



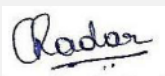
15 MW NAM HINBOUN DOWNSTREAM HYDROPOWER PROJECT



Document Prepared By 4K Earth Science Private Limited

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Report Title	Verification Report: 15 MW Nam Hinboun Downstream Hydropower Project
Client	Kosher Climate India Private limited

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Summary:

4K Earth Science Private Limited (4KES) has performed the verification of the project “15 MW Nam Hinboun Downstream Hydropower Project” VCS ID 3662, against VCS Standard Version 4.4. The project involves installation and operation of 2 bulb turbine of 7.5 MW each for the HPP in Lao PDR. The project is developed by Rasita Power Co., Ltd. The electricity generated by the project activity displaces the grid electricity and there by avoid associated CO₂ emission.

During the current monitoring period, project activity undergoes continued operation since their commissioning and no major breakdown had taken place

The proposed project is a voluntary action being undertaken by Rasita Power Co. Ltd. The Kosher Climate India Private limited (hereafter referred as “Kosher Climate”) is acting as the other party for this project activity.

The scope of verification includes confirming the implementation of the monitoring plan of the registered VCS PD (Version 4, Dated 06-November-2023) and the application of the monitoring methodology “AMS I.D.: Grid-connected renewable electricity generation” Version 18.

This is First crediting period of monitoring period number 04 covered in the verification is 01- August -2022 to 31-October-2023 (including both days)

The verification is consisted of three phases: i) desk review of the project; ii) interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted following 4KES internal quality procedures.

During the verification process 03 CARs, 01 CL and 00 FARs were raised. All the findings have been closed satisfactorily and the same has been discussed in Appendix II.

4KES confirms that the monitoring system is in place and the emission reductions are calculated without material misstatements. The emission reductions from the project activity “15 MW Nam Hinboun Downstream Hydropower Project” during the period 01- August -2022 to 31-October-2023 (including both days) amount to 33,952 tCO₂e.

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1 INTRODUCTION

1.1 Objective

Kosher Climate India Private limited has contracted 4K Earth Science Pvt. Ltd (4KES) to perform VCS Verification of the '15 MW Nam Hinboun Downstream Hydropower Project' in Lao PDR (hereafter called project). This project has already been registered as a VCS project (VCS ID 3662). The objective of this verification is a thorough and independent assessment of registered project activities against the applicable VCS requirement by the DOE. The verification process shall determine whether the proposed project activity complies with the requirements of latest VCS guidelines, applicability conditions of the selected methodology, relevant host country regulations and guidance issued by the VCS Board.

1.2 Scope and Criteria

The verification scope is given as an independent and objective review of the project design and monitoring plan which is included in the MR and other relevant supporting documents.

The scope of work covered in the verification is described below:

- To verify whether the project activity meets the requirements of VCS Standard Version 4.4 /09/ and VCS program guide 4.4/10/ including additionality and compliance with local laws.
- To evaluate whether the baseline and monitoring plan are in conformance with the applied methodology from the VCS approved GHG program.
- To confirm that the information presented are completed, consistent, transparent and free of omission or material error.
- Background investigation and follow up interviews.

The information in the MR is reviewed against the criteria of VCS Standard 4.4 /09/, VCS Program Guide 4.4/10/ and the approved baseline and monitoring CDM methodology

AMS I D Version 18.0- Small-scale methodology for grid-connected renewable electricity generation

4KES has performed verification based on a risk-based approach focusing mainly on the significant risks to meet the qualification criteria and the ability to generate Verified Carbon Units (VCUs).

The scope of verification is to assess the claims and assumptions made in the MR against the VCS criteria, including but not limited to, VCS standard, applied methodology and other relevant rules and requirements established for VCS project activities.

Verification is not meant to provide any consulting towards the client. However, stated request for clarifications and/or corrective actions may provide input for improvement of the project design.

1.3 Level of Assurance

The verification team verified the complete monitoring data for all the parameters of the monitoring plan and confirms that the reported emission reductions are free from any type of material errors. Therefore, 4KES confirms that the verification is conducted with reasonable level of assurance

1.4 Summary Description of the Project

The main purpose of this project activity is to generate clean form of electricity through renewable hydro energy sources. The project activity aims to harness hydro energy through installation of hydro power plant with total installed capacity of 15 MW.

The project activity involves the installation of 15MW Hydro Power Plant with two bulb turbines of 7.5 MW each which were made on 01/02/2021 and an output of 79,740 MWh. The Hydro Power Plant is to supply the power generated directly to the Lao Power Grid. The baseline Scenario which was prevalent in the Lao Power Grid is that the electricity is supplied from the power grid. This project displaces part of the power generated by thermal power plants, the project is therefore expected to reduce CO₂ emissions by an estimation of 44,192 tCO₂e per year during the first crediting period.

The geographical coordinates of the Turbines are given below:

Project Location	Latitude	Longitude
Songhong and Samakhixai Villages, Hinboun District, Khammouane, Lao PDR	17° 43'38" N	104° 34'19" E

Location of the project was verified through Google Map (<https://maps.google.com/maps>) and found consistent with the data provided in the registered PD/4/

All the Turbines of the project activity were commissioned on 01-September-2021. The commissioning date of the project is verified against the commissioning certificates/7/. The WTGs are operational continuously since commissioning without any major outages.

The electricity generated by the project is exported to the Lao Power grid. The project activity will therefore displace an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid. Since Hydro power is Greenhouse Gas (GHG) emissions free, the power generated will prevent the anthropogenic gas emissions generated by fossil fuel based thermal power stations comprising coal, natural gas, diesel, and bunker oil.

As per registered PD, the project activity results in replacing anthropogenic emissions of greenhouse gases (GHG's) estimated to be approximately 44,192 tCO₂e per year.

During the monitoring period from 01-August -2022 to 31-October-2023 (including both days), the project replaced 33,952 of tCO₂e by displacing the 61,266MWh electricity.

2 VERIFICATION PROCESS

The registered VCS project is undergoing Second verification under VCS (1st Crediting period), the approach adopted to ensure the quality of emission reductions is described in the following sections.

2.1 Method and Criteria

4KES assessed and determined whether the proposed implementation and operation of the project activity, and the steps taken to report emission reductions comply with the criteria and relevant guidance provided by the VCS Board. The validation/verification process consist of the following three phases;

- A desk review of the VCS PD and VCS MR
- Follow up interviews with project stakeholders
- The resolution of outstanding issues and issuance of final report and opinion.

The prepared verification report and other supporting documents then undergo an internal quality control before being submitted to the VCS executive board for issuance of credits as per VCS standard version 4.4

2.2 Document Review

The verification is performed primarily as a document review of the approved VCS PD, previous MR and Verification report and associated documents as stated in detail in appendix 1 of this document. The assessment is performed by a verification team using a protocol. The cross checks between information provided in the Monitoring report, VCS PD and information from sources other than those used, if available, the team's sectoral or local expertise and, if necessary, independent background investigations.

2.3 Interviews

As a part of verification, the on-site assessment was performed by assessment team on . During site visit, the verification team interviewed representative of PP and O&M team who is responsible for monitoring of the project activity. Kindly find below names of the persons interviewed (telephonic interview).

Sr. No	Name of the person	Role/Designation
1	Pakaiysit Bountai	Plant Manager
2	Kor Vilaisack	Assistant Plant Manager
3	Daosy Neephanit	Chief Engineer

2.4 Site Visits

As a part of verification, the on-site assessment was performed by assessment team on 19/12/2023. No sampling procedures were adopted in document verification and all the document were cross checked to ensure conservative estimation of emission reduction. The details of the site visit are given below:

Duration of on-site inspection: 19/12/2023				
No.	Activity performed on-site	Site location	Date	Team member
1.	Opening Meeting	Site office	19/12/2023	Anand S R, Ganesh Jithamanyu D V
2	Site visit	Project site	19/12/2023	
3	Verification of monitoring records, interviews and database inspection	Site office	19/12/2023	
4	Closing meeting	Site office	19/12/2023	

2.5 Resolution of Findings

The objective of this step is to identify, discuss and conclude on the issues related to the monitoring, implementation and operations of the registered project activity that could impair the capacity of the registered project activity to achieve emission reductions or influence the monitoring and reporting of emission reductions. This is done based on the desk review and onsite assessment. The verification team prepares and/or updates a verification protocol (internal document) that records the conformities and non-conformities, which may be of following types;

CAR (Corrective Action Request) is raised if one of the following occurs:

- Non-compliance with the monitoring plan, the methodology or the standardized baseline are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

Clarification request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. All CARs and CLs raised by the 4KES during verification shall be resolved prior to submitting a request for issuance.

FAR (Forward Action Request) is raised during verification if the monitoring and reporting require attention and/or adjustment for the next verification period.

During the Verification process, total 03 CARs and 01 CL were raised and resolved satisfactorily. No FAR has been raised in the verification. The list of CARs/CLs/FARs raised and the response provided, the mean of validation, reasons for their closure and references to correction in the relevant documents are provided in Appendix II of this report.

2.5.1 Forward Action Requests

The project activity is undergoing Fourth verification of 1stcrediting period under VCS; there were no FARs raised during the validation or previous verification.

2.6 Eligibility for Validation Activities

The Validation and verification body holds accreditation to carry out both validation and verification activities. The accreditation scope can be checked from the link:

<http://cdm.unfccc.int/DOE/list/DOE.html?entityCode=E-0069>

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The assessment team checked registries of other carbon mechanism such as CDM & Gold Standard and confirmed the project is not registered under any other mechanism. PP has also provided a declaration/16/ that the PP will not claim emission reduction from any other GHG program for the reported monitoring period.

The project is not registered under any other emissions trading program or any other mechanism that includes GHG allowance trading PP also confirms that net GHG emission reductions or removals generated during this monitoring period shall not be used for compliance under any such programs or mechanisms. This was confirmed through a declaration/16/ submitted by the PP and hence accepted by the assessment team.

3.2 Methodology Deviations

There is no methodology deviation applied during the current monitoring period.

3.3 Project Description Deviations

No deviation from the project description is applied during the correction monitoring period.

3.4 Grouped Project

Not applicable. The project activity is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity is installation Nam Hinboun Downstream Hydropower Project promoted by Rasita Power Co., Ltd, in Lao PDR the purpose of the project activity is to generate clean electricity with utilization of Hydro energy. The project location and commissioning details are given below:

Project Investors' Name	RASITA POWER CO. LTD.
Grouped Capacity in MW	15
Commissioning Date	01-February-2021
Location	Songhong village, Hinboun District, Khammouane province, Lao PDR
Geographical Coordinates	Refer section 1.4 above

Starting date of the operation of the project activity is 28-SEPTEMBER-2018 which is the date of commissioning/commercial operation of the hydro plant

The installation and specification of Hydro power project has been checked with Turbine Technical Specification/6/ and commissioning certificates/7/. The commissioning has also been duly validated in the VCS validation report of the project activity/04/. There was no major breakdown or shutdowns during the monitoring period which might affect the applicability of methodology or might cause material errors in emission reductions.

The assessment team confirmed that there is no proposed or actual change to the project design during this monitoring period. However there some corrections applied in the MR which are assessed in section 3.3 above. The project design as mentioned in the registered VCS PD & monitoring report submitted is implemented and thus the same is acceptable to the assessment team. All required monitoring equipment's and procedures as mentioned in the registered VCS PD & monitoring report are available and implemented in an appropriate manner.

The organisational role and responsibility as mentioned in the registered VCS PD & monitoring report is followed onsite. All the monitoring equipment was calibrated as per the specified interval in the registered VCS PD & monitoring report. No delay is observed in Calibration for the current monitoring period and hence the calibration is valid for the complete monitoring period. All the emergency preparedness as mentioned in the registered VCS PD & monitoring report is followed onsite and no discrepancies were found regarding the same.

It was also observed during the verification process that project is not rejected by any other GHG program around the world. Declaration in that effect is also provided by PP.

The assessment team found that the project is in line with the registered VCS PD, monitoring report, and no deviation on project design or monitoring plan is observed.

Assessment team concludes the following:

- There are no material discrepancies between project implementation and the project description provided in the registered PD/04/.
- 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.
- There is no material discrepancies between the actual monitoring system, and the monitoring plan set out in the project description and the applied methodology/08/.
- The GHG emission reductions or removals generated by the project have not included in an emissions trading program or any other mechanism that includes GHG allowance trading/16/.
- The project has not received or sought any other form of environmental credit, or has become eligible to do so since validation or previous verification.

In view of the information's as verified above the assessment team is able to conclude that the project has been implemented as described in the project description.

4.2 Safeguards

4.2.1 No Net Harm

The project is a hydro power project which is a cleaner source of power generation. The hydro power project does not emit any GHG or any other toxic gases. Hence, hydro power plant has no significant impact on the environment.

4.2.2 Local Stakeholder Consultation

As per the section 2.2 of the MR, the projects have continuous feedback mechanism and kept a grievance register to receive any feedback/grievances from stakeholder.

As verified from the copy of grievances register from site/ no grievances/feedback received on the operation of the project activity. Verification team also discussed with the site in-charge and confirmed that no grievances are received during the monitoring period.

4.3 AFOLU-Specific Safeguards

Not Applicable.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The verification team assessed whether the data and calculations of GHG emission reductions achieved resulting from the MR. The verification team has checked whether calculations of baseline GHG emissions, project GHG emissions and leakage GHG emissions have been carried out in accordance with the formulae and methods described in the monitoring plan of the VCS PD and MR.

In detail the following has been verified:

Transparency: It has been checked whether the calculation of baseline emissions is fully traceable and, where used, the Excel calculation provides all calculation formulae.

Parameter consistency: It has been checked whether all internal and external parameters and data used for the calculation are applied consistently in the monitoring report and the calculation spreadsheet.

Correctness: It has been checked whether the applied formulae and methods for calculating baseline emissions are in accordance with the monitoring plan and the approved methodology.

Completeness: It has been checked whether all calculations are complete and without omissions

Baseline emission: The baseline Emissions for a given year is calculated by multiplying the energy baseline (EB) with the regional grid emission factor. The grid in this case would be Lao Power Grid.

Formula Used:-

$$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$$

Where;

BE_y : Baseline emissions in year y (tCO_{2e}/yr)

$EG_{PJ,y}$: Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity in year y (MWh/yr)

$EF_{grid,CM,y}$: Combined margin CO₂ 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” (tCO₂/MWh)

$EG_{PJ,y}$: The verification team has checked the entire monthly JMR/credit reports and invoices applicable for the monitoring period as per the project activity applied for verifications and found all the parameters are monitored and recorded as per the monitoring plan in the approved PD.

The verification team has crosschecked the emission reduction sheet and monitoring report data with the JMR sheet and invoice bills and found all the values are matching.

$EF_{grid,CM,y}$ - As verified from the registered PD the Combined margin CO₂ emission factor for grid is 0.5542 tCO₂/MWh which is fixed ex-ante

Project Emission:

Since the project is a greenfield renewable energy generation facility (Hydro), $PE_y = 0$.

Leakage: As per methodology and registered VCS PD the leakage is zero. $LE_y = 0$.

Emission Reduction:

Emission reduction is calculated as below:

$$ER_y = BE_y - PE_y - LE_y$$

PP has submitted emission reduction the calculation in the excel sheet/2/. The emission reduction calculation in the excel sheet is checked whether the calculation is in accordance with the formula given in the approved PD/4/ and the selected methodologies/8/.

The calculations of emission reduction have been carried out in accordance with the equations and methods described in the registered monitoring plan and applied methodology.

The emission factor applied is an ex-ante value valid for the fixed crediting period.

Any assumptions used in emission or removal calculations have been justified.

Appropriate emission factor and other reference values have been correctly applied. It can be confirmed that the emission reduction calculation is overall correct.

The ER calculation sheet provided is clear, transparent and the calculations provided in the sheet are reproducible.

Hence, the emission reduction reported in the monitoring report for the monitoring period is verified to be correct.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

The only monitoring parameter in the project activity is “Quantity of net electricity generation supplied by the project plant/unit to the grid in year” (**EG PJ, y**). This parameter is monitored through energy meters installed at the project substation. The project has dedicated energy meter at high voltage level and the export and import reading are recorded every month. The EGAT will record the export, import and net electricity (as difference between export & import).

The export, and import & net energy generated will be reported in monthly energy meter reading statement which is the source for the parameter “Quantity of net electricity generation supplied by the project plant/unit to the grid in year” (**EG PJ, y**).

The monthly net export are recorded in monthly energy meter reading statement which is signed by EGAT and PP. The appropriateness of reading is assessed as below:

Criteria/Requirements	Assessment/Observation
Measuring /Reading /Recording frequency	The electricity exported to the grid is determined through static meter reading and bulk energy meter installed at government sub-station. The electricity exported is measured on continuous basis and reported monthly. The calibration validity has been checked and confirmed by the verification team,
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 approved PD/04/ and monitoring methodology/8/.
Monitoring equipment	Energy meters (main & Check) installed at substation.
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 energy meters are two-way tri-vector meters of accuracy class 0.2s. Accuracy of the monitoring equipment's is in accordance with the monitoring plan as outlined in the PD.
Is the accuracy valid for the entire measuring range or do different accuracy levels apply to different measuring ranges?	Yes, the accuracy valid for the entire measuring range.
Calibration frequency /interval:	5 year
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?	Yes
Is the calibration of measuring equipment carried out by an accredited person or institution?	Calibration of the measuring equipment's is carried out by an accredited entity.

Is(are) calibration(s) valid for the whole reporting period?	
Is the calibration carried out for a measuring range comparable with the range for which measurements have been carried out?	Yes, calibration carried out for a measuring range comparable with the range for which measurements have been carried.
How were the values in the monitoring report verified?	Reported values of this parameter have been verified with monthly joint metering/ credit report/12/. Value of this parameter for the current monitoring period are verified and the values is 61,266 MWh Furthermore, monthly values of this parameter are reported in the ER calculation sheet/02/ are also verified with the MR/01/ and found to be consistent.
If applicable, has the reported data been cross-checked with other available data?	The monthly reported values of this parameter were further cross checked with the monthly invoices raised by the PP /13/ and found to be consistent.
Does the data management ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the adequate QA/QC procedures were implemented by all the stakeholders, namely, the Grid Authority, the PP and the O&M team. The Net electricity exported to the grid is cross checked against the invoice raised by the PP towards the EGAT and found to be correct.
In case project participants 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?	No such issues.

Parameter fixed ex-ante:

EF_{grid,OM,y}; tCO₂e/MWh: it is the Operating Margin emission factor for Lao PDR National Grid fixed at the time of project registration and mentioned value of 0. 5542 tCO₂e/MWh is consistent with the registered VCS PD/04/.

EF_{grid,BM,y}; tCO₂e/MWh: it is the Build Margin emission factor for Lao PDR National grid fixed at the time of project registration and mentioned value of 0 tCO₂e/MWh is consistent with the registered VCS PD/04/.

EF_{grid,CM,y}; tCO₂e/MWh: it is the Combined Margin emission factor for Lao PDR National grid fixed at the time of project registration and mentioned value 0.5542 tCO₂e/MWh is consistent with the registered VCS PD/04/.

Calibration of meters: During the verification assessment of the project activity, accuracy of all the metering have been checked and found appropriate. The bulk energy meters installed at the substation are at the control of EGAT and are regularly calculated by EGAT. Details of meter calibration are provided in below table:

Energy Meter	Meter details
Main	SI No: 219014734 Accuracy class: 0.2s Make: EDM I
Backup	SI No: 219014735 Accuracy class: 0.2s Make: EDM I

The energy meter calibration certificates/14/ are checked and found that the calibration details provided in the MR is correct. It is found that energy meters are calibrated as per the required frequency (ie,5 years) except for the period of 21/09/2022 to 20/09/2027.

The assessment team has verified the monthly joint meter reading report issued by respective state utility and confirmed that only the data recorded through main meters is used to calculate net electricity supplied to the grid by the projects belongs to particular developer and consequently for ER calculations. As verified through the calibration certificates, that meters were working satisfactorily during the current monitoring period.

In view of the above discussion the assessment team 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 and leakage emissions for such project activities is considered zero). The formula provided for the calculation of baseline emissions is:

$$BE_y = EG_{PJ,y} * EF_{grid,CM,y}$$

Year	EG _{PJ,y} (MWh)	EF _{grid,CM,y} (tCO ₂ /MWh)	BE _y (tCO ₂)*
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2022	17,176	0.5542	9,518
2023	44,090	0.5542	24,434
Total	61,266	0.5542	33,952

Since project emission and leakage are zero, baseline emission is equal to emission reduction.

$$ER_y = BE_y$$

The emission reduction is estimated for each month in ER calculation sheet, and the summary of emission reduction is as below:

Year	Baseline emissions or removals* (tCO2e)	Project emissions or removals (tCO2e)	Leakage emissions (tCO2e)	Net GHG emission reductions or removals (tCO2e)
2022	9,518	0	0	9,518
2023	24,434	0	0	24,434
Total	33,952	0	0	33,952

The verification team confirms that appropriate methods and formulae for calculating baseline emissions have been followed. The assumptions, emission factors and default values that were applied in the calculations are justified. All the data were made available and have monitored as per required monitoring frequency. The means of verification for the values of parameters, used for baseline emission calculation, is described above.

However, verification team has observed that the actual ER achieved during the current monitoring period is 31 % lower than the estimated ER as per registered PD for the comparable period. Since the emission reduction is less than the estimated emission reduction, no further justification is required.

4.6 Non-Permanence Risk Analysis

Not applicable.

5 VERIFICATION OPINION

4K Earth Science Pvt. Ltd (4KES), contracted by Kosher Climate India Private limited, has performed the independent verification of the emission reductions for the VCS project activity “15 MW Nam Hinboun Downstream Hydropower Project” (VCS ID- 3662) in Lao PDR for the monitoring period 01- August -2022 to 31-October-2023 as reported in the Monitoring Report Version 04 dated 06-November-2023. The Kosher Climate India Private limited and the project proponent are responsible for the collection of data in accordance with the monitoring plan and the reporting of GHG emissions reductions from the project activity. It is our responsibility to express an independent verification statement on the reported GHG emission reductions from the project activity.

4KES commenced the verification on the basis of the baseline and monitoring methodology AMS Version 18.0., the monitoring plan contained in the registered VCS PD and VCS guidelines version 4.4, Monitoring Report (Version 04 dated 06-November-2023) as per the process described under Section 2 of this report.

4KES 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. 4KES planned and performed the verification by obtaining evidence and other information and explanations that 4KES considered necessary to give reasonable assurance that reported GHG emission reductions are fairly stated.

In our opinion the GHG emissions reductions reported for the project activity for the period 01- August -2022 to 31-October -2023 are fairly stated in the Monitoring Report Version 04 dated 06-November-2023. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology AMS, Version 18, and the VCS standard.

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Verification period: From 01-August -2022 to 31-October-2023

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

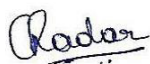
Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2022	9,518	0	0	9,518
2023	24,434	0	0	24,434
Total	33,952	0	0	33,952

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Approved by

Chandrakala R.
Managing Director

Date: 29/02/2024



4K Earth Science Private Limited

Place: Bangalore, India

APPENDIX 1: LIST OF DOCUMENTS

Ref. No	Title of Document	Version	Date
1	VCS Monitoring Report	4.0	06/11/2023
2	Emission Reductions Calculation Spread sheet	1.0	06/11/2023
3	VCS Project page: https://registry.verra.org/app/projectDetail/VCS/3662	-	-
4	Registered VCS Project Description and Monitoring Report	1.0	10/08/2022
5	Registered VCS Verification Report	2.0	28/03/2023
6	Technical specifications of the project plant		
7	Commissioning certificates of the hydro power plant	-	-
8	CDM Methodology: AMS I D: Grid-connected renewable electricity generation	Version 18	-
9	VCS Standard	Version 4.4	17/01/2023
10	VCS Program Guide	Version 4.4	29/08/2023
11	Clean Development Mechanism Validation and Verification Standard	03.0	09/09/2021
12	Monthly energy meter reading statement of project for the monitoring period	-	-
13	Invoices for the electricity sold for the monitoring period	-	-
14	Energy meter Calibration Certificates		
15	Break down details of the complete monitoring period	-	-
16	Declaration regarding no participation in other GHG program for the concerned monitoring period	-	-

APPENDIX II: VERIFICATION FINDINGS

FAR from validation and/or previous verification

FAR ID	Section no.	Date:
Description of CAR		
NA		
Project participant response		Date:
Documentation provided by project participant		
DOE assessment		Date:

Clarification Requests

CL ID	Section no.	Date
01	ER Sheet	:05/01/2024

Description of CL	
The import value of electricity for the months of Oct-22, Dec-22 and Mar-23 is not shown. Please clarify the reason for this fact.	
Project Participant's response	Date :23/01/2024
During the months of October 2022, December 2022 and March 2023, the plant produced electricity round the clock without any outage and hence there was no requirement of importing electricity from grid for these months.	
Documentation provided by Project Participant's	
1. Plant outage log	
DOE assessment	Date: 25/01/2024
The reason for the variation in the import value of electricity has been confirmed. CL01 is closed.	

CL ID	02	Section no.	ER Sheet	Date :05/01/2024
Description of CL				
The electricity generation data for the August 2022 is 15,16,572 kWh but similarly 46,709 kWh for the month of August 2023 please clarify the reason for this high difference.				
Project Participant's response				Date :23/01/2024
The plant was under maintenance in August 2023 which resulted in less electricity generation.				
Documentation provided by Project Participant's				
1. Plant outage log				
DOE assessment				Date: 25/01/2024
The reason for the variation in the export value of electricity has been confirmed. CL02 is closed.				

CL ID	03	Section no.	5.1	Date :05/01/2024
Description of CL				
The Monitoring Report mentions the project activity states the project as "CDM Project Activity" please rectify this.				

Project Participant's response	Date :23/01/2024
Typo-error. The reference of the "CDM Project Activity" is changed to VCS in the Monitoring report	
Documentation provided by Project Participant's	
1. <i>Revised Monitoring Report</i>	
DOE assessment	Date: 25/01/2024
The revisions made in the monitoring report has been reviewed and confirmed. CL03 is closed.	

Corrective Action Requests

CAR	01	Section no.	ER Sheet	Date :05/01/2024
Description of CAR				
The electricity generation invoices for the monitoring period is to be provided for verification.				
Project Participant's response				Date : 23/01/2024
The electricity sale invoices for the current monitoring period is provided for verification				
Documentation provided by Project Participant's				
1. <i>Electricity sale invoices</i>				
DOE assessment				Date:25/01/2024
The electricity sale invoices have been reviewed and confirmed. CAR01 is closed.				

APPENDIX III: TEAM COMPETENCE

<u>Certificate of Competence</u>							
Name	☒ Mr. ☐ Ms.	Anand S R					
Qualification Procedure	Fulfils the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GCC/GHG Projects.						
Appointed to work as:							
	Validator /Verifier	Team Leader	Trainee	Technical Expert	Technical Reviewer	Financial Expert	Approver
Appointed	Yes	Yes	No	Yes	No	No	No
Appointed Date	15-07-2023						
Authorized to work as Technical Expert for:							
Authorized Technical Area	Sectoral Scope		TA Code		Technical Area within the scope		
	Energy industries (renewable - / non-renewable sources)		1.2		Renewables		
Authorized to work as Local Expert for:							
Country/Countries	India						
Compliance check by:							
				M P Kanal			

<u>Certificate of Competence</u>		
Name	☒ Mr. ☐ Ms.	Ganesh Jithamanyu D V

Qualification Procedure	Fulfil the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.					
Appointed to work as:						
	Validator/Verifier	Team Leader	Trainee	Technical Expert	Technical Reviewer	Financial Expert
<i>Appointed</i>	No	No	Yes	Yes	No	No
<i>Appointed Date</i>	15-07-2023					
Authorized to work as Technical Expert for:						
<i>Authorized Technical Area</i>	Sectoral Scope		TA Code	Technical Area within the scope		
	Energy industries (renewable - / non-renewable sources)		1.2	Renewables		
Authorized to work as Local Expert for:						
<i>Country/Countries</i>	India					
Compliance check by: Anand S. R.						

<u>Certificate of Competence</u>						
Name	☒ Mr. ☐ Ms.	Chetan Swaroop Sharma				
Qualification Procedure	Fulfil the requirement as per the appointment of personnel procedure of 4KES for Validation and Verification of CDM/VCS/GS/GHG Projects.					
Appointed to work as:						
	Validator/Verifier	Team Leader	Trainee	Technical Expert	Technical Reviewer	Financial Expert
<i>Appointed</i>	Yes	Yes	No	Yes	Yes	No
<i>Appointed Date</i>	15/07/2023					
Authorized to work as Technical Expert for:						
<i>Authorized Technical Area</i>	Sectoral Scope		TA Code	Technical Area within the scope		

	Energy industries (renewable - / non-renewable sources)	1.1	Thermal energy generation
	Energy industries (renewable - / non-renewable sources)	1.2	Renewables
	Energy distribution	2.1	Energy distribution
	Energy demand	3.1	Energy demand
	Waste handling and disposal	13.1	Solid waste and wastewater
	Waste handling and disposal	13.2	Manure
Authorized to work as Local Expert for:			
Country/Countries	India		
Compliance check by: Swati S Acharya			

APPENDIX IV: ABBREVIATIONS

BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Request
DPR	Detailed Project Report
EB	Executive Board
EIA	Environmental Impact Assessment
ER	Emission Reductions
FAR	Forward Action Request
GHG	Greenhouse Gases
IPCC	Intergovernmental Panel for Climate Change
JMR	Joint Meter Readings
LCS	Local Controller System
MP	Monitoring Period
MR	Monitoring Report
MW	Mega Watt
MWh	MegaWatt hour
OM	Operating Margin
O&M	Operation & Maintenance
PD	Project Description
PP	Project proponent
PPA	Power Purchase Agreement
QA/QC	Quality Assurance/Quality Control
tCO ₂	Tonnes of Carbon Dioxide
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association
VCU	Verified Carbon Unit