VERIFICATION REPORT

DÜZCE-AKSU HYDRO ELECTRICITY POWER PLANT

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Summary:

- **A brief description of the verification and the project**

Verification: Carbon Check (India) Private Ltd. has been contracted by, "Aydem Yenilenebilir Enerji A.Ş." to undertake second verification and certification for the greenhouse gas (GHG) emission reductions reported from 'Düzce-Aksu Hydro Electricity Power Plant' VCS ID 2095, for the monitoring period 01-October-2020 to 31-December-2021, under the crediting period 25-April-2014 to 24-April-2024 (both days included). The verification is based on the desk review of the Monitoring report /01/, VCS PD & the corresponding validation report, supporting emission reduction calculation spread sheets /02/ and other relevant supporting documents made available to the verification team by the project proponent accompanied by remote interviews. In line with the relevant requirements of VCS Standard Version 4.2.

Project: Düzce-Aksu Hydro Electricity Power Plant which is a runoff river reservoir hydro power plant is constructed on the Aksu River, within the jurisdiction of Gölyaka Town of Düzce Province in Turkey, with a total capacity of 46. 2 MWe. The hydro plant is converting the potential energy of the water into electricity by means of two turbine units, with each of 23.10 MW capacity .The electricity generated is sold to the Turkish National Electricity Grid. The project activity is a non-grouped project which employs VCS methodology; ACM0002 version 16.

The project activity has been operational since commissioning (25/04/2014) and during the 2nd monitoring period i.e., from 01-October-2020 to 31-December-2021, it has generated 97,222 MWh net electricity, thereby resulting in emission reduction of 51,842 tCO_2e. The monitoring period subject to this monitoring report is inclusive of first and last day of period.

- **The purpose and scope of verification**

  Purpose: The purpose of the verification is to review the monitoring results and verify that monitoring methodology was implemented according to 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, 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 previously registered design and conservative assumptions, as documented.

  Scope: The scope of the verification is:

  - To verify the project implementation and operation with respect to the registered VCS PD.
  - To verify the implemented monitoring plan with the registered VCS PD and applied baseline and monitoring methodology.
  - To verify that the actual monitoring systems and procedures follow the monitoring systems and procedures described in the monitoring plan.
  - To evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement.
  - 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 to be certified.

- **The method and criteria used for verification**

(a) Desk review, involving:

(i) Review of the data and information presented to verify their completeness.

(ii) Review of the monitoring plan and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the quality assurance and quality control procedures.

(iii) Evaluation of data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

(b) Remote assessment involving:

(i) Assessment of the implementation and operation of the proposed VCS project activity as per the registered VCS PD.

(ii) Review of information flows for generating, aggregating, and reporting the monitoring parameters.

(iii) Interview with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the monitoring plan in the VCS PD.

(iv) A cross-check between information provided in the monitoring report and data from other sources such as inventories, purchase records, or similar data sources.

(v) A check of the monitoring equipment including calibration performance and observations of monitoring practices against the requirements of the VCS PD and the selected methodology.

(vi) Review of calculations and assumptions made in determining the GHG data and emission reductions.
(vii) Identification of quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

- **The number of findings raised during verification**

A risk-based approach has been followed to perform this verification. During the course of verification, total of 05 findings were raised, which includes:

05 Corrective Action Request (CAR); 00 Clarification Requests (CLs); 0 Forward Action requests (FARs).

All the raised findings are resolved by the PP.

- **Any uncertainties associated with the verification**

The VCS MR /01/, emissions reduction calculations /02/ along with the supporting documents provided are considered to be in line with all the VCS requirements /B01/. The verification team has detected no further uncertainties or quality restriction.

- **Summary of the verification conclusion**

In CCIPL's opinion, the emission reductions reported for the "Düzce-Aksu Hydro Electricity Power Plant" in the monitoring report are checked. CCIPL is therefore able to certify that the emission reductions from the "Düzce-Aksu Hydro Electricity Power Plant" during the 2nd monitoring period, from 01-October-2020 to 31-December-2021, is achieved emission reduction of 51,842 tCO_2 equivalent.

CCIPL does not assume any responsibility towards the issuance and utilization of VCUs hereby verified and certified. Request for issuance of VCUs shall be made by the project proponent to an approved VCS Program Registry based on the requirements set out under the most recent version of the VCS Program Guidelines clause on VCS Registration. The verification of reported emission reductions is based on the information made available to CCIPL and the engagement conditions detailed in this report. Hence, CCIPL cannot be held liable by any party for decisions made or not made based on this report.

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1 INTRODUCTION

1.1 Objective

Carbon Check (India) Private Ltd. has been contracted by, "AYDEM YENİLENEBİLİR ENERJİ A.Ş." to undertake second verification and certification for the greenhouse gas (GHG) emission reductions reported for 'Düzce-Aksu Hydro Electricity Power Plant' VCS ID 2095 for the monitoring period 01-October-2020 to 31-December-2021 (including both days), under the crediting period of 10 years 25-April-2014 to 24-April-2024 (including both days), as per monitoring report version 2.04 dated 19/10/2022 /01/, with regard to the relevant requirements of VCS Standard Version 4.2. The VCS projects must undergo an independent third-party verification and certification of emission reductions as the basis for issuance of Voluntary Emission Reductions (VERs). Through the verification activities, it is to be confirmed that:

- The project is implemented as described in the VCS Project Description document;
- The monitoring system is implemented and fully functional to generate emission reductions without any double counting, and
- The data reported are accurate, complete, consistent, transparent, and free of material error or omission by checking the monitoring records and the emissions reductions calculation.

The verification followed the requirements of the current version of the VCS Standard Version 4.2 and VCS program guide (version 4.1)/B01/ to ensure the quality and consistency of the verification work and the report.

1.2 Scope and Criteria

The verification of this project is based on the Monitoring Report /01/ of this monitoring period, registered VCS PD /B04/, the Emission reduction calculation spreadsheet /02/, supporting documents made available to the verifier and information collected through performing remote interviews. Furthermore, publicly available information was considered as far as available and required.

CCIPL 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 basis of the following requirements, applicable for this project activity:

- VCS Standard (v4.2) /B01/
- VCS Program Guide (v4.1) /B01/
- VCS Methodology: ACM0002 "Large-scale Consolidated Methodology; Grid-connected electricity generation from renewable sources." Version 16. /B02/.
- 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 registered VCS PD /B04/.
- To assess the project's compliance with other relevant rules including the host country legislation.
- To confirm that the monitoring system is implemented and fully functional to generate voluntary emission reductions without any double counting.
- 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.
- 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 interviews with stakeholders;
3. Resolution of outstanding issues and issuance of final verification report and applicable VCS Validation and Verification Deeds of Representation.

CCIPL conducts all its work under strict rules to safeguard impartiality and ensure the independence of the verification team. The verification team 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

The verification report is based on the Monitoring report /01/, registered VCS PD /B04/, supporting documents made available to the CCIPL, and information collected through performing interviews.

The verification has been planned and organised to achieve a:

☒ Reasonable level of assurance as per VCS Standard (v4.2)

☐ Limited level of assurance

1.4 Summary Description of the Project

Project activity is the operation of 46.2 MWe hydro power plant (HPP) located in Gölyaka Town of Düzce Province in Turkey. The project activity involves electricity generation using potential energy of the hydro by means of Francis type vertical axis turbines, by means of two turbine units, with each of 23.10 MWe/ capacity and supply of this the generated electricity to the Turkish National Electricity Grid. The project displaces the electricity produced by fossil fuel-based power plants, by using clean renewable source to generate electricity and thereby contributes to sustainable development through reduction in greenhouse gas (GHG) emissions. The Düzce HPP the water is entering to the regulatory body and the water collecting area over the Aksu River at the 790.50 m elevation level. Then the water is settled at the sedimentation pool and transferred to a tunnel. The water that passes this tunnel then transferred to a canal and be transferred to the loading pool via penstock and passed to the hydro power plant building where the electricity is produced. The water then be left back to the Aksu River at the 138.2 m elevation level. Düzce HEPP is utilizing potential energy difference to produce electricity. During off-site visit interview it could be confirmed that the project has been implemented in accordance with the description provided in the PD and MR. It has not been any changed or modified on the project content and details as per Electricity production license number of EMRA of License number EÜ/921-3/724 dated 21/09/2006 /07/ also shared to CCIPL authority by PP. The Manager of the HPP also showed the Units of the field and HPP via Video Calling during remote site visit.

During remote interviews it has been confirmed by the operation manager (Mr. Malik) of the Hydro Power Plant (HPP), that the electricity produced by Düzce HEPP is connecting to the Turkish National Power Grid over the Düzce Hydroelectric Power Plant via one of Transformer Substations via 23 km long 154 kV transmission line. The potential energy of a unit charge at the collection line

towards the switch gear area is 10.5 kV and from there to substation alternatives it is 154 kV. The project Activity is connected to the National Grid which is operated by TEIAS . Three generator units in located in the plant which are AKSA brand and APD 40 A, APD 125 A and APD 200 C types. The APD 40 A type generator has 40 kVA voltage, and the standby power is 32 kW. The APD 125 A type generator has 125 kVA voltage, and the standby power is 100 kW. The APD 200 C type generator has 200 kVA voltage, and the standby power is 160 kW.The Substation belongs to HPP and is located inside HPP Field. The meters of the power plant are located in the Substation Center of HPP. The meters are read by TEİAŞ with the Remote Reading System OSOS and reported to the EPİAŞ institution. The SCADA system of Power Plant is controlled from the Monitoring Room.

The project proponent for the project activity is Aydem Yenilenebilir Enerji A.Ş., owns the rights to VERs. The project activity start date is 25/04/2014 . The same was confirmed through Commissioning document (Provisional Acceptance Letter) /08/.

The second monitoring period (01-October-2020 to 31-December-2021) considered for verification falls under this first crediting period of the project activity (25-April-2014 to 24-April-2024).

During the remote audit inspection, location (as mentioned in Table, section 1.7 of MR) and all the technical aspects of the project activity (equipment, serial no., type, date of calibration etc.) mentioned in the PD have been verified. The same was also crosschecked during the desk review of technical specifications, Single line diagram and meter location, Provisional acceptance letter, review of data during remote audit and calibration certificates for meters.

It was also confirmed (through remote interviews) that the project activity has been operational since commissioning (25/04/2014) and during the second monitoring period i.e., from 01-October-2020 to 31-December-2021, it has generated 97,222 MWh net electricity, thereby resulting in emission reduction of 51,842 tCO_2e.

The project activity has been implemented as described in the registered VCS PD/B04/ in particular sections 1.1, 1.8, 1.13, 2.2, 4.1, 4.2 and 4.3 of the VCS PD.

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 /B04/, applicable tools in particular attention to the frequency of measurements, quality of metering equipment including calibration requirements, QA/QC procedures and other relevant documents;

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

- An assignment of implementation and operation of project activity with respect to validated VCS PD /B04/
- Review of information flows for generating, aggregating, and reporting the monitoring parameters;
- Remote Interview with relevant personals to determine whether the operational and data collection procedures are implemented and in accordance with the monitoring plan of the validated VCS PD,
- Cross check of information and data provided in the monitoring report with purchase records or similar data sources;
- Review of calculation of the emission reductions;
- Implementation of QA/QC procedure in-line with the VCS PD and methodology requirements.

3. Resolution of outstanding issues and the issuance of the final Verification report and as applicable the VCS Verification Deed of Representation.

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

2.2 Document Review

During the document review, CCIPL has applied standard auditing techniques to assess the quality of information provided. The verification was performed primarily based on the review of the monitoring report /01/and the supporting documentation /02/ to /29/. This process included:

- A review of data and information presented by the PP to verify their completeness
- A review of the MP and monitoring methodology, paying particular attention to the frequency of measurements, the quality of metering equipment including calibration requirements, and the QA/QC procedures, and
- An evaluation of data management and the QA/QC system in the context of their influence on the generation and reporting of VERs.

The monitoring report (version 1.01 dated 22/03/2022) /01/ was initially reviewed and CCIPL requested the PP to present the supporting information and documents. The documents were reviewed by CCIPL. Through the process of the verification, the revised monitoring report /01/ and the supporting documents were evaluated to confirm the actions taken by the PP to the CARs and CLs issued by the verification team.

The list of documents referred during this verification has been provided in Appendix-1.

2.3 Interviews

The table below describes the remote interview process and further identifies personnel, including their roles, who were interviewed and/or provided information additional to that provided in the project description, Monitoring report /01/ and any supporting documents.

SN	Date	Name	Organisation	Topic	Persons Interviewed
/1/	27/04/2022	Malik Saglam	AYDEM YENİLENEBİLİR ENERJİ A.Ş. – Administration Chief Project Manager	• Project Design • Project Implementation status • Project start date and Project Location • Baseline Scenario	Dinesh Mane & Muhammet Ali Erduran

				• Baseline Identification and Additionality • Compliance with relevant laws • Roles and responsibility	
/2/	27/04/2022	Omer Muhsin Candar	AYDEM YENİLENEBİLİR ENERJİ A.Ş. – Chief HPP	• Qualification and Training • Monitoring and reporting documentation • Quality Assurance – Management and operating system • Social and Environmental Impacts • Local Stakeholders meeting process • Compliance with relevant laws • Roles and responsibility	Dinesh Mane & Muhammet Ali Erduran
/3/	27/04/2022	Emrullah Akta	Villager (Taslik Village)	• Social and Environmental Impacts • Local Stakeholders meeting process	Dinesh Mane & Muhammet Ali Erduran

				• Continuous Grievance mechanism	
/4/	07/04/2022	Irmak Subasi	GTE KARBON SÜRDÜRÜLEBİLİR ENERJİ EĞİTİM DANIŞMANLIK VE TİC. AŞ.- Project Carbon Consultant	• Emission reduction calculations • Monitoring report	Dinesh Mane & Muhammet Ali Erduran

2.4 Site Inspections

As a result of the COVID-19 pandemic, taking into account the rules of relevant national and local authorities (local to the VVB offices as well as to locality of the site visits), World Health Organization (WHO) recommendations, policies of the VVB, email clarification for Verra guidance on site visits, notification of Covid-19 Travel Guidance for Projects https://verra.org/covid-19-travel-guidance/ and other relevant travel restrictions and guidance (for example, a requirement to self-isolate upon return from specific countries), the VVB has skipped the on-site visit. The on-site inspection can-not be postponed due to verification timeline agreed in between the Project Participant and the VVB as per the verification contract. /29/.

Therefore, where a VVB can achieve a reasonable level of assurance without conducting a site visit, or through a remote site visit, this is in conformance with the VCS rules, and no request for an exemption or pre-approval from Verra is required. However, where a validation/verification has been conducted without a site visit, or through a remote site visit, please ensure that the applicable section of the verification report includes a discussion of how a reasonable level of assurance was achieved without an in-person site visit".

Accordingly, Carbon Check has not conducted an on-site inspection. A reasonable level of assurance has been maintained through the alternative means used for the purpose of verification as follows:

1) An assessment of the implementation and operation of the project activity as per the registered VCS PD /B04/

2) A review of information aggregating and reporting of the monitoring parameters

3) Interviews with relevant personnel to confirm that the operational and data collection procedures are implemented in accordance with the MP (section 2.3 above)

4) A cross-check between product sales information provided in the MR /01/ and data from other sources (section 2.3 above).

5) A check of the monitoring equipment including calibration performance, and observations of monitoring practices against the requirements of the VCS PD and the applied monitoring methodologies /B02/

6) A review of calculations and assumptions made in determining the GHG data and ERs /02/, and

7) An identification of QA/QC procedures in place to prevent, or identify and correct, any errors or omissions in the reported monitoring parameters

The verification team carried out remote interviews with representatives of PP 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 for the VCS.

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

- Verification team has performed google meet interview with PP to check implementation, project boundary, current situation, monitoring and metering equipment, monitoring procedures, calibration etc.
- Cross-check evaluation, for information received from interviews, under the scope of all information and references provided in MR /01/ and supporting documents.
- A check of the monitoring equipment including performance and observations of monitoring practices against the requirements of the registered VCS PD /B04/ and the selected methodology /B02/.

2.5 Resolution of Findings

CCIPL, during this verification, identified issues related to the monitoring, implementation or operation of the VCS project that could impair the capacity of the proposed VCS project to achieve project emission reductions or influence the reporting of emission reductions. CCIPL has identified, discussed these issues within the Verification report in Appendix 4.

• Clarification requests (CLs): Project reporting lacks transparency and further information is needed to determine if a material discrepancy is present.

• Corrective action requests (CARs): The VVB has identified a material discrepancy or non-conformance that the project proponent must address.

The verification team identified 05 CAR. All CAR raised by Carbon Check during this verification are resolved by the PP.

2.5.1 Forward Action Requests

Forward Action Request (FAR) is to be raised when the monitoring and reporting require attention and/or adjustment for the next verification period. FARs does not relate to VCS requirements for issuance of ERs achieved during subject monitoring.

No FAR is raised during this verification.

2.6 Eligibility for Validation Activities

CCIPL is conducting the second verification activity, the validation was performed by another VVB. CCIPL has a valid UNFCCC accreditation in the sectoral scope from UNFCCC.

The project activity falls under sectoral scope 01 and the CCIPL is accredited for validation /verification of project activities under this scope.

3 VALIDATION FINDINGS

3.1 Participation under Other GHG Programs

Project does not participate in any emission trading program or any other GHG program and has not sought or received any other form of environmental credit. The project has applied only under VCS for registration. This project is not participating under any other GHG programs.

3.2 Methodology Deviations

CCIPL verified all possible methodology deviations which do not negatively affect the conservativeness of the quantification of GHG emissions reductions or removals, except where the deviations result in greater accuracy.

CCIPL attempts to recognize whether any methodology deviation relates to the procedures relating to monitoring and measurement. Also, the interconnected nature of methodology, CCIPL also checked that such deviations will not have implications on other provisions of the methodology (e.g., equations for quantification) and must assess this possibility when evaluating a proposed deviation.

The verification team confirms that the registered project, under the current monitoring period (i.e., second monitoring period from 01-October-2020 to 31-December-2021), complies with the requirements of the applied monitoring methodology ACM0002 version 16 /B02/. Therefore, no methodology deviations are applied during the monitoring period.

3.3 Project Description Deviations

CCIPL verified all possible project description deviations which do not negatively affect the conservativeness of the quantification of GHG emissions reductions or removals, except where the deviations result in greater accuracy and clarity.

CCIPL attempts to recognize whether any such deviation relates to the procedures relating to monitoring and measurement. Also, the interconnected nature of with actual measurement, CCIPL also checked that such deviations will not have implications on other provisions of the methodology (e.g., equations for quantification) and must assess this possibility when evaluating a proposed

deviation.

The project proponent Bereket Energy was the major shareholder of Düzce Aksu Üretim A.S and as the Bereket changed tittle as a company policy they have dissolved all the individual sister companies that hold licences of facilities (like the Duzce Aksu HPP) and changed the ownership as Aydem Yenilenebilir A.Ş. The same is already verified during previous verification period by VVB.

Energy market operation company named PMUM (Mentioned in registered PD) had changed to EPİAŞ. The change occurred on 01/09/2015 when EPİAŞ received Market Operation License. Market operations transferred from PMUM to EPİAŞ. Hence name change from PMUM to EPIAS has been adopted in this monitoring period.

Also, during document review of "Revised agreement between TEIAS & PP i.e., Annex-3, Article 3.3 of “The Transmission System Usage Agreement dated 23/04/2020” /04/, it has been found that, the same is asserting 2 years of energy meters testing frequency requirements. Accordingly, testing of energy meters will be carried out every 2 years , however calibration frequency of energy meters will remain same as 10 years as mentioned in registered PD.

The reservoir surface area (A_{pj}) mentioned in registered PD i.e., 708,202 m^2 got changed to 708.3 m^2) due to editorial mistake ensued during validation stage of project activity. Verification team has carried out document review in this aspect and found that the area mentioned in current MR is correct as per the technical drawing provided in Appendix-3 of MR. The reservoir area also measured by PP during current monitoring period by using google earth and the reservoir area is determined is 707 m^2. The same area map provided in Appendix-2 of MR.

The above deviations are appropriately described and justified in monitoring report and verification team, confirms that the project remains in compliance with the VCS Standard v4.2 requirements.

The above deviations do not impact the appropriateness of the baseline scenario, additionality, or applicability of the methodology. Hence the above deviations are valid.

3.4 Grouped Project

Not applicable, as the project activity is not a grouped project.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

The project activity is in operation stage as evidenced by the remote inspection (google meet video inspection) of the site. All the physical components and project boundary are in conformity with the description in registered VCS PD, and validation report /B04/. The capacity of project equipment's has been confirmed during the remote inspection (through review of installed capacity by SCADA System /23/), also through the technical specifications, electricity generation license /07/, commissioning certificate /08/ and found in-line with the registered VCS PD /B04/.

On the basis of the remote inspection and the review of technical specifications, Single line diagram and meter location /05/, Electricity production license /07/, Provisional acceptance letter, calibration certificates for meters project Commissioning certificate /08/, invoices /14/, organization structure and Electricity generation data /02/ , the verification team confirms that the project is implemented and operated as described in the registered VCS PD /B04/. The project activity was commissioned on 25/04/2014 as verified from the commissioning certificate of the project activity /08/. As confirmed during the remote audit, the project activity was in continuous operation since commissioning. There is no such incident reported during the current monitoring period, which may impact the operation & capacity design of the project activity. Calibration records of monitoring equipment i.e., bi-directional meters (main and backup) were checked, and it was confirmed that the meters are factory calibrated at installation, and also will be tested periodically by the grid operator /09/ (refer above section 3.3 for details) . The same is also confirmed by desk review of calibration reports carried out by TEIAS dated 13/06/2021 /09/.

Replacement of the meters was undertaken during the current monitoring period on 13/06/2021. No events have occurred that may impact the GHG emission reductions or removals and monitoring in this monitoring Period. Same has been checked from the operational data during remote auditing and from the TEIAS and EPIAS websites (using the project owner's access).

The project is generated net electricity production of 97,222 as 97,222 MWh which corresponds to an emission reduction of 51,842 tons CO2e for this monitoring period (01-October-2020 to 31-December-2021).

Ownership and other programs:

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

reductions generated by project will be solely claimed by PP and PP has the right of use, which is acceptable. Net GHG emission reductions or removals generated by this project will not be used for compliance with an emissions trading program or to meet binding limits on GHG emissions as the host country i.e., Turkey is not an Annex-B country under Kyoto Protocol, neither has its set national emission reduction targets nor any related obligations.

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

Project implemented activities that result in the SD contributions as described in the monitoring report:

As confirmed during the remote audit, the project displaces electricity produced in fossil fuel-based power plants, by using clean renewable source to generate electricity and thereby contributes to sustainable development through reduction in greenhouse gas (GHG) emissions. It has also been confirmed that the project contributes to the sustainable development goals (SDG 7, SDG 8, SDG 13,). Under SDG 7, the project supplies clean, affordable, and renewable energy (97,222 MWh net electricity under the monitoring period and 718,047.67 MWh over lifetime of PA) without reliance on fossil fuels for generation of electricity to meet the growing demands in the region. The electricity generated during the operation of project activity results in emission reductions i.e., sustainable production and consumption of this electricity. For SDG 8, the implementation of project is providing job opportunities to 01 people during this monitoring period and 19 people as their employees during this crediting period, with a decent and secure work environment by reducing emissions otherwise generated by the operation of fossil fuel-based power plants. The emission reductions generated due to the project activity are accounted under SDG 13 (emission reduction of 51,842 tCO2e achieved under the monitoring period and 382,881 tCO2e over lifetime of PA).

The project activity strengthens the implementation and revitalizes the global partnership through sustainable development by the means of significant environmental and socio-economic benefits. The same has been verified during remote site visit interviews with PP and local stakeholder.

Management and operational system:

Verification team was able to verify that authorities and responsibilities for monitoring and reporting of all data related to the emission reductions were clearly defined for the monitoring period from 01-October-2020 to 31-December-2021.

The allocation of the responsibilities is documented in a written form and is followed as described in

the registered VCS PD /B04/. Routines for the archiving of data are defined and documented. The electricity generation records were verified during remote audit and from the EPIAS website (using the project owner's access). It was observed that the data is consistent with the provided in the final MR and ER sheets. The status of the project activity was verified through the video observation during the remote audit and through the video evidence submitted by the PP, the EPIAS website (using the project owner's access) /10/ checked by the verification team indicated the real-time generation data, which further confirmed that the project is fully operational.

The monitoring plan described in section 4.3 of the MR confirmed to be correct. All the parameters of the monitoring plan are monitored using appropriate metering system, the details of which, as mentioned in the section 4.3 of the MR, have been confirmed through the snapshots /06/ and the technical document /03/ submitted by the PP. Certain deviation occurs in comparison with registered PD. The details of the same is provided in above section 3.3 of this report.

The verification team has remotely interviewed the plant personnel involved in the monitoring of the parameters that are used to determine the emission reductions of the project. It is confirmed based on the interviews and review of roles and responsibilities as per organizational structure, that the plant's team is competent enough to monitor the parameters as described in the monitoring plan.

As discussed above and review of MR /01/, the verification team concludes that management and operational system of the project is implemented and operated well. The organizational structure, responsibilities and competencies of the personnel that carried out the monitoring activities are found to be satisfactory to the verification team including the methods used for generating/measuring, recording, storing, aggregating, collating, and reporting the data on monitored parameters. The procedures used for handling including frequency of measurement and QA/QC procedures is also verified by verification team and found that the required confidence level or precision has been met. Thus, it ensures the quality of data which is required in calculating the emission reductions.

Implementation status of the monitoring plan:

Verification team confirms through remote inspection (refer to section 2.4 for details) and from the document review of technical specifications /03/ , Single line diagram /05/ and meter location /03/, Electricity production license /07/, Provisional acceptance letter, calibration certificates /09/ for meters, project documentation, invoices /14/, organization structure and Electricity generation data /10/ that the actual monitoring system complies with the monitoring plan mentioned in the registered VCS PD. Certain deviation occurred in comparison with registered PD. The details of the same is provided in above section 3.3 of this report.

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

Each month PP records data from main meter and calculate the monthly values of export and import. These values are feed into TEIAS Protocol Format in each month and TEIAS published the same on their. These published data is termed “TEIAS Protocol Papers” /11/. After receiving the data from PP, TEIAS cross check these values with their records generated through meters connected with their system. If both values are same, then TEIAS published on their website and maintains in online registry. EPIAS records are used crosscheck the TEIAS Protocol Papers data of TEIAS website and also use to prepare sales receipt /14/.

There are 2 energy meters which for Düzce HPP in the Sub- Station Center. One of this is main energy meter and other one is back-up (auxiliary/Control/Spare metering devices) energy meter. The Energy meters belongs to TEIAS. The energy meters of the power plants are located within the HPP Sub Station Center. Meter reading is done by TEİAŞ Remote reading system and giving information to the power plant management by the system of TEİAŞ. Back-up meters for the control of energy production values are also located in the Substation. The TEİAŞ provides remote access to the meters and monitors produced energy amounts every 15 minutes from the Main meters. The amount of energy produced is controlled by comparing the values in the Back-up energy meters .

The information of the energy meters is verified from the Chief Project Manager of HPP. The main energy meter and the back-up energy meter are installed and working according properly as per technical staff of the Düzce HPP. The meters feel right to TEİAŞ. It was confirmed that the calibration authority and responsibility for the meters goes to TEİAŞ. It was also asserted that meter maintenance and other responsibilities also belong to TEİAŞ. Therefore, it was acknowledged that the "first index determination protocol" /04/regarding the meters was made between TEİAŞ and PP.

In order to measure the electricity exported to the grid, the information of the installed meters was obtained from the power plant authority. Prior to the monitoring period the meters were installed, in 2011. The Initial Index Protocol includes installation information and Brand-Model information of the meters is verified during interview and document review related to meters . As per TEIAS mandates the energy meters to be replaced every 10 years, and accordingly new pre-calibrated meters have been introduced from 13/06/2021. The calibration document of the energy meters was verified during this monitoring period. Thereafter, it was stated that calibration

was carried out at determined periods according to the calibration frequency set by regulations and tested in 2 years as per revised agreement protocol of TEİA . Calibration frequency as per PD is 10 years after the installation which will remain same, however as per TEIAS revised agreement protocol /04/, meters testing will be done in 2 years of frequency. . Refer above section 3.3 of this report for details.

CCIPL checked EPIAS recorded data /10/ in ER sheet /02/ with Metering records data i.e., monthly TEIAS readings protocol papers /11/ of back up and main meter also.

During interview with PP, it was confirmed that, the daily electricity generation logbook and common meter reading records are being followed between Energy Markets Management Inc. (EPİAŞ) and Düzce HPP over the system. It was also evidenced as "hourly meter reading report form - OSF". In addition to it, within the framework of the agreement between Düzce HPP and TEİAŞ /04/, it was indicated that instantaneous production values were monitored by using the remote reading system OSOS belonging to TEİAŞ. Also, the technical staff of the HPP keep the note via Excel format Daily Electricity generation logbook /24/. The operator fills up the data hourly basis through SCADA system and adding in Excel - Daily Electricity generation logbook /24/. It was confirmed that, the electricity generation records by the SCADA systems /23/ is being monitored by PP, the same is used for comparison purpose, before feeding data in TEIAS Protocol Paper. PP monitors data from TEIAS OSOS Dashboard and EPİAŞ Dashboard regularly for record and crosscheck purpose before generating invoice for electricity sale to grid.

The Power Plant is operated as per the production plan given to Power Plant Control Operator one day before. He records the amount of energy produced every hour in the "Daily Production Sheet" by providing remote access to the Control meter by the Central Control Operator. At the same time, these values are processed into the relevant excel table in the computer environment. At the end of the month, it is compared with the production values in the main meter of TEIAS and back up meter. If there is an error or mistake, it will be reported to TEIAS. No such error recorded during the current monitoring period.

The main meter of the power plant is read by TEİAŞ, and their monthly production values are officially reported to EPİAŞ. With this notification, monthly production values are reconciled between EPİAŞ and the Power Plant. The record images share by Manager of HPP of TEIAS (TEIAS readings protocol papers) /11/, on the basis of these vales ER is calculated /02/.

The above-mentioned information flow for generating, aggregating, and reporting the electricity generation values were confirmed by the Chief Project Manager of HPP.

Electricity generation values in the SCADA system are controlled and recorded by the power plant authorities. In addition, the data that TEİAŞ receives via OSOS, which is the remote reading system,

is reported to the EPİAŞ system and uploaded to the "Conciliation Page". In this way, official records are finalized /11/. Also, this information is checked by SCADA Dashboards for information purpose.

The Technical Chief of the Düzce HPP provided the information of the operational and data collection procedures. According to him, the accuracy of the set values is checked every hour by pressing the button on the main energy meter, which is located in the substation. These values are recorded in the "daily production sheet". At the end of the month, these data are verified by comparing the main meter values read by TEIAS /11/.

According to PP, the quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring period . The technical staff of the Düzce HPP confirms that, the monthly meter values read by TEİAŞ with the remote reading system are notified to the plant operation manager via e-mail. The hourly values previously received by the Control Operator of the Power Plant are compared with the counter values sent by TEIAS. The difference between the two values is checked for measurement accuracy. If there is any data error, TEİAŞ officers and HPP Officers meet together on the site, try to figure out the predicament. When they find the troubles, TEİAŞ officers and HPP Officers correct the errors. After the correction process, they send this information to the EPİAS to correct the data of the previous production values. According to the Power Plant Chief Manager, there has been no error process so far. If an error occurs, TEİAŞ notifies EPİAŞ of the erroneous data received from the Power Plant Directorate within a reasonable time and ensures that the values are corrected and verified.

Therefore, from the document review and remote inspection, it is confirmed that all the parameters were monitored in accordance with the registered monitoring plan during the monitoring period. Following are the details of monitoring in accordance with the monitoring plan of the registered VCS PD /B04/:

Data - Parameter	EG_y
Data unit	MWh
Description	Electricity
Source of data	Net Amount of Electricity supplied to the “Turkish National Grid” by the proposed project
Description of measurement methods and procedures to be applied	Data is measured directly from meters and records on TEIAS readings protocol papers. The Primary source of data is the TEIAS meter readings Data is measured directly and continuously by meters and records on TEIAS readings protocol

<table>
<tr><td></td><td>papers /11/.
The same has been checked for each month by the Verification team during remote video inspection and complete checking of data has also been carried out of the same provided by the PP /11/.
Verification team confirms that the data has been measured directly from meters. The meter readings accessible via an Automatic Meter Reading Software, were cross checked remotely by the verification team during the video inspection. Monthly screen outputs obtained from automatically recorded data at EPIAS /10/ were also checked by the verification team, for the entire monitoring period. The net electricity exported to grid is calculated as difference between export and import values provided TEIAS screenshot /11/. Which conforms the methodology requirement As confirmed from the meter snapshots and its technical specifications , back up meter has been installed in case there is main meter failure. However, only the main meter readings are used for ER calculations /02/.</td></tr>
<tr><td>Frequency of monitoring-recording</td><td>Annually
Recorded continuously, read remotely by TEIAS, and accessible monthly via TEIAS readings protocol papers /11/ and cross checked with the EPIAS web site /10/. Reported annually on the VCS Monitoring Report as verified by the verification team through remote assessment.</td></tr>
<tr><td>Value monitored</td><td>97,222 MWh</td></tr>
<tr><td>Monitoring equipment</td><td>During the remote inspection and through review of generation data from TEIAS readings protocol papers /11/ and TEİAŞ – EPIAS web site /10/, it has been confirmed that the data has been monitored continuously by bi-directional metering devices, which provides the data for the monthly invoicing to TEİAŞ. All meters were found to follow the communiqué for Metering Devices /17/ to be used in the Electricity Market·
The calibration and testing dates of the meters provided below is already verified during previous verification:
<table>
<tr><td>Meter Serial No.</td><td>Manufacturer</td><td>Accuracy Class</td><td>Calibration year</td><td>Valid Until</td></tr>
<tr><td>Main Meter: 65000766</td><td>ITRON (SL761B071)</td><td>0.5S (+- %1)</td><td>2011</td><td>2021</td></tr>
<tr><td>Control Meter: 65000767</td><td>ITRON (SL761B071)</td><td>0.5S (+- %1)</td><td>2011</td><td>2021</td></tr>
<tr><td colspan="5">New meters</td></tr>
<tr><td>Main Meter:</td><td>EMH</td><td>0.5S (+- %1)</td><td>13/06/2021</td><td>13/06/2031</td></tr>
</table></td></tr>
</table>

	10172379				
	Control Meter: 10172380	EMH	0.5S (+-%1)	13/06/2021	13/06/2031
	The meters are factory calibrated and tested at installation and tested periodically by the grid operator /09/ . The calibrations are valid for 10 years as per National standard requirements /15/ and the same has been confirmed through the registered VCS-PD /B04/ and the previous verification report. The validity of meters testing is 02 years is as per the revised TEIAS agreement with PP dated 23/03/2020 /04/. In the current monitoring period meters testing date is 13/06/2021 .Next testing due date for testing of new main and back up meter will be 13/06/2023 and next calibration date of meters will be 13/06/2031 as per national standard. Hence both the meters follow the host country calibration regulations and had valid calibrations during the entire monitoring period.				
QA-QC procedure to be applied	There are two bi-directional meters, 1 main and 1 check meter, and the monthly reported meter reading by the main meter, is cross-checked against the Main back up meter by a technician as confirmed during remote inspection and through snapshot. Imported electricity was also monitored by the operator using software for internal monitoring, which was again confirmed during the remote inspection.				
Purpose of the data	Data to be used for the calculation of Baseline Emissions				
Calculation method	Direct Continuous Measurement				
Comments	As confirmed during the remote inspection, the collected data will be kept by PP during the crediting period and until two years after the last issuance of VERs for the Hydro Power Plant project activity for that crediting period.				

Data - Parameter	Cap_{PJ}
Data unit	W
Description	Installed capacity of the hydro power plant after the implementation of the project activity
Source of data	Project site computers with SCADA system /23/ and the turbine name plates /06/ verified by verification team
Description of measurement methods and procedures to be applied	SCADA system of the project activity checked during remote interview video
Frequency of monitoring-recording	Once for each monitoring period
Value monitored	46,200,000 W
Monitoring equipment	SCADA System of the Project activity /23/
QA-QC procedure to be applied	Turbine labels checked with SCADA System reading /06/ by verification team during remote interview video
Purpose of the data	To monitor capacity of the project
Calculation method	N/A
Comments	–

Data - Parameter	A_{PJ}
Data unit	m^2
Description	Area of the reservoir measured in the surface of the water, after the implementation of the Project Activity, when the reservoir is at its maximum fullness.
Source of data	Surface area determined using the lake surface area map provided in Appendix-V of VCS PD /B04/, the same is verified by verification team

Description of measurement methods and procedures to be applied	The reservoir area corresponding to maximum operational level has been determined via the topographic satellite images showing the lake area, presented in Appendix-V of VCS PD
Frequency of monitoring-recording	Once during each monitoring period
Value monitored	707 m^2
Monitoring equipment	–
QA-QC procedure to be applied	Checked and compared to satellite imagery available by Google Earth /27/ by verification team and found to be appropriate with appendix 2 of VCS PD /B04/
Purpose of the data	Data to be used for the calculation of Baseline Emissions.
Calculation method	N/A
Comments	–

Remaining Issues from Validation or Previous Verification:

This is the second periodic verification of the registered project activity and from the review of the validation report and 1st verification report , verification team confirms that No FAR were raised during the last verification of the project activity

4.2 Safeguards

4.2.1. No Net Harm

The project activity is the generation of electricity from a clean renewable energy source i.e., run of river reservoir water and does not involve any negative environmental and socio-economic impact. Though , in accordance with "Environmental Law" No. 2872 (Issued in 1983) and Annex 2 of Environmental Impact Assessment (EIA) Regulation (issued in 1993 and revised in 2001) for the HPPs with an installed capacity of more than 50 MW are subject to a full EIA investigation or report preparation is required. The installed capacity of the project is 46.2 MWe, the project has got EIA exemption certificate dated

13/02/2007/20/. However, project is found to be in compliance with the laws and regulations of Turkey .

Mr. Emrullah confirmed, about the positive benefits of the project. They mentioned the project creates job opportunities and builds for the people of the region in a good way. He expressed that village satisfaction for the project is located in this region. They mentioned that it provides positive contribution to the regional economy. Also, he mentioned that the people who lives in this region are delighted for this HPP which is located in their location. As confirmed through the remote interviews , PP has adopted mitigation measures to minimise the impact of construction and operation as per the Project Presentation Report submitted to the authorities. Necessary precautions have been taken for the minimization of dust in accordance with Pollution Control regulations, collection of waste oil Hazardous Waste Control Regulations and Waste Oil Control Regulations, and disposal of waste-to-waste treatment facilities. During the remote investigation , PP confirmed that no such accident had occurred during the current monitoring period, which could be responsible for negative environmental and socio-economic impact.

4.2.2. Local Stakeholder Consultation

During this monitoring period PP has provided logbook in every settlement within the vicinity of Taslik village, to register grievances given by local stakeholders during operation phase of project activity, to note ongoing communication mechanism with stakeholders. The same process is known by all local stakeholders , as it was communicated by PP to all local stakeholders. Each month PP representatives visit and meet the logbook locations to check and discuss any grievances given by local stakeholders. The same process is known to all local stakeholders. In addition to it, the local stakeholders can access the Düzce Site manager and the Düzce HPP via phone to provide their grievances related to operational activity of project. This is verified by verification team during remote onsite visit interviews with local stakeholder.

During the monitoring period there were no complaints or negative comments or demands from the project. The same was confirmed through the remote audit interview conducted by verification team with local stakeholder (refer section 2.3 /3/) and reviewing grievances logbook provided in Taslik village /19/.

4.3 AFOLU-Specific Safeguards

This is not an AFOLU project, as can be confirmed from the registered VCS PD.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

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

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

Baseline emissions:

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

$BE_y = EG_y \times EF_y$

Where:

BE_y = Baseline emissions in year y (tCO_2/yr)

EG_y = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the project activity in year y (MWh/yr)

EF_y = Combined margin CO_2 emissions factor in year y (tCO_2/MWh) and

The Combined margin CO_2 emissions factor in year y (tCO_2/MWh), $EF_{grid,CM,y}$, is fixed ex-ante for the duration of the crediting period and is 0.5332 tCO_2e/MWh.

Therefore,

$BE_y = EG_y \times EF_y$

$BE_y = 97,222 \times 0.5332$

$BE_y = 51,842$ tCO_2 (rounded off)

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

Project Emissions:

The Project emissions (PEy) are calculated based on the following formula:

$PE_y = PE_{FF} + PE_{GP,y} + PE_{HP,y}$

Where:

PE_y= Project emissions in year y (tCO2e/yr)

$PE_{FF, y}$ = Project emissions from fossil fuel consumption in year y (tCO2e/yr)

$PE_{GP,y}$= Project emissions from the operation of geothermal power plants due to the release of non-condensable gases in year y (tCO2e/yr)

$PE_{HP,y}$= Emissions from water reservoirs of hydro power plants .

This is hydro project. Hence it is applicable.

$PE_{FF,y}$ = 0, which is acceptable to the verification team as per methodology.

$PE_{GP,y}$ is not applicable to the project activity, as the registered project is a Hydro power plant

For hydro power project activities that result in new reservoirs and hydro power project activities that result in the increase of existing reservoirs, project proponents shall account for CH4 and CO2 emissions from the reservoir, estimated as follows:"
"...the power density of the project activity (PD) is greater than 4 W/m2 and less than or equal to 10 W/m^2:"
As shown by the following calculation, The project has a power density of 65346.53 W/m^2, which is greater than 10 W/m^2,
Project Activity Installed Capacity/ Reservoir Area = Power Density Düzce HEPP
46,200,000 W/707 m^2= 65346.53 W/m^2

Hence, as per the calculation checked by the verification team, PE_y= 0
Leakage:

As per the methodology ACM0002, version 16 /B02/ and as defined in the registered VCS PD /B04/ no leakage is considered in the project activity and the same is followed in this monitoring period also. Thus, it follows the registered VCS PD.

Accordingly, emission reduction for the current monitoring period (01-October-2020 to 31-December-2021) is 51,842 tCO_2.

Total emission reductions were realized as 51,842 tCO_2 for this monitoring period. When the estimated electricity generation figure of the power plant for each year in the validated VCS PD (141,370 MWh-year) is considered, the total emission reductions should be approximately 94,228 tCO2 for the monitoring period (12 months). Percent difference is calculated as -45%, which means the project reduced 45% less CO2 than the estimated amount. Since the project is a HEPP, seasonal effects are significant on the monthly

generation rates and deviations from the calculated values are acceptable.

The following are the ex-ante parameters used in the ER calculation which follow registered VCS PD:

Parameter	Description	Justification
$FC_{i,y}$ cubic meter	Amount of fuel i consumed by relevant power plants in Turkey in years, 2009, 2010 and 2011	The value is used in the calculation of the Emission factor (0.5332 tCO2e/MWh). The emission factor has already been calculated ex-ante as 0.5332 tCO2e/MWh. The value data on the parameter is available in the validated registered PD, which has been checked. Hence it is confirmed that the ex-ante details presented on the ex-ante parameter is found appropriate.
$NCV_{i,y}$ GJ/Mass	Net Calorific Values for fossil fuel type i in year, for the years 2009, 2010 and 2011	The value is used in the calculation of the Emission factor (0.5332 tCO2e/MWh). The emission factor has already been calculated ex-ante as 0.5332 tCO2e/MWh. The value data on the parameter is available in the validated registered PD, which has been checked. Hence it is confirmed that the ex-ante details presented on the ex-ante parameter is found appropriate.
$EF_{CO2,i,y}$ tCO_2/GJ	CO2 emission factor of fossil fuel type i in year y	The value is used in the calculation of the Emission factor (0.5332 tCO2e/MWh). The emission factor has already been calculated ex-ante as 0.5332 tCO2e/MWh. The value data on the parameter is available in the validated registered PD, which has been checked. Hence it is confirmed that the ex-ante details presented on the ex-ante parameter is found appropriate.
EG_y MWh	Net electricity generated in the project electricity system in other words, net electricity generated and delivered to the	The value is used in the calculation of the Emission factor (0.5332 tCO2e/MWh). The emission factor has already been calculated ex-ante as 0.5332 tCO2e/MWh. The value data on the parameter is available in the validated registered PD, which has been checked. Hence it is confirmed that the ex-ante details presented on the ex-ante parameter is found appropriate.

	grid by all power sources serving the system, not including low-cost / must-run power plants / units, in year y.	
$EG_{m,y}$ MWh	Net electricity generated and delivered to the grid by power unit m in year y	The value is used in the calculation of the Emission factor (0.5332 tCO2e/MWh). The emission factor has already been calculated ex-ante as 0.5332 tCO2e/MWh. The value data on the parameter is available in the validated registered PD, which has been checked. Hence it is confirmed that the ex-ante details presented on the ex-ante parameter is found appropriate.
$\eta_{m,y}$	Average net energy conversion efficiency of power unit m in year y	The value is used in the calculation of the Emission factor (0.5332 tCO2e/MWh). The emission factor has already been calculated ex-ante as 0.5332 tCO2e/MWh. The value data on the parameter is available in the validated registered PD, which has been checked. Hence it is confirmed that the ex-ante details presented on the ex-ante parameter is found appropriate.

According to the applied methodology , the conservativeness of the achieved emission reduction was checked, and the detailed emission reduction calculation has been transparently provided in the ER sheet . All the formulae and the calculation procedure were checked by the verification team. In the opinion of verification team, the assumptions, emission factors and default values that were applied in the calculations have been justified. Also, the verification team confirms that there were no manual transposition errors between the data sets in the ER Sheet during the current monitoring period. It is confirmed that the data has been based on measured directly from meters /11/ and it was cross checked from the EPIAS web site /10/ .

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

All records needed for monitoring are archived in line with the requirements of the

registered monitoring plan /B04/. No significant lack of evidence and missing data were detected during remote audit interview and video inspection . Hence, the verification team confirms that the monitoring system ensures required quality of the monitoring system to ensure the quality of the monitored data. All internal data are subjected to QA/QC measures. The monitoring parameters have been measured / determined without material misstatements and is in line with all applicable standards and relevant requirements. The information inflow (from data generation, aggregation, to recording, calculation and reporting) is included in section 4.1 under each parameter and confirms to the requirement of the PD /B04/. The export and import data are measured by the electricity meters, recorded continuously on the TEİAŞ and EPIAS web site and the invoices are generated monthly. The data is then reported annually on the VCS Monitoring Report /01/ as verified by the verification team through remote assessment.

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

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

When verifying the report emission reduction, 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 are shown above.

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. The sources and the data referenced are shown in Appendix 1 below.

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.

4.6 Non-Permanence Risk Analysis

The project activity was operational during the complete monitoring period. Hence there is no further requirement for the non-performance analysis rating during the monitoring period of the project activity.

5 VERIFICATION CONCLUSION

CCIPL has been contracted by, "AYDEM YENİLENEBİLİR ENERJİ A.Ş." to undertake second verification and certification for the greenhouse gas (GHG) emission reductions reported from 'Düzce-Aksu Hydro Electricity Power Plant' VCS ID 2095 for the monitoring period 01-October-2020 to 31-December-2021, under the first crediting period 25-April-2014 to 24-April-2024, in the monitoring report version 2.04 and 19/10/2022, with regard to the relevant requirements of VCS Standard Version 4.2.

The verification is based on the validated and registered VCS PD /B04/ and the monitoring report /01/ for this project. Verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakech accord, as well as those defined by the CDM Executive Board and the VCS Standard Version 4.2.

The management of the 'GTE KARBON SÜRDÜRÜLEBİLİR ENERJİ EĞİTİM DANIŞMANLIK VE TİC. AŞ' is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project final Monitoring Report Version 2.04 and 19/10/2022. The calculation and determination of GHG emission reductions fromthe project is the responsibility of the management of the 'GTE KARBON SÜRDÜRÜLEBİLİR ENERJİ EĞİTİM DANIŞMANLIK VE TİC. AŞ' The development and maintenance of records and reporting procedures are in accordance with the Monitoring Report 2.04 and 19/10/2022/01/.

It is CCIPL responsibility to express an independent GHG verification opinion on the GHG emissions and on the calculation of GHG emission reductions from the project for the period 01-October-2020 to 31-December-2021 based on the reported emission reductions in the Final Monitoring Report Version 2.04 and 19/10/2022for the same period.

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

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

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

Verification period: From 01-October-2020 to 31-December-2021

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

Year	Baseline emissions or removals (tCO2e)	Project emissions or removals (tCO2e)	Leakage emissions (tCO2e)	Net GHG emission reductions or removals (tCO2e)
2020 (01/10/2020 – 31/12/2020)	724	0	0	724
2021 (01/01/2021 – 31/12/2021)	51,118	0	0	51,118
TOTAL	51,842	0	0	51,842

The verification team is of the opinion that the project has been implemented in accordance with the registered project description and the MP which complies with the approved monitoring methodology, the monitoring complies with the MP and the monitored data and calculation of ERs are assessed and confirmed as correct. Therefore, CCIPL certifies, and requests the issuance of, the reported ERs during the monitoring period of 01-October-2020 to 31-December-2021 amounting to 51,842 tCO2e to the VCS registry.

APPENDIX 1: REFERENCES

S. No.	Document

/01/	• Monitoring Report Ver 1.01 dated 22/03/2022 • Monitoring Report Ver 2.04 and 19/10/2022
/02/	• Emission reduction calculation spread sheet corresponds to Ver 1.01 of MR • Emission reduction calculation spread sheet corresponds to Ver 2.04 of MR
/03/	Proof of Technical specifications of HEPP
/04/	Power purchase Agreement or System usage agreement with TEIAS dated 23/03/2020
/05/	Single line diagram for the flow of electricity from generation point to feed in grid including meter locations
/06/	Project site photographs of turbines, generators, regulators, powerhouse, electricity meters etc. as provided in registered PD
/07/	• Electricity production license with EMRA dated 21/09/2006 • Grid Connection Contract with TEIAS • Water usage agreement signed with DSI dated 07/06/2010 • First index protocol
/08/	Commissioning document of each Turbines dated 25/04/2014
/09/	Meter test report for main meter and check/backup meter in 13/06/2021
/10/	Monitoring Period Electricity generation data from EPIAS web site
/11/	Monthly TEIAS readings protocol papers covering monitoring period
/12/	Proof of location of the turbines in KMZ file
/13/	Proof of Meters information (Manufacture, Calibration date, Validation, Accuracy class) including calibration certificates
/14/	Invoices raised by PP to TEIAS covering monitoring period
/15/	Communiqué for Metering Devices, (Regulations clarifies the use of electricity meters and their calibration published in 10/04/2011 under the number of 27901 and in 14/04/2009 under the number of 27200.)
/16/	Proof of installed capacity of the Project Activity i.e., showing in SCADA system and EMRA website
/17/	Valid Meters “Type and System Approval” certificate from the Ministry of Trade and Industry in compliance with TS-620 EN 60044-1 and TS718 IEC60044
/18/	The ICE/TSE 62053-22: Electricity metering equipment (a.c) – Particular requirements - Part 22: Static meters for active energy (Classes 0.2 S and 0.5 S)
/19/	LSC ongoing mechanism evidence
/20/	EIA exemption letter dated 13/02/2007
/21/	Proof of occupational health trainings and technical trainings provided in current Monitoring period
/22/	Drained excess fuels and oils, sewage truck invoices in Current Monitoring period
/23/	Sample copies of monitored electricity production through a SCADA system and record daily generation in field logs
/24/	Hourly Electricity Export/Import records / Log sheets for the electricity export to grid and import from grid for the monitoring period
/25/	Solid waste disposal records covering monitoring period
/26/	Sewage truck disposal records covering monitoring period
/27/	Reservoir area measurement documents
/28/	Proof of Capacity of project activity through project site computers with SCADA system and the turbine name plates
/29/	Verification contract in between CCIPL and “Aydem Yenilenebilir Enerji A.Ş.” dated 10/01/2022.

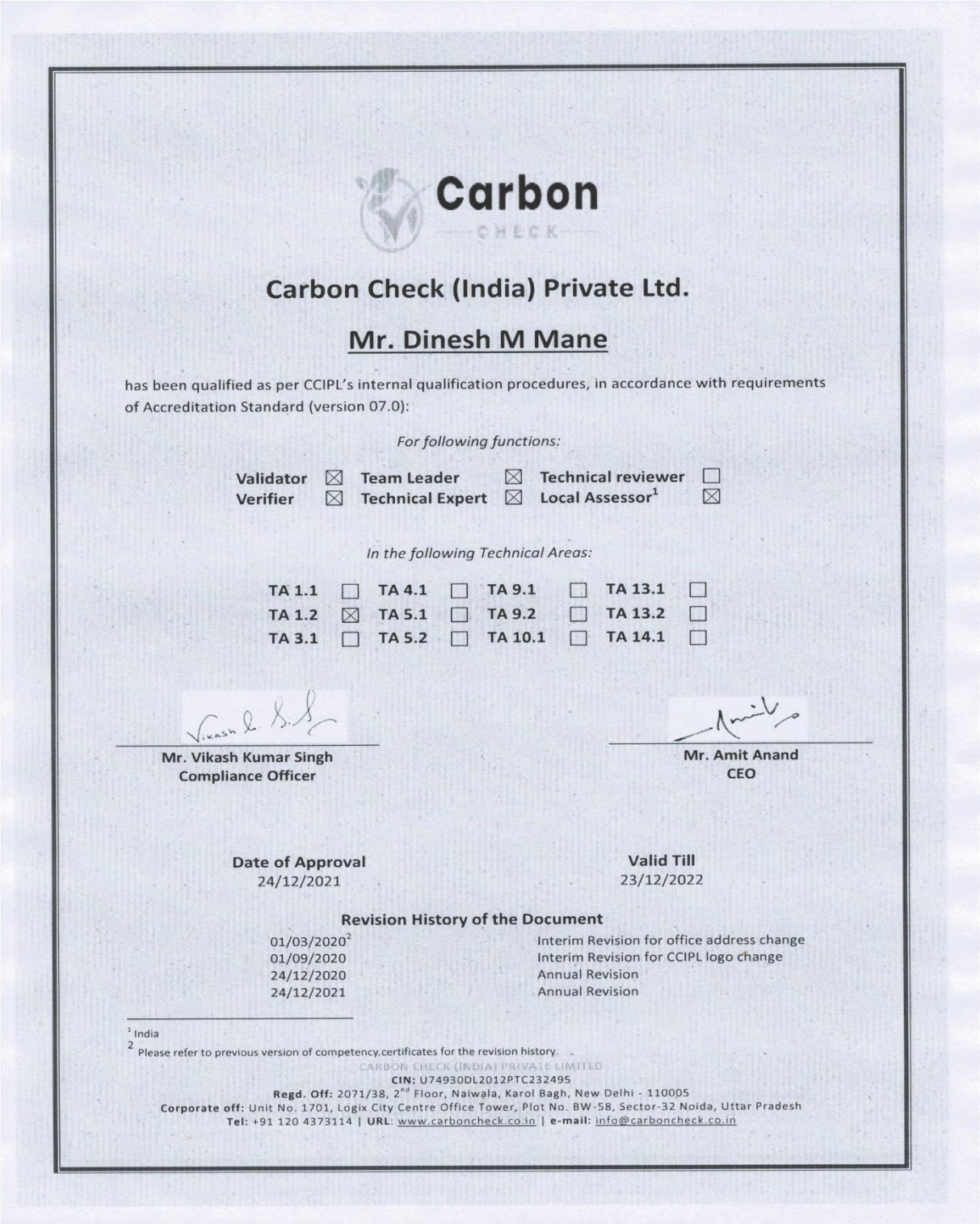
Background documents

Ref	Document
/B01/	VCS Requirements a. VCS Standard (v4.2, dated 20/01/2022) b. VCS Program Guide (v4.1, dated 20/01/2022) c. VCS Validation and Verification Manual version (v3.2, dated 19/10/2016) d. Registration & Issuance Process (v4.1, dated 20/01/2022) e. VCS Program Definitions version (v4.1, dated 20/01/2022) f. VCS MR template version 4.1 g. CDM validation and verification standard for project activities Version 03
/B02/	Applied baseline and monitoring methodology: ACM0002 “Large-scale Consolidated Methodology; Grid-connected electricity generation from renewable sources.” Version 16
/B03/	The Approved Methodology refers to the following tools: • “Tool for the demonstration and assessment of additionality”(Version 7) • “Tool to calculate the emission factor for an electricity system”. (Version 4) • "Guidelines on the assessment of investment analysis” (Version 5) • “Tool to calculate project or leakage CO2 emissions from fossil fuel combustion” (Version 2)
/B04/	• Registered VCS PD version 2.03 dated 19/04/2016 • Registered Validation Report version 1.2 Aa dated 21/04/2016 • Monitoring Report version 1.03 dated 10/12/2020 • Verification Report version 1.1 dated 11/12/2020
/B05/	Website and links: 1. IPCC (http://www.ipcc-nggip.iges.or.jp) 2. http://cdm.unfccc.int 3. https://verra.org/project/vcs-program/rules-and-requirements/

APPENDIX 2: Abbreviations

CDM	Clean Development Mechanism
BE	Baseline Emission
CAR	Corrective Action Request
CCIPL	Carbon Check (India) Private Ltd.
CDM	Clean Development Mechanism
CL	Clarification Request
CO_2	Carbon Dioxide
CO_{2e}	Carbon Dioxide Equivalent
DOE	Designated Operational Entity
DPR	Detailed project report
DVR	Draft Validation Report
EB	CDM Executive Board
EF	Emission Factor
ER	Emission Reduction
FAR	Forward Action Request
FVR	Final validation Report
GHG	Greenhouse gas(es)
GWh	Giga Watt Hour
IPCC	Intergovernmental Panel on Climate Change
MW	Mega Watt
MWh	Mega Watt Hour
NA	Not Applicable
OSV	On Site Visit
PD	Project Description
PP	Project Proponent
QC/QA	Quality control/Quality assurance
TR	Technical Review
UNFCCC	United Nations Framework Convention on Climate Change
VCS	Verified Carbon Standard
VCSA	Verified Carbon Standard Association
VCU	Verified Carbon Unit
VVB	Validation Verification Body
VVM	Validation and Verification Manual
VVS	Validation and Verification Standard

APPENDIX 3: CERTIFICATES OF COMPETENCE



Carbon CHECK

Carbon Check (India) Private Ltd.

Mr. Dinesh M Mane

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

Date of Approval
24/12/2021

Valid Till
23/12/2022

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.

CARBON CHECK (INDIA) PRIVATE LIMITED
CIN: U74930DL2012PTC232495
Regd. Off: 2071/38, 2nd Floor, Naiwala, Karol Bagh, New Delhi - 110005
Corporate off: Unit No. 1701, Logix City Centre Office Tower, Plot No. BW-58, Sector-32 Noida, Uttar Pradesh
Tel: +91 120 4373114 | **URL:** www.carboncheck.co.in | **e-mail:** info@carboncheck.co.in

Carbon CHECK

Carbon Check (India) Private Ltd.

SHIVAJI CHAKRABORTY

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]	☒		

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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
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APPENDIX 4: FINDINGS LOG

Table 1.CARs from this verification

Finding	CAR 01		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding (VVB)	CAR being raised for the following corrections related to MR template Ver 4 /B01-f/ and other VCS rules: 1) Provide information on total capacity of PA along with individual capacity of turbines in section 1.1 of MR. 2) PP is requested to provide actual values of energy generation and emission reduction for current monitoring period in section 1.1 of MR instead of estimated provided values. 3) Provide continued operation periods statement in section 1.1 of MR. 4) It reveals that the values provided under Contributions Over Project Lifetime for given indicators are not corresponding to the whole crediting period in section 1.11 of MR. 5) Section 2.1 of MR needs to Summarize any potential negative environmental and socio-economic impacts during monitoring period and the steps taken to mitigate them. 6) Provide commissioning date of both units of Turbine in section 3.1 of MR. 7) Change the format of monitoring period dates in line with VCS MR template filling guidelines requirements. 8) Title of project mentioned in MR needs to match with title in registered PD.		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	1) Total capacity of PA along with individual capacity of turbines now provided. 2) The actual electricity generation and calculated ER is provided. 3) Continued operation periods statement in section 1.1 of MR is provided. 4) The values provided under Contributions Over Project Lifetime for given indicators is corrected . 5) In Section 2.1 of MR waste disposal and impact mitigation methods is now summarized.		

	6) Commissioning date of both units of Turbine in section 3.1 of MR is provided. 7) The format of monitoring period dates is corrected as per VCS MR template filling guidelines requirements. 8) Title of project mentioned in MR is corrected to match with title in registered PD.
VVB Assessment #1 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.	All the corrections carried out in revised MR is found to appropriate hence this CAR is closed.
Conclusion Tick the appropriate checkbox	☐ 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)	CAR being raised for the following editorial corrections in the MR: 1) As the project is implemented in 2014, however MR still asserting under implementation language. 2) Table 1 in section 1.1 of MR needs to modify, to include data non repeated/latest and specific to the verification of the project activity. 3) Subscript all the parameters in line with monitoring methodology. 4) LSC ongoing communication logbooks are available in Taslik village as per PP, kindly include the same 2.2 of MR. 5) In line with discussion with PP, total 01 employee are recruited in monitoring period and total 19 employees will be maintained throughout the crediting period, the same is not reflected in section 1.11 of MR.		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	1) The language is corrected. 2) "Table 1. Milestones" is corrected in section 1.1 of MR. 3) All parameters are subscripted. 4) Necessary details and "logbook in Taşlık village" were included in the section 2.2		

Finding	CAR 02
	5) Section 1.11 was revised and " total 01 employee are recruited in monitoring period and total 19 employees will be maintained throughout the crediting period" was reflected in section 1.11 of MR.
VVB Assessment #1 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.	All the corrections carried out in revised MR is found to appropriate hence this CAR is closed.
Conclusion Tick the appropriate checkbox	☐ 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)	CAR being raised for the following corrections related to Monitoring and ER section (4 & 5) of the MR: 1) Following correction required for parameter "EG_y" in section 4.2 of MR: • "Description of measurement methods and procedures to be applied" section is not in line with registered PD. • As energy meters are changed on 13/06/2021, hence previous and current used meter details is also required to be provided in line with previous MR, as current monitoring period starts from 01/10/2020. • Provide due date of calibration as well as testing of energy meters. 2) Please clarify why the value of "A_{PJ}" has much decreased from 708,282 m^2 to 2,808 m^2 ,in comparison with registered PD.		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	1) Following corrections were provided in EG_y monitoring parameter section: • "Description of measurement methods and procedures to be applied" section is corrected • QA/QC procedures to be applied was corrected; Both energy meters group are included. • Date of calibration as well as testing of energy meters is provided. 2) The reservoir surface area (A_{pj}) is corrected as 708,202 m^2.		

Finding	CAR 03
VVB Assessment #1 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.	All the corrections carried out in revised MR is found to appropriate hence this CAR is closed.
Conclusion Tick the appropriate checkbox	☐ 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)	Below Project Description Deviation needs to be provided in section 2.2.2 of MR: 1) Name change of government company from PMUM to EPIAS. 2) During off-site visit interviews with PP, it has been found that the as per internal protocol of TEIAS energy meters and revised TEIAS system use agreement dated 23/03/2020, testing frequency of energy meters is 2 years.		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	1) Name change of government company from PMUM to EPIAS was provided as deviation of the project. 2) The statement of "According to the revised agreement between TEIAS & PP i.e., Annex-3, Article 3.3 of "The Transmission System Usage Agreement dated 23/03/2020", it has been found that the testing of energy meters will be carried out every 2 years" was added as per TEİAŞ System use agreement provided by PP.		
VVB Assessment #1 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.	All the corrections carried out in revised MR is found to appropriate hence this CAR is closed.		
Conclusion Tick the appropriate checkbox	☐ 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)	Section 2.2 of MR needs to discuss following events in line with VCS MR template guidelines: Describe the process for, and the outcomes from, ongoing communication with local stakeholders conducted prior to verification. Include details on the following: • The procedures or methods used for engaging local stakeholders (e.g., dates of announcements or meetings, periods during which input was sought). • The procedures or methods used for documenting the outcomes of the local stakeholder communication. • The mechanism for on-going communication with local stakeholders. • How due account of all and any input received during ongoing communication has been taken. Include details on any updates to the project design or justify why updates are not appropriate.		
Corrective Action or clarification #1 (PP shall write a detailed and clear corrective action or further information for clarification as per finding)	The necessary details provided in section 2.2		
VVB Assessment #1 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.	All the corrections carried out in revised MR is found to appropriate hence this CAR is closed.		
Conclusion Tick the appropriate checkbox	☐ To be checked during the next periodic verification ☐ Outstanding finding (not closed) ☒ The finding is closed		