Central Electricity Regulatory Commission
New Delhi

Petition No.316/MP/2018

Coram:

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

Date of Order: 21.11.2019

In the matter of

Application under Regulation-31(6) and Regulation – 54&55 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 (Teesta Low Dam – IV Power Station) and recovery of shortfall in capacity charges under Regulation – 545&55 due to agitation by GJMM in FY 2017-18.

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):

1. *Hon'ble Commission is requested to kindly allow shortfall in energy charge amounting to ₹30.44 Crore during FY 2017-18 under Regulation 31 (6) of CERC Tariff Regulation 2014.*
2. *Hon'ble Commission is requested to kindly allow PAF of 85% against the actual PAF of 80.23% and recovery of shortfall in capacity charge amounting to ₹5.72 Crore in FY 2017-18 due to agitation by GJMM.*
3. *As recovery of capacity charge due to reason beyond control of generating station is not specifically defined in Tariff Regulation 2014, as an exceptional case, the Commission may kindly consider our request made at Para 2 above under Regulation 54 and 55 i.e. Power to Relax and Power to Remove Difficulty.*
4. *As the capacity charge and energy charge for the FY 2017-18 have already been raised, the Commission is requested to allow recovery of shortfall in capacity charge and energy charge through supplementary bills.*
5. *The present claim of capacity charge and energy charge is based on interim tariff allowed by Hon'ble Commission for the period 2017-18. The Commission is requested to allow recovery of shortfall in capacity charge and energy charge based on determination of final tariff for the FY 2017-18.*
6. *Pass such orders as deemed fit/proper in the facts and circumstances mentioned in the tariff petition.*

Background

2. The Teesta Low Dam-IV Power Station (hereinafter called ' TLDP-IV '/ 'power station') (4 x 40 = 160 MW) located in the State of West Bengal is under commercial

operation w.e.f. 19.08.2016. The approved annual Design Energy (DE) of the generating station is 719.67 MU and keeping in view the provision of auxiliary losses (1.0%) and LADF (1%), the saleable energy works out to be 705.35 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 recovery of energy charge shortfall 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 x 0.5 x 10 / {DE x (100 – AUX) x (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 form 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 x (100 – AUX) x (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.

As per 54& 55 Regulation of the 2014 Tariff Regulation regarding Power to Relax and Power to Remove Difficulty as follows:

***"**54. Power to Relax*

The Commission, for reasons to be recorded in writing, may relax any of the provisions of these regulations on its own motion or on an application made before it by an interested person".

"55. Power to Remove Difficulty:
If any difficulty arises in giving effect to the provisions of these regulations, the Commission may, by order, make such provision not inconsistent with the provisions of the Act or provisions of other regulations specified by the Commission, as may appear to be necessary for removing the difficulty in giving effect to the objectives of these regulations".

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 2018-19 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-17	36.62	41.91	5.29	99.42
2	May-17	56.26	53.91	-2.35	98.92
3	Jun-17	76.80	87.36	10.56	94.74
4	Jul-17	113.09	41.45	-71.64	39.37
5	Aug-17	111.50	0.00	-111.50	54.90
6	Sep-17	107.47	67.29	-40.18	100.00
7	Oct-17	85.48	88.35	2.87	87.52
8	Nov-17	35.46	37.61	2.14	37.16
9	Dec-17	27.97	24.55	-3.42	3.23
10	Jan-18	22.35	17.88	-4.47	59.89
11	Feb-18	23.02	14.98	-8.03	97.85
12	Mar-18	23.66	19.85	-3.82	94.43
Total		**719.67**	**495.13**	-224.55	

b) Based on the actual inflow data for the year 2017-18, maximum possible generation is 762.12 MU.

c) The total shortfall in generation during FY 2017-18 is 224.55 MU (719.67 MU - 495.13 MU).

d) Out of the total shortfall of 224.55 MU, shortfall of 207.06 MU was beyond the control of Petitioner while balance shortfall of 17.49 MU was not un-controllable. Hence, as per Regulation 31(6)(a) of the 2014 Tariff Regulations, the shortfall of 207.06 MU needs to be recovered by the Petitioner during FY 2018-19. The details of the shortfall and reasons for the shortfall are as under:

(In MU)

Sl No	Description	Generation
A	**Shortfall due to reasons beyond the control of petitioner**	
i.	Energy shortfall due to less inflow from design inflow	(-) 29.05
ii.	Energy generated due to excess inflow from design inflow	55.95
iii.	Energy loss due to complete shutdown of plant due to GJMM agitation	(-)223.06
iv.	Energy loss due to reservoir flushing	(-)10.27
v.	Energy loss due to high trash	(-)0.65
	Total (A)	(-) **207.06**
B	**Shortfall due to reasons within the control of petitioner**	
i.	In order to meet grid requirements, sometimes powerhouse is operated at higher load resulting into depletion of reservoir and at suitable time, reservoir is to be filled again causing loss of generation. In this process, the figure of gain/loss of energy is as under:	
ii.	Energy generated by depleting reservoir level on some days	0.96
iii.	Less generation for increasing reservoir level on some days	(-)11.68
iv.	Unit Outages	(-) 1.13
v.	Other constraint (Partial load/ramping up/down during peaking etc.)	(-) 5.65
	Total (B)	(-)**17.49**
	Grand Total (A+B)	(-) **224.55**

e) Provisional tariff of the Power Station based on the original sanctioned cost has been allowed by the Commission in absence of Designated Independent Agency (DIA) & approved Revised Cost Estimates (RCE). The tariff petition no. 107/GT/2016 had been disposed of by the Commission vide order dated 8.11.2016.

f) In view of above, claim for recovery of energy charge is based on interim tariff allowed by the Commission till 31.03.2018 vide order dated 08.11.2016 in petition

no. 107/GT/2016. The present submission for recovery of shortfall in energy charge is based on provisional energy charge allowed for the FY 2017-18 as under:

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**
481.63	4.82	476.81	1.444	203.71	101.86	68.85	-33.01

g) As out of the total loss of 224.55 MU, the loss of 207.06 MU was uncontrollable, shortfall of energy charges amounting to ₹ 30.44 Crore corresponding to 207.06 MU only may be allowed, which was due to reasons beyond the control of the Petitioner. Details are as under:

Sl No	Description		Generation / Amount
i.	Total Shortfall in generation during FY 2017-18	A	224.55 MU
ii.	Total under recovery of energy charges during FY 2017-18 (₹ Crore)	B	33.01 Crore
iii.	Shortfall in generation due to reasons beyond control	D	207.06 MU
iv.	Shortfall in energy charges to be recovered during FY 2018-19 (₹ Crore)	E=D*B/A	**30.44 Crore**

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 Crore against allowed recovery of ₹ 19.04 Crore. The above situation is applicable in the present case also.

i) As per the tariff petition no 107/GT/2016, the Commission vide order dated 8.11.2016 allowed the NAPF of 85% for recovery of full capacity charges. Petitioner

has submitted for recovery of shortfall in PAF by 4.77% and corresponding Capacity Charges of ₹ 5.72 Crore, as per the table given below:

Sl No	Description	Details
A.	Estimated PAF	95.73%
B.	Actual PAF	80.23%
C.	Loss of PAF (A-B)	15.50%
D.	Capacity Charge on estimated PAF (₹ Crore)	114.71
E.	Capacity Charge (recovered) on actual PAF (₹ Crore)	96.14
F.	Loss of Capacity Charges (D-E) (₹ Crore)	18.57
G.	Allowed NAPAF	85%
H.	Allowed Capacity Charge (50% of AFC) (₹ Crore)	101.86
I.	Loss of Capacity Charge limited to 85% NAPAF (H – E) (₹ Crore)	5.72

As there is no specific provision in the 2014 Tariff Regulation for recovery of shortfall in capacity charges due to reasons beyond the control of generating station. Hence, petitioner has invoked Regulation 54& 55 of the 2014 Tariff Regulation for recovery of the shortfall in capacity charges.

j) Further, CEA and CWC were requested to certify the actual inflow data for other hydro projects (Rangit, TLDP – III & Chamera – III) but vide CWC letter dated 23.01.2017, has expressed its 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.*

Reply of WBSEDCL, Respondent

6. In response to above, WBSEDCL vide its affidavit dated 13.03.2019, has submitted its reply as under:

a) Any claim of petitioner 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. 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 Stations which may occur on account of the reasons not attributable to the generator such as Force Majeure / reasons beyond the control of the generator. Cases where the generator establishes that the shortfall in generation in any financial year was beyond the control of the generator, the adjustment can be done only in terms of the methodology provided in Regulation 31 of the 2014 Tariff Regulations.

b) WBSEDCL has requested NHPC for providing daily discharge data of the generating station for the year 2017-18. Without prejudice to the above, Government of West Bengal sought for the daily discharge data for the period 2014-18 of the river Teesta from the Central Water Commission (CWC) vide letter dated 02.11.2018. The CWC has provided the discharge 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 for the respective years. WBSEDCL has compared the inflow data provided by the NHPC with the inflow data received from CWC. Comparative study shows that

on some days, more water was available for generation as compared to that claimed by the petitioner. It clearly indicates the operational inefficiency of the generating station.

c) WBSEDCL does not agree for the shortfall in generation on account of Silt Flushing. The Silt Flushing is normal practice of Hydro Electricity Power Plant, during the monsoon period for 8 to 20 hours, to reduce silt accumulation in the Barrage and the same must has been factored by NHPC for operation of the Hydro Electricity Plant. In this regard Clause 7.5.1 of Volume VI of the Detailed Project Report (**DPR)** provides as under:

> *"3. The reservoir will be emptied for about 8 to 20 hours in Monsoon months to generate the retrogressive erosion in order to remove the silt deposited near the intake of the powerhouse.*
>
> *4. 3 Nos. silt excluder ducts (2m X 1.6m) have been provided under the intake openings at a lower elevation. These ducts shall be equipped with gates, which shall opened periodically for flushing of the silt.*
>
> *It is also planned to carry out the flushing for the reservoir in the stage III and the stage IV project."*

Accordingly, the Silt Flushing operation cannot be claimed additionally for adjustment for shortfall in generation in the TLDP-IV.

d) For shortfall in energy generation due to Trash, NHPC has failed to install Trash Rack Cleaning Machine (TRCM) despite the same having been provided for in the DPR at **Page 6-26 of Vol II.** The cost of installation of the 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.

e) As regards the shortfall in capacity charges due to strike and agitation of the Gorkha Jan Mukti Morcha (GJMM) relating to TLDP-IV, NHPC has claimed the same as the reason beyond its control. Operation of the TLDP – IV was affected during the period from 13.07.2017 to 14.09.2017 in FY 2017-18. Regulation 12 of the 2014 Tariff Regulations deals with controllable and uncontrollable factors leading to the cost escalation impacting the contract price, IDC and IEDC of the project. However, Regulation 8 deals with the truing up. Sub Regulation (3) of Regulation 8 provides as under:

> *"8. Truing up*
> *(1) The Commission shall carry out truing up exercise along with the tariff petition filed for the next tariff period, with respect to the capital expenditure including additional capital expenditure incurred up to 31.3.2019, as admitted by the Commission after prudence check at the time of truing up:*
>
> *Provided that the generating company or the transmission licensee, as the case may be, shall make an application for interim truing up of capital expenditure including additional capital expenditure in FY 2016-17.*
>
> *(2) The generating station shall carry out truing up of tariff of generating station based on the performance of following Controllable parameters: a) Controllable Parameters:*
> *i) Station Heat Rate;*
> *ii) Secondary Fuel Oil Consumption;*
> *iii) Auxiliary Energy Consumption; and*
> *iv) Re-financing of Loan.*
>
> *(3) The Commission shall carry out truing up of tariff of generating station based on the performance of following Uncontrollable parameters:*
> *i) Force Majeure;*
> *ii) Change in Law; and*
> *iii) Primary Fuel Cost."*

f) However, NHPC has to establish that the agitation of GJMM during the above said period was a Force Majeure event, namely, which prevented NHPC from performing the obligation under the contract with WBSEDCL of generation and supply of electricity from the TLDP – IV and NHPC could not prevent such implication despite reasonable efforts being made by the generating station.

Rejoinder of the Petitioner to reply of Respondent (WBSEDCL)

7. The petitioner has submitted that respondent, WBSEDCL has compared the inflow data provided by NHPC with inflow data provided by CWC at Teesta Bazar (Gauge & Discharge Site). In this regard, following are submitted by NHPC:

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) After examining the discharge data of Teesta Bazar (CWC) for the period 2014-18, it is observed that at one water level, discharge/inflow values indicated are different and data is very scattered. The discharge variation ranges from 250 to 2000 cumecs at same water level.

In view of above, NHPC has submitted that the inflow data provided by NHPC is consistent and there is no discrepancy in the data provided by petitioner.

8. The petitioner has submitted that WBSEDCL has accepted the need of silt flushing in hydro power station during monsoon season. 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. In view of above, reference of DPR quoted by respondent may not be considered.

9. The petitioner has submitted that loss of generation due to strike / agitation by GJMM is claimed under regulation 31(6) for recovery of shortfall in energy charges and loss of capacity charges along with documents related to strike / agitation by GJMM and the same is submitted for consideration of the loss of generation during said period as an event of Force Majeure. The petition for truing up of Tariff of TLDP-IV Power Station will be submitted separately under regulation-8 of the 2014 Tariff Regulations.

10. The petitioner has submitted that during the period of strike / agitation, whenever it was possible, petitioner had generated on best effort basis. Petitioner has also submitted that there was no generation loss due to outage of machine / outages of units for maintenance.

Analysis and Decision

11. Maximum possible energy generation for the year 2017-18 has been assessed based on the actual inflow data as submitted by the petitioner as follows:

Maximum Possible Generation during a day (MU) = (160X0.024/699.8)* Actual Inflow

Where 160 MW is the installed capacity of the plant and 699.8 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 2017-18 (which is the sum of daily maximum possible generations during 365 days), works out to 757.78 MU. The petitioner has submitted that the maximum possible generation is 762.12 MU. It is possible that the difference of 4.34 MU is due to petitioner having considered more power generation in favourable conditions. Therefore, we have taken the petitioner's data of 762.12 MU as the maximum possible generation by the generating plant.

12. We note that the Design Energy of the generating station is 719.67 MU and actual generation is 495.13 MU. There is shortfall of 224.55 MU. Petitioner has claimed shortfall of 207.06 MU as beyond its control while balance 17.49 MU has been considered for

reasons within the control of generating station. The Petitioner has invoked provisions of Regulation 31(6)(a) of the 2014 Tariff Regulations to claim relief for the shortfall of 207.06 MU.

13. The break-up of unclaimed generation loss of (-) [17.49 MU] by the Petitioner is as under:

a) Additional energy generated by depleting reservoir: 0.96 MU

b) Shortfall in generation for increasing reservoir: (-) 11.68 MU

c) Unit Outage: (-) 1.13 MU

d) Other constraints (partial load/ ramping up, down during peaking): (-)5.65 MU

14. The break-up of claimed generation loss (-) [207.06 MU] by the Petitioner on account of uncontrollable factors is as under:

a) Complete shutdown of power plant due to GJMM agitation: (-) 223.06 MU

b) Energy shortfall due to less inflow: (-) 29.05 MU

c) Energy gain due to excess inflow: 55.95 MU

d) Energy shortfall due to reservoir flushing: (-) 10.27 MU

e) High Trash: (-) 0.65 MU

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

Energy shortfall due to inflows:

16. 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. For the year 2017-18 CWC has provided the inflow data for only two month i.e. May, 2017 and June, 2017 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 and has concluded that it indicates the operational inefficiency of NHPC.

17. However, we are not inclined to go by the data as submitted by WBSEDCL for two reasons: i) CWC vide its letter dated 23.01.2017 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 two months out of twelve months period under consideration.

18. 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 comes out to 762.12 MU.

19. 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 (excluding period during which plant was under shutdown due to GJMM agitation), the possible energy generation with actual inflows, over which it has no control, was more by 26.90 MU (55.95 MU – 29.05 MU) in comparison to Design Energy and the same get subsumed in maximum possible generation as 762.12 MU.

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 10.27 MU on account of reservoir / silt flushing. Further, considering the fact that energy which may be lost during stoppage of plant due to high silt (and consequently silt flushing) is not accounted for in the calculation of design energy, we allow the energy shortfall of 10.27 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 0.65 MU due to high trash, which we are not inclined to allow as the same is not considered beyond the control of generating station.

Energy shortfall due to complete shutdown of power plant due to Gorkha Jan Mukti Morcha (GJMM) Agitation:

22. Petitioner has submitted that the plant was under complete shutdown from 13.7.2017 to 14.9.2017 due to GJMM agitation. It is evident from the communication with State Authorities, communication within the organization and newspaper clippings as submitted by the petitioner, that the law and order situation in the region was critical during above said period. Petitioner was left with no option other than shutting down of the plant from 13.7.2017 to 14.9.2017. Partial generation could be started again from 14.9.2017, after improvement of the law & order situation in the region. Most of the monsoon season was

lost during the period of strike / agitation. For almost two months there was no generation from the plant in spite of, availability of all units. Commission is of the view that this generation loss was beyond the control of the petitioner and the same needs to be compensated to the petitioner. The final status with respect to strike / agitation affect is as follows:

Description	**Design Energy (MU) (a)**	**Maximum possible generation at GT with available inflows without outages and with use of installed capacity during high inflow period (MU) (b)**	**Actual Generation (MU) (c)**	**Shortfall w.r.t to DE (d)=(a)-(c)**	**Shortfall w.r.t to maximum possible generation (e)=(b)-(c) (MU)**
13.07.2017 to 14.09.2017 due to GJMM Agitation	230.20	245.76	7.17	223.03	238.59

23. Petitioner has claimed generation loss of 223.06 MU due to strike / agitation by GJMM. Loss of generation due to above reason works out to 223.03 MU with respect to Design Energy and 238.59 MU with respect to maximum possible generation during that period.

24. Based on the above calculations and after accounting for the reasons of shortfalls which were beyond the control of the Petitioner and the reasons which the Petitioner has attributed to itself, following has been worked out to assess the possible generation at generator terminal against the actual generation of 495.13 MU:

a) Maximum possible generation has been considered as 762.12 MU (as per para 11).

b) Possible generation at generator terminal after accounting for the reasons beyond the control of the petitioner:

(In MU)

1.	Energy that could have been generated by utilizing available actual inflows and 100% machine capacity i.e. 160 MW	762.12
2.	Energy lost due to complete shutdown of plant due to GJMM strike / agitation from 13.07.2017 to 14.09.2017	- 238.59*
3.	Energy lost due to Reservoir / Silt Flushing	- 10.27
4.	Remaining Energy that could be generated	513.26

*equivalent to the energy lost with respect to maximum possible generation for the period from 13.07.2017 to 14.09.2017 included in 762.12 MUs

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

(In MU)

Sl No	Description	Generation based on actual available flow at 100% machine availability
1	Remaining Energy that could be generated after taking into account reasons beyond control	513.26
2	Energy loss due to Unit Outage	-1.13
3	Energy loss due to High Trash	- 0.65
4	Energy generated by depleting reservoir level & less generation for increasing reservoir level	-10.72 (0.96 - 11.68)
5	Other constraints (Partial ramping up/ down during peaking)	-5.65
Remaining Energy that could be generated		**495.11**

25. In view of the above calculations, actual possible generation of the station after accounting for the various reasons comes out to 495.11 MU which is in line with the actual generation as 495.13 MU (Difference of 0.02 MU due to rounding off in calculations).

26. In light of above deliberations, Commission is of the view that the Petitioner is entitled to be compensated in terms of the Regulation 31(6) of the 2014 Tariff Regulations, to the extent of energy shortfall which occurred due to reasons beyond the control of the

Petitioner, which works out to 206.41 MU (719.67 MU – 513.26 MU) i.e. the difference between Design Energy and Max possible Energy generation after accounting the reason beyond control of Petitioner.

27. Accordingly, total energy charge shortfall amount worked out 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**
481.63	4.82	476.81	1.444	203.71	101.86	68.85	-33.01

28. Therefore, the amount to be recovered in the FY 2018-19 due to shortfall in energy generation from the Design Energy during 2017-18 works out as follows:

Sl No	**Description**		
1.	Total Shortfall in generation during FY 2017-18 (MU)	A	224.55
2.	Total under recovery of energy charges during FY 2017-18 (₹ Crore)	B	33.01
3.	Shortfall in generation due to reasons beyond control of the petitioner (MU)	C	206.41
4.	Shortfall in energy charges to be recovered during FY 2018-19 (₹ Crore)	D= C*B/A	**30.34**

29. Accordingly, in terms of Regulation 31(6) (a) and 31(6) (c) of the 2014 Tariff Regulations, we decide that the Design Energy for the year 2018-19 shall be 495.13 MU till the energy charge shortfall of ₹ 30.34 Crore for the period of 2017-18 is recovered by the petitioner by revision of energy bills of FY 2018-19. Further, the difference in energy charges shortfall to be recovered for the year 2017-18 which may arise after true up of

tariff for the period 2014-19 shall be recovered directly by the generation station from the beneficiaries through supplementary bills after true-up.

30. For recovery of shortfall in capacity charges for the reasons beyond the control of the generating station, no provision exists in the 2014 Tariff Regulation. While framing the 2014 Tariff Regulations, it was the intent of the Commission that hydrological risks need to be shared by the generators to some extent, accordingly Commission is not inclined to invoke the provisions of Regulation 54 and 55 for recovery of the lost capacity charges as prayed by the petitioner.

31. Petition No. 316/MP/2018 is disposed of in terms of above.

Sd/-	Sd/-	Sd/-
(I S Jha)	**(Dr. M.K. Iyer)**	**(P. K. Pujari)**
Member	**Member**	**Chairperson**