Verification and certification report form for GS project activities

VERICATION AND CERTIFICATION REPORT	
Title of the project activity	Bolu Landfill Gas to Energy Project, Turkey
GS Reference number of the project activity	764
Version number of the verification and certification report	2.0Aa
Completion date of the verification and certification report	11/10/2024
Monitoring period number and duration of this monitoring period	2nd Monitoring period (2nd Period of 2nd crediting period) 03/11/2021 - 31/07/2023 (both days included)
Version number of monitoring report to which this report applies	Version 10 of 04/11/2024
Crediting period of the project activity corresponding to this monitoring period	12/08/2018 – 11/08/2025 (2nd crediting period)
Project participant(s)	CEV Marmara Enerji Üretim San. ve Tic. Ltd. Şti. (Private Entity, Project Owner)
Host Party	Türkiye
Sectoral scope(s), selected methodology(ies)	Sectoral scope 1: Energy Industries (Renewable-/non-renewable sources) Sectoral scope 13: Waste handling and disposal AMS III.G "Landfill Methane Recovery" (Version 9.0) AMS-I.D. "Grid Connected Renewable Electricity Generation" (Version 18.0)
Estimated GHG emission reductions or net anthropogenic GHG removals for this monitoring period in the registered PDD	33,802 tCO2 (GS-VER)
Certified GHG emission reductions or net anthropogenic GHG removals for this monitoring period	37,177 tCO_2 (GS-VER)
Name of VVB	RINA Services S.p.A. (RINA)
Name, position and signature of the approver of the verification and certification report	Laura Severino Laura Severino (Authorized officer signing for the VVB) Decarb & Chain of Custody Product Management

SECTION A. Executive summary

Purpose and general description of the project

The purpose of the project activity is the generation of the electricity by using the LFG from the landfill. It involves the installation of gas engines, gas extraction system, flaring system. The proposed activity involves the collection and utilization of the LFG with an electricity component with an installed capacity 1.131 Mwe as confirmed through the production license /16/. On 23/09/2022, the proposed activity commissioned another unit with installed capacity of 1.413 MWe to deal with potential operational pauses resulted by the existing engine in future as confirmed through the acceptance protocol /17/ so total capacity reaches to 2.544 Mwe as confirmed through the revised production license /16/ but additional gas engine has not been applied for design change so it is out of verification scope. With the increased capacity the still under 15 MW so project is small scale hence AMS-III.G, Landfill Methane Recovery --- Version 9.0.0 is used. The electricity produced is delivered to the Turkish national grid (TEIAS). The emission reductions are estimated to be 19,399 tCO_2e (GS VERs) for monitoring period as confirmed through the registered PDD during the revalidation process /1/.

The purpose of the project activity is the generation of the electricity by using the LFG from the landfill. It involves the installation of gas engines, gas extraction system, flaring system. The project activity covers 2 gas engines but only one of them has been regitered for GS and no design change has been applied for capacity. This issue was disccussed in design change review under GS4GG and it is decided that the project owner not claim credits for the additional capacity.

The proposed project activity comprises of renewable energy generation from waste to energy involving landfill gas utilization to generate and deliver electricity to the national grid without thermal energy production. The project type is landfill which is an eligible project type as it is in accordance with Eligible Project Types & Scope under Renewable Energy Activity Requirements. The project is located in Türkiye. Türkiye is upper middle income economy where the penetration level of the proposed Renewable Energy Technology type is less than 5% of the total grid installed capacity, at the time of the first submission to Gold Standard (eligibility clause will come into effect from 24 Jan 2020). The project activity aims to reduce the greenhouse gas emissions in Türkiye by replacing fossil fuel power generation and contributing to the development of the waste energy sector in Türkiye, as well as aims to support the local economy by creating local employment and providing equipment locally.

The GHG benefit of the project activity was only accounted under Gold Standard. There are not any other RECs were being issued for the project activity such as Verra, GCC, ICR or Cercarbono, . Furthermore, as a host country in Türkiye 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.

Location

The project is located at Yukarısoku Village, Center District within boundaries of Bolu Province

Scope of verification

Verification is the periodic independent review and ex-post determination by a VVB of the monitored reductions in GHG emissions that have occurred as a result of the registered GS project activity during a defined monitoring period. Certification is the written assurance by a VVB that, during a specific period in time, a project activity achieved the emission reductions as verified. The objective of this verification is to verify and certify emission reductions reported for the Bolu Landfill Gas to Energy Project, Turkey Project for the period from 03/11/2021 - 31/07/2023.

The scope of the verification is to verify that:

- The project activity has been implemented and operated in accordance with the registered PDD or any approved revised PDD;
- The monitoring plan, including compliance with any guidance provided by the Board regarding deviations from the provisions of a registered plan and/or methodology;
- The data and calculation of GHG emission reductions have been assessed to correctly support the emission reductions being claimed.

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

Verification process

Verification is conducted using RINA procedures in line with the GS requirements and requirements specified in the CDM Validation and Verification Standard available at the time of the verification starts and applying standard auditing techniques. RINA assess and determines that the implementation and operation of the project activity, and steps taken to report emission reductions comply with the GS criteria. The verification assessment involved a document review of relevant documentation and the on-site visit.

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.

Conclusion

RINA commissioned by CEV Marmara Enerji Üretim San. ve Tic. Ltd. Şti. has performed the verification of the emission reductions reported for the project activity Bolu Landfill Gas to Energy Project, Turkey GS Registration Reference No. 764 for the monitoring period 03/11/2021 - 31/07/2023 with regard to the relevant GS requirements and principles for project activities. The project was re- validated by Re-Carbon Re-validation report N°453 Version 0.2 15/02/2018) /8/.

The GHG emission reductions are calculated on the basis of the approved methodology AMS-III.G, Landfill Methane Recovery Version 9.0.0 and the monitoring plan included in the registered revised PDD version 13 of 14/02/2018 /1/. In our opinion the GHG emission reductions reported for the project in the monitoring report Version 10 of 04/11/2024are fairly stated.

SECTION B. Verification team, technical reviewer and approver

B.1. Verification team member

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)	Involvement in			
						Desk review	On-site inspection	Interview(s)	Verification findings
1.	Team Leader, Verifier, Technical Expert TA 13.1	IR	Mehmet	ERDOĞAN	RINA Türkiye	✓	✓	✓	✓

B.2. Technical reviewer and approver of the verification and certification report

No.	Role	Type of resource	Last name	First name	Affiliation (e.g. name of central or other office of VVB or outsourced entity)
1.	Technical reviewer	IR	Amalorpavanathan	Cyril Augustus A	RINA India
2	Approver	IR	SEVERINO	Laura	RINA HO

SECTION C. Application of materiality

C.1. Consideration of materiality in planning the verification

No.	Risk that could lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk level	Justification	
1.	Human error in the quantification of emissions (which may be more likely to occur if personnel are unfamiliar with, or not well trained regarding, emissions processes or data recording).	Low	Being 2nd verification of 2nd crediting period, the project proponent is familiar with monitoring procedures and data reporting in line with the registered PDD and previous verification and certification reports. The prime monitoring parameter is net export to grid which is as per monthly generation report as recorded in calibrated energy meters. Hence, the risk level is low.	During the site visit, the verification team will interview the staffs of the GS team and check all records to confirm whether the monitoring plan has been well implemented. The major parameters used for determining the project's baseline emissions are the measurement of net electricity generation according to the monitoring plan is recorded monthly. The team will review the whole data set of the monthly report and crosschecked against invoice raised. The verification team will check the relevant records to confirm whether the data collection procedure and QA/QC procedure have been well implemented.
2	Undue reliance on a poorly designed information system, which may have few effective quality controls.	Low	Being 2nd verification of 2nd crediting period, the project proponent has already established a well organized monitoring team, monitoring plan, including data collection procedure and QA/QC procedure consistent with registered monitoring plan. Monitoring equipments are calibrated at defined frequency. Hence, the risk level is low.	
3	Manual adjustment of otherwise automatically recorded activity levels.	Low	As detailed in section C.2 below, the data of the main monitoring parameters are taken from calibrated meters (energy meter) and can be verified from totalizer values. The monitoring equipment's are calibrated according to national standards and rules. Hence, the risk level is low.	

C.2. Consideration of materiality in conducting the verification

The project activity happens at a double site and export to grid from the plant is monitored and recorded using calibrated energy meter and 100% data is available for verification. The data which directly affect emission reduction calculations being net electricity generation is monitored and measured by calibrated electricity meters, 100% verifiable. Hence, in line with paragraph 329 and section 9.1.2.3.1 of the CDM Validation and Verification standard /6/ no significant reporting risks to the materiality of the verification were envisaged while planning for the verification and were not identified during the verification process. During the course of the verification, the team reviewed the whole data set of monthly records for net electricity and cross-check against invoices raised (EPIAS records) /22/. The data reported in the monitoring report are consistent with the monthly electricity records (OSF) /21/, and the emission reductions are correctly calculated. In conclusion, the verification team confirms the data set to be free from material error.

SECTION D. Means of verification

D.1. Desk review

The monitoring report Version 10 of 04/11/2024 and previous versions /2/ the emission reduction calculations provided in the form of a spreadsheet "GS764_ER Sheet_v7_04112024.2024" version 0.7 submitted 04/11/2024 and previous versions /9/, the approved baseline and monitoring methodology AMS-III.G, Landfill Methane Recovery Version 9.0.0 of 28/11/2014 /7/ and all the documentation provided to support the monitoring period /1 – 26/, was assessed as part of the verification. In addition, the Revised Project Design Document (PDD) version 13 of 14/02/2018 /1/, in particular as regards the baseline estimations and the monitoring plan, and the Re-validation report No: 453 version 0.2 of 15/02/2018 /8/ for the project, were reviewed. The list of all documents reviewed are referenced during the verification is available in Appendix 3 below.

D.2. On-site inspection

Duration of on-site inspection: 11/07/2023				
No.	**Activity performed on-site**	**Site location**	**Date**	**Team member**
1.	Implementation and operation of the proposed project activity. Checked the monitoring equipment, 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	Bolu Province	11/07/2023	Mehmet ERDOĞAN
2	Reviewed the information flows for generating, aggregating and reporting the monitoring parameters			
3	Checked calibration performance, reviewed calculations and assumptions made in determining the GHG data and emission reductions			
4	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			
5	Cross-checked between information provided in the monitoring report and data evidence, including the Gold Standard parameters			

D.3. Interviews

No.	**Interviewee**			**Date**	**Subject**	**Team member**
	Last name	**First name**	**Affiliation**			
1.	T.	Oğuz	Carbon Consultant	10/07/2023	Implementation status of the project Monitoring equipment and operation Generated Electricity Monitoring of GS4GG SDG Parameters; Employment (Job Quality) and Employment (numbers)	Mehmet ERDOĞAN
2	Ş.	Burak	Project Dev. Manager			
3	S.	Özkan	CEV Marmara Operation Manager			
4	E.	İsmail	Yukarısoku Village Mukhtar	10/07/2023	Electricity and gas measuring equipment and its operation Benefit of the project to the village Local Employment Environmental Impacts Grievance Mechanism	Mehmet ERDOĞAN
5	E.	Sefer	Municipality Sanitation Dep. Man.			
6	T.	Hakkı	Yukarısoku Village Stakeholder			
7	E.	Şeref	Yukarısoku Village Stakeholder			

The project area was visited on 10/07/2023. The project employee were interviewed about the implementation status of the project, monitoring equipment and operation, generated electricity of the project activity. During on site the team had interviewed with mukhtars as described above and they have no complaints about the project. They are in a good relationship with the project's employees and also they declared positive opinions for the project activity. Landfill site and energy facilities have been operated by CEV Marmara Only problem is odour in summer days but this problem is solved by using more daily cover soil in project site.

The continuous input/grievance mechanism has been verified through interview with the headman of village. The logbooks available at the Hometown of Yukarısoku was seen and it was understood that it did not contain any comments. The mukhtar also indicated that the villagers have a good relationship and whenever they need, they are able to communicate directly and easily with the operating manager of the project activity.

In addition to this during interview, it is asked to the stakeholders and project employees if any legal contests or disputes have arisen during the monitoring period and they confirmed that there is no legal contest or disputes have arisen.

D.4. Sampling approach

Not applicable.

D.5. Clarification requests, corrective action requests and forward action requests raised

Areas of verification findings	No. of CR	No. of CAR	No. of FAR
Compliance of the monitoring report with the monitoring report form		1	
Compliance of the project implementation with the registered PDD		1	
Post-registration changes			
Compliance of the monitoring plan with the monitoring methodology including applicable tool and standardized baseline	1		
Compliance of monitoring activities with the registered monitoring plan		2	
Compliance with the calibration frequency requirements for measuring instruments			
Assessment of data and calculation of emission reductions or net removals		1	
Others (please specify)			
Total	1	5	

SECTION E. Verification findings

E.1. Compliance of the monitoring report with the monitoring report form

Means of verification	The monitoring report version 0.4 and previous versions /2/ submitted by the PP have been the basis for starting the verification process. RINA confirms that the Monitoring report is based on the currently valid MR template of GS4GG Monitoring Report, version 1.1 /10/.
Findings	NA
Conclusion	RINA verified that the monitoring report was completed in accordance with the GS4GG Monitoring Report Form, version 1.1.

E.2. Remaining forward action requests from validation and/or previous verification

Based on the review of the Gold Standard Foundation /5/, 2 FAR was raised during the previous verification period.

FAR#1: Verifying VVB shall check if the odor problem due to the replacement of pipe system still exist and spraying for insects is implemented.

Response#1: The odor problem does not exist and insect spraying is being implemented. The documentation showing spraying is implemented is shared with VVB. No complaint during site visit.

FAR#2: Transparent, annual update reports need to be provided for Projects that have achieved the Project Design Certification stage or have successfully transitioned to Gold Standard for the Global Goals. An annual report shall be submitted for each monitoring year by end of next calendar year for which verification is not completed.

Response#2: Annual report for 2023 is prepared and shared with VVB. Annual report can be shared in SC Platform.

E.3. Compliance of the project implementation with the registered project design document

Means of verification	The Monitoring Report for the project activity "Bolu Landfill Gas to Energy Project, Turkey version 0.4 submitted by the CEV Marmara Enerji Üretim San. ve Tic. Ltd. Şti. has been the basis for the verification process. It was verified during the site visit that the proposed project activity has been implemented and it is in operation in accordance with the project activity described in the registered revised PDD /1/. The first crediting period is from 12/08/2011 to 11/08/2018. Second crediting period is from 12/08/2018 to 11/08/2025. The project activity covers 2 gas engines (one of them has 1.131 and another unit with installed capacity of 1.413 MWe to deal with potential operational pauses resulted by the existing engine in future) so total capacity reaches to 2.544 Mwe while the maximum allowed electricity generation stated in the previous license is 118,860 MWh and 1.131 Mwe electricity generation capacity according to registered PDD whenever the actual generation is higher as confirmed through the Generation License /16/.
Findings	NA
Conclusion	Based on the onsite inspection and checking the above documents, RINA confirms that the project activity has been implemented and it is in operation as described above in accordance with the project activity in the registered revised PDD /1/.

E.4. Post-registration changes

E.4.1. Temporary deviations from the registered monitoring plan, monitoring methodology or standardized baseline

There have not been any temporary deviations from the approved Monitoring & Reporting Plan, methodology or standardized baseline.

E.4.2. Corrections

There are no corrections applied during this monitoring period.

E.4.3. Changes to the start date of the crediting period

There have been no changes to the start date of the crediting period.

E.4.4. Inclusion of a monitoring plan to a registered project activity

Not applicable.

E.4.5. Permanent changes from registered monitoring plan, monitoring methodology or standardized baseline

Not applicable.

E.4.6. Changes to the project design of a registered project activity

The proposed activity involves the collection and utilization of the LFG with an electricity component with a maximum installed capacity reaching 1.131 MWe. On 23/09/2022, the proposed activity commissioned another unit with installed capacity of 1.413MWe to deal with potential operational pauses resulted by the existing engine in future. With the new commissioning, there has been no increase in project installed capacity and power generation. Due to the fact that there has been no change in the total capacity of the project, there will not be any adverse impact on the additionality of the project or there will be no additional environmental impact.
Furthermore, kj values in MR and registered PDD (V.12) is different because it is realized that MAP/PET>1 and kj values are corrected throughout MR accordingly. In registered PDD, all the kj values are for MAP/PET<1. However even if the kj values are for MAP/PET<1, one of the tables in the registered PDD, there is a typo says kj values are for MAP/PET>1. For more information kindly refer 2006 Guidelines for National Greenhouse Gas Inventories (Volume 5, Table 3.3).
Finally default TDL value that is applied in PD has not been used because TEİAŞ average transmission and distribution loses have been available.

E.4.7. Types of changes specific to afforestation and reforestation project activities

Not applicable.

E.5. Compliance of monitoring plan with the monitoring methodology including applicable tool and standardized baseline

Means of verification	The project applies the approved methodologies "AMS-III.G, Landfill Methane Recovery" version 9.0.0 of 28/11/2014 /7/. The following tools are also applicable to the project activity: Tool to calculate the emission factor for an electricity system, version 05.0.0. of 27/11/2015 /13/.
Findings	NA
Conclusion	The monitoring plan in the registered PDD /1/ is in accordance with the monitoring methodology Baseline and Monitoring Methodology AMS-III.G, Landfill Methane Recovery Version 9.0.0.

E.6. Compliance of monitoring activities with the registered monitoring plan

E.6.1. Data and parameters fixed ex ante or at renewal of crediting period

Means of verification

The parameters were available at the validation stage, which do not need to monitor during the crediting period, as per the registered PDD /1/.

Data/Parameter	Source of data	Reported value for the project period	Assessment/ Observation
$F_{CH4,BL,y}$ Amount of methane in the LFG which is flared due to a requirement in year y	Directorate of Legislation Development and Publication	0	-
GWP_{CH4} Global Warming Potential of Methane	IPCC Sixth Assessment Report (AR6)	28 tCO_2e/tCH_4	As per the IPCC the value 28 is fixed for the second commitment period. It shall be updated according to any future COP/MOP decision.
D_{CH4} Density of methane	IPCC Volume 2 Energy	0.00067tCH_4/m^3CH_4	The value considered is according with the approved tool to

				determine project emissions from flaring" Version 02 (EB 68 Annex 15) and it is fixed at standard temperature 0°C and pressure 1.013 bar.
	EE_y Energy Conversion Efficiency of the project equipment	Applicable methodology	40%	-
	ID.6 / ηPJ Efficiency of the collection system	Default value	0.5	-
	Φdefault Model correction factor	Emissions from solid disposal sites	0.75	The proposed activity falls under Application A (in line with AMS-III.G)
	OX Fraction of methane that would be oxidized in the top layer of the SWDS in the baseline	Tool for Emissions from solid waste disposal sites	0.1	Applicable to Step A defined under AMS-III.G, Landfill Methane Recovery
	F Fraction of methane in the SWDS gas	IPCC 2006	0.5	Upon biodegradation, organic material is converted to a mixture of methane and carbon dioxide
	DOC_f Default value for the fraction of degradable organic carbon (DOC) in MSW that can decompose in the SWDS	IPCC 2006	0.5	The proposed project activity falls under Application A (in line with AMS-III.G, Landfill Methane Recovery)
	$MCF_{default}$ Methane correction factor	IPCC 2006	0.8	The baseline falls under the definition "unmanaged solid waste disposal site-deep
	DOC_j Weight fraction	Tool 07.0 "Emissions from solid disposal sites"	Wood and wood products: %43 Pulp, paper and cardboard: %40 Food, food waste, beverages and tobacco: %15 Textiles: %24 Garden, yard and park waste: %20 Glass, plastic, metal, other inert: %0	
	kJ Decay rate for the waste type j	IPCC 2006		

k_j		Boreal & Temperature (MAT<=20C)
Waste type j		Wet (MAP/PET>1)
Slowly Degrading	Pulp, paper, cardboard (other than sludge), textiles	0.06
	Wood, wood products and straw	0.03

<table>
<tr><td></td><td></td><td></td><td>
<table>
<tr><td>Moderatly</td><td>Other (non-food) organic putrescible garden and park waste</td><td>0.1</td></tr>
<tr><td>Rapidly</td><td>Food, food waste, sewage sludge, beverages and tobacco</td><td>0.185</td></tr>
</table>
</td><td></td></tr>
<tr><td></td><td>EGm,y
Net electricity generated by power plant/unit m</td><td>Turkish Electricity Transmission Company TEIAS</td><td>Please refer to Section B.6.3 table 9 in registered PDD</td><td>CM is defined in registered PDD and all parameters related to EF is asscociated with registered PDD.</td></tr>
<tr><td></td><td>FCi,y
Amount of fossil fuel type i consumed in the project electricity system by generation sources in year y</td><td>Turkish Electricity Transmission Company TEIAS</td><td>Please refer to Section B.6.3 table 9 in registered PDD</td><td>CM is defined in registered PDD and all parameters related to EF is asscociated with registered PDD.</td></tr>
<tr><td></td><td>NCVi,y
Net calorific value (energy content) of fossil fuel type i in year y</td><td>Turkish Electricity Transmission Company TEIAS</td><td>Please refer to Section B.6.3 table 9 in registered PDD</td><td>CM is defined in registered PDD and all parameters related to EF is asscociated with registered PDD.</td></tr>
<tr><td></td><td>EFCO2,i,y
CO2 emission factor of fossil fuel type i used in power unit min year y</td><td>Turkish Electricity Transmission Company TEIAS</td><td>Please refer to Section B.6.3 table 9 in registered PDD</td><td>CM is defined in registered PDD and all parameters related to EF is asscociated with registered PDD.</td></tr>
<tr><td></td><td>nm,y
Average net energy conversion efficiency of power unit m in year y</td><td>IPCC 2006 Default values</td><td colspan="2">
<table>
<tr><th></th><th>Average conversion efficiency</th></tr>
<tr><td>Natural Gas</td><td>60% for combined cycle</td></tr>
<tr><td>Lignite</td><td>41.4% for PFBS</td></tr>
<tr><td>Coal</td><td>41.4% for PFBS</td></tr>
<tr><td>Fuel Oil</td><td>46% for combined cycle</td></tr>
</table>
</td></tr>
<tr><td></td><td>EFgrid,CM,y
Combined margin CO_2 emission factor</td><td>Turkish Electricity Transmission Company TEIAS</td><td>0.484</td><td>-</td></tr>
<tr><td>Findings</td><td colspan="4">NA</td></tr>
<tr><td>Conclusion</td><td colspan="4">Data and parameters fixed ex-ante are in accordance with the registered revised PDD /1/.</td></tr>
</table>

E.6.2. Data and parameters monitored

<table>
<tr><td>Means of verification</td><td>The following parameters are monitored in accordance with the registered PDD /1/. All the values are confirmed as per the raw data provided from the measurement device.</td></tr>
<tr><td></td><td>
<table>
<tr><td>$F_{CH4,PJ,Y}$
Quantity of methane captured by project activity</td><td>
<table>
<tr><th>Period</th><th>Value</th></tr>
<tr><td>03/11/2021-31/12/2021</td><td>194.92</td></tr>
<tr><td>2022</td><td>1,334.53</td></tr>
<tr><td>01/01/2023-31/07/2023</td><td>889.77</td></tr>
<tr><td>Sum</td><td>2,419.22</td></tr>
</table>
</td></tr>
<tr><td>w_{CH4}
Average methane fraction in the landfill gas</td><td>For the measurement an Emerson X-stream, Serial number XMC02102854726 is used. The monitoring system works with continuous measurement devices. It is programmed to automatically save hourly values. The data are stored automatically at the server.
0.49 m^3CH_4/m^3 LFG</td></tr>
<tr><td>BE_Y
Emission reductions achieved per year</td><td>
<table>
<tr><th>Period</th><th>Value</th></tr>
<tr><td>03/11/2021-31/12/2021</td><td>5,473.00</td></tr>
<tr><td>2022</td><td>37,474.00</td></tr>
<tr><td>01/01/2023-31/07/2023</td><td>24,985.00</td></tr>
<tr><td>Sum</td><td>67,932</td></tr>
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</td></tr>
<tr><td></td><td></td></tr>
<tr><td>AF
Regulatory requirements relating landfill gas projects</td><td>Since there is no change in the legislative structure that forces old landfill sites to utilize landfill gas and no change to article 27 of the relevant regulation “Control of Solid Waste Regulation”, AF and hence MDBL has been considered 0.</td></tr>
<tr><td>Operation of the engine</td><td>The counting device of the engine is counting the operational hours continuously as the operational hours are also used for maintenance reasons.
73,434 hours value is applied.</td></tr>
<tr><td>NOx Emission</td><td>With the reference of Turkish Greenhouse Gas Inventory and electricity generation values of project. Total NOx emission related to electricity generation is about 860 kt in 2020 (the latest available data) according to National Inventory of Turkey. According to TEİAŞ data, the total generation value of Turkey's electrical energy in 2020 is 306,703.1 GWh. NOx emission per MWh is calculated as 2.804 kg.
For MP: 14,402.98 MWh electricity has been generated and delivered to the national grid system utilizing the LFG. This corresponds to 40,386.16 tonnes of NOx reductions.</td></tr>
<tr><td>SO_2 Emission</td><td>With the reference of Turkish Greenhouse Gas Inventory and electricity generation values of project. Total SO_2 emission related to electricity generation is about 2,165 kt in 2020 Considering that electricity generation in 2020 is 306,703.1 GWh SO2 emission per MWh is calculated as 7.06 kg/MWh.
For MP: 14,402.98 MWh electricity has been generated and delivered to the national grid system utilizing the LFG. This corresponds to 101,669.81tonnes of SO2 reductions.</td></tr>
<tr><td>Reduction of discharged cooling water in baseline</td><td>With the reference of Turkish statistical institute and TEAİŞ in 2018, 7.5 billion m^3 cooling water was discharged by thermal power plants in Turkey. Net electricity generation in thermal power plants in 2018 was 213,491.5 GWh, corresponding to 36.5 m^3/MWh discharged cooling water intensity.
For MP: 14,402.98 MWh electricity has been generated and delivered to the national grid system utilizing the LFG. This corresponds to 507,909.15 m^3 of avoided cooling water discharge to the environment.</td></tr>
<tr><td>H_2S Emission</td><td>With the reference of feasibility study of the project. The hydrogen sulphur concentration measured as1385 ppm on project site on average.
For MP: 3,564.20 tons of CH_4 have been destroyed corresponding to 4,936.4 kg of H_2S destroyed.</td></tr>
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<tr><td>Reduction of Volatile Organic Compounds</td><td>With the reference of feasibility study of the project. The non-methane VOCs are typically roughly 2% of methane emissions.
The methane destroyed by the Project is 5,319,704.43 m3.
Baseline VOCs emissions: 5,319,704.43 m3 * 2% = 106,394 m3

The VOC destruction by combustion or flaring is greater than 98%. This leads to the following baseline emissions of VOCs:

VOCs Reduced = 106,394 m3 * 98% = 104,266.21 m^3</td></tr>
<tr><td>Leachate management</td><td>The leachate is properly collected, stored, and transported safely to the municipal treatment facility. Collected leachate sent to Bolu Municipality.</td></tr>
<tr><td>Hazardous waste processing</td><td>The landfill is only accepting municipal waste in line with the Turkish law and regulations so hazardous waste collected by project owner and disposed by private companies.</td></tr>
<tr><td>Waste Terraces</td><td>The waste is landfilled effectively throughout the monitoring period. In baseline situation, the solid waste is being dumped to the landfill site without a soil capping layer and cover material is applied after a longer period.</td></tr>
<tr><td>EGPJ,facility, y
Quantity of electricity generated and supplied by the project power plant to the grid in year y</td><td>
<table>
<tr><th>Period</th><th>MWh</th></tr>
<tr><td>03/11/2021-31/12/2021</td><td>1,160.45</td></tr>
<tr><td>01/01/2022-31/12/2022</td><td>7,945.22</td></tr>
<tr><td>01/01/2023-31/07/2023</td><td>5,297.31</td></tr>
<tr><td>∑SUM</td><td>14,402.98</td></tr>
</table>

Use electricity meters installed at the grid interface for electricity export to grid and for supply to captive consumers use electricity meters installed at the entrance of the electricity consuming facility. Continuously and at least monthly recording. The electricity meter will be subject to maintenance and testing regime according to recognized procedures. Maintenance and calibration of equipment will be carried out according to the instructions of the manufacturer and legislation. According to the legislation the electricity meters are subject to periodic maintenance every 10 years. The electricity meters are used to measure the net electricity exported to the grid and used for billing purposes. Therefore, the meters are sealed by TEİAŞ (Turkish Electricity Transmission CO).

Electricity meters: Old Electricity Meters Calibration Schedule
<table>
<tr><th>Specification</th><th>Main Meter</th><th>Validity</th><th>Spare Meter</th><th>Validity</th></tr>
<tr><td>Type</td><td>Landis+Gyr E550</td><td>N/A</td><td>Landis+Gyr E550</td><td>N/A</td></tr>
<tr><td>Year of Manufacture</td><td>2021</td><td>N/A</td><td>2021</td><td>N/A</td></tr>
<tr><td>Serial Number</td><td>56753562</td><td>N/A</td><td>56735363</td><td>N/A</td></tr>
<tr><td>Date of Calibration #1</td><td>22/01/2021</td><td>22/01/2031</td><td>22/01/2021</td><td>21/01/2031</td></tr>
<tr><td>Manufacturing Standard / Class</td><td>0.5S</td><td>N/A</td><td>0.5S</td><td>N/A</td></tr>
</table>

The previous meters with the serial numbers of 56753562 and 56735363 have been replaced on 13/02/2023 to the new meters with the serial numbers given in the table below.</td></tr>
</table>

Electricity meters: New Electricity Meters Calibration Schedule:

Specification	Main Meter	Validity	Spare Meter	Validity
Type	Landis+Gyr E550	N/A	Landis+Gyr E550	N/A
Year of Manufacture	2021	N/A	2021	N/A
Serial Number	BYL067000832	N/A	BYL067000833	N/A
Date of Calibration #1	10/06/2021	10/06/2031	10/06/2021	10/06/2031
Manufacturing Standard / Class	0.5S	N/A	0.5S	N/A

Electricity meters are examined during on site verification. Meter results are recorded in daily reports and cumulative results are seen in excel spread sheet.

$EC_{PJ,y}$

Electricity consumed from the grid by project activity

Period	MWh
03/11/2021-31/12/2021	0.228
01/01/2022-31/12/2022	1.459
01/01/2023-31/07/2023	1.391
∑SUM	3.078

The net electricity is measured continuously by a power meter at the grid interface and recorded monthly. TEIAS meter reading forms are the source of the exact electricity generation of the project and the imports from the grid. The quantity of net electricity delivered to the grid is crosschecked with the EPIAS records which are provided by the electricity market board, EPIAS. The net electricity generation supplied to the grid has been measured continuously by meters (both primary and secondary) and recorded monthly in excel sheets. The electricity is subject to a regular maintenance and testing regime to ensure accuracy. Records of calibration and maintenance is kept.

The quantity of electricity consumed is monitored by the same equipment, which monitors the net amount of electricity generated by the project activity as detailed below parameter.

$TDL_{,y}$

Average technical transmission and distribution losses for providing electricity

Average of the last 3 years is taken.Grafik III.VII Türkiye Elektrik Enerjisi İletim Ve Dağitim Kaybi Oranlari (2013-2023) figure is used for calculating the average value.The values for 2023,2022 and 2021 are taken into account.

%13.23

According to the monitoring plan in the registered revised PDD /1/ and in the monitoring report Version 10 of 04/11/2024 /2/, estimated emission reduction and the following sustainability parameters (SDGs) are monitored which are approved by GS /2/ /4/.

SDGs:

	SDG	SDG Impact	Baseline estimate	Project estimate	Net benefit
	13	**Climate Action**	67,935 tCO2	1.79 tCO2	67,932 tCO_2 Actual ER capped By lower actual values 37,177 tCO_2
	7	**Affordable and Clean Energy**	0 MWh	14,402.98 MWh	14,402.98 MWh
	8	**Decent Work and Economic Growth**	0	8 employment	8 employment
	The above parameters have been monitored in accordance with the monitoring plan in the registered PDD /1/ and the monitoring report /2/. Actual values of SDGs achieved during this monitoring period have been verified through supporting documents.				
Findings	NA.				
Conclusion	RINA's opinion that the monitoring of the project activity has been carried out in accordance with the monitoring plan in the registered PDD /1/. All the parameters were monitored and determined as per the registered monitoring plan. VVB confirms through site visit verification, from the document review, the actual monitoring system complies with the registered monitoring plan. During the verification, all the relevant monitoring parameters of the registered monitoring plan have been verified with regard to the appropriateness of the verification method; the correctness of the values applied for ER calculation, the accuracy and applied QA/QC measures. It is confirmed that all the monitoring parameters have been measured/determined without material misstatements and are in line with all applicable standards and relevant requirements.				

E.6.3. Implementation of sampling plan

Means of verification	N/A
Findings	N/A
Conclusion	N/A

E.7. Compliance with the calibration frequency requirements for measuring instruments

Means of verification

TEAIS is responsible for calibration and maintenance of the devices as per the registered revise PDD /1/. The project owner has no control on the meters since the meters are sealed by the TEIAS. If any major discrepancy occurs between the two meters, TEIAS performs necessary calibration. Even if there is no discrepancy was occurred during this monitoring period, the maintenance and calibration of the meters are carried out yearly according to the System Connection Agreement.

Electricity meters, flow meters and gas analysers are periodical controlled by TEIAS as presented under Section E.6.2 and confirmed through the First Index Protocol /20/ and also tested by TEIAS as confirmed through the TEIAS Protocols /18/. The recalibration of these meters will be done in line with the equipment requirements and through the period defined by national metrology institutes country by country and for Türkiye this period is defined as 10 years. The calibration of meters is deemed appropriate and in compliance with the national regulation /19/.

Electricity meters: Old Electricity Meters Calibration Schedule

Specification	Main Meter	Validity	Spare Meter	Validity
Type	Landis+Gyr E550	N/A	Landis+Gyr E550	N/A
Year of Manufacture	2021	N/A	2021	N/A
Serial Number	56753562	N/A	56735363	N/A
Date of Calibration #1	22/01/2021	22/01/2031	22/01/2021	21/01/2031

Manufacturing Standard / Class	0.5S	N/A	0.5S	N/A

The previous meters with the serial numbers of 56753562 and 56735363 have been replaced on 13/02/2023 to the new meters with the serial numbers given in the table below. Electricity meters: New Electricity Meters Calibration Schedule:

Specification	**Main Meter**	**Validity**	**Spare Meter**	**Validity**
Type	Landis+Gyr E550	N/A	Landis+Gyr E550	N/A
Year of Manufacture	2021	N/A	2021	N/A
Serial Number	BYL067000832	N/A	BYL067000833	N/A
Date of Calibration #1	10/06/2021	10/06/2031	10/06/2021	10/06/2031
Manufacturing Standard / Class	0.5S	N/A	0.5S	N/A

Gas Analyzer:

Specification		**Validity**
Type	EPMK-P11024-E001	N/A
Year of Manufacture	2011	N/A
Serial Number	XMC02102854726	N/A
Date of Calibration	03/02/2011	Valid all the time

Flowmeter:

Specification		**Validity**
Type	Sierra Steelmass 640s	N/A
Year of Manufacture	2011	N/A
Serial Number	141381	N/A
Date of Calibration	11/01/2011	Valid all the time

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.

Findings	NA
Conclusion	The monitoring parameter is “Quantity of net emission reductions as a result of electricity supplied to the grid” as per the registered monitoring plan presented in the registered PDD /1/. For the calculation of parameter, net electricity generation is monitored continuously as “MWh” by four electricity meters that are located at the project area. The meters have accuracy of 0.5s as confirmed through on-site visit. The accuracy class of the meters complies with the “Communiqué for Measurement Devices used in the Electricity Market” /19/. The electricity meters are sealed by TEIAS as confirmed during the site visit.

E.8. Assessment of data and calculation of emission reductions or net removals

E.8.1. Calculation of baseline GHG emissions or baseline net GHG removals by sinks

Means of verification	In accordance with the applicable methodologies the baseline is estimated as follows: $$BE_Y = (h_{pj} \times BE_{CH4,SWDS,y} - (1 - OX) \times F_{CH4,BL,y} \times GWP_{CH4}) + BE_{electricity,y}$$

	Where: $BE_{CH4,SWDS,y}$ Methane emission potential of a solid waste disposal site (in tCO_2e/year), calculated using the methodological tool "Emissions from solid waste disposal sites". OX Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)(dimensionless). A default value of 0.1 may be used. n_{PJ} Efficiency of the LFG capture system that will be installed in the project activity. It is used for ex ante estimation only. A default value of 50 percent may be used. $F_{CH4,BL,y}$ Methane emissions that would be captured and destroyed to comply with national or local safety requirements or legal regulations in the year y (tCH_4). GWP_{CH4} Global Warming Potential for methane $BE_{electricity,y}$ Baseline emissions from electricity generation in power plants that are displaced due to project activity. **BE for Project:** 03/11/2021 - 31/12/2021: 5,473.54 tCO2 01/01/2022 - 31/12/2022: 37,475.69 tCO2 01/01/2023 - 31/07/2023: 24,986.13 tCO2 Total baseline emission for MR: 67,935.35 tCO2
Findings	**NA**
Conclusion	RINA verified that the baseline emissions were calculated in accordance with the registered PDD and methodology AMS-III.G, Landfill Methane Recovery Version 9.0.0 /7/.

E.8.2. Calculation of project GHG emissions or actual net GHG removals by sinks

Means of verification	In line with the requirements of AMS-III.G and AMS-I.D, project emissions are calculated as follows: Where: $PE_{power,y}$ Emission from consumption of electricity due to the project activity in year y (tCO_2e/yr). The project emissions from consumption of electricity by the project activity $PE_{power,y}$ (also referred as $PE_{EC,y}$) shall be calculated using the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption". When applying the tool, electricity sources j in the tool corresponds to the sources of electricity consumed due to the project activity. $PE_{EC,y}$ is calculated as follows: $$PE_{EC,y} = \sum_j EC_{PJ,y} * EF_{EL,j,y} * (1 + TDL_{j,y}) \quad \textbf{(15)}$$ Where: $PE_{EC,y}$ Project emissions from electricity consumption in year y (tCO_2e/year) $EC_{PJ,y}$ Quantity of electricity consumed by the project electricity consumption source j in year y (MWh/year) $EF_{EL,j,y}$ Emission factor for electricity generation for source j in year y (tCO_2e/MWh) $TDL_{j,y}$ Average technical transmission and distribution losses for providing electricity to source j in year y The combined margin emission factor of the applicable electricity system, has been determined as emission factor for the electricity system ($EF_{power,y}$), in line with Option A1 of scenario A (Electricity consumption from grid) under the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption". The project emissions are calculated as per the AMS-III.G, Landfill Methane Recovery /7/ since the project is a renewable energy project as defined in the registered PDD /1/ and validation report /7/.

	PEy for project: 03/11/2021 - 31/12/2021: 0.12 tCO2 01/01/2022 - 31/12/2022: 0.8 tCO2 01/01/2023 - 31/07/2023: 0.76 tCO2 Total baseline emission for MR: 1.69 tCO2
Findings	NA
Conclusion	RINA verified that the project emissions were calculated in accordance with the registered PDD and methodology AMS-III.G, Landfill Methane Recovery /7/.

E.8.3. Calculation of leakage GHG emissions

Means of verification	The leakage emissions are assumed to be zero as per the AMS-III.G, Landfill Methane Recovery /7/ as defined in the registered PDD /1/. Since the project and leakage emissions are zero, the emission reduction equals to baseline emissions – project emissions.
Findings	N/A
Conclusion	Leakage was considered as zero in accordance with the applied methodology /7/.

E.8.4. Summary of calculation of GHG emission reductions or net anthropogenic GHG removals by sinks

Means of verification

According to the applied methodology "AMS-III.G, Landfill Methane Recovery Version 9.0.0" /7/, the emission reductions have been calculated based on the following formula:

ERy = BEy – PEy – Ly

Where:

BEy = Baseline emissions in year y ($tCO_{2e/yr}$)

PEy = Project emissions in year y ($tCO_{2e/yr}$)

Ly = Leakage emissions in year y ($tCO_{2e/yr}$)

According to the applied methodology no leakage emission have been considered as emission due to project activity is landfill gas. Hence the emission reductions have been calculated as per above formula:

ERy = Bey – Pey Hence:

$$ER_{y,calculated} = ((1 - OX) \times (F_{CH4,PJ,y)} - F_{CH4,BL,y}) \times GWP_{CH4}) + BE_{electricity,y} - PE_y$$

Actual Emission reduction increased by 50.24% for the current monitoring period when compared with estimated emission reduction for the same monitoring period based on registered PDD v.13. This is mainly due to methane flow increase which are not in control of project owner. As a conservative approach, the project owner has decided to cap the emission reductions to the extent of annual estimated emission reductions as per the registered PDD and thus accordingly the MR has been revised following the rule prescribed in para 2.1.4 of Rule Clarification "Assessment Approach for Reporting Higher Ex-Post Emission Reductions".

Period	BE (tCO_2e)	PE (tCO_2e)	LE (tCO_2e)	Actual ER (tCO_2e) during current MP	Capped ER (tCO_2e) during current MP
03/11/2021-31/12/2021	5,473	0.12	-	5,473	3,448
01/01/2022-31/12/2022	37,475	0.80	-	37,474	21,337
01/01/2023-31/07/2023	34,986	0.76	-	24,985	12,392
Total	67,935	1.69	-	67,932	37,177

Findings	N/A
Conclusion	The emission reduction calculations provided in the spreadsheet /9/ have been verified to be correct and in line with the registered PDD /1/ and applied methodology /7/.

E.8.5. Comparison of actual GHG emission reductions or net anthropogenic GHG removals by sinks with estimates in registered PDD

Means of verification	The emission reductions from the project for the monitoring period as reported in the monitoring report Version 10 of 04/11/2024 /2/ is equivalent to 67,932 but this value is %54.24 higher than registered PDD as annual ER was estimated as 33,799 tCO_2 and not in the range of sensitivity analyse only 37,177 tCO_2 ER has been capped. The reported emission reductions are %10 higher than estimated emission reduction for the period 03/11/2021 - 31/07/2023 as per the registered PDD /1/.
Findings	**NA**
Conclusion	Actual Emission reduction increased by 50.24% for the current monitoring period when compared with estimated emission reduction for the same monitoring period based on registered PDD v.13. This is mainly due to methane flow increase which are not in control of project owner. As a conservative approach, the project owner has decided to cap the emission reductions to the extent of annual estimated emission reductions as per the registered PDD and thus accordingly the MR has been revised following the rule prescribed in para 2.1.4 of Rule Clarification "Assessment Approach for Reporting Higher Ex-Post Emission Reductions". According to revised calculation actual ER is now equal to ex-ante calculation that is applied in registered PDD /1/.

E.8.6. Remarks on difference from estimated value in registered PDD

Means of verification	The emission reductions from the project for the monitoring period as reported in the monitoring report Version 10 of 04/11/2024 /2/ is equivalent to 67,932 but this value is %54.24 higher than registered PDD as annual ER was estimated as 33,799 tCO_2 and not in the range of sensitivity analyse only 37,177 tCO_2 ER has been capped. The reported emission reductions are %10 higher than estimated emission reduction for the period 03/11/2021 - 31/07/2023 as per the registered PDD /1/.
Findings	**NA**
Conclusion	Actual Emission reduction increased by 50.24% for the current monitoring period when compared with estimated emission reduction for the same monitoring period based on registered PDD v.13. This is mainly due to methane flow increase which are not in control of project owner. As a conservative approach, the project owner has decided to cap the emission reductions to the extent of annual estimated emission reductions as per the registered PDD and thus accordingly the MR has been revised following the rule prescribed in para 2.1.4 of Rule Clarification "Assessment Approach for Reporting Higher Ex-Post Emission Reductions". According to revised calculation actual ER is now equal to ex-ante calculation that is applied in registered PDD /1/.

E.8.7. Actual GHG emission reductions or net anthropogenic GHG removals by sinks during the first commitment period and the period from 1 January 2013 onwards

Means of verification	The emission reductions from the project for the monitoring period 03/11/2021 - 31/07/2023 as reported in the monitoring report Version 10 of 04/11/2024 /2/ is equivalent to 33,177 tCO_2.
Findings	**NA**
Conclusion	The actual monitoring period does not fall into the first commitment period.

E.8.8. Assessment of the sustainability parameters

Means of verification	The assessment of the monitored parameters is described in the tables below:

Data variable	Source of Data	Reported value for the project period
Number of trainings, number of employments	Training files / SGK Records	8 people are employed during this monitoring period. All staff were trained on Health and Safety (general) and related person were trained in special

			courses/trainings like environmental awareness
	Assessment		
	Number of trainings and number of employments: This parameter is monitored by the SGK Records /23/ and Training Files /24/ of employees. Currently, it was confirmed that 8 employees are working during this monitoring period and all of them were attended to the Health and Safety Trainings on different periods: 11/10/2022, 13/01/2023-14/01/2023; 09/02/2023-10/02/2023 and 28/03/2023.		

Findings	**NA**
Conclusion	RINA verified that the GS indicators described in the monitoring report are accurate and real. Data to cross check the monitored parameters are available at the office of the company. Also, the registers of the sustainability indicators were available during the onsite inspection.

SECTION F. Internal quality control

The draft final verification report before being submitted to the client is subjected to an independent technical review to confirm that all verification activities has been completed according to the pertinent RINA's procedures. The technical review will be/is performed by a technical reviewer(s) qualified in accordance with the RINA's qualification procedure.

SECTION G. Verification opinion

RINA Services Spa (RINA) has performed verification of the emission reductions reported for the project activity Landfill Gas Extraction and Electricity Generation, GS Registration Reference No. 764 for the period 03/11/2021 - 31/07/2023, with regard to the relevant GS requirements and principles. The project participants are responsible for the preparation for the collection of data in accordance with the monitoring plan and the reporting emission reductions from the project. It is RINA's responsibility to express an independent verification opinion on the reported emission reductions from the project and does not express any opinion on the selected baseline scenario or on the validated and registered PDD. Based on documented evidences and corroborated by an on-site assessment RINA can confirm that: (i) the project has been implemented and operated as per the registered PDD; (ii) the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable GS requirements and principles; (iii) the monitoring is in place as per the applied baseline and monitoring methodology; (iv) the monitoring complies with the registered monitoring plan; (v) the monitoring plan in the registered PDD is as per the applied baseline and monitoring methodology.

SECTION H. Certification statement

It is RINA's opinion that the GHG emission reductions (GS VERs) stated in the latest version of monitoring report (Version 10 of 04/11/2024 /2/ for the project activity "Bolu Landfill Gas to Energy Project, Turkey" for the period 03/11/2021 - 31/07/2023 are fairly stated. The GHG emission reductions (GS VERs) were calculated correctly on the basis of the approved monitoring methodology AMS-III.G, Landfill Methane Recovery Version 9.0.0 /7/. Hence RINA is able to certify that the emission reductions from the project during the monitoring period 03/11/2021 to 31/12/2021 3,448 tCO2e; 01/01/2022 to 31/12/2022 21,337 tCO2e, 01/01/2023 to 31/07/2023 12,392 tCO2e totally 37,177 tCO2e. In conclusion it is RINA's opinion that the project activity meets all the relevant GS requirements (GS VERs) for the verification of the 2nd Monitoring period (2nd Period of 2nd crediting period).

Appendix 1. Abbreviations

Abbreviations	Full texts
BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CER(s)	Certified Emission Reduction(s)
CH_4	Methane
CR	Clarification Request
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
CRT	Coordination and Technical Control Staff
DCI	Certification Division of RINA Services Spa
DNA	Designated National Authority
VVB	Validation Verification Body
EB	Executive Board
ER	Emission Reductions
FAR	Forward Action Request
GHG(s)	Greenhouse gas(es)
GS4GG	Gold Standard for Global Goal
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LoA	Letter of Approval
MoV	Means of Verification
MR	Monitoring Report
NGO	Non-governmental Organization
ODA	Official Development Assistance
PDD	Project Design Document
PE	Project Emission
PP(s)	Project Participant(s)
Ref.	Document Reference
RINA	RINA Services Spa
SDG	Sustainable Development Goal
SS(s)	Sectoral Scope(s)
TA(s)	Technical Area(s)
TEIAS	Turkish Electricity Transmission Company (Turkiye Elektrik Iletim A.S.)
EPIAS	Enerji Piyasalari Isletme A.S.
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Validation and Verification Standard

Appendix 2. Competence of team members and technical reviewers

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]- ITR**
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
4	31/01/2024	ITR 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

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:

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 Social Carbon Standard, VCS Verified Carbon Standard.

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

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

UNFCCC	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*

Appendix 3. Documents reviewed or referenced

No.	Author	Title	References to the document	Provider
1.	Climate Balanced	Revised GS-PDD for "Bolu Landfill Gas to Energy Project, Turkey"	version 13 of 20/12/2017	Project participant
2.	CEV Marmara	Monitoring Report for "Bolu Landfill Gas to Energy Project, Turkey"	version 0.1 of 16/06/2023 Version 0.2 of 13/11/2023 Version 0.3 of 30/12/2023 Version 0.4 of 13/03/2024 Version 0.5 of 08/04/2024 Version 0.6 of 05/05/2024 Version 07 of 17/05/2024 Version 08 of 21/05/2024 Version 09 of 01/10/2024 Version 10 of 04/11/2024	Project participant
3.	GS4GG	GS4GG Standard Principle&Requirements	version 1.2 of 23/10/2019	Publicly available
4.	GS4GG	GS4GG Standard Renewable Energy Activity Requirements	version 1.4 of 16/08/2021	Publicly available
5.	The Gold Standard Foundation	Transition Review	date of 08/03/2022	Others
6.	CDM Executive Board	Clean Development Mechanism Validation and Verification Standard	version 03.0 of 09/09/2021	Publicly available
7.	CDM Executive Board	Baseline and monitoring methodology "AMS-III.G", "Landfill Methane Recovery"	version 9.0 of 28/11/2014	Publicly Available
8.	CDM Executive Board	AMS-I.D. "Grid Connected Renewable Electricity Generation"	Version 18.0 of 28/11/2014	
9.	Re Carbon	Re-Validation Report for "Bolu Landfill Gas to Energy Project, Turkey – ReCarbon No:453 0.2, date: 15/02/2018	version 0.2 issued on 15/02/2018	Others
10.	Climate Balanced	Calculation Spreadsheet	version 0.1 of 16/06/2023 Version 0.2 of 13/11/2023 Version 0.3 of 30/12/2023 Version 0.4 of 05/05/2024 Version 0.5 of 21/05/2024 Version 0.6 of 01/10/2024 Version 07 of 04/11/2024	Publicly available

11.	GS4GG	GS4GG Monitoring Report Form	version 1.1 of 14/10/2020	Publicly available
12.	CDM Executive Board	Tool 04 Emissions from solid waste disposal sites	Version 08.0	Publicly available
13.	CDM Executive Board	Tool to calculate the emission factor for an electricity system	Version 05.0	Publicly available
14.	CDM Executive Board	Tool 05 Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation	Version 02.0	Publicly available
15.	Energy Market Regulatory Authority	Amended Generation License EU/2600-4/1638 for	date of 17/06/2010	Project participant
16.	Energy Market Regulatory Authority	Amended Generation License EU/9920-2/04753 for	date of 24/12/2020	Project participant
17.	Ministry of Energy and Natural Sources	Temporary Acceptance Protocol	of 17/06/2010 23/09/2022	Project Participant
18.	The Ministry of Trade and Industry	Regulation of Metering and Testing of Metering Systems	date of 24/07/1994	Publicly available
19.	Energy Market Regulatory Authority	Communiqué for Measurement Devices used in the Electricity Market	date of 22/03/2003	Publicly available
20.	TEIAS	First Index Protocol of Electricity Meters-Kömürcüoda	date of 13/02/2023	Project participant
21.	TEIAS	Monthly Electricity Records within the Monitoring Period	MP	Project participant
22.	Enerji Piyasalari Isletme A.S. (EPIAS)	Monthly Electricity Records within the Monitoring Period (former name is PMUM)	MP	Project participant
23.	Social Security Institution	Insurance Service List of Employees	MP	Project participant
24.	Cev Marmara	List of Attendance for Health & Safety Training	Date of 11/10/2022; 13/01/2023-14/01/2023; 09/02/2023-10/02/2023; 28/03/2023.	Project participant
25.	Website: Argument: Language:	https://registry.goldstandard.org/projects/details/1179 GS4GG Registry English	Retrieved on: 30/04/2024	Publicly Available
26.	Website: Argument: Language:	https://registry.verra.org/app/search/VCS/All%20Projects VCS Registry; English	Retrieved on: 30/04/2024	Publicly Available
27.	SC	Annual Report 2023	15/10/2024	Publicly Available

Appendix 4. Clarification requests, corrective action requests and forward action requests

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

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

Table 2. CR from this verification or validation

CR ID	1	**Section no.**	All	**Date:** 10/08/2023
Description of CR				
1- For φdefault parameter it is not so clear how to make assumption project area is Humid/wet conditions and also for parameter kj MAT/MAP and PET values are not clear so it should be detailed how to make these assumptions and present the evidences. **2**- T (Temperature) and P (Pressure) is not shared as a monitoring parameter in MR. It seems that gas stream flow temperature and pressure parameters are assumed as normalized conditions please make clearance in MR for this and share the evidences such as LFG temperature. **3**- In MR it is not clear how to conduct the cross-checking of electricity data. Main data for electricity should be detailed also cross checking company should be explained in MR For related parameters QA/QC should be updated.				
Project participant response				**Date:**
1.As an evidence for the value MAT ≤ 20°C applied for Bolu Province, please view the website : https://www.mgm.gov.tr/veridegerlendirme/il-ve-ilceler-istatistik.aspx?m=BOLU 2. Since T & P parameters are not given as a monitored parameters neither in the registered PDD nor the transition annex, these values are also excluded in the MR for the current MP. Also, as it is stated in the meth AMS-III.G, for project activities that utilize the recovered methane for power generation, FCH4,PJ,y may be calculated using the Equation (6), based on the amount of monitored electricity generation, without monitoring methane flow and concentration. 3. Details of the electricity generation data in the ER Sheet has been incorporated in the MR Section D.2.				
Documentation provided by project participant				
DOE assessment				**Date:** 20/11/2023
1- Regarding the link MAP/MAP values are available but PET value(evapotranspiration) is not available so it is not possible to support MAP/PET <1 please share reference of PET. **2-** Equation 6 approach is OK. **3-** OK. **Hence CR ID.1 is not closed.**				
Project participant response				**Date:** 30/12/2023
1. As an evidence for PET value for BOLU which is 560 mm, please view the following document page 90. http://tucaum.ankara.edu.tr/wp-content/uploads/sites/280/2015/08/tucaum4_4.pdf				
Documentation provided by project participant				
http://tucaum.ankara.edu.tr/wp-content/uploads/sites/280/2015/08/tucaum4_4.pdf				
DOE assessment				**Date:** 30/04/2024
Hence CR ID.1 is closed.				

Table 3. CAR from this verification

CAR ID	1	Section no.	All	Date: 10/08/2023
Description of CAR				
1- Version number of the PDD is not in line with monitoring report. **2-** Table 4 - Sustainable Development Contributions Achieved values for electricity generation and ER is not in line with ER excel sheet. Also excel sheet name does not include version number and date. In addition calculation for electricity generation is not true such as E4 – F4 MP duration is not correct. **3-** Electricity generation OSF records such as I6 is not in line with ER calculation sheet. All OSF and EPİAŞ recorded must be reviewed and corrected. (Please use same values with OSF records). 11/2021 OSF values exactly different from excel sheet and may and jun/2023 values are not shared, July electricity values should be deleted because MP end date is 30/06/2023. Check F7 generation values in not in line with PMUM screen (it seems wrong value is obtained). **4-**There is a consistency for some export and import electricity values some values are taken from kayıplı veriş and some one from veriş so this should be corrected. Not average the values such as f -G 15.				

Çekiş Mwh	Veriş Mwh	Kayıplı Çekiş Mwh	Kayıplı Veriş Mwh	Kayıt Tipi
0,026	730,164	0,026	730,036	Web Servis

5- The proofs of 4 trainings provided to employees is not seen. **6-** All links should be reviewed and active. Link is not active such as https://cdm.unfccc.int/filestorage/2/P/7/2P7FS6ZQAR84LG3NMKYUH50WI9ODBC/EB81_repan24_AMS-I.D_ver18.pdf?t=a258cXBkdnNlfDAOhQFgUJ_XzE-r7mrXG7Ta. **7-** Specifications for new supplied gas engine-motor cannot seen. Serial number, manufacture date should be given with proofs.	
Project participant response	**Date:**
1- Version number 12 has been referred for the current monitoring period since it is the latest version uploaded to the GS registry website and it is the applied version for the previous MP as well. 2- Emission reduction value calculated in the ER Sheet has been incorporated into the MR. ER Sheet name now includes the date and the version number. Lastly, the MP duration in the cell F4 has been corrected accordingly. 3- I4 and F7 OSF values have been corrected. However, the value of cell I6 had been found to be correctly marked. Given that the OSV conducted in July, 2023, it is preferred that the current MP' end date align with the end date of the month in which the OSV conducted (end of July, 2023) considering the previously endorsed instances by GS (i.e., the project with ID number GS1017). 4- The values have been checked to provide consistency throughout the ER Sheet. Import and Export values with loses have been used for the current MP. 5- Supportive documents (attendance sheets and certificates) have been submitted to DOE. 6- The link has been renewed in the MR. Please follow the link for the access of the meth. : **https://cdm.unfccc.int/methodologies/DB/W3TINZ7KKWCK7L8WTXFQQOFQQH4SBK** 7- Technical Description Document and the name plate of the gas engine has been submitted to DOE. Also the specifications are now inserted in the MR.	
Documentation provided by project participant	
DOE assessment	**Date: 20/11/2023**
1- In SC latest version is Gold Standard Project Design Document (PDD_12.20.2017_v12.pdf). But PDD that is sent VVB is version 13 so please clarify it. Please sent design review file to clarify and this issue and review the FARs if necessary. 2- OK 3- OK 4- OK 5- OK. 6- OK 7- OK **Hence CAR ID.1 is not closed.**	
Project participant response	**Date: 30/12/2023**
1. The latest version is version 12. The issue is because typo.	
Documentation provided by project participant	
DOE assessment	**Date: 30/04/2024**
Hence CAR ID.1 is closed.	

CAR ID	2	Section no.	All	Date: 10/08/2023

Description of CAR
1- nPJ value (Efficiency of the LFG capture system that will be installed in the project activity) is in not with registered PDD, version V13. Please control the value if the parameter given in MR is used, it should be detailed with evidences and deviation from PDD should be detailed. **2**- Data / parameter name of LFGelec not in line with registered PDD. Moreover it is not a monitoring parameter in PDD because baseline emission is calculated by electricity generation, without monitoring methane flow and concentration. **3**- Small-scale Methodology Landfill methane recovery Version 09.0 calculation of ER is: ERy,calculated = (1-OX) × (FCH4,PJ , y – FCH4,BL, y) × GWPCH4 – PEy – LEy Equation (4) but in MR and registered PDD calculation is different as $ER_{y,calculated} = ((1 - OX) \times (F_{CH4,PJ,y)} - F_{CH4,BL,y}) \times GWP_{CH4}) + BE_{electricity,y} - PE_y$ **4**- ER spreas sheet flowmeter results should be supported with evidences **5**- wCH4 Average methane fraction in the landfill gas is shared as %49 but evidences are not shared such as scada pics etc. **6**- PEpower, y (Parameters related to emissions from electricity and/or fuel consumption) is not shared as a monitoring parameter in MR. **7**- PE flare, y (Emissions from flaring or combustion of the landfill gas stream in the year y) is not shared as a monitoring parameter in MR. **8**- PEprocess, y (Emissions from the landfill gas upgrading process) is not shared as a monitoring parameter in MR. **9**- BEY (Emission reductions achieved per year) in MR is not in line with excel sheet. **10**- Operating hours is given as 11,962 but there is no evidence. **11** It is not clear where the value 19399 comes from in Assessment Approach for Reporting Higher Ex-post Emission Reductions and there is no average calculation for actual and estimated values. **12**- There is no % evaluation between actual and estimated values. **13**- NOX, SO2, Reduction of discharged cooling water in baseline, H2S, VOC calculation, Value of the imported natural gas avoided is not shown is excel sheet. **14**- Electricity counter serial number are not true. **15**- $ER_{y,calculated} = ((1 - OX) \times (F_{CH4,PJ,y)} - F_{CH4,BL,y}) \times GWP_{CH4}) + BE_{electricity,y} - PE_y$ should be corrected. $BE_{y,electricity} = EG_{PJ} \times EF_{grid,y}$ should be reviewed.
Project participant response **Date:**
1. Version number 12 has been referred for the current monitoring period since it is the latest version uploaded to the GS registry website and it is the applied version for the previous MP as well. **2.** The parameter has been taken from the Transition document V 02. The parameter has been removed from the MR as required. **3.** This is because the project does not only cover the emission reduction from methane utilization but also covers the emission reduction from electricity displacement. The equation considers both the contributions. **4.** Please see “LFG Amount, Methane Fraction 2021-2022-2023” file. **5.** SCADA records as a supportive of the average methane fraction in the LFG have been submitted to the DOE in a folder named “Temperature and Pressure Records and Methane Ratio”. **6.** The parameter is not monitored according to the registered PDD V.12. **7.** The parameter is not monitored according to the registered PDD V.12. **8.** The parameter is not monitored according to the registered PDD V.12. **9.** The value has been corrected accordingly. **10.** As evidence of the operating hours, the shift schedule covering the current monitoring period has been shared with the DOE. **11.** The value of annual estimated emission reduction has been taken from the registered PDD V.12. For the average values please refer to the below paragraph. **12.** The comparison between the actual and estimated emission reductions has been incorporated in Sub-section E.5 in the MR. **13.** New tab for the above-mentioned parameters have been inserted into ER Sheet to show the calculations and references. **14.** The serial number of the electricity meters has been corrected through the PDD. **15.** This is because the project does not only cover the emission reduction from methane utilization but also covers the emission reduction from electricity displacement. The equation considers both the contributions.
Documentation provided by project participant

DOE assessment	**Date: 20/11/2023**
1- OK **2-** OK **3-** OK 4- Please share real evidences such as SS for %50 (12/2021), 08/2022 and 05/2023 – methane fraction. Also flow meter records is not readable please sent them again and also share SS of flow meter results for 11/2021, 10/2022 and 03/2023. 5- Same as below. 6- Please control ECPJ,y value for year 2023. 7- Please share the evidences and log records of flaring amount to prove there is no flaring gas. Please share the statement for flaring gas even it is 0. **8-** OK **9-** OK 10- It is not understood that how to obtain operationg hours by sending evidences. SCADA system should give details for calculation of operating hours. **11-** OK **12-** OK **13-** OK **14-** OK **15-** OK. **Hence CAR ID.2 is not closed.**	
Project participant response	**Date: 30/12/2023**
4. Please see "LFG Amount, Methane Fraction 2021-2022-2023" file from November 2021 to July 2023. Necessary translation has been done. 5. Please see "LFG Amount, Methane Fraction 2021-2022-2023" file from November 2021 to July 2023. Necessary translation has been done and also ECPJ,y value is corrected. 6-ECPJ,y value is checked and corrected for 2023. 1. Also since there is no flaring, there is no log record of flaring. 10. The total operating hours of the gas engine is 73,434 hours and the photograph for proof is submitted as supportive document.	
Documentation provided by project participant	
"LFG Amount, Methane Fraction 2021-2022-2023" excel file	
DOE assessment	**Date: 30/04/2024**
Hence CAR ID.2 is closed.	

CAR ID	**3**	**Section no.**	**All**	**Date: 10/08/2023**
Description of CAR				
1- Social security records of employee is not shared. Please share the proofs. **2**- E.2 . Calculation of project value or estimation of project situation of each SDG Impact table is not presenting actual values. **3**-It is not presented in excel sheet how to calculate **58,197 – 11,661** values also actual values are not true. **4**- There is no information in MR report about new replacement electricity counters, calibration report and test reports. Also no info for first index protocol and replacement protocols and old electricity meter information.				
Project participant response				**Date:**
1.Social Security Records have been submitted to the DOE during the resolution of the findings document. **2.**The relevant section has been corrected as requested. **3.**Mentioned values has been updated and highlighted with purple colour in the ER Sheet. Actual values have been updated throughout the document. 4. Required information has been incorporated in the MR including information about the old meters. Calibration Certificate and Meter Replacement Protocol have been submitted to the DOE as evidence documents. Additionally, old meter test report has also be submitted along with the other documents to be verified. First index protocol for the new meters are not applicable for the new meters.				
Documentation provided by project participant				
DOE assessment				**Date: 20/11/2023**

1- OK
2- OK
3- OK
4- OK

Hence CAR ID.3 is closed.

CAR ID	4	**Section no.**	All	**Date:** 10/08/2023
Description of CR				
1- All calculation that is shared in Excel sheet will be reviewed when all corrections are conducted.				
Project participant response				**Date:**
1. Values has been reviewed and corrected. Also, the formulas are found to be correct in accordance with the approved PDD V12 by GS.				
Documentation provided by project participant				
DOE assessment				**Date:** 20/11/2023
1- All calculation that is shared in Excel sheet will be reviewed when all corrections are conducted.				

New CAR ID	5	Section no.	All	Date: 05/04/2024

Description of CR

1- The proposed activity initial capacity was 1.131 Mwe but on 23/09/2022, the proposed activity commissioned another unit with installed capacity of 1.413MWe to so total capacity reaches to 2.544 Mwe. No design change-capacity increase was applied so higher ER can not be claimed.
2- As below CAR please revise the statement "The proposed activity involves the collection and utilization of the LFG with an electricity component with a maximum installed capacity reaching 1.131 MWe. On 23/09/2022, the proposed activity commissioned another unit with installed capacity of 1.413MWe to deal with potential operational pauses resulted by the existing engine in future. With the new commissioning, there has been no increase in project installed capacity and power generation.
3- Density value is not in line with registered PDD. Please correct.

Project participant response — **Date:** 08/04/2024

1- As per the initial generation license dated 24/12/2020, the project activity has 2.544(1.131+1.413) MWe total licensed capacity.
2- As per the MR, it is stated that the second engine has installed as spare engine and has no effect to the total capacity. Kindly check the license with the total capacity of 2.544 MWe.
3- The difference between the density value in MR and ER is caused from the unit difference. Actually, all density values are the same. Kindly see the unit of the parameter. (0,00067 ton/m^3 in ER is equal to 0.67 kg/m^3 which is clearly indicated in the MR)

Documentation provided by project participant

1- License of the project
2- Monitoring Report(GS764_Bolu_Landfill_MR_v5_08.04.2024)

DOE assessment — **Date:**

1-2: In PDD Version 12 of 20/12/2017 generation values and capacity is

Generation Units Installed	Total Installed Capacity	Commissioning Date
1 generation unit of 1.131 MW_e	1.131 MW_e	12.08.2011

License date according to registered PDD is 17.06.2010. Please share this license to understand if over generation occured or not. Please see PDD: The activity generates approximately **3887** MWh/year of energy and delivered to the national grid.
3- Closed.

Project participant response — **Date:** 14/04/2024

1-2: Kindly see the explanation in MR section E.6.

Documentation provided by project participant

1-2: The generation license dated 17/06/2010

DOE assessment — **Date:** 30/04/2024

Hence CAR ID.5 is closed.

Table 5. FAR from this verification

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

Document information

Version	*Date*	*Description*
01.0	10/06/2016	Initial publication.