



**Verified Carbon
Standard**

FINAL VERIFICATION REPORT

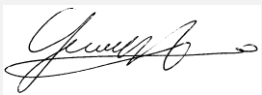
“BATICIM BATI ANADOLU CIMENTO SANAYII A.S. 9 MW CEMENT WHR PROJECT ”



RINA Services S.p.A.

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Summary:

RINA Services S.p.A. (RINA), commissioned by Baticim Batı Anadolu Cimento Sanayii A.S has verified the greenhouse gas emission reductions reported for the project activity “Baticim Batı Anadolu Cimento Sanayii A.S. 9 MW Cement WHR Project” in Turkey, VCS Registration Reference N° 822, for the period 12/10/2013 to 11/10/2019, 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 “Baticim Batı Anadolu Cimento Sanayii A.S. 9 MW Cement WHR Project” project in Turkey for the period 12/10/2013 to 11/10/2019. 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 "Baticim Batı Anadolu Cimento Sanayii A.S. 9 MW Cement WHR Project", in "Turkey", as described in the Monitoring Report version 0.6 of 08/11/2023, meets all relevant requirements for VCS and CDM activities and all relevant host Party criteria and correctly applies the baseline and monitoring *methodology "ACM0012", "Consolidated baseline methodology for GHG emission from waste energy recovery projects", version 04.0.0 of 15/04/2011*. Hence, RINA is able to certify that the emission reductions from the project during the monitoring period 12/10/2013 to 11/10/2019 amount to 148,337 tCO₂e. During this monitoring period, 5 CARs/ 3 CRs are raised and shared in appendix, also all CARs and CRs are closed.

1	Introduction	5
1.1	Objective	5
1.2	Scope and Criteria	5
1.3	Level of Assurance.....	5
1.4	Summary Description of the Project	6
2	Verification Process	8
2.1	Method and Criteria.....	8
2.2	Document Review	9
2.3	Interviews	10
2.4	Site Visits.....	11
2.5	Resolution of Findings	11
2.5.1	Forward Action Requests	13
2.6	Eligibility for Validation Activities	13
3	Validation Findings	14
3.1	Participation under Other GHG Programs	14
3.2	Methodology Deviations.....	14
3.3	Project Description Deviations.....	14
3.4	Grouped Project	15
4	Verification Findings	16
4.1	Project Implementation Status	16
4.2	Safeguards	17
4.2.1	No Net Harm	17
4.2.2	Local Stakeholder Consultation	17
4.3	AFOLU-Specific Safeguards	17
4.4	Accuracy of GHG Emission Reduction and Removal Calculations	17
4.5	Quality of Evidence to Determine GHG Emission Reductions and Removals	26
4.6	Non-Permanence Risk Analysis.....	26
5	Verification OPINION	27
APPENDIX 1: <CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS AND FORWARD ACTION REQUESTS>		29

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 “Baticim Batı Anadolu Cimento Sanayii A.S. 9 MW Cement WHR ” project in Turkey for the period 12/10/2013 to 11/10/2019.

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 online audit 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
<i>Technical Expert</i>	MARTI	Laura	Italy
Independent Technical Reviewer	Augustus Arokiasamy AMALORPAVANATHAN	Cyril	India

1.4 Summary Description of the Project

Baticim *Bati Anadolu Cimento Sanayii A.S* has commissioned RINA to carry out the verification and certification of emission reductions reported for the registered “*Final Report of “Baticim Bati Anadolu Cimento Sanayii A.S. 9 MW Cement WHR ”* project in Turkey, VCS Registration Reference N° 882, for the period *12/10/2013 to 11/10/2023*.

The cement production plant BATICIM-IZMIR of BATICIM BATI ANADOLU CIMENTO CO. Ltd. is located in Bornova district of Izmir province. GPS coordinates of the plant is Latitude 38° 27’ 25’’ and Longitude 27° 15 45’’ E The geographic coordinates of the project activity are confirmed through the registered PDD /[1/](#).

The project shall implement a 9 MW waste heat recovery solution at BATICIM-IZMIR cement plant. It entails the installation of *one 9MW turbine, one 9MW generator, two AQC boilers and two SP boilers as confirmed through the Generation License /[13/](#)*.

AQC boiler is installed between the middle cooler outlet and filter, produce superheated steam and hot water; a dedusting chamber is installed before the AQC2 boiler to alleviate the boiler abrasion. The AQC1 boiler has little space for installation, thus the chamber and the boiler are combined. The heat-receiving surface of the boiler is divided into two stages:

The first stage is high pressure superheated steam stage; the second stage is hot water stage. SP boiler will be connected to the preheater exit, produce superheated steam. Deaerated water is pumped to AQC boiler as supply of the hot water stage, outgoing water from the stage is used as feed water of SP boilers and AQC boiler steam stage. The superheated steam produced in the AQC boilers and SP boilers merges and is introduced to the turbine for on-site utilization. Exhaust steam of turbine after work condensed to water, and then pumped to a deaerator. The generated power from the waste heat recovery shall substitute the plant utilization of conventional electricity from the local grid.

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 used for internal consumption and no generated energy supplied to the National Electricity Transmission Grid of Turkey.

Project Participant(s)	Baticim Bati Anadolu Cimento Sanayii A.S		
Project Title	Baticim Batı Anadolu Cimento Sanayii A.S. 9 MW Cement WHR Project		
Location of the project	Ankara Asfaltı Uzeri, Naldoken Koyu No. 335, Bornova District of İzmir Province (35050), Turkey.		
Methodology(ies)	“ACM0012”, “Consolidated methodology for grid connected electricity generation”, version 04.0.0 of 15/04/2011 /6/		
Sectoral Scope(s)	1 & 4	RINA's Technical Area(s)	1.2 & 4.1
Registered VCS PD	Version 3 of 03/11/2011		
VCS Registration Reference No	822		
Starting date of the crediting period	11/10/2013 (first Crediting period) 12/10/2023 (second Crediting period))		
Project's crediting period	From 12/10/2013 to 11/10/2023 (first Crediting period)		
Monitoring period	12/10/2013 - 11/10/2019 (both days included)		
Project documentation link	https://registry.verra.org/app/projectDetail/VCS/822		

2 VERIFICATION PROCESS

The project was validated by TÜV SÜD Industrie Service GmbH, version 03 on 24/04/2012 and it was registered under the VCS registration reference N° 822 for the first crediting period. First crediting period start date is 12/10/2013 and length of crediting period 10 years, once renewable, for a total of 20 years.

2.1 Method and Criteria

Verification was conducted using RINA procedures in line with the requirements specified in the VCS Program Guide Version 4.3 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 06 of 08/11/2023 and previous version /2/, the emission reduction calculations provided in the form of a spreadsheet, “Baticim WHR_ER Calculation_v02.xlsx” version 05 of 31/05/2023 and previous versions /8/, the approved baseline and monitoring methodology ACM0012 version 04.0.0 /6/ and all the documentation provided to support the monitoring period /01 – 16/ 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 24/04/2012 /7/ for the project, were reviewed.

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

/1/	FutureKamp VCS PD for “BATICIM BATI ANADOLU CIMENTO SANAYII A.S. 9 MW Cement WHR Project” in Turkey, version 3 of 03/11/2011
/2/	Life Enerji Monitoring report for “Batiçim WHR Project” in Turkey, version 0.6 of 08/11/2023 Life Enerji Monitoring report for “Batiçim WHR Project” in Turkey, version 0.5 of 10/07/2023 Life Enerji Monitoring report for “Batiçim WHR Project” in Turkey, version 0.4 of 31/05/2023 Life Enerji Monitoring report for “Batiçim WHR Project” in Turkey, version 0.3 of 09/01/2023 Life Enerji Monitoring report for “Batiçim WHR Project” in Turkey, version 0.2 of 24/10/2022 Life Enerji Monitoring report for “Batiçim WHR Project” in Turkey, version 0.1 of 30/06/2022
/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 “ACM0012”, “Consolidated baseline methodology for GHG emission reductions from waste energy recovery projects”, version 04.0.0 of 15/04/2011.
/7/	TÜV SÜD Industrie Service GmbH validation report for “BATICIM BATI ANADOLU CIMENTO SANAYII A.S. 9 MW Cement WHR Project” in Turkey, version 3 of 24/04/2012.
/8/	Life Enerji: Emission Reduction Calculation Spreadsheet “Baticim WHR_ER Calculation_v02.xlsx” version 05 of 30/05/2023 Life Enerji: Emission Reduction Calculation Spreadsheet “Baticim WHR_ER Calculation_v02.xlsx” version 04 of 15/02/2023 Life Enerji: Emission Reduction Calculation Spreadsheet “Baticim WHR_ER Calculation_v02.xlsx” version 03 of 09/01/2023 Life Enerji: Emission Reduction Calculation Spreadsheet “Baticim WHR_ER Calculation_v02.xlsx” version 02 of 17/10/2022 Life Enerji: Emission Reduction Calculation Spreadsheet “Baticim WHR_ER Calculation_v02.xlsx” version 01 of 30/06/2022
/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 02.2.1 of 29/09/2011

	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.terra.org/app/projectDetail/VCS/822 Argument: Terra Database Language: English; Retrieved on: 13/04/2023
/12/	Electricity Meters technical documentation – user Manuel for DSSD331/DTSD341-9DS
/13/	Energy Market Regulatory Authority: Generation License, No: EÜ/4969-148/2848, date of 17/04/2014.
/14/	Law of measurements and calibration, 11/01/1989 and 20056 numbered.
/15/	Ministry of Environment and Forestry: EIA exemption letter, dated on 29/07/2010
/16/	Website: https://registry.goldstandard.org/projects?q=bat%C4%B1cim&page=1 Argument: GS Database Language: English; Retrieved on: 13/04/2023

2.3 Interviews

The Plant Manager was interviewed by teleconference 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 about the monitoring report and related parameters. Whole process related emission reduction calculation was explained. Because the project is waste heat recovery project there is no harm to the environment, so interviews were conducted only with internal parties.

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

	Date	Name and Role	Organization	Topic
/1/	20/07/2022	Ekin Kılıç <i>Carbon Consultant</i>	Life İklim ve Enerji LTD. ŞTİ.	Monitoring plan Monitoring methodology
/2/	20/07/2022	Savaş Yücel <i>Electrical maintenance chief</i>	BATIÇİM BATI ANADOLU ÇİMENTO SANAYİİ A.Ş.	Monitoring data Implementation status of the project
/3/	20/07/2022	Tülay Zafer <i>Stakeholder</i>	Naldöken Neighborhood	Monitoring equipment and operation
/4/	20/07/2022	İmdat Sezgin <i>Stakeholder</i>	Naldöken Neighborhood	Calibration certificates Emission Reductions calculation
/5/	20/07/2022	İlker Özgelen <i>Director of Factory</i>	BATIÇİM BATI ANADOLU ÇİMENTO SANAYİİ A.Ş.	Positive and negative impacts of the project activity Contact details of the project proponents

2.4 Site Visits

On 20/07/2022, RINA performed a remote audit for the Baticim WHR Project plant located in Bornova District of İzmir Province of Turkey. During the remote audit 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, 5 CARs/ 3 CRs are 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 previous validation Report [/7/](#), no FAR is raised.

2.6 Eligibility for Validation Activities

The project activity is registered under VCS registration reference Number 822 [/11/](#); hence this section is not applicable.

3 VALIDATION FINDINGS

In the registered VCS PD for “Baticim Batı Anadolu Cimento Sanayii A.S. 9 MW Cement WHR Project ” in Turkey, version 03 of 03/11/2011 /1/, the project activity contains one 9MW turbine with 9 MW generator, two AQC boilers, two SP boilers.as confirmed through the Generation License /13/. The average electricity generation is estimated as 51,289 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 TÜV SÜD on 24/04/2012 and /7/ and it was registered under the VCS registration reference N° 822.

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. /16/

3.2 Methodology Deviations

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

3.3 Project Description Deviations

Information in PD	Deviation from PD in MR
Two meters will be placed (one main and one reserve) at the power plant.	There are 3 electricity meters (for net electricity generation, gross electricity generation and auxiliary consumption)
Start date of the Project is 20/05/2012. Crediting period is between 20/05/2012 and 19/05/2022.	Start date of the Project is 12/10/2013. Crediting period is between 12/10/2013 and 11/10/2023 is defined.
Electricity meters are sealed by TEIAS. Meters are read by TEIAS staff monthly.	The electricity produced at the facility is not for sale, all of the electricity produced is used for the facility's own electricity needs. Therefore, it is not obligatory for the meters in the facility to be sealed and controlled by the state (TEIAS). Technicians in BATICIM conduct daily meters readings and keep records for electricity generation amount and reports to management.

	These records can be used for monitoring in case of any problem will arise in meters.
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In addition, for the parameters of “fwcm” and “QoE,y” source of data is different from PD. There is no information for gross electricity production of project in capacity report/feasibility report as specified in PD. Gross electricity production can be seen from data by project owner that is got from electricity meter as specified in monitoring plan section of MR. Capacity report had been prepared as feasibility report and related information for “fwcm” parameter can be found in capacity report of the Project.

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 remote audit on 20/07/2022 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 started on 12/10/2013. The second crediting period will start on 11/10/2023.

The project activity consists of one 9MW turbine with 9 MW generator, two AQC boilers, two SP boilers 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 will be consumed within the plant only, thereby substituting electricity for cement production that would otherwise be purchased from the Turkish power grid. 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/](#) [/16/](#). 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 exemption Decision dated as 29/07/2010 by the Provincial Directorate of Environment and Urbanization /15/.

4.2.2 Local Stakeholder Consultation

As the project boundary is in the border of the plant, project does not have any impact on environment and local people. Also in the project waste heat which already exists in the plant will be used for electricity generation and the generated electricity is used in the plant for internal consumption. So all the project activities take place within the boundary of the plant.

In addition, there is no national requirement for conducting any local stakeholder meetings. With no external parties being affected by any effects from the project, no meeting is conducted.

Ongoing communication with the stakeholders is the responsibility of the corporate communication manager at the factory. The headman of Naldöken village has the contact details of the corporate communication manager. Stakeholders can reach the project owner through the mukhtar when they have any complaints or suggestions. So far there has been no feedback from stakeholders.

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 "ACM0012", "Consolidated baseline methodology for GHG emission reductions from waste energy recovery projects", version 04.0.0 of 15/04/2011 /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

As per ACM0012 baseline emissions shall be generally calculated using the following formula:

$$BE_y = BE_{En,y} + BE_{flst,y}$$

Where:

BE_y = The total baseline emissions during the year y in tCO₂

BE_{En,y} = The baseline emissions from energy generated by the project activity during the year y in tCO₂

BE_{flst,y} = Baseline emissions from fossil fuel combustion, if any, either directly for flaring of waste gas or for steam generation that would have been used for flaring the waste gas in the absence of the project activity (tCO₂).

BE_{flst,y} is not applicable as there is no such direct/indirect utilization of fossil fuels for flaring of waste gas. Therefore the BE_y is identical to BE_{En,y}.

According to project type and respective procedures and formulae in ACM00012, the following calculations apply:

For calculation of baseline emissions from energy generated by the project activity:

$$BE_{En,y} = BE_{Elec,y} + BE_{Ther,y}$$

Where:

BE_{Elec,y} = Baseline emissions from electricity during the year y in tCO₂

BE_{Ther,y} = Baseline emissions from thermal energy

BE_{Ther,y} is not applicable as there is no such heat generation involved

Therefore the BE_{En,y} is identical to BE_{Elec,y}.

For calculation of baseline emissions from electricity (BE_{Elec,y}) generation:

$$BE_{Elec,y} = f_{cap} * f_{wcm} * \sum_j \sum_i (EG_{i,j,y} * EF_{Elec,i,j,y})$$

Where:

BE_{elec,y} = Baseline emissions due to displacement of electricity during the year y (tCO₂)

$EG_{i,j,y}$ = The quantity of electricity supplied to the recipient j by generator, which in the absence of the project activity would have been sourced from source i (the grid or an identified source) during the year y in MWh

$EF_{elec,i,j,y}$ = The CO2 emission factor for the electricity source i (for grid and an identified source), displaced due to the project activity, during the year y (tCO2/MWh)

F_{wcm} = Fraction of total electricity generated by the project activity using waste energy. This fraction is 1 if the electricity generation is purely from use of waste energy.

F_{cap} = Factor that determines the energy that would have been produced in project year y using waste energy generated at a historical level, expressed as a fraction of the total energy produced using waste source in year y . The ratio is 1 if the waste energy generated in project year y is the same or less than that generated at a historical level.

As f_{wcm} has the value “1” (electricity is purely from use of waste energy), the consolidated calculation reads as follows:

Consolidated formula for calculation of baseline emissions:

$$BE_y = f_{cap} * \sum_j \sum_i (EG_{i,j,y} * EF_{elec,i,j,y})$$

For f_{cap} , in ex-ante calculations of emission reductions, a neutral value of “1” is applied.

$$BE_y = \sum_j \sum_i (EG_{i,j,y} * EF_{elec,i,j,y})$$

$$\text{So emission reduction } ER_y = BE_y = \sum_j \sum_i (EG_{i,j,y} * EF_{elec,i,j,y})$$

Project emissions

Project Emissions are calculated as follows according to ACM0012 version 04.0.0 of 15/04/2011 /6/ as defined in the validated VCS PD /1/.

$$PE_y = PE_{AF,y} + PE_{EL,y}$$

Where:

PE_y = Project emissions due to the project activity (tCO2)

$PE_{AF,y}$ = Project activity emissions from on-site consumption of fossil fuels by the unit process(es) and/or co-generation plant(s) if they are used as supplementary fuels due to non-availability of waste energy to the project activity or due to any other reason (tCO2)

$PE_{EL,y}$ = Project activity emissions from on-site consumption of electricity for gas cleaning equipment or other supplementary electricity consumption (tCO2).

$PE_{AF,y}$ is zero as there is no technologically possible supplementary fossil fuel consumption at the project's electricity generating facilities.

$PE_{EL,y}$ is zero as the project there will be no emissions from consumption of electricity for gas cleaning or other supplementary electricity consumption. Project emissions due to the project activity has been assumed to be zero as per the ACM0012 version 04.0.0 of 15/04/2011 /6/ as defined in the validated VCS PD /1/.

Leakage emissions

The leakage emissions are assumed to be zero as per the ACM0012 version 04.0.0 of 15/04/2011 /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
$E_{elec\ i,j,y}$ Baseline emission factor (for the first crediting period)	TEIAS statistics	0.5267 tCO ₂ /MW h	According to the approved methodology ACM0012 version 04.0.0, 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 0.5267 tCO ₂ /MWh in the VCS PD /1/ and validation report /7/.

Parameters and Data Monitored

DATA/PARAMETER	$EG_{i,j,y}$
Data Unit	MWh/y
Description	Quantity of net electricity generation supplied by the project plant/unit in year y
Source of data	Electricity meters
Description of measurement methods and procedures to be applied	$EG_{i,j,y}$ is measured by electric meter with accuracy of 0.2S continuously.
Frequency of monitoring/recording	Continuously monitoring and monthly recording
Value monitored	282,202.772 MWh

Monitoring equipment	3 unit's electricity meters (one for electricity, one for net electricity and one for auxiliary electricity consumption) are installed at the project site. Electricity meter for net electricity generation: Model: DSSD331, Manufacturer: Wasion Group Ltd. Serial No: 1108079381000002, Accuracy: 0.2 S Calibration date: 06/04/2023 Electricity meter for GROSS electricity generation: Model: DSSD331, Manufacturer: Wasion Group Ltd. Serial No: 1108079381000001, Accuracy: 0.2 S Calibration date: 06/04/2023 Electricity meter for GROSS electricity generation: Model: DSSD331, Manufacturer: Wasion Group Ltd. Serial No: 1108079381000003, Accuracy: 0.2 S as confirmed through technical documents of the electricity meters /12/. Calibration date: 06/04/2023 WHR facility was installed and calibrated electricity meters was implemented in 2013 during project implementation until the last calibration date (06/04/2023) no calibration process was conducted. According to paragraph 176 of the Validation and Verification Manual particularly with regard to the calibration requirements, the designated operational entity (DOE) shall verify that the calibration of measuring equipments is conducted at a frequency specified in applied monitoring methodology and the monitoring plan. In addition UNFCCC Annex 60 Clause 4 state that "If during verification of a certain monitoring period, the DOE identifies that the calibration has been delayed and the calibration has been implemented after the monitoring period in consideration (i.e. the results of delayed calibration are available), the DOE may conclude its verification, provided the following conservative approach is adopted in the calculation of emission reductions: (a) Applying the maximum permissible error of the instrument to the measured values , if the results of the delayed calibration do not show any errors in the measuring equipment, or if the error is smaller than the maximum permissible error so to correct emission reductions for the whole monitoring period where calibration is missing, the highest accuracy error among measured and manufacturer's specification that is %0.2 was applied and emission reductions are recalculated.
QA/QC procedures to be applied	Net electricity generation of the plant recorded by Batıçim personnel. Meter data showing auxiliary consumption will be subtracted from meter data showing gross production, and a crosscheck will be made between the result and meter data showing net production. In addition, TEIAS records (monthly net and gross electricity generation data) are also available for cross check. According to Law of measurements and calibration number of 3516 Clause 3 section e explain the rules for electricity meters periodical control exemptions for

	manufacturing industries for internal consumption /14/. If any major discrepancy occurs between the three meters, TEIAS performs necessary calibration. The meters have been active since 2011 as confirmed through the approved PDD /1/. 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	-
Comments	-
DATA/PARAMETER	f _{wcm}
Data Unit	Fraction
Description	Fraction of total energy generated by the project activity using waste energy.
Source of data	Feasibility Study
Description of measurement methods and procedures to be applied	The ACM0012 methodology refers to waste gas, but from the context it is clear that this value refers to waste energy resource in general. In the case of the project activity f _{wcm} has been interpreted therefore as the fraction of total energy generated using waste heat. The methodology prescribes that this fraction is 1 if the electricity generation is purely from use of the waste energy resource (i.e. waste heat).
Frequency monitoring/recording of	-
Value monitored	1
Monitoring equipment	3 unit's electricity meters (one for electricity, one for net electricity and one for auxiliary electricity consumption) are installed at the project site. Electricity meter for net electricity generation: Model: DSSD331, Manufacturer: Wasion Group Ltd. Serial No: 1108079381000002, Accuracy: 0.2 S. Calibration date: 06/04/2023 Electricity meter for GROSS electricity generation: Model: DSSD331, Manufacturer: Wasion Group Ltd. Serial No: 1108079381000001, Accuracy: 0.2 S. Calibration date: 06/04/2023 Electricity meter for GROSS electricity generation: Model: DSSD331, Manufacturer: Wasion Group Ltd. Serial No: 1108079381000003, Accuracy: 0.2 S as confirmed through technical documents of the electricity meters /12/. Calibration date: 06/04/2023

QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	-

DATA/PARAMETER	F_{cap}
Data Unit	Fraction
Description	Energy that would have been produced in project year y using waste heat generated in base year expressed as a fraction of total energy produced using waste energy in year y .
Source of data	Test report / feasibility study
Description of measurement methods and procedures to be applied	The value of f_{cap} has been calculated ex-ante on the basis of the output that can be theoretically be produced on the basis of available waste heat when the cement line is operated under normal load factors and projected power output.
Frequency of monitoring/recording	-
Value monitored	1
Monitoring equipment	3 unit's electricity meters (one for electricity, one for net electricity and one for auxiliary electricity consumption) are installed at the project site. Electricity meter for net electricity generation: Model: DSSD331, Manufacturer: Wasion Group Ltd. Serial No: 1108079381000002, Accuracy: 0.2 S. Calibration date: 06/04/2023 Electricity meter for GROSS electricity generation: Model: DSSD331, Manufacturer: Wasion Group Ltd. Serial No: 1108079381000001, Accuracy: 0.2 S. Calibration date: 06/04/2023 Electricity meter for GROSS electricity generation: Model: DSSD331, Manufacturer: Wasion Group Ltd. Serial No: 1108079381000003, Accuracy: 0.2 S as confirmed through technical documents of the electricity meters /12/. Calibration date: 06/04/2023
QA/QC procedures to be applied	-
Purpose of the data	-

Calculation method	-
Comments	-

Data / Parameter	Abnormal operation
Data unit	-
Description	Abnormal operation of the project facility including emergencies and shut down
Source of data	Operation of project facility
Description of measurement methods and procedures to be applied	The hours of abnormal operation of parts of project facility that can have an impact on waste energy generation and recovery
Frequency of monitoring/recording	<i>Daily, aggregated annually</i>
Value monitored	<i>There is no abnormal operation of parts of project facility that can have an impact on waste energy generation and recovery during this monitoring period.</i>
Monitoring equipment	-
QA/QC procedures to be applied	-
Purpose of the data	-
Calculation method	-
Comments	-

Emission Reductions Achieved

The emission reductions calculation reported in the Monitoring Report version 06 of 08/11/2023 [/2/](#) and calculation spreadsheet “Baticim WHR_ER Calculation_2022_v02.xlsx” version 05 of 30/05/2023 ” [/8/](#) have been verified to be correct.

The emission reductions from the project for the monitoring period from 12/10/2013 to 11/10/2019 as reported in the Monitoring Report version 06 of 08/11/2023 [/2/](#) is equivalent to 148,337 tCO₂e.

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

Net electricity generation of the plant recorded by Batıçim personnel. Meter data showing auxiliary consumption will be subtracted from meter data showing gross production, and a crosscheck will be made between the result and meter data showing net production. In addition, TEIAS records (monthly net and gross electricity generation data) are also available for cross check. According to Law of measurements and calibration number of 3516 Clause 3 section e explain the rules for electricity meters periodical control exemptions for manufacturing industries for internal consumption /14/. If any major discrepancy occurs between the three meters, TEIAS performs necessary calibration. The meters have been active since on 2019 as confirmed through the approved PDD /1/. 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. 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 “Baticim Batı Anadolu Cimento Sanayii A.S. 9 MW Cement WHR Project” in Turkey, VCS Registration Reference N° 822, for the period 12/10/2013 to 11/10/2019, 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 06 of 08/11/2023 for the “Baticim Batı Anadolu Cimento Sanayii A.S. 9 MW Cement WHR Project” in Turkey for the period 12/10/2013 to 11/10/2019 are fairly stated. The GHG emission reductions were calculated correctly on the basis of the approved monitoring methodology “ACM0012 “Consolidated baseline methodology for GHG emission from waste energy recovery projects”, version 04.0.0 of 15/04/2011 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 12/10/2013 to 11/10/2019 amount to 148,337 tCO₂e.

Verification period: From 12/10/2013 to 11/10/2019 (for the first crediting period)

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

Year	Baseline emissions or removals (tCO ₂ e)	Ex-ante emissions reductions /removals	<u>Percent difference</u>	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
2013 (12/10/2013 31/12/2013)	5,805	5,518	5.20%	0	0	5,805
2014 (01/01/2014 31/12/2014)	27,345	25,180	8.60%	0	0	27,345
2015 (01/01/2015 31/12/2015)	26,850	25,180	6.63%	0	0	26,850
2016 (01/01/2016 31/12/2016)	17,853	25,180	- 29.10%	0	0	17,853
2017 (01/01/2017 31/12/2017)	26,077	25,180	3.56%	0	0	26,077
2018	26,219	25,180	4.13%	0	0	26,219

(01/01/2018 31/12/2018)						
2019	18,187	19,592	-7.17%	0	0	18,187
(01/01/2019 11/10/2019)						
MP Total	148,337	151,010	-1.77	0	0	148,337
(12/10/2013 11/10/2019)						

APPENDIX 1: <CLARIFICATION REQUESTS, CORRECTIVE ACTION REQUESTS AND FORWARD ACTION REQUESTS>

Table 1. Remaining FAR from validation and/or previous verification

FAR ID	1	Section no.		Date:
Description of FAR				
Project participant response				Date:
Documentation provided by project participant				
DOE assessment				Date:

Table 2. CR from this verification

CR ID	1	Section no.	1.1	Date: 06/01/2023
Description of CR				
Please correct the listed issues given below: Provisional acceptance date is 12/10/2013 and current generation License date is 17/04/2014, production license date is later than provisional acceptance date. Please check and explain this situation.				
Project participant response				Date: 27/01/2023
- The first license obtained was an auto producer license, later converted to a production license.				
Documentation provided by project participant				
DOE assessment				Date: 16/03/2023
It is corrected now. <u>Hence CR ID 1 is closed.</u>				

CR ID	2	Section no.	2.1	Date: 06/01/2023
Description of CR				
Please correct the listed issues given below: In MR section 2.1 "No Net Harm", while describing the EIA not required decision no proof such as decision date and subject number is shared. Please add the necessary details related to EIA not required decision.				
Project participant response				Date: 08/01/2023
- Necessary details for EIA exemption decision have been inserted in section 2.1.				
Documentation provided by project participant				
DOE assessment				Date: 16/03/2023
Section 2.1 is revised and EIA on 29/07/2010 with no: 22003 is added and verified. <u>Hence CR ID 2 is closed.</u>				

CR ID	3	Section no.	3.2.2	Date: 06/01/2023
Description of CR				
Production records are demanded from TEİAŞ with an official letter on 22.07.2022 and replied by TEİAŞ with subject no 13433983 but annexes are not shared by official mail or letter etc. Therefore, the shared excel file could not be accepted as a supporting document.				

Project participant response	Date: 27/01/2023
Mail from TEIAS was taken in “KEP” format. KEP mail was provided to VVB as the original communication format, EYP extension. The official cover letter and the attachment (production values) from TEIAS can be opened and examined with Winrar.	
Documentation provided by project participant	
Mail from TEIAS with EYP extension	
DOE assessment	Date: 16/03/2023
It is now shared with appropriate format and letter and values from TEIAS is now available. <u>Hence CR ID 3 is closed.</u>	

Table 3. CAR from this verification

CAR ID	1	Section no.	4.2	Date: 06/01/2023
Description of CR				
1- The source of data for “f_{wcm}” is not in line with the Project Description. Please correct the source of data for f_{wcm} and please add the necessary information for the source of data by referring page number etc.. 2- For the monitoring parameter of “$Q_{OE,y}$”, the listed information are not in line with the Project Description. • “the source of data”, • “description of measurement methods”, • “procedures to be applied” and • “Frequency of monitoring/recording parameters” Also please add the necessary information by referring page number etc..				
Project participant response				Date: 08/01/2023
1. Capacity report had been prepared as feasibility report and related information for “f_{wcm}” parameter can be found in capacity report of the Project, page 5, section B. Details of reference has been inserted to MR. 2. There is no information for gross electricity production of project in capacity report/feasibility report as specified in PD. Gross electricity production can be seen from data by project owner that is got from electricity meter as specified in monitoring plan section of MR.				
Documentation provided by project participant				
DOE assessment				Date: 16/03/2023
1- Capacity report and PD document is reviewed, and fraction value is verified also related revisions in MR is approved. 2- Deviations from PDD should be detailed under Section 3.2.2. Hence CAR ID 1 is not closed.				
Project participant response				Date: 23/03/2023
Deviations from PDD related with the parameters of $Q_{OE,y}$ and f_{wcm} have been explained in Section 3.2.2.				
Documentation provided by project participant				
DOE assessment				Date: 16/03/2023
2-All Deviations are explained PDD under Section 3.2.2. Hence CAR ID 1 is closed.				
CAR ID	2	Section no.	1.11	Date: 06/01/2023

Description of CAR	
1- In "section 1.11 sustainable project contributions", it was stated that the project owner has employed 9 workers. However, this value is not in line with the approved PD. According to VCS-PD, it was expected that 16 employees would be employed. Please explain why this target is not achieved. 2- In section 1.11 Table 1, the given values in the last column "contributions over project lifetime" is not line with Monitoring Report Template. Please check the template and give the correct values for the same column.	
Project participant response	Date: 08/01/2023
1. Previously, in addition to permanent employees of Batıçim, there were employees assigned by the Chinese founding company in the project. Afterwards, after the departure of the Chinese team, a spare member was added to the existing staff and continued with 9 people. 2. "Contributions over project lifetime column" of Table in section 1.11 has been revised as per estimated total crediting period data.	
Documentation provided by project participant	
DOE assessment	Date: 16/03/2023
1- This reason can be acceptable and approved. 2- Table is revised and approved. 3- <u>Hence CAR ID 2 is closed.</u>	

CAR ID	3	Section no.	3.1	Date: 06/01/2023
Description of CAR				
1- Section 3.1 Table 4, the rated steam temperature value is not in line with the supporting document of Technical Proposal of WHR Power Generation Project.				
Project participant response				Date:
Rated steam temperature for AQC boiler has been corrected in Table 4.				
Documentation provided by project participant				
DOE assessment				Date: 16/03/2023
2- Related information is corrected in MR. <u>Hence CAR ID 3 is closed.</u>				

CAR ID	4	Section no.	4.2; 4.3	Date: 06/01/2023
Description of CAR				

Please correct the issues, 1- If three electricity meters were located in the project activity, please add the necessary information of the remaining devices such as model, serial no etc.. 2- Please add the calibration dates of each electricity meters and provide the supporting documents. 3- Please add the main data and crosscheck data to the calculation excel sheet. It is explained in the deviation part of the MR that "Gross, net electricity and auxiliary consumption data will be compared among themselves as a crosscheck and in addition to these data, TEIAS records are also available for cross check." However, there were no data presented in the calculation excel sheet except TEIAS. 4- The given information in "section 4.3 "Monitoring Plan" is not in line with the approved PD. It was expected that 16 employees would be employed but in MR it is stated that there are 9 employees have been working during the operation of the WHR plant. 5- The given information in "section 4.3 "Figure 4.1 Organization Chart" is not in line with the approved PD. Please explain the cause of difference and provide the current organizational chart of this project.	
Project participant response	Date: 07/02/2023
1.Information on three electricity meters has been provided in section 4.3. Properties of electricity meter for net electricity generation and gross electricity generation had already been provided under related parameters ($EG_{i,j,y}$ and QOE,y) 2. The meters are delivered integrated with the whole system, they are of CHINA origin and there is no authorized service or calibration authority in Turkey. The electricity produced is not used in sales, so a calibration certificate is not provided with the meters and calibration is not mandatory. The entire WHR system and other measurement and control devices, which are the sub-parts of this system, were considered as a single complicated system and were first maintained, calibrated and ready for use, and were received together at the time of delivery of the facility. 3.Main data and both crosscheck datas with auxiliary consumption and TEIAS have been inserted to excel. 4. Previously, in addition to permanent employees of Batıçim, there were employees assigned by the Chinese founding company in the project. Afterwards, after the departure of the Chinese team, a spare member was added to the existing staff and continued with 9 people. 5.Organization chart is current one. VVB ask to Project Owner update the organisation chart during the site visit of the Project, if there is any change in the organisation system of company since 2012.	
Documentation provided by project participant	
DOE assessment	Date: 16/03/2023

- 1- Electricity specifications and details are shared under section 4.3 Monitoring Plan and it is corrected now.
- 2- Please share the replacement documents / evidence of electricity meters, when the electricity meters implement on site? Is there any test/control for electricity meters?
- 3- It is approved.
- 4- Please also explain this also in MR.
- 5- Is is corrected.

Hence CAR ID 4 is not closed.

Project participant response to

Date: 23/03/2023

2.The meters in the facility are only for showing the amount of electricity that needs to be taken from grid.

As stated in paragraph e of Article 3 (exceptions section) of the “Dimensions and Adjustment Law No. 3516” to which the “Measurement and Measuring Instruments Inspection Regulation” is referred, “measurements and measuring instruments that are not related to determining the quantity of products especially for manufacturing in industrial establishments” are accepted as an exception. Therefore, calibration and stamping are not mandatory for this facility.

4.Related explanation has been inserted to section 4.3 of MR.

Documentation provided by project participant

DOE assessment

Date: 26/03/2023

2- Related regulation is reviewed and it is verified that electricity meters under this project is not mandatory to calibrate of replace because they are excluded.

4- Explanation is added under 4.3 o MR.

Hence CAR ID 4 is closed.

CAR ID

5

Section no.

5

Date: 06/01/2023

Description of CAR

Please correct the issues,

- 1- In Project Description Document, measurements and cross check is defined as “Daily gross, net electricity data will be monitored. Gross, net electricity and auxiliary consumption data will be compared among themselves as a crosscheck. In addition to these data, TEIAS records (monthly net and gross electricity generation data) are also available for cross check” but in calculation sheet (CM-Calculation__Baticim_17.10) main data is used as TEIAS values. Please use gross-net- auxiliary consumption data for main calculation and also present TEIAS values for crosscheck and compare.
- 2- All values and transactions should be detailed with formulas and shown in calculation sheet (CM-Calculation__Baticim_17.10) for electricity generation and emission reduction.
- 3- For each years, the emission reduction values should be rounded down.

Project participant response

Date: 07/02/2023

1. Main data and both crosscheck datas with auxiliary consumption and TEIAS have been inserted to excel.
2. All values and transactions have been detailed with formulas and shown in excel.
3. Round down function has been used for all emission reduction values.

Documentation provided by project participant

DOE assessment

Date: 16/03/2023

1. In calculation sheet daily gross, net and auxiliary values are given and detailed also for cross check TEIAS values are presented.
2. It is approved.
3. It is approved.

Hence CAR ID 5 is closed.

Table 4. FAR from this verification

FAR ID		Section No.		Date:
Description of FAR				
Project participant response				Date:
Documentation provided by project participant				
DOE assessment				Date:



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 SECTORIAL 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	09/06/2017	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/ricongosciuto 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

GHG_QUAL_CERT_EN_07_16 Voluntary(Certificate)

Page 1 of 1



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:

Cyril Augustus Arokiasamy Amalorpavanathan

è qualificato come:
is qualified as:

TEC, VAL, VER, TL, Local Expert, 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
3.1	Energy Demand	3
5.1	Chemical Industry	5
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)
2	09/10/2017	Qualification update as ITRP

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 Soda 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/ricosciuto 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/Mrs/Ms:

Laura MARTI

è qualificato come¹:
Is qualified as:

CDM TEC

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

4.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
4.1	Cement and Lime production	4

In accordo alle Istruzioni dell'unità Certificazione Innovazione e Sostenibilità.
In accordance with the Instructions of the Certification, Innovation & Sustainability Unit.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	09/09/2020	First issue

Il Resp. CEINS
Head of CEINS



¹ Legend:

VAL:	Validator	CDM: Clean Development Mechanism
VER:	Verifier	VCS: Verified Carbon Standard
TEC:	Technical Expert	GS4GG: Gold Standard For Global Goals
TL:	Team Leader	SCS: SocialCarbon Standard
FIN-EXP:	Financial Expert	Ji: Joint Implementation
DET:	Determiner	

RINA Services S.p.A. è accreditata da UNFCCC, quale Entità Operativa Designata (DOE), per condurre la Validazione e la Verifica di Progetti CDM, da VCSA per condurre la Validazione e la Verifica di Progetti VCS, da GS Foundation, per condurre la Validazione e la Verifica di Progetti GS, da Ecologia Institute per condurre la Validazione e la Verifica di rapporti SCS.

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Page 1 of 1