FINAL VERIFICATION REPORT

"THE YOKUSLU - KALKANDERE HYDROELECTRIC POWER PLANT"

RINA Services S.p.A.

Project Title	*The Yokuslu- Kalkandere Hydroelectric Power Plant*
Version	*3.0Aa*
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Summary:

RINA Services S.p.A. (RINA), commissioned by Sanko Enerji Sanayi ve Ticaret A.Ş." has verified the greenhouse gas emission reductions reported for the project activity "The Yokuslu- Kalkandere Hydroelectric Power Plant" in Turkey, VCS Registration Reference N° 905, for the period 01/01/2021 to 30/06/2023, 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 "The Yokuslu- Kalkandere Hydroelectric Power Plant" project in Turkey for the period 01/01/2021 to 30/06/2023.

Verification was conducted using RINA procedures in line with the requirements specified in the VCS Version 4.2 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, on-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 4.2 requirements, which refer to CDM rules, in order to be certified.

In conclusion, it is RINA's opinion that the project activity "The Yokuslu- Kalkandere Hydroelectric Power Plant", in "Turkey", as described in the Monitoring Report version 0.1 of 29/09/2023, 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 21.0 of 02/11/2022. Hence, RINA is able to certify that the emission reductions from the project during the monitoring period 01/01/2021 to 30/06/2023 amount to 172,937 tCO_2e. During this monitoring period, 1 CAR is raised.

1 INTRODUCTION

1.1 Objective

The objective of the verification is to have an independent review ex post determination by a Validation and Verification Body (VVB) 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 VVB 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 "The Yokuslu- Kalkandere Hydroelectric Power Plant" in Turkey for the period 01/01/2021 to 30/06/2023.

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 4.2 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 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	ERDOĞAN	Mehmet	Turkey
Independent Technical Reviewer	Hui Feng;	LIU	China

1.4 Summary Description of the Project

Sanko Enerji Sanayi ve Ticaret A.Ş." has commissioned RINA to carry out the verification and certification of emission reductions reported for the registered "*The Yokuslu- Kalkandere Hydroelectric Power Plant*" in Turkey, VCS Registration Reference N° 905, for the period 01/01/2021 to 30/06/2023.

The project is hydroelectric power plant located in İyidere River basin in the Black Sea Region of Turkey, within the province of Rize. The project activity has the total installed capacity of 41.19 MWm and 40.24 MWe as confirmed through the Generation License /13/. 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 154 kV transmission lines through Kalkandere HES – İyidere TM Kalkandere HES – Cevizlik HES transformer substations. The geographic coordinates of the project activity are confirmed through the registered PDD /1/. The project start date is 01/01/2011 which is the date of electricty generation.

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)	*Sanko Enerji Sanayi ve Ticaret A.Ş."*		
Project Title	*The Yokuslu- Kalkandere Hydroelectric Power Plant*		
Location of the project	*İyidere River basin in the Black Sea Region of Rize Province, Turkey.*		
Methodology(ies)	*"ACM0002", "Consolidated methodology for grid connected electricity generation", version 21.0 of 02/11/2022/6/*		
Sectoral Scope(s)	*1*	***RINA's Technical Area(s)***	*1.2*
Registered VCS PD	*Version* 03 of 18/12/2022		
VCS Registration Reference No	905		
Starting date of the crediting period	01/01/2021		
Project's crediting period	01/01/2021 to 31/12/2030 (second Crediting period)		
Monitoring period	01/01/2021 - 30/06/2023 *(both days included)*		
Project documentation link	*https://registry.verra.org/app/projectDetail/VCS/905*		

2 VERIFICATION PROCESS

The project was validated by Applus Certification, version 01.2 on 20/12/2022 and it was registered under the VCS registration reference N° 905 for the second crediting period. This is the first verification assessment of second CP for the monitoring period 01/01/2021 to 30/06/2023 by RINA.

2.1 Method and Criteria

Verification was conducted using RINA procedures in line with the requirements specified in the VCS Version 4.2 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;

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

2.2 Document Review

The monitoring report, version 0.1 of 29/09/2023 and previous version /2/, the emission reduction calculations provided in the form of a spreadsheet, "Yokuslu-Kalkandere_ER Calculation_v01.xlsx" version 01 of 29/09/2023 /8/, the approved baseline and monitoring methodology ACM0002 version 21.0 /6/ and all the documentation provided to support the monitoring period /01 – 23/ 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 01.2 20/12/2022 /7/ for the project, were reviewed.

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

/1/	VCS PD for "The Yokuslu- Kalkandere Hydroelectric Power Plant" in Turkey, version 3 of 18/12/2022
/2/	Ruzgar Danismanlik: Monitoring report for "The Yokuslu- Kalkandere Hydroelectric Power Plant" in Turkey, version 0.1 of 29/09/2023
/3/	VCS Verified Carbon Standard: VCS Program Guide, VCS Version 4.2 of 22/06/2022
/4/	VCS Verified Carbon Standard: VCS Standard, VCS Version 4.3 of 22/06/2022
/5/	CDM Executive Board: CDM validation and verification standard for project activities, version 03.0 of 09/09/2021
/6/	CDM Executive Board: Baseline and monitoring methodology "ACM0002", "Consolidated methodology for grid connected electricity generation", version 21.0 of 02/11/2022

/7/	Applus Certification: Validation Report for “The Yokuslu- Kalkandere Hydroelectric Power Plant”, version 01.2 of 20/12/2022
/8/	Ruzgar Danismanlik: Emission Reduction Calculation Spreadsheet “Yokuslu-Kalkandere_ER Calculation_2023_v01.xlsx” version 01 of 29/09/2023
/9/	VCS Verified Carbon Standard: VCS Verification Report Template Version 4.2 of 21/12/2022
/10/	CDM Executive Board: Methodological Tool “Tool to calculate the emission factor for an electricity system”, version 07.0 of 31/08/2018
/11/	Website: https://registry.verra.org/app/projectDetail/VCS/905; Argument: Verra Database Language: English; Retrieved on: 13/11/2023
/12/	Turkish Electricity Transmission Company (TEIAS): Change Protocol of the Electricity Meters of 10/08/2020
/13/	Energy Market Regulatory Authority: Generation License, No: EÜ915-2/719, date of 14/09/2006
/14/	EPIAS: Monthly Meter Reading Protocols for the monitoring period
/15/	OSOS: Monthly Meter Reading Protocols for the monitoring period
/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/	Dalya Energy Test report of the Electricity Meters of 30/09/2022
/20/	Ministry of Environment and Forestry: EIA positive decision, dated on 06/11/2009
/21/	RE CARBON: Previous Verification Report, version 01.1 of 01/11/2022
/22/	Website: https://registry.goldstandard.org/projects?q=yokuslu&page=1, Argument: GS Database, Language: English; Retrieved on: 13/11/2023
/23/	Turkish Electricity Transmission Company (TEIAS): system usage agreement of 26/11/2018

2.3 Interviews

The Plant Manager was interviewed by phone during site visit. To see how the monitoring procedures were implemented, the whole process was explained to the verification team. The carbon consultant was interviewed about the monitoring report and related parameters. Whole process related emission reduction calculation was explained. The mukhtar which is also an employment in the project was interviewed. 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*
/1/	*24/08/2023*	*Cagla BALCI ERIS* *Carbon Consultant*	*Ruzgar Danismanlik*	*Monitoring plan* *Monitoring methodology* *Monitoring data* *Implementation status of the project* *Monitoring equipment and operation* *Calibration certificates* *Emission Reductions calculation* *Positive and negative impacts of the project activity* *Contact details of the project proponents*
/2/		*Beyza Dilara Kılıç* *Env. Eng.*	*Sanko Energy*	
/3/		*Muhsin DERVİŞOĞULLARI* *Env. Eng.*	*Sanko Energy*	
/4/		*Murat DOLMACI* *Plant Manager*	*Sanko Energy*	
/5/		*Yaşar BAŞ*	*Gürdere Village* *Vice of Mukhtar*	
/6/		*Hasan Haç Fazlı Öğe*	*Tatlısu Hometown* *Vice of Mukhtar*	
/7/		*Erdoğan Başhasanoğlu*	*Gürdere Village* *Stakeholder*	
/8/		*Fevzi KENAN*	*Kayabaşi Village Mukhtar*	
/9/		*Niyazi Kabaoğlu*	*Yokuşlu Village Mukhtar*	
/10/		*Volkan GÜMÜŞLER*	*Sanko Energy*	
		Emine Karaca ÇOLAK	*Sanko Energy*	
		Harun CAN	*Sanko Energy*	

2.4 Site Visits

On 24/08/2023, RINA performed a site visit for the hydro power plant located in Rize Province of Turkey. During the site visit 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).

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.

During this monitoring period, no 1 CAR is raised.

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 e-mail sent by VCS /11/ and previous validation Report /7/, no FAR is raised.

2.6 Eligibility for Validation Activities

The project activity is registered under VCS registration reference Number 905 /11/; hence this section is not applicable.

3 VALIDATION FINDINGS

In the registered VCS PD for "*The Yokuslu- Kalkandere Hydroelectric Power Plant*" in Turkey, version 03 of 18/12/2022 /1/, the project activity has a total installed capacity of 36.26 MWe as confirmed through the Generation License /13/. The average electricity generation is estimated as 180,480 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 Applus Certification on 20/12/2022 /7/ and it was registered under the VCS registration reference N° 905.

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/.* Also other voluntary schemes are reviewed and there is no evidence that project is under another schemes. /22/.

3.2 Methodology Deviations

There is no methodology deviation in this monitoring period or previous monitoring periods.

3.3 Project Description Deviations

The project activity was originally planned with a 42.33 MWe installed capacity. The total installed capacity was changed and decided to install as 40.24 MWe Kalkandere HEPP.

3.4 Grouped Project

This 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 site visit conducted on 24/08/2023 that the proposed project activity has been implemented and it is in operation in accordance to the project activity described in the registered VCS PD /1/.

The carbon crediting period and therefore the monitoring starts when the plant commences electricity generation. Therefore, the first crediting period was from 01-01-2011 until 31-12-2020 with two times renewable crediting period of 10 years. The second crediting period is between 01-01-2021 and 31-12-2030.

The project is hydroelectric power plant located in İyidere River basin in the Black Sea Region of Turkey, within the province of Rize. The project activity has the total installed capacity of 41.19 MWm and 40.24 MWe as confirmed through the Generation License /13/. 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 154 kV transmission lines through Kalkandere HES – İyidere TM Kalkandere HES – Cevizlik HES transformer substations. 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/ /22/. 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.

There are no material discrepancies between the actual monitoring system and plan. The project contributes to SDG 7 by generating electricity from clean energy. The project also greatly supports sustainable economic development in the region. In accordance with SDG 8, employment was created during the construction and operation phases of the power plant. Compared to the business-as-usual scenario, which is considered a contribution to SDG 13, it has a significant contribution to reducing carbon emissions and protecting the climate. Therefore, the project has positive effects on sustainable development.

4.2 Safeguards

4.2.1 No Net Harm

There hadn't been any observed significant environmental impact of the project activity as indicated in the registered PD and this was also confirmed through the reviewed documents. The EIA positive Decision dated as 06/11/2009 by the Provincial Directorate of Environment and Forestry /20/.

4.2.2 Local Stakeholder Consultation

According to the regulation declared by the Ministry of Environment and Forestry and published on the Official Gazette (dated 17th July 2008, numbered 26939), projects which an EIA is required from are subject to an obligation to hold Stakeholder Meetings. Therefore, during the registration of the project a stakeholder meeting was carried out on 21/05/2009. So, mukhtars of local villages have been interviewed and continuously informed about the Project for understanding the general perspective about the HEPP. For the time being, it has been experienced that mukhtars and villagers of the region are the most cooperative about the exchange of information and opinions.

For this monitoring period, local people were interviewed. It was learned that in general, the main form of communication between the local people and the project owner is face-to-face. 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.

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 21 of 02/11/2022 /6/, the emission reductions have been calculated based on the following formula:

$ERy = BEy - PEy - Ley$

Where:
BEy = Baseline emissions in year y (tCO_2e/yr)
PEy = Project emissions in year y (tCO_2e/yr)
LEy = Leakage emissions in year y (tCO_2e/yr)

Baseline emissions

The baseline emissions include the CO_2 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 CO_2 emission factor for grid connected power generation in year.

$BEy = EG_{PJ,y} * EF_{grid,CM,y}$

Where:
$EG_{PJ,y}$ = Net electricity delivered to the grid by the project activity in year y excluding transmission losses of the grid (MWh)
$EF_{grid,CM,y}$ = Combined margin grid emission factor (tCO_2/MWh)

Project emissions

Project emissions from reservoir has been assumed to be 0 since the project activity has no reservoir as per the ACM0002 version 21.0 of 02/11/2022 /6/ as defined in the validated VCS PD /1/. In the registered VCS PD for "The Yokuslu- Kalkandere Hydroelectric Power Plant" in Turkey, version 03 of 18/12/2022 /1/, it was confirmed that there is no need to calculate power density since the project activity has no reservoir.

Leakage emissions

The leakage emissions are assumed to be zero as per the ACM0002 version 21.0 of 02/11/2022 /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 (for the first crediting period)	TEIAS statistics	0.4616 tCO_2/MWh	According to the approved methodology ACM0002 version 21.0, 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 0.46416 tCO2/MWh in the VCS PD /1/ and validation report /7/.

Parameters and Data Monitored

DATA/PARAMETER	EGpj, y
Data Unit	MWh/y
Description	Quantity of net electricity supplied to the grid by The Yokuslu- Kalkandere Hydroelectric Power Plant in year "y"
Source of data	EPIAS Records Monthly Meter Reading (OSOS) Forms
Description of measurement methods and procedures to be applied	The electricity generation figures are based on the EPIAS records /14/ and the OSOS Records /15/ are used for crosscheck.
Frequency of monitoring/recording	Continuously monitoring and monthly recording
Value monitored	374,650.082 MWh
Monitoring equipment	1 main meter and 1 backup meter are installed at the project site. The main meters are EMH-LZQJ-XC with serial number 9674574 and 9674575. The meters have the accuracy of 0.2s as confirmed through change protocol of the electricity meters /12/. The accuracy class of the meters complies with the "Communiqué for Measurement Devices used in the Electricity Market" /17/. The main and back meters was changed on 10/08/2020 old main meters are ACTARIS with serial numbers 53087889 and 53087890.
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 new meters were calibrated on 2020 as confirmed through the approved PDD /1/. The meter in the transformer center is placed on 10/08/2020 as confirmed through the meter change protocol /12/. 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. During this monitoring period two metering tests were performed on 30/09/2022 according to system usage agreement test period is defined as two years.
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 /6/.
Comments	-

DATA/PARAMETER	CapPJ
Data Unit	MWe
Description	Installed capacity of the hydro power plant after the implementation of the project activity
Source of data to be used	Project Site and Generation License
Value data for the monitoring period	40.24 MWe
Measuring and reporting frequency; recording procedure	Yearly
Type of monitoring equipment and its accuracy	The parameter is monitored through the Generation License; 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/
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.

DATA/PARAMETER	APJ
Data Unit	m2
Description	Area of the reservoir measured on the surface of the water, after the implementation of the project activity, when the reservoir is full
Source of data to be used	Project Site
Value data for the monitoring period	11,442 m2
Measuring and reporting frequency; recording procedure	Measured from topographical surveys, maps, satellite pictures.
Type of monitoring equipment and its accuracy	The parameter is monitored through the On site observation, maps and photos; therefore, measurement equipment is not used.
Calibration frequency/interval	NA
How were the values in the monitoring report verified and cross-checked?	NA
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 0.1 of 29/09/2023 /2/ and calculation spreadsheet "Yokuslu-Kalkandere_ER Calculation_v02.xlsx" version 01 of 29/09/2023 /8/ have been verified to be correct.

The emission reductions from the project for the monitoring period from 01/01/2021 to 30/06/2023 as reported in the Monitoring Report is equivalent to 172,937 tCO_2e. All data were examined without sampling and it was seen that there was no error in data transfer. RINA confirmed that GHG emission reductions and removals have been quantified correctly in accordance with the project description and applied methodology.

4.5 Quality of Evidence to Determine GHG Emission Reductions and Removals

1 main meter and 1 backup meter are installed at the project site. The main meters are EMH-LZQJ-XC with serial number 9674574 and 9674575. The meters have the accuracy of 0.2s as confirmed through change protocol of the electricity meters /12/. The accuracy class of the meters complies with the "Communiqué for Measurement Devices used in the Electricity Market" /17/. The main and back meters was changed on 10/08/2020 old main meters are ACTARIS with serial numbers 53087889 and 53087890. The meters have the accuracy of 0.2s as confirmed through change protocol of the electricity meters /12/.

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 new meters were calibrated on 2020 as confirmed through the approved PDD /1/. The meter in the transformer center is placed on 10/08/2020 as confirmed through the meter change protocol /12/. 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. During this monitoring period two metering tests were performed on 30/09/2022 according to system usage agreement /23/ test period is defined as two years.

The electricity generation figures are based on the EPIAS records /14/ and the Monthly Meter Readings /15/ are used for crosscheck from 01/01/2021 to 30/06/2023. The records and emission reduction calculation spreads sheet /8/ are consistent.

RINA confirmed that quantity, and appropriateness of quality, of the evidence used to determine the GHG reductions and removals are found sufficient.

4.6 Non-Permanence Risk Analysis

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

5 VERIFICATION OPINION

RINA Services Spa (RINA) has performed verification of the emission reductions reported for the project activity "The Yokuslu- Kalkandere Hydroelectric Power Plant in Turkey, VCS Registration Reference N° 905, for the period 01/01/2021 to 30/06/2023, 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 0.1 of 29/09/2023 for the "The Yokuslu- Kalkandere Hydroelectric Power Plant" project in Turkey for the period 01/01/2021 to 30/06/2023 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 21 of 02/11/2022 and the monitoring plan contained in the registered VCS PD.

The project has been verified to comply with the validation criteria for the projects and the greenhouse gas emission reductions or removals specified in VCS version 4.3. It is also confirmed that the level of assurance of this verification report is reasonable.

Hence, RINA is able to certify that the emission reductions from the project during the monitoring period 01/01/2021 to 30/06/2023 amount to 172,937 tCO_2e.

Verification period: From 01/01/2021 to 30/06/2023 (for the second crediting period).
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)	Ex-ante emissions reductions/removals	Percent difference %
Year 2021	*58,363*	*0*	*0*	*58,363*	*83,309*	*-%30*
Year 2022	*69,659*	*0*	*0*	*69,659*	*83,309*	*-%16*
Year 2023 (01/01/2023) (30/06/2023)	*44,916*	*0*	*0*	*44,916*	*41,312*	*%9*
Total	*172,938*	*0*	*0*	*172,938*	*207,930*	*-%16.8*

The emission reductions from the project for the monitoring period as reported in the monitoring report Version 01 of 29/09/2023 is equivalent to 172,938 tCO_2. The reported emission reductions are less (16.8%) than the estimated emission reduction of 207,930 tCO_2 for the period as per the registered PDD due to dry weather conditions.

RINA SERVICES
classification, certification, inspection & testing

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: **Hui Feng Liu**

è qualificato come:
is qualified as: **TEC, VAL, VER, TL, ITRP**

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*
1.1	Thermal energy generation	1
1.2	Renewables	1
8.1	Mining and mineral processes	8
9.2	Iron, steel and Ferro alloy production	9
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 (this certificate is linked to CDM qualification)

Responsabile di schema
Scheme Leader
Rita Valoroso

*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: Indipendent technical reviewer

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

UNFCCC	quale 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*

GHG_QUAL_CERT_EN_07_16 Voluntary(Certificate) Page 1 of 1

CERTIFICATO DI QUALIFICA
QUALIFICATION CERTIFICATE

Si attesta che il sig.: *We declare that Mr:*	**Mehmet ERDOGAN**
è qualificato come[1]: *is qualified as:*	**TL – VAL[4] – VER – TEC – REG-EXP[3]**
nello schema[2]: *for the scheme:*	**VCS – CCB – GS4GG**
per le seguenti aree tecniche: *for the following technical areas:*	**1.1 – 1.2 – 9.2 – 13.1 – 13.2**

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
9.2	Iron, steel and Ferro-alloy production	9
13.1	Waste handling and disposal	13
13.2	Manure	13

in accordo alle istruzioni dell'Unità responsabile (OU) per sostenibilità & cambiamenti climatici.
in accordance with the instructions of the responsible unit (OU) for the sustainability & climate change.

REVISIONE *REVISION*	DATA *DATE*	MOTIVAZIONI PER LA REVISIONE *REASON FOR THE REVISION*
0	24.03.2023	First Issue
1	12/04/2023	GS4GG extension
2	24/07/2023	GS4GG VAL extension
3	10/12/2023	TEC SS3 extension

Il Responsabile di schema
Scheme Manager

[1]
VAL: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
REG-EXP : Regional Expert
ITR : Independent Reviewer
DET: Déterminer

[2]
CDM: Clean Development Mechanism
VCS: Verified Carbon Standard
GS4GG: Gold Standard for Global Goals
SCS: SocialCarbon Standard
JI: Joint Implementation
ISO14064-2 : International standard 14064 part 2
UER : Upstream Emission Reduction
CCB : The Climate, Community & Biodiversity Alliance

[3] Turkey

[4] For GS4GG only