



VERIFICATION REPORT FOR KOYULHISAR HYDRO ELECTRICITY POWER PLANT



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Summary:

AYDEM Yenilenebilir Enerji A.S. has appointed the validation/verification body Carbon Check (India) Private Ltd. to perform verification of the registered Project Activity (VCS713) “Koyulhisar Hydro Electricity Power Plant” in Turkey (hereafter “project activity”) for the first monitoring period from 17 November 2019 to 31 December 2021 of second crediting period 17/11/2019 to 16/11/2029.

The main purpose of this project activity is to generate a clean form of electricity through renewable energy sources (Hydro Electric Power Plant). Aydem Yenilenebilir Enerji A.S. is the project proponent of the project activity. The project activity involves the operation of 3 turbines of 21MW each (aggregating to 63 MW) in Koyulhisar Town of Sivas Province, Turkey. The electricity generated from the Hydroelectric Powerplant is sold to the national grid of Turkey. The project achieved emission reductions of 127,975 tCO_{2e} annually for the monitoring period by generating net 277,784 MWh amount of electricity from the generation-mix of power plants connected to the national grid.

The purpose of the verification is to review the monitoring results and verify that the monitoring methodology was implemented according to the monitoring plan and monitoring data, used to confirm the reductions in anthropogenic emissions by sources is sufficient, definitive and presented in a concise and transparent manner. In particular, the monitoring plan, monitoring report and the project’s compliance with relevant VCS, UNFCCC and host Party criteria are verified in order to confirm that the project has been implemented in accordance with the previously registered design and conservative assumptions, as documented.

The verification scope is defined as an independent and objective review of the monitoring report (MR). The MR is reviewed against the relevant criteria and guidance documents provided by VCS which include the following: VCS Program Guide (v4.2, dated 22/06/2022), VCS Standard (v4.3, dated 22/06/2022), Program Definitions (v4.2, dated 22/06/2022), Registration & Issuance Process (v4.2, dated 22/06/2022) and in line with the VCS Validation and Verification Manual (v3.2, dated 19/10/2016) applicable at the time in order to confirm that the emission reductions produced during the monitoring period are in accordance with the project activity as provided in the registered VCS PD. The CDM-approved methodology ACM0002, Version 20 has been applied for the project activity.

The verification consisted of the following three phases:

- i) a desk review of the Monitoring Report
- ii) Remote Audit
- iii) the resolution of outstanding issues and internal technical review followed by the issuance of the final verification report and opinion.
- iv) In the course of the verification process, 11 CARs and 09 CLs were raised, and all have been successfully closed. The list of Clarification and Corrective Actions Requests (CL and CAR) is presented in this report.

CC IPL confirms that the project is implemented in accordance with the validated VCS-PD and the monitoring plan; and then, claimed emissions reductions are calculated without material misstatements. Two project description deviations have been applied to the project activity (as listed in section 3.2.2 of the monitoring report).

CC IPL has performed the verification of the project activity “Koyulhisar Hydro Electricity Power Plant (HPP)” on the basis of all issues and criteria of VCS Standard version 4.3 and VCS Program Guide version 4.2 for VCS projects and also on the criteria given to provide for consistent project operations, monitoring and reporting. Hence, in CC IPL’s opinion, the project correctly applies the baseline and monitoring methodology ACM0002, version 20 and meets the relevant UNFCCC requirements for the CDM Methodology, Voluntary Carbon Standard requirements and the relevant host country criteria.

Therefore, CC IPL is able to certify that the emissions reductions from the “Koyulhisar Hydro Electricity Power Plant” project during the period from 17 November 2019 to 31 December 2021 amount to 127,975 tCO₂e. The year-wise break up of verified emission reduction is as below:

Year	Baseline Emissions (tCO ₂ e)	Project Emissions (tCO ₂ e)	Leakage Emissions (tCO ₂ e)	Net Emission Reductions or Removals (tCO ₂ e)	GHG or
2019 (17/11/2019-31/12/2019)	0	0	0	-25	

2020 (01/01/2020 – 31/12/2020)	81,644	0	0	81,644
2021 (01/01/2021 – 31/12/2021)	46,356	0	0	46,356
Total	127,975	0	0	127,975

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1 INTRODUCTION

1.1 Objective

AYDEM Yenilenebilir Enerji A.S(Project Proponent) has appointed the VVB, CCIPL for the verification service for the VCS registered Project activity - “Koyulhisar Hydro Electricity Power Plant (HPP)” located at Koyulhisar Town,Sivas Province,Turkey, (hereafter referred to as “project activity”) against the requirement of VCS Program.

Verification is the periodic independent review and ex post determination of both quantitative and qualitative information by the Validation and Verification Body (VVB) of the monitored reductions in GHG emissions that have occurred as a result of the VCS project activity during a defined monitoring period (monitoring period 1).

The purpose of verification is to review the monitoring results and verify that the monitoring methodology was implemented according to the monitoring plan and monitoring data and used to confirm the reductions in emissions is sufficient, definitive, and presented in a concise and transparent manner. Carbon Check’s objective is to perform a thorough, independent assessment of the registered projects activities. In particular, the monitoring plan, monitoring report and the project’s compliance are verified against the relevant criteria and guidance documents provided by VCS. This allows for the confirmation that the project has been implemented in accordance with the VCS-PD/B02/ and conservative assumptions, as documented. And, also to confirm if the monitoring plan is in compliance with the VCS PD/B02/ and approved monitoring methodology, ACM0002, version 20/B04/. The objective of this verification was to verify and certify emission reductions reported for the “Koyulhisar Hydro Electricity Power Plant (HPP)” for the period 17/11/2019 to 31/12/2021.

1.2 Scope and Criteria

The verification of this project is based on the registered Project Description/B02/, the Monitoring Report of this monitoring period /01/, emission reduction calculation spread sheet /02/, supporting documents made available to the verifier and information collected through performing interviews and during the remote audit assessment. Furthermore, publicly available information was considered as far as available and required.

Carbon Check has employed a risk-based approach in the verification, focusing on the identification of significant risks and reliability of project monitoring and generation of emission reductions.

The verification is carried out on the basis of the following requirements (latest available on VCS website at the time of verification), applicable for this project activity:

- VCS Program Guide (v4.2, dated 22/06/2022)
- VCS Standard (v4.3, dated 22/06/2022)
- Program Definitions (v4.3, dated 22/06/2022)
- Registration & Issuance Process (v4.2, dated 22/06/2022)
- VCS Validation and Verification Manual (v3.2, dated 19/10/2016)
- CDM Methodology: ACM0002: Grid-connected electricity generation from renewable sources --- Version 20.0
- Other relevant rules, including the host country legislation

The scope of this verification, by independent checking of objective evidence, is as follows:

- To verify that the project is implemented as described in the project description
- To assess the project's compliance with other relevant rules including the host country legislation.
- To assess the implementation of the monitoring plan content as mentioned in the VCS-PD/B02/
- 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 /02/.
- To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
- To verify that reported GHG emission data is sufficiently supported by evidence.

The verification shall ensure that the reported emission reductions are complete and accurate in order to be certified.

The method and criteria used for verification consisted of the following phases:

1. Completeness check and desk review:
2. Remote Audit; 15/06/2022
3. Resolution of outstanding issues and issuance of final verification report and applicable VCS Validation and Verification Deeds of Representation.

Carbon Check (India) Private Ltd. conducts all its work under strict rules to safeguard impartiality and ensure the independence of the verification team. The verification does not provide any consulting or recommendations for the client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the monitoring activities.

1.3 Level of Assurance

☒ *Reasonable level of assurance*

☐ *Limited level of assurance*

1.4 Summary Description of the Project

The project activity 'Koyulhisar Hydro Electricity Power Plant' is a project activity consisting of a 63 MW Hydroelectric power plant which involves generation of grid-connected renewable energy. The power plant is connected to the national electricity grid, EPIAS of Turkey. The project is located in Koyulhisar Town of Sivas Province, Turkey. The start date for the project is 17/11/2009 as per the VCS registered PD/B02/ and Monitoring report /01/, the date on which the project activity is connected to the grid and begins generating GHG emission reductions.

The total emission reductions for the reported monitoring period 07/11/2019 to 31/12/2021 are 127,975 tCO_{2e}.

2 VERIFICATION PROCESS

2.1 Method and Criteria

The method and criteria used for verification:

The verification consists of the following three phases:

1. Completeness check and desk review of the validation report, monitoring plan, monitoring report, monitoring methodology, VCS PD, applicable tools in particular attention to the

frequency of measurements, quality of metering equipment's including calibration requirements, QA/QC procedures and other relevant documents.

2. Remote audit (including follow-up interviews with project stakeholders, when deemed necessary). The remote audit assignment includes the following:

- An assignment of implementation and operation of project activity with respect to validated VCS PD.
- Review of information flows for generating, aggregating and reporting the monitoring parameters.
- Interview with relevant personals to determine whether the operational and data collection procedures are implemented and in accordance with monitoring plan of the validated VCS PD.
- Cross check of information and data provided in the monitoring report with plant logbooks, inventories, purchase records or similar data sources.
- Check of monitoring equipment's, calibration frequency and monitoring practice in-line with methodology and validated VCS PD.
 - Review of assumptions made in calculating the emission reduction.
 - Implementation of QA/QC procedure in-line with the validated VCS PD and methodology requirement.

Resolution of outstanding issues and the issuance of the final Verification report and if applicable, the VCS Validation and Verification Deeds of Representation.

2.2 Document Review

The registered VCS PD/B02/, MR version 2.05/01/, emission reduction calculation spread sheet/02/, and supporting documents related to the project implementation, project design, monitoring and baseline were reviewed as per VCS version 04.3 standard requirements. The desk review included:

- A review of the data and information presented to verify completeness and consistency in accordance with VCS version 04 requirements/B01/.
- A review of the approved monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, quality of monitoring equipment (including calibration requirements) and the quality assurance and quality control (QA/QC) procedures.

- An evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of emission reductions.

Data input values were also checked from the records maintained by the project proponents. Results of calculations reported in the monitoring report were checked against data values as available from the project proponent in VER calculation sheet /02/.

These data values and other information related to project performance are available in the form of data records duly archived and maintained as per the quality assurance/quality control procedure specified as a part of monitoring plan in the registered VCS-PD/B02/.

Furthermore, the verification team used additional documentation by third parties like host-party legislation, and technical reports referring to the project design or to the basic conditions and technical data.

2.3 Interviews

A remote audit of the project activity was undertaken on 15/06/2022 to assess the implementation and operation of the project activity and review evidence, and interview key personnel to confirm evidence associated with the data generation, aggregation, and calculation and reporting of the monitoring parameters. The remote audit addressed:

- An assessment of the project implementation and operation as per the VCS PD/B02/ (including physical inspection to confirm physical existence and operation of project components);
- Review of information flows for generating, aggregating and reporting the monitoring parameters.
- Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the monitoring plan in the monitoring report /01/

The key personnel interviewed, and the main topics of the interviews are summarized in the table below:

Date	Name	Organisation	Topic
15/06/2022	Ihsan Sekar	AYDEM Yenilenebilir Enerji A. S	• Project Design • Project Implementation status

			• Project start date and Project Location • Roles and responsibility, Project Implementation and Operation status, Qualification and Training, Roles and responsibility. • Involved in Emissions Trading Programs and Other Binding Limits or Other Forms of Environmental Credit.
15/06/2022	Hasin Bedir	AYDEM Yenilenebilir Enerji A.S	• CER calculation and completeness of monitoring report, Electronic Monitoring system • Project implementation and operation, Project design, monitoring procedure, data and information flow, compliance of monitoring plan with monitoring methodology and approved VCS-PD. • Project Implementation status • Monitoring and operating system • Quantification of emission reductions • Monitoring parameters • Emission factor for the grid • Roles and responsibility
15/06/2022	Sultan Tuncbilek	AYDEM Yenilenebilir Enerji A.S	• Project design • Turbine details • Monitoring plan

			- Monitoring procedures and monitoring equipment - Maintenance and operation plan - Data and information flow, Data input device, Roles and responsibility, Project implementation and operation, monitoring procedure.
15/06/2022	Orugun Gul Koparan	AYDEM Yenilenebilir Enerji A.S	Installed capacity with the EPIAS grid
15/06/2022	Fatih Peker	AYDEM Yenilenebilir Enerji A.S	- Project design - Turbine details - Monitoring plan - Monitoring procedures and monitoring equipment - Maintenance and operation plan - Data and information flow, Data input device, Roles and responsibility, Project implementation and operation, monitoring procedure.
15/06/2022	Ahmet Yildiz	AYDEM Yenilenebilir Enerji A.S	- Project design - Turbine details - Monitoring plan - Monitoring procedures and monitoring equipment - Maintenance and operation plan - Data and information flow, Data input device, Roles and responsibility, Project

			implementation and operation, monitoring procedure
15/06/2022	Irmak Subasi	AYDEM Yenilenebilir Enerji A.S	- Project design - Turbine details - Monitoring plan - Monitoring procedures and monitoring equipment - Maintenance and operation plan - Data and information flow, Data input device, Roles and responsibility, Project implementation and operation, monitoring procedure
15/06/2022	Elif Irem	Local Stakeholder	Grievances

2.4 Site Inspections

Carbon Check has not conducted an on-site inspection due to the recent pandemic COVID19 and due to its related policy measures created restrictions all over the world impacting travel activities on an international level and even for in-country travel. Moreover, the site visit cannot be postponed due to verification timeline agreed between the Project Participant and the DOE as per the verification contract. /23/

A reasonable level of assurance has been maintained through the alternative means used for the purpose of validation as follows:

- An assessment of the implementation and operation of the proposed project through remote interviews with the representatives of project proponent.
- Assessment of the project design, turbines details, monitoring plan, monitoring procedures and monitoring equipment.
- Assessment of the design change impacts on the applicability of the methodology, additionality, or the appropriateness of the baseline scenario.
- Confirmation of the applicability of the methodology, monitoring, controlling instruments and operational arrangements.

The main tasks carried out during remote audit are:

- The remote audit assessment included an investigation of whether all relevant equipment is installed and works as anticipated.
- The operating staff was interviewed and observed in order to check the risks of inappropriate operation and data collection procedures.
- Information processes for generating, aggregating, and reporting the selected monitored parameters were reviewed.
- The duly calibration/testing of all metering equipment was checked.
- The monitoring processes, routines and documentations were audited to check their proper application.
- The monitoring data were checked completely.

During the remote audit all monitoring data with respect to accuracy to ensure the calculation of emission reductions was checked. All the procedures and records were found authenticated and properly maintained as per the requirements of the project.

The verification team has carried out interviews in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable to the VCS.

A remote audit inspection was carried out to check the project implementation and operation for the gap validation and verification for the VCS registered project activity, and to confirm that the project is developed as described in the VCS-PD/B04/. The project remote audit was inspected from 15/06/2022. On 15/06/2022, verification team was introduced to the project design, project implementation and operation and other description related to the project. The meeting was conducted at the project proponent's office in Turkey. The project site located in Koyulhisar Town, Sivas Province, Turkey was also inspected remotely on 15/06/2022.

2.5 Resolution of Findings

Material discrepancies identified in the course of the verification are addressed either as CARs, CLs or FARs. **Corrective action requests (CAR)** are issued, where:

- i. Mistakes have been made with a direct influence on project results requiring adjustments of the VERs/VCUs monitoring report;
- ii. Applicable methodological-specific requirements have not been met.

A **Clarification request (CL)** may be used where additional information is needed to fully clarify an issue or where the information is not transparent enough to establish whether a requirement is met.

A **forward action request (FAR)** should be issued, where:

- i. The actual project monitoring and reporting practices requires attention and /or adjustment for the next consecutive verification period, or
- ii. An adjustment of the MP is recommended.

In the context of FARs, risks have been identified, which may endanger the delivery of high-quality emissions reductions in the future, i.e. by deviations from standard procedures as defined by the MP. As a consequence, such aspects should receive a special focus during the next consecutive verification. A FAR may originate from lack of data sustaining claimed emission reductions.

A total of 11 CARs and 09 CLs had been raised for the verification of the project activity and all are closed. The findings are provided below:

Forward Action Requests

No FAR has been raised for the project activity during the monitoring period.

Eligibility for Validation Activities

Validation/Verification body (VVB), Carbon Check (India) Private Ltd. holds accreditation for validation for the relevant sectoral scope 1 and is eligible for validation/verification for the project activity.

VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

Not Applicable.

3.2 Methodology Deviations

Not Applicable.

3.3 Project Description Deviations

For the Project Proponent part, Bereket Energy was the major shareholder of Koyulhisar Üretim A.S and as the Bereket changed title as a company policy they have dissolved all the individual sister companies that hold licenses of facilities and changed the ownership as AYDEM Yenilenebilir A.Ş on 24/12/2019 as stated in official gazette with registration number of 13798. The project activity is in compliance with the scenario described at the Project Design Document. After EPIAŞ received Market Operating License on 01/09/2015, market operations were transferred from PMUM to EPIAŞ. According to the revised agreement between TEİAŞ & PP i.e., Annex-3, Article 3.3 of “The Transmission System Usage Agreement 23/06/2020”, it has been found that the testing of energy meter is carried out every 2 years.

For the periods of 11/2019, 12/2019, 01/2020 and 02/2020 there was no electricity generation due to a breakage happened in transmission line that was rehabilitated after with the maintenance agreement signed on 12/2019. /22/

3.4 Grouped Projects

Not Applicable.

VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity, “Koyulhisar Hydro Electricity Power Plant” applying the methodology ACM0002, version 20, “Koyulhisar Hydro Electricity Power Plant” /B04/. The project has been registered under VCS with VCS ID 713. The Project Proponent for the project activity is AYDEM Yenilenebilir Enerji A.S.

The project activity involves an installation of 3 turbines of 21 W each of total generating capacity of 63 MW/02/. The Hyrdoelectric power plant is located in Koyulhisar Town of Sivas Province, Turkey

and the electricity generated is exported to the national grid of Turkey. Verification team confirmed from the registered VCS PD/B02/ and remote audit that the location of the project activity including the coordinates is same as mentioned in the registered VCS PD/B02/.

The ex-ante fixed grid emission factor of 0.4607 tCO₂/MWh has been used for the baseline emission calculation, which is line with the registered VCS PD/B02/.

The registered VCS-PD/B04/ clearly describes the monitoring and responsibility of monitoring is with PP. During the remote audit, monitoring and reporting procedures were confirmed with the relevant staff and through the document review.

The monitoring plan is in accordance with the UNFCCC approved methodology ACM0002, version 20/B04/. All the data is collected and archived in accordance with the methodology and included in the monitoring plan. The monitoring has been carried out in accordance with the provision of monitoring plan, the verification team reviewed if:

- The monitoring of reductions in GHG emissions resulting from the proposed VCS project activity were implemented in accordance with the monitoring plan contained in the registered VCS-PD/B02/.
- The monitoring plan and the applied methodologies had been properly implemented and followed by the project participants.
- All parameters stated in the monitoring plan, the applied methodologies and relevant VCS requirements had been sufficiently monitored and updated.
- The responsibilities and authorities for monitoring and reporting were in accordance with the responsibilities and authorities stated in the monitoring plan.

The GHG emission reductions generated by the project activity are not included in an emissions trading program or any other mechanism that includes GHG allowance trading, this has been confirmed from the review of the PD/B02/ and also confirmed during the remote audit. The project activity has not received or sought any other form of environmental credit, this has been confirmed from the review of the PD/B02/ and also confirmed during the remote audit.

The sustainable development contribution of the project activity to the host country, Turkey have been provided in the PD/B02/ and the contributions were confirmed with the PP during the remote audit. The main sustainable development contributions have been listed under Energy, Employment opportunities and combating climate change,

Overall, the project has been implemented in accordance with the registered VCS-PD/B02/. Safeguards

4.1.1 No Net Harm

During the project design phase, the following measures are undertaken in order to minimize the impacts during operational periods:

Water & Wastewater Management

Water for domestic use is supplied by tankers to the site and wastewater is collected in septic tanks which is emptied regularly. The wastewater is discharged in accordance with Water Pollution Control regulations of the host country.

Waste Oil

The waste oil is collected in impermeable containers and transferred to recycling centers in accordance with Hazardous Waste Control Regulations and Waste Oil Control Regulations. A photograph of the hazardous waste storage area is provided.

Solid Waste

Solid waste is collected, and recyclables are separated to be sent to recycling centers. The rest is disposed to the nearest landfill site in coordination with Dereli District Municipality. The solid waste here also covers the E-Waste. Hence the disposal is realized in accordance with Regulation on Waste Management, Regulation on Electrical and Electronic Waste Control, and Regulation on Battery and Accumulator Wastes.

Biodiversity

Necessary precautions are taken for the species under conservation by international conventions, The field is regularly observed in terms of any change and irregularity of the biodiversity.

4.1.2 Local Stakeholder Consultation

The relationship with the local stakeholders deemed to be very important and before the project was implemented a stakeholder's consultation meeting was held on 13 November 2006 at the project site below a detailed summary of this meeting is provided in the validated PD. In addition to this there is a "communication box" in every settlement within the vicinity of the project and a continuous grievance policy is implemented by the project owner. The project owner is open to dialogue with stakeholders. They communicate regularly with the village heads, and the district governorship and welcome the visitors. During the monitoring period there were no complaints about or demands from the project.

4.2 AFOLU-Specific Safeguards

Not Applicable.

4.3 Accuracy of GHG Emission Reduction and Removal Calculations

Total Emission Reduction has been determined as;

$$ER_y = BE_y - PE_y - LE_y$$

Where;

ER_y = Emission reductions in year y (tCO₂)

BE_y = Baseline emissions in year y (tCO₂)

PE_y = Project Emissions in year y (tCO₂)

LE_y = Leakage emissions in year y (tCO₂)

Being a hydropower project, the project activity does not lead to any form of emission; Hence Project Emission (PE_y) = 0. Also, the leakage for the project activity is nil as per the registered CDM PDD, the VCS PD and the applied methodology. Hence Leakage (LE_y) = 0

So, Emission Reductions = Baseline Emissions

The Baseline Emissions (BE_y) are calculated as follows:

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

where,

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

$EF_{grid,CM,y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of the "Tool to calculate the emission factor for an electricity system" (tCO₂/MWh)

Since the project activity consists in the installation of new grid-connected renewable power plant at site where no renewable power plant was operated prior to the implementation of the project activity, it verifies the case of Greenfield renewable energy power plant, option (a) whereby:

$$EG_{PJ,y} = EG_{facility,y}$$

Where

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

$EG_{facility,y}$ = Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (MWh/yr)

The verification team has determined whether the registered monitoring plan in the PDD /B02/ has been properly implemented and followed by the PP and whether all parameters fixed ex-ante for emission reduction calculation are as per the registered PDD /B02/. The verification team's assessment of each data and parameter fixed ex-ante is provided below:

Parameter	Description	Value	Unit	Source	Assessment
$EF_{Grid,OM,y}$	Operating margin CO ₂ emission factor for grid connected power generation in year y calculated using the "Tool to calculate the emission factor for an electricity system"	0.6993	tCO ₂ /MWh	Data published by Turkish Ministry of Energy and Natural Resources on 03/09/2020	The parameter is used for the ex-ante calculation of the emission factor for the project activity. The emission factor is fixed for the 1st renewable crediting period and shall be revised at the renewal of each crediting period. The value is consistent with registered PDD/B02/ and fixed ex-ante for the project activity.
$EF_{Grid,BM,y}$	Building margin CO ₂ emission factor for grid	0.3812	tCO ₂ /MWh	Data published by Turkish Ministry of Energy and Natural Resources on 03/09/2020	The parameter is used for the ex-ante calculation of the emission factor for the project activity. The emission factor is fixed for the 1st renewable

	connected power generation in year y calculated using the "Tool to calculate the emission factor for an electricity system"				crediting period and shall be revised at the renewal of each crediting period. The value is consistent with registered PDD/B02/ and fixed ex-ante for the project activity.
EF _{Grid,CM,y}	Combined margin Emission Factor of Turkey	0.4607	tCO ₂ /MWh	Data published by Turkish Ministry of Energy and Natural Resources on 03/09/2020	The emission factor is fixed for the 1st renewable crediting period and shall be revised at the renewal of each crediting period. The value is consistent with registered PDD/B02/ and fixed ex-ante for the project activity

The values are consistent with the registered VCS PD/B02 and defined fixed ex-ante during 1st renewable crediting period of the project activity. The fixed ex-ante data and parameter have been listed in the monitoring report/01/ and confirmed by the verification team as correct and consistent with that stated in the registered VCS PD/B02/. The verification team confirms that the MR/01/ and the ER calculation spreadsheet/02/ have considered the parameters fixed ex-ante correctly.

4.4 Quality of Evidence to Determine GHG Emission Reductions and Removals

CCIPL was able to confirm that the calculations are based on authentic data. The spreadsheets/02/ used to calculate the VCU calculations and all figures were tracked, checked and found to be consistent.

The quality of supporting evidence submitted to the VVB for verification is adequate and found to be verifiable. The transfer of carbon rights and other supporting documents related to quality and maintenance were checked by the verification team during the remote audit to confirm the authenticity of the documents and to check the correctness of the calculation.

When verifying the reported emission reductions, CCIPL ensured that there was a clear audit trail that contained the evidence and records that validate the stated figures. All source documents that form the basis for assumptions and other information underlying the GHG data were checked by the verification team.

When assessing the audit trails, CCIPL also examined:

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

CCIPL also assessed that the data collection system met the requirements of the monitoring plan as per the applied methodology.

Proper data management inclusive of data acquisition and aggregation, data management system is being followed for the project activity.

The monitoring personnel at site are well trained and follow reproducible routines. Thus, they are competent to carry out the relevant tasks with sufficient accuracy.

Monitored Parameters

Data / Parameter	Quantity of electricity imported by the power plant from the Grid, in year y (EGPP-export,y)
Measuring/Recording frequency	Recorded continuously, reported monthly on TEIAS Meter Reading Protocols, Reported annually on the VCS Monitoring Report.

Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment	Electricity Meters (Transformer A) The configuration for both the meters is as provided below: Make/model: EMH Type:/LZQJ-XC Precision: 0.2s Serial number of main meter: 8923761 Serial number of back up meter: 8923762 Electricity Meters (Transformer B). The configuration for both the meters is as provided below: Make/model: EMH Type: LZQJ-XC Precision: 0.2s Serial number of main meter: 8923763 Serial number of back up meter: 8923764
Value(s) of monitored parameter	The value is determined as 278,184 MWh at the monitoring period of 17/11/2019-31/12/2021 ¹
Is accuracy of the monitoring equipment as stated in the PDD?	Yes, the accuracy of the monitoring equipment is as stated in the VCS PD/B02/.
Calibration frequency /interval	10 years
Is the calibration interval in line with	Yes

¹ 4 for the periods of 11/2019, 12/2019, 01/2020 and 02/2020 there was no electricity generation due to a breakage happened in transmission line that was rehabilitated after with the maintenance agreement signed on 12/2019 Maintenance Agreement for Breakage ..\6. Restoration Docs for Breakdown event\43_BEREKET_AŞNTA_MÜH_KOYULHISAR_REHB_PROJ_HAZIRL_HES_SOZLESMESİ-11.12.2... (2).pdf

the monitoring plan of the PDD?																
Company performing the calibration	Anka Kalibrasyon															
Did calibration confirm proper functioning of monitoring equipment? (Yes / No)	Yes, the calibration confirmed proper functioning of monitoring equipment															
Is(are) calibration(s) valid for the whole reporting period?	Yes															
If applicable, has the reported data been crosschecked with other available data?	Yes, the reported data has been cross-checked with the EPIAS records/03/ in accordance with the QA/QC procedures provided in the section 5.2 of the VCS PD /B02/.															
How were the values in the monitoring report verified	The values in the monitoring report were verified through the comparison with the values in the ER sheet/02/ and the raw data provided therein, and cross checked with the EPIAS Records/03/.															
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place. Measurements are carried out in compliance with the communiqué for Metering Devices to be used in the Electricity Market. The minimum accuracy of the meters is Class02, should be within the $\pm 0.2\%$ (± 0.002) range. The monthly reported meter readings by the main meter with serial number 8923761/8923763 (transformer A/transformer B), will be cross-checked against the back up meter that has the serial number 8923762/8923764 (transformer A/transformer B), if the reading difference is less than ± 0.002 ($\pm 0.2\%$) than the meter readings are considered to be OK, if not than the meters will be checked. The monthly reported readings will also be cross checked against the monthly EPIAŞ screen shots. The EPIAŞ data of electricity sales will also be a proof for quality and reliability of data. The Calibration dates of the meters and their validity is as follows: <table><tr><th colspan="3">Transformer A</th><th colspan="2">Transformer A</th></tr><tr><td></td><td>Main Meter (Removed on 24/11/2009)</td><td>Spare meter (Removed on 24/11/2009)</td><td>Main Meter (Removed on 14/12/2019)</td><td>Spare Meter (Removed on 14/12/2019)</td></tr><tr><td>Serial no.</td><td>342822104</td><td>342822103</td><td>53030781</td><td>53030782</td></tr></table>	Transformer A			Transformer A			Main Meter (Removed on 24/11/2009)	Spare meter (Removed on 24/11/2009)	Main Meter (Removed on 14/12/2019)	Spare Meter (Removed on 14/12/2019)	Serial no.	342822104	342822103	53030781	53030782
Transformer A			Transformer A													
	Main Meter (Removed on 24/11/2009)	Spare meter (Removed on 24/11/2009)	Main Meter (Removed on 14/12/2019)	Spare Meter (Removed on 14/12/2019)												
Serial no.	342822104	342822103	53030781	53030782												

	Brand-(Type)	CIRWATT	CIRWATT	ACTARIS	ACTARIS
	First Index Date (First Calibration Date)	07/05/2009	07/05/2009	24/11/2009	24/11/2009
	Calibration Due	Removed on 24/11/2009	Removed on 24/11/2009	-Removed on 14/12/2019	- Removed on 14/12/2019
	Calibration frequency	10 years	10 years	10 years	10 years
	Test Date	-	-	-	-
	Test Due	-	-	-	-
	Test frequency	-	-	-	-
	Class	-	-	0.2S	0.2S
Transformer A			Transformer B		
	Main Meter	Spare Meter	Main Meter	Spare Meter	
Serial no.	8923761	8923762	8923763	8923764	
Brand-(Type)	EMH / LZQJ-XC	EMH / LZQJ-XC	EMH / LZQJ-XC	EMH / LZQJ-XC	
First Index Date (First Calibration Date)	14/12/2019	14/12/2019	24/12/2019	24/12/2009	
Calibration Due	14/12/2029 ²	14/12/2029 ³	24/12/2029 ⁴	24/12/2029 ⁵	
Calibration frequency	10 years	10 years	10 years	10 years	
Test Date	09/12/2021	09/12/2021	09/12/2021	09/12/2021	
Test Due	09/12/2023	09/12/2023	09/12/2023	09/12/2023	
Test frequency	2 years	2 years	2 years	2 years	
Class	0.2S	0.2S	0.2S	0.2S	

² <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5>

³ <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5>

⁴ <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5>

⁵ <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5>

Purpose of Data	Data will be used to calculate net electricity supplied to the grid.
Calculations method	Direct continuous measurement
Additional Comments	Transformer A, the ACTARIS brand meters were installed on 24/11/2009 and replaced with EMH Brand Meters on 14/12/2019. In order to meet the 10-year calibration frequency, the meters should have been recalibrated/replaced within 24/11/2019 but done only on 14/12/2019. There is 20 days delay in calibration. Error factor should have been applied for the month of Nov and Dec 2019. Since there was already no electricity generation in the months 11/2019, 12/2019, 01/2020 and 02/2020 i.e., their readings were not accounted hence there was no requirement to apply the error factor. Also, internal consumption for these months has been deducted from next months as being a conservative approach

Data/Parameter	Quantity of electricity imported by the power plant from the Grid, in year y $EG_{PP-Import,y}$
Measuring/Recording frequency	Recorded continuously, reported monthly on TEIAS Meter Reading Protocols, Reported annually on the VCS Monitoring Report.
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment	Electricity Meters (Transformer A) The configuration for both the meters is as provided below: Make/model: EMH Type: /LZQJ-XC Precision: 0.2s Serial number of main meter: 8923761 Serial number of back up meter: 8923762 Electricity Meters (Transformer B). The configuration for both the meters is as provided below: Make/model: EMH Type: LZQJ-XC Precision: 0.2s

	Serial number of main meter: 8923763 Serial number of back up meter: 8923764 Both meters are in compliance with the communiqué for Metering Devices to be used in the Electricity Market. They have an accuracy class of Class 002 indicating an accuracy range of 0.2%.
Value(s) of monitored parameter	399 MWh
Is accuracy of the monitoring equipment as stated in the PDD?	Yes, the accuracy of the monitoring equipment is as stated in the VCS PD/B02/.
Calibration frequency /interval	10 years
Is the calibration interval in line with the monitoring plan of the PDD?	Yes
Company performing the calibration	Anka Kalibrasyon
Did calibration confirm proper functioning of monitoring equipment? (Yes / No)	Yes
Is(are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been crosschecked with other available data?	Yes, the reported data has been cross-checked with the EPIAS records/03/ in accordance with the QA/QC procedures provided in the section 5.2 of the VCS PD /B02/.
How were the values in the monitoring report verified	The values in the monitoring report were verified through the comparison with the values in the ER sheet/02/ and the raw data provided therein, and cross checked with the EPIAS Records/03/.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission	Yes, the data management ensures correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place. Measurements are carried out in compliance with the communiqué for Metering Devices to be used in the Electricity Market. The minimum accuracy of the meters is Class02, that is to say should be within the $\pm 0.2\%$ (± 0.002) range. The monthly reported meter readings by the main meter with serial number 8923761/8923763 (transformer A/transformer B), will be cross-checked against the back up meter that

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	Calibration Due	14/12/2029 ⁶	14/12/2029 ⁷	24/12/2029 ⁸	24/12/2029 ⁹
	Calibration frequency	10 years	10 years	10 years	10 years
	Test Date	09/12/2021	09/12/2021	09/12/2021	09/12/2021
	Test Due	09/12/2023	09/12/2023	09/12/2023	09/12/2023
	Test frequency	2 years	2 years	2 years	2 years
	Class	0.2S	0.2S	0.2S	0.2S
Purpose of Data	Data will be used to calculate net electricity supplied to the grid.				
Calculations method	Direct continuous measurement				
Additional Comments	Transformer A, the ACTARIS brand meters were installed on 24/11/2009 and replaced with EMH Brand Meters on 14/12/2019. In order to meet the 10-year calibration frequency, the meters should have been recalibrated/replaced within 24/11/2019 but done only on 14/12/2019. There is 20 days delay in calibration. Error factor should have been applied for the month of Nov and Dec 2019. Since there was already no electricity generation in the months 11/2019, 12/2019, 01/2020 and 02/2020 i.e., their readings were not accounted hence there was no requirement to apply the error factor. Also, internal consumption for these months has been deducted from next months as being a conservative approach				

Data / Parameter	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y (EGpp-net,y)
Measuring frequency	Continuously
Recording frequency	Annually
Is measuring and reporting frequency in accordance with the monitoring	Yes

⁶ <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5>
⁷ <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5>
⁸ <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5>
⁹ <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5>

plan and monitoring methodology? (Yes / No)	
Type of monitoring equipment	Electricity Meters (Transformer A) The configuration for both the meters is as provided below: Make/model: EMH Type:/LZQJ-XC Precision: 0.2s Serial number of main meter: 8923761 Serial number of back up meter: 8923762 Electricity Meters (Transformer B). The configuration for both the meters is as provided below: Make/model: EMH Type: LZQJ-XC Precision: 0.2s Serial number of main meter: 8923763 Serial number of back up meter 8923764
Value(s) of monitored parameter	277,784 MWh, value is calculated from March 2020, as from Nov 2019 – February 2020, plant had a breakdown and was under maintenance. /22/
Is accuracy of the monitoring equipment as stated in the PDD?	Yes, the accuracy of the monitoring equipment is as stated in the VCS PD/B02/.

Calibration frequency /interval	10 years
Is the calibration interval in line with the monitoring plan of the PDD?	Yes
Company performing the calibration	Anka Kalibrasyon
Did calibration confirm proper functioning of monitoring equipment? (Yes / No)	Yes
Is(are) calibration(s) valid for the whole reporting period?	Yes
If applicable, has the reported data been crosschecked with other available data?	Yes, the reported data has been cross-checked with the EPIAS records/03/ in accordance with the QA/QC procedures provided in the section 5.2 of the VCS PD /B02/.
How were the values in the monitoring report verified	The values in the monitoring report were verified through the comparison with the values in the ER sheet/02/ and the raw data provided therein, and cross checked with the EPIAS/03/.

	Calibration Due	14/12/2029 ¹⁰	14/12/2029 ¹¹	24/12/2029 ¹²	24/12/2029 ¹³
	Calibration frequency	10 years	10 years	10 years	10 years
	Test Date	09/12/2021	09/12/2021	09/12/2021	09/12/2021
	Test Due	09/12/2023	09/12/2023	09/12/2023	09/12/2023
	Test frequency	2 years	2 years	2 years	2 years
	Class	0.2S	0.2S	0.2S	0.2S
Purpose of Data	Data will be used to calculate net electricity supplied to the grid.				
Calculations method	Direct continuous measurement				
Additional Comments	Transformer A, the ACTARIS brand meters were installed on 24/11/2009 and replaced with EMH Brand Meters on 14/12/2019. In order to meet the 10-year calibration frequency, the meters should have been recalibrated/replaced within 24/11/2019 but done only on 14/12/2019. There is 20 days delay in calibration. Error factor should have been applied for the month of Nov and Dec 2019. since there was already no electricity generation in the months 11/2019, 12/2019, 01/2020 and 02/2020 i.e., their readings were not accounted hence there was no requirement to apply the error factor. Also, internal consumption for these months has been deducted from next months as being a conservative approach				

Data / Parameter	Installed capacity of the hydro power plant after the implementation of the project activity (Cap _{PJ})
Measuring frequency	Yearly
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes

¹⁰ <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5>
¹¹ <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5>
¹² <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5>
¹³ <https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5>

Type of monitoring equipment	NA
Value(s) of monitored parameter	42,000,000 W
Is accuracy of the monitoring equipment as stated in the PDD?	NA
Calibration frequency /interval	NA
Is the calibration interval in line with the monitoring plan of the PDD?	NA
Company performing the calibration	NA
Did calibration confirm proper functioning of monitoring equipment? (Yes / No)	NA
Is(are) calibration(s) valid for the whole reporting period?	NAs
If applicable, has the reported data been crosschecked with other available data?	Yes, the reported data has been cross-checked with the Scada records.
How were the values in the monitoring report verified	The values in the monitoring report were verified through the comparison with the Scada system screenshots and rated plates of turbine.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions	Yes, the data management ensures correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place.

and are necessary QA/QC processes in place?	
Purpose of Data	To monitor capacity of the project and used to calculate the power density

Data / Parameter	Area of the single or multiple reservoirs measured in the surface of the water, after the implementation of the project activity, when the reservoir is full (APj)
Measuring frequency	Once at the beginning of each crediting period
Is measuring and reporting frequency in accordance with the monitoring plan and monitoring methodology? (Yes / No)	Yes
Type of monitoring equipment	NA
Value(s) of monitored parameter	1,204,040 m ²
Is accuracy of the monitoring equipment as stated in the PDD?	NA
Calibration frequency /interval	NA
Is the calibration interval in line with the monitoring plan of the PDD?	NA
Company performing the calibration	NA

Did calibration confirm proper functioning of monitoring equipment? (Yes / No)	NA
Is(are) calibration(s) valid for the whole reporting period?	NAs
If applicable, has the reported data been crosschecked with other available data?	Yes, the reported data has been cross-checked with the with the QA/QC procedures provided in the section 5.2 of the VCS PD /B02/.
How were the values in the monitoring report verified	The values in the monitoring report were verified through the review of registered VCS PDD
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place?	Yes, the data management ensures correct transfer of data and reporting of emission reductions and are necessary QA/QC processes in place.

The verification team can confirm that sufficient evidence is available for the whole monitoring period and the same is verifiable and that the data collection system meets the requirements of the monitoring plan and the applied methodology according to the assessment carried out in remote audit and in the document review.

Verification team confirms that the quality of evidence to determine the GHG reductions and removals produced was found satisfactory. The detailed information flow with the roles and responsibilities of the individuals and the monitoring system have been provided in the VCS-MR/01/

4.5 Non-Permanence Risk Analysis

As the project activity is a non-AFOLU project activity no risk related to non-permanence has been identified for the project activity.

VERIFICATION CONCLUSION

Carbon Check (India) Private Limited has performed the verification of the grouped project activity “Koyulhisar Hydro Electricity Power Plant” in Turkey, with regards to the relevant requirements for VCS project activities.

The conclusions can be summarised as follows:

- The project is implemented and installed as planned and described in the registered VCS PD/B02/ and the project activity confirms with the verification criteria for project and their GHG emission reductions or removals set out in the VCS rules.
- The monitoring plan is in accordance with the applied approved methodology, i.e., ACM0002, version 20/B04/ and monitoring plan as sought out in the registered VCS-PD/B02/.
- The monitoring system is in place and functional. The project has generated verifiable GHG emission reductions.

As the result of the verification of project activities, the verifier confirms that the GHG emission reductions are calculated without material misstatements in a conservative and appropriate manner. Carbon Check (India) Private Ltd. herewith confirms that the project has achieved emission reductions in the below mentioned reporting period as follows.

- The project complies with the verification criteria for projects and their GHG emissions reductions or removals set out in VCS rules.
- Verification period: From [17-November-2019] to [31-December-2021]

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

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
Year 2019	0	0	0	0-25
Year 2020	81,644	0	0	81,644
Year 2021	46,356	0	0	46,356

Total	127,975	0	0	127,975
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APPENDIX 1: REFERENCES

	Documents
/01/	Monitoring report version 2.05, dated 12/09/2022
/02/	ER spread sheet corresponding to /01/
/03/	EPIAS Records of the period 17/11/2021 to 31/12/2021
/04/	Electricity meter specifications (EMH/LZQI-XC)
/05/	Power Purchase Agreement
/06/	Technical specifications of the wind turbines installed
/07/	Commissioning Certificate dated 21/12/2005
/08/	Employment Records as per SDG 8
/09/	Plant layout
/10/	Electricity meters testing conformity testing certificates
/11/	Tool to calculate the emission factor for an electricity system Version 07.0
/12/	Photos/Video of Turbine, Generator, Energy meters, fish passage, Monitoring, transmission etc.
/13/	Single line diagram
/14/	Electricity Production License issued by Energy Market Regulatory Agency (EMRA) dated 10/02/2005 (Valid for 40 years)
/15/	Denizli Chamber of Commerce (Change in Status to "AYDEM YENİLENEBİLİR ENERJİ ANONİM ŞİRKETİ" from "Bereket Enerji Üretim A.Ş.", on 24/12/2019)
/16/	Map for the area of the reservoir
/17/	Water Usage Agreement co-signed with DSI (DSI Water usage Agreement) dated 18/01/2005
/18/	Periodic calibration is indicated as 10 years in article 9 of the regulation ¹⁴
/19/	EIA Exemption Certificate issued on 01/06/2005
/20/	SCADA Screenshots

¹⁴<https://www.mevzuat.gov.tr/File/GeneratePdf?mevzuatNo=6381&mevzuatTur=KurumVeKurulusYonetmeligi&mevzuatTertip=5>

/21/	Data Source for the Management of Solid Waste Management
/22/	Restoration Documents for the Breakdown event dated 11/12/2019
/23/	Verification contract signed between CCIPL and Aydem Yenilenebilir Enerji A.Ş, signed on 10/01/2022
/B01/	1. VCS Standard, version 04.3 2. VCS Program Guide version 04.2 3. VCS Validation and Verification Manual, version 03.2 4. Registration and Issuance Process v4.1 5. VCS Program Definitions version 04.2
/B02/	Registered VCS PD (corresponding Validation Report) VCS PD (version 1.01 dated 17/07/2021)
/B03/	VCS MR Template v4.1 https://verra.org/project/vcs-program/rules-and-requirements/
/B04/	ACM0002: Large-scale Consolidated Methodology: Grid-connected electricity generation from renewable sources, Version 20.0

APPENDIX 2: ABBREVIATION

CA	Corrective Action / Clarification Action
CER	Certified Emission Reduction
CAR	Corrective Action Request
CC IPL	Carbon Check (India) Private Ltd.
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CO ₂	Carbon Dioxide
CO ₂ e	Carbon Dioxide Equivalent
DOE	Designated Operational Entities
DVR	Draft Validation Report
EB	CDM Executive Board
EF	Emission Factor
FA	Final Approval
FAR	Forward Action Request
FVR	Final validation Report
GHG	Greenhouse gas(es)
GWh	Giga Watt Hour
IPCC	Intergovernmental Panel on Climate Change
MW	Megawatts
MWh	Mega Watt Hour
OSV	On Site Visit
QC/QA	Quality control/ Quality assurance
SENELEC	Société nationale d'électricité du Sénégal
TA	Technical Area
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VVB	Validation / Verification Body

APPENDIX 3: LIST OF FINDINGS

TABLE 1: CORRECTIVE ACTION REQUESTS (CARs) AND CLARIFICATION REQUESTS (CLs)

Finding	CL 01		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding (VVB)	In section 1.1 of MR, the annual gross generation mentioned is 278,184 MWh which is much higher than the value of annual gross generation mentioned in the PD which is 262,365 MWh. Thus, PP is asked to clarify this potent increase in electricity generation.		
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The value of 262,365 MWh is not declared to be the expected production in registered PD. This number is mentioned to be coming from the project's feasibility report, which is a baseline assessment study in which the project was found to be feasible. However, in PD, the estimated electricity generation is declared to be 193,574 MWh and the ER calculation was performed over this value. The annual electricity generation of the project for the current MP is 130,323 MWh, as it was shown in the ER sheet. Hence, it is concluded that the expected electricity generation in PD was more than the observed one during this MP, which may be caused by the possible seasonal changes.		
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	VVB has found that the PP has given a justifiable reason against the finding. Thus, VVB confirms that the finding is closed.		

Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed
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Finding	CL 02		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding (VVB)	It has been observed by the verification team that there are discordances between the methodology version used in PD and the current MR. As per the PD v1 dated 17/07/2021, in section 3.1, the version of methodology used is '20.0' while the version mentioned in the current MR is '16.0'. Thus, PP is requested to clarify this discrepancy.		
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The version of reference methodology ACM0002 was corrected to ver 20.0		
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	PP has revised the methodology version as per the PDD. Thus, VVB confirms that the finding is closed.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification		

	☐ Outstanding finding (not closed) ☒ The finding is closed
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Finding	CL 03		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding (VVB)	1. As per the PD v1 dated 17/07/2021, in section 3.1 “Tool for the demonstration and assessment of additionality” (Version 05.2.1) is used while in the current MR, section 1.8, version 07.0 of the same tool is mentioned. 2. Same can be seen with the other tool – “Tool to calculate the emission factor for an electricity system”. The version of this tool in PD and current MR are contradictory. Thus, PP is requested to clarify this incongruity.		
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The necessary tool and reference methodology were corrected.		
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	PP has revised the tool versions as per the registered PD. Thus, VVB confirms the closure of the finding.		

Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed
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Finding	CL 04		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding (VVB)	1. It has been observed by the verification team that there are contradictions between the gross generation values noted by Metering records and EPIAS records in the month of May 2020, June 2020. 2. Same is observed in the net generation values of Metering records and EPIAS records in the month of November 2020, May 2020, and June 2020. Thus, PP is requested to clarify these discrepancies.		
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The EPIAS records were corrected for May,2020 (PI see "EPIAS records" file) The EPIAS Records were checked and confirmed to be correct for June 2020 and November 2020 (PI see "EPIAS records" file)		
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	VVB has find the revised ER sheet for the respective finding. VVB confirms the closure of this finding.		

Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed
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Finding	CL 05		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding (VVB)	As per the VCS Monitoring Report Template version 4.1, PP should mention the relevant line diagram in section 4.3 of the Monitoring report. PP hasn't added a line diagram in section 4.3 nor mentioned its location in MR i.e., appendix 1 in section 4.3. PP is requested to mention the line diagram as per the standards of VCS.		
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	"The single line diagram of Koyulhisar HEPP that displays the GHG data collection and management system is provided in Appendix 1".		
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	Action taken by the PP is appropriate. Thus, the VVB confirms the closure of the finding.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed)		

	☒ The finding is closed
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Finding	CL 06		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding (VVB)	The verification team has found that there is inconsistency among the data monitored - Apj, given in MR with the registered PDD. Thus, the PP is requested to clear this perplexity.		
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The Apj value may change throughout the project lifetime due to seasonal changes (such as drought or over precipitation). Moreover, the decrease in the reservoir area is 5% being justifiable with seasonal changes.		
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	VVB has found that the PP has given a justifiable reason against the finding. Thus, VVB confirms that the finding is closed.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding	CL 07
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Classification	☐ CAR	☒ CL	☐ FAR
Description of finding (VVB)	As per the MR section 3.2.2, there is a change in ownership, thus PP is requested to present all relevant agreements and documents regarding this for assessment.		
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The official gazette (Reg. No: 13798) was provided in supporting docs in the file "Official gazette"		
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	The supporting document provided against the finding has been found appropriate by the VVB. Thus, VVB confirms the closure of the finding.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding	CL 08		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding (VVB)	As per the MR section 3.2.2 "According to the revised agreement between TEIAS & PP i.e., Annex-3, Article 3.3 of "The Transmission System Usage Agreement dated 23/06/2020", it has been found that the testing of energy meters is carried out every 2 years." Thus, PP is		

	requested to present the previous calibration/testing records of electricity meters.
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	Necessary calibration and test documents were provided in the supporting doc file.
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	The supporting document provided against the finding has been found appropriate by the VVB. Thus, VVB confirms the closure of the finding.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CL 09		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding (VVB)	As per the MR section 5.5, table 7 and table 8 mentions the net GHG emission reduction and baselines emission reductions for year 2020 and 2021. However, the sum of both does not matches with the given total net GHG emission reduction and baselines emission reductions.		

	This discrepancy can be seen in the ER also, thus PP is requested to revise it accordingly.
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	Necessary calibration and test documents were provided in the supporting doc file.
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	The supporting document provided against the finding has been found appropriate by the VVB. Thus, VVB confirms the closure of the finding.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 01		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	The Verification team has found that the Project ID mentioned in the Monitoring report is VCS2095 which is not correct. Thus, PP is requested to replace it with the correct VCSID.		
Corrective Action or clarification #1	VCSID was corrected as VCS713		

(PP shall write a detailed and clear corrective action or further information for clarification as per finding)	
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	Action taken against the finding has been found appropriate by the VVB. Thus, the VVB confirms the closure of the finding.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 02		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	It has been observed by the verification team that in the current MR section 4.2, under the parameter Cap _{PI} source of data, “description of measurement methods and procedures to be applied”, “Frequency of monitoring/recording”, “Value monitored”, “monitoring equipment”, “QA/QC procedures to be applied”, purpose of data is incorrectly mentioned. Thus, PP is requested to fill these sections in accordance with the table.		
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further</i>	The sections of Cap _{PI} parameter were corrected.		

information for clarification as per finding)	
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	PP has corrected the sections of Cap _{PPJ} , although the supporting documents for this parameter are required for the assessment. Thus, PP is requested to provide the same.
Corrective Action or clarification #2 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	Necessary SCADA screen shot is provided.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 03		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	In the submitted ER sheet, cell H30, J30 and K30 have used the wrong formula to calculate the respective total values. Thus, PP is requested to present the ER sheet with corrected values.		
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The calculation of total values was corrected and the same was presented.		
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	The PP has corrected the values in the ER, thus VVB confirms the closure of the finding.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding	CAR 04		
Classification	☒ CAR	☐ CL	☐ FAR

Description of finding (VVB)	As per para 3.17.2 of VCS standard_v4.3 PP shall identify potential negative environmental and socio-economic impacts and shall take steps to mitigate them. PP has mentioned that it will take measures to mitigate wastewater, waste oil, solid waste and biodiversity. Thus, PP is requested to provide the agreements or relevant documents to prove no net harm.
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The waste management documents were provided, and the related dates were included in MR.
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	VVB has found that documents provided against the findings as appropriate and thus VVB confirms the closure of the finding.
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 05		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	As per the VCS standard v4.3, <i>“Required project proponents to demonstrate contributions to a minimum of three SDGs in all monitoring reports verified after the effective date. Effective immediately for all projects that request registration on or after 20 January 2023. Projects that request registration before 20 January 2023 shall demonstrate contributions to at least three SDGs by 20 January 2025.”</i> In the provided MR section 1.11, PP is promising employment to the local people. So, PP is requested to provide any evidence for the employment provided to check for the SDG applicability		
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The evidence of employment and the number of employees were provided.		
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	VVB has found that documents provided against the findings as appropriate and thus VVB confirms the closure of the finding.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding	CAR 06		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	As per the CDM standard - CDM validation and verification standard for project activities, paragraph 9.2.6, PP is requested to provide previous calibration certificate/ 1st protocol of meters to check for any delay.		
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The calibration documents for all meters were provided.		
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	VVB has found that documents provided against the findings as appropriate and thus VVB confirms the closure of the finding.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding	CAR 07		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	As per the current PD version 1.01, dated 17/07/2021, section 5.2, parameter, EG _{PP-Import,y} , the accuracy range of the meters is 0.2% while in the MR, section 4.2, table 5, the accuracy class is mentioned as 0.5S. Thus, the PP is requested to clarify this discordance.		
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The previous meters' accuracy class was 0.2, However, after 14.12.2019, the energy meters were changed with the new ones which have the accuracy class of 0.5. The related corrections in MP were performed accordingly.		
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	As the PP has changed the accuracy class of meters, it's a project deviation. Thus, PP is requested to mention this under section 3.2.2 of the MR and also give a justified explanation for the same. Thus, the finding remains, open.		
Corrective Action or clarification #2 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The previous meters' accuracy classes are corrected		
VVB Assessment #2 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and</i>	The accuracy class of meters have been revised, Thus, this finding is closed.		

VVB assessments (#2, #3, etc.) shall be added.	
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed

Finding	CAR 08		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	As per the VCS Monitoring template v4.1, section 5.1 should be baseline emission, which is somehow missing from the given MR, thus PP is requested to modify the given MR as per the respective monitoring template.		
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The section was corrected.		
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	Action taken against the finding has been found appropriate by the VVB. Thus, the VVB confirms the closure of finding.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding	CAR 09		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	It has been found by the verification team that the table of contents is not in accordance with the VCS monitoring report template v4.1, and with the contents of the monitoring report. PP is requested to clear these discordances.		
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The table of contents was corrected, and Appendices were added to the TOC.		
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	Action taken against the finding has been found appropriate by the VVB. Thus, the VVB confirms the closure of finding.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

Finding		CAR 10		
Classification	☒ CAR ☐ CL ☐ FAR			
Description of finding (VVB)	It has been found by the verification team that the VERs in table 7 of current MR are not adding upto the 127,975 tCO₂e. Also, same discrepancy ca be seen in the ER where the net generation of year 2020 and 2021 is adding upto 128,000 instead of 127,975. Thus, PP is requested to clear these discordances.			
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	The VERs are corrected adding up to 127,975 tCO₂e in both Table 7 and Table 8 of MR.			
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	VVB has found that appropriate actions have been taken against the finding, the values of VERs are revised, thus VVB confirms the closure of all findings.			
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed			

Finding	CAR 11		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	The parameters are not in line with the second crediting period PDD. Thus, PP is requested to revise it accordingly		
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>	Parameters are re-checked with last registered PDD and revised.		
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>	VVB has found that appropriate actions have been taken against the finding, the values of VERs are revised, thus VVB confirms the closure of all findings.		
Conclusion <i>Tick the appropriate checkbox</i>	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		

TABLE 2: FORWARD ACTION REQUESTS

Finding	FAR XX		
Classification	☐ CAR	☐ CL	☒ FAR
Description of finding (VVB)	NA		
Corrective Action or clarification #1 <i>(PP shall write a detailed and clear corrective action or further information for clarification as per finding)</i>			
VVB Assessment #1 <i>The assessment shall encompass all open issues in the finding. In case of non-closure, additional corrective action and VVB assessments (#2, #3, etc.) shall be added.</i>			
Conclusion <i>Tick the appropriate checkbox</i>	☒ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☐ The finding is closed		

APPENDIX 4: COMPETENCY CERTIFICATE



Carbon Check (India) Private Ltd.

Ms. Aparna Chaudhary

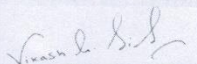
has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

For following functions:

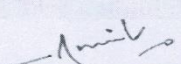
Validator	☒	Team Leader	☒	Technical reviewer	☐
Verifier	☒	Technical Expert	☒	Local Assessor ¹	☒

In the following Technical Areas:

TA 1.1	☐	TA 3.1	☒	TA 9.1	☐	TA 13.1	☐
TA 1.2	☒	TA 4.1	☐	TA 9.2	☐	TA 13.2	☐
TA 2.1	☐	TA 5.1	☐	TA 10.1	☐	TA 14.1	☐



Mr. Vikash Kumar Singh
Compliance Officer



Mr. Amit Anand
CEO

Date of Approval
29/11/2021

Valid Till
28/11/2022

Revision History of the Document

01/03/2020² 01/09/2020 24/12/2020 29/11/2021	Interim Revision for office address change Interim Revision for CCIPL logo change Annual Revision Revision in response to qualification as Team Leader and Technical Expert
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¹ India

² Please refer to previous version of competency certificates for the revision history.

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Ms. Indumathi. C

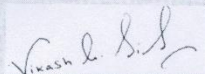
has been qualified as per CCIPL's internal qualification procedures, in accordance with requirements of Accreditation Standard (version 07.0):

For following functions:

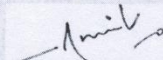
Validator	☐	Team Leader	☒	Technical reviewer	☒
Verifier	☐	Technical Expert	☒	Local Assessor ¹	☒

In the following Technical Areas:

TA 1.1	☒	TA 4.1	☐	TA 9.1	☐	TA 13.1	☒
TA 1.2	☒	TA 5.1	☐	TA 9.2	☐	TA 13.2	☒
TA 3.1	☒	TA 5.2	☐	TA 10.1	☐	TA 14.1	☐



Mr. Vikash Kumar Singh
Compliance Officer



Mr. Amit Anand
CEO

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Revision History of the Document

01/03/2020 ²	Interim Revision for office address change
01/09/2020	Interim Revision for CCIPL logo change
24/12/2020	Annual Revision
24/12/2021	Annual Revision

¹ India.

² Please refer to previous version of competency certificates for the revision history.

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