HYDROELECTRIC PROJECT IN KINNAUR DISTRICT IN HIMACHAL PRADESH

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Report Title	Verification Report for "Hydroelectric Project in Kinnaur District in Himachal Pradesh"
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Summary:

LGAI Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by EKI Energy Services Limited to conduct the verification of the project "Hydroelectric Project in Kinnaur District in Himachal Pradesh", VCS ID 1742, against VCS Standard Version 4.1.

The verification includes confirming the implementation of the monitoring plan of the registered VCS PD and MR (Project ID 1742) and the application of the monitoring methodology as per ACM0002 ver. 12.1.0 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources".

The project activity involves generation of electricity by using the renewable energy source (Hydro) supplying to the Indian Grid. The project is environmentally benign as it results in the reduction of emissions from grid connected fossil fuel-based power plants. Therefore, the project reduces greenhouse gas emissions and thereby contributes to sustainable development.

A risk based approach has been followed to perform this verification. In the course of verification, 06 Corrective Action request (CARs), 00 Forward Action Request (FAR) and 01 Clarification request (CLs) were raised and successfully closed.

The review of the project design documentation, monitoring report and additional documents related to baseline and monitoring methodology; the subsequent background investigation, telephonic interviews and stakeholders have provided Applus+ Certification with sufficient evidence to validate the fulfillment of the stated criteria.

Applus+ Certification confirms that the project is implemented in accordance with the registered VCS- PD. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the project's GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information seen and evaluated we confirm that the

emission reductions from the project activity “Hydroelectric Project in Kinnaur District in Himachal Pradesh” in Himachal Pradesh, India during the period 01-May-2020 to 31-July-2021 (including both days) amount to 4,878,965 tCO_2e.

1 INTRODUCTION

1.1 Objective

Applus+ Certification has been contracted by JSW Hydro Energy Limited (project proponent), to undertake the verification of the renewable energy project titled "Hydroelectric Project in Kinnaur District in Himachal Pradesh" (VCS ID1742). The verifiers have reviewed the GHG data collected to date for the monitoring period from 01-May-2020 to 31-July-2021(including both days) covered in this verification. The objective of this verification is a thorough and independent assessment of registered project activities against the applicable VCS requirement by the VVB. 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 scope of the verification was the independent and objective review and ex-post determination of the monitored reductions in GHG emissions from "Hydroelectric Project in Kinnaur District in Himachal Pradesh". The verification of this project was based on the registered project description/1.1,1.2/ & monitoring report /4/ and supporting documents submitted by the project proponent to the verification team. The documents were reviewed against the following guidance and protocols:

VCS standard Version 4.1, Issued: 19-September-2019; Updated: 22-April-2021 /16/

Approved baseline and monitoring methodology ACM0002 ver. 12.1.0 "Consolidated baseline methodology for grid-connected electricity generation from renewable sources"/14/

VCS Program Guide, Version 4.0, dated 19-September-2019 /17/

CDM VVS for project activities version 02.0 /22/

CDM PS for project activities version 02.0 /21/

The 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 level of assurance of the verification report falls under reasonable assurance engagements as selected by the Client. 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.

1.4 Summary Description of the Project

The project activity is generation of electricity by using hydro-electricity generators. The energy generated is supplied to the Indian Grid /9/, which operates the national grid system. The project is environmentally benign as it results in the reduction of emissions from grid connected fossil fuel-based power plants. The project activity leads to reduction of greenhouse gas (GHG), as the energy is generated from renewable source. The emission reductions were real, measurable, and verifiable and play a beneficial role in the mitigation of climate change. The project activity is 1000 MW run of the river hydro power plant harnessing the potential of river Sutlej executed by Jaypee Karcham Hydro Corporation Limited (JKHCL) & after 01-September-2015 onwards, owned by Himachal Baspa Power Company Ltd. (HBPCL). However, on 11-September-2018, the company name has been changed from Himachal Baspa Power Company Ltd. (HBPCL) to JSW Hydro Energy Limited. Supporting document dated 11-September-2018 from Registrar of Companies (ROC), Ministry of Corporate Affairs, Govt. of India have been submitted by PP and found correct.

The Project activity involves installation of a run-of river hydropower plant system with capacity 1000 MW/1.2/. The unit consists of three phase of capacity 250MW and 4 semi-umbrella vertical synchronous generators, 277.70 MVA with higher temperature rise, resulting in net generation capacity of 1000MW/18/.

The project is registered with UNFCCC under Clean Development Mechanism program (CDM) with Registration reference number 4993[1]. The start date of the project activity is the earliest date of commissioning of the 1st 250 MW plant unit (unit-1) involved in the project activity i.e. on 26-May-2011. The fixed VCS crediting period is chosen from 01/01/2013 to 31/12/2022.

The project activity run of the river hydro power project at location Karcham & Wangtoo; set up on the river Satluj in Himachal Pradesh. The geographic coordinates of the project area are the following:

Latitude - 31°30’50’’ - 31°32’10’’ N

Longitude - 78°11’15’’ - 78°01’05’’ E

[1] https://cdm.unfccc.int/Projects/DB/RWTUV1310469729.49/view

Nearest broad gauge railway station is Kalka under Northern Railway, which is 290 kms from the project site. The nearest airport to the project site is Shimla, which is 210 km from Karcham & Wangtoo site. The airport is connected to the project site by a paved road. Location of the project was verified through Google Map (https://www.gps-coordinates.net/) as well as through sharing of live coordinates by onsite PP representatives and found consistent with the data provided in the registered VCS-PD/1.1/.

The Turbine Generators were commissioned on 24-May-2003 unit-1, 29-May-2003 Unit-II and 08-June-2003 unit-II, which was verified against the registered VCS-PD/1.2/ and commissioning certificates/9/.

By document review and online interview with PP representative's present onsite of the project activity, the verification team confirms that all the components of installed technology are fully functional. The total emission reductions achieved under the monitoring period01-May-2020 to 31-July-2021 (including both days) amount to 4,878,965tCO_2e./5/.

2 VERIFICATIONPROCESS

The registered VCS project is undergoing periodic verification under VCS, the approach adopted to ensure the quality of emission reductions is described in the following sections.

2.1 Method and Criteria

Verification was conducted using Applus+ Certification procedures in line with the requirements CDM validation and verification standard for project activities, Version 02.0 for the project activity and "VCS standard version 4.1 and program guideline version 4.0" and is conducted using standard auditing techniques to assess the correctness of the information provided by the project participants. Before the assessment begins, members of the team covering the technical scope(s), sectoral scope(s), and relevant host country experience for evaluating the VCS project activity are appointed. The project activity does not fall under category "grouped projects", hence any sampling methods not to be employed by the validation/verification body for the verification of GHG emission reductions or removals generated by the project.

It is to be 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 verification process consists of the following three phases;

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

2.2 Document Review

The verification is performed primarily as a document review of the registered VCS PD/1.1/, previous MR and Verification report and associated documents as stated in details in appendix 1 of this document. The assessment is performed by a verification team referring the Applus+ Certification internal procedures in line with latest VCS requirements. 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

Due to the current situation with the global COVID-19 pandemic scenario and country wide lock down in most of countries across the globe, an on-site inspection has not been performed by the assessment team. However, the representatives of the PPs and onsite staff of PP were interviewed online via Skype/WhatsApp on 28-August-2021 i.e. personnel responsible for monitoring of the project activity, data collection and management, and QA/QC procedure. The details of the people interviewed are mentioned in the table below:

S N	Name	Organization
1	Mr. Anil KumarThakur	JSW Hydro Energy Limited
2	Mr.SouvikMitra	EKI Energy Services Limited
3	Mr.Barun Sharma	EKI Energy Services Limited
4	Mr. Vikas	JSW Hydro Energy Limited

The topics covered during interview ranges from general features and implementation of project to technical details of the project like calibration details, monitoring and measuring system and data collection, recording and archiving procedures. The assessment was drawn based on the feedback received during interview coupled with the review of supporting documents.

2.4 Site Inspections

As discussed in the above section, physical site inspection is not done for the current verification. However, to achieve a reasonable level of assurance, the assessment team has followed the alternative means to substantiate the verification criteria as described in the below table –

Assessment Criteria	Means of verification/source documents	Assessment opinion
Description of project activity	i. Commissioning certificates /9/ ii. PPA signed with SEB/10/	The information's with reference to project capacity,

Assessment Criteria	Means of verification/source documents	Assessment opinion
	iii. Latest VCS verification report /2.1/. iv. Interview with PP representatives on 28-August-2021	technology, plant equipment's and commissioning dates as provided in section 1.1 of MR are found consistent with the documents.
Compliance of the project implementation with the registered project designdocument	i. Monthly JMRs signed by SEB and JSWHEL/8/ ii. Geographical co-ordinates (Location of Project activity) verified through Google Map[2] as well as sharing of live location from PP representative onsite. iii. Latest VCS verification report /2.1/. iv. PPA signed with SEB /10/ v. Interview with PP representatives on 28-August-2021 vi. Latest photographs of major project equipment's installed at site (i.e. Turbine, generators, energy meters, weir intake, penstock, tailrace etc.)/18/	Verified documents indicated the following information: • Serial number of energy meters (Main and Check) • Capacity of project • Name of project participant (Ownership of the project activity) Location of power house is verified through Google Map. Daily generation records are verified on sample basis to check the operational status of project activity. Grid connectivity of the project is confirmed through the PPA. All the information's regarding the project implementation as discuss above are further verified through previous VCS verification report/2.1/ and found consistent.
Compliance of the registered monitoring plan with applied methodologies andstandardized baselines	i. Interview with PP representatives on 18-August-2021 ii. PPA signed with SEB /10/ iii. Monthly JMRs signed by SEB and JSWHEL/8/ iv. Invoices raised by project developer to SEB/7/	The organizational structure, responsibilities and competencies of the personnel confirmed through interview with PP representatives. Frequency of monitoring of parameters listed under approved monitoring plan is

[2] https://www.gps-coordinates.net/

Assessment Criteria	Means of verification/source documents	Assessment opinion
	v. Photograph of all the WTGs, energy meters installed at site and screen shots of online monitoring system/18/	verified through JMRs /Invoices. The methods used for measuring, recording, storing, aggregating, and reporting the data on monitored parameters are verified though PPA and interactions with site personnel. Procedure for data uncertainty, emergency preparedness, roles and responsibility, operational and management structure are mentioned in the MR is confirmed through interview with PP representativesand found satisfactory.
Compliance with the calibration frequency requirements for measuring instruments	i. Calibration certificates of energy meters/6/ ii. Monthly JMRs signed by SEB and JSWHEL/8/ iii. PPA signed with UETCL/10/	Calibration frequency and energy meter specifications (Sr. No., make, accuracy class) is verified through calibration certificates, photographs of energy meters and further verified through monthly JMRs and found consistent. Responsibility of calibration and maintenance of energy meters is solely under control of SEB; this is verified through the PPA.
Assessment of data and calculation of emission reductions or net removals	i. Monthly JMRs signed by SEB and JSWHEL/8/ ii. Invoices raised by project developer to SEB/7/ iii. Latest VCS verification report for last verification/2.1/	Monthly values of monitoring parameters used in ER calculation are verified through JMRs and cross verified with the invoices. Methods, formulae and emission factor for calculating baseline emissions have been followed are in accordance with the applied methodology /14/ and as

Assessment Criteria	Means of verification/source documents	Assessment opinion
		described in the previous approved VCS verification report/2.1/.

It is noteworthy that no sampling plan for verification is applied as 100% data is verified for the current monitoring period. Most of the reference document referred by the assessment team (above table) are either issued /endorsed by grid utility (SEB) Power Grid Corporation of India Ltd., a government agency, hence is deemed authentic.

The assessment team has also used documents such as validation report/2.2/ and verification reports/2.1/ available publicly. Furthermore, the project activity already verified under VCS previously and currently undergoing periodic VCS verification. Hence, based on the information's available through approved documents (VCS verifications), it can be confirmed that project is implemented and being operated as described in the registered PD/1.1/.

The assessment team has verified sufficient appropriate audit evidences, to reduce audit risk to an acceptably low level as requisite to achieve reasonable level of assurance for the current verification.

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 Verification On-site 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 (CR) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met. All CARs and CRs raised by the Applus+ Certification 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 current verification, 06 Corrective Action request (CARs) and 01 Clarification request (CRs) and 00 Forward Action Request (FARs) were raised and successfully closed.

All the findings that are raised and communicated to project participant during the verification are included under Appendix 3. The section also includes the response, if provided, by the project participants and an assessment by the verification team if it was closed out or otherwise.

2.5.1 Forward Action Requests

The project activity is undergoing periodic verification under VCS; there were no FARs raised during the previous verification. Also, no FAR is raised during the current verification.

2.6 Eligibility for Validation Activities

This section is not applicable for present verification, as Applus+ Certification holds the accreditation for Validation of projects under this Sectoral Scope

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

Project has been also registered with UNFCCC under Clean Development Mechanism (CDM) and the UN reference number is 4993[3]. The project proponent has provided undertaking that it will not claim any GHG credits under UNFCC CDM during the current monitoring period. Audit team checked the REC Mechanism database of India and found that the project activity is not accredited / registered under REC mechanism. Further, declaration for the same is checked and found correct by the assessment team. Also assessment team checked the following registries to confirm the same. The details of the registries checked are as follows:

1. https://www.recregistryindia.nic.in/
2. http://www.goldstandard.org/

Rejection by other GHG programs

[3]https://cdm.unfccc.int/Projects/DB/RWTUV1310469729.49/view

The Project is not rejected by other GHG programs. A declaration/14/ for the same is checked and found correct by the assessment team. Also assessment team checked the following registries to confirm the same. The details of the registries checked are as follows:

1. https://www.recregistryindia.nic.in/
2. http://cdm.unfccc.int/
3. http://www.goldstandard.org/
4. https://verra.org/verra-standards-and-programs/

The Project has no intend to generate any other form of GHG-related environmental credit for GHG emission reductions or removals claimed under the VCS Program. Renewable energy certificates are available for trading in the host country However, the same is not availed by the Project Proponent. The undertaking regarding the same is submitted by the PP which is acceptable to the assessment team and assessment team also checked the REC web site (https://recregistryindia.nic.in/) and found the declaration/14/ to be correct.

3.2 Methodology Deviations

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

3.3 Project Description Deviations

Deviation accepted during the previous monitoring period is as follows:

As per the registered VCS PD the PP is “Himachal Baspa Power Company Ltd.” The company name changed to “JSW Hydro Energy Limited” on 11-September-2018. The relevant document for change in company name issued by Registrar of Companies, Govt. of India have been checked and found correct. PP also informed that corresponding change in communication agreement to VCS has been provided. Thus, assessment team has accepted the project description deviation.

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 a run-of-river hydropower project having aggregated installed capacity of 1000 MW that utilizes the natural flow of Satluj to generate electricity. The project location is Karcham and Wangtoo villages in Kinnaur district of Himachal Pradesh. There are four identical power units each having an installed capacity of 250 MW. Theproject activity includes 4 Francis turbines (with a rated capacity of 250 MW).
The project, being a run-of-river type Hydro-Power project, would generate power by utilizing the water diverted from the flow of river Satluj. The flow in the river Satluj is contributed by several nullahs and khuds and numerous glaciers. The diversion barrage of the project is located across river Satluj, one of the major tributaries of river Satluj, at Kuppa in Himachal Pradesh.
Online interview with PP representatives of the project activity was carried out on 28-August-2021 by the verification team to check the implementation status of the project activity and the instrumentation installed for the project activity.

The Monitoring Report provided the downtime of the plant, occurred during this monitoring period is given in the table below.

01-May-2020 to 31-December-2020

Sl.No.	Description of category	Unit-1	Unit-2	Unit-3	Unit-4	Total Duration of Shutdown	Remarks
		HH:MM	HH:MM	HH:MM	HH:MM	HH:MM	
1	Planned Shutdown	02:05	01:31	~	~	03:18	To attend the Rotor Ground Fault Alarm, stopped Unit & cleaned the Rotor Slip Ring.
2	Annual Maintenance - Shutdown	419:05	606:21	414:22	908:30 2347	2348:18	Annual maintenance of units, Dewatering of penstock, generator, GT maintenanc

							e, GIS SF6 gas measurement, Generator Protection testing, maintenance of UAB & UAT, Meggering of MIV, DTG, CWS pumps etc, SCADA signal testing & various panel cleaning.
3	Forced Shutdown	51:20	--	36:38	01:08	89:06	Unit 1:- Stator bar rectification work Unit 3:- Stator bar rectification work Unit 4:- DTG oil temp.-1 RTD failure.
4	Forced Shutdown (Due to High Silt / Flushing)	10:31	09:23	11:20	06:30	36:44	Due to High Silt

01-January-2021 to 31-July-2021

Sl.No.	Description of category	Unit-1	Unit-2	Unit-3	Unit-4	Total Duration of Shutdown	Remarks
		HH:MM	HH:MM	HH:MM	HH:MM	HH:MM	
1	Planned Shutdown	-	-	-	-	-	

2	Annual Maintenance - Shutdown	-	-	-	-	-	
3	Forced Shutdown	03:43	-	-	02:00	05:43	Unit 1 & Unit 4:- Stator bar rectification work
9	Forced Shutdown (Due to High Silt / Flushing)	20.13	20.36	16.17	18.16	**75:22**	**Due to high silt**

The PP has provided the photograph and plant log book to verification of breakdown due to not functioning of the Unit-II during the period 01-May 2020 till 31-July-2021. The same has been verified also through Interview with the personnel (plant operator) from the operation team and found to be correct, hence accepted.

Interview of the personnel was conducted by the verification team, which revealed that all the QA/QC procedures listed in the registered PD/1.2/ have been followed while operating the project activity.

All parameters stated in the monitoring plan in registered PD/1.2/ and the applied methodology/14/ has been fulfilled in the current monitoring report. All baseline emission parameters have been verified and found satisfactory. The discussion regarding each parameter has been elaborated in the further section of this report.

PP will not claim the carbon credits under any other GHG emission reduction scheme (including CDM) for the present monitoring period under VCS and PP has provided declaration on the same during this verification. Hence, there is no possibility of double counting.

Assessment team concludes the following:

- The implementation status of project activity was found to be in compliance with registered PD /1.2/
- VVB has conducted the online interviews with PP representative's present onsite to confirm the implementation status of the project.
- The commissioning date of the project activity was found to be accurately and consistently recorded.
- The actual operation of project activity was found to be following the flow diagram provided in revised PDD/1.2/.
- There was no increase in emission reduction from estimates made in revised PDD/1.2/, therefore no additional explanation was sought from PP regarding the same.
- The project is registered under VCS program with reference number 1742/13/

4.2 Safeguards

4.2.1 No Net Harm

This project activity will not involve any negative environmental or socio-economic impacts, as the generation of power is by using hydro which is a clean source of energy.

4.2.2 Local Stakeholder Consultation

Local stakeholder consultation has been conducted at the time of project registration. As confirmed by PP during interviews, for on-going stakeholder's communication, PP has maintained feedback/complaint register at the site office. Local stakeholders can anytime lodge their grievances if any in the register over the operational life time of the project. During current monitoring period no grievance was received. Thus, assessment team is of the opinion that the ongoing stakeholder mechanism is adequate and appropriate.

4.3 AFOLU-Specific Safeguards

For non-AFOLU projects, this section is not required.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The project activity has been monitored as per the monitoring plan mentioned in registered PD/1.2/. All the deviations identified during the previous monitoring periods have been approved by VERRA. The verification team confirms that the flow of information (from data generation, aggregation, to recording, calculation and reporting for these parameters including the values) is as per the monitoring plan mentioned in PD/1.2/.

The assessment of each parameter identified in the project activity to calculate the GHG emission reductions have been done in the tables given below –

1. **Data/Parameter, Unit** Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (**$EG_{facility,y}$**) inMWh

<table>
<tr><td></td><td>Discussion and verification assessment</td></tr>
<tr><td>Purpose of data</td><td>Baseline emissions</td></tr>
<tr><td>Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)</td><td>The quantity of net electricity generation supplied by the project plant to the grid is monitored from the bi-directional energy meter of accuracy class 0.2s.
Make - L & T
Accuracy class by energy meter – 0.2s
Calibration Frequency – Once in 2 years
Meter Installed by Power Grid (to monitor net energy generation)
<table>
<tr><td>Location</td><td>Type</td><td>Serial Number</td><td>Previous Calibration date</td><td>Calibration date</td><td>Due date of calibration</td></tr>
<tr><td>Feeder-1</td><td>Main</td><td>NP8526A</td><td>28-November-2018</td><td>20-November-2020</td><td>19-November-2022</td></tr>
<tr><td>Feeder-2</td><td>Main</td><td>NP8530A</td><td>29-November-2018</td><td>20-November-2020</td><td>19-November-2022</td></tr>
</table></td></tr>
</table>

Feeder-3	Main	NP8528A	29-November-2018	20-November-2020	19-November-2022
Feeder-4	Main	NP8529A	29-November-2018	19-November-2020	19-November-2022
Feeder-5	Main	NP8527A	29-November-2018	19-November-2020	18-November-2022
Feeder-6	Main	NP8546A	29-November-2018	19-November-2020	18-November-2022
Feeder-1	Check	NP8400A	30-November-2018	19-November-2020	18-November-2022
Feeder-2	Check	NP8401A	30-November-2018	19-November-2020	18-November-2022
Feeder-3	Check	NP8402A	30-November-2018	20-November-2020	18-November-2022
Feeder-4	Check	NP8403A	30-November-2018	19-November-2020	18-November-2022
Feeder-5	Check	NP8548A	30-November-2018	19-November-2020	18-November-2022
Feeder-6	Check	NP8547A	30-November-2018	19-November-2020	18-November-2022

Meter installed for Units at 15.75kV side (to monitor Total Generation)

Unit No.	Type (Main/Check)	Serial No.	Previous calibration date	Current Calibration Date	Next Calibration Due Date
Unit-1	Main	LT0175B	01-December-2018	10-November-2020	09-November-2022
	Check	LT0176B	01-December-2018	10-November-2020	09-November-2022
Unit-2	Main	LT0177B	01-Decembe	10-Novembe	09-Novembe

				r-2018	r-2020	r-2022
		Check	LT0178 B	01-Decembe r-2018	10-Novembe r-2020	09-Novembe r-2022
	Unit -3	Main	LT0179 B	01-Decembe r-2018	10-Novembe r-2020	09-Novembe r-2022
		Check	LT0180 B	01-Decembe r-2018	10-Novembe r-2020	09-Novembe r-2022
	Unit -4	Main	LT0181 B	01-Decembe r-2018	10-Novembe r-2020	09-Novembe r-2022
		Check	LT0182 B	01-Decembe r-2018	10-Novembe r-2020	09-Novembe r-2022

Measuring/Reading/ Recording frequency	Continuous monitoring of electricity generation and import, monthly recording of net electricity export (Joint Meter Reading Reports)/8/
Data collection (from data generation, aggregation, to recording, calculation and reporting)	At the end of each month, the data from the monthly meter readings as provided in Joint Meter Reading Report/8/, will be added up to obtain the total monitoring period net electricity generation. The revised PDD/1.2/ states that the calibration frequency of the equipment should as per the manufacturer specification i.e., once in two years. However, there is no delay in calibration has been observed as the calibration does not cover the present monitoring period. Therefore, it was accepted by the assessment team.
Verified value	6,075,166.81 MWh
Cross checks	The verified values were crosschecked from the monthly invoices raised to SEB/7/. The values in Joint Meter reading reports/8/ and Invoices raised to SEB /7/are same.
QA/QC procedures applied	The necessary QA/QC procedures are in place and the data management system is effective and reliable. The technical details of the meters are specified in the MR/4/ are found consistent with calibration certificates/6/.

2. **Data/Parameter, Unit:** Total electricity produced by the project activity, including the electricity supplied to the grid and the electricity supplied to internal loads, in year y (TEG_y) MWh

	Discussion and verification assessment
Purpose of data	For cross check of net generation
Monitoring equipment (type, accuracy class,	The quantity of net electricity generation supplied by the project plant to the grid ismonitored from the bi-directional energy meter of accuracy class 0.2s.

serial number, calibration frequency, date of last calibration, validity)

Make - L & T

Accuracy class by energy meter – 0.2s

Calibration Frequency – Once in 2 years

Meter Installed by Power Grid (to monitor net energy generation)

Location	Type	Serial Number	Previous Calibration date	Calibration date	Due date of calibration
Feeder-1	Main	NP8526A	28-November-2018	20-November-2020	19-November-2022
Feeder-2	Main	NP8530A	29-November-2018	20-November-2020	19-November-2022
Feeder-3	Main	NP8528A	29-November-2018	20-November-2020	19-November-2022
Feeder-4	Main	NP8529A	29-November-2018	19-November-2020	19-November-2022
Feeder-5	Main	NP8527A	29-November-2018	19-November-2020	18-November-2022
Feeder-6	Main	NP8546A	29-November-2018	19-November-2020	18-November-2022
Feeder-1	Check	NP8400A	30-November-2018	19-November-2020	18-November-2022
Feeder-2	Check	NP8401A	30-November-2018	19-November-2020	18-November-2022
Feeder-3	Check	NP8402A	30-November-2018	20-November-2020	18-November-2022
Feeder-4	Check	NP8403A	30-November-2018	19-November-2020	18-November-2022
Feeder-5	Check	NP8548A	30-November-2018	19-November-2020	18-November-2022
Feeder-6	Check	NP8547A	30-November-2018	19-November-2020	18-November-2022

<table>
<tr><td></td><td>
Meter installed for Units at 15.75kV side (to monitor Total Generation)
<table>
<tr><th>Unit No.</th><th>Type (Main/Check)</th><th>Serial No.</th><th>Previous calibration date</th><th>Current Calibration Date</th><th>Next Calibration Due Date</th></tr>
<tr><td rowspan="2">Unit -1</td><td>Main</td><td>LT0175 B</td><td>01-December-2018</td><td>10-November-2020</td><td>09-November-2022</td></tr>
<tr><td>Check</td><td>LT0176 B</td><td>01-December-2018</td><td>10-November-2020</td><td>09-November-2022</td></tr>
<tr><td rowspan="2">Unit -2</td><td>Main</td><td>LT0177 B</td><td>01-December-2018</td><td>10-November-2020</td><td>09-November-2022</td></tr>
<tr><td>Check</td><td>LT0178 B</td><td>01-December-2018</td><td>10-November-2020</td><td>09-November-2022</td></tr>
<tr><td rowspan="2">Unit -3</td><td>Main</td><td>LT0179 B</td><td>01-December-2018</td><td>10-November-2020</td><td>09-November-2022</td></tr>
<tr><td>Check</td><td>LT0180 B</td><td>01-December-2018</td><td>10-November-2020</td><td>09-November-2022</td></tr>
<tr><td rowspan="2">Unit -4</td><td>Main</td><td>LT0181 B</td><td>01-December-2018</td><td>10-November-2020</td><td>09-November-2022</td></tr>
<tr><td>Check</td><td>LT0182 B</td><td>01-December-2018</td><td>10-November-2020</td><td>09-November-2022</td></tr>
</table>
</td></tr>
<tr><td>Measuring/Reading/ Recording frequency</td><td>Continuous monitoring of electricity generation and import, monthly recording of net electricity export (Joint Meter Reading Reports)/8/</td></tr>
<tr><td>Data collection (from data generation, aggregation, to recording, calculation and reporting)</td><td>At the end of each month, the data from the monthly meter readings as provided in Joint Meter Reading Report/8/, will be added up to obtain the total monitoring period net electricity generation.
The revised PDD/1.2/ states that the calibration frequency of the equipment should as per the manufacturer specification i.e., once in two years. However, there is no delay in calibration has been observed as the calibration does not cover the present monitoring period. Therefore, it was accepted by the assessment team.</td></tr>
<tr><td>Verified value</td><td>6,116,020.90MWh</td></tr>
<tr><td>Cross checks</td><td>The verified values were crosschecked from the monthly invoices</td></tr>
</table>

	raised to SEB/7/. The values in Joint Meter reading reports/8/ and Invoices raised to SEB /7/are same.
QA/QC procedures applied	The necessary QA/QC procedures are in place and the data management system is effective and reliable. The technical details of the meters are specified in the MR/4/ are found consistent with calibration certificates/6/.

3. Data/Parameter, Unit: Installed capacity of the hydro power plant after the implementation of the project activity (Cap $_{PJ}$) W

	Discussion and verification assessment
Purpose of data	For cross check of project emissions
Monitoring equipment (type, accuracy class, serial number, calibration frequency, date of last calibration, validity)	Commissioning Certificate.
Measuring/Reading/ Recording frequency	Commissioning Certificate.
Data collection (from data generation, aggregation, to recording, calculation and reporting)	Commissioning Certificate.
Verified value	$250*4*10^6$
Cross checks	NA
QA/QC procedures applied	The necessary QA/QC procedures are in place and the data management system is effective and reliable. The technical details of the meters are specified in the MR/4/ are found consistent with Commissioning Certificate.

4. **.Data/Parameter, Unit:** Area of the reservoir measured in the surface of the water, after the implementation of the project activity, when the reservoir is full. (A $_{PJ}$) m^2

	Discussion and verification assessment
Purpose of data	For cross check of net generation project emissions
Monitoring equipment (type, accuracy class, serial number,	Topographic survey

calibration frequency, date of last calibration, validity)	
Measuring/Reading/ Recording frequency	NA
Data collection (from data generation, aggregation, to recording, calculation and reporting)	NA
Verified value	529,209 as in September 2019 and 551,268 as in October 2020 (As per PDD: area 588,400 m^2 having a power density of 1,699.52 W/m^2.
Cross checks	Calculated using stream profile and valley cross sections
QA/QC procedures applied	As per IS 5477 (Part 1): 1999 (reaffirmed 2004) – Fixing the capacities of reservoirs – Methods – Part I – General Requirements (1st revision)

The above-mentioned parameter was measured in accordance with the approved PDD/9/ and monitoring plan of the applied methodology/11/ as *ex-post*. The following parameters were directly taken from the approved PDD/9/ to calculate the emission reduction as *ex-ante* fixed:

a) **$EF_{OM,y}$** Operating Margin emission factor for erstwhile NEWNE regional grid. The value of the parameter is 1.0086 as per the registered PD/1.2/.

b) **$EF_{,BM,y}$** Build Margin emission factor for the erstwhile NEWNE regional grid.The value of the parameter is 0.5977 as per the registered PD/1.2/.

c) **$EF_{Grid,CM,y}$**: The parameter is CO2 emission factor of the grid. The value of the parameter is 0.8031 as per the registered PD/1.2/.

GHG Calculations:

The calculation of emission reduction has been done in accordance to the applied methodology/11/. As per the applied methodology, the values of project emission and leakages are considered as zero for the project activity. The equation used for calculation of baseline emission is given below:

Baseline emissions are calculated as follows:

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

Where,

BE_y = Baseline Emissions (tCO_2/year)

$EG_{PJ,y}$ = 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/year)
$EF_{grid, CM, y}$ = Baseline Emission Factor (Combined margin CO_2 emission factor for grid)

Therefore, the baseline emissions for Year 2020 (from 1-May- 2020 till 31- December 2020)
= 3,856,916.46 MWh * 0 .8031 tCO2/MWh
= 3,097,489 tCO_2e (Round down Value)
Therefore, the baseline emissions for Year 2021 (from 01-January 2021 till 31-July- 2021)
= 2,218,250.35 MWh * 0 .8031 tCO2/MWh
= 1,781,476 tCO_2e (Round down Value)

The Total baseline Emissions = 3,097,489+ 1,781,476= 4,878,965 tCO_2e

Project emissions are calculated as follows:
As per para 38 of ACM0002 ver. 12.1.0., for all renewable energy power generation project activities, emissions due to the use of fossil fuels for the backup generator can be neglected.

Emissions from water reservoirs of hydro power plants ($PE_{HP,y}$)

As per ACM0002 version 12.1.0; *(b) If the power density of the project activity (PD) is greater than 10 W/m2 :* $PE_{HP,y} = 0$

It has been clearly shown by the PP in the MR/4/ that the power density of the project activity is (1000*1000*1000) w /551,268 m^2 = 1,814 W/m^2, which is higher than $10W/m^2$. Therefore, as per ACM0002 it can be taken as zero. This consideration was found to be in line with the applied methodology ACM0002 ver. 12.1.0/14/.

Leakages have been considered as zero for the project activity as per the applied methodology/14/.

Therefore,

Net Emission reductions = Baseline emissions - Project emissions – Leakage

= 4,878,965 – 0 – 0 =4,878,965 tCO_2e

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.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

The project activity under consideration consists of a well-defined management structure which ensures the quality of data monitored. The project monitoring system and reporting procedure are well managed by State Electricity Board. The project facility has a dedicated team comprising of the members having vast standing experience in the said field of operations and the roles and responsibilities towards the project operation and management are well structured. The project activity ensures the data acquisition and data processing system in two parallel ways, one is automatically online registering procedure through online data logging and another is the manual logging procedure in the log book. The project activity employs trained personnel at project site as per the operational responsibility to monitor and archive data.

All the parameters used for the determination of the Emission Reductions are discussed in previous section of this report. All the data recorded are in compliance with the monitoring plan. During the interview with onsite personnel's the assessment team interviewed employees from all the departments for understanding the entire data flow system and ensures the robustness of the data corroboration procedure maintained in the SEB.

The emission reduction calculation for the project activity is estimated based on the electricity supplied by the TG sets installed at site. Monthly values of electricity generated inserted in the ER sheet was verified with the Joint Meter Reading Report/8/ and Invoices provided by the project proponent/7/. Since 100% data was verified, the team can ascertain that the values taken for emission reduction calculation are free from material errors. Therefore, the assessment team confirms that the emission reductions are free from any omissions, misstatement and material errors.

4.6 Non-Permanence Risk Analysis

Not Applicable as this section is not applicable for non-AFOLU projects.

5 VERIFICATION CONCLUSION

LGAI Technological Center, S.A. (also referred to as Applus+ Certification), contracted by JSW Hydro Energy Limited, has performed the independent verification of the emission reductions for the VCS project activity (VCS ID- 1742) "Hydroelectric Project in Kinnaur District in Himachal Pradesh" in India for the monitoring period 01-May-2020 to 31-July-2021 as reported in the Monitoring Report Version 03.0 dated 20- September-2021/4/. The JHPL is responsible for the collection of data in accordance with the monitoring plan and responsible for 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

Applus+ Certification commenced the verification on the basis of the baseline and monitoring methodology ACM0002 ver. 12.1.0/14/, the monitoring plan contained in the approved VCSPD/1.2/ and VCS guidelines version 4.0, Monitoring Report Version 03.0 dated 20-September-2021/4/as per the process described under Section 2 of this report.

Applus+ Certification verification approach is based on the understanding of the risks associated with reporting of GHG emission data and the controls in place to mitigate these. Applus+ Certification planned and performed the verification by obtaining evidence and other information and explanations that Applus+ Certification 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-May-2020 to 31-July-2021 are fairly stated in the Monitoring Report Version 03.0 dated 20-September-2021/4/. The GHG emission reductions were calculated correctly on the basis of the approved baseline and monitoring methodology ACM0002 ver. 12.1.0/14/, and the VCS standard 4.1.

Verification period: From 01-May-2020 to 31-July-2021 (including 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)
Year 2020 (from 01-05-2020 to 31-12-2020)	3,097,489	0	0	3,097,489
Year 2021 (from 01-01-2021 to	1,781,476	0	0	1,781,476

31-07-2021)				
Total	**4,878,965**	**0**	**0**	**4,878,965**

APPENDIX 1: DOCUMENT REFERENCES

S.No	Title of Document	Version	Date
1	Registered VCS-PD	02	17-04-2018
2	VCS Verification Report for monitoring period from 01-01-2018 to 30-04-2020	02	29-06-2020
3.	VCS Monitoring Report (Draft)	01	24-08-2021
4.	VCS Monitoring Report (Final)	03	20-09-2021
5.	ER spread sheet (corresponding to the final monitoring report)	02	09-09-2021
6	Certificates of Calibration for all the meters belongs to project activity		
6	Energy Meter Calibration test report	-	01-12-2018 10-11-2020 09-11-2022
7.	Invoices addressed to State Electricity Board (SEB) for this monitoring period	-	01-05-2020 to 31-07-2021
8.	Joint Monthly Meter Readings for this monitoring period	-	
9.	Commissioning certificate of Project activity	-	Unit I commissioned on 26/05/2011
10.	• Power Purchase Agreement • Subsequent amendment in PPA	-	04/06/1997 28/02/2003
11.	Environmental Clearance by MoEF GOI- No J-12011/j/87-IA-I d for the project activity Transfer of EC from JIL to JHPL- No J-13011/j/87-IA-I	-	-
12.	JHPL project Layout plan	-	-
13.	VCS webpage for the project, VCS ID 92; https://registry.verra.org/app/projectDetail/VCS/92	-	-
14.	"Consolidated baseline methodology for grid-connected electricity generation from renewable sources", ACM0002	12.1	-
15.	VCS Standard	4.1	Issued:19-09-2019 Updated: 22-04-2021
16.	VCS Program Guide	4.0	19-09-2019
17.	Latest photographs of major project equipment's installed at site (i.e. Turbine, generators, energy meters, weir intake, penstock, tailrace etc.)	-	18-08-2021
18.	CDM Project Standard for Project activity	02.0	29-11-2018
19.	CDM Validation and Verification Standard for Project activity	02.0	29-11-2018
20.	JHPL Self Declaration Letter	-	07-09-2021
21.	VCS Monitoring Report	03	03-09-2021

APPENDIX 2: ABBREVIATIONS

Abbreviations	Full texts
CAR	Corrective Action Request
CDM PCP	Clean Development Mechanism Project Cycle Procedure
CDM PS	Clean Development Mechanism Project Standard
CDM VVS	Clean Development Mechanism Validation and Verification Standard
EB	Executive Board
EF	Emission Factor
EPC	Engineering ,Procurement and Construction
ER	Emission Reductions
CEA	Central Electricity Authority
CER	Certified Emission Reduction
CR	Clarification Request
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GOI	Government of India
IPCC	Intergovernmental Panel on Climate Change
MGR	Monthly Generation Reports
MP	Monitoring Plan
MR	Monitoring Report
MWh	Megawatt hour
PD	Project Description
PP	Project Proponent
PS	Project Standard
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VVB	Validation and Verification Body
VVS	Validation and Verification Standard

APPENDIX 3: FINDINGS OVERVIEW

Findings Overview Summary

Type	CAR	CL	FAR
Total Number raised	06	01	00

Remaining FAR from validation and/or previous verification

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

Table 1. CR from this verification

CL ID	01	Section no.	MR	Date :30/08/2021
Description of CL				
PP to submit documentary evidence for change in ownership of the PP. The PP is requested to provide declaration document pertaining to section 1.10 of VCS MR version 01				
Project participant response				Date :-03/09/2021
Documentary evidence for change in ownership provided to VVB PP has provided undertaking regarding avoidance of double accounting				
Documentation provided by project participant				
1. Evidence of change in ownership 2. Undertaking from PP regarding avoidance of double accounting of GHG credits				
DOE assessment				Date: 14/09/2021

1. Ownership change document has not submitted by PP. Issue is not closed. 2. declaration document has been provided to Verification team.
Project participant response **Date :14/09/2021**
Documentary evidence of change in ownership provided – communication agreement in the name of Himachal Baspa Power Company Limited submitted to VERRA and approved by VERRA , provided to VVB https://registry.verra.org/app/projectDetail/VCS/1742 Project ownership changed from Jaiprakash Power Ventures Limited to Himachal Baspa Power Company Limited and then the name of company Himachal Baspa Power Company Limited changed to JSW Hydro Energy Limited. The documentary evidence of change in ownership (from Jaiprakash Power Ventures Limited to Himachal Baspa Power Company Limited and) and documentary evidence for name change of Himachal Baspa Power Company Limited changed to JSW Hydro Energy Limited provided o VVB
Documentation provided by project participant
1. Communication agreement in the name of Himachal Baspa Power Company Limited 2. Letter from Company Secretary of JSW Hydro Energy Limited regarding change in ownership 3. Documentary evidence of name change of Himachal Baspa Power Company Limited
DOE assessment **Date: 15/09/2021**
PP has provided the evidence for name of the company change and other supportive document and same are acceptable to assessment team. Hence CL#1 is closed.

Table 2. CAR from this verification

CAR ID	01	**Section no.**	B.1	**Date 30/08/2021**
Description of CAR				
Project participant mentioned the details regarding the technologies used in the project activity but to verify the same, no such document has been provided by the PP (i.e., technical equipment's details, Commissioning certificates, power purchase agreements, O&M agreement etc.) is provided to DOE team. Corrective action is sought for the same. PP is requested to provide the above documents to assessment team. During Skype Interview with the PP representative; it was discussed that the project is get approval from CEA to operate existing turbine at 20% more than design capacity of turbine, which impact on overall generation of project. Please provide supporting documents to verify the approval and provide justification on change on project design as it may be impact of PLF of project.				
Project participant response				**Date :03/09/2021**
Minutes of CEA meeting has been submitted which confirms exiting turbine can operate 20% more than its design capacity. The generation amount of the project activity was with 20% overloading capacity of the turbine capacity.				
Documentation provided by project participant				
Minutes of CEA meeting				

DOE assessment	Date: 14/09/2021
PP has provided the CEA approval letter/MOM no CEA/HPPI/8/2021/111, dated 29/04/2021 and other supporting documents. Hence CAR#1 is closed.	

CAR ID	02	Section no.	E.3	Date :30/08/2021
Description of CAR				
The breakdown details of the power plant are not provided in the MR. Further, supporting document regarding the breakdown details are not provided to the assessment team. PP is requested to provide the above documents to assessment team.				
Project participant response				**Date :03/09/2021**
Breakdown details provided in APPENDIX 2 of MR Supporting documents for Breakdown details also submitted to VVB				
Documentation provided by project participant				
VCS MR v02 Breakdown details logbook				
DOE assessment				**Date: 14/09/2021**
Breakdown details have been provided in appendix -1 of the updated MR. Hence CAR#2 is closed.				

CAR ID	03	Section no.	D.2	Date :30/08/2021
Description of CAR				
The values as mentioned in the MR are reserved till supporting is submitted. Thus, PP is requested to submit JMR & Invoices for the complete monitoring period. PP is requested to provide the above documents to assessment team.				
Project participant response				**Date :03/09/2021**
JMRs and Energy Bills (invoices) submitted to VVB				
Documentation provided by project participant				
1. JMRs(DPRs) 2. Energy bills				
DOE assessment				**Date: 14/09/2021**
PP has provided the JMR and Energy Bills and same has been check and found ok the values provided in ER sheet. Hence CAR#3 is closed.				

CAR ID	04	Section no.	D.2	Date :30/08/2021

Description of CAR	
The details of monitoring meters and its calibration are provided in the MR. Moreover, Calibration certificates for the complete monitoring period are also missing. As Actual ER sheet are submitted to the auditors. However, the evidence is not provided to assessment team so cannot be confirmed. Corrective action is raised for the same.	
Project participant response	**Date :03/09/2021**
Calibration reports submitted to VVB	
Documentation provided by project participant	
Calibration reports	
DOE assessment	**Date: 14/09/2021**
Calibration report has been provided and found that there is no delay in this MP. Hence CAR#4 is closed.	

CAR ID	05	Section no.	D.2 & ER Sheet	Date :30/08/2021
Description of CAR				
ER values are increased in this current MP from the estimated values. PP need to provide the justification and also explain how the IRR benchmarks are not breaching.				
Project participant response				**Date :03/09/2021**
Justification that higher value of achieved ERs in the current MP than estimated ERs does not impact additionality provided in section 5.4 of MR				
Documentation provided by project participant				
MR v02				
DOE assessment				**Date: 14/09/2021**
PP has be provided the justification in section 5.4 of the revised MR and same is acceptable to assessment team. Hence CAR#5 is closed.				

CAR ID	06	Section no.	D.2	Date :30/08/2021
Description of CAR				
PP is requested to provide the status of ongoing input mechanism for stakeholders as a part of any grievance mechanism.				
Project participant response				**Date :03/09/2021**

Grievance register provided to VVB	
Documentation provided by project participant	
Grievance register	
DOE assessment	**Date: 14/09/2021**
PP has provided the image of grievance register and same is not clear that this belong to the same project or not. PP is requested to provide the proper evidence to check the same. Hence issue is not closed.	
Project participant response	**Date : 14/09/2021**
Grievance register (sample) consisting of grievances by local community provided to VVB	
Documentation provided by project participant	
Grievance register	
DOE assessment	**Date: 15/09/2021**
PP has provided the grievance register and found ok. Hence CAR#6 is closed.	

Table 3. FAR from this verification

~~**FAR ID**~~	~~N/A~~	~~**Section No.**~~	~~N/A~~	~~**Date:**N/A~~
~~**Description of FAR**~~				
~~N/A~~				
~~**Project participant response**~~				~~**Date:**N/A~~
~~N/A~~				
~~**Documentation provided by project participant**~~				
~~N/A~~				
VVB assessment				**Date:**N/A
N/A				

APPENDIX 4: COMPETENCY STATEMENT

According to the sectoral scope / technical area and experience in the sectoral or national business environment, Applus+ Certification has composed a project assessment team in accordance with the appointment rules in the internal Quality Management System of Applus+ Certification.

The composition of audit team shall be approved by the Applus+ Certification ensuring that the required skills are covered by the team.

The four qualification levels for team members that are assigned by formal appointment rules are as presented below:

- Lead Auditor (LA).
- Auditor (A) / Auditor in Training (AiT).
- Technical Expert (TE).
- Technical Reviewer (TR).

The sectoral scope / technical area knowledge linked to the applied methodology/ies shall be covered by the assessment team.

Name	Qualification	Coverage of scope	Coverage of technical Area	Financial aspect	Host country Experience	Attendance to the Assessment (remote)
Vivek Kumar Ahirwar	Lead Auditor (LA)	Yes (1)	Yes (1.2)	N/A	Yes	Yes
Vivek Kumar Ahirwar	Technical Expert (TE)	Yes (1)	Yes (1.2)	N/A	Yes	Yes
Simon Shen	Technical Reviewer (TR)	Yes (1)	Yes (1.2)	N/A	N/A	N/A

The curricula vitae of the VVB's team members are provided below:

Vivek Kumar Ahirwar is a BEE-Certified Energy Auditor by Govt of India with over eight years of relevant experience in energy efficiency, energy audit, thermal and electrical energy generation technology from renewable source and energy conservation in energy intensive industries, designated consumers and commercial buildings, implementation of energy conservation building codes, research, process and green building projects. He is a certified lead auditor for ISO 14001 EMS and 14064. He has experience under various categories of projects stating from renewable to waste to supercritical projects and WCD. He has successfully audited more than 100 GHG (CDM/VCS/GS) projects in different states across the India. He has done Mater in Technology (Energy Management) from a premier institute, School of Energy & Environmental Studies, DAVV, Indore (M.P.), India and Bachelor of Engineering (Mechanical Engineering) from Govt. Engineering college, Rewa, RGPV, India.

Simon Shen (master degree in thermal energy engineering, bachelor degree in environmental engineering) is a lead auditor appointed by Applus+ certification for the GHG project assessment. He is based in Shanghai. He has several years of work experience in environmental protection field. Before he joined Applus+ certification, he had been worked for TÜV SÜD as a GHG validator/verifier and ISO 9001/14001 lead auditor for 3.5 years.