present proceedings.

Rejoinder of the Petitioner to reply of WBSEDCL

In response to the reply of respondent dated 13.03.19, the petitioner has filed rejoinder vide affidavit dated 31.05.2019.

7. The petitioner has submitted that the Respondent has compared the inflow data provided by NHPC with inflow data provided by CWC at Teesta Bazar (Gauge & Discharge Site) and has interpreted that the inflow data provided by NHPC are different from CWC discharge data.

- a) Inflow data computed by NHPC are based on 24 Hours average inflow at dam site measured through control structure, whereas majority of data provided by CWC are computed based on one time water level.
- b) For the period 2013-17, for the discharge data of Teesta Bazar (CWC), at one water level, discharge/inflow values indicated are different and data is very scattered. The discharge variation ranges from 250 cumecs to 2000 cumecs at same water level.

c) In the month of October, the average 10 daily discharge at Teesta Bazar (2014-15 to 2017-18) provided by respondent is higher by about 82% than the average long term 10 daily discharge at Teesta Bazar based on CWC data (1978-94 & 2003-06) available with NHPC for hydrology study. Whereas the average 10 daily discharge based on NHPC data (2014-15 to 2017-18) is 21% less than long term average 10 daily discharge at Teesta Bazar based on inflow data. A sample comparison of data for the month of October is as follows:

10 Daily discharge for October	Average of 1978-94 & 2003-06 based on (CWC data) at Teesta Bazar	Average of 2014-15 & 2017-18 based on (CWC / WBSEDCL data) at Teesta Bazar	Average of 2014-15 & 2017-18 based on (NHPC data) at TLDP-III
I	723	1247	594
II	567	1195	505
III	525	865	340
Average	602	1095	475
% Higher / Lower		82%	-21%

d) The rainfall in the month of October as per IMD in sub Himalayan Basin & West Bengal region was 80% deficit in October 2014, 67% deficit in October 2015 and 1% surplus in October 2016 with respect to normal rainfall in this region.

e) In view of above, the inflow data of TLDP-III provided by NHPC is consistent and there is no discrepancy in the data provided by petitioner.

8. Regarding generation loss due to Transmission constraints, the petitioner has submitted that the transmission lines are under the control of WBSETCL. As a practice, there is proper coordination between TLDP-III Power Station and WBSETCL and during any tripping of transmission lines, WBSETCL is pursued for early restoration of lines to avoid generation loss, if any. Loss due to transmission constraint has been considered by the petitioner only on those days when there has been a spillage of water due to excess inflow. Generation loss has not been claimed on account of transmission constraint when the petitioner was in position to store water

and there was no spillage. However, during transmission constraints, WBSLDC has revised the schedules.

9. The petitioner has submitted that the respondent has categorically accepted the need for silt flushing in hydro power station during monsoon season. In its reply, respondent has quoted the design criterion of silt flushing arrangement indicated in the DPR which relates to loss of generation with respect to design energy of the power station. Design Energy is determined on the basis of discharge in 90% dependable year with 95% machine availability. The Design Energy is not directly linked with design of project structure for spillage or de-silting arrangement. Therefore, the quoted criterion of the DPR is not relevant for analysing the generation loss.

Analysis and Decision

10. Maximum possible energy generation for the year 2016-17 has been assessed by us based on actual inflow data as submitted by the petitioner as follows:

Maximum Possible Generation during a day = $(132 \times 0.024 / 694) \times \text{Actual Inflow}$

Where 132 MW is the capacity of the plant and 694 cumecs is the corresponding design discharge of all four units of the plant.

Based on the above methodology maximum possible energy generation during the year 2016-17, which is the sum of daily maximum possible generations during 365 days, works out to 632.85 MU, whereas the petitioner has submitted that the maximum possible generation is 637.67 MU. It is possible that the difference of 4.82 MU is due to petitioner having considered more power generation in favourable conditions. Therefore, we have taken petitioner's data of 637.67 MU as the maximum possible generation by the generating station.

11. We note that the Design Energy of the generating station is 594.09 MU. During FY 2016-17, the actual generation was 553.67 MU and there was a shortfall of 40.42 MU in generation from the generating station. Petitioner has claimed that the generation loss of 0.52 MU was beyond its control while balance of 39.90 MU has not

been claimed by the Petitioner. The Petitioner has invoked provisions of Regulation 31(6)(a) of the 2014, Tariff Regulations to claim relief for the shortfall of 0.52 MU.

12. The break-up of unclaimed generation loss of (-) [39.90 MU] by the Petitioner is as under:

- i. Additional energy generated by depleting reservoir: 2.27 MU
- ii. Shortfall in generation for increasing reservoir: (-) 12.98 MU
- iii. Unit Outage: (-) 15.30 MU
- iv. Other constraints (partial load/ ramping up, down during peaking): (-)13.89 MU

13. The break-up of claimed generation loss (-) [0.52 MU] by the Petitioner on account of uncontrollable factors is as under:

- i. Energy shortfall due to less inflow: (-) 36.39 MU
- ii. Energy gain due to excess inflow: 79.99 MU
- iii. Energy shortfall due to silt flushing: (-) 16.31 MU
- iv. Energy shortfall due to High Trash: (-) 24.02 MU
- v. Energy shortfall due to Transmission Constraints : (-) 3.79 MU

14. The claim of the petitioner to the extent energy shortfall which has occurred due to uncontrollable factors is being deliberated as follows:

Energy shortfall due to inflows

15. It is made out from the data as submitted by the petitioner that on certain days of the year under consideration, actual inflows were lower than the design year inflows and accordingly possible generation was on lower side as compared to the design energy of these days. On the remaining days the actual inflows were more than the design year inflows and accordingly possible generation was on higher side as compared to the design energy of these days. On overall basis, petitioner's data indicates that with the actual flows during the year, the possible energy generation with actual inflows, over which it has no control, was more by 43.60 MU (79.99 MU - 36.39 MU) in comparison to design energy. As such, maximum possible generation with actual inflows works out to 637.69 MU (594.09 MU + 43.6 MU) which is in line with the maximum possible generation of 637.67 MU accepted by us at para 10 above.

16. In this regard, WBSEDCL has submitted the actual inflow data for five years i.e. 2013-14 to 2017-18 for the monsoon months (six months) as obtained from the Central Water Commission (**CWC**) in respect of River Teesta measured at Teesta Bazar. WBSEDCL has compared the inflow data provided by the NHPC in the proceedings with the data made available by the CWC. Comparison table made by respondent shows that on some days, more water was available (especially in the month of October for all five years) for generation as compared to claim of NHPC. WBSEDCL has concluded that, it clearly indicates the operational inefficiency of NHPC.

17. Petitioner in its reply has submitted that five year data as submitted by the WBSEDCL for the month of October is higher by about 82% than the average long term 10 daily discharge at Teesta Bazar based on CWC data (1978-94 & 2003-06) available with NHPC for hydrology study, whereas the data measured by the petitioner at the dam side for the month of October for these five years is 21% less than the long term average 10 daily discharge at Teesta Bazar based on the actual inflow data for the years 1978-94 to 2003-06.

18. However, we are not inclined to go by the data as submitted by WBSEDCL for two reasons: i) CWC vide its letter dated 23.1.2017 has categorically refused to vet the inflow data in response to the petitioner's request which it has made to CWC to meet the requirement of the Commission. ii) WBSEDCL has submitted CWC inflow data only for six months out of twelve months period under consideration.

19. As such, for above two reasons, annual power potential of actual inflows has been calculated based on the petitioner's data measured at the dam site which works out to 637.67 MU as deliberated above. Accordingly, we allow the energy shortfall of (-) 36.39 MU and 79.99 MU as claimed by the petitioner due to less/excess inflows.

Energy shortfall due to silt flushing:

20. Hydro projects are designed to handle certain PPM level of silt and beyond that level, the generation is required to be stopped till the level comes down to the permissible limits. Reservoir / silt flushing is critical activity in hydro projects. Respondent has also accepted the necessity of reservoir / silt flushing in its reply.

Petitioner has claimed generation loss of 16.31 MU on account of reservoir / silt flushing, as per the details submitted by the generating station its work out to 16.94 MU. Hence, we have allowed the energy shortfall of 16.31 MU under reasons beyond the control of the generating station.

Energy shortfall due to High Trash

21. Commissioning of Trash Rack Cleaning Machine (TRCM) is a requirement before COD. The petitioner needs to ensure the commissioning of the same on time to avoid the possible loss of energy due to high trash. Petitioner has claimed generation loss of 24.02 MU due to high trash and as per the documents submitted by the generating station works out to 23.49 MU. We have not allowed the generation loss of 24.02 MU due to high trash as reason beyond the control of the generating station.

Energy shortfall due to Transmission Constraints

22. Petitioner has submitted the details of schedule revisions by the State Load Despatch Centre, WBSETCL due to reason of transmission constraints. As per the details, generating station's schedule was revised by the WBSETCL on the days for which energy shortfall has been claimed on account of transmission constraints. We consider that this energy loss was beyond the control of generating station. Petitioner has submitted that the loss of generation due to transmission constraints is 3.79 MU, whereas the details submitted by the petitioner, it works out to 2.92 MU. We have, therefore, considered loss of generation due to transmission constraints as 2.92 MU only.

23. Considering the reasons of generation shortfalls which were beyond the control of the Petitioner and which were within the control of the Petitioner, the possible generation at generator terminal has been assessed against the actual generation of 553.67 MU as follows:

- a) Maximum possible generation has been considered as 637.67 MU (as per para 10).
- b) Possible generation assessed at generator terminal after accounting for the generation loss due to reasons beyond the control of the petitioner is as follows:

(In MU)

1.	Energy that could have been generated by utilizing available actual inflows and 100% machine capacity i.e. 132 MW	637.67
2.	Energy lost due to Silt Flushing	(-)16.31
3.	Loss of generation due to Transmission constraints	(-)2.92
4.	Remaining Energy that could be generated	618.44

c) Possible energy generation assessed at generator terminal after accounting for the reasons within the control of the Petitioner:

Sl No	Description	Generation based on actual available flow with 100% machine availability (in MU)
1	Remaining Energy that could be generated after taking into account reasons beyond control of the petitioner	618.44
2	Energy loss due to Unit Outage	(-)15.30
3	Energy loss due to High Trash	(-)24.02
4	Difference of generation loss due to transmission constraints (claimed-allowed)	-0.87 {(-3.79)- (-2.92)}
5	Other constraints (Partial ramping up/ down during peaking), shortfall in generation for increasing the reservoir level & additional generation by depleting the reservoir.	-24.60 (-13.89-12.98+2.27)
Remaining Energy that could be generated		553.65

24. Thus, the possible generation from the station is assessed at 553.65 MU, whereas the actual generation was 553.67 MU (difference of 0.02 MU is due to rounding off in calculations).

25. The Commission is of the view that there could have been more generation to the tune of 24.35 MU (618.44 MU - 594.09 MU) above the Design Energy after considering the loss of generation which was beyond the control of generating station.

In view of the above, generating station need not be compensated on the ground of loss of generation beyond the control of petitioner.

26. Thus, the energy charge shortfall amount worked out is as follows:

Schedule Energy (Ex-Bus) (MU)	Free Energy (MU)	Net Energy Billed (MU)	ECR (₹ / Unit)	Annual Fixed Charges (₹ Crore)	Energy Charges to be recovered (₹ Crore)	Energy Charges actually recovered (₹ Crore)	Under recovery of Energy (₹ Crore)
1	2	3=1-2	4	5	6=50% of 5	7=3*4/10	8=7-6
538.02	5.38	532.64	3.097	360.71	180.355	164.96	-15.40

27. Therefore, the amount to be recovered in the FY 2015-16 due to shortfall in energy generation from the Design Energy during 2014-15 works out as follows:

SI No	Description		
1.	Total Shortfall in generation during FY 2016-17 (MU)	A	40.42
2.	Total under recovery of energy charges during FY 2016-17 (₹ Crore)	B	15.40
3.	Shortfall in generation due to reasons beyond the control of petitioner (MU)	C	0
4.	Shortfall in energy charges to be recovered during FY 2016-17 (₹ Crore)	D= C*B/A	Nil

28. Accordingly, in terms of Regulation 31(6) (a) and 31(6) (c) of the 2014, Tariff Regulations, there shall be no change in the Design Energy for the year 2017-18 and the same shall be 594.09 MU.

29. Petition No. 222/MP/2018 is disposed of in terms of above.

Sd/-
(I S Jha)
Member

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

Sd/-
(P. K. Pujari)
Chairperson