



**Verified Carbon
Standard**

FINAL VERIFICATION REPORT

“MIDILLI HYDROELECTRIC POWER PLANT”



RINA Services S.p.A.

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Summary:

RINA Services S.p.A. (RINA), commissioned by Masat Enerji Elektrik Üretim ve Ticaret A.Ş., has verified the greenhouse gas emission reductions reported for the project activity “Midilli Hydroelectric Power Plant” in Turkey, VCS Registration Reference N° 1330, for the period 01/07/2014 to 30/06/2020, with regard to the relevant requirements for CDM and VCS activities.

The objective of the verification is to have an independent review ex post determination of the monitored reductions in GHG emission reductions, reported for the “Midilli Hydroelectric Power Plant” project in Turkey for the period 01/07/2014 to 30/06/2020.

Verification was conducted using RINA procedures in line with the requirements specified in the VCS Version 4.1 Requirements, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques. The verification consisted of desk review, remote-site assessment and the resolution of outstanding issues and the issuance of the final verification report and certification.

The verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable VCS Version 4.1 requirements, which refer to CDM rules, in order to be certified.

In conclusion, it is RINA’s opinion that the project activity “Midilli Hydroelectric Power Plant”, in “Turkey”, as described in the Monitoring Report version 04 of 23/12/2021, meets all relevant requirements for VCS and CDM activities and all relevant host Party criteria and correctly applies the baseline and monitoring methodology “ACM0002”, “Consolidated methodology for grid connected electricity generation”, version 14.0 of 04/10/2013. Hence, RINA is able to certify that the emission

reductions from the project during the monitoring period 01/07/2014 to 30/06/2020 amount to 183,208 tCO₂e.

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APPENDIX 4: <Clarification requests, corrective action requests and forward action requests> Error! Bookmark not defined.

1 INTRODUCTION

1.1 Objective

The objective of the verification is to have an independent review ex post determination by a Designated Operational Entity (DOE) of the monitored reductions in GHG emissions that have occurred as a result of the registered VCS project activity during a defined monitoring period. Certification is the written assurance by the DOE that, during a specific time period, a proposed VCS project activity achieved the reductions in anthropogenic emissions by sources of GHGs as verified.

The objective of this verification/certification was to verify and certify emission reductions and effective implementation of the monitoring of sustainable development indicators and mitigation measures, reported for the “Midilli Hydroelectric Power Plant” project in Turkey for the period 01/07/2014 to 30/06/2020.

1.2 Scope and Criteria

The verification scope is:

- to verify that actual monitoring systems and procedures are in compliance with 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;
- to evaluate whether all the mitigation measures have been effectively put in place according to the monitoring plan and that all the sustainable development indicators have been correctly monitored.

Verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable VCS Version 4.1 requirements, which refer to CDM rules, in order to be certified.

UNFCCC criteria for CDM refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, and the subsequent decisions by the CDM Executive Board.

Verification is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring.

1.3 Level of Assurance

All the revisions of the verification report, before being submitted to the client, were subjected to an independent internal technical review to confirm that all verification activities had been

completed according to the pertinent RINA instructions. All evidence had been confirmed during remote site visit with the invoices of electricity generation. The level of assurance is reasonable.

The technical review was performed by a technical reviewer(s) qualified in accordance with RINA's qualification scheme for VCS and CDM validation and verification. The verification team and the technical reviewers consist of the following personnel:

Role/Qualification	Last Name	First Name	Country
VCS Team Leader – VCS Verifier – Technical Expert	Kiratli	Tugce	Turkey
Independent Technical Reviewer	Amalorpavanathan	Cyril Augustus A A	RINA India

1.4 Summary Description of the Project

Masat Enerji Elektrik Üretim ve Ticaret A.Ş. has commissioned RINA to carry out the verification and certification of emission reductions reported for the registered “Midilli Hydroelectric Power Plant” project in Turkey, VCS Registration Reference N° 1330, for the period 01/07/2014 to 30/06/2020.

The project is hydroelectric power plant located in Black Sea Region, Amasya Province of Turkey.

The Project Activity (PA) utilizes the Yeşilirmak river water in a diversion-type run-of-river hydro power scheme to generate electricity with zero carbon emissions for the Turkish Power Grid. The project activity consists of 4 vertical axis Francis type turbines, with a total installed capacity of 33.423 MWm/32.548 MWe as confirmed through the Temporary Acceptance Protocols [/12/](#). The generated electricity is transmitted to the National Electricity System through Yenidere Substation, with a 154 kV and 33 kV energy transmission line.

The GHG benefit of the project activity was only accounted under VCS. There are not any other RECs were being issued for the project activity. Furthermore, as a host country in Turkey such any programme like a government-regulated system or programme for the constraint and monetisation of GHG emissions (such as emissions trading scheme, cap and trade or carbon tax mechanisms) has not been implemented.

The generated electricity is supplied to the National Electricity Transmission Grid of Turkey.

Project Participant(s)	Masat Enerji Elektrik Üretim ve Ticaret A.Ş.		
Project Title	Midilli Hydroelectric Power Plant		
Location of the project	Black Sea Region, Amasya Province of Turkey		
Methodology(ies)	“ACM0002”, “Consolidated methodology for grid connected electricity generation”, version 14.0 of 04/10/2013 /6/		
Sectoral Scope(s)	1	RINA's Technical Area(s)	1.2

Registered VCS PD	Version 2.0 of 27/06/2014
VCS Registration Reference No	1330
Starting date of the crediting period	27/12/2012 (as confirmed through the Temporary Acceptance Protocol /12/)
Project's crediting period	From 27/12/2012 to 26/12/2022
Monitoring period	01/07/2014 - 30/06/2020 (both days included)
Project documentation link	https://registry.verra.org/app/projectDetail/VCS/1330

2 VERIFICATION PROCESS

The project was validated by TUV Rheinland on 30/06/2014 and it was registered under the VCS registration reference N° 1330. This is the second verification assessment for the monitoring period 01/07/2014 to 30/06/2020 by RINA.

2.1 Method and Criteria

Verification was conducted using RINA procedures in line with the requirements specified in the VCS Version 4.1 Requirements, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques.

The verification consisted of the following three phases:

- Document review;
- On-site assessment (Remote Audit);

The resolution of outstanding issues and the issuance of the final verification report and certification.

2.2 Document Review

The monitoring report, version 04 of 23/12/2021 and previous versions /2/, the emission reduction calculations provided in the form of a spreadsheet, “Final_ER calculations_Midilli hydro_v03.xls” version 03 of 04/11/2021 and previous versions /8/, the approved baseline and monitoring methodology ACM0002 version 14.0 /6/ and all the documentation provided to support the monitoring period /01 – 21/ were assessed as part of the verification. In addition, the VCS Project Description (VCS PD) /1/, in particular as regards the baseline estimations and the monitoring plan, and the Validation Report of 27/06/2014 /7/ for the project, were reviewed.

The following table lists the documentation that was reviewed during the verification.

/1/	Ekobil: VCS PD for “Midilli Hydroelectric Power Plant” in Turkey, version 2.0 of 27/06/2014
/2/	Life İklim: Monitoring report for “Midilli Hydroelectric Power Plant” in Turkey, version 04 of 23/12/2021 Life İklim: Monitoring report for “Midilli Hydroelectric Power Plant” in Turkey, version 03 of 15/09/2021 Life İklim: Monitoring report for “Midilli Hydroelectric Power Plant” in Turkey, version 02 of 19/08/2021 Life İklim: Monitoring report for “Midilli Hydroelectric Power Plant” in Turkey, version 01 of 13/08/2021
/3/	VCS Verified Carbon Standard: VCS Program Guide, VCS Version 4 of 19/09/2019
/4/	VCS Verified Carbon Standard: VCS Standard, VCS Version 4.1 of 19/09/2019

/5/	VCS Verified Carbon Standard: Validation and Verification Manual, version 3.2 of 19/10/2016
/6/	CDM Executive Board: Baseline and monitoring methodology “ACM0002”, “Consolidated methodology for grid connected electricity generation”, version 14.0 of 04/10/2013
/7/	TUV Rheinland: Validation Report for “Midilli Hydroelectric Power Plant” of 27/06/2014
/8/	Life İklim: Emission Reduction Calculation Spreadsheet “Final_ER calculations_Midilli hydro_v03.xls” version 03 of 04/11/2021 Life İklim: Emission Reduction Calculation Spreadsheet “Final_ER calculations_Midilli hydro_v02.xls” version 02 of 19/08/2021 Life İklim: Emission Reduction Calculation Spreadsheet “Final_ER calculations_Midilli hydro_v01.xls” version 01 of 13/08/2021
/9/	VCS Verified Carbon Standard: VCS Verification Report Template Version 4 of 19/09/2019
/10/	CDM Executive Board: Methodological Tool “Tool to calculate the emission factor for an electricity system”, version 04 of 04/10/2013
/11/	Website: https://registry.verra.org/app/projectDetail/VCS/1330 Argument: Verra Database Language: English; Retrieved on: 21/10/2021
/12/	The Ministry of Energy and Natural Resources: Temporary Acceptance Protocol of 24/12/2013 (2 Units) The Ministry of Energy and Natural Resources: Temporary Acceptance Protocol of 27/12/2012 (2 Units)
/13/	Energy Market Regulatory Authority: Generation License numbered EU/996-4/751 of 07/12/2006
/14/	EPIAS: Monthly Meter Reading Protocols for the monitoring period 01/07/2014 to 30/06/2020
/15/	TEIAS: Monthly Meter Reading Protocols for the monitoring period 01/07/2014 to 30/06/2020
/16/	The Turkish Ministry of Trade and Industry: Regulation of Metering and Testing of Metering Systems of 24/07/1994
/17/	Turkish Energy Market Regulatory Authority: Communiqué for Measurement Devices used in the Electricity Market of 22/03/2003
/18/	The Energy Market Regulatory Authority: Electricity Market Balancing and Settlement Regulation of 14/04/2009
/19/	Turkish Electricity Transmission Company (TEIAS): First Index Protocol of 27/12/2012 for all meters
/20/	Alpha Zahler: Calibration Reports for Elster meters located at Powerhouse of 03/03/2011
/21/	TUV Rheinland: Previous Verification Report, report ID: 21225612 version 1.0 of 23/07/2014
/22/	Amasya Governorship, Provincial Directorate of Environment and Forestry: EIA not Required Certificatei date of 15/06/2011
/23/	Photos of the Fish Passage for both Midilli and Yavuz HEPP, submitted on 15/08/2021
/24/	State Hydraulic Works (DSI): Flow Monitoring Reports for all Monitoring Period, submitted on 15/08/2021
/25/	TEIAS: Test Reports for Electricity Meters, date of 24/06/2014, 28/06/2016, 29/06/2018 and 13/07/2020

2.3 Interviews

The Plant Manager was interviewed by phone during remote audit. To see how the monitoring procedures were implemented, the whole process was explained to the verification team. The carbon consultant was interviewed via videoconference about the monitoring report and related parameters. Whole process related emission reduction calculation was explained. The mukhtars were interviewed via phone. They confirmed that no grievance was announced by the stakeholders.

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

	Date	Name and Role	Organization	Topic
/a/	19/08/2021	Ogulcan DEMIRTAS <i>Carbon Consultant</i>	Life İklim	Monitoring plan Monitoring methodology Monitoring data Implementation status of the project
/b/	19/08/2021	Merve BALCI <i>Project Responsible</i>	Masat Enerji	Monitoring equipment and operation Calibration certificates Emission Reductions calculation
/c/	19/08/2021	Naci BULUT <i>Mukhtar</i>	Kuzgeçe Village	Positive and negative impacts of the project activity
/d/	19/08/2021	İbrahim GÖK <i>Mukhtar</i>	Kışlacık Village	Contact details of the project proponents Expropriation

2.4 Site Inspections (Remote Audit)

On 19/08/2021, RINA performed a remote audit for the hydro power plant located in Amasya province of Turkey. During the video conference for the project, it was confirmed that all the equipment and the systems were accessible. RINA assessed the implementation and operation of the proposed project activity, reviewed the information flows for generating, aggregating and reporting the monitoring parameters, interviewed key personnel of the plant to confirm the operational and data collection procedures, cross-checked between information provided in the monitoring report and data plant, checked the monitoring equipment including calibration performance, reviewed calculations and assumptions made in determining the GHG data and emission reductions, checked the quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters.

2.5 Resolution of Findings

The objective of this phase of the verification is to resolve any outstanding issues, which need to be clarified for RINA's positive conclusion on the monitoring report and emission reductions.

To guarantee transparency a verification protocol has been customized for the project. The protocol shows in a transparent manner the requirements, means of verification and the results from verifying the identified criteria. The verification protocol consists of three tables; the different columns in these tables are described in the figure below (see Figure 1). The completed verification protocol is enclosed in Appendix 4 to this report.

A corrective action request (CAR) is raised if one of the following occurs:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions;
- Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.

A clarification request (CR) is raised if information is insufficient or not clear enough to determine whether the applicable VCS requirements, which refer to CDM rules, have been met.

CARs, CRs identified are included in the verification protocol in Appendix A of this report.

During this monitoring period, no CAR/CR is raised. All findings are closed during on videoconference.

Figure 1 Verification protocol tables

Verification Protocol, Table 1 - Requirement checklist					
Checklist Question	Ref.	MoV	Comments	Draft Conclusion	Final Conclusion
Checklist questions organized in seven different sections.	Makes reference to documents where the answer to the checklist question or item is found.	Explain how conformance with the checklist question is investigated. Examples are document review (DR), interview or any other follow-up actions (I), cross checking (CC) with available information relating to projects, (N/A) means not applicable.	The discussion on how the conclusion is arrived at and the conclusion on the compliance with checklist question so far.	For CAR, CR and FAR see the definitions above.	OK is used if the information and evidence provided is adequate to demonstrate compliance with VCS requirements which refer to CDM rules.

Verification Protocol, Table 2: Resolution of Corrective Action Requests and Clarification			
Corrective action requests and/or clarification requests	Reference to Table 1	Response by project participants	Verification Conclusion
The CAR and/or CRs raised in table 1 are repeated here.	Reference to the checklist question number in Table 1 where the CAR or CR is explained.	The responses given by the project participants to address the CARs and/or CRs.	The verification team's assessment and final conclusion of the CARs and/or CRs.

Verification Protocol, Table 3 - Forward Action Requests		
Forward action request	Reference to Table 1	Response by project participants Verification Conclusion
The FAR raised in table 1 is repeated here.	Reference to the checklist question number in Table 1 where the FAR is explained.	Response by the project participants on how forward action request will be addressed.

2.5.1 Forward Action Requests

According to the previous verification Report /21/, no FAR is raised.

2.6 Eligibility for Validation Activities

The project activity is registered under VCS registration reference Number 1330 /11/; hence this section is not applicable.

3 VALIDATION FINDINGS

In the registered VCS PD for “Midilli Hydroelectric Power Plant” in Turkey, version 2.0 of 27/06/2014 /1/, the installed capacity is defined as 33.423 MWm/32.548 MWe as confirmed through the Temporary Acceptance Protocols /12/. The average electricity generation is estimated as 124,050 MWh as per the registered VCS PD /1/. The additionality of the project activity is demonstrated by applying investment analysis registered VCS PD /1/.

The project was validated by TUV Rheinland on 27/06/2014 /7/ and it was registered under the VCS registration reference N° 1330.

3.1 Participation under Other GHG Programs

The project activity is not participated under other GHG Programs as confirmed through the websites of the standard /11/.

3.2 Methodology Deviations

As indicated in Section 2.6 of the PDD, UNFCCC methodology of ACM0002, version 14.0.0 and its related tools have been applied with the exception of the Monitoring parameter of APj.

3.3 Project Description Deviations

There is no project description deviation in this monitoring period.

3.4 Grouped Project

This project is not a grouped project. Hence, this section is not applicable.

4 VERIFICATION FINDINGS

4.1 Project Implementation Status

It was verified during the remote audit conducted on 19/08/2021 that the proposed project activity has been implemented and it is in operation in accordance with the project activity described in the registered VCS PD [/1/](#).

The project activity has been implemented in 2 phases. On 27/12/2012, the power plant has started operation with 2 units and on 24/12/2013 the remaining 2 units have been commissioned. Each commissioning date was confirmed through the Temporary Acceptance Protocols [/12/](#). The carbon crediting period and therefore the monitoring starts when the plant commences electricity generation. Therefore, the crediting period starts on 27/12/2012.

The project activity consists of 4 vertical axis Francis type turbines, with a total installed capacity of 33.423 MWm/32.548 MWe as confirmed through the Temporary Acceptance Protocols [/12/](#). The project boundary in the registered VCS PD [/1/](#) is in line with the actual project boundary. The generated electricity is fed to the national grid. The generated electricity is transmitted to the National Electricity System through Yenidere Substation, with a 154 kV and 33 kV energy transmission line. The geographic coordinates of the project activity are confirmed through the registered PDD [/1/](#).

There are not any material discrepancies between project implementation and the project description. It is verified that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan. The project activity is not participated or rejected under other GHG Programs as confirmed through the websites of the standard [/11/](#). No GHG related environmental credits are applied to the Turkish power sector.

The GHG benefit of the project activity was only accounted under VCS. There are not any other RECs were being issued for the project activity. Furthermore, as a host country in Turkey such any programme like a government-regulated system or programme for the constraint and monetisation of GHG emissions (such as emissions trading scheme, cap and trade or carbon tax mechanisms) has not been implemented. As indicated in Section 2.6 of the PDD, UNFCCC methodology of ACM0002, version 14.0.0 and its related tools have been applied with the exception of the Monitoring parameter of APj.

4.2 Safeguards

4.2.1 No Net Harm

No adverse environmental and socio-economic impacts were observed/recorded for this project. There are two important negative effects for hydroelectric power plants. Fish passage and released life water. Both negative impacts do not apply to this project. During the construction

phase, fish passes /23/ were made for the fish species in the project area. On the other hand, environmental flow rates are regularly controlled by the State Hydraulic Works. Therefore, it is not possible to leave a lower than expected environmental flow at the project site. As a result, the main negative effects that can arise from a hydroelectric power plant are thus eliminated.

4.2.2 Local Stakeholder Consultation

Since the project activity was less than 50 MW, the host country regulations didn't request the project activity to perform a full EIA /22/. Therefore there was not a stake holder consultation meeting held within the framework of an SEIA. However, in order to explain the issues related to the project and especially in order to inform the land owners about the expropriation process the Energy Market Regulatory Agency have organized a stake holder's consultation meeting.

For this monitoring period, Muhktars were interviewed by phone. It was learned that in general, the main form of communication between the local people and the project owner is face-to-face or by phone. They stated that in case of any problem, they can easily reach the responsible persons and convey their complaints. There are no complaints/compliance related to the project implementation during this monitoring period. In addition, for expropriation, Mukhtar of Kuzgece Village confirmed that almost all of the lands belonged to his villagers and that there were no difficulties.

4.3 AFOLU-Specific Safeguards

This project is not an "Agriculture, Forestry and Other Land Use (AFOLU)" project.

4.4 Accuracy of GHG Emission Reduction and Removal Calculations

The emission reduction calculations provided in the spreadsheet /8/ have been verified to be correct and in line with the registered VCS PD /1/.

According to the applied methodology "ACM0002", "Consolidated baseline methodology for grid-connected electricity from renewable sources", version 14.0 of 04/10/2013 /6/, the emission reductions have been calculated based on the following formula:

$$ER_y = BE_y - PE_y - LE_y$$

Where:

BE_y = Baseline emissions in year y (tCO₂e/yr)

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

LE_y = Leakage emissions in year y (tCO₂e/yr)

Baseline emissions

The baseline emissions include the CO₂ emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity, multiplying the electricity supplied to the grid (MWh) with the combined margin CO₂ emission factor for grid connected power generation in year.

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

Where:

EG_{PJ} = 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 emissions factor in year y (tCO₂/MWh)

Project emissions

Project emissions from reservoir has been assumed to be 0 since the power density is larger than 10 W/m² as per the ACM0002 version 14 of 04/10/2013 /6/ as defined in the validated VCS PD /1/. In the registered VCS PD for “Midilli Hydroelectric Power Plant” in Turkey, version 2.0 of 27/06/2014 /1/, the power density has been calculated based on the only reservoir area. Power density is calculated accordingly in the Monitoring Report /2/. The power density is higher than 10 W/m²; therefore, project emissions are neglected.

Leakage emissions

The leakage emissions are assumed to be zero as per the ACM0002 version 14 of 04/10/2013 /6/ as defined in the registered VCS PD /1/.

The data presented in the monitoring report /2/ were assessed by reviewing in detail project documentation, collection of monitored data, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. Sufficient evidence was presented and verified by RINA for the reported emission reductions.

Parameters Available at Validation and Data Fixed Ex-ante

DATA/PARAMETER	Source of data	Reported value for the project period	Assessment/Observation
EF _{grid,CM,y} Baseline emission factor	TEIAS statistics	0.5140016 tCO ₂ /MWh	According to the approved methodology ACM0002 version 14.0, the combined emission factor has been determined using the ex-ante option and so it is not requested to monitor and recalculate the emission factors during the crediting period. The emission factor is determined to be 0.5140016 tCO₂/MWh in the VCS PD /1/ and validation report /7/.

Parameters and Data Monitored

DATA/PARAMETER	EGPP-Gorss Generation,y
Data Unit	MWh
Description	Quantity of electricity exported by the power plant to the Grid for self-consumption, in year y
Source of data	TEIAS meter readings
Description of measurement methods and procedures to be applied	The electricity generation figures are based on the TEIAS meter readings /15/ and the EPIAS records for Electricity Generation /14/ are used for crosscheck.
Frequency of monitoring/recording	Continuously monitoring and monthly recording
Value monitored	356,464.84 MWh
Monitoring equipment	Two unit's electricity meters (two main meters and two backup meters) are installed at the project site. The main meters are ELSTER A 1500 with serial number 0464220 and 0464222. The backup meters are ELSTER A 1500 with serial number 464221 and 464223. In addition, one main control meter ELSTER A 1500 with serial number 00436796 and one back-up control meter ELSTER A 1500 with serial number 00436795 are installed at powerhouse. The meters have the accuracy of 0.5s as confirmed through the first index protocol /19/. The accuracy class of the meters complies with the "Communiqué for Measurement Devices used in the Electricity Market" /17/.
QA/QC procedures to be applied	TEIAS is responsible for calibration and maintenance of the meters as per the registered VCS PD /1/ . The project owner has no control on the meters since the meters are sealed by the TEIAS as confirmed during the site visit. If any major discrepancy occurs between the two meters, TEIAS performs necessary calibration. The meters at the project site were calibrated by the TEIAS on 27/12/2012 as confirmed through the first index protocol /19/ . Also, the meters at the project site were tested by the electricity transmission

	company at the project site on 24/06/2014, 28/06/2016, 29/06/2018 and 13/07/2020 /25/ during this monitoring period. The meters at the powerhouse were calibrated by the TEIAS on 03/03/2011 as confirmed through the calibration report /20/. As per the “Regulation of Metering and Testing of Metering Systems” /16/, the meters shall be calibrated every 10 years, therefore the calibration of meters is deemed appropriate and in compliance with the national regulation. During on-site assessment, it was confirmed that the meters are in place and functions well. During the monitoring period, no breakdown has been recorded.
Purpose of the data	To calculate the baseline emission value
Calculation method	The electricity generation and consumption are measured in line with the TEIAS rules and requirements /18/. The electricity generation supplied to the grid and electricity consumption from the grid is stored by EPIAS on the web site. The Project owner has an ID and password to access this data on the web site. The collected data during the monitoring period will be kept by the project owner at least two years after end of the last crediting period as stated in the registered VCS PD /1/ and monitoring report /2/ in line with the ACM0002 version 14 of 04/10/2013 /6/.
Comments	-

DATA/PARAMETER	EGPP-Self consumption,y
Data Unit	MWh
Description	Quantity of electricity imported by the power plant to the Grid for self-consumption, in year y
Source of data	TEIAS meter readings
Description of measurement methods and procedures to be applied	The electricity generation figures are based on the TEIAS meter readings /15/ and the EPIAS records for Electricity Generation /14/ are used for crosscheck.
Frequency of monitoring/recording	Continuously monitoring and monthly recording
Value monitored	23.02 MWh
Monitoring equipment	Two unit's electricity meters (two main meters and two backup meters) are installed at the project site. The main meters are ELSTER A 1500 with serial number 0464220 and 0464222. The backup meters are ELSTER A 1500 with serial number 464221 and 464223. In addition, one main control meter ELSTER A 1500 with serial number 00436796 and one back-up control meter ELSTER A 1500 with serial number 00436795 are installed at powerhouse.

	The meters have the accuracy of 0.5s as confirmed through the first index protocol /19/ . The accuracy class of the meters complies with the “Communiqué for Measurement Devices used in the Electricity Market” /17/ .
QA/QC procedures to be applied	TEIAS is responsible for calibration and maintenance of the meters as per the registered VCS PD /1/. The project owner has no control on the meters since the meters are sealed by the TEIAS as confirmed during the site visit. If any major discrepancy occurs between the two meters, TEIAS performs necessary calibration. The meters at the project site were calibrated by the TEIAS on 27/12/2012 as confirmed through the first index protocol /19/. Also, the meters at the project site were tested by the electricity transmission company at the project site on 24/06/2014, 28/06/2016, 29/06/2018 and 13/07/2020 during this monitoring period. The meters at the powerhouse were calibrated by the TEIAS on 03/03/2011 as confirmed through the calibration report /20/. As per the “Regulation of Metering and Testing of Metering Systems” /16/, the meters shall be calibrated every 10 years, therefore the calibration of meters is deemed appropriate and in compliance with the national regulation. During on-site assessment, it was confirmed that the meters are in place and functions well. During the monitoring period, no brake down has been recorded.
Purpose of the data	To calculate the baseline emission value
Calculation method	The electricity generation and consumption are measured in line with the TEIAS rules and requirements /18/. The electricity generation supplied to the grid and electricity consumption from the grid is stored by EPIAS on the web site. The Project owner has an ID and password to access this data on the web site. The collected data during the monitoring period will be kept by the project owner at least two years after end of the last crediting period as stated in the registered VCS PD /1/ and monitoring report /2/ in line with the ACM0002 version 14 of 04/10/2013 /6/.
Comments	-

DATA/PARAMETER	CapPJ
Data Unit	W
Description	Installed capacity of the hydro power plant after the implementation of the project activity
Source of data to be used	Project site and determined via the turbine plates
Value data for the monitoring period	33,423,000 Wm / 32,548,000 We

Measuring and reporting frequency; recording procedure	Yearly
Type of monitoring equipment and its accuracy	The parameter is monitored through the Generation License and Letter for Approval of Commissioning; therefore, measurement equipment is not used.
Calibration frequency/interval	NA
How were the values in the monitoring report verified and cross-checked?	The parameter is monitored through the Generation License /13/ and Letter for Approval of Commissioning /12/.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	NA
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	All the data were available for the whole monitoring period.

Emission Reductions Achieved

The emission reductions calculation reported in the Monitoring Report version 04 of 23/12/2021 /2/ and calculation spreadsheet “Final_ER calculations_Midilli hydro_v02.xls” version 02 of 19/08/2021 /8/ have been verified to be correct.

The emission reductions from the project for the monitoring period from 01/07/2014 to 30/06/2020 as reported in the Monitoring Report version 04 of 23/12/2021 /2/ is equivalent to 183,208 tCO₂e. According to the registered VCS PD /1/, the estimated emission reductions are equivalent to 382,741 tCO₂e. The reported averaged emission reductions are 52% lower than the estimated emission reduction.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

The generated electricity monitored continuously by two-unit meters that were sealed by TEIAS. Two unit's electricity meters (two main meters and two backup meters) are installed at the project site. The main meters are ELSTER A 1500 with serial number 0464220 and 0464222. The backup meters are ELSTER A 1500 with serial number 464221 and 464223. In addition, one

main control meter ELSTER A 1500 with serial number 00436796 and one back-up control meter ELSTER A 1500 with serial number 00436795 are installed at powerhouse.

The meters have the accuracy of 0.5s as confirmed through the first index protocol [/19/](#). The accuracy class of the meters complies with the “Communiqué for Measurement Devices used in the Electricity Market” [/17/](#).

TEIAS is responsible for calibration and maintenance of the meters as per the registered VCS PD [/1/](#). The project owner has no control on the meters since the meters are sealed by the TEIAS as confirmed during the site visit. If any major discrepancy occurs between the two meters, TEIAS performs necessary calibration. The meters at the project site were calibrated by the TEIAS on 27/12/2012 as confirmed through the first index protocol [/19/](#). Also, the meters at the project site were tested by the electricity transmission company at the project site on 24/06/2014, 28/06/2016, 29/06/2018 and 13/07/2020 during this monitoring period.

The meters at the powerhouse were calibrated by the TEIAS on 03/03/2011 as confirmed through the calibration report [/20/](#). As per the “Regulation of Metering and Testing of Metering Systems” [/18/](#), the meters shall be calibrated every 10 years, therefore the calibration of meters is deemed appropriate and in compliance with the national regulation. The calibration frequency has been respected.

The electricity generation figures are based on the TEIAS monthly meter readings [/15/](#) and the EPIAS records [/14/](#) are used for crosscheck from 01/07/2014 to 30/06/2020. The records and emission reduction calculation spreads sheet [/8/](#) are consistent.

4.6 Non-Permanence Risk Analysis

There is no non-permanence risk rating determined by the project proponent.

5 VERIFICATION CONCLUSION

RINA Services Spa (RINA) has performed verification of the emission reductions reported for the project activity “Midilli Hydroelectric Power Plant” in Turkey, VCS Registration Reference N° 1330, for the period 01/07/2014 to 30/06/2020, with regard to the relevant requirements for CDM and VCS activities.

It is RINA’s opinion that the GHG emission reductions stated in the Monitoring Report version 04 of 23/12/2021 for the “Midilli Hydroelectric Power Plant” project in Turkey for the period 01/07/2014 to 30/06/2020 are fairly stated. The GHG emission reductions were calculated correctly, on the basis of the approved monitoring methodology “ACM0002”, “Consolidated methodology for grid connected electricity generation”, version 14.0 of 04/10/2013 and the monitoring plan contained in the registered VCS PD.

Hence, RINA is able to certify that the emission reductions from the project during the monitoring period 01/07/2014 to 30/06/2020 amount to 183,208 tCO₂e.

Verification period: From 01/07/2014 to 30/06/2020

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 2014	5,914	0	0	5,914
Year 2015	35,097	0	0	35,097
Year 2016	38,657	0	0	38,657
Year 2017	22,908	0	0	22,908
Year 2018	19,249	0	0	19,249
Year 2019	40,534	0	0	40,534
Year 2020	20,849	0	0	20,849
Total	183,208	0	0	183,208



CERTIFICATO DI QUALIFICA PER GLI SCHEMI VOLONTARI*
QUALIFICATION CERTIFICATE FOR VOLUNTARY SCHEMES*

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

Tugce Kiratli

è qualificato come:
is qualified as:

**TEC, VAL, VER, TL, ITRP
LOCAL EXPERT**

per le seguenti aree tecniche:
for the following technical areas:

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Renewables	1
13.1	Solid waste and wastewater	13

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	19/07/2016	First issue with new template
1	09/08/2017	Added qualification as ITRP and Local Expert

Responsabile di schema
Scheme Leader
Laura Severino



*SCHEMI VOLONTARI/ VOLUNTARY SCHEMES: ACR American Carbon Registry, CCB The Climate, Community & Biodiversity Alliance, GS Gold Standard, JI Joint Implementation, SCS Social Carbon Standard, VCS Verified Carbon Standard.

TEC: Technical expert, VAL: Validator, VER: Verifier, TL: Team leader, FIN EXP: Financial Expert, ITRP: Independent technical reviewer

RINA Services S.p.A. è accreditato/riconosciuto da
RINA Services S.p.A. is accredited /recognized by

UNFCCC	quali Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects
VCSA	per condurre la Validazione e la Verifica di Progetti VCS to carry out Validation and Verification of VCS Projects
GS Foundation	per condurre la Validazione e la Verifica di Progetti GS to carry out Validation and Verification of GS Projects
Ecologica Institute	per condurre la Validazione e la Verifica di rapporti SCS to carry out Validation and Verification of SCS Reports
American Carbon Registry ACR	per condurre la Validazione e la Verifica di Progetti ACR to carry out Validation and Verification of ACR projects
The Climate, Community & Biodiversity Alliance CCB	per condurre la Validazione e la Verifica di Progetti co-benefit CCB to carry out Validation and Verification of co-benefit CCB projects



CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Si attesta che il sig./sig.ra:
We declare that Mr/Ms/Mr:

Amalorpavanathan Cyril AUGUSTUS AROKIASAMY

è qualificato come:
is qualified as:

CDM-TEC, CDM-VAL, CDM-VER, CDM-TL,
ITRP, REG-EXP²

per le seguenti aree tecniche:
for the following technical areas:

1.1, 1.2, 3.1, 4.1, 5.1, 13.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.1	Thermal energy generation	1
1.2	Renewables	1
3.1	Energy Demand	3
4.1	Cement and lime production	4
5.1	Chemical industry	5
13.1	Solid Waste and wastewater	13

In accordo alle Istruzioni della Unità Certification Innovation and Sustainability.
In accordance with the Instructions of the Certification Innovation and Sustainability Unit.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	30/06/2010	-
13	31/03/2017	Updated qualification as ITRP
14	20/09/2018	Update qualification as REG-EXP
15	15/11/2019	Update qualification with "Sampling and surveys for CDM PAs and PoAs"
16	15/09/2020	Update

Il Resp. CEINS
Head of CEINS



Legend

VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
REG-EXP: Financial Expert
DET: Determiner

CDM: Clean Development Mechanism
VCS: Verified Carbon Standard
GS: Gold Standard
SCS: Social Carbon Standard
JI: Joint Implementation

² Ghana, Azerbaijan, China, Sri Lanka, Bangladesh, Nepal, Thailand, Indonesia, Singapore, Malaysia, Cambodia, Vietnam, Philippines, UAE and Iraq, Brazil, Japan.

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RINA Services S.p.A. is accredited by the UNPCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports.