Verification Report

UCR ID: 202

Prepared by

Naturelink Solutions Pvt. Ltd.

Title	**5 MW Small Scale Hydro power project by M/s. Regent Energy Limited**
Project Owner	**M/s Regent Energy Limited**
Project Location	**Village:Rakchad, Tehsil:Nichar, Dist.:Kinnaur, State: Himachal Pradesh, India.** **Coordinates: 31°34'11.0" N and 77°56'36.7" E**
Date	**22/01/2025**

COVER PAGE **Project Verification Report Form (VR)**	
BASIC INFORMATION	
Name of approved UCR Project Verifier / Reference No.	Naturelink Solutions Pvt. Ltd
Type of Accreditation	☐ CDM Accreditation ☐ ISO 14065 Accreditation ☒ UCR Approved Verifier
Approved UCR Scopes and GHG Sectoral scopes for Project Verification	Sectoral Scope: 01 Energy Industries
Validity of UCR approval of Verifier	May - 2022 onwards
Completion date of this VR	22/01/2025
Title of the project activity	5 MW Small Scale Hydro Power project by M/s Regent Energy Limited
Project reference no. (as provided by UCR Program)	UCR - 202
Name of Entity requesting verification service	M/s. Creduce Technologies Private Limited (Aggregator) M/s Regent Energy Limited (Project owner)
Contact details of the representative of the Entity, requesting verification service (Focal Point assigned for all communications)	Shailendra Singh Rao (Creduce) shailendra@credcue.tech M/s Regent Energy Limited
Country where project is located	India
Applied methodologies	AMS-I.D: Grid connected renewable electricity generation– Version 18.0
Sectoral Scope(s):	1 Energy industries (renewable - / non-renewable sources)
Project Verification Criteria:	☒ UCR Verification Standard

Mandatory requirements to be assessed	☒ Applicable Approved Methodology ☐ Applicable Legal requirements /rules of the host country ☒ Eligibility of the Project Type ☒ Start date of the Project activity ☒ Meet applicability conditions in the applied methodology ☒ Credible Baseline ☒ Do No Harm Test ☒ Emission Reduction calculations ☒ Monitoring Report ☒ No GHG Double Counting ☐ Others (please mention below)
Project Verification Criteria: Optional requirements to be assessed	☒ Environmental Safeguards Standard and do-no-harm criteria ☐ Social Safeguards Standard do-no-harm criteria
Project Verifier's Confirmation: The *UCR Project Verifier* has verified the UCR project activity and therefore confirms the following:	The UCR-approved verifier Naturelink Solution Pvt. Ltd., verifies the following with respect to the UCR Project Activity "5 MW Small Scale Hydro Power project by M/s Regent Energy Limited" ☒ The project aggregator has correctly described the project activity in the Project Concept Note/9/ including the applicability of the approved methodology AMS-I.D/4/ and meets the methodology applicability conditions and has achieved the estimated GHG emission reductions, complies with the monitoring methodology and has calculated emission reductions estimates correctly and conservatively. ☒ The project activity is likely to generate GHG emission reductions amounting to the estimated 73,491 tCO2e, as indicated in the monitoring report/10/18/, which are additional to the reductions that are likely to occur in the absence of the Project Activity and complies with all applicable UCR rules, including ISO 14064-2 and ISO 14064-3.

	☒ The project activity is not likely to cause any net-harm to the environment and/or society ☒The project activity complies with all the applicable UCR rules and therefore recommends UCR Program register the Project activity with above mentioned labels.
Project Verification Report, reference number and date of approval	Verification Report UCR UCR ID: 202 Version: 1.0 Date: 22/01/2025
Name of the authorised personnel of UCR Project Verifier and his/her signature with date	 Ms. Trapti Joshi GHG Assessor Naturelink Solutions Pvt. Ltd. Date: 22/01/2025

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1. Project Verification Report

1.1 Executive Summary

The verification work has been contracted by project aggregator M/s. Creduce Technologies Pvt Ltd and M/s Regent Energy Limited to perform an independent verification of its UCR project titled **"5 MW Small Scale Hydro Power project by M/s Regent Energy Limited" UCR approved project ID:202**, to establish a number of CoUs generated by the project over the crediting period from 01/01/2022 to 31/12/2024 (both days included).

Verification for the Second CoU Issuance period: 01/01/2022 to 31/12/2024 (both days included)

In our opinion, the total GHG emission reductions over the crediting / verification period stated in the Monitoring Report (MR)/18/, submitted are found to be correct and in line with the UCR guidelines. The GHG emission reductions were calculated on the basis of UCR guideline which draws reference from, the standard baseline, AMS-I.D: Grid connected renewable electricity generation– Version 18.0/4/.The verification was done remotely by way of video calls, and submission of documents for verification through emails.

It is certified that the emission reductions from the 5 MW Small Scale Hydro Power project by M/s Regent Energy Limited (UCR ID – 202) for the period 01/01/2022 to 31/12/2024 amounts to **73,491** CoUs (**73,491 tCO_2e**).

Objective

The objective of this verification is to have an independent third-party assessment of whether the project activity conforms to the qualification criteria set out in the UCR Program Manual/1/, UCR CoU Standard/2/ and UCR verification standard/3/ to attain real, measurable, accurate and permanent emission reductions.

Scope

The scope of the verification is the independent, objective review and ex-post determination of the monitored reductions in GHG emission by the project activity.

1. To verify the project implementation and operation with respect to the registered PCN/9/.
2. To verify the implemented monitoring plan with the registered PCN/9/ applied baseline and monitoring methodology.
3. To verify that the actual monitoring systems and procedures follow the monitoring plan.
4. To evaluate the GHG emission reduction data and express a conclusion whether the reported GHG emission reduction data is free from material misstatement
5. To verify that reported GHG emission data is sufficiently supported by evidence.
6. Agreement stating assurance to avoid double accounting/8/ for the project to be verified, along with required proof.

The project is assessed against the requirements of the UCR Program Manual/1/, UCR CoU Standard/2/ and UCR verification standard/3/, ISO 14064-2.

Due professional care has been exercised and ethical conduct has been followed by the assessment team during the verification process. The verification report is a fair presentation of the verification activity. The validation of the project is not part of the present assignment and project is deemed validated post-registration by UCR.

1.2 Description of the Project

This project activity involves the operation of a 5 MW Small-Scale Hydro Power project in the Kinnaur district of Himachal Pradesh, India. The project harnesses the kinetic energy of water flowing through a run-of-river system to generate electricity. The diverted water flows through a trench weir, followed by an intake and desilting tank to remove silt particles. The water then moves into the power channel, pressurized through a penstock, and drives two Pelton wheel hydro turbine generators with an individual capacity of 2500 kW each. The generated electricity is sold to the Himachal Pradesh State Electricity Board Ltd (HPSEBL) under a Power Purchase Agreement (PPA). After passing through the powerhouse, the tailwater is returned to the river through a tailrace channel.

The project aims to reduce GHG emissions by displacing approximately 86,223 MWh of electricity from fossil-fuel-based power plants connected to the NEWNE grid. This is a grid-connected renewable energy generation project under the Universal Carbon Registry (UCR), which reduces GHG emissions of 73,491 tCO2e during the monitoring period. The project has a total installed capacity of 5 MW and contributes to reducing dependence on fossil fuels while causing minimal environmental impact.

The project activity is promoted by M/s Regent Energy Limited (the Project Proponent, PP) and applies the methodology "A.M.S. I-D Grid connected renewable electricity generation" (version 18.0).

The details of the project activity are verified with the PCN/9/, MR/18/ and relevant documents submitted for verification as mentioned in appendix-2.

The generators generate power at 6.6 kV, which can further be stepped up to 33 kV. The project activity can operate at rated frequency of 50 Hz and the voltage of 6.6 kV. The average life time of the generator is around 35 years as per the equipment supplier specification. The other salient features of the technology are described in the Section B.1 of MR/10/18/

As mentioned in the monitoring report/18/ and emission reduction calculation sheet/11/ submitted for verification, the project replaces anthropogenic emissions of greenhouse gases (GHGs) estimated to be 73,491 tCO_2e for the verification period, there on displacing 86,223 MWh amount of electricity from the generation of fossil-fuel based power plants connected to the Indian electricity grid.

This project activity is installation and operation of Small-Scale Hydro Power Project comprising of installation and operation of 2 Horizontal axis Pelton Hydro Turbine Generators having individual capacity 2500kW with aggregated installed capacity of 5.0 MW. The project is a small-scale activity. The methodology applied in the monitoring report is verified against the AMS-I. D: Grid connected renewable electricity generation - Version 18.0/4/ total emission reductions (ERs) achieved through the project activity during the monitoring period is summarised below:

Summary of the Project Activity and ERs Generated for the Monitoring Period	
Start date of this Monitoring Period	01/01/2022
Carbon credits claimed up to	31/12/2024

Total ERs generated (tCO_2e)	73,491 tCO_2e
Leakage Emission	0
Project Emission	0

1.3 Project Verification team, technical reviewer and approver:

1.3.1 Project verification team

Sr. No.	Role	Last name	First name	Affiliation	Involvement in		
					Doc review	Remote inspection	Interviews
1.	GHG Assessor	Joshi	Trapti	Naturelink Solutions Pvt. Ltd.	Yes	Yes	Yes

1.3.2 Technical Reviewer of the Verification report

Sr. No.	Role	Type of resource	Last name	First name	Affiliation
1.	Internal Technical Reviewer	IR	Mandliya	Shyam	Naturelink Solutions Pvt. Ltd.

2 Verification Process

2.1 Desk/document review

The desk review was conducted by the verification team that included:

- A review of data and information presented to assess its completeness;
- A review of the initial PCN/9/, MR/10/18/, emission reduction calculation sheet/11/, Methodology - AMS-I. D V18.0/4/.
- A cross-check between information provided in the monitoring report/10/18/ and data from other sources such as Joint Meter Reading of electricity generated by hydro power plant/13/, detailed project report/15/ or similar data sources;
- A review of calculations and assumptions made in determining the GHG data and emission reductions calculation/11/;

The list of submitted documents is available in a subsequent section of this verification report under the appendix - 2 “Document reviewed or referenced”.

2.2 Remote Inspection

As per the UCR Verification standard version 2.0, the verification team conducted remote inspection of project activity via video conferencing on 20/01/2025 as mentioned in the below table.

Date of remote inspection:	20/01/2025			
No.	**Activity performed During remote inspection**	**Site location**	**Date**	**Project Personnel**
1.	Opening meeting	Project location	20/01/2025	Mr. Vinod Katana – Director, REL Mr. Rajendra Singh Thakur – General manager, REL Ms. Sakshi Negi – Senior Consultant, CTPL
2.	Remote inspection of all installation	Project location	20/01/2025	Mr. Sandeep Sharma, Plant Manager, REL Ms. Sakshi Negi – Senior Consultant, CTPL
3.	Closing meeting	Project location	20/01/2025	Mr. Vinod Katana – Director, REL

				Mr. Sandeep Sharma, Plant Manager, REL Ms. Sakshi Negi – Senior Consultant, CTPL

The following parameters were assessed but not limited to:

- An assessment of the implementation and operation of the registered project activity as per the registered PCN/9/;
- A review of information flows for generating, aggregating, and reporting the monitoring parameters;
- Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan in the PCN/9/ and MR/10/;
- A cross-check of the monitoring equipment including calibration reports and observations of monitoring practices against the requirements of the PCN/9/ and MR/10/ and selected methodology/4/;
- An identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

2.3 Interviews

No.	Interview			Date	Subject
	Last name	First name	Affiliation		
1.	Thakur	Rajendra Singh	General Manager and (M/s Regent Energy Limited)	20/01/2025	Hydro turbine specification and connections, energy meter readings, transformer specification, hydro power generation operations details with presentations, Monitoring plan, calibration details of the energy meter
2.	Sharma	Mr. Sandeep	Plant Manager (M/s Regent Energy Limited)		
3.	Katana	Vinod	Director - M/s Regent Energy Limited	20/01/2025	Legal ownership of the project, Implementation of the project, Start date and crediting period, Double counting of the carbon credits, Project boundary, hydro power generation operations details with presentations
4.	Negi	Sakshi	Senior Consultant – Creduce Technologies Pvt. Ltd.	20/01/2025	Project Overview, PCN, Monitoring Report, Methodology, eligibility criteria, Baseline emissions, Emission Reduction Calculation

2.4 Sampling approach:

For the verification of monitoring parameter of electricity generation Joint Metering Report was made available to verifier and the same has been verified. Data are being monitored on monthly basis. Since physical visit of installation site was not conducted, meter photos, and JMR copies are used for the verification.

2.5 Clarification request (CLs), corrective action request (CARs) and forward action request (FARs) raised

Areas of Project Verification findings	No. of CL	No. of CAR	No. of FAR
Green House Gas (GHG)			
Identification and Eligibility of project type	NIL	NIL	NIL
General description of project activity	NIL	NIL	NIL
Application and selection of methodologies and standardized baselines	--	--	--
• Application of methodologies and standardized baselines	NIL	NIL	NIL
• Deviation from methodology and/or methodological tool	NIL	NIL	NIL
• Clarification on applicability of methodology, tool and/or standardized baseline	NIL	NIL	NIL
• Project boundary, sources and GHGs	NIL	NIL	NIL
• Baseline scenario	NIL	NIL	NIL
• Estimation of emission reductions or net anthropogenic removals	NIL	1	NIL
• Monitoring Report	NIL	1	NIL
Start date, crediting period and duration	NIL	NIL	NIL
Environmental impacts	NIL	NIL	NIL
Project Owner- Identification and communication	NIL	NIL	NIL
Others (please specify)	NIL	NIL	NIL
Total	NIL	2	NIL

3 Project Verification findings

3.1 Identification and eligibility of project type

Means of Project Verification	The project is eligible as per UCR project Standard, Version 7.0 (Project Eligibility, Registration, Issuance and Registry Guidance Document) /2/ which is acceptable since the project has not been registered under any other GHG program for the current issuance period. The project also delivers real, measurable and additional emission reduction of 73,491 tCO_2e over the crediting period (01/01/2022 to 31/12/2024). Project applies an approved CDM monitoring and baseline methodology AMS-I. D: Grid connected renewable electricity generation - Version 18.0./4/
Findings	No findings were raised
Conclusion	The project is eligible as per the requirements of the UCR project Standard, Version 7.0 (Project Eligibility, Registration, Issuance and Registry Guidance Document)/2/. UCR project communication agreement submitted to verifier and the same has been verified. Methodology referenced and applied appropriately describing the project type. The eligibility of project aggregator is verified using UCR communication agreement, Project correctly applies the verification standard, UCR project standard and UCR regulations. The project activity is overall meeting the requirements of UCR Verification standard and UCR project standard.

3.2 General description of project activity

Means of Project Verification	The project activity aims to harness kinetic energy of water (renewable source) to generate electricity. The net generated electricity from the project activity is transferred to Himachal Pradesh State electricity board under power purchase agreement/12/. This project activity is installation and operation of Small-Scale Hydro Power Project comprising of 2500kW x 2 units of hydro Turbine and Generators with an aggregated installed capacity of 5 MW. The project activity has applied AMS-I. D: Grid connected renewable electricity generation– Version 18.0/4/ falls into the small-scale category as per applied CDM methodology. A power purchase agreement/12/ is signed between M/s Regent Energy Limited and HPSEBL for transfer of electricity generated by hydro turbine generators. The project activity generated total 86,223 MWh electricity and displacing 73,491 tCO_2e.

	In the absence of the project activity, the equivalent amount of power would have been generated by the operation of grid-connected fossil fuel-based power plants and by the addition of new fossil fuel-based generation sources into the grid. The Location details has been verified during the online assessment and geo-coordinates verified through google earth/maps. The technical specification mentioned in the PCN/9/ is verified against the technical specifications mentioned in Detailed project report /15/.
Findings	No findings were raised
Conclusion	The description of the project activity is verified to be true based on the review of PCN/9/, MR/18/, Commissioning Certificates/14/, Technical specifications/15/ and power purchase agreement/12/ of Hydro power plant.

3.3 Application and selection of methodologies and standardized baselines

3.3.1 Application of methodology and standardized baselines

Means of Project Verification	The project activity applied AMS-I. D: Grid connected renewable electricity generation-Version 18.0/4/ falls into the small-scale category as per CDM methodology. Standardized baseline is “In the absence of the project activity, the equivalent amount of electricity would have been imported from the grid (which is connected to the unified Indian Grid system (NEWNE Grid)), which is carbon intensive due to being predominantly sourced from fossil fuel-based power plants” which is as per the project activity and clearly mentioned in PCN/9/ and MR/10/18/.
Findings	No findings raised
Conclusion	The methodology applied is appropriately meeting the requirements of UCR General project eligibility criteria and guidance/2/, standardized baseline. The methodology version is correct and valid. The referenced methodology is applicable to project activity.

3.3.2 Clarification on applicability of methodology, tool, and/or standardized baseline

Means of Project Verification	Applicability as per AMS-I. D version 18.0	Verifier assessment
	1. This methodology comprises renewable energy generation units, such as photovoltaic, hydro, tidal/wave, wind, geothermal and renewable biomass: a. Supplying electricity to a national or a regional grid; or b. Supplying electricity to an identified consumer facility via national/regional grid through a contractual arrangement such as wheeling.	The project activity "5 MW Small Scale Hydro Power project by M/s Regent Energy Limited" incorporates installation and operation Hydro power plant for supplying of electricity to the national grid, hence (a) applied here is appropriate as PP has signed power purchase agreement/12/ with HPSEBL to supply electricity. This was confirmed during the online assessment and through document review of power purchase agreement/12/ and monthly energy bills /13/.
	2. This methodology is applicable to project activities that: a. Install a greenfield plant; b. Involve a capacity addition in (an) existing plant(s); c. Involve a retrofit of (an) existing plant(s); d. Involve a rehabilitation of (an) existing plant(s)/ unit(s); or e. Involve a replacement of (an) existing plant(s).	The project is green field plant and involves installation and generation of electricity from total 5 MW (2.5 MW x 2) capacity of hydro turbine generator connected to the Indian national grid. The electricity generated from project activity is exported to the Indian national grid, there by displacing electricity from the grid which would have otherwise been generated by operation of grid connected power plants and by addition of new generation sources into the grid. The project activity generates 86,223 MWh of electricity and displaces 73,491 tCO_2e.
	3. Hydro power plants with reservoirs that satisfy at least one of the following conditions are eligible to apply this methodology: a. The project activity is implemented in an existing reservoir with no change in the volume of reservoir; b. The project activity is implemented in an existing reservoir, where the volume of reservoir is increased and the	Small scale hydro power plant does not consist of reservoir. As the project activity is a run-of-river type hydro power plant, this criterion is not relevant for the project activity.

	power density of the project activity, as per definitions given in the project emissions section, is greater than 4 W/m2. c. The project activity results in new reservoirs and the power density of the power plant, as per definitions given in the project emissions section, is grated than 4 W/m^2	
	4. If the new unit has both renewable and non-renewable components (e.g., a wind/diesel unit), the eligibility limit of 15 MW for a small-scale CDM project activity applies only to the renewable component. If the new unit co-fires fossil fuel, the capacity of the entire unit shall not exceed the limit of 15 MW.	The project activity is a 5 MW hydro power project, i.e., the only component is a renewable power project below 15 MW, thus the criterion is not applicable to this project activity.
	5. Combined heat and power (co-generation) systems are not eligible under this category.	The project activity does not involve co-generation. Hence this criterion is not applicable.
	6. In the case of project activities that involve the capacity addition of renewable energy generation units at an existing renewable power generation facility, the added capacity of the units added by the project should be lower than 15 MW and should be physically distinct from the existing units.	No capacity addition in the existing renewable plant. The project activity is a 5 MW hydro power project whose capacity is below 15 MW. This is new installation of hydro power plant which was verified and confirmed through online assessment and interviews with project owner and their representatives. Hence this criterion is not applicable.
	7. In the case of retrofit or replacement, to qualify as a small-scale project, the total output of the retrofitted or replacement unit shall not exceed the limit of 15 MW.	There is no retrofit or replacement in the project activity, hence it is not applicable.
	8. In the case of landfill gas, waste gas, wastewater treatment and agro-industries projects, recovered methane emissions are eligible under a relevant Type III category. If the recovered methane is used for electricity generation for supply to a grid, then the baseline for the electricity component shall be in accordance with procedure	The project activity is a greenfield 5 MW hydro power project; hence, this criterion is not applicable to this project activity.

	prescribed under this methodology. If the recovered methane is used for heat generation or cogeneration other applicable Type-I methodologies such as "AMS-I.C.: Thermal energy production with or without electricity" shall be explored.	
	9. In case biomass is sourced from dedicate plantations, the applicability criteria in the tool "Project emissions from cultivation of biomass" shall apply.	The project activity is new greenfield activity of hydro power plant and does not involve biomass, hence this criterion is not applicable.
Findings	No findings raised	
Conclusion	The verification team confirms that all the applicability criteria set by the applied CDM methodology/4/ and its eligible tools are met. The relevant information against those criteria is also included in the PCN/9/ and MR/18/. The selected CDM methodology for the project activity is applicable.	

3.3.3 Project boundary, sources and GHGs

**Means of Project Verification``` **	As per the applied methodology AMS-I. D version 18.0/4/, the spatial extent of the project boundary includes industrial, commercial facilities consuming energy generated by the system. The components of the project boundary mentioned in the section B.4 of PCN/9/ were verified against the para 18 of the applied methodology. The project verification team conducted desk review of the implemented project to confirm the appropriateness of the project boundary identified and GHG sources required by the methodology have been included within the project boundary. The project location is clearly depicted with the help of a pictorial depiction in section A.3. of the PCN/9/ and duly verified by the project verification team via geographical coordinates, commissioning certificate/14/ of the project activity & power purchase agreement/12/ between M/s Regent Energy Limited and HPSEBL.
Findings	No findings raised
Conclusion	The project verification team was able to assess that complete information regarding the project boundary has been provided in PCN/9/ and MR/18/ and could be assured from the DPR/15/, commissioning certificates/14/, geographical coordinates, Single line diagram/17/ and power purchase agreement/12/

	The project verification team confirms that the identified boundary is relevant and all emissions sources are included in the project activity.

3.3.4 Baseline scenario

Means of Project Verification	The baseline scenario as per paragraph 19 of the applied methodology, prescribed the baseline scenario of the project activity. In the absence of the project activity, the users would have been supplied electricity from the national grid. As per the UCR General project eligibility criteria and guidance/2/; "The project owner has opted UCR recommended emission factor of 0.9 tCO_2/MWh for the 2013-2020 years as a fairly conservative estimate for Indian projects not previously verified under any GHG program.Also, for the vintage 2024, the combined margin emission factor calculated from CEA database in India results into emission factors of 0.757 as a fairly conservative estimate.Emission factors of 0.9 for the post 2020 period is to be selected as the most conservative estimate between the national electricity/power authority published data set and UCR default of 0.9 tCO_2/MWh for the year 2022-2023 and 0.757 for the year 2024 has been considered to calculate the emission reduction".
Findings	No findings raised
Conclusion	The project verification team concluded that the identified baseline scenario reasonably represents what would occur in the absence of the project activity. The calculated baseline emission for each vintage year of crediting period is rounded down as per UCR CoU verification standard /3/.

3.3.5 Estimation of emission reductions or net anthropogenic removal

Means of Project Verification	The project verification team checked whether the equations and parameters used to calculate GHG emission reductions or net anthropogenic GHG removals for PCN/9/ and MR/10/18/ is in accordance with applied methodology. Project Verification team checked section B.5 and C.5.1 of the PCN/9/ & MR/10/18/ respectively to confirm whether all formulae to calculate baseline emissions, project emission and leakage have been applied in line with the underlying methodology. The emission reduction calculation has been carried out as per the CDM SSC methodology AMS-I.D, Version 18.0/4/. $BE_y = EG_{PJ,y} \times EF_{grid,y}$ Where:

BE_y = Baseline emissions in year y (tCO2)

$EG_{PJ,y}$ = Quantity of net electricity displaced as a result of the implementation of the CDM project activity in year y (MWh)

$EF_{grid,y}$ = Combined margin CO_2 emission factor for grid connected power generation in year y.

Project emissions:

As per paragraph 39 of the applied methodology, For most renewable energy project activities, $PE_y = 0$. Since Hydro power is a GHG emission free source of energy project emission considered as Zero for the project activity.

Leakage Emissions:

As per the paragraph 42 of the applied methodology AMS-I.D Version 18.0, there are no emissions related to leakage in this project.

Emission reductions

As per Paragraph 43, Equation 09 of the applied methodology, emission reductions are calculated as follows

$ER_y = BE_y - PE_y - LE_y$

Where:

ER_y = Emission reductions in year y (tCO_2)

BE_y = Baseline Emissions in year y ($t CO_2$)

PE_y = Project emissions in year y ($t CO_2$)

LE_y = Leakage emissions in year y ($t CO_2$)

Year	Electricity generated (MWh)	Emission factor (tCO_2/MWh)	Total Emission reduction (tCO_2e)
2022	28587.600	0.9	25,729
2023	28893.700	0.9	26,004
2024	28741.768	0.757	21,758
Total	**86223.068**	**-**	**73,491**

Findings	CAR 01 was raised during this verification which is closed.
Conclusion	The UCR recommends an emission factor of 0.9 tCO_2/MWh for the 2014-2020 years as a conservative estimate for Indian projects not previously verified under any GHG program. However, the emission factor of 0.9

	tCO_2/MWh for the year 2022-2023 as the most conservative estimate between the national electricity/power authority published dataset and the UCR default of 0.9 tCO2/MWh 'as per the UCR standard version 7.0/2/. Hence, the same emission factor has been considered to calculate the emission reduction as per General project eligibility criteria and guidance of the UCR Project Standard /2/. Project Verification team confirms that the algorithms and formulae proposed to calculate project emissions, baseline emissions, leakage and emission reductions in the PCN/9/ and MR/18/ is in line with the requirements of the selected methodology AMS-I.D, version 18.0/4/. For emission reduction calculation, the assessment team confirms that; All assumptions and data used by the project participants are listed in the PCN/9/ and MR/18/ including their references and sources. All documentation used by project participants as the basis for assumptions and source of data is correctly quoted and interpreted in the PCN/9/ and MR/18/. The baseline methodology and the applicable tool(s) have been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions.

3.3.6 Monitoring Report

Means of Project Verification	The monitoring report/10/18/ submitted by the PP has been verified thoroughly and is in compliance with the applicable methodology and UCR General project eligibility criteria and guidance/2/ for calculation of GHG emission reductions. The assessment team has reviewed all the parameters in the monitoring plan against the requirements of the applied methodology and confirmed that monitoring parameters are applied in line with the requirement of the methodology and relevant in the context of the program. The procedures have been reviewed by the assessment team through document review, interviews with the respective monitoring personnel and online assessment. As per the CEA guidelines/5/ for installation and operation of Meters, the energy meter shall be tested at least once in five years. Monitoring methodology, data management and calibration of the energy meter were also discussed with project owner. Existing Main meter

Existing Check meter

Findings	CAR 02 was raised during this verification which is closed.
Conclusion	The project verification team confirms that, The monitoring report/18/ is in compliance with the applicable methodology and UCR General project eligibility criteria and guidance/2/. The monitoring parameters reported in PCN/9/ and MR/18/ adequately represents the parameters relevant to emission reduction calculation. Meter details are mentioned below:

Meter Number	Make	Calibration Date	Accuracy class	Calibration valid up to
HPU05979 (main meter)	Secure	18/08/2021	0.2s	23/10/2021
HPU05980 (Check meter)	Secure	18/08/2021	0.2s	23/10/2021
HPU06111 (Main meter)	Secure	06/05/2022	0.2s	11/10/2022
HPU06112 (check meter)	Secure	06/05/2022	0.2s	11/10/2022
HPU05979 (main meter)	Secure	17/01/2023	0.2s	17/10/2023

HPU05980 (check meter)	Secure	17/01/2023	0.2s	17/10/2023
HPU05979 (main meter)	Secure	25/06/2024	0.2s	01/11/2024
HPU05980 (check meter)	Secure	25/06/2024	0.2s	01/11/2024

PP has submitted the Calibration certificates which are verified by the assessment team and found that all calibration details mentioned above are correct.

The number of CoUs generation is calculated based on accurately reported data. The calculation was done using an excel sheet where all the parameters were reported.

UCR recommended emission factor for electricity generation is opted which is conservative.

In the MR/18/, emission reduction calculations sheet/11/ are correctly calculated and reported. The monitoring report/18/ meets the requirements of UCR project verification requirements.

The project proponent has carried out calibration of energy meter for the monitoring period.

3.4 Start date, crediting period and duration

Means of Project Verification	The Commissioning certificates/14/ of the installation of the project activity has been verified as per PCN/9/ and MR/10/18/.
Findings	No findings raised
Conclusion	The start date, crediting period and project duration reported correctly and this meets the requirements of UCR verification standard and UCR project standard. Project is listed on CDM with project number 3022. The issuance was taken from 15/11/2010 to 31/12/2013 and for the period of 01/01/2014 to 14/11/2017 issuance is pending.

3.5 Environmental impacts and safeguard assessment

Means of Project Verification	As The guidelines on Environmental Impact Assessment have been published by Ministry of Environment, Forests and Climate Change (MoEF&CC), Government of India (GOI) under Environmental Impact Assessment notification 14/09/2006. Further amendments to the notification have been done, The Hydro Power projects up to 25 MW are listed in white category, hence, No EIA required. The impact of the project activity on the environmental safeguards has been carried out. Out of all the safeguards no risks were identified to the environment due to the project implementation and operation. And the following have been indicated as positive impacts:

	Environment Air - CO_2 emissions: The project activity being renewable power generation avoids CO_2 emissions that would have occurred in baseline scenario due to the electricity generation in thermal power plants. Environment - Natural Resources: Replacing fossil fuels with renewable sources of energy. Impacts identified as 'Harmless': Solid waste Pollution: - Any Solid-waste if generated from the plant shall be discarded in accordance with host country regulation. The parameter is being monitored as 'Project Waste' and Proper mitigation action has been implemented for waste management. Land use: since the hydro power plant does not require larger area, there is no significant damage to land. Emission due to transportation of hydro power plant components: The emissions associated with the transport of the modules are insignificant compare to manufacturing facilities.
Findings	No findings raised.
Conclusion	The project activity displaces fossil fuel consumption and provides affordable and clean energy. The project has also avoided total 73,491 tCO_2e, hence it has positive impact. It is confirmed that there is no EIA is required as per host country rule mentioned in the CPCB letter/19/.

3.6 Project Owner- Identification and communication

Means of Project Verification	The information and contact details of the project owner has been appropriately incorporated in the PCN/9/ and MR/10/18/. The legal owner of the project activity has been identified through the commissioning certificates/14/ and power purchase agreement/12/ of the hydro power project.
Findings	No findings raised.
Conclusion	The project verification team confirms that the legal ownership of the project belongs to M/s Regent Energy Limited

3.7 Others (Double Counting of Credits)

Means of Project Verification	The project activity was searched on other GHG programs to ensure that project is not registered in any other GHG programs like VERRA, Gold standard, GCC.

	Project is listed on CDM with project number 3022. The issuance was taken from 15/11/2010 to 31/12/2013 and for the period of 01/01/2014 to 14/11/2017 issuance is pending. An agreement stating that project activity will not cause double counting of the credits is also checked as per clause 1.8, Universal Carbon Registry Program Manual (Ver 6.1) August 2024/1/.
Findings	None
Conclusion	Double accounting agreement/8/ is signed between PO and Aggregator and found to appropriate as per clause 1.8, Universal Carbon Registry Program Manual (Ver 6.1) August 2024/1/.

4 Internal quality control:

- Due professional care has been taken while reviewing the submitted document.
- There is no conflict of interest as the verifier has no other engagement with either the aggregator or project owner directly or indirectly.
- Verification team consists of experienced personnel.
- Technical review is performed by an independent person.

5 Project Verification opinion:

The project verification was conducted on the basis of UCR Program Manual/1/, UCR Project Standard (General project eligibility criteria and guidance)/2/, UCR Verification standard /3/, AMS -I.D. Version 18.0 /4/, Project Concept Note (PCN)/9/, Power purchase agreement/12/, Commissioning Certificates/14/, DPR/15/, Calibration Reports/16/, Monitoring Report (MR)/18/ and other documents mentioned in Appendix-2.

Verification team raised 00 Nos. of Clarification Requests (CLs) and 02 Nos. of Corrective Action Request. All the queries were closed satisfactorily.

It is hence certified with reasonable level of assurance that the emission reductions from the project Hydro Power Project by M/s Regent Energy Limited (UCR ID–202) for the period 01/01/2022 to 31/12/2024 amounts to **73,491** CoUs (73,491 tCO_2e) as per the UCR Verification standard /3/.

6 Competence of team members and technical reviewers

No.	Last name	First name	Role and Affiliation	Technical Competence
1.	Joshi	Trapti	GHG Assessor - NSPL	Ms. Trapti Joshi is having M.Tech. In Environmental Engineering. She has experience in conducting environmental audits in CDM/VCS/GS registry. She has performed the Renewable sector and Waste handling projects. Also, she has done Master's thesis in Solid waste management project through LCA Gabi Software.
2.	Mandliya	Shyam	Technical Reviewer - NSPL	Mr. Shyam Mandliya holds master's degree in Chemical Engineering. He has expertise in environmental audits. He has performed environmental monitoring of different industries in Gujarat for air, water, and hazardous waste. He has also contributed to the community-based biogas project development.

Appendix 1: Abbreviations

Abbreviations	Full texts
HPSEBL	Himachal Pradesh State electricity board
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CEA	Central Electricity Authority
CL	Clarification Request
COD	Commercial Operation Date
CoUs	Carbon offset Units
CPCB	Central Pollution Control Board
DAA	Avoidance of Double Accounting Agreement
ER	Emission Reduction
FAR	Forward Action Request
GHG	Green House Gas
kW	Kilo-Watt
kWh	Kilo-Watt Hour
MR	Monitoring report
MW	Mega-Watt
MWh	Mega-Watt Hour
NSPL	Naturelink Solutions Private Limited
PA/ PP	Project Aggregator / Project Proponent
PCN	Project Concept Note
PO	Project Owner
PPA	Power Purchase Agreement
REL	Regent Energy Limited
SDG	Sustainable Development Goal
tCO_2e	Tons of Carbon Dioxide Equivalent
UCR	Universal Carbon Registry
VR	Verification Report
VS	Verification Statement

Appendix 2: Document reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	UCR	UCR Program Manual	Version 6.1, August 2024	UCR website
2.	UCR	UCR CoU Standard (General project eligibility criteria and guidance)	Version 7.0, August 2024	UCR website
3.	UCR	UCR Program Verification standard	Version 2.0, August 2022	UCR website
4.	CDM	AMS-I. D: Grid connected renewable electricity generation	Version 18.0	CDM website
5.	CEA	Central Electricity Authority (Installation and Operation of Meters) (Amendment) Regulations, 2022	Dated 28/02/2022	-
6.	CEA	CO_2 baseline database for the Indian Power sector	Version 20.0 dated December 2024	-
7.	PA	Communication agreement between PP and PO	-	PA
8.	Creduce	Assurance to avoid double accounting by project owners	12/09/2022	PA
9.	Creduce	Project concept note	Version 1.0, dated 03/08/2022	PA
10.	Creduce	Monitoring report for first monitoring period (15/11/2017 to 31/12/2021)	Version 1.0, dated 20/09/2022	PA
11.	Creduce	Emission reduction excel – “5 MW Small Scale Mini Hydro Power Project by M/s Regent Energy Limited”	Version 1.0, dated 20/09/2022	PA
12.	HPSEBL & PO	Power purchase agreement	-	PA
13.	HPSEBL grid	Monthly Energy Bills	01/01/2022 to 31/12/2024	PA
14.	HPSEBL	Certificate of Commissioning	-	PA
15.	PO	DPR – Technical specification	-	PA
16.	POWERGRID, Regional	Calibration certificates	-	PA

	Test Laboratory			
17.	PO	Single Line Diagram	-	PO
18.	Creduce	Monitoring report of current Second Monitoring period (01/01/2022 to 31/12/2024)	Version 2.0 dated 17/01/2025	PA
19.	CPCB	CPCB	CPCB letter F.No.B-29012/IPC-VI/2017-18/ date 17/11/2017	-

Appendix 3: Clarification request, corrective action request and forward action request

Table 1. CLs from this Project Verification

CL ID	..	**Section no.:**		**Date**:
Description of CL				
Project Owner's response				**Date:**
Documentation provided by Project Owner				
UCR Project Verifier assessment				**Date:**

Table 2. CARs from this Project Verification

CAR ID	01	**Section no.:** 3.3.5	Estimation of emission reductions or net anthropogenic removal	**Date:** 17/01/2025
Description of CAR				
In the section C.10 of the MR, PP has considered the emission factor of value 0.9 tCO_2/MWh for complete Monitoring period 01/01/2022 to 31/12/2024.It requested to check the emission factor in the latest updated CEA database version 20.0, December 2024.'Emission factors for the post 2020 period is to be selected as the most conservative estimate between the national electricity/power authority published dataset and the UCR default of 0.9 tCO_2/MWh as per the UCR standard version 7.0				
Project Owner's response				Date: 20/01/2025
Emission factor of 0.9 for the year 2022-23 and 0.757 for the year 2024 as the most conservative estimate between the national electricity/power authority published dataset and the UCR default of 0.9 tCO_2/MWh.				
Documentation provided by Project Owner				
MR version 02 dated 20/01/2025				
UCR Project Verifier assessment				Date: 21/01/2025
In Section C.10 of the MR, PP has updated the emission factor of 0.757 for the year 2024 as the most conservative between the CEA database version 20.0, December 2024, and the UCR default EF of 0.9 tCO2/MWh. However, the emission factor of 0.9 tCO_2/MWh for the year 2022-2023 is the most conservative estimate between the national electricity/power authority published dataset and the UCR default of 0.9 tCO2/MWh 'as per the UCR standard version 7.0. The assessment team verified through the CEA database version 20.0, December 2024, and UCR standard 07 which is accepted. Thus, CAR#01 is Closed.				

CAR ID	02	Section no.: 3.3.6	Monitoring Report	Date: 17/01/2025
Description of CAR				
Calibration details of the Energy meters are missing in Section C.10 of the MR version 01 dated 17/01/2025 as per page no.15 of the UCR CoU standard.				
Project Owner's response				Date: 20/01/2025
PO has updated the Calibration details of the Energy meters for the Second Monitoring period 01/01/2022 to 31/12/2024 in Section C.10 of the MR version 02 dated 20/01/2025.				
Documentation provided by Project Owner				
MR version 02 dated 20/01/2025				
UCR Project Verifier assessment				Date: 21/01/2025
The assessment team verified and updated the Calibration details of the Energy meters which are mentioned in Section C.10 of the MR version 02 with the provided Calibration certificates issued by the PowerGrid Regional test laboratory. All the Calibration details of the Energy meters are found consistent with the Calibration certificate for the verification period 01/01/2022 to 31/12/2024 which is acceptable. Thus, CAR#02 is Closed.				

Table 3. FARs from this Project Verification

FAR ID	--	Section no.		Date:
Description of FAR				
Project Owner's response				**Date:**
Documentation provided by Project Owner				

Annexure I: Photographs of the power plant