Central Electricity Regulatory Commission
New Delhi

Petition No.410/MP/2019

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

Date of Order: 7th June, 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 **Koldam Hydro Electric Power Station.**

And

In the matter of

NTPC Limited,
(A Govt. of India Enterprise)
Core-7, Institutional Area,
Lodhi Road, New Delhi. **……..Petitioner**

Vs

1. The Chairman,
Uttar Pradesh Power Corporation Limited,
Shakti Bhawan, 14-Ashok Marg,
Lucknow-226001 (Uttar Pradesh).

2. The Managing Director,
Jaipur Vidyut Vitaran Nigam Ltd. (JVVNL),
Vidyut Bhawan,
Janpath, Jyoti Nagar,
Jaipur-302005 (Rajasthan).

3. The Managing Director,
Ajmer Vidyut Vitaran Nigam Ltd. Old Power House,
Hatthi Bhatta, Jaipur Road,
Ajmer - 305 001 (Rajasthan).

4. The Managing Director,
Jodhpur Vidyut Vitaran Nigam Ltd., New Power House,
Industrial Area Jodhpur - 342 003(Rajasthan).

5. 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-I 10009.

6. The Chief Executive Officer,
BSES Yamuna Power Ltd.,
Shakti Kiran Building ,Karkadooma, Delhi-II 0072

7. The Chairman,
Haryana Power Utilities (UHBVNL & DHBVNL),
Shakti Bhawan, Sector-6, Panchkula-134109 (Haryana).

8. The Chairman,
Punjab State Power Corporation Ltd.,
The Mall, Near Kali Badi Mandir, Patiala-147001 (Punjab).

9. The Chairman,
Himachal Pradesh State Electricity Board, Vidyut Bhawan,
Kumar House, Shimla - 171 004 (Himachal Pradesh

10. The Principal Secretary,
Power Development Department, New Secretariat
Jammu (J&K)-180001.

11. The Chief Engineer & Secretary,
Engineering Dept. 1" Floor,
UT Chandigarh, Sector-9 D, Chandigarh-160009

12. The Chairman-Cum-Managing Director,
Uttaranchal Power Corporation Ltd., Urja Bhawan
Kanwali Road, Dehradun - 248 00 I (Uttrakhand). **…….Respondents**

Parties Present:

Shri A. S. Pandey, NTPC
Shri I Uppal, NTPC
Shri M.K Malviya, NTPC
Shri R.R. Surana, NTPC

ORDER

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

a) Hon'ble Commission may kindly allow recovery of energy charges amounting to Rs. 17.09 Crs in FY 2018-19 against the shortfall in generation of 72.47 MU in FY 2018-19in six equal monthly installments as per regulation 31(6)(a) of Tariff Regulations, 2014 read with Reg. 44(7) & (8) of CERC Tariff Regulations, 2019.

b) Hon'ble Commission may allow issuance of supplementary bill for recovery of balance shortfall in energy charges directly from beneficiaries after determination of final true up tariff.

c) Pass such other and further order / orders as are deemed fit and proper in the facts and circumstances of the case.

Background

2. The Petitioner, NTPC is owning and operating Koldam Hydro Electric Power Project having installed capacity of 800 MW comprising 4 units of 200 MW each (hereinafter referred to as Koldam H.E.P).

3. The power generated from this Power Station is being supplied to 13 Bulk Power Customers / Beneficiaries/Successor utilities in Northern Region, mentioned here in above as respondents.

4. Koldam H.E.P is under Commercial operation w.e.f. 18.07.2015. The Annual Design Energy (DE) of Koldam Power Station is 3054.79 MU and keeping in view the provision of 1% auxiliary power,1% LADF and 12% Free Power to home state, the saleable energy at ex-bus is 2631.09 MU.

Submissions of the Petitioner

5. The present application is for recovery of short fall in energy charges due to shortfall in generation for the period 2018-19 under Regulation-31(6)(a) of CERC (Terms and Conditions of Tariff) Regulations, 2014 which 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."*

6. As per Regulation 31(6) (a) of CERC Tariff Regulations, 2014, the Energy Charge Rate (ECR) for FY 2019-20 needs to be suitably modified for recovery of under recovered energy charges in FY 2018-19. However, FY 2019-20 happens to fall in the next control period i.e. 2019-24. Commission has issued CERC (Terms and Conditions of Tariff) Regulations, 2019 which came into force w.e.f. 01.04.2019. The applicable provisions of Tariff Regulations 2019 are reproduced below :

"44. Computation and Payment of Capacity Charge and Energy Charge for Hydro Generating Stations:

(6) In case the saleable scheduled energy (ex-bus) of a hydro generating station during a year is less than the saleable design energy (ex-bus) for reasons beyond the control of the generating station, the treatment shall be as per clause (7) of this Regulation, on an application filed by the generating company.

(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****: Provided that in case actual generation from a hydro generating station is less than the design energy for a continuous period of four years on account of hydrology factor, the generating station shall approach the Central Electricity Authority with relevant hydrology data for revision of design energy of the station.*

(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."***

7. In terms of above, any shortfall in the energy charges on account of shortfall of energy on account of saleable scheduled energy (ex-bus) being less than the saleable design energy (ex-bus) for reasons beyond the control of the generating station during the period 2018-19 is to be recovered in the FY 2019-20 in six equal monthly installments in current tariff period.

8. It is submitted that in Koldam H.E.P there was a shortfall of 72.47 MU during the period 2018-19 for the reasons beyond the control of the generating stations. The month wise breakup of Saleable Scheduled Energy, vis- a-vis Saleable Design Energy is tabulated below:

S. No.	Month	Saleable Design Energy (MU)	Saleable Scheduled Energy (MU)	Shortfall(-)/ Excess (MU)
1	**2**	**3**	**4**	**6=4-3**
1	Apr-18	204.74	90.84	-113.90

2	May-18	491.73	165.53	-326.20
3	Jun-18	351.32	393.54	42.22
4	Jul-18	553.21	577.23	24.02
5	Aug-18	589.25	636.21	46.96
6	Sep-18	291.45	418.13	126.68
7	Oct-18	131.18	184.93	53.76
8	Nov-18	82.98	118.11	35.12
9	Dec-18	75.13	88.99	13.86
10	Jan-19	75.13	81.43	6.29
11	Feb-19	67.86	90.73	22.87
12	Mar-19	110.27	106.12	-4.15
Total		**3024.25**	**2951.78**	**-72.47**

9. As mentioned above, Saleable Scheduled Energy during 2018-19 was 2951.78 MU against Saleable Design Energy of 3024.25 MU. There is a total shortfall of 72.47 MU (3024.25 MU - 2951.78 MU) in generation during 2018-19. The reasons for shortfall are mainly due to following reasons:

a. ***Beyond the control of the petitioner:*** *It is submitted that the loss of generation is mainly due less water inflow than the design inflow. Even though, the petitioner could generate more in case of excess flow than design, there total generation loss of 129.81 MUs due to less inflow.*

b. ***Scheduled Generation:*** *It is further submitted that in order to meet the grid demand the petitioner had to deplete the reservoir level with marginal increase in generation and at sometimes had to operate the machines at lower head. Subsequently, at appropriate time, the reservoir level has been maintained with less generation as per the schedule. The overall operation has generation gain of 57.34 Mus in this way.*

Due to the foresaid reasons, there was net generation loss of (-) 72.47 MU which is tabulated below:

(In MU)

A. Shortfall(-)/ Gain (+) due to reasons beyond the control of petitioner (MUs)	
a)Energy shortfall due to less inflow from design inflow	(-)513.19
b) Energy generated due to excess inflow from design inflow	(+)383.38

Total (A)	**(-)129.81**
B. Shortfall (-)/ Gain (+) due to Scheduling	
a) Energy generated by depleting reservoir level on some days	(+)159.46
b) Less generation for increasing reservoir level on some days	(-)102.12
Total (B)	**(+)57.34**
Grand Total (A+B)	**(-)72.47**

It is clear from the above that, out of total shortfall of 72.47 MU, the reasons for shortfall of 129.81 MU are beyond the control of petitioner i.e. due to less inflow of water, which has been compensated by an excess generation of 57.34MU. Therefore, generation shortfall of 72.47 MU needs to be allowed to be recovered during FY2019-20. Reasons for shortfall on daily basis are submitted in detail.

10. In view of above, the claim for recovery of energy charge is based on tariff allowed by the Commission for FY 2018-19 vide order dated 05.04.2018 in Petition no. 107/GT/2015. The present submission for recovery of shortfall in energy charge is based on energy charge allowed for the FY 2018-19 which is detailed as under:

Calculation of ECR (Rs/Unit)

Design Energy (as per CERC order dated 05.04.2018) = 3054.79 MU.
After deducting 1% Aux and 13% PAP power,
Net Saleable Energy = 2631.09 MUs.
Capacity Charges admitted for the year 2018-19 = Rs. 1310.38 Crs.
(as per CERC order dated 05.04.2018)
Energy Charges (50%) = Rs. 655.19 Crs.
Net Saleable Energy = Rs 2.490 per kWh (655.19 X 10/2631.09)

Schedule* Energy (Ex-Bus) (MU)	Free* Energy (MU)	Net Energy Billed (MU)	ECR (Rs/Unit)	Annual Fixed Charges * (Crs.)	Energy Charges to be recovered (Crs.)	Energy Charges actually recovered (Crs.)**	Under recovery of Energy Charges (Crs.)
1	2	3=1-2	4	5	6=50% of 5	7=3*4/10	8=7-6
2951.81	389.14	2562.67	2.490	1310.38	655.19	638.10	-17.09

**Schedule Energy & Free Energy are based on Regional Energy Account issued by NRPC*

11. Further, it is submitted that, after the issuance of the order in the instant petition energy charges as allowed by the Commission, would be recovered as per the relevant regulations and directions of the Commission. The Petitioner is in the process of filing up of true-up petition. It is prayed that subsequent to issuance of final true up tariff order for the FY 2014-19, the petitioner may be allowed to raise supplementary bill(s) for recovery of shortfall on the basis of revised energy charge of FY 2018-19.

12. It is clear from above table that Petitioner has recovered energy charges amounting to Rs. 638.10 Crs. corresponding to scheduled ex-bus energy of 2951.81 MU against allowed energy charges of Rs. 655.19 Crs. Hence there is an under recovery of energy charges of Rs. 17.09 Crs.

13. The matter was heard on 14.1.2020 and the Commission, after hearing the parties, admitted the petition. The Petitioner was directed to submit the following additional information:

(a) Data of average actual inflows for the Financial Year 2018-19 certified by CEA/CWC;

(b) Rainfall data for the concerned year as reported by IMD for the district in which plant was located and the adjoining districts;

(c) Reconciliation statement of billing for the concerned year indicating energy charges billed;

(d) Planned and forced machine outage data certified by CEA/NRLDC and its correlation with energy generation;

(e) Documents to validate the energy loss due to silt i.e. outage certified by CEA/NRLDC;

(f) Data of average actual inflows for the FY 2018-19 certified by CEA/CWC;

(g) Excel sheet for Design Energy calculation; and

(h) Excel sheet for the calculation done for energy shortfall on daily basis.

14. The Petitioner vide its affidavit dated 19.2.2020 has submitted the information as sought above. Thereafter, the Commission reserved the matter in the Petition on 29.7.2022.

15. Further, Commission vide Technical Validation (TV) letter dated 3.1.2023 directed the Petitioner to submit the following information:

(a) Day-wise scheduled energy, actual energy injected in the grid and energy accounted for in DSM along with the revenue earned from DSM for such energy during 2018–19;
(b) Reasons for the difference between saleable actual energy (ex-bus) and saleable schedule energy (ex-bus);
(c) Approval of CEA for the design energy of the plant and computation details of design energy (in excel sheets along with formulae) of 3054.79 MU and the effect of mandatory discharges in computation of design energy;
(d) The period of planned and forced machine outage events in 2018-19. Further, furnish the energy loss on account of 2.05 % and 0.13 % unavailability of machine due to planned and forced outage, respectively;
(e) The correlation of water discharge at Pandoa site on Satluj and Rainfall in the nearby districts w.r.t. actual water inflow to Koldam;
(f) Reasons for lower actual ex-bus energy than Saleable Scheduled Energy (ex-bus) on some days;
(g) The computation formulae to determine the maximum possible generation based on actual inflow available;
(h) The year wise actual total energy generated from COD to 2017-18

16. It is noticed that the Petitioner has not furnished aforementioned details till date. The Commission has taken a serious view of the lackadaisical attitude of the Petitioner, However, in order to dispose of the pending matter, we have considered the submissions available on record and made verifications from data available on the websites of CEA, NRPC, NRLDC, etc.

17. The Respondent No. 6, BRPL vide its letter dated 29.11.2019 has submitted that NTPC has made BRPL as respondent in the subject Petition, although BRPL is not a beneficiary of the Power station and we are not receiving any power from this Power Station. BRPL has further submitted that it had PPA with NTPC Koldam Station, but power was reallocated. We have considered the submission of the Respondent BRPL. We direct the Petitioner to remove BRPL from their beneficiary list and not to bill them.

Replies and Rejoinder

Reply of UPPCL

18. The Respondent No. 1, UPPCL vide its affidavit dated 4. 12.2019, has mainly submitted as under:

a) If a generating company gains incentive in electricity charges due to overflow of water wherein it produces saleable energy more than the saleable design energy, so it should also bear the loss of energy charges when the inflow is low. Further the incentive in capacity charges should also be shared between the Beneficiaries and the Generating Company. Now the Petitioner is craving compensation due to low in inflow of water.

b) The claim of the Petitioner for compensation due to fall in inflow of water is not permissible because it flouts the principle of equipoise between loss and gain and sharing thereof by the Generating Company. Alternatively if CERC decides to compensate the Generating Company for loss of generation due to low inflow or outage of machines on account of raising of the water level then the principle of equipoise in sharing of loss and gain both by Generating Company as well as the beneficiaries demands lowering of energy rate of 90 paise per unit to 45 paise per unit in case where scheduled energy is more that DE, since the beneficiaries also share the loss in electricity charges due to low inflow as well as loss due to raising of the level

of water level. Further, the incentive on capacity charges due to high PAFM > NAPAF may also be shared equally between the Petitioner and the beneficiaries.

c) It is therefore requested that the CERC may add following proviso under Regulations 44(8) under its power to Remove Difficulties under Regulation 77 which will not be inconsistent with the provisions of the Act or the principle of equipoise.

> *"In case the energy charge rate (ECR) for Hydro Generating Station during 2018-19, computed as per clause 5 of regulation* 31 (7) *of CERC (Terms and Conditions of Tariff) Regulations 2014, exceeds 90 paise per KWH, when the actual saleable energy in a year exceeds the saleable design energy, the energy charge for the energy shall be billed at* 45 *paise per KWH."*
> *The incentive in capacity charges due to PAFM>NAPF during any month may also be shared in the ratio 50:50 between the generating Co. and beneficiaries.*

d) Petitioner is totally silent about billing of capacity charges under low inflow conditions. The Generating company has reaped the benefit of incentive in capacity charges to the extent of Rs. 206.6572 Cr. The entire incentive on capacity charges realized by the generating company during 2015-16,2016-17 and 2017-18 is to be shared 50:50 between generating company and the beneficiaries where PAFM>NAPAF. The generating co. may be directed to submit the data of incentive gained by it during the above period on account of capacity charges when PAFM is more than NAPAF.

e) The Petitioner should give proper documents certified by NRPC regarding less generation for increasing reservoir level on some days as mentioned in para 9 of the petition.

Rejoinder to the reply filed by UPPCL

19. The Petitioner, in response to the reply of the Respondent UPPCL, Petitioner vide its affidavit dated 23.1.2020, has submitted as under**:**

a) The Respondent has not filed any meaningful response to the present Petition, instead, the Respondent in its reply is seeking a retrospective amendment of the Tariff Regulations 2014 and amendment to the Tariff Regulations 2019 which is outlandish and impermissible in law.

b) It is stated that the Petitioner is seeking relief under Regulation 31(6) of the Tariff Regulations 2014 read with Regulation 44(8) of the Tariff Regulations 2019. The relief sought by the Petitioner is strictly in terms of the said Regulations.

c) The grounds raised by respondent against the existing provisions of regulations does not have merit since the beneficiaries are able to avail the secondary energy at a cheaper rate of Rs.0.90 per Unit during peak hours.

d) It is submitted that respondent beneficiaries under Tariff Regulations 2014-19 are able to avail the secondary energy at a rate of Rs. 0.90/Kwh against the normative energy charge rate of more than Rs.2.49 – Rs.3.11/Kwh in the past years in case of Koldam HEP.

e) It is further submitted that NTPC Koldam has generated secondary energy of 169.84 MUs in preceding three years i.e. FY 2015-16, 2016-17, 2017-18. The above energy has been supplied to the beneficiaries and amount billed towards same is Rs.15.29 Cr., whereas the energy charges for the above secondary energy at normative energy charge rate would be Rs. 45.14 Cr.

Analysis and Decision

20. We have considered the submissions of the Petitioner as well as the Respondents. As discussed earlier, in absence of details to be submitted by the Petitioner which were sought by the Commission vide Technical Validation (TV) letter dated 3.1.2023, we have verified the

data from websites of CEA, NRPC, NRLDC and also from generation tariff petition (petition no. 363/GT/2020) filed by the Petitioner for truing up of tariff for the period 2014-19 for the instant generating station. Based on the above details, we now deal further.

21. The petitioner has submitted that due to low generation, the generating station could recover only Rs. 638.10 crore as Energy charges as against the maximum recoverable energy charges of Rs. 655.19 crore in terms of the annual fixed charges approved by the Commission for the year 2018-19.

22. The details of Design Energy of the generating station (as per petition no. 363/GT/2020) is as under:

(in MU)

Particulars	**FY**
Design Energy	3054.79
Less: Auxiliary Consumption (1.0%)	30.55
Net Design Energy (1 - 2)	3024.24
Less: Free Power to GoHP (12%)	362.91
Less: Free Power to GoHP (1%)	30.24
Saleable Design Energy (3-4-5-6)	**2631.09**

23. The Design Energy of the generating station is 3054.79 MU which is measured at generator terminal (GT). The saleable design energy at ex-bus is 2631.09 MU (3054.79 *0.99*.87) after accounting 1% of normative auxiliary energy consumption and 13% free power to home state (FEHS) including 1% for Local Area Development Fund (LADF). The actual/ gross generation at generator terminal during 2018-19 is 3013.90 MU. The Petitioner in its submission dated 19.2.2020 has calculated the Ex-Bus generation of 2995.31 (MU) and

Saleable Scheduled Energy (ex-bus) for 2951.78 (MU) including 13% of FEHS of 389.14 MU. Commission vide TV letter dated 3.1.2023 directed the Petitioner to submit the reasons for the difference between the above. The Petitioner has not submitted the same. However, on scrutiny of the daily generation details submitted by the Petitioner, it is inferred that the difference of 43.53 MU (2995.31 MU- 2951.78 MU) is the energy accounted under DSM i.e. which is part of total ex-bus generation and not the part of Saleable Scheduled Energy (ex-bus).

24. The Petitioner has submitted that Saleable Scheduled Energy during 2018-19 was 2951.78 MU against a Saleable Design Energy of 3024.25 MU. There is a total shortfall of 72.47 MU (3024.25 MU - 2951.78 MU) in generation during 2018-19. The reasons for shortfall are mainly due to following reasons:

A. Beyond the control of the petitioner: It is submitted that the loss of generation is mainly due less water inflow than the design inflow. Even though, the petitioner could generate more in case of excess flow than design, there total generation loss of 129.81 MUs due to less inflow.

B. Scheduled Generation: It is further submitted that in order to meet the grid demand the petitioner had to deplete the reservoir level with marginal increase in generation and at sometimes had to operate the machines at lower head. Subsequently, at appropriate time, the reservoir level has been maintained with less generation as per the schedule. The overall operation has generation gain of 57.34 Mus in this way.

Due to the aforesaid reasons, there was net generation loss of (-) 72.47 MU which is tabulated below:

A. Shortfall(-)/ Gain (+) due to reasons beyond the control of petitioner	
a)Energy shortfall due to less inflow from design inflow	(-)513.19
b) Energy generated due to excess inflow from design inflow	(+)383.38

Total (A)	**(-)129.81**
B. Shortfall (-)/ Gain (+) due to Scheduling	
a) Energy generated by depleting reservoir level on some days	(+)159.46
b) Less generation for increasing reservoir level on some days	(-)102.12
Total (B)	**(+)57.34**
Grand Total (A+B)	**(-)72.47**

25. Out of total shortfall of 72.47 MU, the reasons for shortfall of 129.81 MU are beyond the control of petitioner i.e. due to less inflow of water, which has been compensated by an excess generation of 57.34 MUs.

26. Based on above, the Petitioner has claimed the following shortfall in energy charges:

Design Energy (as per CERC order dated 05.04.2018) = 3054.79 MU.

After deducting 1% Aux and 13% PAP power

Net Saleable Energy = 2631.09 MUs.

Capacity Charges admitted for the year 2018-19 = Rs. 1310.38 Crs.

(as per CERC order dated 05.04.2018)

Energy Charges (50%) = Rs. 655.19 Crs.

Energy Charge Rate (ECR) = Rs 2.490 per kWh (655.19 X 10/2631.09).

Schedule* Energy (Ex-Bus) (MU)	Free* Energy (MU)	Net Energy Billed (MU)	ECR (Rs/Unit)	Annual Fixed Charges* (Crs.)	Energy Charges to be recovered (Crs.)	Energy Charges actually recovered (Crs.)**	Under recovery of Energy Charges (Crs.)
1	2	3=1-2	4	5	6=50% of 5	7=3*4/10	8=7-6

2951.81	389.14	2562.67	2.490	1310.38	655.19	638.10	-17.09

* *Schedule Energy & Free Energy are based on Regional Energy Account issued by NRPC*

27. With regard to the claim of the Petitioner that energy shortfall for the year 2018-19 was due to uncontrollable factors, the Commission is of the view that low generation in comparison to Design Energy in a hydro generating station can be attributable to the following reasons:

(i) Low inflows in comparison to the design inflows associated with design year.

(ii) Prolonged planned/ forced outage of machines.

(iii) Inefficient operation of the plant / Non-utilization of maximum power potential of actual inflows.

28. We analyses each of the above reasons in respect of the present claim of the Petitioner.

(i) Low inflows in comparison to the design inflows associated with design year

29. With regard to energy shortfall due to less inflow from design inflow, Commission vide RoP of the hearing dated 19.2.2020 directed the Petitioner to submit *'Data of average actual inflows for the financial year 2018-19 certified by CEA/CWC and Rainfall data for the concerned year as reported by IMD for the district in which plant was located and the adjoining districts'* . The Petitioner in response to above has submitted that Koldam HEP is located in Bilaspur district of Himachal Pradesh on river Satluj. The rainfall during the months of Apr'18 and May'18, wherein the Station had loss of generation, is lower than the last four year average rain fall in the corresponding months. It is further submitted that the catchment area of Satluj river up to Koldam is 53,700 Km^2, which is much more than the boundaries of

district Bilaspur and its adjoining districts and a major portion of this catchment area lies in China. The Petitioner has submitted the Rainfall data for the last five years as per IMD website for Bilaspur and adjoining districts, in which the project reservoir is located i.e. Bilaspur, Shimla, Mandi and Solan. The Petitioner has also submitted the data forwarded by Snow Hydrology Division-CWC, Shimla with regard to Daily and Average Discharge of Pandoa site on river Sutlaj for the FY 2018-19.

30. Further, Commission vide TV letter dated 3.1.2023 directed the Petitioner to submit 'the correlation of water discharge at Pandoa site on Satluj and Rainfall in the nearby districts w.r.t. actual water inflow to Koldam'. The Petitioner has not submitted the same.

31. The matter has been examined, in absence of the correlation of water discharge at Pandoa site on Satluj and Rainfall in the nearby districts w.r.t. actual water inflow to Koldam, correlating the above rainfall data as per IMD reports and data of Snow Hydrology Division-CWC, Shimla, it indicates low rainfall in comparison to long period averages. Accordingly, we, thus, hold that the energy shortfall of 129.81 MU due to less inflows was beyond the control of the Petitioner.

(ii) Prolonged planned/ forced outage of machines

32. In order to rule out the prolonged planned/ forced outage of machines, their impact on energy generation and in order to understand whether outage of a machine in anyway affected the energy generation by non-utilization of available water flow, Commission vide RoP of the hearing dated 19.2.2020 directed the Petitioner to submit *'Planned and forced machine outage (including energy loss due to silt) data certified by CEA/NRLDC and its correlation with energy generation and Documents to validate the energy loss due to silt i.e.*

outage certified by CEA/NRLDC' . The Petitioner in response to above has submitted that Design Energy for Koldam was calculated considering 95% machine availability. However, Plant availability of Koldam in FY 2018-19 was 107.92% as certified in REAs by NRPC. The Planned outage and Forced Outage during the year was 2.05% and 0.13%. The Petitioner has also submitted Plant Availability Factor Monthly (PAFM) and Plant Availability Factor Yearly (PAFY) as published by NRPC.

33. Further, Commission vide TV letter dated 3.1.2023 directed the Petitioner to submit '*the period of planned and forced machine outage events in 2018-19. Further, furnish the energy loss on account of 2.05 % and 0.13 % unavailability of machine due to planned and forced outage, respectively'*. The Petitioner has not submitted the same.

34. The matter has been examined, in absence of the above data, with regard to planned and forced outages in the instant generating station for the period 2018-19, we have verified the same from CEA Report of August 2019 on '*REVIEW OF PERFORMANCE OF HYDRO POWER STATIONS 2018-19'*and noticed that various units of the generating station were under Planned Outage between the period from 19.11.2018 to 1.3.2019 and under forced outage from 4.10.2018 to 5.10.2018.

35. With regard to instances of planned outages, it is noticed that during the above planned outage period, there is no shortfall in energy generation as compared to design energy for the period except for the period when there was less inflow as compared to design inflow which was beyond the control of the Petitioner and less generation due to increase reservoir level which the Petitioner has considered within its control. The same is in order.

36. With regard to instances of forced outages, it is noticed that during the above forced outage period, there is no shortfall in energy generation as compared to design energy for the period except for the period when there was less generation to increase reservoir level, which the Petitioner has considered within its control. The same is in order.

37. As such, the Petitioner has not claimed shortfall due to above outages. Accordingly, we have also not considered any shortfall in energy generation due to Planned/Forced outages.

(iii) Inefficient operation of the plant /non-utilization of maximum power potential of actual inflows

38. In order to assess maximum possible annual generation with available actual inflows, the Petitioner has submitted the actual average inflows measured at dam site for each day of the year 2017-18 for which the shortfall has been claimed. Further, based on the following formulae along with certain adjustments, the Petitioner has calculated the daily maximum possible generation for 365 days based on actual inflows:

Maximum possible generation during a day (in MU) =	(Average inflow for ith day) X (Maximum generation corresponding to installed capacity) / (Rated inflow for installed capacity)

39. The installed capacity of the generating station is 800 MW and rated inflow is 642.54 cumecs corresponding to 800 MW capacity. The sum of daily maximum possible generations for 365 days i.e. the maximum possible annual generation has been calculated by the Petitioner as 2894.44 MU.

40. Based on the above methodology, maximum possible energy generation as calculated by us works out to 2732.79 MU as against the maximum possible generation of 2894.44 MU as submitted by the Petitioner. The difference of 161.65 MU is due to Petitioner having considered more power generation in favorable conditions. Therefore, we have taken the Petitioner's data of 2894.44 MU (and not 2732.79 MU as calculated by us) as the maximum possible generation by the generating station for further deliberations.

41. 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 3013.90 MU:

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

1.	Design Energy of the instant generating station	3054.79 MU
2.	Energy shortfall due to less inflows (on net basis)	(-)129.81 MU
3.	Energy that could have been generated by utilizing available actual inflows 3=1+2	2924.98 MU

42. In view of the above calculations and the fact that actual generation of the generating station was 3013.90 MU which is much higher than the above arrived theoretical calculations, it is held that Petitioner has been able to generate more according to the actual inflows. Accordingly, the Petitioner cannot be faulted with inefficient operation of the plant and non-utilization of maximum power potential of actual inflows or excessive spillage. In our view, lower generation in comparison to Design Energy was due to reasons not under the control of the petitioner i.e. energy lost due to less inflows.

43. In light of above deliberations, the Commission is of the view that the Petitioner shall be allowed to recover shortfall in energy charges in proportion to the energy shortfall which occurred due to reasons which were not under the control of the Petitioner i.e. (-) 129.81 MU. However, the Petitioner by managing the reservoir level has managed to generate additional energy of 57.34 MU. Accordingly, the net shortfall of energy generation of (-) 72.47 MU [(-) 129.81MU+57.34 MU] claimed by the Petitioner has been considered beyond the control of the Petitioner.

44. Commission vide TV letter dated 3.1.2023 directed the Petitioner to submit '*Day-wise scheduled energy, actual energy injected in the grid and energy accounted for in DSM along with the revenue earned from DSM for such energy during 2018–19'*. The Petitioner has not submitted the same.

45. In absence of above information, as discussed at para 22 above, the difference of 43.53 MU (2995.31 MU- 2951.78 MU) is the energy accounted under DSM i.e. which is part of total ex-bus generation and not the part of Saleable Scheduled Energy (ex-bus). Revenue earned from energy accounted under DSM is not available in the Petition, however as per NRPC website, the instant generating station has been able to earn revenue of Rs. 25.42 crore under DSM. In our view, there is no doubt that the energy accounted in DSM is actual energy generated and also that the Petitioner has received payment for the same in terms of provisions of the 2014 DSM Regulations. Therefore, the energy that has been accounted in DSM cannot be counted towards shortfall in energy in terms of Regulation 44 (6), (7) and (8) of the 2019 Tariff Regulations and, therefore, corresponding energy charge cannot be recovered in terms of that regulation. Thus, energy accounted in DSM needs to be appropriately accounted for

while deciding the quantum of shortfall under provisions of Regulation 44 (6), (7) and (8) of the 2019 Tariff Regulations.

46. We are also conscious of the fact 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 energy that would have been received had the same 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.

47. In the instant case, the energy accounted for in DSM is 43.53 MU. On the other hand, if this energy (43.53 MU) would have been scheduled to the beneficiaries, the scheduled energy would have increased to 2995.34 (= 2951.81+43.53) MU and the energy charge shortfall of the generating station would have reduced in comparison to the claimed energy charge shortfall of Rs. 6.31crore. The following table captures the reduction in energy charge shortfall after adding the energy accounted for in DSM in the actually scheduled energy:

	Schedule* Energy (Ex-Bus) (MU)	Free* Energy (MU)	Net Energy Billed (MU)	ECR (Rs/Unit)	Annual Fixed Charges * (Crs.)	Energy Charges to be recovered (Crs.)	Energy Charges actually recovered (Crs.)**	Under recovery of Energy Charges (Crs.)
	1	2	3=1-2	4	5	6=50% of 5	7=3*4/10	8=7-6
As claimed by the petitioner based on actually scheduled energy	2951.81	389.14	2562.67	2.490	1310.38	655.19	638.10	(-)17.09
As modified by adding the DSM energy in the actually scheduled energy	2995.34 (2951.81+ 43.53*)	389.39	2605.95	2.490	1310.38	655.19	648.88	(-)6.31

* Derived value (difference in Ex-bus generation and ex-bus saleable schedule energy)

48. Accounting for the DSM energy, the actual shortfall of Rs17.09 crore reduces to Rs.6.31 (17.09-10.78) crore. Accordingly, the shortfall in energy charge allowed to be recovered in the FY 2018-19 due to shortfall in energy generation from the Design Energy during 2019-20 has been calculated as under:

Total Shortfall in generation during FY 2018-19 (MU) claimed by the petitioner	A	72.47
Actual under-recovery of energy charges during FY 2018-19 (₹ crore) claimed by the Petitioner	B	17.09
Total under-recovery of energy charges during FY 2018-19 after accounting for the revenue which would have been earned if the energy accounted	C	6.31 (17.09-10.78)

under DSM would have been scheduled to the beneficiaries (in ₹ crore) (para 47)		
Shortfall in generation due to reasons beyond control (MU) considered by Commission (para 43)	D	72.47
Shortfall in energy charges allowed to be recovered during FY 2018-19 in this order (₹ crore)	E=C*D/A	6.31

49. 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, the Petitioner in its prayer has submitted that to allow recovery of energy charges in FY 2019-20 against the shortfall in generation in FY 2018-19 as per Regulation 44(8) and 44(7) of CERC (Terms and Conditions of Tariff) Regulation 2019.

50. The matter has been considered, we notice that, in this case, the immediate recovery year i.e. 2019-20 fall in the tariff period 2019-24. Accordingly, in terms of Regulation 44(7) of the 2019 Tariff Regulations, we allow the energy charge shortfall of Rs. 6.31 crore for the period 2018-19 and the same shall 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 recovered directly by the generating station from beneficiaries through supplementary bills.

51. Further, the Petitioner has not provided the details as sought by the Commission vide TV letter dated 3.1.2023. As the petitioner has not complied with the directions of the Commission, a show cause notice is hereby issued as to why action should not be initiated

against the petitioner under section 142 of the Electricity Act. The reply to the show cause must be submitted within a week of this order.

52. Petition No. 410/MP/2019 is disposed of in terms of above. Let an extract copy of the order be served to the petitioner on its email address.

Sd/-	Sd/-	Sd/-
(Pravas Kumar Singh)	**(Arun Goyal)**	**(I. S. Jha)**
Member	**Member**	**Member**