Hydro Power Project in backward district of Andhra Pradesh, India

By KBS Certification Services Pvt. Ltd.

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Summary:

KBS Certification Services Pvt. Ltd. has been contracted by, "Evergreen Ecotech Private Limited." to undertake verification and certification for the greenhouse gas (GHG) emission reductions reported from 'Hydro Power Project in backward district of Andhra Pradesh, India' (VCS ID 1291) for the monitoring period 01/01/2014 to 17/08/2018 (Inclusive of both days), under the crediting period 18/08/2008 to 17/08/2018, in the initial monitoring report version 01 dated 03/06/2021, with regard to the relevant requirements of VCS Standard Version 4.1.

The project activity with a total capacity of 234 MW is located across Krishna River near Revulapally village of Gadwal Taluk in Mahaboobnagar district, Telangana, India. The project includes construction of electric sub-stations, fabrication and installation of six hydroelectric units. The electricity generated is exported to the regional grid system (Telangana State Electricity grid) which is under the purview of the southern grid (now part of Indian grid).

The project activity has been operational since commissioning (18/08/2008) and the project involves six hydroelectric units located at the project site with capacity of 39 MW each.

The verification is based on the registered VCS PD, Monitoring report (MR), Emission reduction calculation spread sheet (ER sheet), proof of title, proof of right, additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and supporting documents made available to the verification team by project proponent.

A risk-based approach has been followed to perform the verification of the project activity. In the course of verification, 04 Corrective Action Requests (CARs) and 04 Clarification Requests (CLs) have

been raised. All the CARs and CLs have been closed out successfully.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the period 01/01/2014 to 17/08/2018 (Inclusive of both days) based on the reported emission reductions in the final monitoring report version 2 dated 23/06/2021 for the same period.

Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, KBS planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that this reported amount of GHG emission reductions for the period is fairly stated.

As a result of the verification, the verification team confirms that:

- The project fulfils criteria of VCS Standard Version 4.1.
- The project is in line with all relevant VCS requirements.
- Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board and VCS Association;
- All information and references relevant to the project activity resulting in emission reductions;

The monitoring is transparent, adequate and in line with applied baseline and monitoring methodology of ACM0002, Version 11.

Based on the information seen and evaluated we confirm that the implementation of the project has resulted in 683,638 tCO_2e emission reductions during the monitoring period 01/01/2014 to 17/08/2018 (Inclusive of both days), under the crediting period 18/08/2008 to 17/08/2018.

Contents

1 INTRODUCTION

1.1 Objective

KBS Certification Services Pvt. Ltd. has been contracted by, "Evergreen Ecotech Private Limited." to undertake verification and certification for the greenhouse gas (GHG) emission reductions reported from 'Hydro Power Project in backward district of Andhra Pradesh, India' (VCS ID 1291) for the monitoring period 01/01/2014 to 17/08/2018 (Inclusive of both days), under the crediting period 18/08/2008 to 17/08/2018, in the initial monitoring report version 01 dated 03/06/2021, with regard to the relevant requirements of VCS Standard Version 4.1. The VCS projects must undergo an independent third-party verification and certification of emission reductions as the basis for issuance of Voluntary Emission Reductions (VERs).

The objectives of this verification exercise are, by review of objective evidence, to establish that:

- The project activity has been implemented and operated as per the project description (PD) and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place;
- Monitoring report and other supporting documents are complete;
- The data is recorded and stored as per the monitoring methodology and approved monitoring plan.
- To confirm that the monitoring system is implemented and fully functional to generate Voluntary Emission Reductions (VERs/VCUs) without any double counting, and
- To establish that the data reported are accurate, complete, consistent, transparent and free of material error or omission by checking the monitoring records and the emissions reduction calculation.

1.2 Scope and Criteria

The verification scope is defined as an independent and objective review of monitoring report, VCS project description (VCS PD), including the monitored data, and other relevant documents made available to verifier and information collected through performing interviews during Remote assessment(interviews) of the project activity.

The project is assessed against the requirements of VCS standard version 4.1 and related rules and guidance /5/. KBS has, based on the recommendations in the latest version of Verified Carbon standard, and employed a risk-based approach (as criteria) in the verification, focusing on the identification of significant reporting rules and the reliability of project monitoring.

The aspects to be covered under the purview of verification are:

- Ensure that the project activity has been implemented and operated as per the registered VCS PD and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place as per the documents provided by the client and during remote audit;
- Ensure that the monitoring report and other supporting documents provided are complete
- Ensure that the practiced monitoring system and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved CDM methodology /10/;
- Evaluate the data recorded and stored are as per the monitoring methodology.

1.3 Level of Assurance

☑Reasonable level of assurance

The verification is based on the registered VCS PD, MR, additional documents related to baseline and monitoring methodology, the subsequent background investigation, monitoring plan, follow-up interviews and supporting documents made available to the verification team by project proponent. The information in these documents is reviewed against the requirements of VCS Standard Version 4.1. KBS has employed a risk-based approach in the verification, focusing on the identification of significant risks for project implementation and the generation of Emission Reductions.

The items covered in the verification are described below:

- Criteria of VCS Version 4 (VCS Program guide Version 4.0 & VCS Standard Version 4.1)
- Criteria of CDM approved methodology, ACM0002, Version 11
- VCS Monitoring Report
- Monitoring Plan
- Background investigation and follow up interviews
- Stakeholder feedback
- Registered VCS PD and Validation Report
- Project's compliance with other relevant rules, including the project country (India) legislation and assurance to stakeholders of the quality

Furthermore, the verification team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data available on public domain. A desk review is carried out to assess the following:

- Compliance with relevant law and regulations

- Stakeholder comments (If any)
- Single line diagram and site location map
- Technical specifications of turbines, meters etc.
- O & M Agreement
- Power Purchase Agreement
- Commissioning Certificate
- Remote auditing (22/06/2021) for verification
- Invoices
- Export/Import data records
- Calibration Certificates

The Verification team has checked all the above-mentioned details and confirms that all the information provided is accurate.

Through the remote interviews, host country rule and regulations related to project activity, Project description, technological measures, Implementation, Operation, Management of project activity and Training of personnel, Baseline and Monitoring plan, Stakeholder consultation etc. has been checked and found appropriate.

KBS applies the risk-based approach aimed at focusing on high-risk issues to the verification results whilst not omitting any part of the mandatory processes. A few discrepancies were found during the verification and the findings were submitted to the project proponent, indicated under the titles corrective action requests (CARs) and clarification requests (CLs). CARs and CLs require the PP to take relevant actions.

Hence the above steps were followed for achieving the level of assurance in verification report. Based on the process and procedures conducted, KBS confirms that the information in the MR:

- is materially correct and is a fair representation of the actual project details, and
- is prepared in accordance with VCS requirements /4//5/ and the applied CDM methodology for information pertaining to GHG qualification, monitoring and reporting.

The verification work is carried out as per this requirement and the verification opinion is assured, provided the credibility of all above. Details are presented in the Verification statement in section 5 below.

1.4 Summary Description of the Project

The project activity with a total capacity of 234 MW is located across Krishna River near Revulapally village of Gadwal Taluk in Mahaboobnagar district, Telangana, India. The project includes construction of electric sub-stations, fabrication and installation of six hydroelectric units. The electricity generated is exported to the regional grid system (Telangana State Electricity grid) which is under the purview of the southern grid (now part of Indian grid).

The project activity has been operational since commissioning (18/08/2008) and during the monitoring period i.e., from period 01/01/2014 to 17/08/2018 (Inclusive of both days), it has generated 757,327.97 MWh net electricity, thereby resulting in emission reduction of 683,638 tCO_2e. The monitoring period subject to this monitoring report is inclusive of first and last day of period

During the remote audit inspection /11/, location (as mentioned in section 1.7 of MR) and all the technical aspects of the project activity (equipment, serial no., type, date of calibration etc.) mentioned in the PD /03/ have been verified. The same was also crosschecked during the desk review of supporting documents like technical specifications/6/, single line diagram/7/, O & M Agreement/8/, Power Purchase Agreement/8/ and commissioning certificates/9/.

Project entity information as verified is presented below:

Item	Data
Project Entities	Telangana State Power Generation Corporation Limited (TSGENCO) (Project Owner)
	Evergreen Ecotech Private Limited (Project consultant)

2 VERIFICATION PROCESS

2.1 Method and Criteria

The verification process was carried out in line with the requirements of VCS standard Version 4.1 /4/. In addition, the verification team followed the guidelines of the CDM Validation and Verification Standard. Standard auditing techniques and KBS's CDM Procedures were also applied during the verification. A risk-based approach was followed to carry out verification and access all the factors and concerns that relate to the issuance of emission reductions from a project activity.

They include:

- Identification of all the sources contributing to the project emissions, leakage emissions and emission reductions.
- Authenticity of the provided data is checked.
- A risk-based analysis is carried out to ensure a clear and transparent assessment. The risks involved in this process are mainly with the informational flows and data recording.

KBS follows a risk-based verification approach, wherein a desk review of the project documentation is undertaken, which is followed by a remote discussion/video inspection by the members of verification team. The verification protocol is filled by the verification team that is based on standard auditing practices and VCS requirements. The verification protocol provides transparent means to record the observations by the verification team members and the non-conformities, if any. The verification protocol is an internal document, and available on request.

Duration of Verification:

Verification Contract	14/06/2021
Remote audit	22/06/2021 (Justification section 2.4 below)
Draft Verification Report	21/07/2021
Final Verification Report	26/07/2021

2.2 Document Review

A desk review is undertaken, involving but not limited to,

- A review of the data and information presented to verify their completeness;
- A review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures;
- An evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

The list of documents reviewed is included in the section 'References' (Appendix 1).

2.3 Interviews

Please refer section 2.4, where complete list of interviewed personnel and key points discussed is provided.

2.4 Site Inspections

As a result of the COVID-19 pandemic, taking into account the rules of relevant national and local authorities (local to the VVB offices as well as to locality of the site visits), World Health Organization (WHO) recommendations, policies of the VVB, email clarification for Verra guidance on site visits, notification of Covid-19 Travel Guidance for Projects https://verra.org/covid-19-travel-guidance/ and other relevant travel restrictions and guidance (for example, a requirement to self-isolate upon return from specific countries), the VVB has skipped the on-site visit. Further Email from VERRA dated 24/03/2020 from "Andrew Beauchamp" has been referred as per which, "The VCS Program does not explicitly mandate site visits as part of the validation and verification process, only that VVBs must achieve a reasonable level of assurance on all validations and verifications (per Section 4.1.2 of the VCS Standard, v4.1). Therefore, where a VVB can achieve a reasonable level of assurance without conducting a site visit, or through a remote site visit, this is in conformance with the VCS rules, and no request for an exemption or pre-approval from VEERA is required. However, where a validation/verification has been conducted without a site visit, or through a remote site visit, please ensure that the applicable section of the validation/verification report includes a discussion of how a reasonable level of assurance was achieved without an in-person site visit".

Hence, the VVB has used other standard auditing techniques for validation or verification as referred to in VCS Rules/requirements, VCS Validation and Verification Manual version 3.2.

Verification team has used the following alternative means for its assessment and to justify that they are sufficient for the purpose of verification. Along with desk review, audit team has conducted remote audit interview as follows:

- A complete desk review of the MR, as well as all applicable country legal requirement and supportive evidences have been checked by the verification team.
- Verification team has performed WhatsApp Application interview with PP in order to check implementation, project boundary, current situation, monitoring and metering equipment, monitoring procedures, calibration etc.
- Cross-check evaluation, for information received from interviews, under the scope of all information and references provided in MR and supporting documents.
- A check of the monitoring equipment including performance and observations of monitoring practices against the requirements of the registered VCS PD and the selected methodology.

Details of interviewees, topics covered and additional information are presented below:

Dates:	22/06/2021 (WhatsApp Application)	
Key points discussed:	**Name of person, interviewed**	**Designation, Organization**
Operational data, Calibration, Data collection, QA/QC procedures, Calculation of ERs,	Krishna Kishore	Senior Engineer, Telangana State Power Generation Corporation Limited
	Dr. Madhukar	Consultant, Evergreen Ecotech Private Limited

2.5 Resolution of Findings

KBS applies the risk-based approach aimed at focusing on high-risk issues to the verification results whilst not omitting any part of the mandatory processes. A few discrepancies were found during the verification and the verification report was submitted to the project proponent, indicated under the titles corrective action requests (CARs) and clarification requests (CLs). CARs and CLs require the PP to take relevant actions. Criteria for judging items as CAR or CL are as follows:

Corrective action request (CAR):

- the project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions
- the Voluntary Carbon Standard's requirements have not been met, or
- there is a risk that emission reductions cannot be monitored or calculated.

Clarification request (CL):

- Information is insufficient or not sufficiently clear to determine whether the applicable VCS requirements have been met.

FAR (Forward Action Request):

FARs is to be raised to highlight issues related to project implementation that require review during the first verification of the project activity. FARs does not relate to VCS requirements for registration.

CARs and CLs are to be resolved or closed out if the PP modifies the project description, rectifies the MR or provides adequate additional explanations or evidence that satisfies the concerns. If this is not completed, the project activity cannot be recommended for issuance under VCS registry.

The monitoring report was revised addressing the CARs & CLs issued by KBS. After reviewing the revised and resubmitted MR/1.2/; resolving the CARs & CLs raised and outstanding concerns, KBS issues this final verification report and opinion.

04 CLs and 04 CARs were found during verification and closed satisfactorily. The list of CARs/CLs raised, and the response provided, the means of verification, reasons for their closure and references to correction in the MR are provided in appendix 2 of this report. The

revised MR/1.2/ with changes incorporated as per the issues raised were rechecked with the documentary evidence and found to be inline.

2.5.1 Forward Action Requests

No FAR has been raised during this Verification and previous verification. However, 2 FARs were raised during the validation and the same were closed during the previous verification.

2.6 Eligibility for Validation Activities

KBS conducted the verification activity; the validation was performed by the other VVB. KBS has a valid UNFCCC accreditation in the sectoral scope from UNFCCC.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

The project is not registered or seeking registration under any other GHG programs. The project has not participated under any other GHG programme.

3.2 Methodology Deviations

The verification team confirms that the registered VCS PD complies with the requirements in the applied monitoring methodology ACM0002, Version 11/10/. Therefore, no methodology deviations are applied during the monitoring period.

3.3 Project Description Deviations

The project activity is in compliance with the scenario described at the VCS Project Design Document and validated by the VCS validation report dated 07/10/2010. However, the geological coordinates of the project have been revised to 16° 19' 55 8''N latitude and 77° 42' 14.4'E' longitude since the coordinates mentioned in the registered PD were not working due to some technical issues. Also, the asset of the APGENCO is transferred to TSGENCO on 2nd June 2014 as verified from the Gazette AP Reorganization Act. Therefore, the project now comes under the region of Telangana and not Andhra Pradesh. The verification team confirms that the deviation is not having any impact on the project.

3.4 Grouped Project

The project is not a grouped project. Therefore, this section is not applicable.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity is in operation stage as evidenced by the remote inspection /11/ of the site. All the physical components and project boundary are in conformity with the description in registered VCS PD /03/. The capacity of project equipment's have been confirmed during the remote inspection, also through the technical specifications /06/ and found in-compliance with the registered VCS PD /03/. The project activity was commissioned on 18/08/2008 as per commissioning certificate/09/.

On the basis of the remote inspection and the reviewed project documentation like the technical specification, photographs of meters, turbines/6/, single line diagram/7/, Power Purchase agreement/8/, commissioning certificates/9/, calibration certificates of energy meters/13/, and invoices/14/ etc. the verification team confirms that the project was implemented and operated as described in the registered VCS PD /3/. Further, the verification team confirms that-

-There is no any material discrepancy between project implementation and the project description in the registered VCS PD.

- The monitoring plan is completely implemented and is suitable with actual monitoring system (i.e., process and schedule for obtaining, recording, compiling and analysing the monitored data and parameters)

- The project has not participated or been rejected under any other GHG programs and further has not received or sought any other form of environmental credit since validation or previous verification.

- There is no methodology deviation applied to this project.

The total generation capacity of the power plant due to six hydroelectric units (each is of 39 MW) is 234 MW which was verified during the remote audit.

Further it was noticed that during the monitoring period the project activity operated under normal conditions and no significant event that may have impact on monitoring of GHG emission reductions was observed. Same has been checked from the operational data during remote auditing.

Ownership and other programs:

PP has declared that the project is not registered in other GHG programs, PP confirmed that the project will only be going forward with VCS registry, as declared in VCS PD /3/. Thus, emission

reductions generated by project will be solely claimed by PP and PP has the right of use, which is acceptable. Net GHG emission reductions or removals generated by this project will not be used for compliance with an emissions trading program or to meet binding limits on GHG emissions as the host country i.e., India is not a participant in any emission trading programs or nor does it have any binding limits.

PP will not claim the environmental/carbon credits under any other GHG emission reduction scheme for the crediting period under VCS and PP has provided declaration on the same during the validation and verification. Hence, there is no possibility of double counting.

Sustainable Development Contributions:

As confirmed during the remote audit, the project displaces electricity produced in fossil fuel-based power plants, by using clean renewable source to generate electricity and thereby contributes to sustainable development through reduction in greenhouse gas (GHG) emissions. It has also been confirmed that the project implementation has led in significant environmental and socio-economic benefits (as stated in section 1.11 of the submitted MR) and contributes to the social, economic, technological and environmental well-being. The project supplies clean, affordable and renewable energy (757,327.97 MWh net electricity under the monitoring period) without reliance on fossil fuels for generation of electricity to meet the growing demands in the region. Also, the implementation of project is providing employment to locals with a decent and secure work environment by reducing emissions otherwise generated by the operation of fossil fuel-based power plants and would lead to promotion of hydro-based power generation and to encourage other entrepreneurs to participate in similar projects as well.

Management and operational system:

Verification team was able to verify that authorities and responsibilities for monitoring and reporting of all data related to the emission reductions were clearly defined for the monitoring period from 01/01/2014 to 17/08/2018 (Inclusive of both days).

The allocation of the responsibilities is documented in a written form and is followed as described in the registered VCS PD /03/. Routines for the archiving of data are defined and documented.

The monitoring plan described in section 4.3 of the MR/1.2/ is confirmed to be correct. All the parameters of the monitoring plan are monitored using appropriate metering system.

The verification team has interviewed the plant personnel /11/ who is involved in the monitoring of the parameters that are used to determine the emission reductions of the VCS project. It is confirmed based on the interviews /11/ that the plant's team is competent enough to monitor the parameters as described in the monitoring plan.

As discussed above, the verification team concludes that management and operational system of the project is implemented and operated well. Thus, it ensures the quality of data which is required in calculating the emission reductions.

Implementation status of the monitoring plan:

Verification team confirms through remote inspection /11/ and from the document review like Power Purchase agreements/08/, Commissioning certificates/09/, Calibration certificates/13/

and Invoices/14/ the actual monitoring system complies with the monitoring plan mentioned in the registered VCS PD /3/ and there is no deviation in monitoring plan and procedures, equipment.

During the verification, all relevant monitoring parameters of the registered monitoring plan have been verified with regard to the appropriateness of the verification method; the correctness of the values applied for ER calculation, the accuracy and applied QA/QC measures. All monitoring parameters have been measured / determined without material misstatements and are in line with all applicable standards and relevant requirements. It is confirmed that the monitoring mechanism is effective and reliable.

Therefore, from the document review and remote inspection, it is confirmed that all the parameters were monitored in accordance with the registered monitoring plan during the monitoring period. Following are the details of monitoring in accordance with the monitoring plan of the registered VCS PD /03/:

Data - Parameter	$EG_{facility,y}$
Data unit	MWh
Description	Quantity of net electricity generation supplied by the project plant to the grid for this monitoring period
Source of data	Verification team confirms that the data has been measured directly from meters and recorded on monthly Joint Meter Reading (JMR) certificate /12/. The value for net electricity supplied to the grid is cross verified from the monthly invoices raised by the project participant as well.
Description of measurement methods and procedures to be applied	During the remote inspection and through document review, it has been confirmed that the value of net electricity generation supplied to the grid as per Joint Meter Reading Report forms the basis for calculation of the emission reductions; which has been cross checked from the invoices. Net electricity supplied to grid was calculated as the difference of the measured values of “export” and “import” of electricity through the dedicated energy meter installed at the point of interconnection with the grid.
Frequency of monitoring-recording	Continuous monitoring and Monthly recording, as verified by the verification team through remote assessment.
Value monitored	757,327.97 MWh During the current monitoring period, data apportioning has been done for 01/08/2018 to 17/08/2018 wherein the value for the number of days for credit (first 17 days of the month August 2018) was considered assuming constant daily generation as a conservative approach which was found to be reasonable by the verification team.

Monitoring equipment

During the remote inspection and through document review, it has been confirmed that the data has been monitored continuously by joint meters of accuracy class 0.2s. Monthly joint meter readings of the main meters and check meters is taken by the designated officials of the company as confirmed from the remote inspection.

The Calibration dates of the meters and their validity is as follows:

Meter Serial number	Accuracy class	Calibration done on	Valid Until
2005 11470 30042 (Unit 1 (220 kV side)	0.2s	18/08/2008 17/08/2013 22/05/2018	21/05/2023
2005 11470 30046 (Unit 2 (220 kV side)	0.2s	29/11/2008 28/11/2013 22/05/2018	21/05/2023
2005 11470 30043 (Unit 3 (220 kV side)	0.2s	07/08/2009 06/08/2014 22/05/2018	21/05/2023
2005 11470 30040 (Unit 4 (220 kV side)	0.2s	08/09/2010 07/09/2015 22/05/2018	21/05/2023
2005 11470 30044 (Unit 5 (220 kV side)	0.2s	19/11/2010 18/11/2015 22/05/2018	21/05/2023
2005 11470 30041 (Unit 6 (220 kV side)	0.2s	04/08/2011 03/08/2016 22/05/2018	21/05/2023

As per the registered VCS PD /03/, the calibration frequency of meters is stated as once in 5 years.

	However, PP could not retrieve the previous date calibration certificates, therefore error factor has been applied using the below approach. Adjusted export = Measured export x (100%-0.2%) Adjusted import = measured import x (100%+0.2%) Net export accounted calibration delay = Adjusted export –adjusted import A maximum permissible error of 0.2% has been applied for measured export and import data for all the months covering the monitoring period. The verification team confirms that the error has been applied in a conservative manner and is within the permissible limit as per para 367 of the CDM VVS for PA, version 02.
QA-QC procedures to be applied	The generation values has been also cross-checked with the JMR and invoices/14/ and was found to be consistent.
Purpose of the data	Calculation of Baseline emissions
Calculation method	-
Comments	As confirmed during the remote inspection /11/, the collected data will be kept by Project proponent during the crediting period. The data would be archived electronically and maintained for the entire crediting period plus two years.

Remaining Issues from Validation or Previous Verification:

This verification of the registered project activity and from the review of validation report and the previous verification reports, verification team confirms that no FAR was to be addressed during this verification. The FAR raised during the validation has been resolved during the 1st verification.

Finding: CL 01, CAR 01, CAR 02 were raised and successfully closed. Refer to appendix 2 for further details.

Opinion:

The verification team confirms that

- The project activity has been implemented and operated as per the registered VCS PD /3/ and that all physical features (technology, project equipment, and monitoring and metering equipment) of the project are in place, as per the documents provided by the PP and remote audit /11/;
- The monitoring complies with the requirement of the applied methodology /10/;

- The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included above under each parameter and confirms to the requirement of the VCS PD /3/;
- The values included in the monitoring report /1.2/ and corresponding emission reduction sheets /2.2/ are verified and included under each monitoring parameter.

4.2 Safeguards

4.2.1 No Net Harm

The project activity is grid connected hydro power plant and does not involve any negative impact. Assessment team confirms it based on its local and sectoral expertise.

4.2.2 Local Stakeholder Consultation

The local stakeholder consultation meeting for the project activity was conducted on 08/07/2008 and the process was validated during the registration of project activity in VCS. VCS validation report /3/ was verified to confirm the same. The PP had invited identified stakeholders well in advance in by invitation letters to local villagers, panchayat members and representatives of PP with details of venue and time of meeting. Also, PP has grievance register maintained at site for complaints (if any).

During the monitoring period there were no complaints about or demands from the project. The same was confirmed through the remote audit conducted during the monitoring period.

4.3 AFOLU-Specific Safeguards

This is not an AFOLU project.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The verification team has reviewed the emission reduction (ER) spread sheet /2.2/ and checked all the formulae and verified them to be correct and in line with the monitoring plan of the registered VCS PD and the applied monitoring methodology /10/.

All the monitored parameters are described above in section 4.1. All the ex-ante parameters which are used in the calculation of emission reduction are presented in section 4.1 of the MR /1.2/ transparently. It is confirmed that all the ex-ante parameters have been correctly used in the emission reduction calculation.

Baseline emissions:

The baseline emissions (BE_y) are calculated based on the following formula:

$BE_y = EG_y * EF_{grid,CM,y}$

Where:

BEy: Baseline emissions in year y (tCO_2e/yr)

$EG_{PJ,y}$: Net electricity supplied to the regional grid (MWh) after the implementation of the VCS project activity in year y (MWh/yr)

EF_y: Baseline emission factor (tCO_2e/MWh) in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO_2e/MWh)

It is fixed ex-ante for the duration of the crediting period and is 0.9027 tCO_{2e} /MWh.

Therefore,

$BE_y = EG_{PJ,y} X EF_{,y}$
$BE_y = (757,327.97) X 0.9027$
$BE_y = 683,638\ tCO_2e$ (rounded down)

It is noted that the formula and calculation used for baseline emission calculation in the monitoring report and ER sheet /2.2/ is in compliance with the registered VCS PD /3/. The default values and data used in the monitoring report /1.2/ are in-line with the registered VCS PD /3/. Hence, acceptable to the verification team.

Project Emissions:

As per the methodology /10/ the PE_y in case of a hydro power project is Emissions from water reservoirs of hydro power plants ($PE_{HP,y}$)

> *"For hydro power project activities that result in new reservoirs and hydro power project activities that result in the increase of existing reservoirs, project proponents shall account for CH_4 and CO_2 emissions from the reservoir, estimated as follows:"*

"…the power density of the project activity (PD) is greater than 4 W/m^2 and less than or equal to 10 W/m^2:"

The project has a power density of 314 W/m^2.

Hence, $PE_y = 0$ is acceptable to the verification team.

Leakage:

As per the methodology ACM0002, version 11.0 /10/ and as defined in the registered VCS PD/3/ no leakage is considered in the project activity and the same is followed in this monitoring period also. Thus, it is in compliance with the registered VCS PD/3/.

The following are the ex-ante parameters used in the ER calculation which are in compliance with registered VCS PD /3/:

Parameter	Description	Source/Justification
EF_y tCO_2/MWh	Combined Margin CO_2 emission factor of the southern grid.	The combined margin emissions factor is calculated as follows: $EF_{grid,CM,y} = EF_{grid,OM,y} * W_{OM} + EF_{grid,BM,y} * W_{BM}$ Where: $EF_{grid,BM,y}$= Build margin CO_2 emission factor in year y (tCO_2/MWh) $EF_{grid,OM,y}$= Operating margin CO_2 emission factor in year y (tCO_2/MWh) W_{OM} = Weighting of operating margin emissions factor (%) = 75% W_{BM} = Weighting of build margin emissions factor (%) = 25% The value 0.9027 tCO_2/MWh is used for calculation of baseline Emission and is found to be consistent with the registered VCS PD/03/.

According to the applied methodology /10/, the conservativeness of the achieved emission reduction was checked and the detailed emission reduction calculation has been transparently provided in the ER sheet /2.2/. All the formulae and the calculation procedure were checked by the verification team. In the opinion of verification team, the assumptions, emission factors and default values that were applied in the calculations have been justified. Also, the verification team confirms that there were no manual transposition errors between the data sets in the ER Sheet/2.2/ during the current monitoring period. It is confirmed that the data has been measured directly from meters and it was cross checked from the JMR and the invoices raised and was able to verify the same.

Finding: CL 02, CL 03, CL 04, CAR 02, CAR 03 and CAR 04 was raised and successfully closed. Refer to appendix 2 for further details.

Opinion: The verification team confirms;

- The monitoring plan has been implemented as per the registered VCS PD /3/;
- The monitoring complies with the requirement of the applied methodology/10/;
- The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included above under each parameter and confirms to the requirement of the PD /3/;
- The values included in the monitoring report /1.2/ and corresponding emission reduction sheet /2.2/ are verified and included under each monitoring parameter, wherever appropriate.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

All relevant documents were checked to assess the correctness and quality of data submitted by the project participants, which are used to determine emission reductions.

All records needed for monitoring are archived in line with the requirements of the registered monitoring plan /3/. No significant lack of evidence and missing data were detected during remote audit discussion and video inspection /11/. 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 monitoring parameters have been measured / determined without material misstatements and is in line with all applicable standards and relevant requirements. However, PP could not retrieve the previous date calibration certificates, therefore error factor has been applied. A maximum permissible error of 0.2% has been applied for measured export and import data for all the months covering the monitoring period. The verification team confirms that the error has been applied in a conservative manner and is within the permissible limit as per para 367 of the CDM VVS for PA, version 02. The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included in section 4.1 under each parameter and confirms to the requirement of the VCS PD /3/. The export and import data is measured by the electricity meters, recorded continuously on the registered VCS PD and the invoices are generated monthly/14/. The data is then reported annually in the VCS Monitoring Report as verified by the verification team through remote assessment.

It was also verified through remote audit inspection/11/ that the plant's team involved in the monitoring of project activity is well experienced. Hence, the verification team concludes that competent staff is employed by the project proponent to carry out the relevant tasks with sufficient accuracy. Furthermore, it was confirmed during remote audit discussion that internal training program for the monitoring staff is conducted on regular basis.

4.6 Non-Permanence Risk Analysis

Not applicable to the project activity.

5 VERIFICATION CONCLUSION

KBS Certification Services Pvt. Ltd. has been contracted by, "Evergreen Ecotech Private Limited." to undertake verification and certification for the greenhouse gas (GHG) emission reductions reported from 'Hydro Power Project in backward district of Andhra Pradesh, India' (VCS ID 1291) for the monitoring period 01/01/2014 to 17/08/2018 (Inclusive of both days), under the crediting period 18/08/2008 to 17/08/2018, with regard to the relevant requirements of VCS Standard Version 4.1.

The management of the 'Evergreen Ecotech Private Limited.' is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project final Monitoring Report Version 2 dated 23/06/2021. The calculation and determination of GHG emission reductions from the project is the responsibility of the management of the 'Evergreen Ecotech Private Limited.' The development and maintenance of records and reporting procedures are in accordance with the Monitoring Report Version 2 dated 23/06/2021.

It is our responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the period 01/01/2014 to 17/08/2018 (Inclusive of both days) based on the reported emission reductions in the final Monitoring Report Version 2 dated 23/06/2021 for the same period.

As a result of the verification, the verification team confirms that:

- All operations of the project are implemented and installed as planned and described in the project description.
- The monitoring system is in place and functional.
- The installed equipment essential for generating emission reductions runs reliably.
- The GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner.

- Based on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these, KBS planned and performed our work to obtain the information and explanations that we considered necessary to provide sufficient evidence for us to give reasonable assurance that this reported amount of GHG emission reductions for the period is fairly stated.

Verification period: From 01/01/2014 to 17/08/2018 (Inclusive of both days)

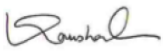
Verified GHG emission reductions and removals in the above verification period:

Year	Baseline emissions or removals (tCO_2e)	Project emissions or removals (tCO_2e)	Leakage emissions (tCO_2e)	Net GHG emission reductions or removals (tCO_2e)
2014	198,062	0	0	198,062
2015	26,457	0	0	26,457
2016	187,239	0	0	187,239
2017	192,578	0	0	192,578

2018 (till 17/08/2018)	79,302	0	0	79,302
Total	683,638	0	0	683,638

Location: Faridabad

Date: 26/07/2021



Authorized Signatory: Kaushal Goyal

Designation: Managing Director

KBS Certification Services Pvt. Ltd.

APPENDIX 1: REFERENCES

/1/	/1.1/ Monitoring Report, Version 01, dated 03/06/2021 (Initial Version) /1.2/ Monitoring Report, Version 2 dated 23/06/2021 (Final Version)
/2/	/2.1/ Emission Reduction calculation sheet, Version 01 dated 03/06/2021 (corresponding to initial Version of VCS MR) /2.2/ Emissions Reduction calculation Sheet, Version 2 dated 23/06/2021 (corresponding to final Version of VCS MR)
/3/	• Registered VCS PD version 2 dated 01/08/2010 • VCS Validation report dated 07/08/2010
/4/	VCS Standard Version 4.1
/5/	VCS Program guide Version 4.0
/6/	Technical specifications/photographs of turbines, electricity meters etc.
/7/	Single line diagram and meter location / Layout
/8/	Power Purchase Agreement Operation and maintenance contract
/9/	Commissioning Certificates
/10/	ACM0002 - Version 11.0
/11/	Remote auditing (22/06/2021) for verification of measuring and monitoring procedure, • Video recordings & snapshots of the project site/equipment's • Interviews and data/log review
/12/	Joint meter readings for the entire monitoring period 01/01/2014 to 17/08/2018
/13/	Calibration Certificates for main meters and check meters
/14/	Invoices raised during the monitoring period 01/01/2014 to 17/08/2018
/15/	Copy of grievance register
/16/	VCS declaration for avoidance for double counting dated 20 July 2021
/17/	Gazette AP Reorganization Act, 2014

APPENDIX 2: FINDINGS

Summary of findings	CL	CAR	FAR
	04	04	00

Table 1. Remaining FAR from validation and/or previous verifications

No FAR from validation and/or previous verifications

~~FAR ID~~		~~Section no.~~		~~Date:~~
~~Description of FAR~~				
~~Project participant response~~				~~Date: DD/MM/YYYY~~
~~Documentation provided by project participant~~				
~~VVB assessment~~				~~Date: DD/MM/YYYY~~

Table 2. CL from this verification

CL ID	01	Section no.	4.1	Date: 22/06/2021
Description of CL				
The following documents are required as part of VCS verification process: 1. Photographs of main meters and check meters, nameplates of turbines etc. 2. Supportive regarding avoidance of double counting. 3. Invoices for the current MP. 4. Calibration certificates of energy meters 5. JMR for April 2017 to Aug 2018 6. Single line diagram				
Project participant response				Date: 23-06-2021
1. Photos are attached. 2. Declaration on double counting is attached 3. Invoices of the current monitoring period is attached 4. Calibration certificates dated May 2018 are attached. 5. Electricity details (JMR) for April 2017 to Aug 2018 attached 6. Single line diagram is attached separately.				

Documentation provided by project participant
1. Photos of main and check meters 2. Declaration 3. Invoices of the current monitoring period 4. Calibration certificates 5. Electricity details (JMR) for April 2017 to Aug 2018 6. Electrical Single line diagram

VVB assessment	Date: 21/07/2021
1. The photographs of the meters and the nameplates of the turbines have been provided by PP and was found to be acceptable. Hence, the finding is closed. 2. The supportive regarding double counting has been provided by PP and was found to be acceptable. Hence, the finding is closed. 3. The invoices for the current monitoring period has been provided by PP and was found to be acceptable. Hence, the finding is closed. 4. The calibration certification dated 22 May 2018 for all the meters have been provided and was found to be acceptable. Hence, the finding is closed. 5. The JMR for April 2017 to Aug 2018 has been provided by PP and was found to be acceptable. Hence, the finding is closed. 6. The single line diagram has been provided by PP and was found to be acceptable. Hence, the finding is closed.	

CL ID	02	Section no.	4.4	Date: 22/06/2021
Description of CL				
PP shall clarify why there was comparatively higher generation of electricity during the months August 2014 - Sept 2014, Sept 2015- Oct 2015, July to Oct 2016, sept - Oct 2017 and July-Aug 2018 as compared to other months.				
Project participant response				Date: 23/06/2021
The electricity generation depends on water availability which is seasonal. Water has been available during the months in question compared to the other months.				
Documentation provided by project participant				
-				
VVB assessment				Date: 21/07/2021
The justification provided by PP was found to be acceptable. The generation was higher during the peak seasons which was also confirmed during the remote audit interviews. Hence, the finding is closed.				

CL ID	03	Section no.	4.4	Date: 22/06/2021
Description of CL				
PP shall clarify why there was no electricity exported during December 2017 and May 2018 as observed in the ER sheet.				
Project participant response				**Date:** 23/06/2021
Generation details of billing months dated from 30-11-2017 to 31-12-2017 (December 2017) and 30-04-2018 to 31-05-2018 (May 2018) is attached as confirmation. Accordingly emission reduction sheet/MR is revised.				
Documentation provided by project participant				
Generation details of billing months of December 2017 and May 2018				
VVB assessment				**Date:** 21/07/2021
The generation data has been cross checked with the JMR and was found to be consistent. There was no generation during certain months because of no water availability as confirmed during the remote audit interviews. Hence, the finding is closed.				

CL ID	04	Section no.	4.4	Date: 22/06/2021
Description of CL				
PP shall clarify how apportioning of data has been done for the month of August 2018 and how it is conservative than other approaches (for example apportioning using the daily generation data).				
Project participant response				**Date:** 23/06/2021
From the generation for the billing month dated from 31-07-2018 to 31-08-2018, prorata value for the number of days for credit (first 17 days of the month August 2018) was considered assuming constant daily generation.				
Documentation provided by project participant				
-				
VVB assessment				**Date:** 21/07/2021
The verification team found the approach for the apportioning of the data for the month of August 2018 to be reasonable. Hence, the finding is closed.				

Table 3.CAR from this verification

CAR ID	01	Section no.	4.1	Date: 22/06/2021
Description of CAR				
1. In the cover page of the submitted VCS MR, the date of issue and the monitoring period shall be in DD-Month-YYYY format as per the VCS template guidelines. 2. Under section 1.1 of the submitted VCS MR, PP has stated that "This monitoring report for the first monitoring period is prepared for verification of the voluntary emission reductions generated by the project activity", however, this is the second monitoring period. PP shall correct the same. 3. Under section 1.1 of the submitted VCS MR, PP has stated that "The detailed information on energy meters are provided in Appendix 1.", however, the appendix is missing in the submitted MR. 4. Under section 1.1 of the submitted VCS MR, PP shall provide "The relevant implementation dates (e.g., dates of construction, commissioning, and continued operation periods" as per the VCS template guidelines. 5. Under section 1.3 and 1.4 of the submitted VCS MR, PP shall remove the instructions as per the template and add details regarding the consultant in section 1.4. 6. Under section 1.8 of the submitted VCS MR, the reference link for the methodology applied is not functional. 7. Under section 2.2 of the submitted VCS MR, PP shall include how grievance is taken into account and were there any negative comments or grievances during the current monitoring period and the following details as per the VCS template guidelines: • The procedures or methods used for engaging local stakeholders (e.g., dates of announcements or meetings, periods during which input was sought). • The procedures or methods used for documenting the outcomes of the local stakeholder communication. • The mechanism for on-going communication with local stakeholders. • How due account of all and any input received during ongoing communication has been taken.				
Project participant response				Date: 23/06/2021

1. MR is corrected accordingly. 2. MR is corrected accordingly 3. The details mentioned in section 4.2 of the MR. MR is corrected accordingly. 4. MR is corrected accordingly to address the issue 5. The instructions are removed. 6. Correct/Functional link is provided 7. MR is revised accordingly.
Documentation provided by project participant
Revised MR
VVB assessment **Date:** 21/07/2021
1. The date of issue and the monitoring period has been revised to DD-Month-YYYY format as per the VCS template guidelines in the revised MR. Hence, the finding is closed. 2. The correction has been done in the revised MR. Hence, the finding is closed. 3. The correction has been done in the revised MR. Hence, the finding is closed. 4. The relevant implementation dates has been now provided in the revised MR and was found to be consistent with the registered PDD. Hence, the finding is closed. 5. The correction has been done in the revised MR. Hence, the finding is closed. 6. The reference link is now functional in the revised MR. Hence, the finding is closed. 7. The details regarding local stakeholder consultation conducted during validation and the grievances has been now incorporated in the revised MR and was found to be consistent. Hence, the finding is closed.

CAR ID	02	**Section no.**	4.1, 4.4	**Date:** 22/06/2021
Description of CAR				
1. Under section 4.1 and 4.2 of the VCS MR, PP shall remove the instructions as per the template. 2. Under section 4.2 of the VCS MR, PP shall provide the serial number of the meters along with the calibration dates covering the monitoring period.				
Project participant response				**Date:** 23/06/2021
1. MR is revised accordingly 2. MR is revised accordingly				
Documentation provided by project participant				
Revised MR				
VVB assessment				**Date:** 21/07/2021

1. The correction has been in the revised MR. Hence, the finding is closed. 2. The details regarding serial number of the billing meters along with the calibration details have been provided in the revised MR and was found to be consistent with the supportives. However, the calibration certificates of few dates were not available to PP, therefore the error factor has been applied accordingly in a conservative manner which was found to be acceptable by the verification team (Refer to section 4.1 for further details). Hence, the finding is closed.

CAR ID	03	**Section no.**	4.4	**Date:** 22/06/2021
Description of CAR				
Under section 5.4 of the VCS MR, the table regarding the net emission reductions is repeated and shall be removed.				
Project participant response				**Date:** 23/06/2021
1. MR is revised accordingly				
Documentation provided by project participant				
Revised MR				
VVB assessment				**Date:** 21/07/2021
The correction has been done in the revised MR. Hence, the finding is closed.				

CAR ID	04	**Section no.**	4.4	**Date:** 22/06/2021
Description of CAR				
In ER sheet, the following inconsistencies were observed: 1. The generation data for the months February 2014– June 2014, Feb – Aug 2015, Jan- June 2016, Jan – March 2017 is inconsistent with the JMR. Also, PP during the remote audit interviews confirmed that it is the import value and not export. Hence, PP shall correct the same.				
Project participant response				**Date:** 23/06/2021
Emission reduction sheet and MR is corrected accordingly to reflect the project scenario.				
Documentation provided by project participant				
Revised MR and ER sheet				
VVB assessment				**Date:** 21/07/2021

The export and import values have been now incorporated separately in the revised ER sheet and weres found to be consistent with the JMR. Hence, the finding is closed.

Table 4.FAR from this verification

No FAR raised during current verification.

~~FAR ID~~		~~Section No.~~		~~Date:~~
~~Description of FAR~~				
~~Project participant response~~				~~Date: DD/MM/YYYY~~
~~Documentation provided by project participant~~				
~~VVB assessment~~				~~Date: DD/MM/YYYY~~

APPENDIX 3: COMPETENCE OF TEAM MEMBERS

Personnel Name:		Ms. Deboshmita Dey	
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☐

Technical Reviewer	☐	Local Expert	☐
Area(s) of Technical Expertise			
Sectoral Scope	**Technical Area**		
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources		
Waste Handling and Disposal	TA 13.1 Waste Handling and Disposal TA 13.2 Manure		
Approved by (Manager C & T)	Sanjay Kandari		
Approval date:	14/01/2021		

Personnel Name:		**Sanjay Kandari**	
Qualified to work as:			
Team Leader	☒	Technical Expert	☒
Validator/Verifier	☒	Financial Expert	☒
Technical Reviewer	☒	Local Expert (India)	☒
Area(s) of Technical Expertise			
Sectoral Scope	**Technical Area**		
Energy Industries (renewable/non-renewable sources)	TA 1.1: Thermal energy generation from fossil fuels and biomass including thermal electricity from solar		
Energy industries (renewable/non-renewable sources)	TA 1.2: Energy generation from renewable energy sources		
Energy demand	TA 3.1. Energy Demand		
Waste Handling and Disposal	TA 13.1 Waste Handling and Disposal TA 13.2 Manure		
Approved by (Manager C & T)	Akhilesh Joshi		

Approval date:	11/12/2015

Personnel Name:		**Amit Rai**	
Qualified to work as:			
Team Leader	☐	Technical Expert	☒
Validator/Verifier (trainee)	☒	Financial Expert	☐
Technical Reviewer	☐	Local Expert	☐
Area(s) of Technical Expertise			
Sectoral Scope		**Technical Area**	
Energy industries (renewable/non-renewable sources)		TA 1.2: Energy generation from renewable energy sources	
Approved by (Manager C & T)		Shikha Sharma	
Approval date:		20/05/2021	