

**BEFORE THE HON'BLE UTTAR PRADESH ELECTRICITY
REGULATORY COMMISSION, LUCKNOW**

PETITION NO. 2271 OF 2025

IN THE MATTER OF:

Alaknanda Hydro Power Corporation Limited

...Petitioner

Versus

Uttar Pradesh Power Corporation Limited

...Respondent

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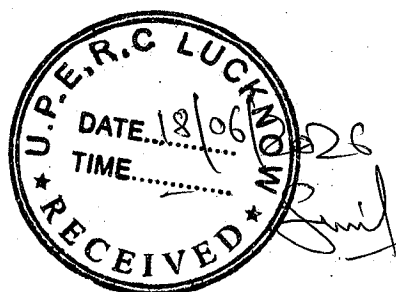
DBhatt

**LAW OFFICES OF DIVYANSHU BHATT
(Counsel for UPPCL)**

Date: 18.06.2026

Place: Lucknow

Ground Floor, C-1058, Sector-B,
Mahanagar, Lucknow – 226006.



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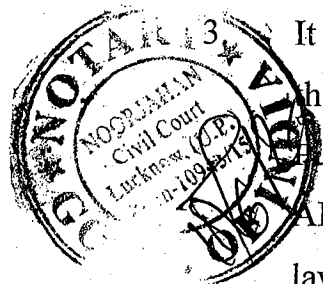
**REPLY ON BEHALF OF THE RESPONDENT, UTTAR PRADESH
POWER CORPORATION LIMITED**

MOST RESPECTFULLY SHOWETH:

1. The captioned Petition has been preferred on behalf of the Alaknanda Hydro Power Corporation Limited ("AHPCL" / "Petitioner") for determination of Tariff for 330 MW (4X82.5 MW) Shrinagar Hydro Electric Project ("the Project") for the control period FY 2024-25 to FY 2028-29 in terms of Section 62 and 86 of Electricity Act, 2003 ("the Act") read with the UPERC (Terms and Conditions of Generation Tariff) Regulations 2024 ("Tariff Regulations, 2024") and Amended and Restated PPA dated 28.06.2006 executed between AHPCL and the Uttar Pradesh Power Corporation Limited ("UPPCL"/ "Respondent"), the Respondent herein, for sale of electricity from the Project for supply of 88% of the net energy generated by the project to UPPCL.
2. It is submitted that the instant Objections have been preferred on behalf of the Respondent, UPPCL, which is the holding company of five distribution companies of Uttar Pradesh ("UP Discoms") and executes power purchase agreements on behalf of the UP Discoms.

It is humbly submitted that UPPCL denies each and every averment made in the Petition filed by AHPCL, except in so far as they are a matter of record. Further, UPPCL categorically denies any and all allegations made by AHPCL against the Respondent for being devoid of any basis in fact or in law. It is further submitted that nothing stated herein ought to be deemed to be admitted on account of non-traverse or otherwise.


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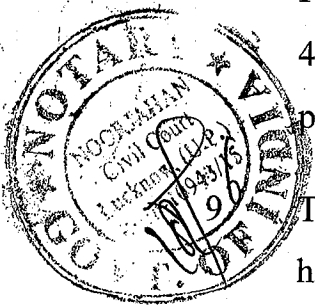
4. It is submitted that UPPCL craves to refer to the contents of the captioned Petition as and when required and the same shall not be repeated herein. UPPCL is submitting an issue-wise Reply instead of a para-wise response for the sake of brevity and in order to avoid prolixity.
5. It is further submitted that, during the pendency of the present Petition, this Hon'ble Commission was pleased to deliver the True-Up Order of the Project for FY 2019-20 to FY 2023-24 in Petition No. 2151 of 2024 on 06.03.2026 ("**True-Up Order**"). The submissions made herein are based on the figures allowed by this Hon'ble Commission in the aforementioned Order. The Respondent humbly reserves its right to amend/modify/alter the submissions made herein on account of any revisions/changes/modifications made by the Petitioner as per the True-Up Order.

Re: Capital Cost

6. That the Petitioner had filed a Truing Up Petition before this Hon'ble Commission in respect of the Control Period FY 2019-20 to FY 2023-24, and had inter alia claimed an Opening Capital Cost of Rs. 4,04,793.41 Lakhs for the ensuing Control Period FY 2024-25 to FY 2028-29, as derived and supported by the duly audited accounts of the Petitioner.
7. In the True-Up Order, this Hon'ble Commission was pleased to approve the Closing Capital Cost for the Financial Year 2023-24, which was determined to be Rs. 4,04,793.41 Lakhs. The Closing Capital Cost for the preceding Control Period FY 2019-20 to FY 2023-24 forms the basis for determination of the Opening Capital Cost for the succeeding Control Period.
8. Accordingly, it is submitted that the Opening Capital Cost for the Control Period FY 2024-25 to FY 2028-29 is rightly and lawfully allowable at Rs. 4,04,793.41 Lakhs, being consistent with and in conformity with the claim preferred by the Petitioner.

That in view of the foregoing submissions and the findings recorded hereinabove, the capital cost as claimed by the Petitioner and as found allowable by the Respondent are set out and summarised in the comparative tabulation hereinbelow:

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 U.P.P.C.L., Lucknow



(Rs. in Lakh)

Particulars	2024-25		2025-26		2026-27		2027-28		2028-29	
Capital cost	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable
Opening Cap cost	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00
Add: Addition	-	-	-	-	-	-	-	-	-	-
Less:										
Decapitalisation	-	-	-	-	-	-	-	-	-	-
Less: Reversal	-	-	-	-	-	-	-	-	-	-
Add: Discharge	-	-	-	-	-	-	-	-	-	-
Closing Cap cost	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00
Average Cap cost	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00

Re: Debt-Equity Ratio

10. That it is respectfully submitted that Regulation 23(b) of the Tariff Regulations, 2024 expressly provides that in the case of generating stations, where the actual equity employed is less than 30% of the total capital cost, the actual debt and equity, as deployed in the project, shall be adopted and considered for the purposes of determination of tariff, in contradistinction to the normative debt-equity ratio otherwise prescribed under the said Regulations. The relevant extract of the Regulations is reproduced hereinbelow for the ready reference of this Hon'ble Commission:

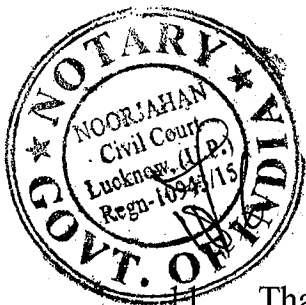
"23. Debt-Equity Ratio

In case of all generating stations, debt-equity ratio as on the date of commercial operation shall be 70:30 for determination of tariff. Where equity employed is more than 30%, the amount of equity for determination of tariff shall be limited to 30% and the balance amount shall be considered as the normative loan.

Provided that,-

...

b. In case of a generating station where actual equity employed is less than 30%, the actual debt and equity shall be considered for determination of tariff; ..."



11. That it is further submitted that this Hon'ble Commission, vide its Order dated 20.04.2023 in Petition No. 1642 of 2020, had, after due consideration of the facts and circumstances placed on record, approved and sanctioned a Debt-Equity Ratio of 79.45:20.55 in respect of the Petitioner's generating station. The relevant and operative extract of the aforesaid Order dated

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20.04.2023 passed by this Hon'ble Commission is reproduced hereinbelow for the kind reference and consideration of this Hon'ble Commission:

38. The Commission has approved the final Capital Cost of Rs. 4061.97 Crores as on approved COD of 31.5.2013, the % equity invested as on 31.5.2013 i.e., 20.55%, as decided vide order dated 08.02.2021, needs to be considered as part of the Capital Cost. Accordingly, the Debt: Equity approved for the Control Period is as under:

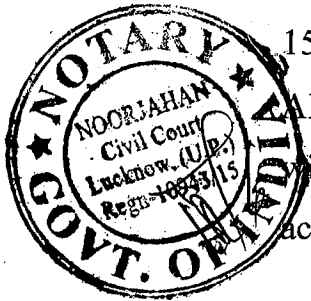
Table 10: Debt : equity as approved by the Commission (Rs. Crore)

Particular	Cost (Rs. Crore)	(%)
Capital Cost	4061.97	100%
Equity	834.64	20.55%
Loan	3227.33	79.45%

12. That in view of the aforesaid Order of this Hon'ble Commission, which is binding and subsisting, the Petitioner has accordingly preferred a claim adopting a Debt-Equity Ratio of 79.45:20.55 for the Control Period FY 2024-25 to FY 2028-29, which is in consonance with and in due compliance of the directions issued by this Hon'ble Commission in the aforementioned Order.
13. That in light of the above, the Respondent submits that the normative Return on Equity ("ROE") and Interest on Loan have been duly computed and considered at 20.55% and 79.45% of the Opening Capital Cost respectively, in strict conformity with and adherence to the ratio as approved by this Hon'ble Commission vide the Order dated 20.04.2023 referred to hereinabove.

Re: Return on Equity

14. That it is respectfully submitted that the Petitioner has claimed Return on Equity for the Control Period FY 2024-25 to FY 2028-29 at the base rate of 15% post tax per annum, after grossing up with the applicable Minimum Alternate Tax ("MAT") rate, on the ground that the Petitioner, AHPCL, falls within the purview of Section 115JB of the Income Tax Act, 1961, and is accordingly liable to be taxed under the MAT regime.
15. That in furtherance thereof, the Petitioner has computed and claimed the applicable MAT rate at 17.472%, being arrived at by aggregating the base MAT rate of 15%, along with a surcharge of 12% thereon, and a Health and Education Cess of 4% on the aggregate of the base rate and surcharge, all in



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accordance with the provisions of the Income Tax Act, 1961, as applicable to the Petitioner. Consequent upon grossing up of the base ROE rate of 15% post tax with the aforesaid MAT rate of 17.472%, the effective ROE as claimed by the Petitioner for the said Control Period works out to and has been preferred at 18.11% per annum.

16. It is submitted that Regulation 25(3)(a) of the Tariff Regulations, 2024 expressly stipulates that the ROE for existing generating stations shall be computed in Rupee terms at the base rate of 15% post tax per annum. The relevant extract of the Regulations is reproduced hereinbelow for the kind consideration of this Hon'ble Commission:

"25. Capacity (Fixed) Charge:

...

(3) Components of Fixed Charges:

a. Return on Equity:

Return on equity, for existing projects, shall be computed in rupee terms on the equity base determined in accordance with these Regulations at base rate of 15% post-tax per annum: ..."

17. That additionally, Regulation 6 of the Tariff Regulations, 2024 further provides that the rate of Return on Equity, as allowed by this Hon'ble Commission under Regulation 25(3)(a) of the Tariff Regulations, 2024, shall be grossed up with the effective tax rate applicable to the respective financial years falling within the Control Period. The relevant extract of the aforesaid Tariff Regulations, 2024 is reproduced hereinbelow for the kind consideration of this Hon'ble Commission:

"6. Tax on Income:

(1) The rate of return on equity as allowed by the Commission under Regulation 25(3)(a) of these regulations shall be grossed up with the effective tax rate (hereinafter referred to as 't') of the respective financial year. The effective tax rate shall be calculated at the beginning of every financial year based on the estimated profit and tax to be paid estimated in line with the provisions of the relevant Finance Act applicable for that financial year to the concerned generating company by excluding the income other than from Core business and the corresponding tax thereon ..."



18. That in view of the regulatory provisions cited hereinabove, the Respondent submits that the ROE at the grossed-up rate of 18.11% per annum is found to

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be just and proper, and is accordingly accepted and considered as claimed by the Petitioner for the Financial Years FY 2024-25 and FY 2025-26.

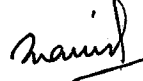
19. That it is, however, pertinent to bring to the kind notice of this Hon'ble Commission that as per the Union Budget for the Financial Year 2026-27, the Government of India has proposed a reduction in the MAT rate from the erstwhile rate of 15% to 14%. Consequent upon such proposed revision in the MAT rate, and after factoring in the applicable surcharge and cess as prescribed under the Income Tax Act, 1961, the effective MAT rate applicable from FY 2026-27 onwards is computed at 16.307%, and accordingly, the applicable grossed-up ROE from FY 2026-27 onwards is determined at 17.923% per annum.
20. That further, for the purposes of computation of ROE for the Control Period FY 2024-25 to FY 2028-29, the Opening Equity has been considered as equivalent to the Closing Equity for the Financial Year 2023-24, amounting to Rs. 83,176.44 Lakhs, being consistent with the claim preferred by the Petitioner, AHPCL, and in conformity with the principles governing continuity of capital base across successive Control Periods.
21. That in view of the foregoing submissions and the computations set out hereinabove, the Return on Equity for the Control Period FY 2024-25 to FY 2028-29, as claimed by the Petitioner and as found allowable by the Respondent, is set out and summarised in the comparative tabulation hereinbelow:

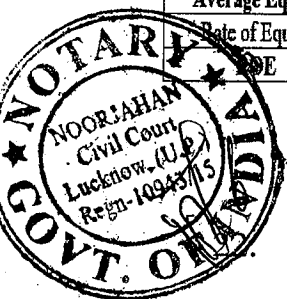
(Rs. in Lakh)

Particulars	2024-25		2025-26		2026-27		2027-28		2028-29	
Return on Equity	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable
Opening Equity	83,176.44	83,175.00	83,176.44	83,175.00	83,176.44	83,175.00	83,176.44	83,175.00	83,176.44	83,175.00
Add: Addition	-	-	-	-	-	-	-	-	-	-
Less: Decapitalisation	-	-	-	-	-	-	-	-	-	-
Less: Reversal	-	-	-	-	-	-	-	-	-	-
Add: Discharge	-	-	-	-	-	-	-	-	-	-
Closing Equity	83,176.44	83,175.00	83,176.44	83,175.00	83,176.44	83,175.00	83,176.44	83,175.00	83,176.44	83,175.00
Average Equity	83,176.44	83,175.00	83,176.44	83,175.00	83,176.44	83,175.00	83,176.44	83,175.00	83,176.44	83,175.00
Rate of Equity	18.11%	18.11%	18.11%	18.11%	18.11%	17.92%	18.11%	17.92%	18.11%	17.92%
ROE	15,063.25	15,062.99	15,063.25	15,062.99	15,063.25	14,907.16	15,063.25	14,907.16	15,063.25	14,907.16

Re: Interest on Loan

It is respectfully submitted that the Petitioner has averred and stated in its Petition that AHPCL has successfully undertaken a comprehensive


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refinancing of all its existing term loan obligations through a fresh borrowing facility aggregating to Rs. 2,031.37 Crores, availed by way of Non-Convertible Debentures ("NCDs").

23. The aforesaid NCDs were issued by the Kotak Group on 05.04.2025, pursuant to which the loan repayment schedule of the Petitioner stands duly revised and restructured in accordance with the terms and conditions governing the said NCD issuance. It is further submitted that the Petitioner, AHPCL, had duly intimated and informed the Respondent, UPPCL, regarding the aforesaid refinancing of its existing loan obligations through NCDs, vide its letter dated 11.02.2025.
24. It is submitted that the Petitioner has claimed that the rate of interest adopted for the purposes of computation of Interest on Loan is the weighted average rate of interest on the total loan outstanding of AHPCL, being representative of the blended cost of borrowing across all loan facilities availed by the Petitioner.
25. That in this regard, it is pertinent to refer to Regulation 25(3)(b) of the Tariff Regulations, 2024, which expressly stipulates that the loan outstanding shall be worked out as the gross loan, as determined in accordance with the said Regulations, reduced by the cumulative repayments as admitted by this Hon'ble Commission up to 31.03.2024. It is further provided under the said Regulation that the repayment attributable to any Financial Year during the tariff period shall be deemed to be equal to the depreciation allowed for that respective Financial Year. The relevant and operative extract of the aforesaid Regulation 25(3)(b) of the Tariff Regulations, 2024 is reproduced hereinbelow for the ready reference of this Hon'ble Commission:

"25. Capacity (Fixed) Charge:

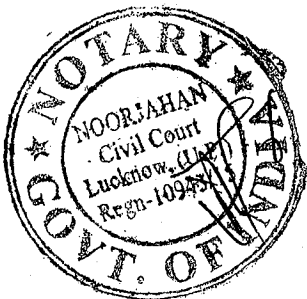
...

(3) Components of Fixed Charges:

...

b. Interest on loan capital:

- (i) Interest on loan capital shall be computed loan wise on the loans arrived at in the manner indicated in these Regulations.



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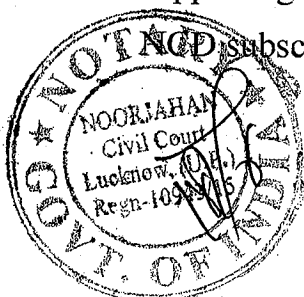
(ii) The loan outstanding as on 1st April 2024 shall be worked out as the gross loan as per these Regulations minus cumulative repayment as admitted by the Commission up to 31st March 2024. The repayment for any financial year during the tariff Period shall be deemed to be equal to the depreciation allowed for that financial year.

In case of de-capitalisation of assets, the repayment shall be adjusted by taking into account cumulative repayment on a pro rata basis and the adjustment should not exceed cumulative depreciation recovered up to the date of de-capitalisation of such asset.

(iii) The rate of interest shall be the weighted average rate of interest calculated on the basis of actual loans at the beginning of each financial year and shall be adjusted based on actual loan portfolio each financial year accordingly."

(Emphasis Supplied)

26. That in view of the regulatory provisions cited hereinabove, the Opening Loan Balance for the Control Period FY 2024-25 to FY 2028-29 has been considered as equivalent to the Closing Loan Balance for the Financial Year 2023-24, amounting to Rs. 1,89,228.28 Lakhs, being consistent with and in conformity with the claim preferred by the Petitioner, AHPCL.
27. That however, it is imperative and necessary to bring to the kind notice of this Hon'ble Commission that the Petitioner, AHPCL, has conspicuously failed to place on record any loan documents, sanction letters, loan agreements, or Auditor's Certificates, duly certified by a Chartered Accountant, so as to substantiate and corroborate the revised weighted average rate of interest as claimed by the Petitioner for the Control Period FY 2024-25 to FY 2028-29. In the absence of such primary documentary evidence, the claim of the Petitioner with respect to the weighted average rate of interest cannot be independently verified or admitted without appropriate scrutiny.
28. It is therefore respectfully submitted that this Hon'ble Commission may, in the interest of transparency and regulatory prudence, be pleased to direct UPPCL to seek and obtain from AHPCL all requisite justifications and supporting documentation, including but not limited to loan agreements, subscription documents, Auditor's Certificates, and such other relevant



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records as may be necessary to verify and establish the weighted average rate of interest as claimed by the Petitioner for the said Control Period.

29. That in view of the foregoing submissions and the regulatory framework set out hereinabove, the Interest on Loan as claimed by the Petitioner and as found allowable by the Respondent is set out and summarised in the comparative tabulation hereinbelow:

(Rs. in Lakh)

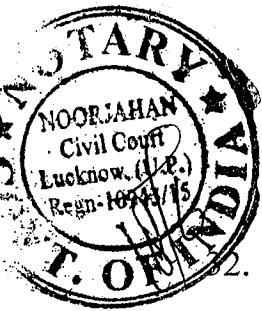
Particulars	2024-25		01.04.2025-04.04.2025	05.04.2025-31.03.2026	01.04.2025-04.04.2025	05.04.2025-31.03.2026	2026-27		2027-28		2028-29	
Interest on Loan	Claimed	Allowable	Claimed	Claimed	Allowable	Allowable	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable
Opening Normative Loan	3,21,616.97	3,21,616.97	3,21,616.97	3,21,616.97	3,21,616.97	3,21,616.97	3,21,616.97	3,21,616.97	3,21,616.97	3,21,616.97	3,21,616.97	3,21,616.97
Cumulative repayment of Loan	1,32,388.69	1,32,388.69	1,47,610.56	1,47,777.38	1,47,610.54	1,47,777.36	1,62,832.44	1,62,832.40	1,78,054.31	1,78,054.25	1,93,276.18	1,93,276.11
Opening Normative Loan	1,89,228.28	1,89,230.00	1,74,006.41	1,73,839.59	1,74,008.15	1,73,841.33	1,58,784.53	1,58,786.29	1,43,562.66	1,43,564.44	1,28,340.79	1,28,342.58
Add: Addition	-	-	-	-	-	-	-	-	-	-	-	-
Less: Repayment	15,221.87	15,221.85	166.82	15,055.06	166.81	15,055.04	15,221.87	15,221.85	15,221.87	15,221.85	15,221.87	15,221.85
Less: Reversal	-	-	-	-	-	-	-	-	-	-	-	-
Add: Discharge	-	-	-	-	-	-	-	-	-	-	-	-
Closing Normative Loan	1,74,006.41	1,74,008.15	1,73,839.59	1,58,784.53	1,73,841.33	1,58,786.29	1,43,562.66	1,43,564.44	1,28,340.79	1,28,342.58	1,13,118.92	1,13,120.73
Average Loan	1,81,617.35	1,81,619.07	1,73,923.00	1,66,312.06	1,73,924.74	1,66,313.81	1,51,173.61	1,51,175.36	1,35,951.73	1,35,953.51	1,20,729.86	1,20,731.65
Rate	13.65%	13.65%	13.67%	11.88%	13.67%	11.88%	12.06%	12.06%	12.09%	12.09%	12.08%	12.08%
Interest on Loan	24,790.77	24,791.00	260.64	19,540.89	260.64	19,541.10	18,228.10	18,228.31	16,440.05	16,440.27	14,583.26	14,583.48

Re: Depreciation

30. That it is respectfully submitted that the Petitioner has claimed depreciation at the rate of 3.77% per annum, being the rate as approved and adopted by this Hon'ble Commission vide its Order dated 20.04.2023 passed in Petition No. 1642 of 2020, in respect of the Petitioner's generating station.

31. That in this regard, it is pertinent to refer to Regulation 25(3)(c) of the Tariff Regulations, 2024, which expressly stipulates that in the case of existing projects, the balance depreciable value as on 01.04.2024 shall be determined by deducting the cumulative depreciation, as admitted by this Hon'ble Commission up to 31.03.2024, from the gross depreciable value of the assets.

It is further provided under the said Regulation that the rate of depreciation shall continue to be charged at the rate specified in Appendix III to the Tariff Regulations, 2024, until such time as the cumulative depreciation reaches 70% of the gross depreciable value of the assets. The relevant and operative extract of the aforesaid Regulation 25(3)(c) of the Tariff Regulations, 2024



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is reproduced hereinbelow for the kind reference and consideration of this Hon'ble Commission:

"25. Capacity (Fixed) Charge:

...

(3) Components of Fixed Charges:

...

c. Depreciation:

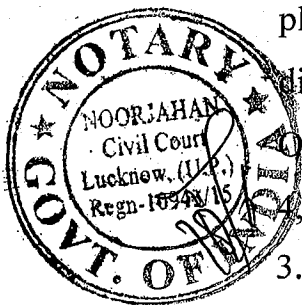
For the purpose of tariff, depreciation shall be computed in the following manner, namely:-

...

(v) In case of the existing projects, the balance depreciable value as on 01.04.2024 shall be worked out by deducting the cumulative depreciation as admitted by the Commission up to 31.03.2024 from the gross depreciable value of the assets. The rate of depreciation shall be continued to be charged at the rate specified in Appendix - III till cumulative depreciation reaches 70%. Thereafter, the remaining depreciable value shall be spread over the remaining life of the asset such that the maximum depreciation does not exceed 90%"

33. It is further submitted that for the purposes of computation of depreciation for the Control Period FY 2024-25 to FY 2028-29, the Opening Capital Cost has been considered on the basis of the allowable Closing Capital Cost for the Financial Year 2023-24, amounting to Rs. 4,04,793.41 Lakhs, as has been elaborated and explained hereinabove, and in consonance with the regulatory principles governing continuity of capital base across successive Control Periods.

34. That upon due examination and scrutiny of the depreciation computations as set out in the Petition, it is noted that the effective rate of depreciation for the Control Period FY 2024-25 to FY 2028-29, as derived from the figures placed on record, works out to 3.76% per annum. This has been arrived at by dividing the annual depreciation amount of Rs. 15,221.87 Lakhs by the Opening Capital Cost of Rs. 4,04,793.41 Lakhs (i.e., $15,221.87 \div 4,04,793.41 = 3.76\%$), which is marginally at variance with the rate of 3.77% as claimed by the Petitioner. The Respondent has accordingly considered the depreciation at the effective rate of 3.76% per annum for the purposes of the present proceedings.



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35. That in view of the foregoing submissions, the regulatory framework set out hereinabove, and the computations derived therefrom, the depreciation as claimed by the Petitioner and as found allowable by the Respondent is set out and summarised in the comparative tabulation hereinbelow:

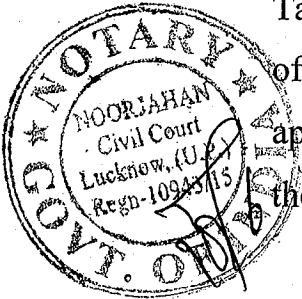
(Rs. in Lakh)

Particulars	2024-25		2025-26		2026-27		2027-28		2028-29	
Depreciation	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable
Opening Capital	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00
Closing Capital	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00
Average Capital	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00	4,04,793.41	4,04,793.00
Land	1,429.00	1,429.00	1,429.00	1,429.00	1,429.00	1,429.00	1,429.00	1,429.00	1,429.00	1,429.00
Depreciable Value	3,63,027.97	3,63,027.60	3,63,027.97	3,63,027.60	3,63,027.97	3,63,027.60	3,63,027.97	3,63,027.60	3,63,027.97	3,63,027.60
Balance Useful Life	27	27	26	26	25	25	24	24	23	23
Rate	3.76%	3.76%	3.76%	3.76%	3.76%	3.76%	3.76%	3.76%	3.76%	3.76%
Depreciation	15,221.87	15,221.85	15,221.87	15,221.85	15,221.87	15,221.85	15,221.87	15,221.85	15,221.87	15,221.85

Re: Operation and Maintenance Expenses

36. It is respectfully submitted that the Petitioner has claimed Operation and Maintenance Expenses (“O&M Expenses”) for the Control Period FY 2024-25 to FY 2028-29 on the basis of the O&M Expenses as approved for the Financial Year 2023-24, escalated at the rate of 4.47% per annum, in accordance with and in conformity with the applicable regulatory provisions governing the determination of normative O&M Expenses for existing hydro generating stations.

37. It is further submitted that this Hon’ble Commission, vide its Order dated 20.04.2023 passed in Petition No. 1642 of 2020, had, after due consideration of the facts and circumstances placed on record, approved the O&M Expenses for the Control Period FY 2019-20 to FY 2023-24 in respect of the Project, in line with the UPERC (Terms and Conditions for Determination of Tariff) Regulations, 2019 (“Tariff Regulations, 2019”). The relevant extract of the aforesaid Order dated 20.04.2023, setting out the O&M Expenses as approved for the preceding Control Period, is reproduced hereinbelow for the ready reference of this Hon’ble Commission:



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Table 17: O&M Expenses for FY 2019-20 to FY 2023-24 approved by the Commission (Rs. Crore)

O & M Expenses	2018-	01-04-	01-04-	01-04-	01-04-	01-04-
	2019	31-03-	31-03-	31-03-	31-03-	31-03-
		2020	2021	2022	2023	2024
Annual O&M Expenses for the year 2018-19	113.13					
Annual Escalation		4.47%	4.47%	4.47%	4.47%	4.47%
O&M expenses for the year		118.19	123.47	128.99	134.75	140.78

38. That in this regard, it is further pertinent to refer to Regulation 25(3)(d) of the Tariff Regulations, 2024, which expressly stipulates that the normative value of Operation and Maintenance Expenses for existing hydro generating stations shall be as approved by this Hon'ble Commission in the Tariff Order, computed on the basis of the O&M Expenses approved in the immediately preceding Control Period, escalated at the rate of 4.47% per annum, as considered appropriate by this Hon'ble Commission. The relevant and operative extract of the aforesaid Regulation 25(3)(d) of the Tariff Regulations, 2024 is reproduced hereinbelow for the kind reference and consideration of this Hon'ble Commission:

“25. Capacity (Fixed) Charge:

...

(3) Components of Fixed Charges:

...

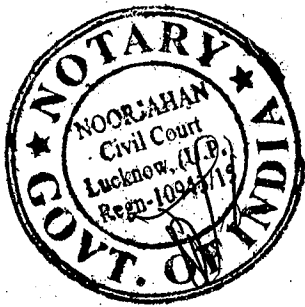
d. Operation and maintenance expenses:

Normative Operation and Maintenance expenses of thermal generating stations shall be as follows:

...

(iv) The normative values of operation and maintenance expenses including insurance, for the existing hydro generating stations, shall be as approved by the Commission in the tariff order based on the expenses approved in the previous control period, escalated at the rate of 4.47% per annum or any other factor as considered appropriate by the Commission.”

39. That in view of the regulatory framework and the provisions cited hereinabove, and in conformity with the directions of this Hon'ble Commission as contained in the Order dated 20.04.2023 passed in Petition No. 1642 of 2020, the O&M Expenses as claimed by the Petitioner and as found allowable by the Respondent for the Control Period FY 2024-25 to



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FY 2028-29 are set out and summarised in the comparative tabulation hereinbelow:

(Rs. in Lakh)										
Particulars	2024-25		2025-26		2026-27		2027-28		2028-29	
O&M expenses	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable
Base O&M exp.	14,077.83	14,077.83	14,707.11	14,707.11	15,364.52	15,364.52	16,051.32	16,051.32	16,768.81	16,768.81
Escalation rate	4.47%	4.47%	4.47%	4.47%	4.47%	4.47%	4.47%	4.47%	4.47%	4.47%
O&M exp. for control period	14,707.11	14,707.11	15,364.52	15,364.52	16,051.32	16,051.32	16,768.81	16,768.81	17,518.37	17,518.37

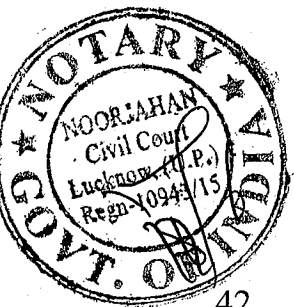
Re: Interest on Working Capital

40. That it is respectfully submitted that the Petitioner has claimed Interest on Working Capital for the Control Period FY 2024-25 to FY 2028-29, adopting the State Bank of India's Marginal Cost of Funds Based Lending Rate (hereinafter referred to as "SBI MCLR") of 8.65% as prevailing on 01.04.2024, and adding thereto a spread of 350 basis points, thereby arriving at an applicable interest rate of 12.15% per annum for the purposes of computation of Interest on Working Capital for the said Control Period.
41. That in this regard, it is pertinent to refer to Regulation 35(3)(e)(iv) of the Tariff Regulations, 2024, which expressly stipulates the components of Working Capital admissible for hydro generating stations. In accordance with the said Regulation, the Working Capital for hydro generating stations shall comprise and include the following components, namely:

- a. O&M Expenses for one month;
- b. Maintenance Spares at 15% of the O&M Expenses; and
- c. Receivables equivalent to 45 days of the Annual Fixed Charges.

42. The relevant and operative extract of the aforesaid Regulation 35(3)(e)(iv) of the Tariff Regulations, 2024 is reproduced hereinbelow for the kind reference and consideration of this Hon'ble Commission:

43. That it is further submitted that Regulation 25(3)(v) of the Tariff Regulations, 2024 further provides that the rate of interest on Working Capital shall be determined on a normative basis and shall be considered as



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the Bank Rate prevailing as on 01.04.2024. The relevant and operative extract of the aforesaid Regulation 25(3)(v) of the Tariff Regulations, 2024 is reproduced hereinbelow for the kind reference and consideration of this Hon'ble Commission:

"25. Capacity (Fixed) Charge:

...

(3) Components of Fixed Charges:

...

(v) Rate of interest on working capital shall be on normative basis and shall be considered as the Bank Rate as on 01.04.2024 or as on 1st April of the year during the tariff period 2024-29 in which the generating station or a Unit thereof is declared under commercial operation, whichever is later :"

44. That it is further submitted that as per the definitions and provisions contained in the Tariff Regulations, 2024, the term "Bank Rate" has been defined to mean the one-year MCLR rate of the State Bank of India plus 350 basis points, as more particularly set out hereinbelow:

"2. Definitions:

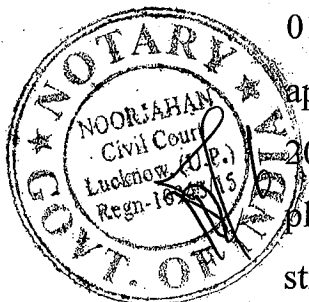
Unless the context otherwise requires, for the purpose of this Chapter,—

...

(ix) 'Bank Rate' means one-year Marginal Cost of funds-based Lending Rate (MCLR) of the State Bank of India issued from time to time, or any replacement thereof for the time being in effect, plus 350 basis points; "

45. That in view of the aforesaid regulatory provisions, and upon due application thereof, the one-year SBI MCLR rate as prevailing on 01.04.2024 being 8.65%, the applicable Bank Rate, and consequently the applicable rate of Interest on Working Capital for the Control Period FY 2024-25 to FY 2028-29, is determined at 12.15% per annum (being 8.65% plus 3.50%), in consonance with the claim preferred by the Petitioner and in strict conformity with the Tariff Regulations, 2024.

46. That it is further necessary to bring to the kind notice of this Hon'ble Commission that on account of the revision in the Annual Fixed Charges for the Control Period FY 2024-25 to FY 2028-29, arising from the change in



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the applicable ROE rate as elaborated and explained at Point 14 of this Report, the component of Receivables, being equivalent to 45 days of the Annual Fixed Charges, stands correspondingly affected and has been revised and recomputed accordingly.

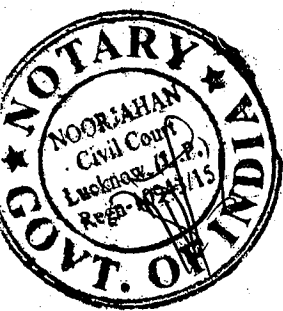
47. It is additionally noted that FY 2027-28 is a leap year, comprising 366 days, and the said fact has been duly factored in for the purposes of computation of the Receivables component for the said Financial Year, in the interest of accuracy and regulatory compliance.
48. That in view of the foregoing submissions, the regulatory framework set out hereinabove, and the computations derived therefrom, the Interest on Working Capital as claimed by the Petitioner and as found allowable by the Respondent for the Control Period FY 2024-25 to FY 2028-29 is set out and summarised in the comparative tabulation hereinbelow:

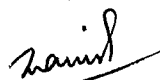
(Rs. in Lakh)

Particulars	2024-25		2025-26		2026-27		2027-28		2028-29	
	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable
Interest on WC										
O&M expenses	1,225.59	1,225.59	1,280.38	1,280.38	1,337.61	1,337.61	1,397.40	1,397.40	1,459.86	1,459.86
Maintenance Spares	2,206.07	2,206.07	2,304.68	2,304.68	2,407.70	2,407.70	2,515.32	2,515.32	2,627.76	2,627.76
Receivables	8,786.40	8,786.40	8,246.56	8,246.55	8,138.01	8,118.50	7,984.36	7,964.90	7,870.64	7,851.13
Total	12,218.06	12,218.06	11,831.61	11,831.60	11,883.32	11,863.81	11,897.08	11,877.63	11,958.26	11,938.76
Rate	12.15%	12.15%	12.15%	12.15%	12.15%	12.15%	12.15%	12.15%	12.15%	12.15%
IoWC	1,484.49	1,484.49	1,437.59	1,437.54	1,443.78	1,441.45	1,445.49	1,443.13	1,452.90	1,450.56

Re: Annual Fixed Charges (Capacity Charges)

49. That it is respectfully submitted that on the basis of and in view of the detailed submissions made hereinabove with respect to each of the constituent components of the Annual Fixed Charges, including Capital Cost, Return on Equity, Interest on Loan, Depreciation, Operation and Maintenance Expenses, and Interest on Working Capital, as elaborated and explained at the respective points of this Report, the aggregate Annual Fixed Charges for the Control Period FY 2024-25 to FY 2028-29, as claimed by the Petitioner and as found allowable by the Respondent, have been duly computed and determined in accordance with the applicable provisions of the Uttar Pradesh Electricity Regulatory Commission (Terms and Conditions for Determination of Tariff) Regulations, 2024, and the directions issued by this Hon'ble Commission in the relevant Orders cited hereinabove.




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50. That in view of the foregoing submissions and the comprehensive analysis set out hereinabove, the Annual Fixed Charges for the Control Period FY 2024-25 to FY 2028-29, as claimed by the Petitioner and as found allowable by the Respondent, are set out and summarised in the comparative tabulation hereinbelow:

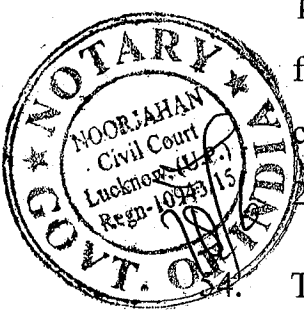
(Rs. in Lakh)

Particulars	2024-25		2025-26		2026-27		2027-28		2028-29	
AFC	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable
Depreciation	15,221.87	15,221.85	15,221.87	15,221.85	15,221.87	15,221.85	15,221.87	15,221.85	15,221.87	15,221.85
Intt. on Loan	24,790.77	24,791.00	19,801.53	19,801.74	18,228.10	18,228.31	16,440.05	16,440.27	14,583.26	14,583.48
ROE	15,063.25	15,062.99	15,063.25	15,062.99	15,063.25	14,907.16	15,063.25	14,907.16	15,063.25	14,907.16
IoWC	1,484.49	1,484.49	1,437.59	1,437.54	1,443.78	1,441.45	1,445.49	1,443.13	1,452.90	1,450.56
O&M expenses	14,707.11	14,707.11	15,364.52	15,364.52	16,051.32	16,051.32	16,768.81	16,768.81	17,518.37	17,518.37
Total	71,267.50	71,267.46	66,888.76	66,888.65	66,008.32	65,850.10	64,939.47	64,781.22	63,839.66	63,681.43

Re: Energy Charges

51. That it is respectfully submitted that the Petitioner, AHPCL, has claimed Energy Charges for the Control Period FY 2024-25 to FY 2028-29, the details and basis whereof are set out hereinbelow.
52. That the Petitioner has submitted before this Hon'ble Commission that the Central Electricity Authority ("CEA"), upon due examination and analysis of the hydrological data for the period FY 1971-72 to FY 2015-16, as approved by the Central Water Commission (hereinafter referred to as "CWC"), has approved a Design Energy of 1,251.94 Million Units (MUs) in respect of the Petitioner's generating station, vide its letter dated 14.05.2018.
53. On the basis of the aforesaid approval granted by the CEA, the Petitioner had requested this Hon'ble Commission to consider the Design Energy of 1,251.94 MUs for the Control Period FY 2019-20 to FY 2023-24, and has further requested that the same Design Energy of 1,251.94 MUs be continued and adopted for the ensuing Control Period FY 2024-25 to FY 2028-29 as well.

That it is further submitted that this Hon'ble Commission, vide its Order dated 20.04.2023 passed in Petition No. 1642 of 2020, had, after due consideration of the facts and circumstances placed on record, approved the Design Energy of 1,251.91 MUs as approved by the CEA vide its letter dated 14.05.2018, in respect of the Petitioner's generating station. The


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relevant and operative extract of the aforesaid Order dated 20.04.2023, setting out the Design Energy as approved by this Hon'ble Commission, is reproduced hereinbelow for the kind reference and consideration of this Hon'ble Commission:

Design Energy

39. The Commission has considered the design energy of 1251.91 Mu as approved by CEA on 14.05.2018 and approved by the Commission for FY 2018-19 vide its Order dated 02.08.2022 in Petition No. 1740/2021.

55. That it is further submitted that this Hon'ble Commission, vide the aforesaid Order dated 20.04.2023 passed in Petition No. 1642 of 2020, had also approved the Energy Charges and Design Energy for the Control Period FY 2019-20 to FY 2023-24, duly taking into consideration the fact that 12% of the power generated is required to be provided as Free Power to the State of Uttarakhand, in accordance with the terms and conditions governing the Petitioner's generating station. The relevant extract of the aforesaid Order dated 20.04.2023 in this regard is reproduced hereinbelow for the ready reference of this Hon'ble Commission:

Table 22: Energy Charges as approved by the Commission for FY 2019-20 to FY 2023-24

S. No.	Particulars	01-Apr-19	01-Apr-20	01-Apr-21	01-Apr-22	01-Apr-23
		31-Mar-20	31-Mar-21	31-Mar-22	31-Mar-23	31-Mar-24
1	Annual Fixed Charges-Rs./Crs	723.33	720.54	706.70	687.37	674.23
3	Design Energy (DE)	1251.94	1251.94	1251.94	1251.94	1251.94
5	Aux Consumption	1%	1%	1%	1%	1%
6	Free Power	12%	12%	12%	12%	12%
7	Energy Charges (Rs. per unit)	3.316	3.303	3.240	3.151	3.091



That it is additionally submitted that this Hon'ble Commission, vide the aforesaid Order dated 20.04.2023 passed in Petition No. 1642 of 2020, had further approved the Auxiliary Consumption for the Control Period FY 2019-20 to FY 2023-24 at the rate of 1%, in accordance with and in conformity with the provisions of the Tariff Regulations, 2019. The relevant extract of the aforesaid Order dated 20.04.2023 in this regard is reproduced hereinbelow for the ready reference of this Hon'ble Commission:

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51. The Commission has considered auxiliary consumption for the control period @ 1% in terms of the clause 27 (ii) of Commission's Regulations, 2019.

57. That in this regard, it is further pertinent to refer to Regulation 30(b) of the Tariff Regulations, 2024, which expressly stipulates that the Energy Charges Rate, expressed in Rupees per kWh, for hydro generating stations, shall be determined on the basis of the formula as specified in the said Regulations. The relevant extract of the aforesaid Regulations is reproduced hereinbelow for the ready reference of this Hon'ble Commission:

"30. Energy Charges:

...

(6) Energy charges for hydro- generating stations

...

b. Energy charge rate (ECR) in Rupees per kWh on ex-power plant basis, for a hydro generating station, shall be determined up to three decimal places based on the following formula, subject to the provisions of Sub-Clause (c):

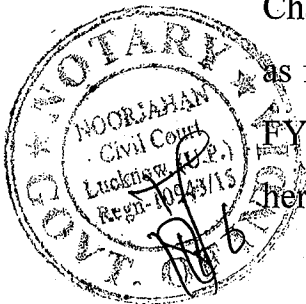
$$ECR = AFC \times 0.5 \times 10 / \{DE \times (100 - AUX) \times (100 - FEHS)\}$$

Where,

DE = Annual design energy specified for the hydro generating station, in MWh, subject to the provision in Sub-Clause (c) below.

FEHS = Free energy for home State, in percent and shall be taken as 12% or actual, whichever is less."

58. That in view of the regulatory framework, the directions of this Hon'ble Commission, and the provisions cited and set out hereinabove, the Energy Charges Rate (expressed in paise per unit) as claimed by the Petitioner and as found allowable by the Respondent for the Control Period FY 2024-25 to FY 2028-29 is set out and summarised in the comparative tabulation hereinbelow:



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Particulars	2024-25		2025-26		2026-27		2027-28		2028-29	
Energy Charges Rate (paisa per unit)	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable	Claimed	Allowable
Annual Fixed Charges (Rs. in Lakh)	71,267.50	71,267.46	66,888.76	66,888.65	66,008.32	65,850.10	64,939.47	64,781.22	63,839.66	63,681.43
DE (MU)	1251.94	1251.94	1251.94	1251.94	1251.94	1251.94	1251.94	1251.94	1251.94	1251.94
Aux	1%	1%	1%	1%	1%	1%	1%	1%	1%	1%
FESH	12%	12%	12%	12%	12%	12%	12%	12%	12%	12%
ECR per unit (paisa per unit)	326.71	326.71	306.64	306.63	302.60	301.87	297.70	296.97	292.66	291.93

Re: Normative Annual Plant Availability Factor (NAPAF)

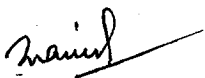
59. Without prejudice to the foregoing, it is submitted that UPPCL, in its Reply dated 17.07.2025 to Petition No. 2151 of 2024, submitted its objections to the methodology for ascertaining the Normative Annual Plant Availability Factor (“NAPAF”) adopted by the Petitioner. Such methodology has been upheld by this Hon’ble Commission in its True-Up Order. The Respondent reiterates its objections hereinbelow.
60. It is submitted that the present Project is a run-of-river (“ROR”) type plant, for which the NAPAF is governed by Regulation 29(1)(d) of the Tariff Regulations, 2024. The Regulations stipulate a plant-wise determination of the NAPAF on the basis of 10-day design energy data. The relevant extract of the Regulations is reproduced hereinbelow for the ready reference of this Hon’ble Commission:

“29. Norms for Hydro Power generating stations:

(1) Normative Annual station Availability Factor for recovery of full capacity charges:

d. Run-of-river type plants: NAPAF to be determined plant-wise, based on 10-day design energy data, moderated by past experience where available/ relevant. ...”

61. It is submitted that the basis of the Petitioner’s lower claim of NAPAF is the calculation of the NAPAF in terms of the Order of this Hon’ble Commission dated 08.02.2021 in Petition Nos. 1401 of 2018 and 1628 of 2020. The relevant extract of the Order is reproduced hereinbelow for the ready reference of this Hon’ble Commission:



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4.7 Normative Annual Plant Availability Factor (NAPAF)

4.7.1 The Petitioner submitted that since the project is a run of river project Normative Annual Plant Availability factor is to be determined as per clause (d) of Regulation 36 (i) of UPERC Regulations. The Petitioner has requested the Commission to approve the NAPAF of 45.90% for the first year of operation and 43.31% for FY 2016-17 to FY 2018-19. UPPCL has no specific comment on this issue.

Commission's view:

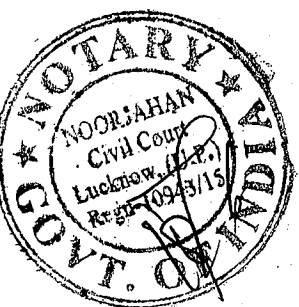
4.7.2 As deliberated above, the design energy for the Control period FY 2015-16 to FY 2018-19 has been considered 1550 MU/year. NAPAF for run-of-river plants is to be determined plant wise based on the 10-day design energy data as per Regulation 36 of UPERC Generation Tariff Regulations 2014. Therefore, proportionate flow based on CEA approved design energy of 1251.94 MUs has been considered for calculating NAPAF. Accordingly, NAPAF for FY 2015-16 (285 days) is 56.63% and NAPAF for FY 2016-17 to FY 2018-19 is 53.62%.

62. It is submitted that, as is evident from the aforesaid extract, this Hon'ble Commission had determined the NAPAF for the Project for the period FY 2015-16 to FY 2018-19 on the basis of proportionate flow, computed with reference to the Design Energy of 1,251.94 MUs as approved by the CEA. The Hon'ble Commission thereafter, vide its Order dated 16.11.2022 read with its Order dated 30.12.2022 passed in Petition No. 1752 of 2021, determined and revised the NAPAF of the Project to 48.12% for FY 2017-18 and 43.31% for FY 2018-19 respectively.

63. It is respectfully submitted that a fundamental and consequential anomaly has arisen in the methodology adopted by the Hon'ble Commission for the computation of NAPAF of the Project, which has resulted in the Generator, AHPCL, being permitted to claim incentives greatly and disproportionately in excess of what it ought legitimately to be entitled to claim, thereby causing grave and continuing financial prejudice to the Appellant and to the consumers of the State of Uttar Pradesh. The said anomaly, which goes to the root of the tariff determination for the Project, is set out and elaborated hereinbelow.

The detailed computations exhibiting the total payments made to AHPCL by UPPCL along with the incentives have been attached herewith, marked as **Annexure R-1**.

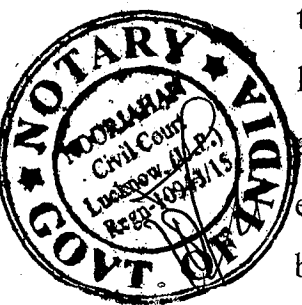
64. It is submitted that under the applicable provisions of the Tariff Regulations, 2024 the Actual Plant Availability Factor ("APAF") is required to be computed on the basis of 3 hours of peaking availability per day, being the



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threshold prescribed under the Regulations for the purposes of determining the capacity charge entitlement of a hydro generating station possessing peaking capability. However, notwithstanding the aforesaid regulatory prescription, the Average Availability of the Project has been computed by this Hon'ble Commission on an entirely different and incompatible basis, viz., by treating the Design Energy as being available uniformly over 24 hours across 365 days of the year, i.e., on a continuous run of the river basis, rather than on the 3-hour peaking basis mandated under the Regulations for a station possessing the storage and peaking capability that the Project possesses.

65. That the inevitable and direct consequence of the aforesaid methodological inconsistency is that the APAF, which is computed on the basis of 3 hours of peaking availability per day in terms of the applicable Regulations, is necessarily and structurally higher than the Average Availability as computed by this Hon'ble Commission on a 24-hour run of the river basis. The gap so created between the APAF and the erroneously computed Average Availability, which ought not to exist had the correct methodology been uniformly applied, has been treated as excess generation over and above the NAPAF, thereby triggering the incentive mechanism under the Regulations and entitling the Generator to claim incentive on the said differential.
66. That it is respectfully submitted that this structural anomaly in the computation of NAPAF has had a direct, substantial, and demonstrably adverse impact on the computation of AFC and the consequential incentive payable to the Generator. By reason of the aforesaid erroneous methodology, the Generator has been permitted to claim and receive incentive payments that are grossly and disproportionately in excess of what it ought legitimately to be entitled to claim under the applicable Regulations and in accordance with the true operational performance of the Project. The said excess incentive has been paid by the Appellant, UPPCL, and has ultimately been borne by the consumers of the State of Uttar Pradesh, in direct contravention of the mandate under Section 61(d) of the Act, which requires the Regulatory Commissions to safeguard consumer interests in the course of tariff determination.



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67. It is, therefore, submitted that the anomaly arising from the adoption of two mutually inconsistent and incompatible methodologies is the root cause of the disproportionate and unwarranted incentive claims made by and allowed to AHPCL. First, the computation of APAF on a 3-hour peaking basis on the one hand. Second, the computation of the NAPAF on a 24-hour continuous generation basis on the other.
68. It is submitted that regulatory precedents governing the NAPAF for ROR plants provide for this 10-day design energy data to be calculated on the basis of the actual availability of the plant. In this regard, reliance is placed upon the decision of the Hon'ble Central Electricity Regulatory Commission ("CERC") in Petition No. 228/GT/2013 ("**Parbati Order**"). Therein, the Hon'ble CERC relied upon the available live storage capacity of the Hydro Power Plant to ascertain the applicable norm for the calculation of the applicable plant-specific NAPAF. The relevant extract of the Parbati Order is reproduced hereinbelow for the ready reference of this Hon'ble Commission:

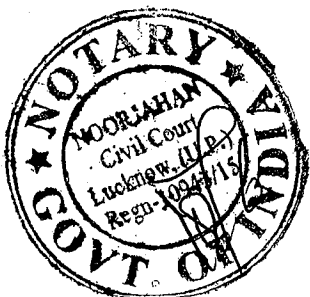
"Peaking operation of the plant

20. The petitioner has claimed NAPAF of 31% for this project, while operating it as ROR scheme, prior to the commissioning of the upstream Parbati-II HEP. The petitioner vide its affidavit dated 22.10.2013 has submitted justification for its claim as under:

(a) It is mentioned in the DPR of the project, as cleared by CEA that Parbati-III HEP will operate as ROR scheme till commissioning of upstream Parbati-II HEP. This is based on the fact that the live storage capacity of Parbati-III HEP is only 1.28 MCM which is not sufficient to provide minimum three hours peaking with four units.

(b) Similarly, the post-sedimentation live storage capacity is only 0.87 MCM which is just sufficient to meet 1.36 hours of peaking. The NAPAF for Parbati-III HEP which has been claimed at 31% is actually based on the operation of the power station as ROR scheme. The same will be reviewed after commissioning of Parbati-II HEP.

21. The petitioner has proposed to operate the project as 'Run of River' project till the upstream Parbati-II HEP is commissioned. However, the live storage capacity of 1.28 MCM is available which can be utilized to provide peaking



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power. On perusal of the design energy data and corresponding inflows, it is observed that the generating station can provide 3 hours of daily peaking depending on the inflows. However, due to reduced inflows on account of the non-commissioning of upstream Parbati-II HEP, this generating station would be able to provide maximum available peaking support for three hours in two slots of 1.5 hours each (morning & evening peak). In view of the fact that the generating station has been designed to operate in peaking mode and for that purpose a dam has been constructed whose cost has been embedded in the cost of the project, we find it prudent that the generating station should be operated to provide peaking support to the grid. Accordingly, we direct the petitioner to provide 1.5 hours of peaking in two slots of morning & evening each, till the upstream Pārhati-II HEP is commissioned. Also, in order to facilitate peaking power from this generating station in the scenario discussed above, we direct the NRLDC to provide schedule to this generating station accordingly. Based on the '10-daily Design Energy' approved by CEA along with the provision of providing 3 hours of daily peaking (in two slots of morning & evening each for 1.5 hours), the NAPAF of 68% has been worked out and allowed till the commissioning of upstream Parbati-II HEP as against the claim of 31% by the petitioner based on ROR operation. The computation of NAPAF is enclosed as Annexure-I to this order."

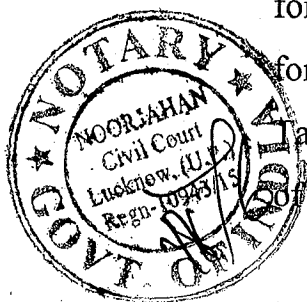
(Emphasis Supplied)

A copy of the CERC Order dated 28.03.2016 in Petition No. 228/GT/2013 has been attached herewith, marked as **Annexure R-2**.

69. It is further submitted that the Regulations of this Hon'ble Commission governing Tariff Regulation have consistently provided for the capacity charges, including incentives, payable to the Hydro Generating Stations are to be calculated in terms of the station/plant availability factor achieved during the month ("PAFM"). This PAFM is to be calculated by accounting for the Declared Capacity of the plant, which in turn is premised on delivery for at least three hours of the day. In this regard, Regulation 27(7) of the Tariff Regulations, 2024 is reproduced hereinbelow for the ready reference of this Hon'ble Commission:

"27. Billing and Payment of Capacity Charges:

Billing and payment of capacity charges shall be done on a monthly basis in the following manner:



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 U.P. P.C.E. Lucknow

(7) (a) The capacity charges for a hydro generating station (inclusive of incentive) shall be paid by the beneficiary(ies) including those outside the state/region to the generating company, every month in accordance with the following formula and in proportion to their respective shares in the concerned generating station for a calendar month and shall be equal to:

$AFC \times 0.5 \times NDM / NDY \times (PAFM / NAPAF)$ (in Rupees)

Where,

AFC = Annual fixed cost specified for the year (in Rupees)

$NAPAF$ = Normative plant availability factor (in percentage)

NDM = Number of days in the month

NDY = Number of days in the year

$PAFM$ = station availability factor achieved during the month (in %)

b. $PAFM$ upto the end of a particular month shall be computed in accordance with the following formula:-

$$PAFM = 10000 \times \sum_{i=1}^N DCi / \{N \times CC \times (100 - AUX)\} \%$$

Where,-

AUX = Normative auxiliary energy consumption (in percentage).

DCi = Declared capacity (in ex-bus MW) for the i th day of the month which the station can deliver for at least three (3) hours, as certified by the nodal load dispatch Centre after the day is over.

CC = Contracted Capacity in the generating station

N = Number of days in the month."

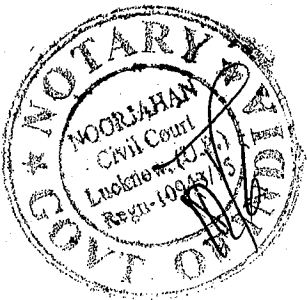
(Emphasis Supplied)

70. It is submitted that the applicable regulatory framework for $NAPAF$ in the Parbati Order was provided vide Regulation 27 of the CERC (Terms and Conditions of Tariff) Regulations, 2009. The prescribed norms of operation for hydro generating stations therein are pari materia to the provisions of the Tariff Regulations, 2024. The aforementioned Regulation is reproduced hereinbelow for the ready reference of this Hon'ble Commission:

"27. The norms of operation as given hereunder shall apply to hydro generating station:

(i) Normative annual plant availability factor ($NAPAF$) for hydro generating stations

(1) Normative annual plant availability factor ($NAPAF$) for hydro generating stations shall be determined by the Commission as per the following criteria:



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...

(iv) Run-of-river type plants: NAPAF to be determined plant-wise, based on 10-day design energy data, moderated by past experience where available/relevant."

(Emphasis Supplied)

71. It has been submitted by the Petitioner that the NAPAF of 43.31% be approved by this Hon'ble Commission. This submission of the Petitioner is premised upon the Project's average availability being computed on the basis of considering design energy available over 24 hours over 365 days. Resultantly, the NAPAF for the Project seemingly corresponds to 24 hours of daily peaking over the 10-day period of ascertaining the design energy data as per Regulation 29(1)(d) of the Tariff Regulations, 2024. This position results in divergent interpretation of the applicable norms between the Hon'ble CERC and this Hon'ble Commission.
72. It is respectfully submitted that the foundational principles governing the determination of NAPAF and Design Energy are well settled in law and admit of no ambiguity or dispute. In the present case, the CEA, vide its Memorandum dated 14.05.2018, inter alia, crystallised the applicable parameters, including the adoption of a 10-day daily water flow series and the incorporation of mandatory environmental flow releases to the extent of 15% of the average discharge during the lean season (January to April) of a 90% dependable year, quantified at 12.5 cumecs in terms of the judgment dated 09.08.2017 passed by the Hon'ble National Green Tribunal. Upon due consideration of the aforesaid parameters, along with the normative operating head, live storage, turbine efficiency and other relevant technical factors, the CEA duly vetted and approved the Design Energy of the Project at 1251.94 MUs.



A copy of the memorandum issued by the CEA dated 14.05.2018 is attached herewith, marked as **Annexure R-3**.

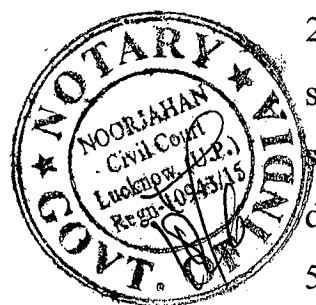
A copy of the CDM-MR Report of AHPCL's Project has been attached herewith, marked as **Annexure R-4**.

73. It is further submitted that, in undertaking such exercise, the CEA expressly factored in the continuous peaking capability of the Project corresponding to

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a capacity of 330 MW attributable to Respondent No. 2, having regard to the average discharge during the lean season in a 90% dependable year, which was computed to sustain peaking operation for 3.04 hours, being in excess of the normative threshold of 3 hours prescribed for peaking capacity determination. In view thereof, the Project was correctly characterised as a Run-of-the-River project with pondage, possessing the inherent capability to provide peaking power, and consequently, the tariff determination was liable to be undertaken in accordance with the applicable Tariff Regulations, recognising the availability of such peaking capacity.

74. In light of the aforesaid, it is submitted that any contention seeking to determine NAPAF solely on the basis of a 10-day Design Energy series, de hors and in disregard of the Project's established capability to operate with a minimum of 3 hours of peaking capacity and to deliver the entire quantum of power in a peaking mode, is ex facie erroneous and contrary to the settled regulatory framework. Such an approach would unjustifiably curtail the normative capacity available to procurers and beneficiaries, notwithstanding the demonstrated operational characteristics of the Project.
75. It is, therefore, submitted that the determination of NAPAF and Design Energy for the Project ought to be undertaken on the same principled basis as adopted by the Hon'ble Central Electricity Regulatory Commission in the Parbati Order, and not in the manner canvassed by the Petitioner, who seeks to rely upon a purported NAPAF of 43.31% based on certifications of the Central Water Commission and CEA in isolation.
76. It is further submitted that empirical operational data for the period from FY 2019-20 to FY 2023-24 unequivocally establishes that AHPCL had sufficient water availability to generate substantially higher output than the said figure of 43.31%. In fact, the actual Plant Availability Factor (PAF) during the said period has been recorded in the range of 59.53%, 57.13%, 56.61%, 59.16% and 52.95%, which, when evaluated in the context of sustained 3-hour peaking capability, corresponds to a NAPAF of 98.91% for each of the aforesaid years, thereby reinforcing the inherent peaking potential and operational robustness of the Project.



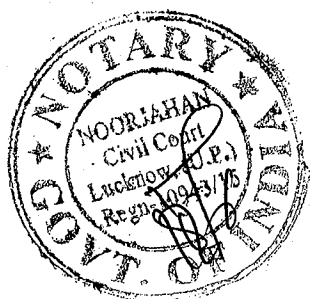
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77. It is submitted that Section 61 of the Act provides the terms and conditions for determination of tariff that shall be binding upon this Hon'ble Commission. Amongst these is the principles and methodologies specified by the Hon'ble CERC for tariff determination. The Respondent, therefore, submits that this Hon'ble Commission may be pleased to adopt the interpretation of the norms of operation as propounded by the Hon'ble CERC. The relevant extract of the Act is reproduced hereinbelow for the ready reference of this Hon'ble Commission:

"61. Tariff regulations. — The Appropriate Commission shall, subject to the provisions of this Act, specify the terms and conditions for the determination of tariff, and in doing so, shall be guided by the following, namely: —

(a) the principles and methodologies specified by the Central Commission for determination of the tariff applicable to generating companies and transmission licensees;"

78. This Hon'ble Commission in the True-Up Order noted that each ROR project is unique and the design energy varies for each project based on its hydrology. It is submitted that in line with this observation, this Hon'ble Commission may be pleased to determine the applicable NAPAF for the Project based on actual availability. In this regard, the Petitioner is required to present before this Hon'ble Commission all requisite information for such determination.
79. That in view of the regulatory framework, the directions of this Hon'ble Commission, and the provisions cited and set out hereinabove, the Fixed Charges as claimed by the Petitioner and as found allowable by the Respondent for the Control Period FY 2024-25 to FY 2028-29 is set out and summarised in the comparative tabulation hereinbelow:



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 U.P.P.C.L., Lucknow

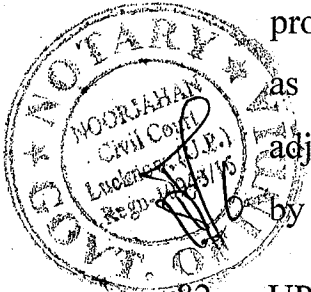
Sr. No.	Description	Unit	FY 2024-25	FY 2025-26	FY 2025-26	FY 2025-26	FY 2025-26
1	Allowable AFC as per UPPCL's submission in MYT Petition	Rs. in Cr.	712.67	668.89	658.50	647.81	636.81
2	Fixed Charges - 50% of AFC	Rs. in Cr.	356.34	334.44	329.25	323.91	318.41
3	Plant Availability Factor (PAF) Actual (as per True-up Order)	%	56.12%	55.97%	55.97%	55.97%	55.97%
4	NAPAF considered based CERC Methodology	%	98.91%	98.91%	98.91%	98.91%	98.91%
5	Fixed Charge Payable based on actual PAF w.r.t. NAPAF	Rs. in Cr.	202.18	189.25	186.31	183.29	180.18
6	Fixed Charges paid by UPPCL including incentive - as per UPPCL Bills	Rs. in Cr.	456.06	432.96	427.76	422.42	416.92
6.1	Fixed Charges (FC) (in Cr.)	Rs. in Cr.	356.34	334.44	329.25	323.91	318.41
6.2	Incentive Portion of FC (in Cr.)	Rs. in Cr.	99.72	98.51	98.51	98.51	98.51
7	Fixed Charge (Including Incentive) to be recovered by UPPCL from AHPCL - Considering NAPAF as 98.91%	Rs. in Cr.	253.88	243.71	241.45	239.13	236.74

80. It is submitted that the projected recovery amounts detailed herein are predicated upon a specific and defined set of regulatory and operational assumptions, viz.:

- a. that the PAF for FY 2026–27, 2027–28, and 2028–29 shall remain constant and identical to the verified PAF recorded for FY 2025–26;
- b. that the quantum of incentive for FY 2026–27, 2027–28, and 2028–29 is computed as being commensurate with the actual incentive disbursed for FY 2025–26; and
- c. that the allowable Annual Fixed Charges (AFC), as determined and recognized by the Petitioner for the Control Period 2024–29, have been adopted as the baseline for all recovery computations.

81. It is submitted that these recovery figures are strictly provisional and projected on the basis of the aforementioned MYT allowable amounts, and as such, remain inherently subject to revision, modification, and final adjustment upon the formal truing-up and approval of the Multi-Year Tariff by the Hon'ble Commission.

82. UPPCL reserves the right to file additional submissions/affidavits/documents in order to assist the Hon'ble Commission for adjudication of the instant petition



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 Shakti Bhawan Extn.

83. The instant submissions have been made bona fide and in the interest of justice.



MANISH DWIVEDI
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Shakti Bhawan Extn.
UPPCL, Lucknow

Uttar Pradesh Power Corporation Limited
(Through its Authorised Representative)

Through



LAW OFFICES OF DIVYANSHU BHATT
(Counsel for UPPCL)

^{NOTA}
Date: 18.06.2026
Place: Lucknow

Ground Floor, C-1058, Sector-B,
Mahanagar, Lucknow – 226006.





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Government of Uttar Pradesh



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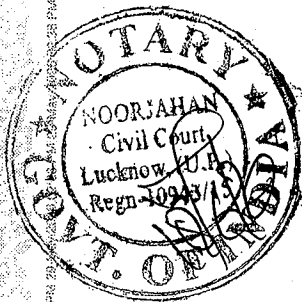
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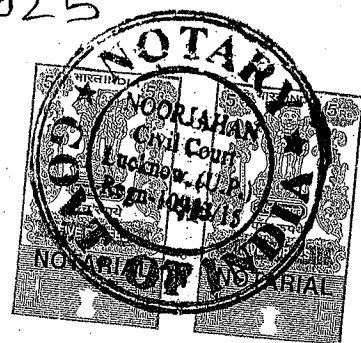
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Before The Hon'ble Uttar Pradesh Electricity Regulatory Commission
At Lucknow

Petition No. 2271 of 2025



Manish
MANISH DWIVEDI
Chief Engineer (PPA)
Shakti Bhawan Extn.
U.P.P.C.L., Lucknow



Sworn and verified
before me

8/6/26
NOORJAHAN
Advocate & Notary
Civil Court, Lucknow
Registration No.-10943/15

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**BEFORE THE HON'BLE UTTAR PRADESH ELECTRICITY
REGULATORY COMMISSION, LUCKNOW
PETITION NO. 2271 OF 2025**

IN THE MATTER OF:

Alaknanda Hydro Power Corporation Limited

...Petitioner

Versus

Uttar Pradesh Power Corporation Limited

...Respondent

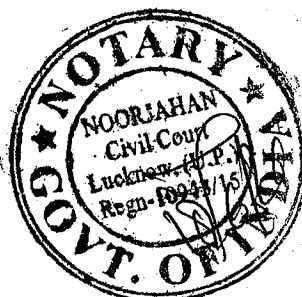
AFFIDAVIT IN SUPPORT OF THE REPLY

I, Manish Dwivedi, S/o Late Sri P.N. Dwivedi, aged about 52 years, working as Chief Engineer – PPA with the Respondent, Uttar Pradesh Power Corporation Limited, 14th Floor, Shakti Bhawan, Ashok Marg, Lucknow, Uttar Pradesh, - 226001, am the deponent hereby annexing my ID-proof and do hereby solemnly affirm and state on oath as under:

1. I say that I am the Authorized Representative of the Respondent in the captioned matter.
2. I say that I have read and understood the contents of the instant Reply and the same have been drafted under my instructions.
3. I say that the contents of the Reply are based on the records and information available in the public domain, the records maintained by Uttar Pradesh Power Corporation Limited, and, as such, are believe to be true by me.
4. I say that the Annexures to the instant Reply are true and correct copies of their respective originals.

Manish
MANISH DWIVEDI
Chief Engineer (PPA)
Shakti Bhawan Extn.
U.P.P.C.L., Lucknow
(DEPONENT)

NOTARY
Date: 18.06.2026
Place: Lucknow



VERIFICATION

I, the above-named deponent, do hereby verify that the contents of above affidavit are true to my knowledge. No part of the same is false and nothing material has been concealed there from.

NOTARY NOTARY
Verified on this the 19th day of June 2021 Lucknow.

Manish
MANISH DWIVEDI
Chief Engineer (PPA)
Shakti Bhawan Extn.
U.P.P.C.L., Lucknow
(DEPONENT)

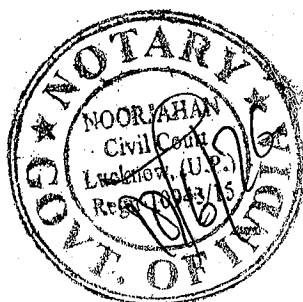
I identify the deponent on the basis of records which the deponent produced before me and who has signed this affidavit after understanding its contents.

Divyanshu Bhatt
DIVYANSHU BHATT
ADVOCATE
(UP 4506/2020)

NOTARY NOTARY
Solemnly affirmed before me on 18/6/21 at 11:45 a.m./p.m. by
Manish Dwivedi the deponent who is identified by Sri D. Bhatt,
Advocate.

I have satisfied myself by examining the deponent that he understands the contents of this affidavit which have been read out and explained by me.

Sworn and verified
before me.
Noorjahan
NOORJAHAN
Advocate & Notary
Civil Court, Lucknow
Registration No.-10943/15



I.D. OF THE DEPONENT

भारत सरकार
Government of India

मनीष द्विवेदी
Manish Dwivedi
जन्म तिथि / DOB: 03/07/1973
पुरुष / MALE

8855 6126 6998

मेरा आधार, मेरी पहचान

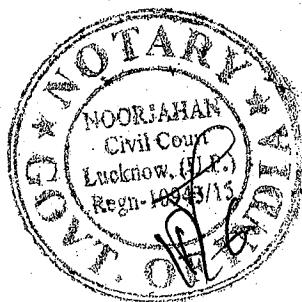
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Bharatiya Digital Identity Authority of India

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Address: C/O.P.N Dwivedi, B 25 Sector I, Alisha Nagar Jankipuram, Near Alisha Chakki, Jankipuram, Lucknow, Lucknow, Uttar Pradesh, 226021

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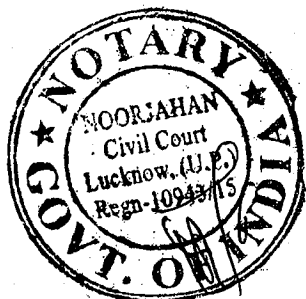
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U.P.P.C.L., Lucknow

Sr. No.	Description	Unit	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24
1	AFC Approved as per True-up Order (Petition No. 2151 of 2024)	Rs. in Cr.	723.01	721.34	707.85	683.05	685.70
2	Fixed Charges - 50% of AFC	Rs. in Cr.	361.51	360.67	353.93	341.53	342.85
3	Plant Availability Factor (PAF) - Actual (as per True-up Order)	%	59.59%	57.13%	56.72%	59.16%	52.95%
4	NAPAF considered based CERC Methodology	%	98.91%	98.91%	98.91%	98.91%	98.91%
5	Fixed Charge Payable based on actual PAF w.r.t. NAPAF	Rs. in Cr.	217.79	208.32	202.96	204.27	183.54
6	Fixed Charges paid by UPPCL including incentive as per UPPCL Bills	Rs. in Cr.	497.12	475.23	461.85	469.46	412.17
6.1	Fixed Charges (FC) (in Cr.)	Rs. in Cr.	361.67	360.27	353.35	343.69	337.12
6.2	Incentive Portion of FC (in Cr.)	Rs. in Cr.	135.45	114.96	108.50	125.78	75.05
7	Fixed Charge (Including Incentive) to be recovered by UPPCL from AHPCL - Considering NAPAF as 98.91%	Rs. in Cr.	279.32	266.91	258.89	265.19	228.63

Note: The above computed amount may be recovered along with applicable carrying cost.



Manish

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U.P.P.C.L., Lucknow

NAPAF Calculation for Parbati-II (ROR with Pondage)

ANNEXURE-I

Month	10 daily	Design Energy MU	Inflow for power generation Cumsec	Total inflow for day (21 hrs) (MCVt)	Total Cumsec required per machine @130MW	Inflow for 620MW	Live storage MCM (1.28)	Cumsec from live storage	Total inflow available for plant for peaking	MW corresponding to Total inflow	no. of days	DC for the period
		1	2	3	4	5	6	7	8=2+7	9	10	11
April	I	10.91	15.45	1.17	44.25	177	1.17	108.15	123.60	363.13	10	3631.27
	II	18.51	26.21	1.98	44.25	177	1.28	118.52	144.73	425.20	10	4252.01
	III	15.34	21.72	1.64	44.25	177	1.28	118.52	140.24	412.01	10	4120.12
May	I	16.92	23.96	1.81	44.25	177	1.28	118.52	142.48	418.59	10	4185.85
	II	24.09	34.12	2.58	44.25	177	1.28	118.52	152.63	448.42	10	4484.16
	III	25.48	32.60	2.48	44.25	177	1.28	118.52	151.32	444.56	11	4890.18
June	I	40.58	57.47	4.34	44.25	177	1.28	118.52	175.99	517.02	10	5170.23
	II	36.5	51.69	3.91	44.25	177	1.28	118.52	170.21	500.05	10	5000.48
	III	37.63	53.29	4.03	44.25	177	1.28	118.52	171.81	504.75	10	5047.49
July	I	43.47	61.56	4.65	44.25	177	1.28	118.52	180.08	529.05	10	5290.46
	II	44.89	63.56	4.80	44.25	177	1.28	118.52	182.08	534.91	10	5349.13
	III	58.74	76.62	5.72	44.25	177	1.28	118.52	194.14	570.36	11	6273.96
August	I	39.58	56.05	4.24	44.25	177	1.28	118.52	174.57	512.86	10	5128.62
	II	33.98	48.12	3.64	44.25	177	1.28	118.52	166.64	489.56	10	4895.63
	III	43.25	55.68	4.21	44.25	177	1.28	118.52	174.20	511.77	11	5629.50
September	I	31.56	44.69	3.38	44.25	177	1.28	118.52	163.21	479.50	10	4794.95
	II	22.83	32.33	2.44	44.25	177	1.28	118.52	150.85	443.17	10	4431.74
	III	19.78	28.01	2.12	44.25	177	1.28	118.52	146.53	430.48	10	4304.84
October	I	13.67	19.36	1.46	44.25	177	1.28	118.52	137.88	405.06	10	4050.64
	II	12.07	17.09	1.29	44.25	177	1.28	118.52	135.61	398.41	10	3984.07
	III	11.63	14.97	1.13	44.25	177	1.13	104.81	119.78	351.90	11	3870.92
November*	I	9.08	12.86	0.97	44.25	177	0.97	90.01	102.87	302.22	10	3022.18
	II	8.23	11.66	0.88	44.25	177	0.88	81.59	93.24	273.93	10	2739.27
	III	7.6	10.76	0.81	44.25	177	0.81	75.34	86.10	252.96	10	2529.58
December*	I	6.8	9.63	0.73	44.25	177	0.73	67.41	77.04	226.33	10	2263.31
	II	6.44	9.12	0.69	44.25	177	0.69	63.84	72.96	214.35	10	2143.48
	III	6.5	8.37	0.63	44.25	177	0.63	58.58	66.95	196.68	11	2163.45
January*	I	5.73	8.11	0.61	44.25	177	0.61	56.80	64.92	190.72	10	1907.17
	II	5.88	8.04	0.61	44.25	177	0.61	56.31	64.35	189.05	10	1890.53
	III	5.77	7.43	0.56	44.25	177	0.56	52.00	59.43	174.59	11	1920.48
February*	I	4.82	6.63	0.52	44.25	177	0.52	47.78	54.61	160.43	10	1604.28
	II	4.38	6.20	0.47	44.25	177	0.47	43.42	49.62	145.78	10	1457.84
	III	4.51	7.98	0.60	44.25	177	0.60	55.89	63.87	187.64	8	1501.10
March	I	5.55	7.86	0.59	44.25	177	0.59	55.02	62.88	184.73	10	1847.26
	II	8.66	12.26	0.93	44.25	177	0.93	85.85	98.11	288.24	10	2882.39
	III	10.25	13.20	1.00	44.25	177	1.00	92.37	105.57	310.15	11	3411.60
701.40												132070.19

Napaf	70%
forced outage	2%
NAPAF allowed	68%



//TRUE COPY//

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NAPAF Computation of AHPCL a) for CERC Methodology adopted in Paraba Hydro Electric Project

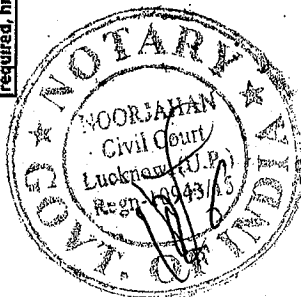
Annexure-I

Net head (m)	65.97
Efficiency (%)	91.14%
Peaking time required, hrs	3

Capacity (MW)	82.5*4	330
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ANNEXURE - A13

Month	10 daily	Design energy	Inflow for power generation after subtracting the e-flow of 12.5 cumec (cubic metre/sec)	Total inflow (21 hrs) Million cubic metre	Total cumec required for machine @82.5MW	Inflow for 330 MW	Live storage (8 Million cubic metre)	Cumec from live storage	Total inflow available for peaking	MW corresponding to total inflow	No. of days	DC for the period (MW)
		$A = 8.931 \times 65.97 / 1000 \times 24 \times 10 \times 91.14 \%$	B	$C = (B \times 21 \times 3600) / 1000000$	$D = (82.5 / (8.91 \times 65.97 \times 1.14\%)) \times 1000$	$E = D \times 4$	$F = (C - E \times 8) / (3600 \times 3)$	$G = (F \times 1000000) / (3600 \times 3)$	$H = B + G$	$I = (8.91 \times 65.97 \times 4 \times 91.14\% / 1000 \times 330) \times 330.931 \times 65.97 \times 4 \times 91.14\% / 1000$	J	K=J
April	I	10.79	76.21	5.76	139.87	559	5.76	533.47	609.68	330.00	10	3300
	II	9.95	70.32	5.32	139.87	559	5.32	492.24	562.56	330.00	10	3300
	III	11.11	78.51	5.94	139.87	559	5.94	549.57	628.08	330.00	10	3300
May	I	15.94	112.59	8.51	139.87	559	8.00	740.74	853.33	330.00	10	3300
	II	19.08	134.76	10.19	139.87	559	8.00	740.74	875.50	330.00	10	3300
	III	26.12	184.52	13.95	139.87	559	8.00	740.74	925.25	330.00	11	3630
June	I	57.11	403.41	30.50	139.87	559	8.00	740.74	1144.15	330.00	10	3300
	II	66.74	471.46	35.64	139.87	559	8.00	740.74	1212.20	330.00	10	3300
	III	56.96	402.36	30.42	139.87	559	8.00	740.74	1143.10	330.00	10	3300
July	I	96.28	680.12	51.42	139.87	559	8.00	740.74	1420.86	330.00	10	3300
	II	156.90	1108.38	83.79	139.87	559	8.00	740.74	1849.12	330.00	10	3300
	III	151.28	1068.69	80.79	139.87	559	8.00	740.74	1809.43	330.00	11	3630
Aug	I	147.49	1041.92	78.77	139.87	559	8.00	740.74	1782.66	330.00	10	3300
	II	128.52	907.87	68.93	139.87	559	8.00	740.74	1648.61	330.00	10	3300
	III	91.81	648.6	49.03	139.87	559	8.00	740.74	1389.34	330.00	11	3630
Sept	I	126.63	894.52	67.63	139.87	559	8.00	740.74	1635.26	330.00	10	3300
	II	84.69	598.29	45.23	139.87	559	8.00	740.74	1339.03	330.00	10	3300
	III	54.85	387.48	29.29	139.87	559	8.00	740.74	1128.22	330.00	10	3300
Oct	I	45.44	306.84	23.20	139.87	559	8.00	740.74	1047.58	330.00	10	3300
	II	40.23	284.21	21.49	139.87	559	8.00	740.74	1024.95	330.00	10	3300
	III	26.74	188.93	14.28	139.87	559	8.00	740.74	929.67	330.00	11	3630
Nov	I	22.91	161.87	12.24	139.87	559	8.00	740.74	902.61	330.00	10	3300
	II	17.58	124.22	9.39	139.87	559	8.00	740.74	864.96	330.00	10	3300
	III	16.98	119.98	9.07	139.87	559	8.00	740.74	860.72	330.00	10	3300
Dec	I	15.77	111.37	8.42	139.87	559	8.00	740.74	852.11	330.00	10	3300
	II	14.45	102.06	7.72	139.87	559	7.72	714.42	816.48	330.00	10	3300
	III	13.01	91.91	6.95	139.87	559	6.95	643.57	795.28	330.00	11	3630
Jan	I	11.11	78.46	5.93	139.87	559	5.93	549.22	627.68	330.00	10	3300
	II	11.06	78.12	5.91	139.87	559	5.91	546.84	624.96	330.00	10	3300
	III	10.67	75.94	5.70	139.87	559	5.70	527.38	602.72	330.00	11	3630
Feb.	I	9.37	66.19	5.00	139.87	559	5.00	463.33	529.52	312.33	10	3123
	II	10.18	71.94	5.44	139.87	559	5.44	503.58	575.52	330.00	10	3300
	III	9.27	65.47	4.95	139.87	559	4.95	458.29	523.76	308.93	8	2471
March	I	8.49	59.95	4.53	139.87	559	4.53	419.65	479.60	282.88	10	2829
	II	9.08	64.17	4.85	139.87	559	4.85	449.19	513.36	302.79	10	3028
	III	9.27	65.52	4.95	139.87	559	4.95	458.64	524.16	309.16	11	3401
Total												119132



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**Central Electricity Regulatory Commission
New Delhi**

Petition No. 228/GT/2013

Coram:

Shri Gireesh B Pradhan, Chairperson
Shri A.K. Singhal, Member
Shri A. S. Bakshi, Member
Dr. M.K. Iyer, Member

Date of Hearing: 05.01.2016

Date of Order: 28.03.2016

In the matter of

Petition for approval of generation tariff of Parbati Hydroelectric Project, Stage-III (520 MW) for the period from 24.3.2014 to 31.3.2014

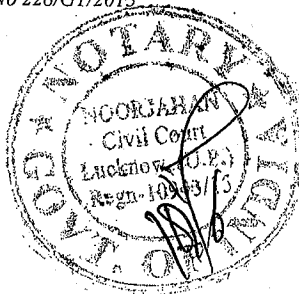
In the matter of

NHPC Ltd
NHPC Office Complex,
Sector-33, Faridabad
Haryana-121003

.....Petitioner

Vs

1. Punjab State Power Corporation Ltd,
The Mall, Near Kali Badi Mandir,
Patiala – 147001(Punjab)
2. (a) Dakshin Haryana Bijili Vitaran Nigam Ltd,
(b) Uttar Haryana Bijili Vitaran Nigam Ltd
Shakti Bhawan, Sector – 6
Panchkula – 134 109 (Haryana)
3. BSES-Rajdhani Power Ltd.
BSES Bhawan,
Nehru Place, New Delhi - 110019
4. Uttar Pradesh Power Corporation Ltd,
Shakti Bhavan, 14, Ashok Marg,
Lucknow – 226001(Uttar Pradesh)
5. BSES-Yamuna Power Ltd.,
Shakti Kiran Building,
Karkardooma, Delhi-110072
6. (a) Rajasthan Rajya Vidyut Prasaran Nigam Ltd.,
(b) Jaipur Vidyut Vitaran Nigam Ltd.,
Vidut Bhavan, Janpath, Jyoti Nagar,
Jaipur-302005 (Rajasthan)
7. Tata Power Delhi Distribution Ltd.,
Hudson Lane, Kingsway Camp,
New Delhi-110009



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8. Jodhpur Vidyut Vitaran Nigam Ltd.,
New Power House, Industrial Area,
Jodhpur-342003

9. Uttaranchal Power Corporation Ltd
Urja Bhawan, Kanwali Road,
Dehradun-248001(Uttarakhand)

10. Ajmer Vidyut Vitaran Nigam Ltd
Old Power House,
Hatthi Bhatta, Jaipur Road,
Ajmer-305001 (Rajasthan)

11. Himachal Pradesh State Electricity Board,
Vidyut Bhawan, Kumar House,
Shimla-171004 (Himachal Pradesh)

12. Engineering Department, UT Secretariat
UT Secretariat, Sector 9D
Chandigarh-160009

13. Power Development Department,
Government of J&K
New secretariat,
Jammu-180001 (J&K)

... Respondents

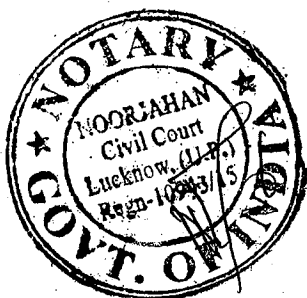
Parties Present:

Shri A.K. Pandey, NHPC
Shri Naresh Bansal, NHPC
Shri S.K Agarwal, NHPC
Shri Piyush Kumar, NHPC
Shri Jitendra Kumar Jha, NHPC
Shri R. B.Sharma, Advocate, BRPL
Shri S. K. Agarwal, Advocate, Rajasthan Discoms
Shri G. L Verma, Advocate, Rajasthan Discoms
Ms. Neelam, Advocate, Rajasthan Discoms

ORDER

The petitioner, NHPC, filed this petition for approval of generation tariff of Parbati Hydroelectric Project, Stage-III (520 MW) (hereinafter 'the project') for the period from 24.3.2014 to 31.3.2014 based on the Central Electricity Regulatory Commission (Terms and Conditions of Tariff) Regulations, 2009 ('the 2009 Tariff Regulations').

2. The generating station situated in the State of Himachal Pradesh, is a pondage type scheme, providing peaking support to the grid when operated in tandem with upstream Parbati HE Project,



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Stage-II. The project has been sanctioned by the Government of India in November, 2005 at a cost of ₹2304.56 crore at May, 2005 price level.

3. The generating station comprises of four units and the date of commercial operation (COD) of the units is as under:

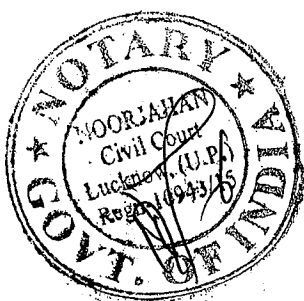
Unit No.	COD
I & II	24.3.2014
III	30.3.2014
IV	6.6.2014

4. The petitioner has filed this petition based on anticipated project cost of ₹2477.85 crore and anticipated COD of Units I & II (on 16.4.2013), Unit-III (on 1.7.2013) and Unit-IV/generating station (on 1.1.2014). However, on account of the delay in the commissioning of said units / generating station, the petitioner filed Interlocutory Application (I.A.No.13/2014) indicating the anticipated date COD of the project as 30.3.2014 along with revised tariff filing forms.

5. Thereafter, the petitioner submitted that Unit Nos. I & II were declared under commercial operation on 24.3.2014 and Unit-III on 30.3.2014 and accordingly prayed for grant of provisional tariff. Considering the fact that the petitioner neither furnished the approved Revised Cost Estimate (RCE) by the Central Government nor the report on the Capital cost duly vetted by the Designated Independent Agency (DIA) in terms of the guidelines specified by the Commission, the Commission by order dated 25.6.2014 granted provisional tariff based on 85% of the actual capital cost incurred based on audited balance sheet as on 31.12.2013.

6. Based on the above, the *ad hoc* annual fixed charged allowed for the generating station from 24.3.2014 to 31.3.2014 by order dated 25.6.2014, is as under:

	24.3.2014 to 29.3.2014 (Units I & II)	30.3.2014 and 31.3.2014 (Units I to III)
Return on Equity	93.05	46.52
Interest on Loan	105.34	52.26
Depreciation	78.75	39.38
Interest on Working Capital	7.94	3.96
O & M Expenses	31.57	15.79
Total	316.65	157.91




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7. The Commission by the said order had directed the petitioner to take necessary steps to obtain approval of RCE by the Central Government and to submit the report on the capital cost vetted by the DIA, prior to the determination of final tariff of the units of this generating station. However, as Unit-IV was declared under COD on 6.6.2014, the Commission also directed the petitioner to file separate application for determination of tariff for the period 2014-19 in terms of the provisions of the 2014 Tariff Regulations.

8. Thereafter, the petitioner by letter dated 13.8.2015 informed that the amended petition based on actual cost could not be submitted due to the delay in finalization of balance sheet for the year 2014-15 and accordingly prayed for grant of time till September, 2015 to file amended petition, which was granted. Subsequently, the petitioner vide affidavit dated 17.9.2015 filed amended petition stating that though the capital cost as on COD of the project 6.6.2014, is ₹259841 lakh (including un-discharged liability of ₹5421 lakh), the capital cost of ₹194153.97 lakh (including un-discharged liability of ₹4784 lakh) has been considered as the capital cost for the three units. Based on the above, the annual fixed charges (revised) claimed by the petitioner from 24.3.2014 to 31.3.2014 are as under:

	(₹ in lakh)	
	24.3.2014 to 29.3.2014 (Units I & II)	30.3.2014 and 31.3.2014 (Units I to III)
Return on Equity	162.05	64.94
Interest on Loan	175.86	70.40
Depreciation	128.66	51.56
Interest on Working Capital	12.94	5.43
O & M Expenses	45.32	22.66
Total	524.84	214.99

9. Pursuant to the order dated 25.6.2014 and the filing of amended petition by the petitioner, reply has been filed by the respondent, BRPL and the Rajasthan Discoms. The matter was heard on 5.1.2016 and the Commission after directing the petitioner to submit certain additional information, reserved its order in the petition. In response, the petitioner vide affidavits dated 2.2.2016 and 19.2.2016 has submitted additional information. However, as regards approved RCE, the petitioner has submitted that RCE amounting to ₹2611.85 crore has been submitted to the Ministry of Power, GOI with approval of competent authority. As regards the filing of the report



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of DIA on the vetted capital cost, the petitioner has submitted that it is pursuing the matter with the DIA for early submission of the report.

Time and Cost Overrun

10. The project was approved by Ministry of Power, Govt. of India, at an estimated cost of ₹2304.56 crore, during November, 2005. The project was scheduled to be commissioned during November, 2010. However, only three units of the generating station have been commissioned by March, 2014, thereby resulting in the time overrun of 40 months upto 31.3.2014. The capital cost, based on the anticipated COD of all the four units as on 30.3.2014 as submitted by the petitioner was ₹2485.10 crore (excluding liabilities of ₹72.40 crore), thereby involving a cost overrun of ₹253 crore (approx). However, the Commission in order dated 25.6.2014 observed that the time and cost overrun of the project would be considered by the Commission after hearing the parties on merits, at the time of determination of final tariff of the generating station.
11. The petitioner vide affidavit dated 17.9.2015 of the amended petition has submitted a background note on the time overrun and cost overrun of the project, categorizing the reasons for Time overrun under the following heads (i) Excavation of main access tunnel (ii) Construction of ADIT to P/H top & upto full length of Power House (iii) Widening upto width of Power House (iv) Excavation of Pilot Shaft for Benching down of Power House (v) Benching down of Power House through Pilot Shaft (vi) Concreting of sub-structure & super structure of Power house (g) Installation of E&M equipments of Unit-3 (h) Installation of E&M equipments of Unit-4 and (I) Testing & Commissioning of Unit-4. The petitioner vide affidavit dated 19.2.2016 has submitted that the time overrun of the project is 43 months. As regards Cost overrun, the petitioner has submitted that the Revised Cost of the project is ₹2608.57 crore including IDC & FC of ₹430.72 crore at December, 2014 PL constituting an increase of ₹304.00 crore over the Sanctioned cost of ₹2304.56 crore including IDC & FC of ₹230.42 crore at May, 2005 PL. However, the petitioner by affidavit dated 19.2.2016 has submitted that the Revised Completion Cost of the project is Rs 2611.85 crore which constitute an increase of ₹307.28 crore from the sanctioned cost.



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12. The respondent, BRPL has submitted that the grounds furnished by the petitioner for have not been substantiated by any documentary evidence. It has also submitted that the time overrun in the execution of the project is entirely attributable to the petitioner or to his contractor. Accordingly, it has prayed that the time overrun may be disallowed and the IDC & IEDC for time overrun period may be disallowed. The discoms of Rajasthan have submitted that the time overrun has not been explained with cogent reasons. It has also submitted that reasons submitted by the petitioner do not appear to justify the long overrun of time.

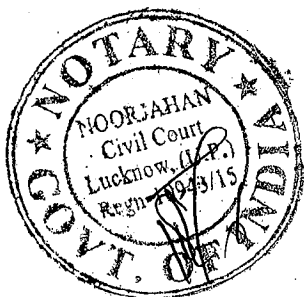
13. The matter has been examined. It is observed that the petitioner has engaged M/s Aquagreen Engineering Management Private Ltd as DIA for vetting of capital cost and the report of the DIA is awaited. The petitioner has submitted that the matter is being pursued with the DIA for early submission of the report. In our view, the prudence check of time and cost overrun involved in the COD of the generating station cannot be properly examined in the absence of the DIA report. In this background, the submissions of the parties regarding time and cost overrun involved in the completion of the project have not been considered in this order. However, the question of time and cost overrun will be considered along with the DIA report at the time for determination of final tariff of the generating station. The petitioner is directed to ensure the submission of the DIA report along with the revised Standing Committee report at the earliest, after serving copies on the respondents, at the time of determination of final tariff of the generating station.

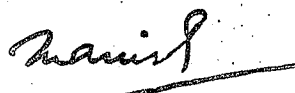
Capital Cost

14. The Commission by order dated 25.6.2014 had granted provisional tariff considering 85% of the actual capital cost incurred based on audited balance sheet as on 31.12.2013, as under:

	(₹ in lakh)
Capital expenditure as per balance sheet as on 31.12.2013 (for four units)	226390.91
Capital cost allowed for provisional tariff for four units (85% of total capital cost)	192432.27

15. In terms of the proviso to Regulation 4(2) of the 2009 Tariff Regulations, the capital cost was also apportioned to the units (Units I to III) of the generating station which had been declared under commercial operation and allowed in the said order as under:




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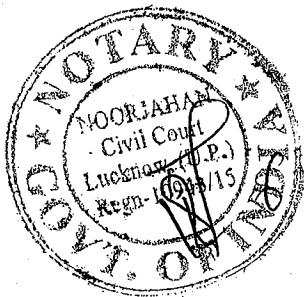
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		(₹ in lakh)
	COD	Apportioned capital cost
Units- I & II	24.3.2014	96216.13
Units- I to III	30.3.2014	144324.20

16. The petitioner vide affidavit dated 17.9.2015 has claimed the following capital cost as on COD of Units-I, II & III as per balance sheet as on 31.3.2014.

	(₹ in lakh)	
	24.3.2014 (Two units)	30.3.2014 (Three units)
Capital expenditure as on COD (including the un-discharged liability as on CODs)	129382.02	194153.97
Less: Un-discharged liability as on COD	3665.69	5059.38
Net capital cost as on CODs (excluding un-discharged liability as CODs)	125716.33	189094.59

17. As stated, the petitioner is yet to submit the RCE approved by the Central Government and the report of the capital cost vetted by the DIA engaged by the petitioner in terms of the guidelines specified by the Commission. It is observed that the Commission, in line with the methodology adopted for grant of provisional tariff in respect of Chutak HEP and Nimoo Bazgo HEP by orders dated 1.4.2013 and 7.10.2013 respectively, had allowed provisional tariff by order dated 25.6.2014 considering 85% of the capital cost incurred based on the audited balance sheet as on 31.12.2013, in respect of the project of the petitioner. However, it is noticed that the capital cost incurred as on COD of the respective units based on audited balance sheet as on 24.3.2014 and 31.3.2014 is ₹129382.02 lakh and ₹194153.97 lakh respectively. As the approval and submission of RCE and report of DIA are expected to take some more time, we find no reason to keep the present petition pending for determination of final tariff of the generating station. Accordingly, we are inclined to dispose of the present petition by revising the *ad hoc* tariff granted vide order dated 25.6.2014, by considering 85% of the capital cost incurred by the petitioner as on COD of the units. We proceed accordingly. This in our view, would help the petitioner partially recover the expenditure actually incurred on assets put to use and also lessen the payment obligation of the beneficiaries. Hence, 85% of the actual capital cost incurred based on audited balance sheet as on 31.3.2014 has been considered for the purpose of grant of revision of *ad hoc* tariff of the units of the generating station as under:



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	24.3.2014 (Two units)	30.3.2014 (Three units)
Capital expenditure as on COD (including the un-discharged liability as on CODs)	129382.02	194153.97
Less: Un-discharged liability as on COD	3665.69	5059.38
Net capital cost as on CODs (excluding un-discharged liability as CODs)	125716.33	189094.59
Capital cost allowed for revision of adhoc tariff	106858.88	160730.40

O&M expenses

18. The O&M expenses allowed in terms of Regulation 19 (f) (v) of the 2009 Tariff Regulations, based on the capital cost allowed, after excluding proportionate R&R cost, are as follows:

	Units-I & II	Unit-III
Capital cost	106858.88	160730.40
Proportionate R&R expenditure	190.45	285.67
Capital cost excluding R&R	106668.44	160444.73
Annualized O&M expenses @ 2% of the capital cost excluding R&R expenditure	2133.37	3208.89
O & M Expenses pro rata for the period	35.07	17.58

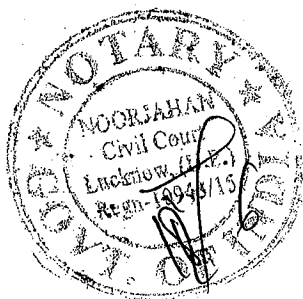
19. The adhoc fixed charges allowed for the period from 24.3.2014 to 31.3.2014 are as under:

	24.3.2014 to 29.3.2014 (Units-I & II)	30.3.2014 to 31.3.2014 (Units-I to III)
Return on Equity	110.01	55.16
Interest on Loan	119.39	59.81
Depreciation	87.35	43.79
Interest on Working Capital	9.02	4.52
O & M Expenses	35.07	17.58
Total	360.83	180.87

20. The adhoc fixed charges allowed above are subject to adjustment after determination of final tariff in terms of clause (3) of Regulation 5 of 2009 Tariff Regulations

21. The Design Energy of 701.40 Million units and NAPAF of 68% as allowed vide order dated 25.6.2014 have been retained in this order.

22. The petitioner is granted liberty to file fresh petition for determination of final tariff of the units of this generating station in terms of the 2009 Tariff Regulations along with the approved RCE and the report on the capital cost duly vetted by the DIA. Since Unit-IV of the generating station has been declared COD on 6.6.2014, the tariff of the said unit would be governed by the provisions of



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Chief Engineer (PPA)
Shakti Bhawan Extn.
U.P.P.C.L., Lucknow

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the 2014 Tariff Regulations. Accordingly, the petitioner is directed to file a separate petition for the same which would be considered in accordance with law.

23. Petition No.228/GT/2013 is disposed of in terms of the above.

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

Sd/-
(A. S. Bakshi)
Member

Sd/-
(A. K. Singhal)
Member

Sd/-
(Gireesh B. Pradhan)
Chairperson




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Chief Engineer (PPA)
Shakti Bhawan Extn.
U.P.P.C.L., Lucknow



भारत सरकार
Government of India

विद्युत मंत्रालय

Ministry of Power

केन्द्रीय विद्युत प्राधिकरण

Central Electricity Authority

जल विद्युत परियोजना मूल्यांकन-1 प्रभाग

Hydro Project Appraisal-I Division

सं.: 206/11/2017/HPA-1/395

दिनांक: 14.05.2018

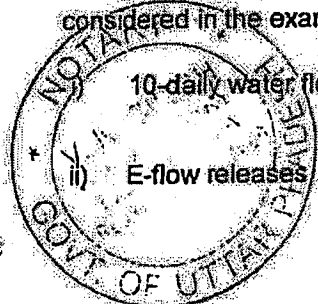
सेवा में,

The Chief Executive Officer
Alakhanda Hydro Power Company Limited
Palga House, 156-159, Sardar Patel Road
Secunderabad
Telangana-500003

विषय/Subject: Srinagar Hydro Electric Project (4x82.5 MW= 330 MW) In Uttarakhand by
AHPCL-Examination of Revised Design Energy.

महोदय/Sir,

Reference is invited to AHPCL letter no. AHPCL/D(T)/CEA/2017/24 dated 25.03.2018 on the subject cited above submitting therewith proposal of Revised Design Energy of the project. The proposal has been examined in this office and the following parameters have been considered in the examination of Revised Design Energy of the project:



- | | |
|--|---|
| i) 10-daily water flow series | : 1971-72 to 2015-16 vetted by CWC
vide letter dt. 28.02.2018 |
| ii) E-flow releases | : 15% of average discharge in lean season
(January-April) of 90% dependable year (1976-77),
i.e. 12.5 cumec as per
NGT Judgement no. 498/2015 dt. 09.08.2017 |
| iii) Net operating head | : 65.97 m |
| vi) Live storage | : 8 MCM |
| vii) Combined turbo-generator efficiency | : 91.14 % |

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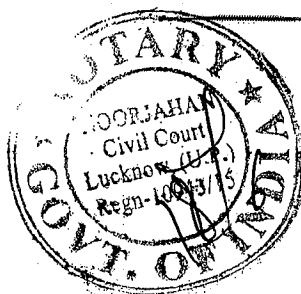
The Design Energy for the project is vetted for 1251.94 MU.

The continuous peaking capability for 330 MW considering average discharge in lean season in 90% dependable year works out to be 3.04 hours.

V.K. Singh
Adv. & Notary
Collectorate Court
Lucknow U.P. India
Regd. No. 14/10/2016

सेवा भवन, आर.के.पुरम, नई दिल्ली-110066 - टेलीफोन: 011-26190731 ईमेल: dirhpa3@gmail.com वेबसाइट: www.cea.nic.in
Sewa Bhawan, RK Puram, New Delhi-110066 - Telefax-011-26190731 Email: dirhpa3@gmail.com Website: www.cea.nic.in

Received on 18.6.2018



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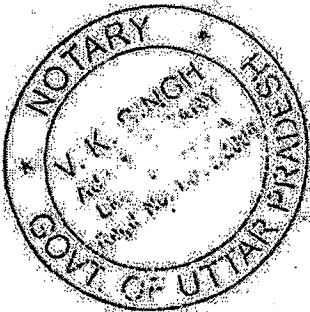
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U.P.P.C.L., Lucknow

Design Energy calculations of Srinagar Hydro Electric Project is given at Annexure. However, the Design Energy could change on account of the following:

- > Any change in net operating head of the turbine.
- > Any change in turbine efficiency or generator efficiency.
- > Any change in environmental flow releases from the dam.

Encl.: As above.

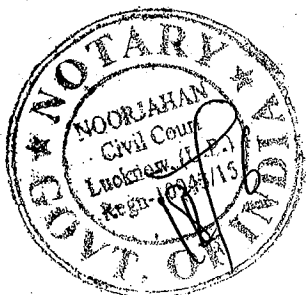
शिवग कुमार
14.5.18
(शिवग कुमार)
निदेशक (एचपीए-1)



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14/5/18
V.K. SINGH
Adv. & Notary
Collectorate Court
Lucknow U.P. India
Regd. No. 14/10/2006

सेवा भवन, आर.के.पुरम, नई दिल्ली-110066 - टेलीफैक्स: 011-26190731 ईमेल: dlrtpa3@gmail.com वेबसाइट: www.csa.nic.in
Sewa Bhawan, RK Puram, New Delhi-110066 - Telefax-011-26190731 Email: dlrtpa3@gmail.com Website: www.csa.nic.in

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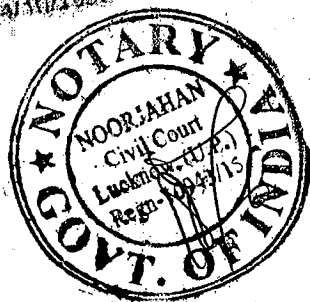
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Srinagar HEP (330 MW) in Uttarakhand
Energy calculation sheet (1976-77)

49

FRL (m)		605.50			Unrestricted Annual Energy Generation	1706.89	MU	
MDOL (m)		603.00			Installed Capacity	330	MW	
TWL (max)		533.10			Design Flow	559.49	Cumec	
Net Head (m)		65.97			e-flows	12.50	Cumec	
Overall Efficiency		91.14			Lean Period Load Factor	12.68	%	
Head Loss (m)		65.97			Annual Load Factor	44.43	%	
Live Stogare (Mcum):		8						
Month	Day	Total Inflow (cumec)	Available Inflow (cumec)	Inflow used for Power Generation (cumec)	Spills due to surplus inflow (cumec)	Total Energy Generation in 100% availability (MU)	Total Energy Generation with 8% availability (MU)	Days until full storage (Hours)
JUNE	10	415.91	403.41	403.41	0.00	57.11	57.11	17.30
	10	483.95	471.45	471.45	0.00	66.74	66.74	20.22
	10	414.86	402.36	402.36	0.00	56.96	56.96	17.26
JULY	10	692.62	680.12	559.49	120.63	79.20	75.24	24.00
	10	1120.88	1108.38	559.49	548.89	79.20	75.24	24.00
	11	1081.19	1068.69	559.49	509.20	87.12	82.76	24.00
AUGUST	10	1054.42	1041.92	559.49	482.43	79.20	75.24	24.00
	10	920.37	907.87	559.49	348.38	79.20	75.24	24.00
	11	661.10	648.60	559.49	89.11	87.12	82.76	24.00
SEPTEMBER	10	907.02	894.52	559.49	335.03	79.20	75.24	24.00
	10	610.79	598.29	559.49	38.80	79.20	75.24	24.00
	10	399.98	387.48	387.48	0.00	54.85	54.85	16.62
OCTOBER	10	319.34	306.84	306.84	0.00	43.44	43.44	13.16
	10	296.71	284.21	284.21	0.00	40.23	40.23	12.19
	11	201.43	188.93	188.93	0.00	29.42	29.42	8.10
NOVEMBER	10	174.37	161.87	161.87	0.00	22.91	22.91	6.94
	10	136.72	124.22	124.22	0.00	17.58	17.58	5.33
	10	132.48	119.98	119.98	0.00	16.98	16.98	5.15
DECEMBER	10	123.87	111.37	111.37	0.00	15.77	15.77	4.78
	10	114.56	102.06	102.06	0.00	14.45	14.45	4.38
	11	104.41	91.91	91.91	0.00	14.31	14.31	3.94
JANUARY	10	100.96	78.46	78.46	0.00	11.11	11.11	3.37
	10	90.62	78.12	78.12	0.00	11.06	11.06	3.35
	11	67.84	75.34	75.34	0.00	11.73	11.73	3.23
FEBRUARY	10	78.69	66.19	66.19	0.00	9.37	9.37	2.84
	10	84.44	71.94	71.94	0.00	10.18	10.18	3.09
	8	77.97	65.47	65.47	0.00	7.41	7.41	2.81
MARCH	10	72.45	59.95	59.95	0.00	8.49	8.49	2.57
	10	76.67	64.17	64.17	0.00	9.08	9.08	2.75
	11	78.02	65.52	65.52	0.00	10.20	10.20	2.81
APRIL	10	88.71	76.21	76.21	0.00	10.79	10.79	3.27
	10	82.82	70.32	70.32	0.00	9.95	9.95	3.02
	10	91.01	78.51	78.51	0.00	11.11	11.11	3.37
MAY	10	125.09	112.59	112.59	0.00	15.94	15.94	4.83
	10	147.26	134.76	134.76	0.00	19.08	19.08	5.78
	11	197.02	184.52	184.52	0.00	28.73	28.73	7.92
Total						1284.42	1251.94	

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Adv. & Notary
Collectorate Court
Lucknow U.P. India
Regn. No. 14/30/2005

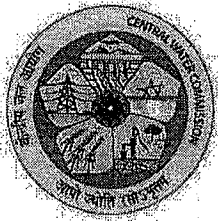


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U.P.C.L., Lucknow



Annexure A-1

Government of India
Central Water Commission
Hydrology (N) Directorate

50

7th Floor (S), Sewa Bhawan,
RK Puram, New Delhi - 66
Ph: 011-29583508
e-mail: hydnorth@nic.in

To

The Chief Executive Officer,
Alaknanda Hydro Power Company Limited,
Palgah House, 156-159, Sardar Patel Road,
Secunderabad - 500 003

Subject: 330 MW Srinagar HEP (4 x 82.5 MW), Srinagar, Uttarakhand - Requisition for certification of 10 daily avg discharge data at project site for the period June 2016 to May 2019 - Reg.

- Ref: 1. Your letter no. AHPCL/D(T)/CWC/2021 dated 04.03.2021
2. This office letter no. 1/149/82/Hyd(N)/77-78 dated 28.02.2018

Please refer your letter cited above requesting to certify the 10 daily average water inflows of River Alaknanda at Srinagar HEP for the period June 2016 to May 2019 in light of order dated 12.10.2020 of Uttar Pradesh Electricity Regulatory Commission, Lucknow.

In this regard, it is stated that the water availability series at Srinagar HEP for the period from 1971-72 to 1993-94 was earlier approved vide this office letter No. 1/4149/82/HYD(N)/32 dated 11.02.2000. Further, on the request of the Alaknanda Hydro Power company, the updated hydrological series at Srinagar HEP for the period 1994-95 to 2015-16 was approved vide this office letter dated 28.02.2018 (Ref 2).

Now, the 10 daily average inflows at Srinagar HEP 2016-17 to 2018-19 (3 years) has been estimated using the same methodology as adopted for deriving the inflow series at Srinagar HEP for the period from 2006-07 to 2015-16 in February, 2018 (Ref 2) using the discharge data of Rudraprayag G&D site on Alaknanda and Deoprayag G&D site on Ganga. Accordingly, the additional inflow series at Srinagar HEP for the period 2016-17 to 2018-19 is enclosed as Annexure-I for further necessary action, please.

This issues with the approval of Chief Engineer (HSO), CWC.

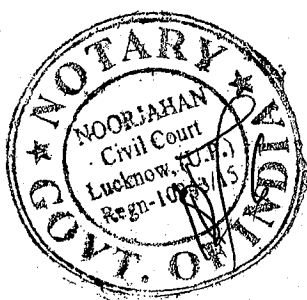
Yours faithfully,

Encl: As above

(Goverdhan Prasad)
Director

Copy to the Chief Engineer, HPA, CEA for information please.

Page 1 of 2

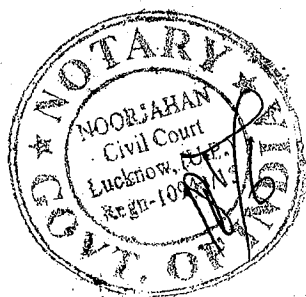


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Srinagar HEP, Srinagar (Uttarakhnad)
Additional 10-daily Inflow series (cumec)

MONTH		2016-17	2017-18	2018-19
JUNE	I	273.4	394.1	496.4
	II	347.1	353.9	503.1
	III	670.3	578.5	513.1
JULY	I	1044.6	846.1	746.8
	II	1772.6	1201.3	1800.4
	III	1371.7	1308.0	1511.2
AUGUST	I	1533.4	1436.7	1293.6
	II	1457.8	1160.3	1594.1
	III	950.3	1185.8	1763.5
SEPTEMBER	I	664.8	929.4	1363.4
	II	501.9	597.6	783.0
	III	384.5	670.2	804.8
OCTOBER	I	314.2	395.8	478.0
	II	218.6	320.3	340.9
	III	186.5	259.8	248.6
NOVEMBER	I	165.7	207.9	192.6
	II	146.3	169.7	168.3
	III	125.4	156.4	137.1
DECEMBER	I	108.3	156.3	128.6
	II	96.5	146.2	114.4
	III	86.7	126.4	101.9
JANUARY	I	81.8	116.0	97.8
	II	77.7	110.1	82.2
	III	73.4	107.0	96.4
FEBRUARY	I	74.4	97.1	86.9
	II	70.9	92.5	97.5
	III	70.3	88.0	117.1
MARCH	I	68.6	90.6	98.3
	II	70.1	88.9	101.4
	III	85.9	88.8	142.1
APRIL	I	136.1	105.4	207.7
	II	205.0	109.4	265.1
	III	228.2	129.7	302.4
MAY	I	214.6	180.1	267.1
	II	292.9	172.3	271.0
	III	290.6	227.0	298.3
Total (MCM)		12751	12723	15569



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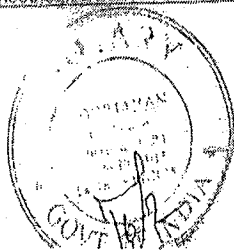
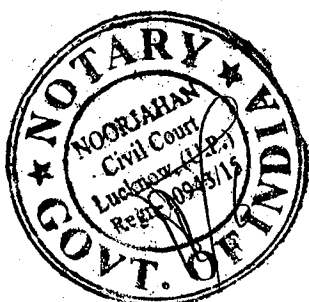
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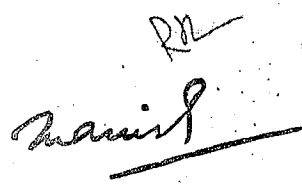
MANISH DWIVEDI
Chief Engineer (PPA)
Shakti Bhawan Extn.
U.P.P.C.L., Lucknow

 Monitoring report form for CDM project activity (Version 08.0)			
MONITORING REPORT			
Title of the project activity	Run-of-the-river Hydroelectric Power Project in Uttarakhand by Alaknanda Hydro Power Company Limited.		
UNFCCC reference number of the project activity	4776 ¹		
Version number of the PDD applicable to this monitoring report	6		
Version number of this monitoring report	01		
Completion date of this monitoring report	28/04/2021		
Monitoring period number	05		
Duration of this monitoring period	01/02/2020 to 31/12/2020 (inclusive of both the dates)		
Monitoring report number for this monitoring period	Your text here 2		
Project participants	M/s Alaknanda Hydro Power Company Limited		
Host Party	India		
Applied methodologies and standardized baselines	ACM0002 ver. 12.1.0 - Consolidated baseline methodology for grid-connected electricity generation from renewable sources ² Standardized baselines: Not Applicable		
Sectoral scopes	1: Energy industries (renewable - / non-renewable sources)		
Amount of GHG emission reductions or net anthropogenic GHG removals achieved by the project activity in this monitoring period	Amount achieved before 1 January 2013	Amount achieved from 1 January 2013 until 31 December 2020	Amount achieved from 1 January 2021
	0 tCO ₂ e	1,112,512 tCO ₂ e	0 tCO ₂ e
Amount of GHG emission reductions or net anthropogenic GHG removals estimated ex ante for this monitoring period in the PDD	1,104,935 tCO ₂ e		

¹ <https://cdm.unfccc.int/Projects/DB/BVQI1304680909.79/view>

² <https://cdm.unfccc.int/methodologies/DB/C505BVV9P8VSNNV3LTK1BP3QR24Y5L>




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 U.P.P.C.L., Lucknow

SECTION A. Description of project activity**A.1. General description of project activity**

Alaknanda Hydro Power Company Limited (AHPCL) is setting up a 330 MW 'run of the river' hydropower project in Uttarakhand. The 330 MW Shrinagar Hydro Electric Project is located on Alaknanda River, a major tributary of the Ganga River, a perennial river in Uttarakhand. The project site is 110 km from Rishikesh railhead, along Rishikesh - Badrinath highway. A weir has been proposed on Alaknanda River at Shrinagar, about 26 km downstream of Rudraprayag for generation of hydroelectricity. The power project is already started commercial operation in year 2015. The project proponent does not own or operate any other renewable energy project.

Pre-project Scenario:

This being a Greenfield project, no power generation facility existed at the project site in the pre project scenario. Taking in to account its impact after the project becomes operational; the pre-project scenario can be generation of equivalent amount of electricity in the grid using the existing fuel mix. This will also mean continuing a short fall of significant electricity leading to frequent load shedding.

Purpose of the project activity:

The purpose of the project activity is construction and operation of a grid connected renewable electricity generation hydroelectric power plant. The project activity will reduce the GHG emission by use of a clean, renewable (hydro power) source for power generation in place of common fossil fuels. The project activity will reduce the dependence on fossil fuel of the North (new Integrated Northern, Eastern, Western and North Eastern-NEWNE) grid which is dominated by emission intensive coal based thermal power plants. The project activity involves construction of a concrete gravity diversion weir across the river Alaknanda, and its left bank construction stage diversion tunnel, an intake on right bank consisting of 6 numbers intake tunnels joining two Head Race Tunnels (HRT) through a manifold section, of 9.8 m dia. circular head race tunnel followed by a RCC cut and cover conduit crossing the supana nallah, a desilting basin followed by power channel, fore bay, power house, tail race channel and switchyard. The powerhouse would accommodate 4 generating units of 82.5 MW each. The proposed civil structures of Shrinagar Hydro-Electric Project have been planned and designed to divert and convey maximum design discharge of 560 m³/s.

The project activity is evacuating the power generated from the project activity into four feeders at 400 KV at Srinagar, Vishnuprayag and Muzzfarnagar.

During the current monitoring period i.e. from 01/02/2020 to 31/12/2020 the project has resulted in emission reductions of 1,112,512 tCO₂e and underwent continued operation except scheduled breakdowns.

A.2. Location of project activity

The project activity is located in Tehri Garhwal and Pauri Garhwal Districts in Uttarakhand, India. The Alaknanda River, on which the project has been proposed, rises in the glacier regions of the Greater Himalayas in the extreme northern part of the border district of Chamoli in Uttarakhand. The Alaknanda is joined by the Mandakini River at Rudraprayag. The length of Alaknanda up-to Rudraprayag is 180 km with an average slope of 24.0 m per km. The Mandakini River runs for a length of 80.0 km up to the confluence at Rudraprayag with an average slope of 42.0 m per km.

A weir has been proposed on Alaknanda River at Shrinagar, about 26 km downstream of Rudraprayag for generation of hydro-electricity. The project site is located on the river Alaknanda at a distance of about 110 km from Rishikesh railhead, along Rishikesh - Badrinath highway. This location is towards north east of Pauri and towards Rudra Prayag.



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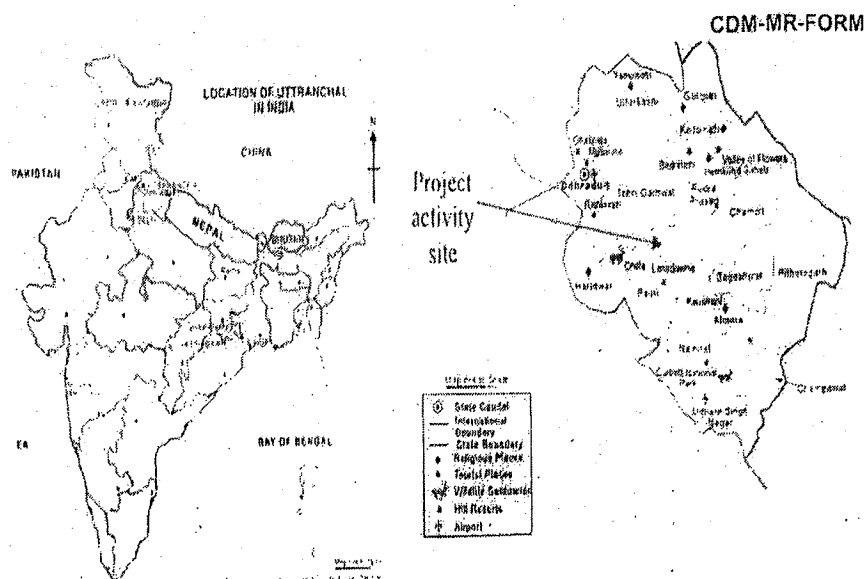


Figure 1: Location of Uttarakhand state in India and location of the site.

State, District, Tehsil	Uttarakhand, Tehri Garhwal and Pauri Garhwal, Kirtinagar & Pauri
Longitude	78° 50' 01" E
Latitude	30° 14' 20" N
Nearest rail head	Rishikesh
Nearest Airport	Dehradun
Nearest National Highway	NH -58

A.3. Parties and project participants

Parties involved	Project participants	Indicate if the Party involved wishes to be considered as project participant (Yes/No)
India (host)	Alaknanda Hydro Power Company Limited, Hyderabad (Private Entity)	No

A.4. References to applied methodologies and standardized baselines

Methodology: ACM0002 Version 12.1.0 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"

Tools:

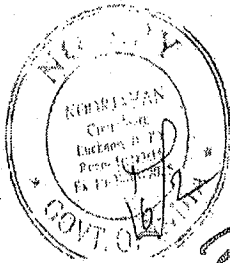
"Tool for the Demonstration and assessment of additionality", Version 05.2

"Tool to calculate the emission factor for an electricity system" Version 02

"Tool to calculate project or leakage CO₂ emissions from fossil fuel combustion", Version 02

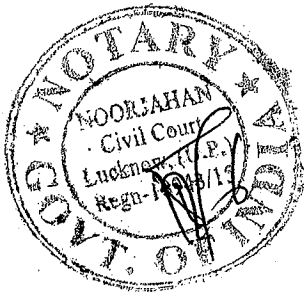
A.5. Crediting period type and duration

Type of crediting period	Fixed
Crediting period from	15/03/2013 to 14/03/2023 (Fixed)
Length of the Crediting Period	10 Years
Current Monitoring period from	01/02/2020 to 31/12/2020 (inclusive of both days)
Length of the Monitoring Period	335 Days



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Shakti Bhawan Extn.
U.P.C.L., Lucknow



SECTION B. Implementation of project activity**B.1. Description of implemented project activity**

The project activity is construction and operation of 330 MW hydroelectric power plant to supply electricity to the grid. The project activity being a Greenfield project, no power generation facility existed in the pre-project scenario. The project proponent does not own or operate any other renewable energy project. The service provided by the project activity is the generation of electricity to the tune of 330 MW. In the absence of the project activity the equivalent power would have been generated from the existing fuel mix in the grid and the future capacity additions.

The major milestones relevant to project activity implementation are as follows:

1. PPA signed and DPR completed in 2000
2. Techno Economic Clearance obtained from Central Electricity Authority in 2000
3. Quotation received for Civil and Mechanical works in 2004
4. Board Resolution to implement the project activity 13/11/2005
5. Letter of intent issued for construction work 26/04/2006
6. Implementation agreement between Alaknanda Hydro, Govt of Uttarakhand and Govt. of Uttar Pradesh signed on 10/02/2006
7. Implementation work started on 26/04/2006
8. Commissioning of the project done on 23/04/2015, 21/06/2015, 02/05/2015 & 21/06/2015

The main elements of the concerned project activity are:

Weir and Spillway:

A 90 m high diversion weir with spillway crest elevation at 584.50 m has been proposed to have a live storage of 8.00 m cum between Full Reservoir Level (FRL) of 605.50 m and Minimum Draw Down level (MDDL) of 603.00 m. The weir at the top would be 248 m long comprising 140 m over flow section and 108 m non-over flow section. The spillway located in the middle of the weir would have 8 radial gates of sizes 14 m (width) x 21.15 m (height).

Intake Structure:

The intake structure has been located on the right bank about 100 m upstream of the weir axis and about 12 m inside from the line with the spillway on the right side. The intake works have been planned and designed for taking in 660 m³/s at the MDDL i.e. EL 603 m. Tunnel type intake structures having 6 openings are proposed to provide 132 m³/s discharge through each individual 6.5 dia. tunnels which join two numbers 9.80 m diameter HRTs.

Head Race Tunnel (HRT):

The main HRTs would be 2 numbers of about 1100 m long with 9.80 m dia. each.

Supana nallah crossing:

Beyond HRTs, 2 RCC conduits have been provided for a length of about 185 m.

Desilting Basin:

A desilting basin of size 157 m (width) * 200 m (length) * 29 (depth) is provided at the end of RCC into two compartments by providing a RCC wall in between.

Power Channel:

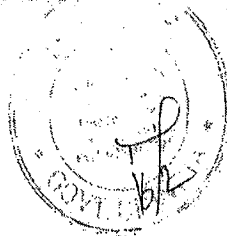
The 3.20 km long Power Channel takes off immediately from the desilting basin and terminates into fore bay at the end of its run. The channel would be trapezoidal section in general and would vary depending on the land available and would be provided with cement concrete lining in its entire length.

Fore bay:

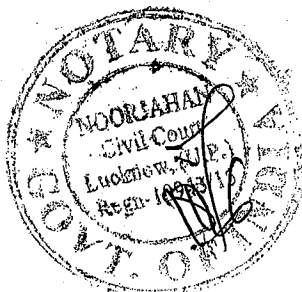
The power channel would terminate in a fore bay structure. The width of the fore bay structure (48 m) of the fore bay is designed to accommodate the total width of the intake structure at the upstream side of the penstocks.

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By Pass Channel:

A bypass channel to discharge the surplus water, in case of sudden stoppage of units is provided for a length of about 297 m long and would discharge directly into the river. The crest of the structure is kept at EL 596.8 m and would comprise 3 bays of 15 m width with 2 piers each of 1.5 m thick.

Intake Structure:

The intake structure located at the end of fore bay accommodates 4 penstocks and is spaced at 20 m centre to centre. Bell mouth entry with suitable transitions has been provided at the entry leading to the 5.6 m dia. penstocks. The center line of the penstock at the intake has been kept at EL 593 m.

Penstocks:

4 numbers steel penstocks of 5.6 dia. have been provided to lead the discharge from the fore bay to the power house. The penstocks are spaced 20 m center to center.

Power House and Switchyard:

The size of power house structure is 52.40 m (width) x 131.50 m (length) and would house 4 numbers Francis Turbines (vertical shaft) generating 82.5 MW each. The turbine would operate under a varying maximum head of 68.00 m to minimum head of 63.00m. The runner dia. of inlet /outlet are 4022/3984.4000 mm respectively. The bottom removal facility for quick maintenance has been provided. The turbines would be fed by individual penstocks from the fore bay and controlled by electro -hydraulic modern type governors.

Switchyard have four 400 kV outgoing transmission line bays.

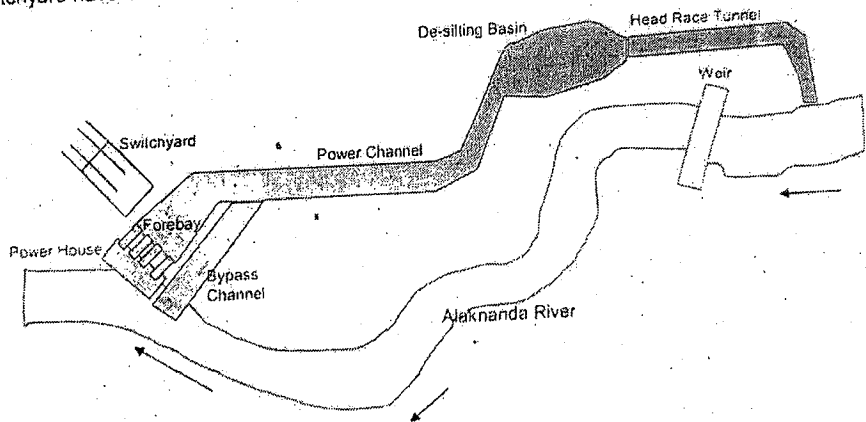


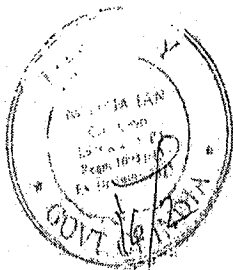
Figure 2: Systematic representation of project activity

A brief description of the turbine (total 4 No's) parameters is given below:

Parameter	Value
Make	BHEL
Rated Power	82.5 MW * 4
Average lifetime	35 years
Efficiency	93.36%

Turbine Head Range
 Normal: 65.0 m
 Maximum: 68.0 m
 Minimum: 63.0 m

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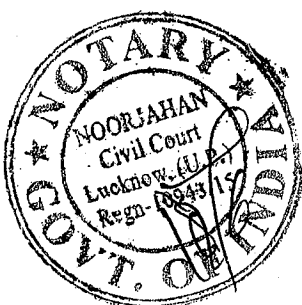
Considering modern practices for designing of Francis Turbines, particularly in view of susceptibility to erosion of turbine parts due to silt in river water, the essential turbine parts such as runners, guide vanes, facing plates, labyrinth rings shall be coated with a resistance layer of hard ceramic material embedded in a ductile matrix. Each turbine would be fed by individual penstocks from fore bay and controlled by Electro-hydraulic modern type governors. The Runners, Labyrinth seals, Guide vanes are envisaged to be of stainless steel to minimize erosion. Runners and Guide vanes shall be 13/4 Chrome Nickel steel.

Each of the four turbines have rated capacity 82.5 MW with 10% continuous overloading and maximum output of 92.95 MW.

The generator is proposed to be a vertical shaft synchronous machine with rated continuous output of 97.06 MVA, having rotational rated speed of 166.66 rpm and run away speed of 315 rpm to match with that of turbine. A brief description of the generator parameters is given below

Generator:

Parameter	Value
Make	BHEL
Rated power	82.5 MW * 4
Average lifetime	30 years
Efficiency	98%
Rated Voltage	13.8 kV, Range ±10%
Frequency	50 Hz +3% to -5%
Excitation	Static type
Power Factor	Rated PF (lagging) – 0.85



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The generators' continuous overload output is 90.75 MW. The generator stator and rotor windings are provided with epoxy insulation of class 'F'. The generator ventilation system would be of closed recirculation type with air cooled by water. The generator shall be designed to withstand the runaway speed which shall be co-ordinated with the turbine supplier.

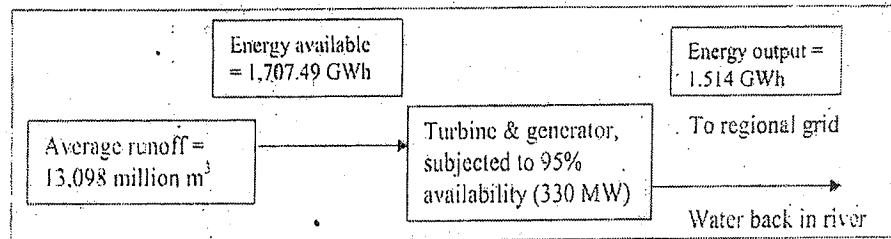
The bearing arrangement comprise a turbine guide bearing and a thrust cum guide bearing below the generator rotor. This bearing arrangement is recommended in view of comparatively low speed of rotation. Generation of power at 13.8 kV is stepped up to 400 kV by a power transformer. The arrangement for Power Evacuation from Shrinagar Hydro Power Station is as below:

1. One circuit of 400 kV Muzaffarnagar-Vishnuprayag line may be made with line in and line out (LILLO) at the Switchyard of Shrinagar Power House.
2. One double circuit connected from Srinagar Power House substation to PTCUL substation at Shrinagar.

Based on the estimated generation, the PLF is calculated to be at 52.3% for the project activity. This is the overall load factor of the entire plant and the individual units contribute accordingly. The lifetime of the project activity is estimated as 35 years.

Mass and Energy balance:

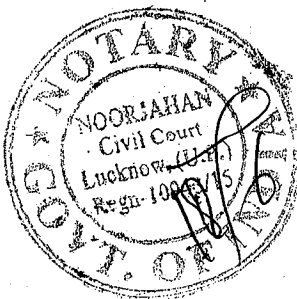
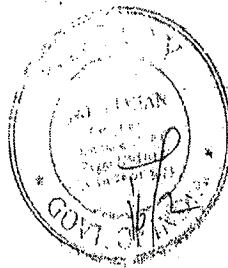
The capacity of the concerned project activity is designed based on the hydrological studies conducted by the Central Water Commission (CWC) in the Alaknanda River. The hydrological series of 23 years total unrestricted energy generation is arranged in a descending order and then the 90% of the hydrological year is found out by formula $(0.9 \times (N+1))$ th year where N is the number of years for which the data is available.



The level of service provided by the project activity is not dependant on any other manufacturing system outside the project boundary. The power generation depends only on the flow rate of the water in the river. As the project activity is constructed based on the historic flow a condition, the mass balance is not envisaged to be subjected to major changes.

The project activity utilizes hydro power for generation of electricity. The technology consists of conversion of the potential energy available in the water flow to mechanical energy using a hydro turbine and by connecting to a generator, mechanical energy is converted into electrical energy. In this process there is no burning of any fossil fuels and hence no emissions. Thus electricity is generated through sustainable means without causing any negative effect on the environment. Therefore the technology is environmentally safe and sound. The technology employed is best available in the field and environmentally safe and sound. The use of this advanced technology to harness the renewable energy source avoids emission of GHGs and other pollutants like CO, SOx, NOx and SPM commonly associated with power generation in general.

Technology transfer from Annex I countries is not involved in the project activity.



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As per the applicable methodology, as the project activity is the installation of a new grid-connected renewable power plant/unit, the baseline scenario is - electricity delivered to the grid by the project activity would have otherwise been generated by the operation of grid-connected power plants and by the addition of new generation sources, as reflected in the combined margin. The emission sources and gases included are none for the project activity (as per the applicable methodology - no CO₂ emissions from hydroelectric power plants and CO₂ emissions from the current fuel mix in the grid in the baseline).

B.2. Post-registration changes**B.2.1. Temporary deviations from the registered monitoring plan, applied methodologies, standardized baselines or other methodological regulatory documents**

There is no request for deviation applied during this monitoring period.

B.2.2. Corrections

Following PRC-Correction changes applied for the project:

1. The status of commissioning of project activity is updated being commissioned in Year 2015
2. The contact details of focal point are changed in Appendix 1 of the revised PDD version 06 dated 30/10/2020.
3. The correction in estimated emission reduction values due to change in combined margin emission factor in section B.6.3 and B.6.4 of PDD. The Correction in calculation of grid emission factor by considering 3 years generation weighted average OM emission factor. Thus Combined margin emission factor is changed in section B.6.2, B.6.3 and Appendix 4 of PDD which is part of ex-ante calculation.
4. Mention of note in section B.6.3 stating that Auxiliary consumption and Transformation losses are assumed just for Net Electricity Generation estimation. In actual net electricity generation is monitored and it covers auxiliary consumption and transformation loss. Thus separate monitoring of Auxiliary consumption and Transformation losses is not required
5. The update in PDD as per new template requirements like section A.5 History of Project, section B.6.2 and B.7.1 Purpose of data - Section F Approval and Authorization

The revised PDD version 06 was approved by CDM Executive Board on dated 14/01/2021 vide PRC 4778-00.

B.2.3. Changes to the start date of the crediting period

The start date of the crediting period has been changed to 15/03/2013 to 14/03/2023 from 15/03/2012 to 14/03/2022¹.

B.2.4. Inclusion of monitoring plan

There has not been any change in the monitoring plan during the current monitoring period.

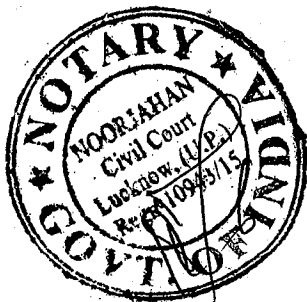
B.2.5. Permanent changes to the registered monitoring plan, or permanent deviation of monitoring from the applied methodologies, standardized baselines, or other methodological regulatory documents

Following PRC change- Monitoring plan is envisaged:

There is difference in electricity mentioned in JMR and electricity mentioned in Invoice, thus transparent note is added to consider the Minimum of Net electricity supplied by the project activity to grid as per JMR (MWh) and Scheduled Energy as per Monthly Energy Account issued by

¹ <https://cdm.unfccc.int/PRCContainer/DB/prep749583822/view>

² <https://cdm.unfccc.int/Projects/DB/BVQ11304680889-70/view>




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UPSLDC (MWh) as a conservative approach. The revised PDD version 06 was approved by CDM Executive Board on dated 14/01/2021 vide PRC-4776-001⁵.

B.2.6. Changes to project design

There has not been any change in the PDD during the current monitoring period.

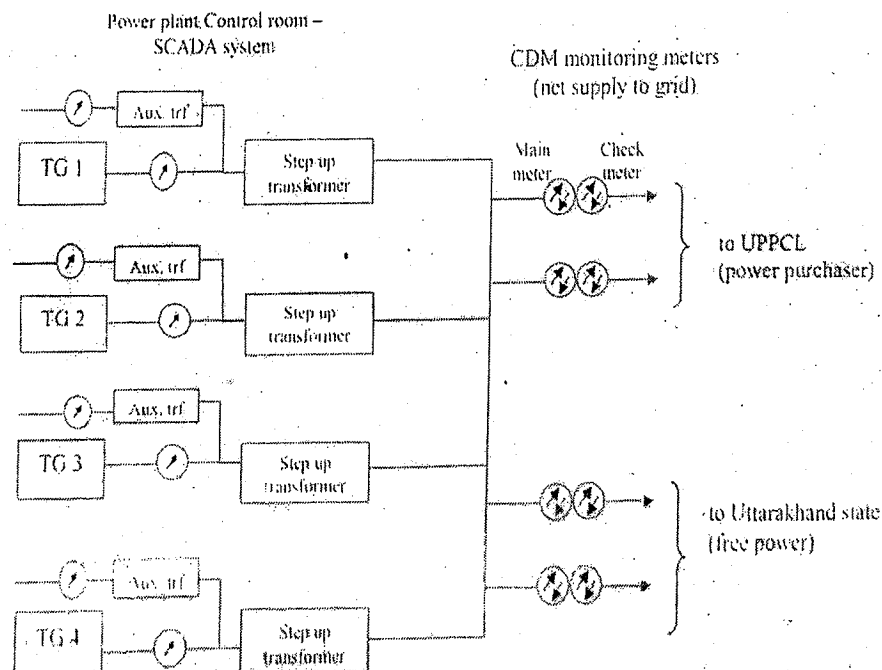
B.2.7. Changes specific to afforestation or reforestation project activity

This is not an afforestation or reforestation project activity.

SECTION C. Description of monitoring system

The project activity has four generators and individual total generation can be metered. The electricity is stepped up to 400 kV and individual four feeder lines have meters. There are two electricity lines each from Uttar Pradesh (UPPCL) and Uttarakhand state (PTCUL). The total electricity generation are measured at the power house/ control room. Auxiliary consumption and transformation loss can be calculated from the difference between total generation and net dispatch. The net dispatch to the grid metered by main dispatch meters are used for the calculation of emission reduction. This reading can also be cross checked with the documents of electricity supply (sale to UPPCL and free supply to Uttarakhand state).

The project activity is operated and managed by the project proponent. The hydro power project abides all regulatory and statutory requirements as prescribed under the state and central laws and regulations. A CDM project team is established at the plant site. The project team is entrusted with the responsibility of recording the electricity generated by the project activity which are measured from the meters installed at the plant site. The meters are calibrated and sealed before being installed. The project team is responsible for calculation of actual creditable emission reduction in the most transparent and relevant manner. Installed meter/s used to measure the net electricity exported are calibrated annually.



<https://cdm.unfccc.int/PRCContainer/DB/prcp749583822/view>



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⚡ Electricity Meter

All the monitoring data will be recorded and stored electronically (spread sheets) by the Project Executor and Controller at the plant site for a period of Crediting Period + 2 years. As the important data that needs to be measured are the quantity of electricity supplied by the project activity to the grid, there is no case of data uncertainties and the generation data can be cross-checked with the export details to the grid (available from power purchaser). Only three parameters need monitoring in the project activity. The electricity dispatch are measured by export meter and cross checked with a check meter. If any inconsistency observed in daily reading, the meters will be checked and replaced with pre-calibrated spare meter. The power sale invoice/ bills are used to correct the CDM monitoring requirements as that will be conservative (as approved by the power purchaser).

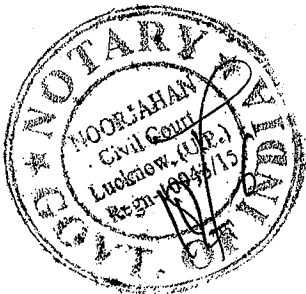
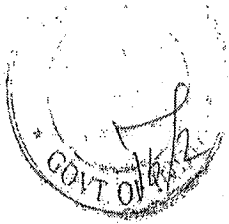
Designation	Responsibilities
Project Head	• Project Registration • Overall monitoring plan Execution with a special emphasis to the data archival
Project Executor and Controller plant site	• Operation • Verification of data • Inspection of data whenever necessary to independently check the authenticity of data and take corrective actions wherever required. • Storage of data • Monitoring of the data archiving
Site Main Controller	• Operation, Monitoring and Verification of Data • Data Recording • Storage of data • Data archiving
Operation and Maintenance Contractor	• Operation and Maintenance • Calibration of measuring equipments

Data archiving:

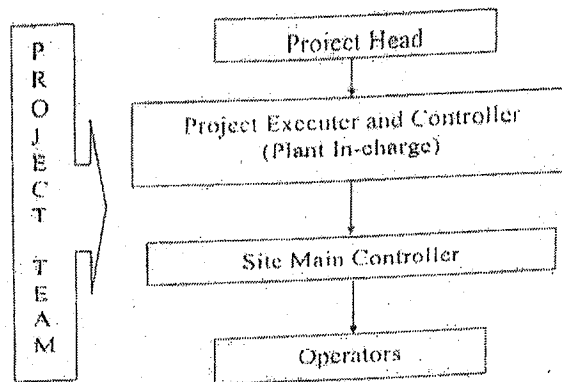
As data archival is an important component of the monitoring process in the CDM, the project proponent will take a special care for this process. The entire data that is monitored will be maintained in the electronic format and also in the Log books for a period of crediting period or last issuance whichever later + 2 years as required.

Data Uncertainty:

In case main electricity meter is reported for error more than $\pm 0.2\%$, the check meter reading will be used for the CER calculations and maximum error will be applied to the readings from last calibration or zero check of the main meter.




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QA and QC:

As per clause 4.4 of the PPA, if during test checks, the main meters are not within permissible limits of error, but the check meters are within permissible limits of error, the check meters will be used for monitoring and main meters will be recalibrated. If during the test checks, both the main and check meter are found to have error beyond permissible, both the meters will be calibrated and calibration factor for the main meter will be applied to main meter readings for one month's readings for monitoring. If both the main meter and check meter fail to record, or if the power transformer fuses are blown out, the monitoring will be based on meter readings recorded by the main meter plus the Design Energy Pro-rata for the period excluding outages in the generation. No such events occurred during current monitoring period.

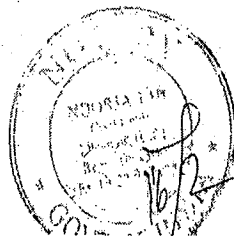
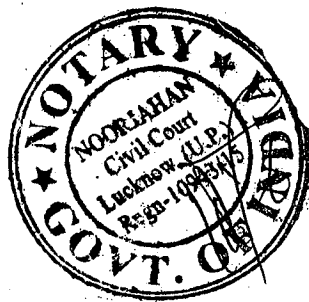
The monitored net electricity export to the grid are cross checked with the payment receipts from the power purchaser and free electricity supplied to the state in those records.

SECTION D. Data and parameters

D.1. Data and parameters fixed ex ante

Data/Parameter	EF _{OM,y}
Unit	tCO ₂ /MWh
Description	The Operating Margin emission factor
Source of data	This is calculated as the weighted average of the recent 3 years (2005-06, 06-07, 07-08) OM data which is been provided by Central Electricity Authority (CO ₂ Baseline database for the Indian power sector, Version 4.0).
Value(s) applied	1.0084
Choice of data or measurement methods and procedures	The database is Government of India's official publication based on the 'Tool to calculate the emission factor for an electricity system'
Purpose of data/parameter	This data item is required for estimating the baseline emissions and emission reductions.
Additional comments	The yearly Operating Margin emission factor of NEWNE grid is as follows 2005-06: 1.0195; 2006-07: 1.0083; 2007-08: 0.9992; Yearly Net Generation (GWh) in Operating Margin (GWh) as follows 2005-06: 359,270.98; 2006-07: 379,470.60; 2007-08: 401,641.59; 3 years generation weighted Average = 1.0084

Data/Parameter	EF _{BM,y}
Unit	tCO ₂ /MWh
Description	The Build Margin emission factor
Source of data	The OM data for NEWNE grid for 2007-08 which has been provided by Central Electricity Authority (CO ₂ Baseline database for the Indian power



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	sector, Version 4.0).
Value(s) applied	0.5977.
Choice of data or measurement methods and procedures	The database is Government of India's official publication based on the 'Tool to calculate the emission factor for an electricity system'.
Purpose of data/parameter	This data item is required for estimating the baseline emissions and emission reductions.
Additional comments	Latest available value used for year 2007-08

Data/Parameter	EF electricity
Unit	tCO ₂ /MWh
Description	The Combined Margin Emission factor of the grid
Source of data	Calculated
Value(s) applied	0.6032
Choice of data or measurement methods and procedures	Calculated as the weighted average of the build margin emission factor and operating margin emission factor.
Purpose of data/parameter	This data item is required for estimating the baseline emissions and emission reductions.
Additional comments	Ex-ante value will be used for the entire crediting period

Data/Parameter	EFRes
Unit	kgCO ₂ e/MWh
Description	Default emission factor for emissions from reservoirs.
Source of data	The default value as per EB23 is 90 kgCO ₂ e/MWh.
Value(s) applied	90
Choice of data or measurement methods and procedures	The used is default emission factor suggested in the methodology applied.
Purpose of data/parameter	--
Additional comments	--

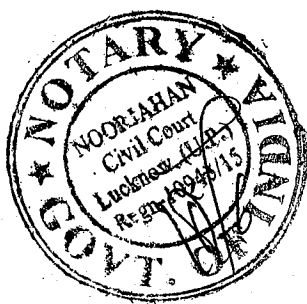
Data/Parameter	EF diesel, CO ₂
Unit	tCO ₂ /GJ
Description	CO ₂ emission factor of the diesel
Source of data	CEA CO ₂ Baseline Database for the India Power Sector, version 4.0
Value(s) applied	0.0726
Choice of data or measurement methods and procedures	The value is taken from the database developed by Central Electricity Authority (CO ₂ Baseline database for the Indian power sector, Version 4.0). The database is Government of India's official publication based on the 'Tool to calculate the emission factor for an electricity system'.
Purpose of data/parameter	--
Additional comments	CEA CO ₂ Baseline Database ⁶ , Assumptions sheet, Cell H7

Data/Parameter	ρ _{diesel}
Unit	kg/m ³
Description	Density of fossil fuel used in DG set for backup power (diesel)
Source of data	Specifications of diesel in country as per latest Bharat Stage IV/ Euro IV Vehicular Emissions Norms

* <http://www.cdm-mr-india.org/CDM-MR-Form-Government%20of%20India%20website.htm>

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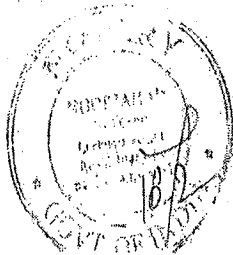
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Value(s) applied	845.0
Choice of data or measurement methods and procedures	This is national level default (as part of fuel specifications) and PP is likely to use same quality fuel for the DG set.
Purpose of data/parameter	--
Additional comments	--

D.2. Data and parameters monitored

Data/Parameter	Electricity
Unit	MWh
Description	The net electricity supplied by the project activity to grid
Measured/calculated/default	Measured
Source of data	Electricity supply to grid log book
Value(s) of monitored parameter	1,385,204
Monitoring equipment	Energy Meter For detailed schedule of calibration please refer Annexure 1
Measuring/reading/recording frequency	Hourly measurement and monthly recording
Calculation method (if applicable)	The electricity supplied by the project activity will be measured using electricity meter (3 phase 4 wire meter and of an accuracy of 0.2s) installed at the project site (switch yard/ site sub-station). The measurement also has a check meter installed and owned by the power purchaser. If during calibration, main meter is not within permissible $\pm 0.2\%$ error, then check meter will be used for the billing and monitoring. This form of measuring is in accordance with the best practices of the power industry in the host country. measurement equipment – electricity meter (on 400 kV side at project switch yard). Measurement process – electronic logging of the hourly meter reading Calibration procedure – National Test House or equivalent – third party Testing accuracy of the measurement - $\pm 0.2\%$ Responsible person for measurement – recording by electrical operator, daily log sheet to be signed by supervisor Measurement interval – continuous monitoring and monthly record
QA/QC procedures	The data will be used directly to calculate the emission reduction; hence the data will be checked for accuracy with the electricity supply invoice ⁷ obtained from the grid. The electricity reading will be taken by operator and monthly a joint meter reading or JMR will be signed by PP and power purchaser. This will be used to confirm the net electricity supplied to grid. The electricity meter will be calibrated annually.
Purpose of data/parameter	For Calculation of Baseline emissions
Additional comments	

⁷ Note - The monthly tariff invoices are being raised based on the UPERC Generation Tariff Regulations in force. Invoices are being done for Energy Charges based on Schedule Generation certified by the UPSLDC for that month. The Invoices are based upon the scheduled energy and after deducting 12% of JMR electricity as free energy for Govt of Uttarakhand. There is difference between Scheduled Energy and Actual JMR Energy, hence for comparison purpose, Net Energy as per Invoice (KWh) is back calculated after adding 12% JMR to scheduled Energy and adding difference of scheduled Energy (no of Units exported as per Monthly Energy Account issued by UPSLDC) and JMR Actual Energy. Finally Deviation Settlement Mechanism (DSM) statements settles out the difference between Scheduled and Actual Energy as per Electricity Board regulations. As a conservative approach, Minimum of Net electricity supplied by the project activity to grid as per JMR (MWh) and Scheduled Energy as per Monthly Energy Account issued by UPSLDC (MWh) is considered for ER calculations



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Data/Parameter	Capacity
Unit	MW
Description	Installed capacity of the hydro power plant after the implementation of the project activity
Measured/calculated/default	Measured
Source of data	Approved project capacity as per the Techno-economic clearance for the CEA
Value(s) of monitored parameter	330 MW
Monitoring equipment	Energy Meter
Measuring/reading/recording frequency	Yearly - Electrical Head will ensure the measurement as per applicable standard
Calculation method (if applicable)	The project capacity will be monitored annually by a third party chartered engineer with test as per the appropriate National Standard of testing.
QA/QC procedures	Yearly - Electrical Head will ensure the measurement as per applicable standard. This data will be used to confirm that power density of project is greater than minimum requirement specified by ACM0002. Power density of project always comes greater than 10 W/m ² even if calculated on conservative basis, hence no project emissions are applicable for project activity.
Purpose of data/parameter	For Calculation of Project emissions
Additional comments	Based on CEA TEC, 2000 - capacity is 4 turbines, 82.5 MW each. This matches with the actual turbine capacity - 82.5 x 4 No.

Data/Parameter	Area
Unit	m ²
Description	Surface area of the pondage at the full volume
Measured/calculated/default	Measured
Source of data	Design data from the project report
Value(s) of monitored parameter	3,100,000
Monitoring equipment	Topographical survey
Measuring/reading/recording frequency	Yearly - civil head will ensure the measurement as per applicable standard.
Calculation method (if applicable)	The surface area is calculated using the design schematics. This form of measuring is in accordance with the best practices of the power industry in the host country
QA/QC procedures	The surface area of the pondage at full volume will be measured at project commissioning from a detailed topographical survey. This data will be used to confirm that the power density of the project is greater than the minimum requirement specified by the ACM0002. Power density of project always comes greater than 10 W/m ² even if calculated on conservative basis, hence no project emissions are applicable for project activity.
Purpose of data/parameter	For Calculation of Project emissions
Additional comments	The surface area measurement will also be done and certified by independent third party Certified Engineer.

Data/Parameter	FFty
Unit	ton
Description	Quantity of fuel type i combusted in the back up power plant (DG set)
Measured/calculated/default	Calculated



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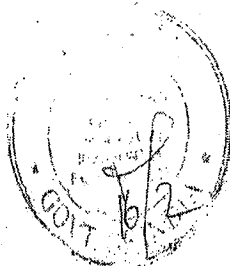
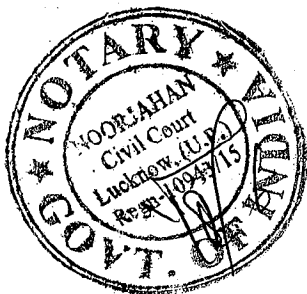
CDM-MR-FORM

default	
Source of data	The diesel inventory records at the plant will be used to calculate diesel consumption in DG set for backup power generation.
Value(s) of monitored parameter	24.26
Monitoring equipment	Not Applicable
Measuring/reading/recording frequency	Continuously and Monthly Recording
Calculation method (if applicable)	Data type: Calculate Responsibility: Manager (Stores) along with the inventory staff Recording Frequency: Monthly Archiving procedure: Paper and Electronic Calibration Frequency: not required as purchase records/ inventory is used to calculate diesel consumption
QA/QC procedures	
Purpose of data/parameter	For Calculation of Project emissions
Additional comments	In case inventory records, supplier data is in volume terms, density will be used to get mass of the fuel consumed. Data archived will be kept 2 years beyond the Crediting period.

Data/Parameter	NCV _{i,y}
Unit	GJ/Tonnes
Description	Weighted average net calorific value of fuel type Diesel
Measured/calculated/default	Default
Source of data	IPCC default value with upper limit of uncertainty at 95% confidence level Considered IPCC default value as no value provided by the fuel suppliers in invoices.
Value(s) of monitored parameter	43.3
Monitoring equipment	
Measuring/reading/recording frequency	Monthly As per registered monitoring plan, The NCV will be obtained for each fuel delivery, from which weighted average annual values will be calculated, however fuel suppliers' invoices do not mention calorific value, thus NCV is calculated based on CEA database and compared with IPCC default value with upper limit of uncertainty at 95% confidence level and higher value is considered for project emissions as a conservative approach.
Calculation method (if applicable)	Data type: Calculate Recording Frequency: monthly Archiving procedure: Paper and Electronic
QA/QC procedures	As per registered monitoring plan "Values of net calorific value obtained for each delivery will be counterchecked with IPCC default values as provided in the Table 1.2, Vol(2), Energy of the 2006 IPCC Guidelines on National GHG inventories to ensure the consistency" For current monitoring period, fuel suppliers' invoices do not mention calorific value, thus NCV is calculated based on CEA database and compared with IPCC default value with upper limit of uncertainty at 95% confidence level and higher value is considered for project emissions as a conservative approach.
Purpose of data/parameter	For Calculation of Project emissions

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Additional comments	In case supplier invoices has GCV record, NCV will be calculated using default delta conversion factors by CEA data*. Also, if the fuel suppliers' invoices do not given calorific value record, the default of CEA database will be used for project emission calculations. Data archived will be kept 2 years beyond the Crediting period.
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D.3. Implementation of sampling plan
Not Applicable

SECTION E. Calculation of emission reductions or net anthropogenic removals

E.1. Calculation of baseline emissions or baseline net removals

Baseline emissions are calculated as the KWh produced by the renewable generating unit multiplied by an emission coefficient for the Northern region grid.

$$BE_y = EG_{\text{renewable},y} \cdot EF_{\text{electricity}}$$

$$= 1,385,204 \cdot 0.8032$$

$$= 1,112,595 \text{ tCO}_2\text{e (Rounded down value)}$$

Where,
EG_y is the net quantity of electricity exported to the grid by the project in year y.
CEF grid is the carbon grid emissions factor of the Northern (now a part of NEWNE) region grid.

E.2. Calculation of project emissions or actual net removals

DG set on the site is used only as a back up to run the essential auxiliaries when the unit of power project is down. However, the same is considered under project emissions as per the following computation:

$$PE_{\text{CO}_2,y} = FF_y \cdot COEF_{\text{CO}_2}$$

$$PE_{\text{CO}_2,y} = 24.26 \cdot 43.3 \cdot 0.0726$$

$$PE_{\text{CO}_2,y} = 83 \text{ tCO}_2\text{e (Rounded up Value)}$$

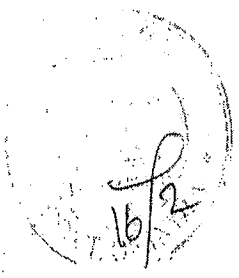
where:
FF_y is the quantity of fossil fuel type used in the project during the year y, in tonnes and
COEF_{CO2} is the CO₂ emission factor of the fossil fuel type in tCO₂/ton of fuel.
COEF_{CO2} = NCV_{FF} · EF_{CO2}
where
NCV_{FF} is the net calorific value (energy content) per mass or volume unit of a fossil fuel.
EF_{CO2} is the carbon emission factor per unit of energy of the fossil fuel.

For new hydroelectric power projects with reservoirs, project proponents shall account for project emissions, estimated as follows:
a) if the power density of project is greater than 4 W/m² and less than or equal to 10 W/m².

$$PE_{\text{res}} = \frac{EF_{\text{res}} \cdot TEG_y}{1000}$$

where,
PE_{res} is the Emission from reservoir expressed as tCO₂e/year
ES_{res} is the default emission factor for emissions from reservoirs, and the default value as per

* As per CEA database Version 15
(http://www.cea.nic.in/reports/other/thermal/ncv/co2/user_guide_ver15.pdf), the GCV of Diesel comes out to be 10 500 Kcal/Kg which gives a value of 43,963.5 KJ/Kg, which is then converted to NCV by using default conversion factor 5% and gives a value of 41,765 GJ/Ton whereas in the project activity, IPCC 2006 default value with upper limit of uncertainty at 95% confidence level i.e. 43.3 GJ/Ton is used which is more conservative in nature.



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EB23 is 90 kg CO₂e /MWh.
TEGy is total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y (MWh).

The power density of project is calculated as below:

Parameter	Unit	Value
Installed Capacity	W	33,0000,000
Reservoir after project implementation	m ²	3,240,000
Power Density	W/ m ²	101.85

As the power density of the pondage in the project activity is more than 10 W/m², this project emission need not be considered.

E.3. Calculation of leakage emissions

The main emissions potentially giving rise to leakage in the context of electric sector projects are emissions arising due to activities such as power plant construction, fuel handling (extraction, processing, and transport), and land inundation (for hydroelectric projects – see applicability conditions above).

As per the methodology, the leakage need not be considered. Thus, leakage is not considered in the project activity.

LE_y = 0

E.4. Calculation of emission reductions or net anthropogenic removals

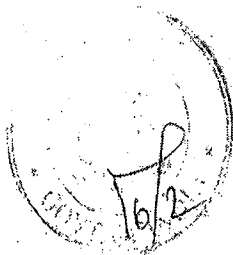
	Baseline GHG emissions or baseline net GHG removals (t CO ₂ e)	Project GHG emissions or actual net GHG removals (t CO ₂ e)	Leakage GHG emissions (t CO ₂ e)	GHG emission reductions or net anthropogenic GHG removals (t CO ₂ e)			
				Before 01/01/ 2013	From 01/01/ 2013 until 31/12/ 2020	From 01/01/ 2021	Total amount
Total	1,112,595	83	0	0	1,112,512	0	1,112,512

E.5. Comparison of emission reductions or net anthropogenic removals achieved with estimates in the registered PDD

Amount achieved during this monitoring period (t CO ₂ e)	Amount estimated ex ante for this monitoring period in the PDD (t CO ₂ e)
1,112,512	1,104,935

E.5.1. Explanation of calculation of "amount estimated ex ante for this monitoring period in the PDD"

As per CDM registered PDD, 1,203,884 tCO₂e is the amount of CERs generated annually. Therefore, following unitary method, the amount of estimated ex ante for this monitoring period is identified. The total number of days in this monitoring period is 434.
= (1,203,884/365) * 335
= 1,104,935 tCO₂e



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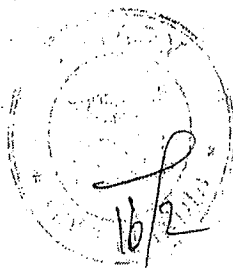
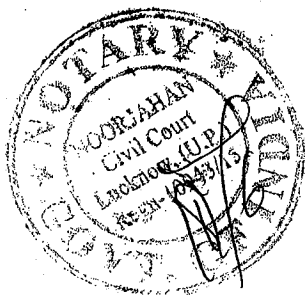
E.6. Remarks on increase in achieved emission reductions

During the present monitoring period, actual emission reductions achieved are 1% higher than the estimated emission reductions.

The difference in emission reduction as above may be attributed to the uncertain nature of water availability to the project activity. The electricity generation by the project activity depends upon the water availability at the project site which depends upon the annual rainfall in the region. Thus it is nature dependent and not in control of PP.

E.7. Remarks on scale of small-scale project activity

This Project activity is not a small project activity.




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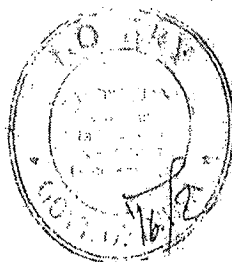
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Document information

Version	Date	Description
08.0	6 April 2021	Revision to: Reflect the "Clarification: Regulatory requirements under temporary measures for post-2020 cases" (CDM-EB109-A01-CLAR).
07.0	31 May 2019	Revision to: - Ensure consistency with version 02.0 of the "CDM project standard for project activities" (CDM-EB93-A04-STAN); - Add a section on remarks on the observance of the scale limit of small-scale project activity during the crediting period; - Add "changes specific to afforestation or reforestation project activity" as a possible post-registration changes; - Clarify the reporting of net anthropogenic GHG removals for A/R project activities between two commitment periods; - Make editorial improvements.
06.0	7 June 2017	Revision to: - Ensure consistency with version 01.0 of the "CDM project standard for project activities" (CDM-EB93-A04-STAN); - Make editorial improvements.
05.1	4 May 2015	Editorial revision to correct version numbering.
05.0	1 April 2015	Revisions to: - Include provisions related to delayed submission of a monitoring plan; - Provisions related to the Host Party; - Remove reference to programme of activities; - Overall editorial improvement.
04.0	25 June 2014	Revisions to: - Include the Attachment: Instructions for filling out the monitoring report form (these instructions supersede the "Guideline: Completing the monitoring report form" (Version 04.0)); - Include provisions related to standardized baselines; - Add contact information on a responsible person(s)/ entity(ies) for completing the CDM-MR-FORM in A.6 and Appendix 1; - Change the reference number from F-CDM-MR to CDM-MR-FORM; - Editorial improvement.
03.2	5 November 2013	Editorial revision to correct table in page 1.
03.1	2 January 2013	Editorial revision to correct table in section E.5.

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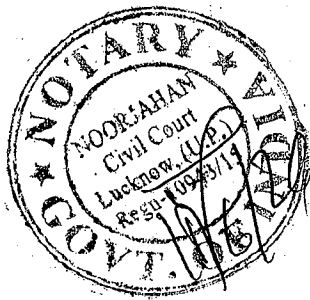
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Version	Date	Description
03.0	3 December 2012	Revision required to introduce a provision on reporting actual emission reductions or net GHG removals by sinks for the period up to 31 December 2012 and the period from 1 January 2013 onwards (EB 70, Annex 11).
02.0	13 March 2012	Revision required to ensure consistency with the "Guidelines for completing the monitoring report form" (EB 66, Annex 20).
01.0	28 May 2010	EB 54, Annex 34. Initial adoption.
Decision Class: Regulatory		
Document Type: Form		
Business Function: Issuance		
Keywords: monitoring report		

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