



1 MW JIWA SMALL HYDEL PROJECT IN KULLU, HIMACHAL PRADESH

Document Prepared By



VKU Certification Pvt. Ltd.

Regd. Off: Flat No. 306, Sky Star, N-1, New Rani Bagh Khandwa Road, Indore, Madhya Pradesh, India - 452020

URL: <http://vkucertification.com> | e-mail: info@vkucertification.com

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Prepared By	VKU Certification Pvt. Ltd.
Contact	Regd. Off: Flat No. 306, Sky Star, N-1, New Rani Bagh Khandwa Road, Indore, Madhya Pradesh - 452020 URL: http://vkucertification.com e-mail: info@vkucertification.com
Approved By	Dr. Vikas Kumar Aharwal (Founder and Director) vikas.aharwal@vkucertification.com
Work Carried Out By	Barun Kumar - Team Leader cum Technical Expert TA 1.2 (Hydro) (Local Expert – Country: India) Niharika Kaushik - Validator/Verifier Anil Dhankar - Validator/Verifier-Trainee Priyanshee Modi – Project Trainee Sanjay Kumar - Technical Reviewer cum Technical Expert TA 1.2 (Hydro)

Summary:

VKU Certification Pvt. Ltd. (hereafter referred as VKU) was commissioned by Chevron Hydel Private Ltd. (hereafter referred as CHPL) to verify the greenhouse gas emission reductions reported for the project activity “**1 MW Jiwa Small Hydel Project in Kullu, Himachal Pradesh.**” (VCS ID 531) in India. This is the **second verification** under fixed crediting period i.e., from **04-January-2007 to 03-January-2017 (Inclusive of both dates)** for the monitoring period i.e., from **04-January-2009 to 03-January-2017** (Including both dates).

The purpose of the verification: The objective of the verification process is to obtain an impartial evaluation of the ex-post determination of the monitored reductions in greenhouse gas (GHG) emission. This verification ensures that the monitoring methodology aligns with the plan outlined in the Project Description Document, and the monitoring data used to confirm reductions in human-caused emissions from sources is comprehensive, definitive, and transparently presented.

The verification scope of the project is:

- To verify that the project is implemented as described in the Project Description Document.
- To evaluate the project's adherence to relevant regulations, including the legislation of the host country (India)
- To verify the implementation and functionality of the monitoring system, ensuring the generation of Verified Carbon Units without any instances of double counting.
- To verify the accuracy, completeness, consistency, transparency, and absence of significant errors or omissions in the reported data by examining monitoring records and emissions reduction calculations.
- To ensure that the actual monitoring systems and procedures align with those described in the monitoring plan.
- To assess the GHG emission reduction data and provide a conclusion with a reasonable level of assurance regarding the absence of material misstatements.
- To verify that reported GHG emission data is sufficiently supported by evidence.

Verification was conducted using VKU's procedures in line with the requirements specified in the VCS Program Guide version 4.4/8/, VCS Standard Version 4.5/9/, VCS Validation and Verification Manual version 3.2/10/, CDM M&P, the latest version of the CDM Validation and Verification Standard 3.0/11/, and relevant decisions of the COP/MOP and the CDM EB viz., the requirements of Article 12 of the Kyoto Protocol, the CDM Modalities and Procedures as agreed in the Marrakech Accords under decision 3/CMP.1, the annexes to this decision, subsequent decisions and guidance made by COP/MOP & CDM Executive Board and other relevant rules, including the Host Country (India) legislation. Furthermore, standard auditing techniques were applied throughout the verification process.

The verification process included *inter alia* a desk review, on-site assessment, the resolution of outstanding issues, the issuance of the final verification report and certification. This comprehensive verification is aimed to ensure the reported emission reductions are thorough and precise, aligning with the relevant VCS requirements, thus enabling the project to obtain certification.

VKU diligently followed the rule-based approach during the verification process, ensuring strict adherence to the applicable VCS requirements. The verification encompassed a comprehensive

assessment of the project activity's operations, monitoring procedures, and GHG emission reduction calculations.

During this second verification, it is to note that as a result, a total of **(06)** findings were identified, comprising **(03) Corrective Action Request (CARs); (03) Clarification Requests (CLs) and zero (00) Forward Action Requests (FAR)**. All the raised findings were successfully resolved/closed after necessary corrections/clarifications by the client. The same has been discussed in Appendix B of this verification report.

The verification team ensured that the reported emission reductions are complete and accurate by verifying 100% of the data with the supporting documents and evidences made available to the assessment team. This was performed during desk review and also during site visit by conducting personnel interviews and focussed group discussions along with verification of data present on-site in accordance with applicable VCS requirements to be certified therefore the verification team has detected no further uncertainties.

The GHG emission reductions were calculated based on the approved methodology AMS. I.D.-Version 13.0: Grid-connected renewable electricity generation /12/ and Tool to calculate the emission factor for an electricity system; Version 1.1 /19/ and the monitoring plan included in the Project Description Document

Verification Conclusion:

Based on VKU's thorough assessment, it is their professional judgment that the project activity “1 MW Jiwa Small Hydel Project in Kullu, Himachal Pradesh” (VCS ID 531) fully complies with the applicable requirements of VCS standard version 4.5 /9/ and associated guidelines of VCS. The project has successfully implemented the designated baseline and monitoring methodology outlined in AMS. I.D.: Grid-connected renewable electricity generation- Version 13.0 /12/.

The monitoring system in place is effective and reliable, ensuring a reasonable level of measurement and precision level allowed by the methodology and the VCS standards ensures almost nil discrepancies. As a result, VKU is able to objectively state that the project has achieved emission reductions of **44,175 tCO₂e** during the second verification for monitoring period, which spans from **04-January-2009 to 03-January-2017 (Including both dates)** of fixed crediting period (04-January-2007 to 03-January-2017; Including both dates). This certification affirms the project's substantial contributions towards mitigating greenhouse gas emissions.

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1 INTRODUCTION

1.1 Objective

Chevron Hydel Private Ltd. (hereafter referred as CHPL) commissioned M/s VKU Certification (here after referred as VKU) to carry out second verification of the project “1 MW Jiwa Small Hydel Project in Kullu, Himachal Pradesh.” (VCS ID 531) project in India for the period from **04-January-2009 to 03-January-2017 (Including both dates)** under fixed crediting period from **04-January-2007 to 03-January-2017 (Inclusive of both dates)**.

This is the second verification of fixed crediting period (04-January-2007 to 03-January-2017), (Inclusive of both dates) for a period of eight years¹ i.e., from 04-January-2009 to 03-January-2017 (Including both dates). The project activity adopts fixed crediting period of 10 years period.

Table No 01: Number and time period of Verification under fixed crediting period:

Periodic Verification No.	Monitoring Period (Inclusive of both dates)	Number of years
1 st Verification	<u>04-January-2007 to 03-January-2009</u>	02 Years 00 Months 00 days
2 nd Verification (Current Verification)	04-January-2009 to 03-January-2017	08 Years 00 Months 00 days
Total		10-years

The verification will be performed by review of evidences & documents submitted to the VKU Assessment Team by PP, for the project activity to establish that:

- The project activity has been implemented and operated in strict adherence to the monitoring plan stated in the Project Description Document /3/ & MR /1/ and that all physical features (technology employed, technical specifications of the Hydropower turbines, project equipment's, metering and monitoring protocols) of the project are in place.

¹ VVB confirms that as per VCS standard version 4.5 clause 4.1.27 serial number 02, the monitoring period of the current verification is for a span of 08 years and VVB confirms that the last verification and validation of project was undertaken by a different VVB, hence in compliance with the stated guidance & regulations in the latest VCS standard version 4.5. PP has also received exemption from Verra to use the same VVB to verify more than six consecutive years of the project (04 January 2009 to 03 January 2017).

- The monitoring report/1/ and accompanying documentation have been meticulously compiled and are comprehensive in nature.
- The data has been methodically recorded and stored in accordance with the prescribed monitoring methodology outlined in “AMS. I.D.: Grid-connected renewable electricity generation- Version 13.0, Sectoral scope: 1/12/ and approved monitoring plan”.

The verification process aimed to confirm the seamless implementation and full functionality of the monitoring system, ensuring the accurate generation of Verified Carbon Units (VCUs) without any instances of double counting/26/. Additionally, meticulous scrutiny of the monitoring records and emissions reduction calculations has been carried out to guarantee the completeness, consistency, transparency and absence of any material errors or omissions in the reported data. This aims to establish the reliability and integrity of the data.

1.2 Scope and Criteria

The agenda of the verification is to have an independent evaluation of a project activity by an accredited validation and verification body against the requirements of the VCS Program Guide Version 4.4, VCS standard version 4.5 and GHG program applied, on the basis of the Project Description Document /3/

The scope of this verification was the independent, objective review and ex-post determination of the monitored reductions in GHG emissions from the “1 MW Jiwa Small Hydel Project in Kullu, Himachal Pradesh”. The verification of this project was based on the PD, monitoring report/1/ & supporting documents submitted by the project proponent to the VKU verification team. The documents thus submitted to the VKU Assessment Team were reviewed against the following guidance & protocols:

- i) VCS Programme Guide (Version 4.4) /8/
- ii) VCS Standard (Version 4.5) /9/
- iii) VCS Program Definitions (Version 4.4) 6/
- iv) VCS Registration & Issuance Process (Version 4.4) 7/
- v) VCS validation and verification manual version 3.2/10/
- vi) CDM Approved methodology AMS. I.D. Version 13.0, Sectoral scope: 1/12/
- vii) Tool to calculate the emission factor for an electricity system (Version 01.1)/19/
- viii) CDM Validation and Verification Standard version 3.0/11/

The steps involved are as follows:

To assess the project’s compliance with other relevant rules including the host country (India) legislation.

To confirm that the monitoring system is implemented and fully functional to generate voluntary carbon units without any double counting

To verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan.

To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement is sufficiently supported by evidence.

The verification process ensures that the reported emission reductions are comprehensive and accurate in order to obtain certification.

The verification method and criteria encompassed several phases, including

- (i) Desk review of Project Description, Monitoring Period and other supporting documents listed in **Table-04**;
- (ii) Onsite interviews & Focussed Group Discussions with Stakeholders & PP representatives involved in project's implementation.
- (iii) VKU's Completeness/Quality Check, and
- (iv) The Final issuance of the verification report.

Outstanding issues were resolved, leading to the issuance of the final verification report and the relevant VCS Verification Deed of Representation.

It is important to note that the verification process, verification/Assessment team are not involved in providing consultancy to the project proponents. However, requests for clarifications and corrective actions may have contributed to improvements in the monitoring process.

1.3 Level of Assurance

All the revisions of the verification report before being submitted to the client were subjected to an independent internal technical review to confirm that all verification activities had been completed according to the pertinent VKU's procedure, with a "Reasonable level of assurance", as per section 04 clause 4.1.2, 4.1.10 and Serial no. 6 of clause 4.1.24 of the VCS Standard version 4.5/9/.

The technical review was performed by a technical reviewer(s) qualified in accordance with VKU's qualification procedure. The verification/assessment team and the technical reviewers consist of the following personnel.

Table No 02: The Assessment Team comprises of:

Role/Qualification of Assessment Team	Gender	Last Name	Middle Name	First Name
VCS Team Leader, Technical Expert TA 1.2, (Local Expert – Country: India)	Male	Kumar	NA	Barun
Validator/Verifier	Female	Kaushik	NA	Niharika
Validator/Verifier - Trainee	Male	Dhankar	NA	Anil
Project Trainee	Female	Modi	NA	Priyanshee

Table No 03: The Technical Reviewer Team comprises of:

Role/Qualification of Technical Team	Gender	Last Name	Middle Name	First Name
Technical Reviewer & Technical Expert TA 1.2	Male	K.	Kumar	Sanjay

1.4 Summary Description of the Project

Project Overview:

The project activity is a grid-connected run-off river hydro-electric project situated in Village: Siundh near Sainj Town in Kullu District of Himachal Pradesh. Chevron Hydel Private Ltd. are the Project Proponents of the project activity. The total commissioned capacity of the project activity 1 MW (1000kW). The hydropower turbine was commissioned on 29-December-2006 and is functioning successfully since then and dates are verified against commissioning certificates/27/.

This project activity is also known as Jiwa Small Hydroelectric power Project (SHEP) a run of the river project that utilizes the flow of the river through Head Race Tunnel (H R T) and penstocks and by using one 1000 kW horizontal Francis turbines connected to a synchronous generator generates electricity. The main structure includes weir, intake forebay, De-Silting tank, chambers, Head Race Tunnel (HRT), surge shaft, penstock powerhouse and the tailrace discharging water back into the river. The voltage at the generator terminals is 3.3 kV, which is stepped up to 11 kV at the nearest substation before evacuation. The generated electricity is fed into the sub-station of HPSEB grid system for transmission & distribution.

Energy Source & Project Nature:

The project activity involves electricity generation by renewable source (Hydro energy) and supplying the generated electricity to the state grid system i.e., Himachal Pradesh State Electricity Board (HPSEB), which falls under the Northern, Eastern, Western and North-Eastern regional grids (NEWNE) grid of India, now Unified Indian Grid. The spatial extent of the project boundary is the NEWNE (Now Unified Indian Grid) located in Village: Siundh near Sainj Town in Kullu District of Himachal Pradesh.

This is a greenfield project activity i.e., there was no renewable energy-based electricity generation facility at site of this project and equivalent amount of electricity would have been supplied by fossil-fuel dominated grid – which is pre-project scenario as well as baseline scenario for this project activity. The project activity ensures the reduction of greenhouse gas (GHG) emissions that are real, measurable, and verifiable and also plays beneficial role in the mitigation of climate change.

Start date of this project activity is 29-December-2006, earliest date of commissioning (commercial operation) of the 1st machine Hydropower turbine of project activity i.e., on 29-12-2006 (letter reference no. HPSEB/PHE/Jiwa/06-2542-49, dt-29/12/2006.).

The river water is diverted to run turbine which is coupled with generators. After power generation the water goes back into the river. The generated power is evacuated from the powerhouse to the Sub-station. The entire project is in continuous operation since its date of commissioning of the machine, as witnessed by the assessment team during onsite visit, & which was verified against the PD/03/ previous Verification report /05/ and commissioning certificates/27/ which were submitted by the PP to the assessment team as a response to the feedback raised by the assessment team during verification assessment as per section 3.26 and clause 3.26.3 of the VCS Standard version 4.5/09/ it is an obligation for the project proponent to make available to the validation/verification body the required supporting documents.

By implementing the project activity, the following GHG sources of emissions are reduced/avoided:

Baseline/Source	Generation of electricity by fossil fuel- dominated grid connected power plants
Project Equipment/Sink	The avoidance of GHG emission into the atmosphere is due to generation of electricity by renewable means i.e., Hydro Turbine of this project and exporting to Unified Indian Grid which is in line with 3.1.1 of ISO:14064 part -2
Baseline GHG emission source reduced/avoided	CO ₂ emissions from fossil fuels and other fuel fired grid connected plants/projects.

Hence VKU in adherence to the section 3.1, clause 3.1.8 of the VCS Standard version 4.5/09/ conforms that the capacity of the project was verified from the commissioning certificates/29/ and later verified during site visit while interviewing the site personnels and hence declare that the project capacity is in line with the defined methodology AMS-I.D. version 13, Sectoral scope: 1.

As per MR/1/, the electricity generated from the project is supplied to the state grid system which is under the purview of the NEWNE Grid, now Unified Indian Grid which is confirmed from Project Description document, JMRs issued by HPSEBL (Himachal Pradesh State Electricity Board Limited.) and Invoices raised by PP to HPSEBL (Himachal Pradesh State Electricity Board Limited) and, last verification report/05/ and interview with PP/33/.

This information was verified during on site assessment /33/and found to be in line with the details provided in the Project Description Document. Project has a design parameter to generate 8.54 million kWh electricity in a 75% rainfall in a dependable year and will be able to export around 7.38 million kWh to the grid. This project has been contributing to mitigate climate change to some extent and lead to greenhouse gas emission reductions of 59,810 tCO₂e, during the crediting period of 10 years

The net electricity generated by the project activity that was evacuated to the grid during the current monitoring period (2nd monitoring period) from 04-January-2009 to 03-January-2017 (inclusive of both the dates) is **55,018.96 MWh**. The total emission reductions achieved in this monitoring period i.e., from of 04-January-2009 to 03-January-2017 (first and last days included) is **44,175 tCO₂e**.

2 VERIFICATION PROCESS

The VCS project “1 MW Jiwa Small Hydel Project in Kullu, Himachal Pradesh.” (VCS ID 531) is undergoing second periodic verification of fixed crediting period under VCS with VKU Certification Pvt Ltd from 04-January-2009 to 03-January-2017 (inclusive of both the dates). The fixed crediting period start from 04-January-2007 to 03-January-2017 (both dates included).

The approach adopted to ensure the quality of emission reductions is described in the following sections.

2.1 Method and Criteria

Verification was conducted using VKU’s procedures in line with the requirements specified in the VCS Requirements, i.e., VCS Program Guide Version 4.4 /6/, VCS standard document version 4.5 /9/. The project activity does not fall under category “grouped projects”, hence no sampling methods was employed by the assessment team and during onsite visit /36/ verification team reviewed 100% data for the Hydro Turbine Generator involved in this project at site for the verification of GHG emission reductions generated by the project.

- The GHG emission reductions are based on the approved Baseline and monitoring methodology AMS. I.D.: “Grid connected renewable electricity generation”, version 13/12/
- Scope: 01 - Energy Industries (renewable /non-renewable sources)
- Project type: Type I - Renewable energy projects

Tools used for GHG Calculations are as follows as per PD:

- Tool to calculate the emission factor for an electricity system, Version 01.1 /19/

Keeping in line with ISO (14064-3; 2019, clause 06 & 14065-2020, clause 09) Standard guidelines assessment team has framed down the process for completing the verification and has followed the same throughout the execution of audit of the said project VCS 531. The verification consisted of the following phases.

1. **Planning:** The assessment team plans the GHG-programme site visit and starts with a desk review. Assessment team also shared a NOVS Notice of Validation/Verification Services (NOVS) Form and submit it to auditing@verra.org, 15 business days before the initial meeting with the project proponent.
2. **Strategic Analysis:** Assessment team performed strategic analysis to understand the activities and complexity of the project and to determine the nature and extent of the verification activities. The results of the strategic analysis shall be used in the risk assessment.
3. **Risk Assessment;** Assessment team performed risk assessment of the GHG statement to identify the risk of a material misstatement or nonconformity with the criteria

4. **Evidence Gathering Activities;** Using a risk-based approach assessment team prepared evidence gathering activities, to collect sufficient and appropriate evidence upon which the conclusion shall be based. It will also determine whether the GHG statement conforms to the criteria, taking into account the principles of the standards or GHG programme that apply to the GHG statement.
5. **Audit and Sampling Plan:** An audit plan is prepared, including all sub-elements required for an integrated verification process aligned with the contract, scope, objectives, level of assurance and materiality. the same was documented in VKU.F24W. Audit and Sampling Plan_VKU.VER.101.23_VCS_531
6. **Evidence Gathering Plan;** The evidence-gathering plan is prepared based on the results of the VKU's Assessment Team's risk assessment. It was designed to lower the verification risk. The evidence-gathering plan thus specify the type and extent of evidence-gathering activities
7. **Client Confirmation and Approval:** The site visit audit plan is sent to the client for review and confirmation/approval via email. Decision to take site visit was based on independent risk assessment, as defined in section 4.1.13 of VCS standard version 4.5/9/.
8. **Document Review:** Relevant documents, such as the verification report, monitoring plan, methodology, PD and QA/QC procedures are thoroughly reviewed.
9. **On-Site Assessment:** This includes interviews and evaluation of the actual project scenario.
10. **Resolution of Discrepancies:** Any non-conformities identified during the assessment are addressed and resolved.
11. **Independent Review:** A technical reviewer provides an independent assessment.
12. **Final Verification:** After completeness checks, the verification report and certification are issued.

The following sections outline each step in more detail.

2.2 Document Review

During document review, VKU has applied standard auditing techniques to assess the quality of information provided. The verification was performed primarily based on the review of VCS monitoring report for "1 MW Jiwa Small Hydel Project in Kullu, Himachal Pradesh." version 1.0 of 05-September-2023 and **final Version 1.3 of 04-September-2024/1/** and the emission reduction calculations spreadsheet for "1 MW Jiwa Small Hydel Project in Kullu, Himachal Pradesh." version 1.0 of 05-September-2023 and **final Version 1.1 of 27-February-2024/2/**. The following **table-04** lists the documentation that was reviewed during the verification.

As per section 3.26 and clause 3.26.3 of the VCS Standard version 4.5/7/ it is an obligation for the project proponent to make available to the assessment team the required supporting documents and data needed to support statements and data as documented in the monitoring report. Thus, the assessment team reviewed the following documents during verification:

Table No: 04; Lists of the documentation that were reviewed during the current verification:

Current Verification Reference Documents	
/1/	VCS monitoring report for “1 MW Jiwa Small Hydel Project in Kullu, Himachal Pradesh.” in India, - Version 1.0 of 05-September-2023 - Version 1.1 of 27-February-2024 - Version 1.2 of 29-February-2024 - Version 1.3 of 04-September-2024
/2/	Emission Reduction Calculation Spreadsheet for “1 MW Jiwa Small Hydel Project in Kullu, Himachal Pradesh.” in India, - Version 1.0 of 05-September-2023 - Version 1.1 of 27-February-2024
Background Documents/Weblinks	
/3/	Project Description Document for the project ‘1 MW Jiwa Small Hydel Project in Kullu, Himachal Pradesh.’
/4/	VCS Validation report for the project ‘1 MW Jiwa Small Hydel Project in Kullu, Himachal Pradesh.’ dated 16-November-2009
/5/	VCS Verification report for the project ‘1 MW Jiwa Small Hydel Project in Kullu, Himachal Pradesh.’ dated 04-May-2010
/6/	<u>VCS program Definitions (Version 4.4) of 29-August-2023</u>
/7/	<u>VCS Registration & Issuance Process (Version 4.4) of 04-October-2023</u>
/8/	<u>VCS: VCS Program Guide, version 4.4 of 29-August-2023</u>
/9/	<u>VCS: VCS Standard, version 4.4 of 17-January-2023</u> <u>VCS Standard, version 4.5 dated 11-December-2023 (Latest)</u>
/10/	<u>Validation and verification manual version 3.2 dated 19-October-2016</u>
/11/	<u>CDM Validation and Verification Standard version 3.0 dated 09-September-2021</u>
/12/	<u>Grid connected renewable electricity generation”: version 13 (EB 36)</u>
/13/	<u>VERRA: Project search</u>
/14/	<u>UNFCCC: Project search</u>
/15/	<u>Renewable Energy Certificate Registry of INDIA - Registered RE Generator List (recregistryindia.nic.in)</u>
/16/	<u>I-REC Standard - The International REC Standard Foundation (irecstandard.org)</u>
/17/	<u>Gold Standard Foundation</u>
/18/	<u>EIA NOTIFICATION dated 14-September-2006</u>
/19/	<u>Tool to calculate the emission factor for an electricity system”, version 01.1</u>

/20/	CO2 Baseline Database for the Indian Power Sector
/21/	Central Electricity Authority (Installation and Operation of Meters) Regulations Notified on 17-March-2006 No. 502/70/CEA/DP&D Amendments Notified on 26-June-2010 No. 502/6/2009/DP&D/D-I https://cea.nic.in/wp-content/uploads/2020/02/meter_reg.pdf Metering Regulations Archives - Central Electricity Authority (cea.nic.in)
Reference/Supporting documents submitted by PP to VVB	
/22/	Hydro Energy Purchase Agreement between M/s Chevron Hydel Private Limited and Himachal Pradesh State Electricity Board
/23/	Certificates of Calibration for all the energy meters for the project activity active during current monitoring period (04-January-2009 to 03-January-2017, Including both dates)
/24/	JMRs Issued by Himachal Pradesh State Electricity Board Limited to PP i.e., Chevron Hydel Private Ltd.
/25/	Invoices issued by PP to DISCOM i.e., Himachal Pradesh State Electricity Board (HPSEB)
/26/	Letter of declaration dated from PP regarding not having created or sought any other form of environmental credit for the current verification period (04-January-2009 to 3-January-2017, Including both dates)
/27/	Commissioning Certificates of Hydro Turbine Generator of the project activity issued by Himachal Pradesh State Electricity Board Limited.
/28/	Technical Specifications of Hydro Turbine Generators (Hydropower turbines) of “1 MW Jiwa Small Hydel Project in Kullu, Himachal Pradesh.”
/29/	Grievance Register/Grievance-Resolution Letters present on project implemented site; more information related to the same has been included in <u>Section 4.2.2</u> of this report
/30/	Monthly Generation Reports
VVB Documents used during Current Verification	
/31/	GPS Google earth software used for Location; <u>Google Earth</u>
/32/	<u>GPS Map Camera: Geotag Photos & Add GPS Location</u>
/33/	Onsite visit on 20-October-2023 to Project implemented site i.e. Village: Siundh near Sainj Town in Kullu District of Himachal Pradesh. On-site Visit Photographs/Evidences
/34/	Personnel Interviews and Focussed Group Discussions during onsite visit dated 20-October-2023 detailed in <u>section 2.3</u> of this report
/35/	VKU-Attendance Sheet for Audit_ VKU.VER.101.23_VCS_531
/36/	VKU-Risk Assessment_ VKU.VER. 101.23_VCS_531
/37/	VKU-Audit and Sampling Plan_ VKU.VER. 101.23_VCS_531

/38/	<u>ISO 14064-3:2019: Greenhouse gases – Part 3: Specification with guidance for the verification and validation of greenhouse gas statements</u>
/39/	<u>ISO 14065:2020: General principles and requirements for bodies validating and verifying environmental information</u>
/40/	<u>ISO/IEC 17029:2019: Conformity assessment – General principles and requirements for validation and verification bodies</u>

2.3 Interviews

An on-site inspection /33/ was performed by the VKU assessment team (VKU). The representatives of the PP were interviewed personally on 20-October-2023; i.e., Tables 05 & 06 provide a comprehensive overview of the onsite interview process/34/ conducted during the verification. The interviews specifically targeted individuals responsible for monitoring the project activity, data collection and management, as well as those involved in the quality assurance and quality control (QA/QC) procedures. The tables serve to identify the individuals interviewed and provide relevant information regarding their roles within the project. key personnel interviewed during the opening meeting and closing meeting session of the onsite audit, and the main topics of the interviews are summarized in the table below:

Table no: 05: Details of Personnel Interview:

S.no	Name	Gender	Designation	Topic of Discussion
1	Neeraj Kanwar	Male	Managing Director CHPL	Implementation of the project, Baseline emission, Emission reduction calculation, technical description of the project and monitoring along with QA/QC
2	Mohinder Kumar	Male	Mechanical Staff Jiwa Hydel Power Project	SCADA, Breakdown details and maintenance of generation records Data recording, management and archiving procedure
3	Madan Lal	Male	Site In-charge Jiwa Hydel Power Project	

The topics covered during interview ranges from general features and implementation of project to technical details of the project like calibration details, monitoring and measuring system and data collection, recording, emergency procedures, internal audit and archiving procedures. The assessment was based on the feedback received during onsite interview/34/ coupled with the documentation.

During Onsite Visit/33/, local stakeholders involved in the projects /34/ have been also interviewed to verify implementation of grievance mechanism and process of its resolution, as

mentioned in the Monitoring report/1/ (refer section 1.11, & 2.2 of MR/1/). It also included confirmation of sustainable development claims and verification of the socio-economic impact made by the project on the local community. Assessment team also checked records and observed that the PP has provided opportunities for the locals to express their opinions and grievances, Project Proponent has put efforts to resolve any issues through effective communication & consultation with stakeholders. Assessment team could verify & confirm all the above statements via focussed group discussions and personal interview/34/ with stakeholders as tabulated below:

Table no: 06: Details of Personnel Interview/Focussed Group Discussion with Stakeholders

S.no	Name	Gender	Designation	Category	Topic of Discussion
1	Sandeep Kumar	Male	Engineer	Local Stakeholder	Execution of Project activity and its impact on the economic, social and environmental parameters on the local people of the area & around the situated project activity The ongoing communication procedure and the address of their grievance mechanism followed by the project proponent Scope and generation of employment in the locality due to the implementation of said project activity in the area. The ongoing trainings provided to the locals for self-employment.
2.	Suraj Kumar	Male	Senior Technician		
3.	Devraj	Male	Site Operator		
4.	Bhup Singh	Male	Helper		

The VKU Assessment Team meticulously documented the information obtained during the interviews with site personnel /34/. This data was recorded using VKU's dedicated form, specifically VKU.F46W, known as the Attendance Sheet for Audit/37/. Through a comprehensive process involving documentation, desk review, document verification, and interviews with site personnel and local stakeholders, VKU Assessment Team affirms that no negative comments have been received during the current monitoring period. For further details, please refer to section 4.2.2 below.

2.4 Site Visits

Site Location visited:

Location: near Village: Siundh near Sainj Town in Kullu District of Himachal Pradesh, Country-India. The geographical location of the Plant where turbine is installed, the location of the project is as follows:

Village	District	State	Country	Latitude	Longitude
Siundh near Sainj Town	Kullu	Himachal Pradesh	India	31.786247 N	77.329899 E

Decision to take site visit was based on independent risk assessment, as defined in section 4.1.13 of VCS standard version 4.5/9/.

An On-site visit has been undertaken by the verification team to the project location identified in the MR/1/ at Village: Siundh near Sainj Town in Kullu District of Himachal Pradesh, Country-India on 20-October-2023/36/, to carry out the following:

- An assessment of the implementation and operation of the project activity as per the Project Description Document & Validation Report.
- A review of information flows that have been used to generate, aggregating and reporting of the monitoring parameters.
- Interviews with relevant personnel to determine whether the operational and data collection procedures are implemented in accordance with the monitoring plan.
- A cross check between information provided in the monitoring report and data from other sources such as plant generation log books, inventories, purchase records or similar data sources.
- A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the PD, applied methodology including applicable tool(s), and wherever applicable, the applied standardized baseline.
- A review of calculations and assumptions made in determining the GHG data and emission reductions.

- 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 parameter.

2.5 Resolution of Findings

The objective of this phase of the verification is to resolve any outstanding issues which need to be clarified for VKU's positive conclusion on project description. To guarantee transparency a verification protocol has been customized for the project. The protocol shows in a transparent manner the requirements, means of verification and the results from verifying the identified criteria. The verification protocol consists of three situations in tables; the different columns in these tables are described below.

A corrective action request (CAR) is raised if one of the following occurs:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient.
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions.
- Issues identified in a FAR during previous assessment i.e., in validation or verification report to be cross verified during verification have not been resolved by the project participants.

A clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable VCS requirements have been met.

A forward action request is also raised in cases where any required deviation/information is not fulfilled in current verification and thus needs to be taken up in consequent verification for better transparency thus holding the applicability of the methodology eligible to the project activity and there is no impact of the same on additionality, baseline scenario & emission reduction calculation of project.

Keeping in line with the VCS Standard Version 4.5, Clause 4.1.21 Assessment team has documented a summary of total **06 Findings (00 FARs, 03 CLs and 03 CARs)** were raised during this verification which were closed successfully and details are provided under Appendix B of this report.

2.5.1 Forward Action Requests

Based on the review of the VCS Validation Report/4/ and previous VCS Verification Report /05/, no FAR was raised during Validation and previous Verification which needs to be closed during this verification and no FAR has been raised during current verification from 04-January-2009 to 03-January-2017 (Inclusive of both dates).

2.6 Eligibility for Validation Activities

VKU has not conducted any validation activities as part of the verification process and does not possess accreditation for validating any pertinent sectoral scope. Therefore, this section does not apply. It is important to emphasize that during the current verification, no validation assessment has been carried out either by VKU or concurrently by other certification bodies. This information has been confirmed through focused group discussions and interviews with the Project Proponent (PP), as documented during the site visit.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

Project's GHG Program Status:

The project was registered under VCS with VCS ID-531 and UCR with UCR ID-118. During the current monitoring period, which spans from 04-January-2009 to 03-January-2017 (inclusive of both dates). This was confirmed by checking VERRA and UCR registry website. Except these the project is not registered under any GHG program. Furthermore, double counting issue has also been assessed and the project verification team has also checked the following registries:

- I-REC Registry (<https://evident.services/device-register>)
- Gold Standard project database
(<https://registry.goldstandard.org/projects?q=&page=1>)
- Bio Carbon registry (<https://biocarbonregistry.com/en/projects/>)
- ICR registry (<https://www.carbonregistry.com/explore/projects>)
- Social Carbon registry (https://wilder.earth/social_carbon)
- Cercarbono registry (<https://www.ecoregistry.io/>)
- <https://www.recregistryindia.nic.in/>
- <http://cdm.unfccc.int/>

All above stated websites were checked and this assessment team confirms that project isn't available within any of the above stated databases, at the time of this report date and the project hasn't been listed in any of them.

Verification through Declaration:

The Project Proponent (PP) has substantiated this dual-registration in two different registries and GHG claim from VCS only for current monitoring period through the declaration /26/ submitted, affirming that the GHG emission reductions achieved by the project during the current monitoring period will not be sought or claimed under any other registries apart from VCS.

Cross-Verification of GHG Benefits:

An independent search was also conducted to ascertain whether the project had been registered or claimed for other GHG-related benefits, such as Renewable Energy Certificates (RECs) and International Renewable Energy Certificates (I-RECs). This thorough assessment, coupled with the declaration submitted by the PP, corroborates that there is no double counting of GHG benefits arising from this project activity for the current monitoring period

Issuance Records Confirmation:

The assessment team further corroborated this by cross-checking the issuance records available on the VERRA and UCR website. This exhaustive cross-verification process unequivocally confirmed that the emission reductions generated by the project activity have not been, double counted, thus warranting acceptance by the assessment team.

3.2 Methodology Deviations

No instances of methodology deviation have been identified throughout the current monitoring period from 04-January-2009 to 03-January-2017 (Including both dates), signifying that the project is adhering and complying to the prescribed methodologies. Furthermore, it is noteworthy that no methodology deviations were observed during the Validation & and previous VCS Verification processes which were confirmed from the documents available at Verra's webpage, thus affirming the project's steadfast commitment to upholding the designated methodologies and ensuring accurate and reliable results.

3.3 Project Description Deviations

The project participant has requested following deviation from project description current monitoring period i.e., 04-January-2009 to 03-January-2017 (Inclusive of both the days) under fixed crediting period.

Requested Deviation

At the time of project registration, the calibration frequency for the meters installed at the site was confirmed to be annual. Since the calibration is under the purview of (HPSEB) Himachal Pradesh State Electricity Board, the calibration is not performed annually and is performed as per the industrial standards set by the HPSEB. Since the meter are of a better accuracy class and as per CEA order dated 17-March-2006; para 18(b) that "all the meters shall be tested once in five years." Indian government under the stated mandate allows the calibration frequency to be conducted once in five years, a deviation is requested for calibration frequency to be considered as once in five years instead of annual, to avoid any further instance of delay in energy meter calibration.

VVB Assessment

As per VVB's interaction with Project Proponent and inspection of energy meters during onsite visit, it is to confirm that the project adheres to all the mandatory regulatory and statutory requirements at the state as well as national level." The meter calibration is not under the purview of the Project Participant (PP) and is performed by the HPSEB, which is the sole authorized body for meter testing. The meters are tested, sealed and maintained by HPSEB only in the presence of authorized representative of the PP. As per CEA order para 18 b, "all energy meter shall be tested once in five years." /21/In compliance to the CEA order, meter calibration was not conducted by HPSEB within the year of specified period.

Hence, the verification team has acknowledged and accepted the deviation, affirming that the project remains fully compliant with the VCS rules. Since the calibration of meters is performed solely at the discretion of state entity therefore the deviation to perform calibration i.e., Once in five years is correct and accurate. Furthermore, it is important to note that this deviation has no impact on the applicability of the methodology, the concept of additionality, or the appropriateness of the baseline scenario. The project continues to meet all relevant requirements and remains in adherence with VCS guidelines.

3.4 Grouped Project

This is not a grouped project. Therefore, this section is Not Applicable.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

Based on the onsite audit conducted with the project proponent (PP) representative, it was determined that the project implemented is as per the requirement outlined in the Project Description Document and approved monitoring plan. The project activity is a run-of-river hydro energy project with total capacity of 1MW/ 1000kW, comprising of 1 Hydro Turbine Generator of rated capacity 1*1000 kW Francis make (horizontal axis) commissioned on 29-December-2006 /27/.

The main purpose of the project activity is generation of electricity using hydro potential available in the river water and export the generated electricity to the state-owned power utility, Himachal Pradesh State Electricity Board (HPSEB) which is a part on NEWNE regional grid of India (now Indian Grid). This project utilizes the flow of the river through Head Race Tunnel (H R T) and penstocks and by using one 1000 kW horizontal Francis turbines connected to a synchronous generator generates electricity. The main structure includes weir, intake forebay, De-Silting tank, chambers, Head Race Tunnel (HRT), surge shaft, penstock powerhouse and the tailrace discharging water back into the river. The generators generate power at 415kV, which can further be stepped up to 11 KV. The project activity can operate in the frequency of 50 Hz and in the voltage range of 415kV to 11kV $\pm$ 10%. From the powerhouse, the generated power is evacuated to the sub-station. There are no fossil fuels burned or greenhouse gas emissions from this procedure but only in case of emergency or breakdown backup generators are used and for this PP has accounted the project emissions for the same amount of diesel that is consumed by the generators. Because of this, power is produced sustainably and has no adverse environmental effects. It is important to note that during the current monitoring period there was no use of diesel therefore the project emissions is zero for current monitoring period.

Hydropower is the main source of power generation. The power generated from the hydro turbine generator is exported to Himachal Pradesh State Electricity Board. The Project Hydropower turbine was operational during the current monitoring period (04-January-2009 to 3-January-2017; Inclusive of both the days) under fixed the first crediting period, no unforeseen incidents or events occur that could significantly impact the operation of the project activity were identified, with the exception of some scheduled shutdowns for maintenance.

The verification process involved reviewing the monthly generation records/30/ provided by the project proponent (PP). The assessment team also conducted interviews with key site personnel present at site from the PP's side, including managing director, site engineers, technical staff and non-technical staff. These interviews took place on 20-October-2023 during the onsite visit to hydro plant site /34/. The project underwent continuous operation, before being stopped due to flood damages in June-July 2023. This approach is deemed acceptable by the assessment

team and is verified to align with the methodology. Furthermore, no unforeseen incidents were identified that would affect the applicability of the methodology.

Based on the documents review (monthly generation records present at project site and tripping details for each month) submitted to VKU Assessment Team by PP that the plant supplied 55,018.96 MWh of electricity, and thus contributing to 44,175 tCO₂e GHG reductions. The estimated emission reduction for this monitoring period is 47,880.7 tCO₂e, whereas actual emission reductions achieved are 44,175 tCO₂e, which is -7.74% lower than the estimated emission reductions for the current verification period. Further explanation is provided section 4.5 of this report The ERs achieved in this monitoring period is basically due to low water availability and marginally lower PLF than the expected PLF during this monitoring period.

The project location was verified by the assessment team through [Google earth pro/31/](#) during desk review and GPS map camera software during onsite visit [/34/](#). The assessment team physically went to the forebay site to witness the flow of water along with this, de-silting tank, chambers, Head Race Tunnel (HRT), surge shaft, penstock powerhouse and the tailrace discharging water back were the other main inspection areas.

The assessment team checked the commissioning certificate and confirmed the start date of the operation of the project activity is commissioning of turbine is 29-December-2006. The dates of commissioning were also verified by Assessment team during the onsite audit/[34/](#) that there is no change in project design with reference to previous verification/[05/](#)and VCS standard version 4.5 [/9/](#) in section 3.3 of the report. The project is implemented as per the description provided in the Project Description Document.

The power rating of the hydropower turbine has been verified with the specification plate as well as with the technical specifications of Hydropower turbines submitted to VKU Assessment Team by PP and also cross checked from the technical manual of the Manufacturer/[28/](#). Assessment team confirms that the technical parameters are consistent with the Project Description Document. The major technical specifications of the hydropower turbine are as follows

Table no 10: Technical specifications of the hydro turbine:

Design Discharge	1.28 cumecs
Gross Head	105.6 m
Hydrology	
Type of Catchment Area	Rugged and Hilly
Annual Flow (In 75% dependable year)	1.23cumecs (Cubic metre per second)
Catchment Area of Stream	180 Sq. Km.
Diversion Structure	
Type of structure	Trench type weir
Size	20 m x 2.5 m

Intake Structure	
Shape and Size	Well type (3.0 m x 2.5 m x 5.10 m)
De-silting Chamber	
Type	Settling tank
Size	28 m x 5 m
Discharge	1.75 cumecs
Penstock	
Number	One
Diameter	800 mm (I.D.)
Thickness	8 mm
Length	190 m
Power House	
Type	Surfaced Power House (R.C.C structure)
Design Head	102.07 m
Design Discharge	1.28 cumecs
Installed Capacity	1 x 1000 kW
Electromechanical Equipment	
Turbine type	Francis type (horizontal axis)
Turbine number	01 Nos.
Turbine normal speed	1500 rpm
Type of generators	AC Synchronous
Generator Normal Speed	1000 rpm
Generator Rated voltage	415kV
Switchyard	
Voltage	11 KV
Power	
Installed capacity	1 x 1000 kW
No. of unit generated @ 75% dependable	6.61 MU

The assessment team confirmed through onsite visit with PP representative that there is no proposed or actual change to the project design during this monitoring period. The organizational

role and responsibility is correctly followed at site as specified in Project Description Document. All the emergency preparedness as mentioned in MR/1/ are followed onsite and no discrepancies were found regarding the same.

Operational & Management Structure- The proposed operational and management structure for the project activity for the purpose of monitoring of emission reductions, leakage effects etc. is shown below:

Operational/Shift In charge Collect meter reading for electricity generation and export, and send daily reports to Plant Manager.

Plant Manager/Chief Project Officer Review monitored parameters, correct minor errors, and prepare daily project operation and electricity generation summary for Director – Technical monthly.

Director - Technical Review monthly reports from Plant Manager, compile electricity export data for submission to the board of directors monthly, and modify monitoring report structure and data recording formats as needed.

Managing Director Review reports from Director – Technical, prepare summary on plant operational conditions and total electricity export for the Board of Directors.

Board of Directors Review reports from Managing Director and provide guidance for necessary corrective actions.

The monthly Joint Monitoring Reports (JMRs) are signed by authorized officials of both the Project Proponent (PP) and Himachal Pradesh State Electricity Board (HPSEB) once every month. Records of the JMR are maintained by both parties. The Chief Project Officer/Plant Manager is responsible for monitoring, measurement, reporting, and reviewing of data related to greenhouse gas (GHG) emissions within the project. They are assisted by a team of experienced personnel who are responsible for measuring, monitoring, recording, and reporting various data items to the Chief Project Officer in accordance with applicable standards. The team is also responsible for periodic calibration of instruments used in GHG monitoring and record keeping of the same. The Chief Project Officer is responsible for the review, storage, and archiving of information in good condition. They undertake periodic verifications and onsite inspections to ensure data quality and initiate corrective actions as needed. The Chief Project Officer reviews the data collected by the team and suggests corrective actions where necessary. An internal audit report is prepared for review by the Director-Technical, further reviewed by the Managing Director, and finally reviewed by the Board of Directors. The parameter mentioned in the monitoring plan are monitored at the plant site by experienced and trained personnel. The entire process of monitoring is streamlined for subsequent useful purposes. Energy exports, imports and auxiliary consumption, etc are being maintained in different formats to ease the data calculation processes.

Assessment team concludes the following:

- a) There are no material discrepancies between project implementation and the project description provided in the Validation and Project Description Document.

- b) The monitoring plan is implemented completely and monitoring system (i.e., process and schedule for obtaining, recording, compiling and analysing the monitored data and parameters) is appropriate.
- c) There are no material discrepancies between the actual monitoring system, and the monitoring plan set out in the fixed crediting period of project description/3/ and the applied methodology.
- d) Materiality threshold applied is 05% as per 4.1.10 of VCS Standard v4.5. It was concluded that the materiality threshold applicable to the project activity based on the type of project i.e., Project is 05%. This effectively means that there is uncertainty inherent in the estimation of emission reduction of 05%. This is consistent with the section 4.1.10 of VCS standard v4.5 which is equal to 2,208.75 tCO₂e.
- e) The GHG emission reductions or removals generated by the project have not been included in any emissions trading program or any other mechanism that includes GHG allowance trading/26/.
- f) Complying with clause 3.24.5 of the VCS Standard version 4.5 Assessment Team confirms that the project has not received or pursued any other form of environmental credit, nor has it become eligible to do so since VCS Validation or previous VCS Verification/05/
- g) The project Activity is a hydro power project and does not involve any supply chain in the project such as manufacturers, wholesalers, distributors and retailers. So, no indirect upstream and downstream GHG emissions are involved in the project activity. Thus, the **Scope 3 emissions are not applicable in this project activity.**
- h) The project is registered under VCS ² and UCR, however PP has submitted the declaration/28/stating, that they will not claim same GHG emission reductions of the project from any other GHG programme for the current monitoring period when project is seeking to get GHG emission reduction from VCS only. Audit team also checked the REC/15/ Mechanism database of India and I-REC/16/ mechanism database found that the project activity is not accredited / registered under REC or I-REC mechanism which was verified from the (Renewable Energy Certificate Registry of India) REC/15/ (International-Renewable Energy Certificate Standard Standard) I-REC/16/ website and same was verified by checking in other GHG programs including GS Registry, CDM, GCC & CR-I, however PP has submitted the declaration/26/ for the same.
- i) The project activity complies with indicators for **sustainable development** in the interim approval guidelines for Clean Development Mechanism (CDM) projects from India as discussed under **section 1.11 of MR/1/**. Assessment team has verified the same during on site visit/34/ and found all the indicators to be effective and applicable for the project activity.

² <https://registry.verra.org/app/projectDetail/VCS/531>

For the current monitoring period, the PP is voluntarily showing contributions to four SDGs, as indicated below-

- **SDG no 7.2: (Renewable energy share in the total final energy consumption)**
- **SDG no 8.5: (Employment Generation from the project Activity)**
- **SDG no 13.2 (Tonnes of greenhouse gas emissions avoided or removed)**

The project activity has implemented activities that results in 4 SDG Contributions; 7.2, 8.5 & 13.0

1. **7.2.1 i.e. (Renewable energy share in the total final energy consumption)** As a part of this project activity lifetime 55,018.96 MWh Net renewable electricity has been exported to Indian grid that helps to strengthen the renewable energy share in the energy mix. VKU has referred previous verification report /05/ monitoring report for current monitoring period/1/ & emission reduction sheet/2/ which were cross checked from JMRs/26/ & Invoices/27/ submitted to the VKU Assessment Team for current monitoring period and thus found the above claimed renewable electricity supplied to Indian grid is correct.
2. **8.8.1 i.e. (Employment Generation from the project Activity):** Zero occupational injuries, zero mortality during the monitoring period. PP has conducted training programs during the reporting period to ensure occupational health and safety for workers, to check the accuracy level of safety measures, alarming systems, monitoring systems etc. Due to installation of the project activity PP has provided direct employment to 10 people in project implemented area. VKU Assessment Team has referred the employment records submitted by the PP and focused group discussions/interviews/34/. However, project proponent is not claiming this SDG benefit. Hence, PP did not quantify the same in MR/1/ which is found to be correct by VKU.
3. **13.0 i.e. (Tonnes of greenhouse gas emissions avoided or removed)** Due to installation of this project activity i.e., Hydro Turbine generators (Hydropower turbines) PP has prevented the release of (44,175³) tCO_{2e} into the atmosphere till the current monitoring period i.e., 04-January-2009 to 03-January-2017(Inclusive of both the days). It proves that the project generates eco-friendly, GHG free power which contributes to sustainable development of the region. VKU Assessment Team has referred previous verification report/05/ monitoring report for current monitoring period/1/ & emission reduction sheet/2/ which were cross checked from JMRs/24/& Invoices/25/ submitted. VKU Assessment Team now conclude that the above claimed greenhouse gas emissions avoided or removal is correct for current monitoring period.

Since the project is continuation of activity, it is a regulatory surplus activity. The green energy target of the Govt of India does not include green energy generated from hydro turbines from private parties. This was assessed as the TL is an expert of local regulations and statutes of

³ Contribution of Tonnes of greenhouse gas emissions avoided or removed to current MP i.e., 2nd Verification Period.

country India and thus in view of the information as verified above the VKU assessment team is able to conclude that the project has been implemented as described in the monitoring plan.

All the above stated information was verified by VKU assessment team during onsite visit/33/ at the project implemented site and also by interviewing the site personnel and by conducting focussed group discussion with them /34/.

There are no potential harmful socio-economic and environmental effects in the project activities. The project activity does not have any major adverse impacts on environment during its construction or operational phase. All necessary measures to handle impacts were found in place, which was confirmed during site visit /33/.

Table No 07; As per the section 1.1 of the MR/01/, PP has provided the audit history as below:

Audit Type	Period	Program	VVB Name	Number of years
Validation	-	VCS	TUV Nord Cert GmbH	NA
Verification	04-January-2007 to 03-January-2009	VCS	TUV Nord Cert GmbH	02 Years 00 Months 00 Days
Current Verification	04-January-2009 to 03-January-2017	VCS	VKU Certification Pvt Ltd	08 Years 00 Months 00 Days
Total	=	VCS	=	10 years 00 Month 00 Days

This has been checked by the verification team through validation and previous verification reports already approved and uploaded on [Verra's webpage](#) which is deemed accurate and satisfactory to VKU's assessment team.

4.2 Safeguards

4.2.1 No Net Harm

The project activity involves implementation of Hydropower turbine as a voluntary measure to strengthen the national grid of India through exploitation of hydro power generation potential available to India. Rational: as per 'Central Pollution Control Board (Ministry of Environment & Forests, Govt. of India)', final document on revised classification of Industrial Sectors under Red, Orange, Green and White Categories (07/03/2016), it has been declared that hydro project

activity falls under the “White category”. White Category projects/industries do not require any Environmental Clearance such as ‘Consent to Operate’ from PCB as such project does not lead to any negative environmental impacts. Project is in accordance with the Ministry of Environment, Forest and Climate Change (MoEF&CC) Notification dated 14-September-2006 (S.O. 1533(E)⁴, and exempt from Environmental Impact Assessment (EIA) submission. Since the project involves hydro-based activities, it is not required to obtain clearance from the Pollution Control Board.

Nevertheless, PP had done public announcement and invited comments from public on the proposed project activity. Many stakeholders like Government of Himachal Pradesh, Public Works Department, HPSEB, Fisheries Department of Himachal Pradesh, Department of Town and Country Planning Department of Irrigation public health and village Panchayat had participated to understand, discuss, record all possible concerns related to environment and socio-economic aspects of the project so that as per requirements mitigation measures can be taken. The feedback and inputs received from stakeholders confirm that no negative impact is foreseen by the stakeholders.

Furthermore, the project activity has positively impacted the local community by creating job opportunities during construction and operation phases, as verified through on-site interviews and visits by the VKU Assessment Team /34/.

4.2.2 Local Stakeholder Consultation

The project in question i.e., VCS 531: “1 MW Jiwa Small Hydel Project in Kullu, Himachal Pradesh.” has undergone stakeholder consultation in compliance with the Verified Carbon Standard (VCS) and local regulations. Various stakeholder groups, including the local inhabitants were identified as the primary local stakeholders in the project activity.

A local stakeholder meeting for the project was held on 31-January-2008 at the hydro farm site office. The Stakeholders were invited by giving one advertisement in one local newspaper mentioning the date, time and venue of the Stakeholders meeting.

Stakeholders’ Involvement:

The project proponents had involved all the stakeholders for setting up the Project and had convened a meeting to hold extensive discussions with the stakeholders. After an address by the Project Proponent regarding the project, its benefits and the activities, queries were invited from them which were answered to their satisfaction. The local population welcomed the project due to benefits like development of infrastructure in the area and additional sources of income during construction, employment etc. An attendance of the stakeholders present in the meeting was carried out and also the stakeholders were asked to present their comments in a written format in one month time duration from the meeting. Hence, the project passed through due public consultation.

⁴ <http://www.environmentwb.gov.in/pdf/EIA%20Notification.%202006.pdf>

Ongoing Communication:

As a part of the continual improvement process, feedback from the associated stakeholders is vital. Project Proponent is open for continuous interaction with stakeholders; therefore, a dedicated grievance register has been placed at the project site which is accessible to stakeholders to provide their feedback on the project. The process of Local Stakeholder Consultation is continuous. It is an appropriate publicly accessible location at which stakeholders can provide their feedback on the project. The stakeholders are requested to share their experiences and grievances on a continuous basis. Registers are used to record grievances and feedback. Grievance register is placed at the main gate of site office and is accessible to everyone. In case of grievances, the nature of probable resolution is discussed with the plant head office and implemented by the site in-charge. The project proponent has devised a system for continuous local stakeholder interaction during the operation of the project. Local stakeholders are allowed to visit the project site and raise their concern about the project. A grievance register is maintained at the project site in which the feedback and concerns are reported. There is no adverse comment recorded to be reported during the monitoring period under consideration.

VVB's Assessment:

During the on-site interviews, the verification team specifically examined the compilation of inputs and feedback from stakeholders, and they found that the There is no adverse comment recorded to be reported during the monitoring period under consideration. As a result, the verification team concluded that the ongoing communication with local stakeholders complies with the established guidelines defined in section 3.18, clause 3.18.3, 3.18.4 of the VCS Standard version 4.5/09/. The project proponent's efforts in engaging with stakeholders have been deemed suitable and in line with the prescribed requirements.

The local stakeholders interviewed in Interviews section 2.3 of this report confirmed the same. Hence, confirming that the project activity does not have a negative impact on the surrounding environment, thus promoting environmental wellbeing, hence complying with the guidelines set in section 3.19 of VCS standard version 4.5.

4.3 AFOLU-Specific Safeguards

As the project comes under the category of NON - AFOLU projects therefore this section does not apply for this verification. Hence Not Applicable.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The equations and choices provided in the methodology /12/ and all other methodological tools are correctly quoted in the MR /1/. The emission reductions of the project activity are calculated using the formulae mentioned in the applied methodologies i.e., AMS. I.D. Version 13.0/12/. The

verification team has reviewed the emission reduction spread sheets (ER sheets) /2/ and checked all the formulae and found they are correct and are in accordance with the monitoring plan and the applied monitoring methodology.

The project monitoring plan involves total O2 parameter to be monitored;

- 1) **EG_{PJ, y}** (Net electricity supplied to the grid by the project activity);
- 2) **DC_y** (Diesel consumption by the standby DG set in year y)

All monitored parameters are according to the monitoring plan and monitoring report/1/. The parameter **EG_{PJ, y}** value is sourced from Certified Meter Reading (JMRs)/24/, Proper calibrated meters of 0.5s accuracy class installed at substation regularly monitor and **DC_y** value is sourced from On-site measurements/store issues, recorded daily and aggregated monthly.

All the above stated parameters are incorporated in ER sheet/2/ prepared by PP and has been reviewed by assessment team thoroughly by cross checking the values of JMRs/24/Invoices/25/ submitted by PP and found correct including all the formulae and conversions and aggregations.

The monitoring plan is diligently being followed at the site. The assessment team has conducted a thorough verification of the entire information flow, starting from data generation and aggregation to recording, calculation, and reporting of the relevant parameters in the Monitoring Report (MR/1/). The emission reductions are based on the net electricity generated and exported from the project.

The project proponent (PP) has provided all the necessary data for the current monitoring period, ensuring a comprehensive and accurate assessment. The values of the parameter "Net electricity supplied to the grid by the project activity," which were used in deriving the greenhouse gas (GHG) emission reduction, have been found to be well correlated between the data sets and the Emission Reduction (ER) spreadsheet provided by the PP.

The verification of each monitoring parameter has been discussed later in [section 4.5](#).

The appropriateness of default values used in the monitoring report is elaborated below:

Table No: 08 Data and Parameters Available at Validation or Ex-ante parameters:

Parameter	Unit	Description	Value
Electricity Supplied to the Grid	tCO ₂ /MWh	A "grid emission factor" refers to a CO ₂ emission factor (tCO ₂ /MWh) which will be associated with each unit of electricity provided by an electricity system.	0.803 tCO₂/MWh is consistent with the CO ₂ Baseline Database for the Indian Power Sector' Ministry of Power: Central Electricity Authority (CEA) Version 4.0, Dated: 01-September-2008, This database is prepared as per "Tool to calculate the emission factor for

			an electricity system” Version 1.1.
P	kg/lit	Density of diesel	0.860 kg/lit is Fixed Value has been taken from the publicly available data source.
NCV _{Diesel}	GJ/Ton	Net Calorific Value of the Diesel in year y	43.30 GJ/Ton is calculated from <u>IPCC Default value (“2006 IPCC Guidelines for National Greenhouse Gas Inventories, Volume 2: Energy, Tables 1.4 and 2.2”)</u> Default value taken from Default Net Calorific Values (NCVs) and Lower and Upper Limits of the 95% Confidence Intervals, 2006 IPCC Guidelines for National Greenhouse Gas Inventories ⁵
EF _{CO₂,diesel,y}	tCO ₂ /TJ	CO ₂ emission factor of diesel in year y	74.8 tCO₂/TJ is sourced from <u>IPCC 2006 default values</u>

According to applied methodology AMS. I.D. Version 13.0 /10/ the emissions are calculated as below:

According to applicable methodology AMS-I. D; Version 13.0 Under clause 12 of Baseline Methodology Procedure it states that “. If the energy generating equipment is transferred from another activity or if the existing equipment is transferred to another activity, leakage is to be considered,” Since for the project activity, no energy generating equipment is transferred from another activity and/or the existing equipment is transferred to another activity. Therefore,

Leakage emissions: $LE_y = 0 \text{ tCO}_2$

This hydro power project has solely relied on hydroelectricity and has not utilized any form of fossil fuels during the current monitoring period on-site. Consequently, according to the methodology employed, no emissions from leakages are accounted for. As this project solely operates based on renewable energy, no project emissions stemming from the project activity are taken into consideration.

⁵ https://www.ipcc-nggip.iges.or.jp/public/2006gl/pdf/2_Volume2/V2_1_Ch1_Introduction.pdf

Project Emissions: As the project is equipped with a diesel generator to meet the emergency requirements of powerhouse etc., emissions out of usage of fossil fuel (diesel) are being accounted as project emissions by using the following equation.

$$PE_y = F_{i,y} \times CO_{EFi,y}$$

Where,

PE_y = Project emissions from combustion of fossil fuel (diesel for DG set) in the project activity during the year y (tCO₂e)

$F_{i,y}$ = Quantity of fossil fuel type i combusted (DG set) during the year y (Ltr)

$CO_{EFi,y}$ = Carbon dioxide emission coefficient of the fuel type i in year y (tCO₂e/Ltr)

$$CO_{EFi,y} = NCV_i \times EF_{CO_2,i}$$

Where,

NCV_i = weighted average net calorific value of the fuel type i in year y (TJ/Gg)

$EF_{CO_2,i}$ = weighted average CO₂ emission factor of fuel type i in year y (tCO₂/TJ)

Diesel consumption in mass:

$$F_{i,y} = F_{d,y} \times \rho_{i,y}$$

Where;

$F_{d,y}$ = Quantity of diesel used in DG set during the year, y (Ltr)

$\rho_{i,y}$ = Density of diesel (kg/Ltr)

Methods and formulae set out in the project description for calculating actual emissions for current monitoring period.

The calculation of emission reduction has been done in accordance with the applied methodology used i.e., AMS-I.D. Version 13.0, EB-36, Sectoral scope: 1/12/. As per the applied methodology, the values of leakage are considered as zero & Project emissions are calculated at actual for the project activity. The equation used for calculation of baseline emission is given below:

The following formula is applied for estimation of emission reductions occurred by the project activity:

Where;

ER_y = Emission reductions in a given year

BE_y = Baseline emissions in a given year

PE_y = Project emissions in a given year

LE_y = Leakage emissions in a given year

$BE_y = EG_y \times EF_y$	
BE_y	Baseline emissions in year y (tCO ₂ e/yr)
$EG_y =$	Net Electricity export to the grid by the project during the year y (MWh)

EF _y =	The baseline emission factor for a given year (tCO ₂ /MWh)
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Estimated Emission Reduction is the equivalent period of the current Monitoring period, 04-January-2009 to 03-January-2017(Inclusive of both the days):	
Monitoring Period Start Date	04-January-2009
Monitoring Period End Date	03-January-2017
Days in Current Monitoring period	2922 days
Annual VCUs as per PD	5,981 (tCO ₂ e)
Estimated Emission Reduction as in PD for the equivalent period of the current Monitoring period	= (Annual Estimated GHG emission reductions as per Project Document/Total days in a year) *days in current monitoring period = 47,880.77
Actual Emission Reduction as per MR and ER during current Monitoring period	44,175 (tCO ₂ e)
Percent difference	-7.74% lower than the estimated

The estimated emission reduction for the present monitoring period is **47,880.77 tCO₂e**, however the achieved emission reductions are **44,175 tCO₂e** (round down value), or around - **7.74%** lower than the estimated emission reductions.

PP has submitted all the evidences like JMRs/24/ and Invoices /25/ to VKU Assessment Team for verification and assessment of ER Sheet/2/

Hence VKU Assessment Team can state that the calculation method and formulae used in calculating baseline emission is following the methodology used i.e., AMS-I. D: Grid Connected Renewable Electricity Generation - Version 13.0⁶ /12/. The applied default values, emission factors and assumptions in the calculations are all reasonable. The assumptions, emission factors and default values that were applied in the calculations are justified.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

When verifying the reported emission reduction, VKU ensured that there was a clear audit trail that contained the evidence and records that validate the stated figures. All source documents that form the basis for assumptions and other information underlying the GHG data are shown above. (It is to note that the value of Net GHG emission reductions or removals (tCO₂e) calculated above is rounded down vintage wise, to keep up with the conservativeness of the Emission Reductions Calculation.)

⁶ Microsoft Word - AMS I.D. rev. ver13.doc (unfccc.int)

The verification team attests to the correctness of the formulas and methodologies used to compute baseline emissions. The applied default values, emission factors, and assumptions in the calculations are all reasonable. The assumptions, emission factors and default values that were applied in the calculations are justified. The actual emission reduction achieved during the current monitoring period are 7.74% lower than the estimated ERs. We as VKU Assessment Team accepted this as this is mainly due to the reasons for the lower net electricity generation which is further due to lower water flow availability in the run of the river and power generation during the lean season, which are not under the control of project participant during the monitoring period. The electricity produced by a Hydro plant relies on the amount of water passing through it, and changes in water availability can have an impact on its output. which in turn, affect the amount of electricity generated. Hence, it is acceptable to the VKU Assessment Team. All the data were had been available to the assessment team by PP during site visit/36/ and as supporting evidences which have been monitored as per required monitoring frequency. The means of verification for the values of parameters, used for baseline emission calculation, is described above. Hence the -7.74% actual lower emission reduction achieved during the current monitoring period neither affects additionality nor there is any deviation from the registered monitoring plan.

The verification team has checked and confirmed the emission reduction calculations in the spreadsheet and found to be accurate. The monitoring report /1/ is supported by emission reduction spreadsheet /2/. The consistency and formula were verified and found to be accurate.

VKU is of the opinion that this method of calculation of emission reductions is accurate and results in conservative estimation of emission reduction and is in line with the applicable VCS requirements set out in section 3.15 of VCS Standard version 4.5 and that the verification of the GHG statement was conducted in accordance with ISO 14064-3; 2019. When assessing the audit trails, VKU also examined:

1. Whether sufficient evidence was available, both in terms of frequency and in covering the full monitoring period.
2. The source and nature of the evidence.
3. If comparable information was available from sources other than that used in the monitoring report/1/, VKU cross-checked the monitoring report against the other sources to confirm that the stated figures were correct. The sources and the data referenced are shown in Section 2.2 above.

All records needed for monitoring are archived in line with the requirements of the registered monitoring plan. No significant, lack of evidence and missing data were detected during verification. Hence, the verification team confirms that the monitoring system ensures required quality of the monitoring system to ensure the quality of the monitored data. All internal data are subjected to QA/QC measures.

The below table describe how the parameter **EG_{P,y}** (Net electricity supplied to the grid by the project activity), that is to be measured according to the monitoring plan, has been verified to

confirm that the actual monitoring complies with the monitoring plan, monitoring data has been thoroughly assessed and that the calibration requirements are met:-

Table No: 09 Assessment of Parameter EG_{PJ,y} (Net electricity supplied to the grid by the project activity)

Parameter	EG _{PJ,y} (Net electricity supplied to the grid by the project activity)	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	Values are measured continuously using calibrated meter and recorded monthly and aggregated annually.
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the Project Description Document /3/ and monitoring methodology/12/. Also, in current monitoring period there is no deviation from the stated procedures in the registered monitoring plan. This was verified by assessment team during desk review and by Team Leader during onsite visit and interviews/34/ with site personnel.
	Monitoring equipment	Yes, energy meter (Main Meter) is used as monitoring equipment for this parameter. Meters installed at sub-station: Equipment Type: ER300P Make: L&T Manufacture Year: 2008 Accuracy class: 0.5s
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	The accuracy of the monitoring equipment used to measure the input values used is 0.5s, which is as per the initial monitoring plan stated in the Project Description Document/03/ and can be cross-checked from the calibration Certificates.

	Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes, the accuracy is valid for the entire current monitoring period i.e., 04-January-2009 to 03-January-2017(Inclusive of both the days)
	Calibration frequency /interval:	At the time of project registration, the calibration frequency for the meters installed at the site was confirmed to be annual. Since the calibration is under the purview of (HPSEB) Himachal Pradesh State Electricity Board, the calibration is not performed annually and is performed as per the industrial standards set by the HPSEB. Since the meter are of a better accuracy class and as per CEA order dated 17-March-2006; para 18(b) that "all the meters shall be tested once in five years." Indian government under the stated mandate allows the calibration frequency to be conducted once in five years, a deviation is requested for calibration frequency to be considered as once in five years instead of annual, to avoid any further instance of delay in energy meter calibration. Hence, PP has considered CEA order dated 17-March-2006/21/; which prescribes under the para 18(b) that "all the meters shall be tested once in five years." Thus, frequency of the calibration is considered for Once in five years. This applies to current monitoring period too.
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards,	Yes, as per requested deviation in section 3.3 of MR, PP has considered the calibration frequency of once in five years which is as per CEA order dated 17-March-2006; para 18(b) that "all the meters shall be tested once in five years." Indian government under the stated mandate allows the calibration frequency to be conducted once in five years.

	or as per the manufacturer's specifications?	
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Yes, Calibration /23/ of the measuring equipment's is carried out by Power Grid Corporation of India Limited (PGCIL) under the purview of Himachal Pradesh State Electricity Board Limited under the purview Himachal Pradesh State Electricity Board. All the meters are under the purview Himachal Pradesh State Electricity Board on a periodic basis. In case of any faulty readings observed appropriate corrective action will be taken. If the error is found beyond the permissible limits, the PP will inform the respective agency so as to immediately rectify the error in the instrument, which was confirmed during onsite visit while interviewing/34/ the site personnel at project site/PP.
	Is(are) calibration(s) valid for the whole reporting period?	Yes, the calibration is valid throughout the reporting period. The Project Proponent (PP) has followed the national standards prescribed by the Central Electricity Authority (CEA) for meter calibration, which requires testing of meters once every five years as per the CEA order dated 17-March-2006/22/. Hence the calibration is valid for the whole reporting period. i.e., 04-January-2009 to 03-January-2017(Inclusive of both the days). A deviation is also requested by the PP during this monitoring period for the same.
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes. The calibration is carried out appropriately for current monitoring as per the registered monitoring plan and VCS VVS manual version 3.2/8/& as per PPA/22/ The calibration is carried out for a measuring range i.e., CTR: 500/1A, PTR: 11kV/110V & Pulse Rate: 3.33333 with accuracy class 0.5s.

	How were the values in the monitoring report verified?	Cumulative value of EG_{PJ,y} for entire monitoring period 04-January-2009 to 03-January-2017 (inclusive of both dates) is reported in the monitoring report/1/, and monthly values in the ER calculation sheet/2/ in MWh. The monthly values were verified from the JMRs/24/ and cross checked from invoices/25/ thus found to be consistent. Value of this parameter for the current monitoring period was verified as 55,018.96 MWh .
	If applicable, has the reported data been cross-checked with other available data?	The monthly reported values of EG_{PJ,y} in JMRs were further cross checked with the monthly invoices raised by the PP to Himachal Pradesh State Electricity Board (HPSEB) which is found to be consistent with the PPA/22/.
	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	On site personnel interview/34/ with the project stakeholder of the project activity confirms that the necessary QA/QC procedures are in place and the data management system is effective and reliable. Every month these meter readings will be recorded by HPSEB representative and plant personnel. The meters at the substation will be two-way meters and will be in the custody of HPSEB. The quantity of net electricity supplied is cross-verified from the invoice raised on HPSEB by the project proponent
Findings	CL#02 & CAR#02 were raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. The emission reduction calculation for the project activity is estimated based on the electricity supplied by the project. Since 100% data was verified, the team can ascertain that the values taken for emission reduction calculation are free from material errors.	

Table No: 10 Assessment of Parameter: DC_y (Diesel consumption by the standby DG set in year y)

Parameter	DC _y (Diesel consumption by the standby DG set in year y)	
Means of verification	Criteria/Requirements	Assessment/Observation
	Measuring /Reading /Recording frequency	To calculate project emissions this parameter is put to use. The total quantity of diesel consumed will be measured on a regular basis using dip stick/ level gauge or store issues. Hence, the total quantity of HSD procured, and quantity of diesel consumed is considered for estimation of project emissions
	Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes. The reporting frequency is in line with the monitoring plan as outlined in the PD/3/ and monitoring methodology/12/. Also, in current monitoring period there is no deviation from the stated procedures in the registered monitoring plan. This was verified by assessment team during desk review and by Team Leader during onsite visit and interviews/34/ with site personnel.
	Monitoring equipment	Not Applicable
	Is accuracy of the monitoring equipment as stated in the monitoring plan? If the monitoring plan does not specify the accuracy of the monitoring equipment, does the accuracy of the monitoring equipment comply with local/national standards, or as per the manufacturer's specification?	Not Applicable
	Is the accuracy valid for the entire measuring range or do different accuracy levels	Not Applicable

	apply to different measuring ranges?	
	Calibration frequency /interval:	Not Applicable
	Is the calibration interval in line with the monitoring plan and/or methodology? If the monitoring plan does not specify the frequency of calibration, is the selected frequency in accordance with the local/national standards, or as per the manufacturer's specifications?	Not Applicable
	Is the calibration of measuring equipment carried out by an accredited person or institution?	Not Applicable
	Is(are) calibration(s) valid for the whole reporting period?	Not Applicable
	Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Not Applicable
	How were the values in the monitoring report verified?	0 Since there was no consumption so the value is 0, Refer ER Sheet for Calculations
	If applicable, has the reported data been cross-checked with other available data?	Not Applicable

	Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	The data recorded can be cross checked against the fuel purchase receipts.
	In case project proponents have temporarily not monitored the parameter, has either i) a deviation been approved by the CDM EB or ii) has the parameter been estimated as stipulated by Appendix 1 to the CDM Project Standard?	NA
Findings	CL#02 were raised and resolved	
Conclusion	The parameter has been monitored appropriately, in accordance with the registered monitoring plan (as per measurement methods and procedures to be applied) and applied methodology. The monitoring results were recorded consistently as per the approved frequency in the monitoring plan. The emission reduction calculation for the project activity is estimated based on the electricity supplied by the project. Since 100% data was verified, the team can ascertain that the values taken for emission reduction calculation are free from material errors.	

During the verification assessment of the project activity, accuracy of all the metering have been checked and found appropriate by assessment team during onsite visit/34/. The installation and working conditions of the meters were checked during the site inspection/34/ and were found to be satisfactory as compared to the provision of calibration/testing frequency, prescribed under the monitoring plan. The meter is supposed to undergo testing/calibration once in a year as per initial monitoring plan however the calibration is under the purview of (HPSEB) Himachal Pradesh State Electricity Board, the calibration is not performed annually and is performed as per the industrial standards set by the HPSEB. Since the meter are of a better accuracy class and as per CEA order dated 17-March-2006; para 18(b) that "all the meters shall be tested once in five years." Indian government under the stated mandate allows the calibration frequency to be conducted once in five years, a deviation is requested for calibration frequency to be considered as once in five years instead of annual, to avoid any further instance of delay in energy meter calibration.

HPSEBL (Himachal Pradesh State Electricity Board Limited) is the sole authority to conduct the meter calibration and in absence of annual practice of calibration, PP has considered CEA order dated 17-March-2006; and the calibration is considered once in five years⁷. Details of meters are provided in below table:

Calibration of meters/23/:

- Energy Meter Details: 3 Phase 03 wire Tri-vector Meter
- Year of Manufacture: 2008
- Calibration Frequency: Once in Five years as per CEA Database⁸ (Refer Deviation in section 3)

Table No 11: Calibration Details

Period of Usage	Meter	Meter Serial No	Meter Make	Type of meter	Accuracy Class	Date of Installation	Date of Subsequent Calibration	Validity of Calibration as per CEA
04-January-2009 to 03-January-2010	Main Meter	08030222	L&T	ER300P	0.5s	04-06-2008	03-06-2008	02-06-2013
		066060979				04-05-2009	29-01-2009	28-01-2014
04-January-2010 to 03-January-2011	Main Meter	06606097	L&T	ER300P	0.5s	04-05-2009	21-01-2010	20-01-2015
		0803022110				04-12-2010	01-12-2010	30-11-2015
04-January-2011 to 03-January-2012	Main Meter	08030221	L&T	ER300P	0.5s	04-12-2010	01-12-2010	30-11-2015
04-January-2012 to 03-January-2013	Main Meter	08030221	L&T	ER300P	0.5s	04-12-2010	01-12-2010	30-11-2015
04-January-2013 to 03-January-2014	Main Meter	08030221	L&T	ER300P	0.5s	04-12-2010	Latest calibration Date: 06-05-2013	05-05-2018
04-January-2014 to 03-January-2015	Main Meter	08030221	L&T	ER300P	0.5s	04-12-2010	Latest calibration Date: 22-07-2014	21-07-2019

⁷ Deviation has been requested by PP with respect to the calibration frequency in current monitoring period and thus calibration frequency is changed from Annual to Once in five Years.

⁸ https://cea.nic.in/wp-content/uploads/2020/02/meter_reg.pdf

⁹ The last meter with serial number 0803022 installed was replaced with new meter with serial number 06606097

¹⁰ The last meter with serial number 06606097 installed was replaced with new meter with serial number 08030221

04-January-2015 to 03-January-2016	Main Meter	08030221	L&T	ER300P	0.5s	04-12-2010	Last date of calibration applicable to this Year as per CEA: 22-07-2014 ¹¹	21-07-2019
04-January-2016 to 03-January-2017	Main Meter	08030221	L&T	ER300P	0.5s	04-12-2010	Latest calibration Date: 28-03-2016	27-03-2021

Energy meter identification, calibration and accuracy details

Measures to ensure the Results / uncertainty analysis of the monitoring procedure: As per the **Power Purchase Agreement (PPA)**, for measuring the delivery/import of Energy by the company at the interconnection point, one set of Main Meter (part of Interconnection facilities) and Check Meter shall be provided by the Company and the Board respectively at the interconnection point.

The calibration of monitoring equipment is being maintained as per the requirement of HPSEB.

Current scenario for Check Meter:

The Check meter was not installed by the Board at the time of commissioning of the project and neither has it been installed till now & despite of reminders¹² from the project proponent the check meter has not been re- installed by the Board till now. The reading of main meter is being used for billing.

Details of Reminder to HPSEB for Check Meter:

The responsibility of installing Check meter solely lies upon the HPSEB. Therefore the PP is continuously reminding HPSEB with a note contained in every month's Joint Meter Reading Report¹³, which is jointly signed with the concerned HPSEB officials and sent along with the monthly bill(s) raised on HPSEB, the payment of which is released by HPSEB every month. Apart from these monthly reminders, the PP has reminded HPSEB for the installation of the Check

¹¹ It is to note that there is no regular practice followed by HPSEB for calibration. It is at the sole discretion of the state electricity board that the calibration of meters is conducted. Which is why the PP is requesting the calibration frequency for once in five years as per nationally approved and mandated standard stated in CEA order dated 17-March-2006; para 18(b) that "all the meters shall be tested once in five years."

¹² The Evidences of the reminder to the Board for installing the Check meter is being submitted to the DOE along with this MR as follows:

¹³ A sample of JMR is being submitted herewith which clearly displays the 'note reminder' for check meter.

Meter on dated – 04-June-2008¹⁴ & 04-May-2009¹⁵. (All the necessary evidences are being submitted to the DOE along with this MR).

The energy meter calibration certificates/23/ are checked and found that the calibration details provided in the MR /1/ are correct. From the verification of above table, verification team also confirms that the energy meter calibrations are valid for the complete monitoring period i.e., from 04-January-2009 to 03-January-2017, including both the start and end dates.

Data recording:

Records of the monthly joint meter reading of net energy exported to the grid are maintained by PP and HPSEB. Daily and monthly reports stating the generation, auxiliary consumption, Total electricity export and import, diesel consumption are prepared by the shift in-charge in PP.

The electricity will be monitored through state-of-the-art sealed and tested meters. The metering system comprise of Main meter installed at the sub-station recording net electricity generation. The net metered electricity generation data will be used to calculate and monitor the greenhouse gas emission reductions from the project. Main meter reading installed at substation is the basis of billing and emission reduction calculations, which can be cross-checked in the JMRs.

During this monitoring period the energy meters are found to be within prescribed limits of accuracy. These are tri-vector meters of L&T make with digital display and are of 0.5s accuracy class. Also, prescribed meter calibration is as per industrial standards in the project implemented area. Once in five years is considered (Please refer requested deviation in section 3.3 of this report). All the main meters are tested by PGCIL (Power Grid Corporation of India Limited) on a periodic basis under the purview/sole discretion of state electricity authority i.e., HPSEB. In case of any faulty readings observed appropriate corrective action will be taken. If the error is found beyond the permissible limits, the PP will inform the respective agency so as to immediately rectify the error in the instrument. PGCIL, being a government owned company, is deemed to be a competent authority. The energy meters used during the current monitoring period are deemed to be working satisfactorily if the errors are within the meter specifications of accuracy class, and if any meter found with error beyond permissible limits of error, readings of other meter will be considered, and the defective meter will be replaced with new meter. All meter data will be stored in electronic and paper formats.

14 Letter to the Chief Engineer, HPSEB from Project proponent, where there was a clear reminder request for Check meter installation (being submitted along with)

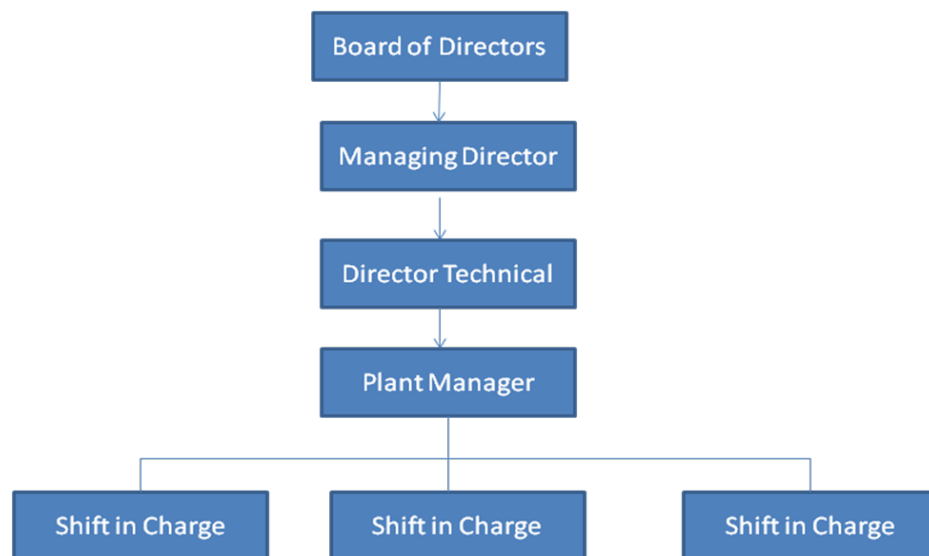
15 Letter to the Chief Engineer, HPSEB from Project proponent, there was again a clearly reminder request to the Board for Check meter installation. (being submitted along with)

Frequency:

Monthly Joint Meter Reading (JMR) of main meters installed at the substation are taken and signed by authorized officials of PP and HPSEB. Daily data recording by the shift in-charge of PP are available at the generation end and interconnection point. JMR are the basis for monthly invoice of net energy exported to the grid.

- **Monitoring roles and responsibilities.**

Operational & Management Structure- The proposed operational and management structure for the project activity for the purpose of monitoring of emission reductions, leakage effects etc. is shown below:



Internal Audit: The Project Proponent (PP) conducts an annual internal audit, and as needed, to verify that the monitoring plan complies with VCS Standards and other relevant laws and regulations, and adheres to the procedures specified in the Project Design Document .

Handling Non-conformances: Any non-conformity observed in the monitoring plan is reported to the VCS board during verification, along with the corrective actions taken by the PP.

Personnel Training: To ensure proper functioning of the project activity and effective monitoring of emission reductions, staff are trained. Plant helpers are trained in equipment operation, data recording, report writing, operation and maintenance, and emergency procedures such as declaring an emergency, sounding alerts, evacuating danger zones, closing main shutoffs, calling for external aid, and conducting internal inspections, in compliance with the monitoring plan.

Emergency Preparedness: If the Main energy meter is found to be outside acceptable limits of accuracy, faulty, or not functioning properly, it will be repaired, recalibrated, or replaced promptly. If the Main meter is out of service for maintenance, repairs, or testing, a standby calibrated meter is installed and used for readings. If any meters are found to be outside acceptable limits of accuracy or faulty, they will be calibrated immediately. The error percentage found in the main

meter during its calibration will be applied to its metered energy data for the entire period since its last calibration to obtain the corrected value of net electricity exported to the grid.

Data Adjustment in case of monitoring period different from billing period:

The net electricity supplied to the grid would be reported as the difference between the net export and import from the solar plant. The electricity export and import data are monitored via main, check and standby meters connected to the sub-station.

In case the dates of a particular monitoring period do not match with the dates of the billing period, the net electricity exported to the grid would be calculated as follows:

$D = (A/B) * C$ Where:

A = Difference of number of days which are not matching of billing period and monitoring period.

B = Number of days of the billing period/ month which was not matched with the monitoring period.

C = Net Electricity supplied to the grid for that given billing period/ month

The calculated value after apportioning would be used for calculation of emission reductions during that period.

During onsite visit /33/ the verification team checked all the meters and confirmed that the meters were working satisfactorily. Also, the calibration of meters is completely under purview of Himachal Pradesh State Electricity Distribution Company Limited and PP has no control over the same as confirmed through interviews of site personnel /34/.

Hence it can be concluded that the approach followed by the PP is conservative and in line with the guidelines provided under paragraph 3.4.2 of Validation and verification manual version 3.2/10/.

The assessment team has verified the JMRs /24/ issued by DISCOM to PP & Invoices/25/issued to DISCOM identified in the Project Description confirmed that only the data recorded through main meters is used to calculate net electricity supplied to the grid consequently for ER calculations recorded in ER sheet /2/.

In view of the above discussion the VKU assessment team is able to confirm that evidence used to determine the GHG reductions and removals are sufficient and appropriate with respect to quality and quantity.

GHG Calculations:

The emission reduction as per the applied methodology equals the baseline emissions Project emissions & leakage emissions. For such project activities leakage emissions is considered zero). The formula provided for the calculation of baseline emissions is already discussed in section 4.4 above.

Project Emissions:

For the current monitoring period 04-January-2009 to 03-January-2017 (inclusive of both the days):

$$PE_y = 0 \text{ tCO}_2\text{e}$$

(Due to zero consumption of Diesel during current monitoring period)

Leakage Emissions: No leakage emissions are considered for the project activity since no energy generating equipment is transferred from another activity and/or the existing equipment is transferred to another activity. Therefore,

$$LE_y = 0 \text{ tCO}_2\text{e}.$$

The baseline emissions are calculated as follows:

$$BE_y = EG_y \times EF_y$$

Where,

BE_y : Baseline emissions in year y ($\text{tCO}_2\text{e/yr}$)

EG_y = Net Electricity export to the grid by the project during the year y (MWh)

EF_y = the baseline emission factor for a given year (tCO_2/MWh)

As per Project Description, the baseline emission factor for grid connected power generation in year y calculated using the latest version of the “Tool to calculate the emission factor for an electricity system version 01.1¹⁶”

Here,

For the current monitoring period 04-January-2009 to 03-January-2017 (inclusive of both the days)

Baseline emissions (BE_y): 44,175 tCO_2e

Project emissions (PE_y): 0 tCO_2e

Leakage (LE_y): 0 tCO_2e

Net Emission Reductions (ER_y): 44,175 tCO_2e

¹⁶ <https://cdm.unfccc.int/methodologies/PAmethodologies/tools/am-tool-07-v1.1.pdf>

Emission Reduction Achievement:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e) (Round Down vintage wise)
04-January-2009 to 31-December-2009	6,028	0	0	6,028
01-January-2010 to 31-December-2010	6,023	0	0	6,023
01-January-2011 to 31-December-2011	4,768	0	0	4,768
01-January-2012 to 31-December-2012	6,186	0	0	6,186
01-January-2013 to 31-December-2013	4,431	0	0	4,431
01-January-2014 to 31-December-2014	5,679	0	0	5,679
01-January-2015 to 31-December-2015	4,450	0	0	4,450
01-January-2016 to 31-December-2016	6,560	0	0	6,560
01-January-2017 to 03-January-2017	50			50
Total	44,175	0	0	44,175

(It is to note that the value of Net GHG emission reductions or removals (tCO₂e) calculated above is rounded down vintage wise, to keep up with the conservativeness of the Emission Reductions Calculation.)

The verification team attests to the correctness of the formulas and methodologies used to compute baseline emissions. The applied default values, emission factors, and assumptions in the calculations are all reasonable. The assumptions, emission factors and default values that were applied in the calculations are justified. The actual emission reduction achieved during the

current monitoring period are 7.74 % lower than the estimated emission reductions/2/. We as VKU Assessment Team accepted this as this is mainly due to the reasons for the less net electricity generation which is indirectly due to water flows availability in the run of the river and less power generation during the lean season, which are not under the control of project participant during the monitoring period. The electricity produced by a Hydro plant relies on the amount of water passing through it, and changes in water availability can have an impact on its output. which in turn, affect the amount of electricity generated. Hence, it is acceptable to the VKU Assessment Team. All the data were had been available to the assessment team by PP during site visit/33/ and as supporting evidences which have been monitored as per required monitoring frequency. The means of verification for the values of parameters, used for baseline emission calculation, is described above. Hence the -7.74% actual lower emission reduction achieved during the current monitoring period neither affects additionality nor there is any deviation from the registered monitoring plan.

The assessment team has checked and confirmed the emission reduction calculations in the spreadsheet and found to be accurate. The monitoring report/1/ is supported by emission reduction spreadsheet/2/. The consistency and formula were verified and found to be accurate.

VKU is of the opinion that this method of calculation of emission reductions is accurate and results in conservative estimation of emission reduction and is in line with the applicable VCS requirements set out in section 3.15 of VCS Standard version 4.5 and that the verification of the GHG statement was conducted in accordance with ISO 14064-3; 2019.

4.6 Non-Permanence Risk Analysis

There is no non-permanence risk that could lead to material errors, omissions or misstatements rating determined by the project proponent for the project activity and no risk was identified in the audit/verification plan hence not applicable.

5 VERIFICATION OPINION

VKU Certification Pvt. Ltd. has performed the second verification for the duration of monitoring period from 04-January-2009 to 03-January-2017 (Including both dates for period) of the fixed crediting period (04-January-2007 to 03-January-2017 which is inclusive of both dates) for the project activity “1 MW Jiwa Small Hydel Project in Kullu, Himachal Pradesh.” in India, VCS Registry Project ID 531, with regard to the relevant requirements for VCS activities. The project amounts removal of **44,175 tCO₂e** of carbon dioxide equivalent (tCO₂e).

These reported reductions have been assessed in accordance with the relevant requirements outlined in the VCS Standard, version 4.5/00/.

The project proponents of the “1 MW Jiwa Small Hydel Project in Kullu, Himachal Pradesh.” project is responsible for:

- The preparation of greenhouses gas emissions data and the reported greenhouse gas emission reductions from the project on the basis set out in the monitoring plan contained in Project Description.
- The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of greenhouse gas emission reductions of the project.

It is the responsibility of VKU to express an independent verification opinion about the project’s conformity with the requirements of VCS Standard version 4.5/09/ and GHG program applied, on the reported greenhouse gas emission reductions from the project.

Based on documented evidence and corroborated by an on-site assessment, VKU can confirm that:

- The project has been implemented and operated as per the monitoring plan.
- The monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable VCS Standard version 4.5/09/ requirements;
- The monitoring plan in the Project Description is as per the applied baseline and monitoring methodology.

VKU Certification verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. VKU Certification planned and performed the verification by obtaining evidence and other information and explanations that VKU Certification considered necessary to give **reasonable assurance** that reported GHG emission reductions are fairly stated.

As per VCS Standard Version 4.5, clause 4.1.23, 4.1.24 and 4.1.25, VKU is of opinion that GHG emission reduction stated in the **monitoring report version 1.3 of 04-September-2024** for the

“1 MW Jiwa Small Hydel Project in Kullu, Himachal Pradesh.” in India for the period 04-January-2009 to 3-January-2017(Including both dates) **are fairly and correctly stated.**

Table No 12: Opinion/Conclusion by Validation-Verification Body

Opinion	Final Documents	Monitoring Period	Emission Reductions achieved	Remarks
Positive opinion ☒ Negative Opinion ☐ Adverse Opinion ☐ Unmodified Opinion ☒ Modified Opinion ☐	Monitoring Report Version 1.3 dated 04-September-2024 Emission Reduction Sheet Version 1.1 dated 27-February-2024	04-January-2009 to 03-January-2017 (Inclusive of both the days)	44,175 tCO₂e	The GHG emission reductions are calculated on the basis of approved methodology AMS. I.D.: Grid-connected renewable electricity generation- Version 13.0 /12/ and the monitoring plan.
Hence VKU is able to certify that the emission reduction from the project during the current monitoring period 04-January-2009 to 03-January-2017 (Including both dates) amounts to 44,175 tCO₂e assessed in line with the applicable VCS requirements set out in section 3.15 of VCS Standard version 4.5/09/ The VVB hereby issues a positive and unmodified opinion meticulously drafted in strict accordance with ISO 14064-3:2019, /38/ Section 09, and the precise provisions of Clause 9.7.1.6 & 9.7.2 of ISO 14065:2020. /39/ This opinion stands in full alignment with the exacting requirements delineated in ISO/IEC 17029:2019, Section 9.7./40/ Our verification process provides a robust and reasonable level of assurance regarding the veracity of the reported GHG emission reduction data. This data is devoid of any material misstatements and is steadfastly supported by the evidence furnished by the Project Proponent (PP), comprehensively presented in <u>Table 04</u> of this report.				

Verified GHG emission reductions and removals in the above verification period, broken down by calendar year:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
04-January-2009 to 03-January-2017	44,175	0	0	44,175
Total	44,175	0	0	44,175

Verified GHG emission reductions and removals in the above verification period:

Year	Ex-ante emissions reductions /removals	Achieved emissions reductions /removals	Percent difference	Justification for the difference
Verification period: 04-January-2009 to 03-January-2017 (Including both dates)	47,880.77	44,175	-7.74%	There has been a decrease of -7.74% in Emission Reductions (ER) compared to the ex-ante estimations. This decrease is primarily attributed to the lower Plant Load Factor achieved during the current Monitoring Period (MP), which is a result of lower water availability/flows in the region for power generation. This decrease is a natural phenomenon beyond the control of the project developer. Therefore, the variation in generation is expected due to the limited water availability. For detailed calculations, please refer to the Emission Reduction (ER) sheet.

APPENDIX A: ABBREVIATIONS

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CER(s)	Certified Emission Reduction(s)
CH ₄	Methane
CL	Clarification Request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EF	Emission Factor
ER	Emission Reductions
PPA	Energy Wheeling Agreement
FAR	Forward Action Request
GHG(s)	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
MoV	Means of Verification
MR	Monitoring Report
HPSEB	Himachal Pradesh State Electricity Board Limited
NGO	Non-governmental Organization
ODA	Official Development Assistance
PD	Project Design Document
PE	Project Emission
PP(s)	Project Proponent(s)
PPA	Power Purchase Agreement

Ref.	Document Reference
SLDC	State Load Dispatch Centre
SS(s)	Sectoral Scope(s)
TA(s)	Technical Area(s)
UNFCCC	United Nations Framework Convention on Climate Change
VCU	Verified Carbon Unit
VKU	VKU Certification Ltd.
VVS	Validation and Verification Standard

APPENDIX B: AUDIT FINDINGS

Project Title: 1 MW JIWA SMALL HYDRO ELECTRIC PROJECT IN KULLU DISTRICT OF HIMACHAL PRADESH

CL: Clarification Request 03

CAR: Corrective Action Requests 03

FAR: Forward Action Request 00

Description of Clarification Requests (CLs) raised by VVB:

Type	Date	18-November-2023
CL#01	Reference	Section of verification protocol 01/DR/OSV/AT Section of verification protocol 02/DR/OSV/AT
Description of the Non-Conformance		
On the title page of MR: The assessment team found that the previous verification report also included the initial 3 days of January that are now included again in the monitoring period. Clarify the query. On the title page of MR: Are the dates inclusive of the whole duration of the monitoring period? - PP has not submitted the Project's PD and some supporting documents to verify the data further. In Section 1.1 of MR: - Whether the value mentioned is for the current monitoring period or since commissioning? - PP has to not submitted Power Purchase Agreement (PPA). In Section 2.2 of MR: The Assessment team is unable to track down information related to the mechanism of ongoing communication, procedures used for documenting the outcomes, and account of inputs received. In Section 2.2 of MR: PP has not provided the evidences for verifying the Stakeholder meeting information.		
1 st Response from PP	Date	27-February-2024
On the title page of MR: The ER Sheet has been updated. On the title page of MR: The details of inclusive of first and last date are added. - Since VCS PD was not accessible, PP has submitted all other supported documents related to this project activity. In Section 1.1 of MR: - The value mentioned is for the current monitoring period. - Power Purchase Agreement (PPA) has been submitted by the PP. In Section 2.2 of MR: PP has updated the information related to the mechanism of ongoing communication, procedures used for documenting the outcomes, and account of inputs received in the particular section of MR. In Section 2.2 of MR: PP has provided the required evidences for verifying the Stakeholder meeting information.		

1stAssessment by Audit Team	Status	Closed	Date	27-February-2024
1) On the title page of MR: The monitoring period date has been updated and are found correct. (Closed) 2) On the title page of MR: PP has clarified that the dates are inclusive of first and last date. (Closed) 3) PP has submitted some other supporting documents to verify the data which are found correct by the assessment team. (Closed) 4) In Section 1.1 of MR: a) PP has clarified that the value mentioned is for the current monitoring period and it is found correct. (Closed) b) PP has now submitted Power Purchase Agreement (PPA). (Closed) 5) In Section 2.2 of MR: PP has updated the information related to the mechanism of ongoing communication, procedures used for documenting the outcomes, and account of inputs received in the particular section of the updated version of MR which is found correct by the assessment team. (Closed) 6) In Section 2.2 of MR: PP has now provided the evidence for verifying the Stakeholder meeting information. (Closed) Hence, CL#01 is closed successfully.				

Type	Date	18-November-2023
CL#02	Reference	Section of verification protocol 03/DR/OSV/AT Section of verification protocol 04/DR/OSV/AT Section of verification protocol 05/DR/OSV/AT
Description of the Non-Conformance		
1) In Section 3.1 of MR: PP has not provided the commissioning letter. 2) In Section 4.1 of MR: PP has not provided the evidence for IPCC default values. 3) In Section 4.2 of MR: a) PP has not submitted the copy of Monthly Joint Meter Readings (JMRs) to assessment team. b) PP has not submitted the copy of invoices to assessment team. c) PP has not submitted the Plant Records to assessment team. 4) In Section 4.3 of MR: PP has not provided calibration certificates to the assessment team for data verification. 5) In Section 5.1 of MR: Sample calculations are not mentioned in the MR. 6) In Section 5.2 of MR: Methodology was found inconsistent throughout the MR. 7) In ER Sheet: a) PP has to provide reference for this (Quantity of diesel combusted (FC diesel,DGset,y)) calculation. b) Calorific Value is not consistent with MR Version 01 submitted by PP.		

1 st Response from PP		Date	27-February-2024	
1) In Section 3.1 of MR: The commissioning letter has been provided.				
2) In Section 4.1 of MR: The required evidence for IPCC default values has been provided by the PP.				
3) In Section 4.2 of MR:				
- Copy of Monthly Joint Meter Readings (JMRs) has been submitted by the PP. - Copy of invoices has been submitted by the PP. - Plant Records has been submitted by the PP.				
4) In Section 4.3 of MR: Calibration certificates has been provided the PP to assessment team for data verification.				
5) In Section 5.1 of MR: Sample calculations has been provided in th MR.				
6) In Section 5.2 of MR: Methodology has been updated throughout the MR.				
7) In ER Sheet:				
- Reference has been already provided. - This has been updated.				
1 st Assessment by Audit Team	Status	Closed	Date	27-February-2024
1) In Section 3.1 of MR: PP has now provided the commissioning letter to verify the date of commissioning of the project activity. (Closed)				
2) In Section 4.1 of MR: PP has now provided the evidence for verifying the IPCC default values. (Closed)				
3) In Section 4.2 of MR:				
4) a) PP has now submitted the copy of Monthly Joint Meter Readings (JMRs) to assessment team to verify the ER sheet. (Closed)				
b) PP has now submitted the copy of invoices to assessment team. (Closed)				
c) PP has submitted the Plant Records to assessment team. (Closed)				
5) In Section 4.3 of MR: PP has provided calibration certificates to the assessment team for data verification. (Closed)				
6) In Section 5.1 of MR: Sample calculations are mentioned in the updated version of MR. (Closed)				
7) In Section 5.2 of MR: Methodology is now updated and found consistent throughout the updated version of MR. (Closed)				
8) In ER Sheet:				
9) PP has provided reference for this (Quantity of diesel combusted (FC diesel,DGset,y)) calculation. (Closed)				
10) The criteria for Calorific Value is made consistent with MR Version 02 submitted by PP. (Closed)				
Hence, CL#02 is closed successfully.				

Type		Date	29-February-2024
CL#03		Reference	Section of verification protocol 01/DR/TR Section of verification protocol 02/DR/TR
Description of the Non-Conformance			
1) In Section 1.7 of MR: Please clarify the part of the HEPP which this coordinate indicates. OPEN.  2) In Section 1.11 of MR: Please clarify the statement “Total contribution over the lifetime is more which can be referred from the annual production units”. 3) In Section 2.2 of MR: Please clarify the frequency of monitoring/recording is performed at site for monitoring parameter DCy.			
1stResponse from PP		Date	29-February-2024
1) This indicates the power plant site where the turbine of the project is installed. 2) The section has been revised. 3) The frequency is Recorded monthly and aggregated annually.			
1stAssessment by Audit Team	Status	Closed	Date 29-February-2024
1) In Section 1.7 of MR: 2) PP has clarified that the mentioned coordinate indicates the turbine of the HEPP Project. 3) In Section 1.11 of MR: PP has revised the section 1.11 of the MR, as verified by the assessment team. 4) In Section 2.2 of MR: PP has clarified that the the frequency is Recorded monthly and aggregated annually. Hence, CL#03 is closed successfully.			

Description of Corrective Action Requests (CARs) raised by VVB:

Type	Date	18-November-2023
CAR#01	Reference	Section of verification protocol 01/DR/OSV/AT
Description of the Non-Conformance		
1) On the title page of MR: - The assessment team could not trace down any page number throughout the MR. - Monitoring Period is not consistent with the contract Signed by PP with VKU. 2) In Section 1.1 of MR: - The assessment team is unable to find the total GHG emission reduction or removals generated in this monitoring period. - PP has not incorporated Audit history of the project in the MR. - Assessment team is unable to track the name of the grid, where the electricity is exported. 3) In Section 1.2 of MR: - The assessment team found no description regarding the AFOLU project category and whether the grouped project criteria are applicable to this project. - The methodology version is non-uniform throughout the MR. 4) In Section 1.4 & 1.6 of MR: The assessment team found section 1.4 & 1.6 in not consistent with the VCS MR Template, Version 4.2. 5) In Section 1.7 of MR: - During desk review by using google earth pro, assessment team not found any Power plant.  - The assessment team found that the map is very vague and does not indicate the project location precisely. 6) In Section 1.8 & 1.9 of MR: These sections are not as per the requirements of VCS MR Template Version 4.2. 7) In Section 1.11 of MR: The table is found inconsistent as per the requirements of VCS MR template version 4.2 requirements.		
1stResponse from PP	Date	27-February-2024
1) On the title page of MR: - Page number has been updated throughout the MR. - Monitoring Period has been updated. 2) In Section 1.1 of MR:		

- The total GHG emission reduction or removals generated in this monitoring period has been updated by the PP in the MR. - Audit history table has been incorporated in the MR for this particular project activity. - PP has updated the name of the grid from where the electricity is exported.				
3) In Section 1.2 of MR: - This section has been updated as per the MR. - The methodology version is made uniform throughout the MR.				
4) In Section 1.4 & 1.6 of MR: The section 1.4 & 1.6 has been updated with the VCS MR Template, Version 4.2.				
5) In Section 1.7 of MR: - This has been corrected. - Map has been updated.				
6) In Section 1.8 & 1.9 of MR: The sections has been updated as per the requirements of VCS MR Template Version 4.2.				
7) In Section 1.11 of MR: The table has been updated.				
1stAssessment by Audit Team	Status	Closed	Date	27-February-2024
1) On the title page of MR: a) PP has updated the Page number throughout the MR. (Closed) b) The Monitoring Period has been updated by the PP. (Closed)				
2) In Section 1.1 of MR: a) The total GHG emission reduction or removals generated in this monitoring period has been updated by the PP in the updated version of MR. (Closed) b) An audit history table for this particular project activity has been incorporated in the updated version of MR. (Closed) c) PP has updated the name of the grid from where the electricity is exported. (Closed)				
3) In Section 1.2 of MR: a) This section has been updated by the PP as per the MR filling guidelines. (Closed) b) The methodology version is made uniform throughout the MR by the PP. (Closed)				
4) In Section 1.4 & 1.6 of MR: The section 1.4 & 1.6 has been updated in version 2 of MR with the VCS MR Template, Version 4.2. (Closed)				
5) In Section 1.7 of MR: a) This section has been corrected by the PP. (Closed) b) Map has been updated by the PP and found correct by the assessment team. (Closed)				
6) In Section 1.8 & 1.9 of MR: The sections have been updated by the PP as per the requirements of VCS MR Template Version 4.2. (Closed)				
7) In Section 1.11 of MR: The table has been updated by the PP in the updated version of MR (Closed)				
Hence, CAR#01 is closed successfully.				

Type	Date	18-November-2023
CAR#02	Reference	Section of verification protocol 02/DR/OSV/AT Section of verification protocol 03/DR/OSV/AT

		Section of verification protocol 04/DR/OSV/AT Section of verification protocol 05/DR/OSV/AT
Description of the Non-Conformance		
1) In Section 2.2 of MR: a) The Assessment team is unable to track down information related to the mechanism of ongoing communication, procedures used for documenting the outcomes, and account of inputs received. b) The assessment team is unable to trace the information in the annexure. 2) In Section 3.2.1, 3.2.2 & 3.2.3 of MR: These sections are not as per the requirements of VCS MR Template Version 4.2. 3) In Section 4.1 of MR: The table is found inconsistent with respect to the section 4.1 of VCS MR template version 4.2. 4) In Section 4.2 of MR: The table is found inconsistent with respect to the section 4.2 of VCS MR template version 4.2. 5) In Section 4.3 of MR: a) This section is found inconsistent with the MR template version 4.2. As Frequency of measurement, training, emergency procedure and QA/QC procedures are not found in the MR by the assessment team. b) As per template version 4.2, (the organizational structure, responsibilities, and competencies of the personnel that carried out the monitoring activities), this information is missing in this section of MR. c) Assessment team not able to trace down any meter information throughout the MR. 6) In Section 5.1 of MR: PP has not quantify the baseline emissions and/or removals for current monitoring period, as per the requirements of VCS MR Template version 4.2. 7) In Section 5.4 of MR: The provided justification is not enough explanatory to justify the percentage difference.		
1stResponse from PP	Date	27-February-2024
1) In Section 2.2 of MR: a) This has been updated. b) Annexure has been added. 2) In Section 3.2.1, 3.2.2 & 3.2.3 of MR: These sections has been updated as per the requirements of VCS MR Template Version 4.2. 3) In Section 4.1 of MR: The table has been updated with respect to the section 4.1 of VCS MR template version 4.2. 4) In Section 4.2 of MR: The table has been updated with respect to the section 4.1 of VCS MR template version 4.2. 5) In Section 4.3 of MR: a) The section has been updated as per the MR template version 4.2. As Frequency of measurement, training, emergency procedure and QA/QC procedures has been provided. b) The section has been updated. c) Meter information has been updated throughout the MR. 6) In Section 5.1 of MR: PP has updated the baseline emissions and/or removals for current monitoring period, as per the requirements of VCS MR Template version 4.2.		

7) In Section 5.4 of MR: Required Justification has been updated to justify the percentage difference.				
1stAssessment by Audit Team	Status	Closed	Date	27-February-2024
1) In Section 2.2 of MR: a) This section has been updated by the PP and found correct by the assessment team. (Closed) b) Annexure has been added by the PP in the updated version of MR. (Closed) 2) In Section 3.2.1, 3.2.2 & 3.2.3 of MR: These sections has been updated by the PP as per the requirements of VCS MR Template Version 4.2. (Closed) 3) In Section 4.1 of MR: The table has been updated by the PP with respect to the section 4.1 of VCS MR template version 4.2. (Closed) 4) In Section 4.2 of MR: The table has been updated by the PP with respect to the section 4.1 of VCS MR template version 4.2. (Closed) 5) In Section 4.3 of MR: a) The section has been updated by the PP as per the MR template version 4.2. As Frequency of measurement, training, emergency procedure and QA/QC procedures has been provided. (Closed) b) The section has been updated by the PP. (Closed) c) Meter information has been updated throughout the MR by the PP. (Closed) 6) In Section 5.1 of MR: PP has updated the baseline emissions and/or removals for current monitoring period, as per the requirements of VCS MR Template version 4.2. (Closed) 7) In Section 5.4 of MR: Required Justification has been updated to justify the percentage difference. (Closed) Hence, CAR#02 is closed successfully.				

Type	Date	29-February-2024
CAR#03	Reference	Section of verification protocol 01/DR/TR Section of verification protocol 03/DR/TR Section of verification protocol 04/DR/TR
Description of the Non-Conformance		
1) In Section 1.9 of MR: The link for Universal Carbon Registry (UCR ID 118) is not pointing to the project specifically. 2) In Section 1.11 of MR: - Use terms consistent with the VCS program definitions. - The targets are not matching with the SDG indicator i.e., strengthen the financial conditions of local population. - The target 8.8 is not as per the SDG targets mentioned in UNSDG website. 3) In Section 3.1 of MR: - Final voltage is not consistent with the project description earlier.		

• PP to ensure that voltage ratings are consistent throughout the report • The SLD does not demarcate the plant boundary and project boundary. Does not mention the location of monitoring equipment. 4) In Section 4.3 of MR: • PP to provide the procedures applied when meter fails at site till the time meter is replaced. • How is this in line with guidance and conservative on delayed calibration or error in calibration. • This statement (The electricity export and import data are monitored via main, check and standby meters connected to the sub-station) is not consistent with earlier statement that only main meter is operating at site. 5) In APPENDIX 3: Calibration period is not covering the MP and incomplete information				
1 st Response from PP		Date		29-February-2024
1. The link is correctly working 2. Section 01 has been revised to include • Terms has been made consistent with the VCS program definitions. • SDG indicator table has been revised 3. Section 03 has been revised. • Final voltage is now been made consistent with the project description • The voltage ratings are made consistent throughout the report • The SLD has been revised. 4. Section 04 has been revised. 5. Calibration. Table has been revised				
1 st Assessment by Audit Team		Status	Closed	Date
				29-February-2024
1) In Section 1.9 of MR: PP has provided the working link, as verified by the assessment team. 2) In Section 1.11 of MR: PP has revised the VCS Program definitions, and section 1.11 of MR, as verified by the assessment team. 3) In Section 3.1 of MR: • PP has revised the final voltage and now it is consistent with the project description, as verified by the assessment team. • The voltage ratings have been updated by the PP and now it is consistent throughout the report, as verified by the assessment team. • The SLD has been revised, as verified by the assessment team. 4) In Section 4.3 of MR: PP has revised the statements regarding the meter calibration and energy measurement procedures in section 4.3 of MR, as verified by the assessment team. 5) In APPENDIX 3: Calibration Table has been revised in MR, as verified by the assessment team. Hence, CAR#03 is closed successfully.				

Description of Forward Action Requests raised by VVB:

Type		Date	DD-Month-YYYY	
FAR		Reference	Section of Val/Ver protocol	
Description of the Non-Conformance				
1stResponse from PP		Date	DD-Month-YYYY	
1stAssessment by Audit Team	Status	Open/Closed	Date	DD-Month-YYYY

APPENDIX C: COMPETENCE STATEMENT

Team Leader



Certification Pvt. Ltd.

VKU.F50W. Competence Statement

COMPETENCE STATEMENT

Name	Barun Kumar
Nationality	Indian
Countries of Experience	India, South Africa, Kenya, Uganda, DR Congo, Zambia
Education Qualification	B.Sc. (Environmental Science & Water Management) M.Sc. (Ecology & Environmental Sciences)
Year of Experience	12 Years +
Area of Expertise	Climate Change & Environment
Eligible Sectoral Scope	TA 1.2 - Renewables TA 3.1 - Energy Demand TA 6.1 - Construction TA 7.1 - Transport

Roles

Project Trainee	NO
Validator/Verifier Trainee	NO
Validator	NO
Verifier	NO
Team Leader	YES
Technical Reviewer	YES
Local Expert (Country Wise)	YES
TA Expert (1.2, 3.1, 6.1, 7.1)	YES
Financial Expert	NO

Reviewed by	Vandana Gupta (Quality Manager)	Date	06/12/2022
Approved by	Vivek Kumar Ahirwar (Technical Manager)	Date	06/12/2022

Validator/Verifier



Certification Pvt. Ltd.

VKU.F50W. Competence Statement

COMPETENCE STATEMENT

Name	Niharika Kaushik
Nationality	Indian
Countries of Experience	India
Education Qualification	B.Sc. (Zoology Honours) M.Sc. (Environmental Sciences)
Year of Experience	2.5+ Years
Area of Expertise	Climate Change & Environment
Eligible Sectoral Scope	NA

Roles

Project Trainee	NO
Validator/Verifier Trainee	NO
Validator	YES
Verifier	YES
Team Leader	NO
Technical Reviewer	NO
Local Expert	NO
TA Expert (X.X)	NO
Financial Expert	NO

Reviewed by	Vandana Gupta (Quality Manager)	Date	09.05.2023
Approved by	Vivek Kumar Ahirwar (Technical Manager)	Date	09.05.2023

Validator/Verifier Trainee



Certification Pvt. Ltd.

VKU.F50W. Competence Statement

COMPETENCE STATEMENT

Name	Anil Dhankar
Nationality	Indian
Countries of Experience	India
Education Qualification	B.Sc. (BCZ) M.Sc. (Environmental Science)
Year of Experience	9 months as Project Trainee in VKU
Area of Expertise	Climate Change & Environment
Eligible Sectoral Scope	NA

Roles

Project Trainee	NO
Validator/Verifier Trainee	YES
Validator	NO
Verifier	NO
Team Leader	NO
Technical Reviewer	NO
Local Expert (Country Wise)	NO
TA Expert (X.X)	NO
Financial Expert	NO

Reviewed by	Vandana Gupta (Quality Manager)	Date	07/07/2023
Approved by	Vivek Kumar Ahirwar (Technical Manager)	Date	07/07/2023

Project Trainee



Certification Pvt. Ltd.

VKU.F50W. Competence Statement

COMPETENCE STATEMENT

Name	Priyanshee Modi
Nationality	Indian
Countries of Experience	India
Education Qualification	M.Sc. (Biotechnology) B.Sc. (Biotechnology)
Year of Experience	Fresher
Area of Expertise	NA
Eligible Sectoral Scope	NA

Roles

Project Trainee	YES
Validator/Verifier Trainee	NO
Validator	NO
Verifier	NO
Team Leader	NO
Technical Reviewer	NO
Local Expert (Country Wise)	NO
TA Expert (X.X)	NO
Financial Expert	NO

Reviewed by	Vandana Gupta (Quality Manager)	Date	05/06/2023
Approved by	Vivek Kumar Ahirwar (Technical Manager)	Date	05/06/2023

Technical Reviewer



Certification Pvt. Ltd.

VKU.F50W. Competence Statement

COMPETENCE STATEMENT

Name	Sanjay Kumar K
Nationality	Indian
Countries of Experience	India
Education Qualification	B.E. (Civil Engineering) M. Tech (Environmental Engineering)
Year of Experience	20 Years +
Area of Expertise	Climate Change & Environment Sustainable Development GHG Footprints
Eligible Sectoral Scope	TA 1.2 - Renewables TA 3.1 - Energy Demand TA 6.1 - Construction

Roles

Project Trainee	NO
Validator/Verifier Trainee	NO
Validator	YES
Verifier	YES
Team Leader	YES
Technical Reviewer	YES
Local Expert (Country Wise)	YES
TA Expert (1.2, 3.1, 6.1)	YES
Financial Expert	YES

Reviewed by	Vandana Gupta (Quality Manager)	Date	03.03.2023
Approved by	Vivek Kumar Ahirwar (Technical Manager)	Date	03.03.2023