

**CENTRAL ELECTRICITY REGULATORY COMMISSION
New Delhi**

Petition No.295/MP/2019

Coram:

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

Date of Order: 31st August, 2023

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 the FY 2018-19 in respect of Chamera-III Power Station.

And

In the matter of

NHPC Limited,
(A Govt. of India Enterprise)
NHPC Office Complex, Sector-33,
Faridabad (Haryana) - 121003.

.....**Petitioner**

Versus

1. The Chairman,
Punjab State Power Corporation Ltd.,
The Mall, Near Kali Badi Mandir,
Patiala-147001 (Punjab).
2. The Chairman,
Haryana Power Purchase Centre (HPPC),
Shakti Bhawan , Sector-6,
Panchkula-134109 (Haryana).
3. The Chairman,
Uttar Pradesh Power Corporation Ltd.,
Shakti Bhawan, 14-Ashok Marg,
Lucknow-226001 (Uttar Pradesh).
4. The Chief Engineer & Secretary,
Engineering Dept. 1st Floor,
UT Chandigarh, Sector-9 D,
Chandigarh-160009.



5. The Chief Executive Officer,
BSES Rajdhani Power Ltd., BSES Bhawan,
Nehru Place, New Delhi-110019.
6. The Chief Executive Officer,
BSES Yamuna Power Ltd.,
Shakti Kiran Building,
Karkadooma, Delhi-110072
7. The Chief Operating Officer,
Tata Power Delhi Distribution Ltd.
(A Tata Power and Delhi Govt. Joint Venture)
Erst While North Delhi Power Ltd.,
Grid Sub-station Building,
Hudson Lines, Kingsway Camp, Delhi-110009.
8. The Chairman-Cum-Managing Director,
Uttaranchal Power Corporation Ltd., Urja Bhawan,
Kanwali Road, Dehradun - 248 001 (Uttrakhand).
9. The Managing Director,
Jaipur Vidyut Vitaran Nigam Ltd. (JVVNL) ,
Vidyut Bhawan, Janpath, Jyoti Nagar,
Jaipur-302005 (Rajasthan).
10. The Managing Director,
Ajmer Vidyut Vitaran Nigam Ltd.
Old Power House, Hatthi Bhatta,
Jaipur Road, Ajmer - 305 001 (Rajasthan).
11. The Managing Director,
Jodhpur Vidyut Vitaran Nigam Ltd., New Power House,
Industrial Area, Jodhpur - 342 003(Rajasthan).
12. The Principal Secretary,
Power Development Department,
New Secretariat Jammu(J&K)-180001.
13. The Chairman,
Himachal Pradesh State Electricity Board,
Vidyut Bhawan, Kumar House ,
Shimla - 171 004 (Himachal Pradesh)

.....**Respondents**

Parties Present:

Shri Ravi Shankar Dvivedi, Advocate, NHPC
Shri Sushant Sarkar, Advocate, NHPC
Shri Anand Ganesan, Advocate, PSPCL
Shri Amal Nair, Advocate, PSPCL



Shri Sachin Dubey, Advocate, BRPL
Shri S. K. Meena, NHPC
Shri Aman Mahajan, NHPC

ORDER

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

- a) *Hon'ble Commission may kindly allow recovery of energy charges amounting to Rs 14.26 Crs in FY 2019-20 against the shortfall in generation of 54.97 MUs in FY 2018-19 as per regulation 31(6) of CERC (Terms and Conditions of Tariff) Regulation 2014, as explained in para-XI.*
- b) *To allow revision of energy bills for the period 2019-20 which were already raised to beneficiary for recovery of energy charges.*
- c) *To allow issuance of supplementary bill for recovery of shortfall in energy charges directly from beneficiaries as per tariff allowed in order dated 29.01.2020 in petition no 321/GT/2018 and after determination of final truing up 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/ Submissions of the Petitioner

2. Chamera-III Power Station (hereinafter referred to as the generating station) located in the State of Himachal Pradesh having installed capacity of 231 MW which comprises of three units of 77 MW each. The generating station was declared under commercial operation on 4.7.2012. The approved annual Design Energy (DE) of the generating station is 1108.17 MUs and keeping in view the provision of auxiliary losses (1.2%), LADF (1%) and Free Power to the home state (12%), the saleable energy works out to be 952.54 MU.

3. The Petitioner in amended petition filed on 21.7.2020 has submitted as under:



(a) The present petition has been filed by NHPC for recovery of under-recovered energy charges in FY 2018-19 due to shortfall in energy generation. The Design Energy of the generating station is 1108.17 MUs and actual generation during 2018-19 is 1043.39 MUs. As such, total shortfall in generation during 2018-19 is 64.79 MUs (1108.17 MUs– 1043.39 MUs). Out of the total shortfall of 64.79 MU, shortfall of 54.97 MUs was beyond the control of Petitioner while balance shortfall of 9.82 MUs was within the control of the Petitioner. Hence, as per Regulation 31(6)(a) of the 2014 Tariff Regulations, the shortfall of 54.97 MUs needs to be recovered by the Petitioner during FY 2019-20.

(b) The present submission for recovery of energy charges for the FY 2018-19 is based on the energy charge allowed for the FY 2013-14 vide order dated 24.03.2015 in petition no. 26/GT/2013. As out of the total loss of 64.9 MU, the loss of 9.82 MUs was not uncontrollable, shortfall of energy charges amounting to Rs. 14.26 crore corresponding to 54.97 MUs only may be allowed, which was due to reasons beyond the control of the Petitioner.

(c) 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 Rs. 14.92 crore against allowed recovery of Rs. 19.04 crore. The above situation is applicable in the instant case also.

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



Hearings of the matter

4. The matter was heard on 7.7.2020 and the Commission after hearing the learned counsels for the Petitioner and the Respondent, BRPL, directed the Petitioner to file the amended petition.

5. The Petitioner vide affidavit dated 21.7.2020 filed amended petition. The same was heard on 30.6.2022 and the Commission after hearing the parties directed the Petitioner to submit additional information as under:

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

6. In compliance with the above directions, the Petitioner has submitted the additional information and has served the copies of the same to the respondents.

Reply of UPPCL, Respondent No. 4

7. In response to above, the Respondent No. 3, UPPCL vide its affidavits dated 23.3.2019 and 7.8.2020, has submitted as under:

(a) The Commission may base the instant case on that of Tehri HEP where the prayer of THDC (the Petitioner therein) to reduce NAPAF from 77% to 74.408% on account of conditions beyond control for period 17.12.2010 to 28.01.2011 was dismissed by the Commission vide order dated 11.12.2013 in petition no. 220/MP/2011.

(b) The Petitioner may clarify the method and reasons for classification of controllable and uncontrollable factors and also why silt flushing has been considered as an uncontrollable factor.

Rejoinder of the Petitioner to reply of UPPCL

8. In response to the Respondent UPPCL, NHPC vide its affidavits dated 18.11.2019 and 19.8.2020 has submitted as under:



(a) The claim of the Respondent to take into consideration the case of Tehri HEP in this case is irrelevant as the case of Tehri HEP was for relaxation of NAPAF whereas the present petition is for recovery of shortfall of energy charges.

(b) The method and reasons of classification of controllable and uncontrollable factors has suitably been mentioned in the petition and the loss of generation has also been categorically separated. The loss of energy due to silt flushing has been defined as uncontrollable factor because the petitioner has no control over high flow of silt in rainy season and flushing action is the subsequent compulsion.

Reply of Respondent No. 5, BSES Raidhani Power Limited (BRPL)

9. The Respondent BRPL vide its affidavit dated 22.7.2022 has submitted as under:

(a) Recoupment of under-recovered energy charges due to shortfall in energy generation and also the treatment by way of modification in the Design Energy for the year following the year of energy shortfall amounts to double benefits.

(b) Perusal of Annexure-II of the petition related to the analysis on daily flows shows that the data is of the Petitioner and has not been vetted by an independent agency. This Annexure also shows that during the months of May 2018 to October 2018 and January 2019 & March, 2019, there have been huge spillage which has not been managed and if this spillage had been managed properly it would have resulted in extra generation.

(c) The contention of the Petitioner for recoupment of under-recovered energy charges due to shortfall in energy generation directly without any modification of DE by issuance of the supplementary bill, is misconceived and the same is without any basis and is liable to be rejected by the Hon'ble Commission.



Rejoinder of NHPC to reply of BRPL

10. In response to the respondent BRPL, NHPC vide its affidavit dated 8.8.2022 has submitted as under:

(a) The annual fixed charges allowed by CERC for the power stations comprises of return on equity and expenses (i.e. interest on loan, depreciation, interest on working capital & O&M expenses) which are allowed to be recovered as capacity charges (50% of AFC) and energy charges (50% of AFC). Energy charges component of AFC is to be recovered as per scheduled energy for the power station. Therefore, the under-recovery of energy charges is under-recovery of legitimate expenses (part of AFC) of the power station.

(b) The petitioner has analyzed the shortfall on daily basis and reasons for shortfall bifurcated in “beyond the control of generating station” and within the control of generating station”. Spillage is bound to happen whenever the inflow is higher than the design discharge and the reservoir capacity, especially during monsoon period. Inflow in the river can be utilized only upto the maximum capacity of the machines (i.e. including overload capability) and the excess water will result in spillage. This is inherent characteristic for operation of hydro generating stations.

(c) The present petition is 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, which falls under CERC Tariff Regulations, 2014. There is mechanism provided for allowing recoupment of under-recovered energy charges due to reasons beyond the control of generating station under Regulation 31(6). The energy charges, to be allowed by CERC in the present petition, shall be recovered in the next tariff period. The regulations 44(7) & 44(8) of CERC Tariff Regulations 2019 deals with the unrecovered energy charges of previous tariff period (i.e. 2014-19).

Reply of PSPCL, Respondent No. 1

11. The Respondent No. 1, PSPCL vide its affidavit dated 29.1.2021 has submitted as under:



(a) From a bare perusal of the table at Para VII it can be seen that the Actual Generation from its plant is 1043.39 MUs however, if the same is juxtaposed with the table at Para IX it is observed that the Schedule Energy (Ex-Bus) is 1004.05 MUs. Thus, there appears to be difference of 39.34 MUs which has not been disclosed by the Petitioner. The answering Respondent has reasons to believe that the same maybe be accounted for in the DSM accounting and that the Petitioner may have benefited from the same.

(b) The Petitioner has claimed for recovery on account of shortfall in generation for 54.97 MUs while stating that the same is on account of reasons which were beyond the control of the Petitioner. However, the Petitioner has not provided any details as to what were the reasons which were beyond the control of the Petitioner. Reasons given by the Petitioner for shortfall in generation such as silt flushing and less inflow from design inflow, are vague. The Petitioner has produced no documentary evidence for any of the aspects raised by it.

(b) The actual inflow cannot always be the same as the design inflow. On some days the actual inflow will be less and on other days, it will be more than the design inflow. The Petitioner cannot possibly ask for recovery of energy charges on account of loss of generation every time the actual inflow is less than the design inflow. As a hydropower generator, the Petitioner ought to be aware that the quantum of inflow is not constant. This is not an unforeseen event at all or an event beyond the control of the Petitioner. The Petitioner being in the business of generation of hydropower ought to have been aware of this. Therefore, the Petitioner has no basis for claiming relief by citing the loss of generation on account of less inflow.

(c) Regulation 31(6) of the 2014 Tariff Regulations specifically states that the treatment under Regulation 31(6)(a) shall be applied only when the total energy generated is less than the design energy due to reasons beyond the control of the hydro generating station. The reasons furnished by the Petitioner cannot be said to be 'beyond the control' of the Petitioner. The Petitioner could have made arrangements to deal with the aspect of silt flushing. As regards less inflow, this is a common event for a hydropower generator and, therefore, it is



not something that the Petitioner could not have foreseen at the time of designing the project.

(d) The Petitioner has placed on record the letter dated 23.01.2017 of the Central Water Commission (“CWC”), whereby CWC has expressed its inability to certify the inflow series on year to year basis. Therefore, the CWC has taken the position that the hydrological uncertainties are part of the planning process and are to the account of the generator. By no stretch of imagination is the letter dated 23.01.2017 a proof of the Petitioner’s claim that the recovery sought due to the shortfall in generation is for reasons beyond the control of the Petitioner. In fact, the letter states to the contrary.

Rejoinder of NHPC to reply of PSPCL

12. In response to the respondent PSPCL, NHPC vide its affidavit dated 8.8.2022 has submitted as under:

(a) The difference of 39.34 MUs is the difference between Actual Generation (at Generator Terminal) and Schedule Generation (ex-Bus) and hence cannot be compared. The difference between Actual Generation (ex-Bus) and Schedule Generation (ex-Bus) is 30.57 MUs and is the unscheduled generation to support the grid.

(b) The petitioner has claimed shortfall on account of less inflow than design inflow and silt flushing. These factors are beyond the control of the generating station.

(c) The 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. Whenever, the actual inflow is less than the design inflow, shortfall is bound to happen. Further, in the design energy calculation by CEA, no impact of loss in generation due to silt flushing is taken into consideration. Therefore, both the factors viz. less inflow and silt flushing are beyond the control of generating station and hence the petition in line with Regulation 31(6) has been submitted.



(d) As CWC expressed its inability to verify data in other power stations on year on year basis, NHPC did not approach CWC for verification of discharge data in the instant case. Further, the claim of the petitioner for recovery of energy charges due shortfall in energy for reasons beyond the control of generating station is based on the daily analysis submitted in the petition.

Reply of Rajasthan Discoms, Respondent No. 9,10 & 11.

13. The Respondent No. 1, Rajasthan Discoms vide its affidavit dated 2.12.2020 has submitted as under:

(a) Energy short fall due to within control of generation can't be claimed by Petitioner which is 9.82 MUs and data furnished by the Petitioner does not support the claim as the Petitioner is claiming recovery of unrecovered energy charges due to shortfall in energy generation due to Excess inflow beyond Design energy for the period 2018-19.

(b) It is submitted that the data given by petitioner M/s NHPC are not verified by any other independent authority or agency, which can support the claim of Petitioner. Therefore, these inadequate data given by Petitioner are completely unauthenticated and does not support the claim of petitioner. To make a transparency these Hydrological data given for less generation should be approved by third party or government approved Agencies.

(c) The detail as provided by petitioner in annexure II does not support the claim of petitioner. The data which has been shown in annexure II is quite unreasonable.

Rejoinder of NHPC to reply of Rajasthan Discoms

14. In response to the respondent Rajasthan Discoms, NHPC vide its affidavit dated 10.2.2021 has submitted as under:



(a) NHPC has kept the excess energy generated due to excess inflow under reasons beyond the control of generating station, which has in turn resulted in reduction of shortfall in energy due to reasons beyond the control of generating station.

(b) NHPC had requested CEA/CWC to certify actual inflows of TLDP-III 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 daily analysis provided in Annexure-II supports the claim of the petitioner and the data submitted by the petitioner is as per actual inflow measured at site based on reservoir level and discharge rating curve and on the basis of which shortfall in energy has been calculated.

15. Based on above and documents available on record, we now deal the claim of the Petitioner in the following paragraphs.

Analysis and Decision:

16. CERC (Terms and Conditions of Tariff) Regulations, 2014 provides for recovery of shortfall in energy charges for the reasons beyond the control of generating station during the tariff period 2014-19. As such, the present application {under regulation-31(6) of CERC (Terms and Conditions of Tariff) Regulations, 2014} is for recovery of short fall in energy charges due to shortfall in energy generation which is reproduced below:

“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 $100 / (100 - AUX)$.”

17. The Petitioner has submitted the following table indicating month wise details with respect to energy shortfall during the FY2018-19:

S. No.	Month	Design Energy (MUs)	Actual Generation at GT (MUs)	Shortfall/ Excess (MUs)
1	2	3	4	5=4-3
1	Apr-18	80.54	65.14	-15.40
2	May-18	155.31	121.02	-34.29
3	Jun-18	154.47	143.19	-11.28
4	Jul-18	161.89	168.13	6.24
5	Aug-18	163.27	164.86	1.59
6	Sep-18	119.78	119.45	-0.33
7	Oct-18	78.79	81.64	2.85
8	Nov-18	52.85	49.13	-3.72
9	Dec-18	38.05	28.38	-9.67
10	Jan-19	30.69	20.26	-10.43
11	Feb-19	24.75	34.01	9.26
12	Mar-19	47.78	48.16	0.38
Total		1108.17	1043.39	-64.79

18. As per submission of the Petitioner, design energy is 1108.17 MUs and actual generation during 2018-19 is 1043.39 MUs. There is a total shortfall of (-) 64.79 MUs



(1043.39 MU-1108.17 MU) in generation during 2018-19. The reasons for shortfall of

(-) 64.79 MUs as reported are as under:

A. Shortfall due to reasons beyond the control of petitioner	
Energy shortfall due to less inflow from design inflow on some days	-96.39 MUs
Energy generated due to excess inflow from design inflow on some days	+62.34 MUs
Energy loss due to Silt Flushing	-20.05 MUs
Energy loss due to High Trash	-0.87 MUs
Total (A)	-54.97 MUs
B. Shortfall due to reasons within the control of petitioner	
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	10.20 MUs
Less generation for increasing reservoir level on some days	-10.24 MUs
Unit Outage	-13.58 MUs
Other constraint (Partial load/ramping up/down during peaking/ high inflow/ TRT level etc.)	-8.85 MUs
Excess generation beyond full capacity	12.66 MUs
Total (B)	-9.82 MUs
Grand Total (A+B)	-64.79 MUs

19. The petitioner has submitted daily data (365 days) of 2018-19 for 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 1081.29 MUs considering design head of 200 meters, design discharge of 128.10 cumecs and 95% machine availability, overall efficiency of 92%, actual auxiliary consumption of 0.94%, average daily actual inflows and free energy to home state.
- c) However, in order to capture the impact of the varying head if any, the following formulae has been used to calculate the maximum possible generation 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) Following the above methodology, the annual maximum possible generation for the year 2018-19 corresponding to actual inflows has been assessed at 1086.18 MUs against the value of 1081.39 MUs as calculated by the Petitioner.
- e) The above derived value of maximum possible generation is subject to ceiling of 5.27 MUs ($231\text{MW} \times 24 \times 0.95 / 1000$) where 231 is installed capacity of the plant in MW and 0.95 is to account for the machine availability used for calculation of design energy during peak season. Summation of 365 such derived values represents the maximum possible generation of 1086.18 MUs for the year 2018-19.
- f) Accordingly, the energy shortfall of (-) 21.99 MUs between the maximum possible generation (1086.18 MUs) and design energy (1108.17 MUs), represents shortfall due to less inflows and we, thus, hold that the same was beyond the control of the Petitioner.



- g) With regard to energy short fall of (-) 20.05 MUs due to silt 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 silt flushing to avoid turbine damage as and when the silt level reaches beyond the permissible limits. Accordingly, we hold that energy short fall of (-) 20.05 MUs was beyond the control of the Petitioner.
- h) With regard to energy shortfall of (-) 0.87 MUs due to High Trash, 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 clearing the trash. Accordingly, we hold that energy short fall of (-) 0.87 MUs was beyond the control of the Petitioner.
- i) Net Energy shortfall of (-) 0.04 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”. Accordingly, we allow the same.
- j) Energy shortfall of (-) 13.58 MUs as claimed by the Petitioner due to unit outage is in order and has been rightly placed by the Petitioner under the head of “Energy shortfall with in the control of the Petitioner”. Accordingly, we allow the same.
- k) Energy shortfall of (-) 8.85 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”. Accordingly, we allow the same.
- l) Excess generation of (+)12.66 MUs during 87 days. With regard to 87 days, when there was an excess Generation of (+) 12.66 MUs (as per 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 (+)28.43 MUs and the same has been considered for further calculations of energy shortfall. It is noticed that during these 87 days, the design energy was 377.29 MUs based on design flow, the maximum possible generation during these days based on actual flows would have been 383.31 MUs (restricted to design energy parameters), whereas the actual generation achieved by the petitioner during these days is 411.74 MUs. As such, it is clear that there is excess energy generation to the tune of (+) 28.43 MUs (411.74 MUs -383.31 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'.

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

A. Shortfall due to reasons beyond the control of petitioner	
Energy shortfall due to less inflow w.r.t design inflow (a)	(-)85.93 MU
Excess Energy generated due to excess inflow w.r.t design inflow and upto 95% of Installed Capacity (b)	(+) 63.94 MU
Net energy shortfall (c)=(a)-(b)	(-)21.99 MU
Excess Energy generated using capacity beyond 95% (d)	(+)28.43 MU
Silt flushing (e)	(-)20.05 MU
High Trash (f)	(-)0.87 MU
Total (A) (g)=(c)+(d)+(e)+(f)	(-)14.48 MU
B. Shortfall due to reasons within the control of petitioner	
Other constraint (Partial load / ramping up/down during peaking / high inflow / TRT level etc.) (a)	(-)8.85 MU
Unit Outage (b)	(-)13.58 MU
Net generation due to managing reservoir level (for grid requirements) (c)	(-)0.04 MU
Other shortfall due to non-utilization of full potential of actual flows during the year (-64.79+14.48+8.85+.04+13.58) (d)	(-)27.84* MU
Total (B) (e)= (a)+(b)+(c)+(d)	(-)50.31MU
Grand Total (A+B)	(-)64.79 MU

* after accounting for all the reasons of shortfall listed in above table (beyond and within control of the Petitioner) the generation at generator terminal (GT) should have been 1071.22 MUs against design energy of 1108.17 Mus. As such, the further shortfall of (-) 27.84 MUs (1071.22-1043.39) represents shortfall due to non-utilization of full potential of actual flows during the year, which has been considered as shortfall within the control of the Petitioner.

21. Accordingly, Commission is of the view that out of total shortfall of (-) 64.79 MUs, the Petitioner needs to be compensated for shortfall of (-) 14.48 MUs which was beyond the control of the Petitioner.

22. The Petitioner in reply to the ROP of the hearing dated 27.9.2022 has submitted that 30.67 MUs has been accounted for in DSM and corresponding revenue earned from DSM is Rs. 896.70 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.

23. In the instant case, the Petitioner has been able to generate revenue to the tune of Rs. 896.70 Lakh for the energy accounted for in DSM i.e 30.67 MUs. On the other hand, if this energy (30.67 MUs) would have been scheduled to the beneficiaries, the scheduled energy would have increased to 1034.72 (= 1004.05+30.67) MUs and the energy charge shortfall of the generating station would have reduced in comparison to the claimed energy charge shortfall of Rs.14.26 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) (MU)	Free Energy (MU)	Net Energy Billed (MU)	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=5-6
	1004.05	130.53 (As per Regional Energy Account)	873.52	2.123	202.26	185.45	16.81
As modified by adding the DSM energy in the actually scheduled energy	Modified Schedule Energy (Ex-Bus) (MU)	Free Energy (As per norms) (MU)	Modified Net Energy Billed (MU)	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 charge shortfall (crore)
	1	2	3=1-2	4	5	6=3x4/10	7=5-6
	1034.72 (1004.05+30.67)	134.51 (12% free energy +1% LADF)	900.21	2.123	202.26	191.11	11.15

24. Further, out of actual total energy charge shortfall of Rs. 16.81 crore and total energy shortfall of 64.79 MUs, the Petitioner has claimed 14.26 crore and 54.97 MU, respectively. Since the energy charge accounted for in DSM i.e. Rs.5.66 crore (= 191.11-185.45) is on lower side as compared to revenue earned from the DSM pool (Rs.8.97 crore), the actual shortfall of energy charges of Rs.16.81 crore reduces to Rs. 11.15 (=16.81-5.66) 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)	A	64.79
Actual under-recovery of energy charges during FY 2018-19 (₹ crore)	B	16.81
Total under-recovery of energy charges during FY 2018-19 after accounting for the revenue which	C	11.15 (=16.81-5.66)



h would have been earned if the energy accounted under DSM would have been scheduled to the beneficiaries (in ₹ crore) (para 24)		
Shortfall in generation due to reasons beyond control (MUs) considered by Commission (para 21)	D	14.48
Shortfall in energy charges allowed to be recovered during FY 2018-19 in this order (₹ crore)	$E=C*D/A$	2.49

25. In terms of Regulations 31(6)(a) and 31(6)(c) of the 2014 Tariff Regulations, 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 and the same shall be treated on rolling basis. In this regard, it is to mention that, the shortfall in energy charge is claimed year in 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. 2.49 crore for the period 2018-19 shall be recovered by the Petitioner in six equal monthly 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.

26. Petition No. 295/MP/2019 is disposed of in terms of above.

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

**Sd/
(Arun Goyal)
Member**

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

