

**CENTRAL ELECTRICITY REGULATORY COMMISSION**  
**New Delhi**

**Petition No.412/MP/2019**

**Coram:**

**Shri I.S. Jha, Member**  
**Shri Arun Goyal, Member**  
**Shri P.K. Singh, Member**

**Date of Order: 18<sup>th</sup> September, 2023**

**In the matter of**

Application under Regulation-31(6) of CERC (Terms and Conditions of Tariff) Regulations, 2014, read with regulation 44(8) and 44(7) of CERC (Terms and Conditions of Tariff) Regulation, 2019, for recoupment of under-recovered energy charges due to shortfall in energy generation for reasons beyond the control of generating station during the FY 2018-19 in respect of Teesta Low Dam-IV Power Station.

**And**

**In the matter of**

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

.....Petitioner

**Vs**

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

.....Respondents

**Parties present:**

Shri Rajiv S. Dvivedi, Advocate, NHPC  
Shri M. G. Gokhale, NHPC  
Ms. Anushree Bardhan, Advocate, WBSEDC  
Ms. Tanya Sareen, Advocate, WBSEDC



## 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 allow recovery of energy charges amounting to **3.63 Crs** in FY 2019-20 against the shortfall in generation of **11.26 MU** in FY 2018-19 as per Regulation 44(8) and 44(7) of CERC (Terms and Conditions of Tariff) Regulation 2019, as explained in **para-XI**.*
- b) *Hon'ble Commission may kindly allow issuance of supplementary bills for recovery of shortfall in energy charges amounting to **₹3.63 Crs** in six equal monthly installments of **₹0.61 Crs** during FY 2019-20 by raising supplementary bills to the beneficiary as explained at **para-XI**.*
- c) *To allow issuance of supplementary bill for recovery of shortfall in energy charges directly from beneficiary after determination of final tariff for the period 2014-19 by Hon'ble Commission as mentioned in **para-IX** and **para-XI**.*
- d) *Pass such other and further order / orders as are deemed fit and proper in the facts and circumstances of the case.*

### Background/Submission of the Petitioner

2. The Teesta Low Dam-IV Power Station (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. West Bengal is the sole beneficiary of the project. The approved annual Design Energy (DE) of TLDP-IV Power Station is 717.72 MUs and keeping in view the provision of 1.0% auxiliary losses and 1% LADF, the saleable energy is 703.44 MUs.

3. The Petitioner in the main petition had submitted that the actual generation during 2018-19 is 708.41 MUs against design energy of 719.67 MU. However, Petitioner vide affidavit dated 14.10.2022 has revised the submission to consider the Design Energy as



717.72 MU in place of 719.67 MU. As such, there is a shortfall of (-) 9.30 MUs (717.72 MUs – 708.41 MUs) in generation during 2018-19.

4. Out of total shortfall of (-) 14.32 MUs, the reasons for shortfall of (-) 9.30 MUs are beyond the control of petitioner which was made up to the extent of 5.02 MUs by the Petitioner for reasons within the control of petitioner. Hence, generation shortfall of (-) 9.30 MU (14.32 MU – 5.02 MU) needs to be allowed to be recovered during FY 2019-20.

5. The Petitioner has submitted that the claim for recovery of energy charge is based on interim tariff allowed by the Commission for FY 2017-18 vide order dated 08.11.2016 in petition no. 107/GT/2016 which will be further revised after notification of final tariff for the period 2016-19 by the Commission. Accordingly, the Petitioner has recovered energy charges amounting to Rs. 98.23 Crs corresponding to scheduled ex-bus energy of 687.16 MUs against energy charges of 101.86 Crs. Hence there is an under recovery of energy charges of ₹3.63 Crs corresponding to generation shortfall of (-)9.30 MU.

6. The present application is for recovery of short fall in energy charges due to shortfall in generation due to reasons beyond the control of generator. The recovery of shortfall in energy charge i.e., 3.63 Crs is supposed to be done in FY 2019-20. Accordingly, Commission is requested to allow recovery of shortfall in energy charges during FY 2018-19 i.e. 3.63 Crs in six equal monthly instalments of 0.61 Crs during FY 2019-20 by raising supplementary bills to the beneficiary as per regulation-44(8) and 44(7) of CERC (Terms and Conditions of Tariff) Regulation 2019.



7. These claims are based on interim tariff allowed by the Commission for FY 2017-18 vide order dated 08.11.2016 in petition no. 107/GT/2016. Hence, Commission is requested to allow raising supplementary bills to the beneficiary after issuance of final tariff order for period 2014-19 in respect of TLDP-IIV Power Station.

8. CEA/CWC were requested to certify the actual inflow data in other similar petition but they have shown inability to certify. The petitioner is not in position to submit the actual discharge data certified by CEA/CWC. So, data submitted by petitioner may be considered as authenticated data.

#### **Reply of WBSEDCL, Respondent**

9. WBSEDCL vide its affidavit dated 29.7.2020, has submitted as under:

##### **A. ENERGY SHORTFALL DUE TO LESS INFLOW VIS A VIS DESIGN INFLOW**

- a) NHPC has not given the Daily Discharge Data for the generating station for the financial year 2018-19 as certified by the competent authority i.e. Central Electricity Authority (CEA) or Central Water Commission (CWC). The above data is required to enable the Commission to consider the claim of NHPC in a transparent manner and by application of the requisite prudent check.
- b) The reliance placed by NHPC on letter dated 23.01.2017 of the CWC to claim that the CWC has refused to certify the inflow data, is misplaced as the said letter of CWC has dealt with the request of NHPC for certifying inflow data for the TLDP-III (FY 2014-15 & 2015-16), Chamera-III (FY 2015-16) and Ranjit



Power Station (FY 2014-15) only. In the absence of any document certifying the inflow data for the year 2018-19 by CEA or CWC, the claim of NHPC ought to be rejected.

## **B. TRANSMISSION CONSTRAINTS**

- c) NHPC in the Petition has claimed that there were transmission constraints during the financial year 2018-19 which has resulted in non-generation of electricity, despite there being no constraint of water availability and machine availability. As a generating company, NHPC was required to coordinate with the transmission licensee to ensure that the transmission facility is available, particularly at the time when there is water availability and machine availability. The allegation that there was transmission constraint affecting NHPC from generation and the same was beyond the control of NHPC, need to be established to the satisfaction of this Commission. Further, if the water in the reservoir was not used during the alleged transmission constraint, the same would have been available for generation at a later point of time to achieve the increased generation to the level of target design energy. It is therefore necessary for NHPC to account for the above in a transparent manner to the satisfaction of the Commission.

## **C. RESERVOIR FLUSHING**

- d) The Silt Flushing/reservoir flushing is a part of normal operation of barrage in the Hydro Electricity Power Plant to maintain water retaining capacity of the



Reservoir. The said activity of Silt Flushing during the monsoon for 8 to 20 hours to reduce the Silt accumulation in the Barrage has been factored by NHPC for the operation of the Hydro Electricity Plant. In this regard, Clause 7.5.1.4 of Volume I: Engineering of the Detailed Project Report (DPR) provides as under:

***7.5.1.4 Effect of siltation vis-à-vis requirement of Desilting arrangement***

*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. The discharge requirement for such flushing will be finalized after the hydraulic model study.*

*4. 3 Nos. silt excluder ducts 9.2 m x 1.6 m) have been provided under the intake openings at a lower elevation. These ducts shall be equipped with gates, which shall be opened periodically for flushing of the silt.*

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

e) In view of the above, the claim of NHPC for recovery of unrecovered energy charges on account of the shortfall in generation cannot be said to be beyond the control of NHPC. NHPC having chosen to not adhere to its DPR cannot now seek for any relief for the same. In this regard, WBSEDCL craves reference to following decisions of the Supreme Court:

a. Kushweshwar Prasad Singh –v- State of Bihar (2007) 11 SCC 447:

*“14. In this connection, our attention has been invited by the learned Counsel for the appellant to a decision of this Court in MrutunjayPani and Anr. vs. Narmada BalaSasmal and Anr. [1962 (1) SCR Pg. 290], wherein it was held by this Court that where an obligation is cast on a party and he commits a breach of such obligation, he cannot be permitted to take advantage of such situation. This is based on the Latin maxim ‘Commodum*



*ex injuria sua nemo habere debet'* (No party can take undue advantage of his own wrong).

15. In *Union of India & Ors. v. Major General Madan Lal Yadav (Retd.)*, (1996) 4 SCC 127, the accused-army personnel himself was responsible for delay as he escaped from detention. Then he raised an objection against initiation of proceedings on the ground that such proceedings ought to have been initiated within six months under the Army Act, 1950. Referring to the above maxim, this Court held that the accused could not take undue advantage of his own wrong. Considering the relevant provisions of the Act, the Court held that presence of the accused was essential condition for the commencement of trial and when the accused did not make himself available, he could not be allowed to raise a contention that proceedings were time-barred. This Court referred to *Broom's Legal Maxims* (10<sup>th</sup> Edn.) P. 191 it is stated;

"..... it is a maxim of law, recognized and established, that no man shall take advantage of his own wrong; and this maxim which is based on elementary principles, is fully recognized in courts of law and of equity, and, indeed, admits of illustration from every branch of legal procedure".

16. It is settled principle of law that a man cannot be permitted to take undue and unfair advantage of his own wrong to gain favourable interpretation of law. It is sound principle that he who prevents a thing from being done shall not avail himself of the non-performance he has occasioned. To put it differently, "a wrong doer ought not to be permitted to make a profit out of his own wrong"

b. B. M. Malani –v- Commissioner of Income Tax and Anr. 2008 (10) SCC 617:

18. For the said purpose, another well-known principle, namely, a person cannot take advantage of his own wrong, may also have to be borne in mind. The said principle, it is conceded, has not been applied by the courts below in this case, but we may take note of few precedents operating in the field to highlight the aforementioned proposition of law. See *Priyanka Overseas Pvt. Ltd. and Anr. vs. Union of India and Ors.* [1991 Suppl. (1) SCC 102, para 39]; *Union of India and Ors. vs. Major General Madan Lal Yadav (Retd.)* [1996 (3) SCR 785]; *Ashok Kapil vs. Sana Ullah (dead) and Ors.* [1996 (6) SCC 342]; *Sushil Kumar vs. Rakesh Kumar* [AIR (2004) SC 230]; first sentence, *Kushweshwar Prasad Singh vs. State of Bihar and Ors.* SCC at pp 451-52, paras 13, 14 and 16".

- f) In addition to the above, WBSEDCL has analyzed the inflow and generation data provided by NHPC as under:



**Analysis of Inflow and Generation data provided by NHPC TLDP-IV (2018-19)**

Date	Design Energy (MU)	Design Inflow (cumecs)	Actual available inflow for generation (cumecs)	Spillage (cumecs)	Actual Generation (MU)	Short fall of generation due to Reservoir flushing (MU)	Tentative inflow used for generation (cumecs)	Inflow used for flushing (cumecs)	Percentage of flow used for silt flushing
1	2	3	4	5	6	7	$8=(3/2)*6$	$9=4-8$	$10=(9/4)*100$
30.06.18	3.6	735.26	1493.75	1692.6	0	3.65	0.00	1493.75	100.00
01.07.18	3.6	833.39	1175.75	910.82	0.26	3.38	60.19	1115.56	94.88
30.07.18	3.6	967.24	1731.75	1217.2	3.39	0.26	910.82	820.93	47.40
01.08.18	3.6	798.59	1777.75	1895.1	0	3.65	0.00	1777.75	100.00
02.08.18	3.5	798.59	1829.75	1086.9	3.61	0.04	800.81	1028.94	56.23
02.09.18	3.5	649.03	1757.75	2087	0.07	3.41	12.98	1744.77	99.26
03.09.18	3.5	649.03	1171.75	1214.6	0	3.48	0.00	1171.75	100.00
04.09.18	3.5	649.03	904.75	481	0.87	2.61	161.33	743.42	82.17
30.09.18	3.6	673.76	875.75	1027.3	0.95	2.66	177.80	697.95	79.70
01.10.18	3.3	608.68	1071.75	1077.4	0	3.27	0.00	1071.75	100.00
02.10.18	3.3	608.68	836.75	514.3	0.03	3.24	5.53	831.22	99.34
<b>Total</b>	<b>3.87</b>				<b>9.18</b>	<b>29.65</b>			

- g) The above table demonstrates that on various days, 90% to 100% of the available inflow for generation has been used for flushing of reservoir.
- h) In terms of 7.5.1.4 (3) of Volume I: Engineering of the DPR, the discharge requirement for silt flushing/ reservoir was required to be finalized after the hydraulic model study. Such discharge requirement is required to be furnished by NHPC for further verification of data as the same is not part of the petition filed by NHPC. This data is necessary in order to ascertain that there has been no undue discharge of water over and above what was otherwise required for flushing and which in turn could have been used for generation of power.
- i) It is the obligation of NHPC to satisfy the Commission that the entire machine forming part of the TLDP-IV was available in all readiness for generation of electricity and the only reason as to why the machine was not operated was on account of the Force Majeure. It is necessary for NHPC to place on record as





to whether the machine during the above period was taken out for any maintenance etc. in which case the period of maintenance, repair, overall etc. cannot be considered as available for generation of electricity. It is also relevant to place on record that under the Tariff Regulations, the Target Availability of Hydro Power Station has been fixed after factoring the time required for eventuality of the plant maintenance etc. It is, therefore, necessary for NHPC to satisfy the Commission of the period during which the plant maintenance was undertaken.

#### **Rejoinder of the Petitioner to reply of WBSEDCL**

10. In response to the reply of Respondent dated 29.7.2020, the Petitioner has filed rejoinder vide affidavit dated 13.8.2020 and submitted as under:

- a) NHPC has provided the detailed calculation for calculating shortfall in energy beyond the control of the generating station based on the Daily Discharge available and SLDC reports for each month along with the original petition which are necessary to substantiate the claim of the petitioner. Further, the petitioner has also submitted Daily Generation Report for the days for which shortfall in energy has been claimed along in its ROP compliance.
- b) Regarding certification of daily discharge data from CEA/CWC, it is submitted that NHPC had requested CEA/CWC to certify actual inflows of TLDP-IV Power Station for FY 2014-15 and FY 2015-16. CWC vide letter dated 23.01.2017 has shown its inability to certify the inflow series as requested.



- c) The Transmission lines are under the control of WBSETCL. As a practice there is proper coordination between TLDP-IV Power Station and WBSETCL and during tripping of Transmission Line, WBSETCL is pursued for early restoration of lines to avoid generation loss, if any.
- d) It is pertinent to mention here that loss due to transmission constraint has been considered 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.
- e) The Respondent has categorically accepted the need for silt flushing in hydro power station during monsoon season. WBSEDCL has clearly misconceived the clause of DPR that the silt flushing has been factored by NHPC. However, the DPR clearly stipulates about the requirement of desilting arrangement and the requirement of Silt Flushing during Monsoon season.
- f) Further, it is worth mentioning that present shortfall petition is related to loss of generation with respect to design energy of the power station. The design energy is determined on 10 daily basis, based on discharge data in 90% dependable year with 95% machine availability. The Design Energy is directly not linked with design of project structure for spillage or de-silting arrangement. More importantly, in the design energy calculation by CEA, no impact of loss in generation due to silt flushing is taken into consideration.
- g) In view of above, the quoted lines of DPR are not relevant for analyzing the generation loss, therefore, the submissions of WBSEDCL and references of the



decisions of the Hon'ble Supreme Court are not logical and are not relevant to the present case.

- h) WBSEDCL has calculated the percentage of flow used for silt flushing based on the generation in TLDP-IV during the day on which silt flushing was carried out. Based on the analysis of WBSEDCL, it can be seen that WBSEDCL has completely misunderstood the procedure of silt flushing. As per the calculation of WBSEDCL, it can be understood that WBSEDCL has calculated the percentage of flow used for silt flushing based on the assumption that NHPC has generated the power during the procedure of Silt Flushing. During Silt Flushing Operation, power house has to be under complete shutdown and intake gates are closed and complete inflow of the water is spilled through spillway gates for carrying out silt flushing. The generation during the day of Silt Flushing is either prior to the start of Silt Flushing Operation or after completion of Silt flushing operation. This can clearly be seen from the Daily Generation Report submitted by the petitioner in Compliance of ROP.
- i) Further, Respondent WBSEDCL has submitted that NHPC has not provided any data regarding discharge requirements during silt flushing. In this regard, petitioner would like to submit that as per NHPC Reservoir Operation Manual of TLDP-IV, the generating station has to carry out flushing of reservoir whenever the discharge exceeds 1500 cumec in the month of June and September and 2500 cumec in the month of July and August. However, if the discharge does not exceeds above discharge levels, the reservoir flushing shall be carried out on the last day of respective months. Further, the minimum period between two



successive flushing has been worked out as ten days depending upon the statistics of the base period 2001 to 2012. However, if a flood of the magnitude of 3750 cumec occurs even within ten days of sediment flushing, the fresh sediment flushing operation should be conducted. Also, whenever the discharge exceeds 1500 cumec in the month of May and October the flushing shall be resorted to in these months as well.

- j) In TLDP-IV during FY 2018-19, the discharge during the month of June did not exceed 1500 cumec and in the month of July and August did not exceed 2500 cumec, therefore in line with Reservoir Operation Manual, silt flushing was carried out on the last day of month of June and July and just at the start of September i.e. from 02.09.2018 to 04.09.2018. Further, the discharge in month of September exceeded 1500 cumec (the required discharge level for reservoir flushing) on 10.09.2018 till 16.09.2018. However, as the minimum period between two successive flushing is 10 days except in case of situation of flood reservoir flushing was not carried out at that time and therefore was carried out on the last day of September
- k) Further, in the Daily Generation Report submitted by the Petitioner in the ROP compliance, it can be seen that on the day of silt flushing all the machines were available in all readiness during silt flushing operation and the only reason the machines were not operated is only because of Silt Flushing, which was beyond the control of generating station.



**Hearing dated 18.6.2020:**

11. The Petition was admitted during hearing held on 18.6.2020. The Commission directed the Petitioner to file the following information:

- (a) Design Energy calculation (in MS Excel) as approved by CEA;
- (b) Methodology for calculating daily maximum possible generation during the financial year 2018-19 as claimed in the Petition (in MS Excel);
- (c) Planned/Forced Outages certified by CEA/NRLDC and its correlation with generation data vis-a-vis available average inflows during the period of outages;
- (d) Daily generation report for the days for which energy shortfall has been claimed due to planned/forced outages, reservoir silt flushing and transmission constraints, etc.;
- (e) Day-wise details of scheduled energy, actual energy injected in the grid and energy accounted for in DSM along with the revenue earned from the DSM for such energy; and
- (f) Any other relevant information/document to justify the claims in the Petition.

The Petitioner, vide its affidavit dated 15.7.2020 above information except for data pertaining to Planned/Forced Outages certified by CEA/NRLDC and its correlation with generation data vis-a-vis available average inflows during the period of outages. Petitioner requested that it would submit certified data of Planned/ forced outages once it receives the same from WBSLDC.

**Hearing dated 27.9.2022:**

12. The matter was again heard on 27.9.2022. The Commission directed the Petitioner to file the following information:

- (a) Actual inflow data to be certified by CWC;
- (b) Status of certified data of planned and forced outages from WBSLDC;



(c) Update the Petition based on Design Energy of 717.717 MUs as allowed by the Commission;

13. The Petitioner, vide its affidavit dated 14.10.2022 has submitted above information except for actual flow data certified by CWC. The inflow data submitted by the Petitioner has been considered for further analysis.

### **Analysis and Decision**

14. The present application is filed under Regulation-31(6)(a) of CERC (Terms and Conditions of Tariff) Regulations, 2014, read with Regulation 44(8) and 44(7) of CERC (Terms and Conditions of Tariff) Regulation, 2019) is for recovery of short fall in energy charges due to shortfall in generation. The relevant provisions of Regulation 31 of CERC Tariff Regulations, 2014, is reproduced below:

*“31(6) In case the **actual total energy generated** by a hydro generating station during a 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.”*

15. As per Regulation 44(8) and 44 (7) of CERC (Terms and Conditions of Tariff) Regulation 2019, the recovery mechanism for shortfall in energy charges pertaining to



the tariff period 2014-19 (un-recovered portion) has been modified and is reproduced as under:

**Regulation 44(8)**

*“Any shortfall in the energy charges on account of saleable scheduled energy (ex-bus) being less than the saleable design energy (ex-bus) **during the tariff period 2014-19 which was beyond the control of the generating station and which could not be recovered during the said tariff period shall be recovered in accordance with clause (7) of this Regulation.**”*

**Regulation 44(7)**

*“Shortfall in energy charges in comparison to fifty percent of the annual fixed cost shall be **allowed to be recovered in six equal monthly instalments:**  
.....”*

16. The Petitioner, vide affidavit dated 14.10.2022 has submitted the following table indicating month wise details with respect to energy shortfall during the FY2018-19:

<b>S. No.</b>	<b>Month</b>	<b>Design Energy (MU)</b>	<b>Actual Generation at GT (MU)</b>	<b>Shortfall/ Excess (MU)</b>
<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5=4-3</b>
1	Apr-18	36.42	28.96	-7.46
2	May-18	56.06	62.28	6.22
3	Jun-18	76.66	94.08	17.42
4	Jul-18	113.09	115.90	2.81
5	Aug-18	111.43	116.70	5.27
6	Sep-18	107.33	103.25	-4.08
7	Oct-18	85.27	69.38	-15.89
8	Nov-18	35.26	35.85	0.59
9	Dec-18	27.77	23.82	-3.95
10	Jan-19	22.14	17.63	-4.51
11	Feb-19	22.83	16.32	-6.51
12	Mar-19	23.46	24.23	0.77
<b>Total</b>		<b>717.72</b>	<b>708.41</b>	<b>-9.30</b>

17. The generating station has four units of 40 MW each. As per submission of the Petitioner, design energy is 717.72 MUs and actual generation during 2018-19 is 708.41



MUs. There is a total shortfall of (-) 9.30 MUs (708.41 MUs-717.72 MUs) in generation during 2018-19. The reasons for shortfall of (-)9.30 MUs as reported are as under:

<b>A. Shortfall due to reasons beyond the control of petitioner</b>	
Energy shortfall due to less inflow from design inflow on some days	-41.87 MUs
Energy generated due to excess inflow from design inflow on some days	57.30 MUs
Energy loss due to reservoir flushing	-29.61 MUs
Transmission constraint	-0.14 MUs
<b>Total (A)</b>	<b>-14.32 MUs</b>
<b>B. Shortfall due to reasons within the control of petitioner</b>	
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:	
Energy generated by depleting reservoir level on some days	4.04 MUs
Less generation for increasing reservoir level on some days	-7.29 MUs
Other constraint (Partial load/ramping up/down during peaking/ high inflow/ TRT level etc.)	-2.70 MUs
Excess generation beyond full capacity	10.97 MUs
<b>Total (B)</b>	<b>5.02 MUs</b>
<b>Grand Total (A+B)</b>	<b>-9.30 MUs</b>

18. The petitioner has submitted daily data (365 days) of 2018-19 with details of actual inflow, daily design flow, actual generation, maximum possible generation, daily design energy, reasons for shortfall, etc. On scrutiny of the daily inflow data, corresponding maximum possible generation, actual energy generated, rainfall data, reasons of shortfall beyond and within the control of the Petitioner, corresponding quantum of energy shortfall beyond and within the control of the Petitioner, we have following observations:





- a) Though inflow data has not been vetted by the CEA/CWC, the rainfall data as per IMD reports, indicates low rainfall in comparison to long period averages. As such, we have considered the inflow data submitted by the Petitioner for further analysis.
- b) To demonstrate the energy potential of the actual inflows during the year 2018-19, the Petitioner has calculated the maximum possible generation of 736.28 MUs. The Petitioner in its reply to the ROP of the hearing dated 18.6.2020 has submitted that *'Maximum possible generation has been restricted to 95% in Monsoon period in line with calculation of Design Energy. 95% machine availability is considered for calculating Max generation when actual flow is more than design flow, while in lean season, the concept of 95% machine availability is not taken in to consideration as spillage of water is not likely. This philosophy is based on the way design energy is calculated by CEA'*.
- c) However, it is observed from the Design Energy calculations of CEA that varying heads ranging from 24.36 m to 25.05 m have been used corresponding to varying design inflows ranging from 126.22 cumecs to 967.24 cumecs. As such, to capture the impact of the varying head, the following formulae has been used to calculate the maximum possible generation at corresponding to actual inflows available during each day of 2018-19:
- Maximum possible generation at generator terminal (GT) for a day =**  
Design energy for the day x Actual inflow (cumecs)x /Design Inflow (restricted to 95% of design discharge)
- d) The above derived value of maximum possible generation is subject to ceiling of 3.65 MUs (160MWx24x0.95/1000) where 160 is installed capacity of the



generating station in MW and 0.95 is to account for the machine available used for calculation of design energy during peak season. Summation of 365 such derived values represents the maximum possible generation for the year.

- e) Following the above methodology, the annual maximum possible generation for the year 2018-19 corresponding to actual inflows has been assessed at 714.06 MUs against the value of 736.28 MUs as calculated by the Petitioner. The reason for difference is due to the fact that the Petitioner in its calculation has not restricted the maximum possible generation value to 3.65 MUs. Accordingly, as per our calculation, the energy shortfall of (-) 3.65 MUs between the maximum possible generation (714.06 MU) and design energy (717.72 MU), represents shortfall due to less inflows and we, thus, hold that the same was beyond the control of the Petitioner.
- f) With regard to energy short fall of (-)29.61 MUs due to reservoir flushing as claimed by the Petitioner, it has been held by the Commission in number of similar Petitions that the same is beyond the control of the Petitioner as generation needs to be stopped for reservoir flushing to avoid turbine damage as and when the silt level reaches beyond the permissible limits. However, it is observed that the Petitioner has calculated the above claimed with respect to design energy, whereas in our calculation we have calculated this shortfall to be (-)30.94 MUs which is corresponding to the maximum possible generation based on actual flow available. Accordingly, we hold that energy short fall of (-) 30.94 MUs was beyond the control of the Petitioner.



- g) With regard to energy shortfall of (-) 0.14 MUs due to transmission constraint. The Petitioner has submitted support documents for the same. Commission in number of similar Petitions considered reason the same is beyond the control of the Petitioner as generation needs to be stopped for reservoir. However, it is observed that the Petitioner has calculated the above claimed with respected to design energy, whereas in our calculation we have calculated this shortfall to be (-) 0.18 MUs which is corresponding to the maximum possible generation based on actual flow available. Accordingly, we hold that energy short fall of (-) 0.18 MUs was beyond the control of the Petitioner.
- h) Net Energy shortfall of (-) 3.25 MUs as claimed by the Petitioner due to managing reservoir level (for grid requirements) has been rightly placed by the Petitioner under the head of “Energy shortfall with in the control of the Petitioner”. However, the same has been found to be (+) 2.38 MUs. Accordingly, we allow the same.
- i) Energy shortfall of (-) 2.70 MUs claimed on account of “Other constraint”, has been rightly placed by the Petitioner under the head of “Shortfall due to reasons within the control of petitioner”. However, the same has been found to be (+) 0.69 MUs. Accordingly, we allow the same.
- j) Further, with regard to 74 days, when there was an excess Generation of (+) 10.97 MUs (as per the Petitioner) beyond design energy i.e., the energy generated by the Petitioner during peak season by utilizing the machine capacity over and above 95% of the installed capacity, it has been worked out as (+)23.08 MUs for 102 days and the same has been considered for further calculations of energy shortfall. It is noticed that during these 102 days, the design energy was 353.49 MUs based on



design flow, the maximum possible generation during these days based on actual flows would have been 372.10 MUs (restricted to design energy parameters), whereas the actual generation achieved by the Petitioner during these days is 395.18 MUs. As such, it is clear that there is excess energy generation to the tune of (+) 23.08 MUs (395.18 MUs – 372.10 MUs) using capacity beyond 95%.

Further, it is observed that Petitioner has placed this energy generated by using capacity beyond 95% under the head of “Shortfall due to reasons within the control of petitioner”. However, we are not in agreement with the placement of the same under this category. Actual inflow is a factor beyond the control of the Petitioner and such quantum of generation is only possible if actual inflows are more than the design inflow required for generation corresponding to 95% of installed capacity. It is to bring out that in some of the recent petitions the Petitioner has started accounted this energy under “Shortfall due to reasons within the control of petitioner”. In other Petitions filed by the Petitioner for recovery of energy charge shortfall for the period 2009-14 and 2014-19, the Petitioner itself used to place this energy generated by using machine capacity over 95% under the head “Energy generated due to excess inflow from design inflow” which together with “Energy shortfall due to less inflow from design inflow” were placed under category of “Shortfall due to reasons beyond the control of petitioner” as the actual inflows are beyond the control of the Petitioner. Commission also while dealing with the petitions of the Petitioner as well as other generating companies for the period 2009-14 and 2014-19 has always considered such energy generated under the head of ‘Shortfall due to reasons beyond the control of petitioner’.



k) Accordingly, in consideration of above findings, the energy shortfall table has been revised as under

<b>A. Shortfall due to reasons beyond the control of petitioner</b>	
Energy shortfall due to less inflow w.r.t design inflow (a)	(-)47.37 MUs
Excess Energy generated due to excess inflow w.r.t design inflow and upto 95% of Installed Capacity (b)	(+) 43.71 MUs
Net energy shortfall (c)=(a)-(b)	(-)3.66 MUs
Excess Generation beyond design energy by use of capacity beyond 95% of installed capacity due to excess inflow from design inflow (d)	(+)23.08 MUs
Reservoir flushing (e)	(-)30.94 MUs
Transmission constraint (f)	(-)0.18 MUs
<b>Total (A) =(c)+(d)+(e)+(f)</b>	<b>(-)11.70 MUs</b>
<b>B. Shortfall due to reasons within the control of petitioner</b>	
Energy generated by depleting reservoir level on some days (a)	(+)6.34 MUs
Less generation by increasing reservoir level on some days (b)	(-)4.65 MUs
Net generation due to managing reservoir level (for grid requirements) (c)=(a)+(b)	(+)1.69 MUs
Other constraint (Partial load / ramping up/down during peaking / high inflow / TRT level etc.) (d)	(+)0.69 MUs
<b>Total (B) =(c)+(d)</b>	<b>(+)2.38 MUs</b>
<b>Grand Total (A+B)</b>	<b>(-)9.32 MUs</b>

19. Accordingly, Commission is of the view that there was generation shortfall of (-) 11.70 MUs which was beyond the control of the Petitioner. Further the Petitioner has been able to generate additional energy of 2.38 MUs on account of reasons within its control. Therefore, the net shortfall reduces to (-)9.32 MUs. As the Petitioner has claimed shortfall of (-) 9.30 MUs as such, the same is allowed.

20. The Petitioner in reply to the ROP of the hearing dated 15.7.2020 has submitted that 14.19 MUs has been accounted for in DSM and corresponding revenue earned from



DSM is Rs. 488.81 Lakh. It is to mention that generating stations are required to provide support to the grid and for that purpose, payments for energy supplied is accounted for under provisions of the 2014 DSM Regulations. Also, often the support to the grid is through governor mode operation and is beyond control of the Petitioner. Therefore, in case the revenue received under provisions of the 2014 DSM Regulations is less than the amount that would have been received had the same energy been supplied to the beneficiaries, the generator should not be adversely affected. Thus, with a view to balance the interest of the generator as well as the beneficiaries, it would be prudent to calculate the energy charge shortfall by adjusting lower of:

- a) the actual revenue earned by the generating station through DSM in the financial year (for which shortfall is claimed) and
- b) the amount that would have been paid by the beneficiaries had the same energy been scheduled and received by the beneficiaries in that financial year.

21. In the instant case, the Petitioner has been able to generate revenue to the tune of Rs. 488.81 Lakh for the energy accounted for in DSM i.e 14.19 MU. On the other hand, if this energy (14.19 MU) would have been scheduled to the beneficiaries, the scheduled energy would have increased to 701.35 (= 687.16+14.19) MUs and the energy charge shortfall of the generating station would have reduced in comparison to the claimed energy charge shortfall of Rs.3.63 crore. The following table captures the claim of the Petitioner and reduction in energy charge shortfall after adding the energy accounted for in DSM in the actually scheduled energy:



As claimed by the Petitioner based on actually scheduled energy	Schedule Energy (Ex-Bus) (MUs)	Free Energy/LADF (MUs)	Net Energy Billed (MUs)	ECR (₹/Unit)	Allowed Energy Charges (crore)	Energy Charges actually recovered (crore)	Energy charge shortfall (crore)
	1	2	3=1-2	4	5	6=3x4/10	7=6-5
	687.16	6.87	680.29	1.444	101.86	98.23	-3.63
As modified by adding the DSM energy in the actually scheduled energy	Modified Schedule Energy (Ex-Bus) (MUs)	Free Energy (LADF) (MUs)	Modified Net Energy Billed (MUs)	ECR (allowed as per order) (₹/Unit)	Allowed Energy Charges (as per order) (crore)	Energy Charges recovered considering energy accounted under DSM to be scheduled (crore)	Energy Revised charge shortfall (crore)
	1	2	3=1-2	4	5	6=3x4/10	7=6-5
	701.35 (687.16+14.19)	7.01 (1% LADF)	694.33	1.444	101.86	100.26	-1.60

22. Further, the Petitioner has claimed total energy charge shortfall of Rs. 3.63 crore for total energy shortfall of (-) 9.30 MUs. Since the energy charge accounted for the energy supplied under DSM i.e. Rs.2.03 crore (= 100.26-98.23) is on lower side as compared to revenue earned from the DSM pool (Rs.4.89 crore), the actual shortfall of energy charges of Rs.3.63 crore reduces to Rs. 1.60 (=3.63-2.03) crore. Accordingly, the energy charge allowed to be recovered in the FY 2019-20 due to shortfall in energy generation from the Design Energy during 2018-19 has been calculated as under:

Total Shortfall in generation during FY 2018-19 (MUs) claimed by the petitioner	A	9.30
Actual under-recovery of energy charges during FY 2018-19 (Rs. crore) claimed by the petitioner	B	3.63
Total under-recovery of energy charges during FY 2018-19 after accounting for the revenue earned through DSM	C	1.60 (=3.63-2.03)



(in Rs. crore) (para 22)		
Shortfall in generation due to reasons beyond control (MUs) considered by Commission (para 19)	D	9.30
Shortfall in energy charges allowed to be recovered during FY 2018-19 in this order (Rs. crore)	$E=C*D/A$	1.60

23. In this regard, it is observed that the shortfall year is 2018-19 and the immediate recovery year i.e. 2019-20 fall in the tariff period 2019-24. Accordingly, in terms of Regulation 44(7) & 44(8) of the 2019 Tariff Regulations, we allow the energy charge shortfall of Rs. 1.60 crore for the period 2018-19 to be recovered by the Petitioner in six equal monthly interest free instalments. Further, the difference in energy charge shortfall to be recovered for the year 2018-19 which may arise after the true-up of tariff for the period 2014-19 shall be adjusted directly by the generating station from beneficiaries through supplementary bills.

24. Petition No. 412/MP/2019 is disposed of in terms of above.

Sd/-  
**(P. K. Singh)**  
Member

Sd/-  
**(Arun Goyal)**  
Member

Sd/-  
**(I. S. Jha)**  
Member

