

**GOLD STANDARD FOR THE GLOBAL GOALS (GS4GG)
REPORT
-
VERIFICATION**



Project Title:	Sakarya Landfill Gas Power Plant
Monitoring Period:	01/03/2021 to 31/12/2023 (Both days included)
GS project ID:	GS 6193
Internal ID:	25623
Customer:	ClimeTrek Ltd
Date:	23/09/2024
Revision:	03

SUMMARY			
Reference No.	Date (first version)	Version No.	Date (last version)
GS6193	26/05/2024	03	23/09/2024
GS4GG Verification			
GS4GG Certified Product (sought):		GS VER	
GS4GG SDG Impact Statement (sought):		Impact Certification	
General Information			
Client	ClimeTrek Ltd		
Project Title	Sakarya Landfill Gas Power Plant		
Project Participants	Sakarya Entegre Katı Atık Yönetimi A. Ş. (SEKAY A.Ş.)		
Project Location	Adapazari, Sakarya District, Taşkısığı, Turkey		
Contact Person	Mr. Serim Baysun		
Monitoring Period:	01/03/2021 to 31/12/2023 (Both days included)		
GS4GG Version: GS4GG Principles and Requirements 1.2 GS4GG Activity Requirements: RE Activity Requirements, 1.4 GHG emissions reduction & sequestration product requirements Version 2.3 Methodology Version: ACM0002 "Grid-connected electricity generation from renewable sources" Version 20.0. ACM0001 Version 19.0: 'Flaring or use of landfill gas'.		GS4GG Sectoral Scope: 2 UNFCCC CDM Sectoral Scope: 1 & 13 Technical Area: 1.1 & 13.1	
Monitoring Report Version: 01 Date: 19/01/2024		Final Monitoring Report Version: 05 Date: 19/08/2024	
Certified Project Design Document Version: Assessment team checked the registered GS PDD Version 10 dtd. 03/10/2023 Date: Provided above Final Passport: NA			
Estimated Annual values for the Current Monitoring period for all SDG:			
	SDG	Values estimated for this monitoring period	
7	Affordable and clean energy (MWh of renewable energy generated)	196,128 MWh electricity generation	
11	Sustainable Cities and Communities (Municipal waste used for electricity generation)	535,139 Tonnes	
13	Climate Action (Emission Reduction)	106,268 tCO ₂ e	
Actual values achieved for all SDG:			

SUMMARY		
SDG	SDG	Actual values
7	Affordable and clean energy (MWh of renewable energy generated)	93,136 MWh electricity generation
11	Sustainable Cities and Communities (Municipal waste used for electricity generation)	778,243 Tonnes
13	Climate Action (Emission Reduction)	525,609 tCO ₂ e emission reduction
Selected Sustainable Development Goals (SDGs): 7; 11; 13		
Verification Summary		
LGAI Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by ClimeTrek Ltd to perform the 1st verification of "Sakarya Landfill Gas Power Plant" (Ref. No. GS 6193) applying the methodology ACM0002: Grid Connected Electricity Generation from Renewable Sources, Version 20.0 and ACM0001: Flaring or use of landfill gas, Version 19.0. The management of Sakarya Entegre Katı Atık Yönetimi A. Ş. (SEKAY A.Ş.) is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions. A desk review and an interview have been conducted to verify the data submitted in the monitoring report. Applus+ Certification confirms the following have been reviewed: - The registered PDD including the monitoring plan; - Monitoring report(s); - The applied monitoring methodology(ies); - Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board; - GS4GG guideline and related Annex. - All information and references relevant to the project activity's resulting in emission reductions. The project activity is having capacity of 4.68 MWe landfill gas power plant on a area of around 200,000 m² in municipal landfill site of Sakarya, Turkey. According to the production license granted by the EMRA (Energy Market Regulatory Authority) the realized capacity of the project is 4.68 MW at Adapazari District of Sakarya, Turkey. Project is registered with GS on 10/06/2021. The electricity generated by the project is exported to the electricity grid. The project activity therefore displaces an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid and there by reduces the associated CO₂ emissions. The monitoring of emission reduction and sustainable development indicators has been carried out in accordance to respective registered PDD. Applus+ Certification confirms that the project is implemented in accordance with the validated and registered PDD. The monitoring plan complies with the applied methodology ACM0002 Version 20.0 and ACM0001 Version 19.0 the GS4GG guideline the monitoring has been carried out in accordance with the monitoring plan. The monitoring system is in place and the emission reductions are calculated without material misstatements. Our opinion relates to the projects GHG emissions and the resulting GHG emission reductions reported and related to the valid and registered project baseline and monitoring and its associated documents. Based on the information reviewed and evaluated Applus+ Certification confirms that the implementation of the project has resulted in 525,609 tCO₂e emission reductions during period 01/03/2021 to 31/12/2023 (Both days included)		

ASSESSMENT TEAM		
Team Members	Type of Resource ¹	Organization (for OEs)
Lead Auditor: Mr. Atul Takarkhede	☐ IR ☐ EI ☒ OE	M/s True Quality Certifications Private Limited
GS Auditor: Mr. Atul Takarkhede	☐ IR ☐ EI ☒ OE	M/s True Quality Certifications Private Limited
Auditor: NA	☐ IR ☐ EI ☐ OE	-
Technical Expert: Mr. Atul Takarkhede	☐ IR ☐ EI ☒ OE	M/s True Quality Certifications Private Limited
Local Expert: Dr. Yusuf Serengil	☐ IR ☐ EI ☒ OE	M/s True Quality Certifications Private Limited
Technical Reviewer: Mr. Denny Xue	☐ IR ☒ EI ☐ OE	Applus+ Certification

Note: in line with the GS Rule Update RU 2020 PR – PR V1.2 dated on 02/04/2020, the VVB hereby discloses that the VVB has not performed Validation of this project.

¹ IR (Internal Resource); EI (External Individual); OE (Outsourced Entity)

ABBREVIATIONS	
ACM	Approved Consolidated Methodology
AM	Approved Methodology
AMS	Approved Methodology Small Scale
Applus+ LGAI / Applus+	LGAI Technological Center, S.A. (Applus+ Certification)
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CDM VVS version 03	CDM validation and verification standard for project activities, Version 03.0
CER	Certified Emission Reduction
CL / CR	Clarification Request
CM	Combined Margin
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
EIA	Environmental Impact Assessment
ER	Emission Reduction
FAR	Forward Action Request
GHG	Greenhouse Gas(es)
GS4GG (or GS)	Gold Standard for Global Goals
IPCC	Intergovernmental Panel on Climate Change
KP	Kyoto Protocol
MP	Monitoring Plan
MR	Monitoring Report
NGO	Non-Governmental Organization
SDG	Sustainable Development Goal
TAC	Gold Standard Technical Advisory Committee
OM	Operational Margin
PDD	Project Design Document
PP	Project Participant
UNFCCC	United Nations Framework Convention for Climate Change
VVB	Validation and Verification Body
VVS	Validation and Verification Standard

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1. INTRODUCTION

1.1 Objective

LGAI Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by ClimeTrek Ltd. to perform the 1st verification of “Sakarya Landfill Gas Power Plant” applying the methodology ACM0002 Version 20.0, ACM0001 Version 19.0 and GS4GG guideline. Gold Standard projects must undergo periodic audits and verification of emission reductions as the basis for issuance of Gold Standard VERs.

The objective of the verification work is to assess the compliance with the requirements of paragraph 62 of the CDM Modalities and Procedures as well as the GS4GG guidelines and relevant Principles and Requirements. According to this assessment Applus+ Certification shall:

- Ensure that the project activity has been implemented and operated as per the registered PDD and that all physical features (technology, project equipment, monitoring and metering equipment) of the project are in place;
- Ensure that the published MR and other supporting documents provided are complete, verifiable and in accordance with applicable CDM validation and verification standard for project activities, Version 03.0 for the project activities, GS Validation and Verification version 1.0 and Gold Standard (i.e. applicable GS4GG requirements);
- Ensure that the actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology;
- Evaluate the data recorded and stored as per the ACM0002 Version 20.0.
- Evaluate the data recorded and stored as per the ACM0001 Version 19.0.

1.2 Scope

The verification scope encompasses an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the DOE. The verification is based on the submitted monitoring report, registered PDD and registered Passport as well as its validation report, the applied monitoring methodology, relevant decisions, clarifications and guidance from the CMP and the EB, GS4GG guideline and any other information and references relevant to the project activity’s resulting emission reductions. These documents are reviewed against the requirements of the Kyoto Protocol, the CDM Modalities and Procedures, GS4GG guideline and relevant Principles and Requirements, as well as their related rules and guidance.

Based on the requirements in the CDM validation and verification standard for project activities, Version 03.0 for the project activities as well as the GS4GG guidelines, Applus+ Certification has applied a rule-based approach for the verification of the project. The principles of accuracy, completeness, relevance, reliability and credibility were combined with a conservative approach to establish a traceable and transparent verification opinion.

The verification considers both quantitative and qualitative information on emission reductions. The verification also considers the monitoring of SDG goals as per the requirement of GS4GG guideline.

The verification is not meant to provide any consultancy towards the client. However, stated requests for clarifications, corrective and/or forward actions may provide input for improvement of the monitoring activities.

1.3 Description of the project activity

The project activity is implementation of a 4.68 MWe Land fill gas power plant consisting of 3 biogas driven gensets running and 1 spare gas engine with capacity of 1,560 KW for electricity production.

The electricity generated by the project is exported to the electricity grid. The project activity therefore displaces an equivalent amount of electricity which would have otherwise been generated by fossil fuel dominant electricity grid and there by reduces the associated CO₂ emissions.

The monitoring of emission reduction and sustainable development indicators has been carried out in accordance to respective registered PDD.

2. METHODOLOGY

Applus+ Certification approach to the verification is a two-stage process. In the 1st stage, Applus+ Certification completed a strategic review and risk assessment of the project's activities and processes in order to gain a full understanding of:

- Activities associated with all the sources contributing to the project emissions and emission reductions, including leakage if relevant;
- Protocols used to estimate or measure GHG emissions from these sources;
- Collection and handling of data;
- Controls on the collection and handling of data;
- Means of verifying reported data; and
- Compilation of the monitoring report.

In the 2nd stage, Applus+ Certification verified the implementation of the monitoring plan and the data presented in the Monitoring Report for the period in question. This involved an Onsite audit/Remote audit and a desk review of the Monitoring Report. This Verification Report describes the findings of this assessment.

2.1 Appointment of the assessment team

According to the sectoral scope / technical area and experience in the sectoral or national business environment, LGAI Technological Center, S.A. (Applus+ Certification) has composed a project assessment team in accordance with the appointment rules in the internal Quality Management System of LGAI Technological Center, S.A. (Applus+ Certification).

The composition of audit team shall be approved by the LGAI Technological Center, S.A. (Applus+ Certification) ensuring that the required skills are covered by the team.

The four qualification levels for team members that are assigned by formal appointment rules are as presented below:

- Lead Auditor (LA).
- Auditor (A) /Auditor in Training (AiT).
- Technical Expert (TE).
- Technical Reviewer (TR).
- Other supporting roles such as Country Expert (CE) or Financial Expert (FE) or GS Approved auditor
- Any of the above-mentioned roles in training (iT, e.g. AiT for auditor in training/TeiT for Technical Expert in Trainee).

The sectoral scope / technical area knowledge linked to the applied methodology/ies shall be covered by the assessment team.

Name	Role	Attendance to Site visit	SS Coverage	TA Coverage	Financial aspect	Host country experience
Mr. Atul Takarkhede	LA, TE & GS Approved Auditor	YES	YES	YES	NA	YES
Dr. Yusuf Serengil	Local Expert	YES	NA	NA	NA	YES
Mr. Denny Xue	TR	NA	YES	YES	NA	NA

The complete list of CVs is included as Appendix 3 of this report.

2.2 Document review

The Monitoring Report version 01 was submitted to DOE before the verification activities started. The MR was assessed based on all the relevant documents. The aim of the assessment in the desk review was to:

- Verify the completeness of the data and the information presented in the MR;
- Check the compliance of the MR with respect to the monitoring plan depicted in the registered PDD, verify that the applied methodology was carried out. Particular attention to the frequency of measurements, the quality of the metering equipment including calibration requirements, and the quality assurance and quality control procedures of the power plant was checked by the assessment team.
- Evaluate the data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.
- Please check reference 4 of this report for detail of the documents checked.

2.3 On site assessment and follow up interviews

As a part of the verification, the on-site inspection has been performed by the assessment team.

N o.	Interviewee ²			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Cadulf	Adrian	Consultant	19/02/2024 to 20/02/2024	Project implementation, Baseline emissions, ER calculations, Sustainable monitoring etc.	Mr. Atul Takarkhede & Dr. Yusuf Serengil
2.	Kiyak	İbrahi m	Operations Engineer	19/02/2024 to 20/02/2024	Project implementation, monitoring, calibration etc.	
3.	Burak	Muham med Kurşat	Electrical Engineer	19/02/2024 to 20/02/2024	Project implementation, monitoring, calibration etc.	
4.	Güneş	Mehme t	Facility Manager	19/02/2024 to 20/02/2024	Project implementation, monitoring, calibration etc.	
5.	Omran	Hayrun nisa	Enviroemen tal Engineer	19/02/2024 to 20/02/2024	Project implementation, monitoring, calibration etc.	
7.	Bektaş	Muharr em	Local stakeholder	19/02/2024 to 20/02/2024	Stakeholder meeting- Employment opportunities, Standard of Livings etc.	
8.	Özcan	Erhan	Local stakeholder	19/02/2024 to 20/02/2024	Stakeholder meeting- Employment opportunities,	

² During onsite visit all interviewees has provided their verbal consent to disclose names in Verification Report.

N o.	Interviewee ²			Date	Subject	Team member
	Last name	First name	Affiliation			
					Standard of Livings etc.	
9.	Halil	Yeliz	Local stakeholder	19/02/2024 to 20/02/2024	Stakeholder meeting- Employment opportunities, Standard of Livings etc.	

The objective of the on-site assessment is to:

- Confirm the implementation and operation of the project;
- Review the data flow for generating, aggregating and reporting the monitoring parameters;
- Confirm the correct implementation of procedures for operations and data collection;
- Cross-check the information provided in the MR documentation with other sources;
- Check the monitoring equipment against the requirements of the PDD, GS PDD and the approved methodology, including calibrations, maintenance, etc.;
- Review the calculations and assumptions used to obtain the GHG data and ER;
- Identify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.
- Confirm the SDG goals/ Sustainable monitoring parameter as per the registered GS PDD.
- To understand grievance (if any) from the villagers during the monitoring period.
- Local stakeholders interaction.

2.4 Quality of evidences

Sufficient evidence covering the full verification period in the required frequency is available to verify the figures stated in the final MR. Specific cross-checks have been done in cases that further sources were available. The monitoring report's figures were checked by the assessment team against the raw data. The data collection system meets the requirements of the monitoring plan as per the methodology.

2.5 Reporting of findings

As an outcome of the verification process, the assessment team can raise different types of findings.

Where a non-conformance arises the assessment team shall raise a Corrective Action Request (CAR). A CAR is issued, where:

- Non-compliance with the monitoring plan or methodology are found in monitoring and reporting and has not been sufficiently documented by the project participants, or if the evidence provided to prove conformity is insufficient;
- Modifications to the implementation, operation and monitoring of the registered project activity has not been sufficiently documented by the project participants;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impact the quantity of emission reductions;
- Issues identified in a FAR during validation to be verified during verification or previous verification(s) have not been resolved by the project participants.

The assessment team shall raise a Clarification Request (CR) if information is insufficient or not clear enough to determine whether the applicable CDM/GS requirements have been met.

All CARs /CRs/ FARs raised during verification shall be resolved prior to submitting a request for issuance.

Forward Action Requests (FARs) may be raised during verification for actions where the monitoring and reporting require attention and/or adjustment for the next verification period.

Please refer Appendix 1 of this report. Total numbers of CARs: 04, CLs: 03, FARs: 00.

2.6 Internal Quality Control

As a final step of verification, the final documentation including the verification report has to undergo an internal quality control by the Technical Reviewer. Each report has to be finally approved either by the DOE's Technical Manager or the Deputy. This approval process also includes another quality assurance check in terms of Administrative Review. In case one of these two persons is part of the assessment team, the final approval can only be given by the person who is not a part of the assessment team. If the documents have been satisfactorily approved, the Request for Issuance is submitted to the GS Registry along with the relevant documents.

3. VERIFICATION FINDINGS

3.1 FARs from Validation / Previous Verification

This is 1st verification for the project activity and No FAR is raised during validation and design review.

3.2 Project Implementation in accordance with the registered Project Design Document

The project activity was fully implemented according to the description presented in the registered GS PDD. The assessment team confirms, through the visual inspection that all physical features of the proposed project activity including data collecting systems and storage have been implemented in accordance with the GS PDD.

The technical features of the equipment's have been verified by the assessment team during site visit by checking nameplate of the equipment's and checked with manufacturers technical manual which is detailed listed below:

Table 3- Technical Specifications of Gas Generators

Gas Generator	
Brand/Model	Caterpillar CG170-16
Max Continuous Rating (Electrical Power at 100% Load)	1560 kW
Max Electrical Efficiency (at 100% Load)	42.1 %
Frequency	50Hz

Table 4- Technical specifications of Gas Extraction and Combustion System

Gas Extraction and Combustion System	
Brand/Model	HT2000x2 (+2000) F1000 CO
Flow m ³ /h	4000
Blowers	2 (+1 predisposition)
Blower diff. pressure	300 mbar
Suction Pressure	-150 mbar
Outlet Pressure	+150 mbar

There is one additional gas engine is kept standby for the use in case of malfunction or maintenance issues of other 3 gas engines. Assessment team checked the relevant dates i.e. Commercial start dates of operation for the project activity and found the same to be appropriate.

The major milestone of the project activity is below: -

No.	Date	Key Event
1	08/03/2016	EIA Positive Decision
2	25/12/2017	LSC Meeting
4	27/02/2018	Gas Engine Contract Date
5	21/03/2018	Submission of LSC Report to the Gold Standard
6	04/10/2018	Issuance of EMRA License
7	30/10/2018	Start of Commercial Operation
8	10/06/2021	Design Certification Date
9	01/07/2019	Crediting Period Start Date (within two years prior to the date of Project Design Certification) Then the project has obtained a partial deviation approval (DEV#579) on 28/11/2023 from Gold Standard. As per Approved Deviation#579; the project is therefore only allowed to submit request for issuance of ERs and SDG impacts for a three-year retroactive period from the latest VVB site visit

		date. The VVB has conducted Site visit during first monitoring period on 19/02/2024 & 20/02/2024 & thus, first monitoring period has been applied from 01/03/2021 to 31/12/2023 in-line with the partially approved Deviation.
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The project activity was in normal operational during the monitoring period and the same has been confirmed on-site. No unusual activities observed during the monitoring period and plant was undergone scheduled maintenance as per the recommendation of the manufactures. No forced breakdown observed and the same is confirmed by the assessment team with the plant log details.

The verification team has reviewed generation license to conclude that the capacity of the project is same as mentioned in the registered GS PDD. The capacity of the project activity does not change after the registration of the project activity.

Also, during the onsite visit, it was observed that the rated capacity project is 4.68 MWe. As the capacity of the project is less than type I limit of small-scale project activity, confirms that the project is small scale project activity. Further, during site visit it was also noted that the project activity is receiving more waste than envisaged during feasibility study. The reason for this higher waste is delay in commissioning of another bio-methanation plant (out of this project boundary and location by another agency with municipality authorities) and thus that waste is now diverted to this Sakarya LFG site. Project developer does not have any control over the waste disposal at the LFG site by Municipal Authority. As the amount of waste which supposed to diverted bio-methanation plant was diverted to Sakarya LFG site and thus more MSW was received by this MSW disposal site than what was envisaged during feasibility study of this Sakarya LFG capture & utilization project. Hence, LFG production & capture increased for the project activity plant increased during the monitoring period.

The Leachate generated at the project site is treated at the wastewater treatment facility operated by municipal authority as per the agreement between the project developer and municipal authority.

Assessment team also checked the locations of the project activity during the onsite visit with the GPS meters and also cross checked the same with Google Map. The location as mentioned in the registered GS PDD and Monitoring report is thus correct. The detail location of the project activity is as below.

Location: Adapazari District of Sakarya, Turkey. The closest settlement area: Taşkısıği Neighbourhood.

Geo coordinates of the project activity are 40.84742 and 30.38391 (40° 50' 51" N/30° 23' 06" E)

The project is connected to National grid and the same is found correct by the assessment team during the verification site visit. The grid structure as mentioned in the PDD is still applicable for the project and ex-ante emission factor as proposed in the PDD is used for emission reduction calculation.

Moreover, there were no changes in host country regulations which may impact either baseline or additionality of the project. Thus, assessment team confirms that the project is implemented as per the registered GS PDD and no change in additionality/baseline is envisaged for the present monitoring period.

Assessment team also checked the metering details onsite and found the same to be appropriate. The project is connected to the electricity grid.

Materiality adopted in Verification:

Consideration of materiality in planning the verification

No.	Risk that would lead to material errors, omissions or misstatements	Assessment of the risk		Response to the risk in the verification plan and/or sampling plan
		Risk levels	Justification	
1	Human errors: Readings from Meters (if not automatic)	LOW	Human error is likely to occur if the monitoring personnel are not trained well or inexperienced in data recording procedures and monitoring processes.	All the personal are well trained to monitor and collect data and thus risk associated with Human error is minimized. Assessment team checked the training records to confirm that all the personal are well trained to handle the activities related to monitoring. Assessment team checked the training records for the complete monitoring period and confirm that the personal are well trained to monitor and collect data for the project activity.
2	Human error: Quantification of emission reduction	LOW	Use of spread sheets without adequate data control, changes/updates, version tracking, traceability and security	All the energy statement i.e. JMR sheets and the invoices for the complete monitoring period are checked and thus the assessment team confirms that the ER value is conservative and correct.

Consideration of materiality in conducting the verification

In line with Guidelines for V1.0_PAR_Validation-and-Verification-Standard, the verification team has conducted a complete verification of all the information presented in the monitoring report and data monitored as presented in the emission reduction calculation spread sheet. There are no material errors, overestimation of ER, omission, or misstatement.

Emission (tCO ₂ e)/year	Reductions	500,000 or more	or	300,000 to 500,000	to	300,000 or less	or	Micro Scale projects
Materiality Threshold para (9.6.3) of Validation-and-Verification-Standard version 1.0		0.5%		1.0%		2.0%		10.0%

The applicable materiality threshold is 2% for project activity as achieved ERs are less than 300,000 tCO₂e/year as per requirement of V1.0_PAR_Validation-and-Verification-Standard.

Particulars / Monitoring Report	MR Version (Public/Initial submission)	MR Version (Revised/Final)
Emission Reductions Achieved (tCO ₂ e) in this monitoring period	494,506 tCO ₂ e	525,609 tCO ₂ e
Applicable Threshold (%) as per para 9.6.3 of Validation-and-Verification-Standard version 1.0	2%	2%

The verification team has identified the impact of errors observed and those were corrected by PP during verification for all monitoring parameters at the individual level.

There are no material errors, overestimation of ER, omission or misstatement. To guarantee this level of assurance all data that is used in the GHG emission reduction calculations have been reviewed without any sampling.

3.3 Compliance of the Monitoring Plan with the Monitoring Methodology

The verification team is able to confirm that the monitoring plan is in accordance with the approved methodology ACM0002 Version 20.0 and ACM0001 Version 19.0 applied by the proposed GS project activity.

No deviation, correction or permanent change to the monitoring plan has been requested or observed. However temporary deviation applied, first site visit was conducted by the VVB on 26/02/2020. Further 2nd site visit of the VVB could not be conducted after 3 years of the first visit due to circumstances beyond the control of the project developer and the project owner. So, the project developer has submitted a deviation request on 13/11/2023 to extend the 3 years' time constraint to 3 years and 9 months between two consequent site visits.

Then the project has obtained a partial deviation approval on 28/11/2023 from Gold Standard. As per Approved Deviation#579; the project is therefore only allowed to submit request for issuance of ERs and SDG impacts for a three-year retroactive period from the latest VVB site visit date. The VVB has conducted Site visit during first monitoring period on 19/02/2024 & 20/02/2024 & thus, first monitoring period has been applied from 01/03/2021 to 31/12/2023 in-line with the approved DEV#579. Thus, acceptable to VVB team.

3.4 Completeness of Monitoring

The monitoring has been carried out in accordance with the monitoring plan contained in the GS PDD. All parameters were monitored and determined as per the monitoring plan of the GS PDD as follows:

a. Data and parameters fixed ex ante or at renewable of crediting period

Sr. No.	Data / Parameter	Description	Value	Assessment
1.	OX	Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)	0.1	The value is considered based on methodological tool "Emissions from solid waste disposal sites, version 08.0" and is consistent with how oxidation is accounted for and found inline with registered GS PDD.
2.	GWP _{CH4}	Global Warming Potential of methane	28 tCO ₂ e/t CH ₄	The value applied is as per Default value from IPCC Sixth Assessment Report (AR6) available at https://www.ipcc.ch/assessment-report/ar6/ and inline with registered GS PDD.
3.	n _{pj}	Efficiency of the LFG capture system that is installed in the project activity	50%	The value applied is Default value under ACM0001, version 19.0 and hence accepted. Value found inline with registered PDD.
4.	Φ _{default}	Default value for the model correction factor to account for Model uncertainties	0.75	The value applied is as per the tool 04 "Emissions from solid disposal sites, version 08.0" and hence accepted. Value found inline with registered PDD.
5.	N _{flare,m}	Flare efficiency	80%	The value applied is as per the tool 06 "Project emissions from flaring, version 04.0" and hence accepted. Value found inline with registered PDD.
6.	F	Fraction of methane in the SWDS gas (volume fraction)	0.5	The value applied is as per the tool 04 "Emissions from solid disposal sites, version 08.0" and hence accepted. Value found inline with registered PDD.
7.	DOC _{f,default}	Default value for the fraction of degradable organic carbon (DOC) in MSW that can decompose in the SWDS	0.5	The value is based on extensive review of published literature on this subject, including the IPCC 2006 Guidelines for National Greenhouse Gas Inventories and hence accepted. Value found inline with registered PDD.

Sr. No.	Data / Parameter	Description	Value	Assessment														
8.	MCF _{default}	Methane correction factor	1.0	The value applied is as per the tool 04: "Emissions from solid disposal sites, version 08.0" and hence accepted. Value found inline with registered PDD.														
9.	DOC _j	Fraction of degradable organic carbon (by weight) in waste type j	Values as provided in table under assessment column	The values are based on tool 04: Emissions from solid waste disposal sites, version 08.0. The value was cross checked and confirmed as below from GS PDD. <table><tr><th>Waste type j</th><th>DOC_j (% wet waste)</th></tr><tr><td>Wood and wood products</td><td>43</td></tr><tr><td>Pulp, paper and cardboard (other than sludge)</td><td>40</td></tr><tr><td>Food, food waste, beverages and tobacco (other than sludge)</td><td>15</td></tr><tr><td>Textiles</td><td>24</td></tr><tr><td>Garden, yard and park waste</td><td>20</td></tr><tr><td>Glass, plastic, metal other inert waste</td><td>0</td></tr></table>	Waste type j	DOC _j (% wet waste)	Wood and wood products	43	Pulp, paper and cardboard (other than sludge)	40	Food, food waste, beverages and tobacco (other than sludge)	15	Textiles	24	Garden, yard and park waste	20	Glass, plastic, metal other inert waste	0
Waste type j	DOC _j (% wet waste)																	
Wood and wood products	43																	
Pulp, paper and cardboard (other than sludge)	40																	
Food, food waste, beverages and tobacco (other than sludge)	15																	
Textiles	24																	
Garden, yard and park waste	20																	
Glass, plastic, metal other inert waste	0																	
10.	EG _y	Net electricity generated in the project electricity system in year y	https://www.teias.gov.tr/turkiye-elektrik-uretim-iletim-istatistikleri	This Calculations is based on data of TEİAŞ for energy generation, consumption and losses in Turkey. https://webapi.teias.gov.tr/file/09f91243-aa67-48ec-b092-86f9a18f04cc?download3														
11.	FC _{i,y}	Amount of fossil fuel type i consumed in the project electricity system by generation sources in year y	Values are provided in Appendix 3 in the registered GS PDD	This TEİAŞ (Turkish Electricity Transmission Company) www.teias.gov.tr Fuels consumed in thermal power plants in Turkey by the electricity utilities.														

³ Weblink as provided in the GS PDD & validated during validation. Not accessible now however, VVB has verified the combined margin emission factor and found correct.

Sr. No.	Data / Parameter	Description	Value	Assessment																																	
12.	k_j	Decay rate for the waste type j		The values are based on tool 04: Emissions from solid waste disposal sites, version 08.1. (https://www.ipcc-nggip.iges.or.jp/public/2006gl/vol5.html) The value was cross checked and confirmed as below; <table><tr><th colspan="2" rowspan="2">Waste type j</th><th colspan="2">Boreal and Temperate (MAT≤20°C)</th><th colspan="2">Tropical (MAT>20°C)</th></tr><tr><th>Dry (MAP/ PET<1)</th><th>Wet (MAP/ PET >1)</th><th>Dry (MA < 100 mm)</th><th>Wet (MAP > 1000 mm)</th></tr><tr><td rowspan="2">Slowly degrading</td><td>Pulp, paper, cardboard (other than sludge), textiles</td><td>0.04</td><td>0.06</td><td>0.045</td><td>0.07</td></tr><tr><td>Wood, wood products and straw</td><td>0.02</td><td>0.03</td><td>0.025</td><td>0.035</td></tr><tr><td>Moderately degrading</td><td>Other (non-food) organic putrescible garden and park waste</td><td>0.05</td><td>0.10</td><td>0.065</td><td>0.17</td></tr><tr><td>Rapidly degrading</td><td>Food, food waste, sewage sludge, beverages and tobacco</td><td>0.06</td><td>0.185</td><td>0.085</td><td>0.40</td></tr></table>	Waste type j		Boreal and Temperate (MAT≤20°C)		Tropical (MAT>20°C)		Dry (MAP/ PET<1)	Wet (MAP/ PET >1)	Dry (MA < 100 mm)	Wet (MAP > 1000 mm)	Slowly degrading	Pulp, paper, cardboard (other than sludge), textiles	0.04	0.06	0.045	0.07	Wood, wood products and straw	0.02	0.03	0.025	0.035	Moderately degrading	Other (non-food) organic putrescible garden and park waste	0.05	0.10	0.065	0.17	Rapidly degrading	Food, food waste, sewage sludge, beverages and tobacco	0.06	0.185	0.085	0.40
Waste type j		Boreal and Temperate (MAT≤20°C)		Tropical (MAT>20°C)																																	
		Dry (MAP/ PET<1)	Wet (MAP/ PET >1)	Dry (MA < 100 mm)	Wet (MAP > 1000 mm)																																
Slowly degrading	Pulp, paper, cardboard (other than sludge), textiles	0.04	0.06	0.045	0.07																																
	Wood, wood products and straw	0.02	0.03	0.025	0.035																																
Moderately degrading	Other (non-food) organic putrescible garden and park waste	0.05	0.10	0.065	0.17																																
Rapidly degrading	Food, food waste, sewage sludge, beverages and tobacco	0.06	0.185	0.085	0.40																																
13.	$\eta_{m,y}$	Average net energy conversion efficiency of power unit m in year y	Values as provided in table under assessment column	This is by Ministry of Energy and Natural Resources has published the Operating, Build and Combined Margin Emission Factors for Turkish National Grid. The Ministry has calculated the emission factor by using the “Tool to calculate the emission factor for an electricity system” methodology. The value was cross checked and confirmed as below; <table><tr><th>Fuel Type</th><th>Average Efficiency ($\eta_{m,y}$)</th></tr><tr><td>Imported Coal</td><td>50.00%</td></tr><tr><td>Lignite</td><td>50.00%</td></tr><tr><td>Natural Gas</td><td>62.00%</td></tr></table>	Fuel Type	Average Efficiency ($\eta_{m,y}$)	Imported Coal	50.00%	Lignite	50.00%	Natural Gas	62.00%																									
Fuel Type	Average Efficiency ($\eta_{m,y}$)																																				
Imported Coal	50.00%																																				
Lignite	50.00%																																				
Natural Gas	62.00%																																				

Sr. No.	Data / Parameter	Description	Value	Assessment								
14.	NCV _{i,y}	TJ/million m3 for Natural Gas and TJ/kton for others	Please see Appendix 4 in the registered PDD.	The value is based data of TEİAŞ for heating values of fuels consumed in thermal plants and FC _{i,y}								
15.	EF _{CO2,m,i,y}	CO ₂ emission factor of fuel type i in year y	Values as provided in table under assessment column	IPCC default values at the lower limit of the uncertainty at a 95 per cent confidence interval as provided in table 1.4 of Chapter1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines on National GHG Inventories. The value was cross checked and confirmed as below; <table><tr><th>Fuel Type</th><th>Effective CO2 emission factor (tCO₂/GJ)</th></tr><tr><td>Imported Coal</td><td>0.0895</td></tr><tr><td>Lignite</td><td>0.0909</td></tr><tr><td>Natural Gas</td><td>0.0543</td></tr></table>	Fuel Type	Effective CO2 emission factor (tCO ₂ /GJ)	Imported Coal	0.0895	Lignite	0.0909	Natural Gas	0.0543
Fuel Type	Effective CO2 emission factor (tCO ₂ /GJ)											
Imported Coal	0.0895											
Lignite	0.0909											
Natural Gas	0.0543											
16.	EF _{grid,CM,y}	Combined Margin CO ₂ emission factor in year y	0.5045 tCO ₂ e/MWh	The value is calculated in line with tool 07: Tool to calculate the emission factor for an electricity system, version 07.0 and confirmed.								
17.	ρ _{CH₄, n}	Density of methane gas at reference conditions	0.716 kg/m ³	The default value applied is as per the tool 06 "Project emissions from flaring, version 04.0" and hence accepted. Value found inline with registered PDD.								

b. Data and parameters monitored

As per the registered monitoring plan and requirement of the registered methodology following parameters needs to be monitored:

Relevant SDG indicators = 7.2.1 Affordable and Clean Energy

As per the registered monitoring plan and requirement of the registered methodology following parameters needs to be monitored:

Sr. No.	Data/Parameter	Description	Values		VVB Assessment
1	LFG _{total,y}	Total amount of landfill gas captured under Normal Temperature	Period	Value (Nm³)	This value is measured hourly under normal temperature and pressure in using volumetric flow meter in Nm³. The amount of landfill gas
			(01/03/2021) (31/12/2021)	14,512,928	
			(01/01/2022) (31/12/2022)	16,860,595	

Sr. No.	Data/Parameter	Description	Values			VVB Assessment
		and Pressure in year y	(01/01/2023) (31/12/2023)	16,636,902		captured is measured continuously by a flow meter along with temperature and pressure sensors. The parameter is monitored continuously and recorded daily in the plant logbooks. The monitored value entered in the ER sheet was checked with the plant logbooks and values in the ER sheet found correct. The flowmeter is calibrated once in 10 years. No delayed calibration was observed which was confirmed based on copies of calibration certificates submitted by PP. The calibration details are provided in appendix 2 below. The parameter is monitored in accordance to the approved monitoring plan and applied methodology.
			Total	48,010,425		
2	LFG _{flare, y}	Total amount of landfill gas flared under Normal Temperature and Pressure in year y	Period	Value (Nm³)		This value is measured monthly under normal temperature and pressure in using volumetric flow meter in Nm ³ . The parameter is monitored continuously and recorded daily in the plant logbooks. The monitored value entered in the ER sheet was checked with the plant logbooks. No flaring was observed during this monitoring period. The flowmeter is calibrated once in 10 years. No delayed calibration was observed which was confirmed based on copies of calibration certificates submitted by PP. The calibration details are provided in appendix 2 below. The parameter is monitored in accordance to the approved monitoring plan and applied methodology.
			(01/03/2021) (31/12/2021)	0		
			(01/01/2022) (31/12/2022)	0		
			(01/01/2023) (31/12/2023)	0		
			Total	0		
3	LFG _{electricity, y}	Total amount of landfill gas combusted in the gas generator under	Period	Total LFG Production (Nm³)	Total LFG combusted in the gas	Generated gas monitored using volumetric flow meter in gas generator Nm ³ on continuous basis. The flow meter will be periodically calibrated against

Sr. No.	Data/Parameter	Description	Values			VVB Assessment
		Normal Temperature and Pressure in year y			generator (Nm³)	primary device of independent laboratory on a frequency specified by the manufacturer i.e. once in 10 years. Records of calibration and maintenance are archived.No delayed calibration was observed which was confirmed based on copies of calibration certificates submitted by PP. The calibration details are provided in appendix 2 below. The parameter is monitored in accordance to the approved monitoring plan and applied methodology.
			(01/03/2021) – (31/12/2021)	14,512,928	14,512,928	
			(01/01/2022) – (31/12/2022)	16,860,595	16,860,595	
			(01/01/2023) – (31/12/2023)	16,636,902	16,636,902	
			Total	48,010,425	48,010,425	
4	F _{CH4} , RG, m	Mass flow of methane in the residual gas in the minute m (Dry Basis)	Period		Value (tCH₄/y)	The value of measured methane (CH ₄) on dry basis using gas analyser in tCH ₄ /y. The parameter is monitored continuously and recorded daily in the plant logbooks. The monitored value was checked with the plant logbooks submitted and confirmed that values entered in the ER sheet are correct. No delayed calibration was observed which was confirmed based on copies of calibration certificates submitted by PP. The calibration details are provided in appendix 2 below. The parameter is monitored in accordance to the approved monitoring plan and applied methodology.
			(01/03/2021) –(31/12/2021)		5,741	
			(01/01/2022) –(31/12/2022)		6,670	
			(01/01/2023)–(31/12/2023)		6,582	
			Total		18,993	
5	W _{CH4}	Methane fraction in the landfill gas	Period		Vale (Methane %)	This parameter is measured continuously using gas analyzer in real time. The calibration of the gas analyser is carried out according to the instruction of the manufacturer requirements. During current monitoring period 2 analyser were used, when main gas analyzer is not
			(01/03/2021)-(31/12/2021)		55.25	
			(01/01/2022)-(31/12/2022)		53.98	
			(01/01/2023)-(31/12/2023)		54.43	

Sr. No.	Data/ Parameter	Description	Values		VVB Assessment
			Average	54.55	
					working 2 nd analyser is used. The monitored value was checked with the plant logbooks submitted and confirmed that values entered in the ER sheet are correct. No delayed calibration was observed which was confirmed based on copies of calibration certificates submitted by PP. The calibration details are provided in appendix 2 below. The parameter is monitored in accordance to the approved monitoring plan and applied methodology.
6	PE _{flare,y}	Project emissions from flaring of the residual gas stream in year y	Period	Value (t CO ₂ e)	This parameter is measured continuously using the flowmeters and efficiency value of equipment manufacturer or default values stated in the tool "Project emissions from flaring" Version 03.0. This is calculated parameter and no QA/QC required further. During site visit and logbook review it was noted that there was no flaring done during this monitoring period and thus project emissions from flaring are considered zero.
			(01/03/2021) – (31/12/2021)	0	
			(01/01/2022) – (31/12/2022)	0	
			(01/01/2023) – (31/12/2023)	0	
			Total	0	
7	V _{i,t,db}	Volumetric fraction of greenhouse gas i in a time interval t on a Dry basis	Period	Value (m ³ gas i/m ³ wet gas)	The value is measured by flowmeter on monthly basis in m ³ on Dry basis. The data is sourced from PLC (Measured based on the flow of LFG). The monitored value was checked with the plant logbooks submitted and confirmed that values entered in the ER sheet are correct. No delayed calibration was observed which was confirmed based on copies of calibration certificates submitted by PP. The calibration details are provided in appendix 2 below. The parameter is monitored in accordance to the approved monitoring plan and applied methodology.
			(01/03/2021) – (31/12/2021)	14,512,928	
			(01/01/2022) – (31/12/2022)	16,860,595	
			(01/01/2023) – (31/12/2023)	16,636,902	
			Total	48,010,425	

Sr. No.	Data/Parameter	Description	Values		VVB Assessment
8	h	Operational duration of the power plant	24,864 hours (01/03/2021 to 31/12/2023)		Plant assumed to be operating when there is a gas flow to the engines and electricity. Data is sourced from log system of the power plant. The monitored value was checked with the plant logbooks submitted. The parameter is monitored in accordance to the approved monitoring plan and applied methodology.
9	T _{EG,m}	Temperature in the exhaust gas of the enclosed flare in minute m	Period	Value (°C)	Temperature in the exhaust gas of the enclosed flare in minute m, data is sourced from temperature meter (Thermocouple). The monitored value was checked with the plant logbooks submitted and confirmed that values entered in the ER sheet are correct. No delayed calibration was observed which was confirmed based on copies of calibration certificates submitted by PP. The calibration details are provided in appendix 2 below. The parameter is monitored in accordance to the approved monitoring plan and applied methodology.
			(01/03/2021) – (31/12/2021)	0	
			(01/01/2022) – (31/12/2022)	0	
			(01/01/2023)– (31/12/2023)	0	
			Total	0	
10	TDL,y	Average technical transmission and distribution losses for providing electricity to source k in year y	13.9 %		This is average of last 3-year data obtained from TEİAŞ is publicly owned transmission company which publishes official statistics about electricity generation and distribution It is obtained by technical transmission and distribution losses for providing electricity to source.
11.	FC _{i,j,y}	Quantity of diesel combusted for auxiliary purposes	Period	Value (tonnes)	This data is measured for the Quantity of diesel combusted for auxiliary purposes. This is recorded hour of genset and per hour fuel consumption. The monitored value was checked with the plant logbooks submitted and found correct. There was no diesel consumption during this monitoring period and same was also confirmed during onsite visit. Grid import was used for
			(01/03/2021) – (31/12/2021)	0	
			(01/01/2022) – (31/12/2022)	0	
			(01/01/2023)– (31/12/2023)	0	
			Total	0	

Sr. No.	Data/Parameter	Description	Values				VVB Assessment
							the auxiliary consumption wherever required thus no diesel usage required in the plant. The parameter is monitored in accordance to the approved monitoring plan and applied methodology.
12.	$EG_{PJ,y}$	Quantity of net electricity (difference between the total quantity of electricity generated by the power plant/unit and electricity consumption, "Delivery amount - Withdrawal amount") generation that is produced and fed into the grid as a result of the implementation of the project activity in year y	Period	Net Export (MWh)	Import (MWh)	Export (MWh)	The electricity supplied and withdrawn from the grid is monitored via TEIAS/EPIAS records. EPIAS is the electricity market board authorized by the Turkish government. Electricity is measured continuously by electricity meters and readings are provided by TEIAS monthly. Monthly settlement notifications of electricity distribution company, TEIAS (or a distribution company authorized by TEIAS) records consists of electricity production and withdrawn from the grid. TEIAS records are used to verify electricity generation data. Since the meters are reading electricity supplied to the system and withdrawn from the system separately, the net electricity amount supplied to the grid is calculated by electricity supplied minus electricity withdrawn which is taken from monthly settlement notifications. Two meters are placed (one main and one reserve) at the plant through which the electricity transferred to TEIAS substation. These meters are sealed by TEIAS and intervention by project proponent is not possible. The fact that two meters are installed in a redundant manner keeps the uncertainty level of the only parameter for baseline calculation low. High data quality of this parameter is not only in the interest of the emission reduction monitoring,
			(01/03/2021) - (31/12/2021)	29,603	3	29,606	
			(01/01/2022) - (31/12/2022)	32,702	2	32,704	
			(01/01/2023) - (31/12/2023)	30,831	3	30,834	
			Total	93,144	8	93,144	

Sr. No.	Data/Parameter	Description	Values		VVB Assessment										
					but paramount for the business relation between the plant operator and the electricity buyers. Data is measured hourly and readings are recorded monthly. Monthly TEIAS & EPIAS Record consist monthly electricity production and withdrawn from the grid. The same is thus acceptable to the assessment team and thus emission reduction calculation is correct. No delayed calibration was observed which was confirmed based on copies of calibration certificates submitted by PP. The calibration details are provided in appendix 2 below.										
13.	EC _{Pj,y}	Quantity of electricity consumed by the project electricity consumption source j in year y	<table><tr><th>Period</th><th>Value (MWh)</th></tr><tr><td>(01/03/2021) - (31/12/2021)</td><td>3.00</td></tr><tr><td>(01/01/2022) - (31/12/2022)</td><td>2.00</td></tr><tr><td>(01/01/2023) - (31/12/2023)</td><td>3.00</td></tr><tr><td>Total</td><td>8.00</td></tr></table> This parameter is referred as the Fraction of LFG that is required to be flared due to a host country requirement during monitoring period. During current monitoring period, Value has been considered as zero (0) as there is no regulatory requirement in host country i.e., Turkey related to LFG to flare. Same has been verified during the onsite visit by lead auditor that there is no any flaring system available onsite, found correct thus accepted.	Period	Value (MWh)	(01/03/2021) - (31/12/2021)	3.00	(01/01/2022) - (31/12/2022)	2.00	(01/01/2023) - (31/12/2023)	3.00	Total	8.00		The electricity consumed from the grid is monitored via TEIAS/EPIAS records. EPIAS is the electricity market board authorized by the Turkish government. Electricity is measured continuously by electricity meters and readings are provided by TEIAS monthly. Monthly settlement notifications of electricity distribution company, TEIAS (or a distribution company authorized by TEIAS) records consists of electricity production and withdrawn from the grid. TEIAS records are used to verify electricity generation data. Since the meters are reading electricity supplied to the system and withdrawn from the system separately, the net electricity amount supplied to the grid is calculated by electricity supplied minus electricity withdrawn which is be
Period	Value (MWh)														
(01/03/2021) - (31/12/2021)	3.00														
(01/01/2022) - (31/12/2022)	2.00														
(01/01/2023) - (31/12/2023)	3.00														
Total	8.00														

Sr. No.	Data/Parameter	Description	Values	VVB Assessment
				taken from monthly settlement notifications. Two meters are placed (one main and one reserve) at the plant through which the electricity transferred to TEIAS substation. These meters are sealed by TEIAS and intervention by project proponent is not possible. The fact that two meters are installed in a redundant manner keeps the uncertainty level of the only parameter for baseline calculation low. High data quality of this parameter is not only in the interest of the emission reduction monitoring, but paramount for the business relation between the plant operator and the electricity buyers. Data is measured hourly and readings are recorded monthly. Monthly TEIAS & EPIAS Record consist monthly electricity production and withdrawn from the grid. The same is thus acceptable to the assessment team and thus emission reduction calculation is correct. No delayed calibration was observed which was confirmed based on copies of calibration certificates submitted by PP. The calibration details are provided in appendix 2 below.

Sr. No.	Data/Parameter	Description	Values		VVB Assessment
14	Wx	Total amount of waste disposed in a SWDS in year x	Period	Total Municipal Solid Waste Entered (tonnes)	This parameter is measured continuously on truck load basis using weighbridge. The calibration of the weighbridge is carried out according to the instruction of the manufacturer requirements. The monitored value was checked with the plant logbooks submitted and confirmed that values entered in the ER sheet are correct. No delayed calibration was observed which was confirmed based on copies of calibration certificates submitted by PP. The calibration details are provided in appendix 2 below. The parameter is monitored in accordance to the approved monitoring plan and applied methodology.
			(01/03/2021) – (31/12/2021)	220.044	
			(01/01/2022) – (31/12/2022)	249.303	
			(01/01/2023) – (31/12/2023)	308.896	
			Total	778.243	

c. Implementation of sampling plan

PP did not apply sampling plan to determine data and parameters monitored during this monitoring period. The verification team has checked all the supporting documents such as plant records, JMR etc. and hence sampling plan was not required. The verification team hereby confirms that has checked all the documents.

d. Compliance with the calibration frequency requirements for measuring instruments

The assessment team checked the calibration certificates of the flow meters, biogas analyser, temperature & pressure sensors and power meters.

The calibration details are provided in appendix 2 below for detailed assessment on equipment details, accuracy class, meter replacements, calibration compliance etc. To ensure that the readings were accurate, calibration certificates of all meters were checked and were found satisfactory. No delayed calibration has been observed for the monitoring meters.

The calibration certificates submitted by the PP confirmed the dates listed in appendix 2 and also confirms the details of the meters/equipments. Details of the meters were also checked & verified during onsite visit.

Emission reductions are calculated based on the same as confirmed by the assessment team for project activity in ER sheet and in compliance with para 366-368 of CDM validation and verification standard for project activities, version 3.0. The calibration details are provided in appendix 2 below for calibration compliances.

3.5 SDG Outcomes Monitoring

In the Registered PDD indicators are chosen for the monitoring of sustainable monitoring:

Meth/tool	Relevant indicator	SDG	GS PDD	MR	Compliance
Net electricity supplied to the grid	7.2.1 Renewable energy share in the total final energy consumption		Quantity of electricity consumed by the project electricity consumption source j in year y	Quantity of electricity consumed by the project electricity consumption source j in year y	Yes
Emission reductions achieved per year	SDG 13.3.1 Number of countries that have integrated mitigation, adaptation, impact reduction and early warning into primary, secondary and tertiary curricula		Emission reductions achieved per year	Emission reductions achieved per year	Yes
Sustainable Cities and Communities	11.6.1 Proportion of urban solid waste regularly collected and with adequate final discharge out of total urban solid waste generated, by cities		Total amount of waste disposed in a SWDS in year x	Total amount of waste disposed in a SWDS in year x	Yes

During the interviews with PP, the verification team confirmed that there is a grievance book at project site. Every stakeholder has access to the grievance register and can lodge grievance any time. Same if any is resolved as per the standard operating procedures of the company. By checking grievance register during onsite visit, it was able to confirm there are no comments received from the local people for the present monitoring period. Local people are happy with the implementation of the project activity as it entrusts employment and improve living standard of local people and villagers.

Assessment team also checked that the projects are not registered under the checked the I-REC Registry (<https://registry.irecservices.com/Public/ReportDevices/>). Thus, double counting for the current monitoring period is ruled out.

Assessment team also checked the other registry like UNFCCC, VCS and GCC found that project is not registered. Thus, double counting avoidance undertaking for the current monitoring period is submitted by PP.

Project's design certification process is completed in the year 2023 and thus annual report for the year 2021 & 2022 not required. However, Project developer has submitted annual report for 2023 which is inline with GS guidelines for annual report submission.

Further, No legal contest has arisen with the project during the monitoring period which was confirmed during interviews with the project proponent during verification site visit.

In Summary, it is Applus+ Certification's opinion that the monitoring of the project owner

regarding to sustainability is in line with requirement of the GS4GG guideline.

Summary of ex-post values of each SDG outcome for the current monitoring period

Item	Baseline estimate	Project estimate	Net benefit
SDG 7: Affordable and Clean Energy	0 MWh	93,136 MWh	93,136 MWh
SDG 11: Decent Work and Economic Growth	0 MWh	778,243 Tonnes	778,243 Tonnes
SDG 13: Climate Action	0 tCO ₂ e	525,609 tCO ₂ e	525,609 tCO ₂ e

Comparison of actual value of outcomes with estimates in approved GS PDD

Item	Values estimated in ex ante calculation of approved PDD	Actual values achieved during this monitoring period
SDG 7: Affordable and Clean Energy	106,268 MWh	93,136 MWh
SDG 11: Sustainable Cities and Communities	535,139 Tonnes	778,243 Tonnes
SDG 13: Climate Action	196,128 tCO ₂ e	525,609 tCO ₂ e

3.6 Assessment of Data and Calculation of Greenhouse Gas Emission Reductions

As a result of verification of the ER calculation process, the assessment team confirmed that all the parameters required for the determination of the emission reductions have been included in the Monitoring Report Version 01 & Monitoring report Version 03 and corresponding ER calculation spread-sheets and are consistent with the applied methodology ACM0002 Version 20.0 and ACM0001 version 19.0 the monitoring plan contained in the registered PDD. The parameters are complete in this monitoring period.

After verifying the reported figures with the raw data sources, it's confirmed that the values of the parameters from the raw data sources are consistent with those quoted in the Monitoring Report Version 01 & final version of Monitoring report and corresponding ER calculation spread-sheets. The verification process for the same has been clearly described in above section of the report. See below for the detailed data:

Baseline Emissions for the amount of electricity supplied by project activity, BE_y is calculated as:

The baseline emission is using equation below:

$$BE_y = BE_{CH4,pj,y} + BE_{Electricity,y}$$

$$= 478,625 + 46,990$$

$$= 525,615 \text{ tCO}_2\text{e}$$

Where ,

$BE_{CH_4,pj,y}$ = Baseline emissions of LFG from the SWDS in year y (t CO₂e/yr)

$BE_{electricity,y}$ = Baseline emissions from grid electricity displacement in year y (t CO₂e/yr)

Baseline methane emissions from the SWDS are determined as follows, based on the amount of methane captured under the project activity and the amount that would be captured and destroyed in the baseline (such as due to regulations):

$$BE_{CH_4,y} = (1 - OX_{top_layer})(F_{CH_4,PJ,y})GWP_{CH_4} \quad \text{(Equation 4)}$$

Where:

$BE_{CH_4,y}$ Baseline emissions of LFG from the SWDS in year y (t CO₂e/yr)

OX_{top_layer} Fraction of methane in the LFG that would be oxidized in the top layer of the SWDS in the baseline (dimensionless)

$F_{CH_4,PJ,y}$ Amount of methane in the LFG which is flared and/or used in the project activity in year y (t CH₄/yr)

GWP_{CH_4} Global warming potential of CH₄ (t CO₂e/t CH₄)

Thus,

$$= (1 - 0.1) \times 18,993 \times 28$$

$$= 478,625 \text{ tCO}_2\text{e}$$

Further, Electricity baseline emissions are to be calculated as follows:

$$BE_y = EG_{PJ,y} \times EF_{grid,CM,y} \quad \text{Equation (11)}$$

Where:

BE_y = Baseline emissions in year y (t CO₂/yr)

$EG_{PJ,y}$ = Quantity of net electricity generation that is produced and fed into the grid as a result of the implementation of the CDM project activity in year y (MWh/yr)

$EF_{grid,CM,y}$ = Combined margin CO₂ emission factor for grid connected power generation in year y calculated using the latest version of "Tool to calculate the emission factor for an electricity system" (t CO₂/MWh)

Thus,

$$= 93,144 \times 0.5045$$

$$= 46,990 \text{ tCO}_2\text{e}$$

$$\text{Electricity export} = 93,144$$

Export to grid = 93,144

Import to grid = 8

Transmission losses = 13.9% (Average)

The baseline is calculated on the exported generation value to grid and project emission is separately calculated using import value & adding transmission losses. Thus, found acceptable to VVB team.

Thus, the baseline value of each SDG outcome are summarised as follows;

Item	Baseline value
SDG 7: Affordable and Clean Energy	No Activities in the baseline
SDG 8: Decent Work and Economic Growth	No Activities in the baseline
SDG 13: Climate Action	Emission of 525,609 tCO _{2e}

Project emissions:

The project is a Land fill gas power plant, no fossil fuel is be consumed according to the methodology ACM0002 Version 20.0 & ACM0001 Version 19.0 according to registered PDD.

$$PE_y = PE_{EC,y} + PE_{FC,y} + PE_{flare,y}$$

Whereas:

PE_y = Project emissions in year y (t CO₂/yr)

$PE_{EC,y}$ = Emissions from consumption of electricity due to the project activity in year y (t CO₂/yr)

$PE_{FC,y}$ = Emissions from consumption of fossil fuels due to the project activity, for purpose other than electricity generation, in year y (t CO₂/yr)

$PE_{Flare,y}$ = Project emissions from flaring of the residual gas in year y (t CO₂/yr)

Project activity does not include, distribution of compressed/liquefied LFG and supply of LFG to consumers through a dedicated pipeline. Therefore, the only project emission are emissions from consumption of electricity, consumption of fossil fuels due to the existence of a diesel generator for emergency situations. There is no flaring occurred during this monitoring period hence $PE_{Flare,y}$ taken as Zero..

Thus:

$$PE_{EC,y} = \sum ECP_{j,y} \times EF_{EF,j,y} \times (1 + TDL_{j,y})$$

Where;

$PE_{EC,y}$ = Project emissions from electricity consumption in year y (tCO₂/yr)

$ECP_{j,y}$ = Quantity of electricity consumed by the project electricity consumption source j in year y (MWh/yr)

$EF_{EF,j,y}$ = Emission factor for electricity generation for source j in year y (tCO₂/MWh)

$TDL_{j,y}$ = Average technical transmission and distribution losses for providing electricity to source j in year y

$TDL_j = 13.9 \%$. and $EF_{grid,CM,y} = 0.5045 \text{ tCO}_2\text{e/MWh}$ and therefore $PE_{EC,y}$ is calculated as

Period	$EC_{project,y}$ (MWh)	$EF_{grid,CM,y}$	$TDL_{j,y} + 1$	$PE_{EC,y}$
01/03/2021 – 31/12/2021	3.00	0.5045	1.139	2
01/01/2022 – 31/12/2022	2.00	0.5045	1.139	2
01/01/2023 – 31/12/2023	3.00	0.5045	1.139	2
TOTAL	8.00		Total	6

Leakage:

As per ACM0002 Version 20.0 & ACM0001 Version 19.0 No leakage emission needs to be considered.

Emission reductions:

Thus, the emission reductions are:

$$ER_y = BE_y - PE_y$$

$$= 525,615 - 6 = 525,609 \text{ tCO}_2\text{e}$$

Vintage Breakup of the baseline emissions, project emissions & net GHG emission reductions are as follows:

Year	Baseline emissions or removals (tCO ₂ e)	Project emissions or removals (tCO ₂ e)	Leakage emissions (tCO ₂ e)	Net GHG emission reductions or removals (tCO ₂ e)
1 March 2021 – 31 December 2021	159,618	2	0	159,616
1 January 2022 – 31 December 2022	184,586	2	0	184,584
1 January 2023 – 31 December 2023	181,411	2	0	181,409
Total	525,615	6	0	525,609

The actual achieved emission reduction for this monitoring period is 168 % higher than estimated value in the GS PDD (525,609 tCO₂e against estimated 196,128 tCO₂e for 1036 operational days). The higher emission reductions achieved are mostly attributable to the methane capture & destroy part than electricity generation. It is evident from below table.

	PDD Estimation	Actual Values	Estimated BE as per PDD	Actual Baseline Emissions
Period	TOTAL MUNICIPAL SOLID WASTE ENTERED (Tonnes)	TOTAL MUNICIPAL SOLID WASTE ENTERED (Tonnes)	$BE_{CH4,PJ,y}$	$BE_{CH4,PJ,y}$
1/03/2021 – 31/12/2021	153,960	220,044	57,921	144,682
1/01/2022 – 31/12/2022	188,237	249,303	69,014	168,087
1/01/2023 – 31 /12/2023	192,942	308,896	69,193	165,856
Total	535,139	778,243	196,128	478,625

Difference between Estimated Vs Actual	45%	144%
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Assessment team noted that the total waste received by the facility was 45% more than estimated in the registered PDD based on feasibility report for the project. However, during interviews with PP it was noted that the biogas plant which was supposed to be operational in 2021 in the same area has been delayed. Thus, the waste quantity diversion to biogas plant was not happened and all waste was sent to Sakarya landfill. Further, it was also noted that waste amount increase is not the only reason for higher emission reductions by 144% compared to the registered PDD for LFG capture part. Ex-ante estimations are based on the "collection efficiency" which is chosen to default value of 50% which is very conservative default values. During interviews with PP and site visit observations it was noted that PP has installed state of the art technology & good practices which resulted in the higher gas collection efficiency which has direct impact on the baseline emissions calculated in-line with the methodology. Also, a "correction factor" of 0.75 was applied during ex-ante emission reduction calculations during validation. These also results in the conservative estimation of the baseline emissions. Thus, it was observed that the higher emissions achieved during this monitoring period are cumulatively resulted due to the higher waste received, higher gas collection efficiency against default value used & application of correction factor in FOD model. These factors attributable to higher emission reductions are not in control of the PP totally and thus accepted by VVB assessment team. Moreover, no design change in the project activity has taken place since commissioning of the project activity. There is no impact of the higher emission reductions achieved on the additionality of the project activity since the project activity is auto additional.

3.7 Management and Operational System

The responsibilities of data measurement, collection, verifying, archiving etc. have been clearly defined in the registered PDD. The same practice is followed onsite and it is confirmed by the assessment team during the interviews with PP. The data related to ER calculation as well as data monitoring, collection process etc. have been internally reviewed by the management of the Monitoring team regularly. The responsibility of each function is consistent with the monitoring plan in the registered PDD.

The information flow of each parameter has been verified by the assessment team via interviewing with responsible personnel.

It's verified during the interviews with PP & document review, the monitoring procedure as well as the internal quality management and control procedures are stipulated in the PDD. The monitoring personnel have been interviewed by the assessment team and it's confirmed that the monitoring is implemented as per the procedure. Also, the training record has been checked by the assessment team and it is confirmed that the monitoring personnel are get sufficient train to perform the monitoring.

All the data and documents, either hard copies or soft copies, is kept for two years after the end of the last crediting period or the last issuance of GSVERs for this Project, whichever occurs later.

4. **REFERENCE**

LIST OF DOCUMENTS	
S. No.	Document/Evidence/Reference/Web link, Version, Date
1.	Monitoring Report Version 01 dated 19/01/2024, Final Monitoring report version 05 dated 19/08/2024
2.	ER sheets Version 01 dated 19/01/2024 Final ER Sheets version 05 dated 19/08/2024
3.	Registered PDD Version 10 dated. 03/10/2023, Final GS Validation report version 4.0Aa dated 04/10/2023
4.	Baseline and Monitoring Methodology ACM0002 Version 20.0: "Grid-connected electricity generation from renewable sources" ACM0001 Version 19.0: "Flaring or use of landfill gas"
5.	CDM validation and verification standard for project activities, Version 03.0
6.	Validation and Verification standard version 1.0 GS4GG Principles and requirements Version 1.2
7.	Training records of the employees (both skilled/non-skilled)
8.	Generation License, No. EU/8115-4/04074 dated 04/10/2018
9.	Regulation of Metering and Testing of Metering Systems dated 24/07/1994
10.	Calibration certificates of the complete monitoring period
11.	Commissioning certificates for gas engine Gas Engine Contract dated 27/02/2018
12.	Sakarya LFG production License
13.	Social Security Records of PP Site Staff
14.	Technical Data of the Gas Engines dated 29/11/2017
15.	Grievance register
16.	HSE procedures
17.	Connection Agreement dated
18.	Declaration of not participating in any other GHG mechanism dated 26/04/2022
19.	Technical manual from the Manufacturer for equipment's installed onsite.
20.	Employment records
21.	Plant records/logbooks for all monitoring parameters
22.	TEIAS monthly records & EPIAS Monthly Screenshots for electricity generation
23.	Municipal waste is weighed and printed receipts
24.	Calibration certificate of the equipment's

LIST OF DOCUMENTS	
S. No.	Document/Evidence/Reference/Web link, Version, Date
25.	Site Visit Photos
26.	SDG Impact tool

5. **FINAL VERIFICATION STATEMENT**

Applus+ Certification has been engaged by ClimeTrek Ltd. to perform the 1st verification of the "Sakarya Landfill Gas Power Plant" (GS Ref. No. GS 6193) as Gold Standard projects must undergo periodic audits and verification of emission reductions as the basis for issuance of Gold Standard VERs.

The management of Sakarya Entegre Katı Atık Yönetimi A. Ş. (SEKAY A.Ş.) is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions on the basis set out within the project's Monitoring Plan in the registered PDD and the applied methodology ACM0002 Version 20.0 and ACM0001 Version 19.0.

Our verification approach was based on the requirements as defined under the Kyoto Protocol, Marrakesh accord, as well as those defined by the CDM Executive Board and Gold Standard. Our approach is risk-based, drawing on an understanding of the risks associated with reporting GHG emissions data and the controls in place to mitigate these. A reasonable level of assurance has been achieved during this verification. The verification can confirm that:

- the project is operated as planned and described in the project design document and PDD approved by the EB and GS;
- the monitoring plan is as per the applied methodology;
- the monitoring in Monitoring Report is as per the PDD and the monitoring plan approved by the EB and GS;
- the development and maintenance of records and reporting procedures are in accordance with the registered monitoring plan;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;
- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements.

In our opinion, the GHG emission reductions for "Sakarya Landfill Gas Power Plant" for the monitoring period 01/03/2021 to 31/12/2023 (Both days included) as reported in Monitoring Report, prepared on the basis of the project's Monitoring Plan are fairly stated.

Based on the information we have seen and evaluated, we confirm the following statement:

Reporting period: 01/03/2021 to 31/12/2023 (Both days included)

Verified emissions (Gold Standard VERs) in the above reporting period:

Leakage emissions	0 tCO ₂ e equivalents
Project emissions	0 tCO ₂ e equivalents
Baseline emissions	525,609 tCO ₂ e equivalents
Emission reductions	525,609 tCO ₂ e equivalents

Vintage wise breakup of verified emission reduction (Gold Standard VERs) is given below:

Start Dates	SDG 7	SDG 13	SDG 11
01/03/2021 to 31/12/2021	29,603	1,59,616	220,044
01/01/2022 to 31/12/2022	32,702	1,84,584	249,303
01/01/2023 to 31/12/2023	30,831	1,81,409	308,896
Total	93,136 MWh	525,609 tCO₂e	778,243 Tonnes

Date: 23/09/2024

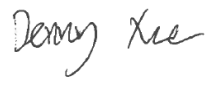
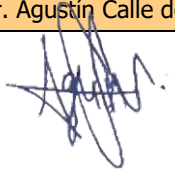
Lead Auditor: Mr. Atul Takarkhede

Tech. Expert: Mr. Atul Takarkhede

Tech. Reviewer: Mr. Denny Xue

Approver (*Applus+ Certification VVB Technical Manager*)

Mr. Agustín Calle de Miguel

ASSESSMENT TEAM	
Team Leader Mr. Atul Takarkhede	Technical Reviewer: Mr. Denny Xue
Signature: 	Signature: 
Approver: Mr. Agustín Calle de Miguel	
Signature: 	

Appendix 1: Corrective Action Request/Clarification Request/Forward Action Request resolution table

Type:	☐ CAR ☒ CL/CR ☐ FAR	Number:	01
Raised by:	Dr. Atul Takarkhede	Ref. to checklist in above tables:	3.1
Description of the audit finding		Date:	30/01/2024
PP is requested to submit the following documents to VVB: 1. Commissioning certificate for fourth standby engine 2. Provisional acceptance protocol 3. Training records of the staff involved in monitoring 4. Calibration certificates for energy meters along with meter replacement MOMs 5. TEIAS monthly records 6. Technical Specifications of the LFG site & gas engines 7. Single Line Diagram with metering points for all parameters 8. <i>No double counting certificate</i> of project that the project is not registered with any other GHG voluntary or compliance schemes			
Project Participant's response		Date:	29/03/2024
All Documents are prepared and submitted			
Documentation provided as evidence by Project Participant			
1. Commissioning certificate for fourth standby engine 2. Provisional acceptance protocol 3. Training records of the staff involved in monitoring 4. Calibration certificates for energy meters along with meter replacement MOMs 5. TEIAS monthly records 6. Technical Specifications of the LFG site & gas engines 7. Single Line Diagram with metering points for all parameters have been added in the MR and ER sheet 8. No double counting certificate of project that the project is not registered with any other GHG voluntary or compliance schemes			
Auditor's assessment comment		Date:	08/04/2024

Type:	☐ CAR ☒ CL/CR ☐ FAR	Number:	01
Raised by:	Dr. Atul Takarkhede	Ref. to checklist in above tables:	3.1
- Assessment team found that in the submitted handover delivery report dated 25/06/2019 for the fourth standby gas engine. - PP has submitted the commissioning certificates of the three gas engines which are commissioned on 30/08/2018 issued by the Energy and Natural resources Ministry which are found correct. - Training records are submitted and it is found that Training regarding health and safety of the employees, Flare, explosion fire and fire protection, Electric hazards, risks and precautions, safe use of work Equipment's etc during the current monitoring period from 01/03/2021 to 31/12/2023 which is accepted to the VVB. Calibration of the Electricity meter: PP has submitted the calibration certificates dated 11/10/2018 issued by the Sakariya business meter adjustment laboratory and meter change certificate dated 06/11/2020 issued by electricity board which are found in line with the calibration details mentioned in the section D.2 of the MR. Calibration of the Gas Analyser: PP has submitted the meter calibration certificates dated 25/05/2018 in which are found in line with the gas analyser details mentioned in the section D.2 of the MR. However, the Gas analyser 2 manual meter certificates dated 17/09/2021 mentioned in the section D.2 of the MR is found missing. Comment #04 is open. Calibration of the Flow meter: PP has submitted the meter calibration certificates dated 25/05/2018 in which are found in line with the flow meter details mentioned in the section D.2 of the MR. - TEIAS are still found missing in the records. Kindly submit the TEIAS records as EPIAS records are already submitted and found correct. Comment#05 is open. - PP submitted the technical specification documents which are not in line with the Section B.1 of the MR. Kindly specifically mention the page number of the submitted technical specifications records. Comment #07 is open. - PP has incorporated the all the metering details in the Single line diagram of the Section C of the MR which is found correct as per the project site. 'No double counting declaration' is submitted dated 26 April 2022 in which it is found that Project activity has not been registered under any other GHG programs nor in any emission trading program which is accepted to the VVB.			
Project Participant's response		Date:	16/04/2024
4) Calibration Certificates of the manual flowmeter, thermocouples and pressure transmitters have been shared and the information regarding the calibration data and technical information of the measuring equipment's have been added in the MR and ER sheet. 5) The data from the Electricity Meters are the basis for the settlement notification of EPIAS. Data are gathered electronically from the meters by TEIAS and stored in secured website of EPIAS. TEIAS is the owner of EPIAS so there is only a single source for the electricity records. 6) Technical Data Sheet of the Engines has been shared now. Technical information is just after the Datasheet page. Technical Information for the gas extraction and combustion system is on Page 2 of the document.			
Documentation provided as evidence by Project Participant			

Type:	☐ CAR ☒ CL/CR ☐ FAR	Number:	01
Raised by:	Dr. Atul Takarkhede	Ref. to checklist in above tables:	3.1
Auditor's assessment comment			
		Date:	17/04/2024
4. PP has submitted the Gas analyser 2 manual the meter calibration certificates dated 17/09/2021 in which are found in line with the gas analyser details mentioned in the section D.2 of the MR. 5. Data are gathered electronically from the meters by TEIAS and stored in secured website of EPIAS. TEIAS is the owner of EPIAS so there is only a single source for the electricity records which is accepted the VVB team. 6. PP has shared the Technical Information for the gas extraction and combustion system which are now in line with the Section B.1 of the MR and it is found correct. Thus, CL#01 is closed.			

Type:	☐ CAR ☒ CL/CR ☐ FAR	Number:	02
Raised by:	Dr. Atul Takarkhede	Ref. to checklist in above tables:	1.3
Description of the audit finding		Date:	30/01/2024
PP requested to clarify monitoring period chosen in line with the deviation applied & "SITE VISIT AND REMOTE AUDIT REQUIREMENTS AND PROCEDURES, Version 02". Kindly clarify.			
Project Participant's response		Date:	16/04/2024
Project Design Certification date is 10/06/2021. Each crediting period of the project is 5 years. The crediting period will be renewed two times more. Therefore, total length of the crediting period will be 15 years. Project has been design certified on 10/06/2021. As per the GHG Emissions Reductions & Seq. Product Requirements V.2.2 para 10.2.1 start date of the crediting period is the start date of the project operation or two years prior to the date of Project Design certification whichever is later. As in-line with the registered PD crediting start date is defined as 01/07/2019 (which is within 2 years retroactive from the Project Design Certification date) and end date of the first crediting period is 30/06/2024. So the First Monitoring period has been defined between 01/03/2021 and 31/12/2023.			
Documentation provided as evidence by Project Participant			
1) Deviation Approval #579			
Auditor's assessment comment		Date:	09/04/2024
According to the 'SITE VISIT AND REMOTE AUDIT REQUIREMENTS AND PROCEDURES, Version 02' "Once within every three years after the first physical site visit date". For this project first site occurred during the Validation dated 26/02/2020. After this site visit, next site visit occurred on 19/02/2024 during the 1st verification. For the delay in the site visit for current Monitoring period deviation number 579 is taken which is partially approved which is accepted to the VVB. Thus, CL#02 is Closed.			

Type:	☐ CAR ☒ C/L/CR ☐ FAR	Number:	03
Raised by:	Dr. Atul Takarkhede	Ref. to checklist in above tables:	1.3
Description of the audit finding		Date:	11/04/2024
During site visit it is observed that the Electricity meter is replaced twice. However, details of the once meter replacement are mentioned in the MR. Kindly clarify about the 2nd replacement of the electricity meter at the project site. 2nd time replacement of the electricity meter details is found missing in the MR. Thus, CL#03 is raised.			
Project Participant's response		Date:	16/04/2024
There has been a misunderstanding or wrong translation. Electricity meter at the LFG plant has only changed once and the documents are shared. There is no other replacement.			
Documentation provided as evidence by Project Participant			
Auditor's assessment comment		Date:	17/05/2024
Electricity meter at the LFG plant has only changed once and the documents provided by the PP. Thus, found acceptable to VVB team.			

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	01
Raised by:	Dr. Atul Takarkhede	Ref. to checklist in above tables:	1.3
Description of the audit finding		Date:	30/01/2024
1. Template alterations observed along with formatting issues in the various sections of the MR submitted by PP. PP requested to revised MR with latest template version applicable. 2. Monitoring report submitted by PP lacking adherence to the guidelines to complete various sections and requirement of the template. PP requested to submit revised MR complying guidelines to complete MR. 3. PP requested to review and revise MR in line with comments raised in the various sections of the MR. Corrective action sought for the same.			
Project Participant's response		Date:	29/03/2024
MR has been updated with corrections.			
Documentation provided as evidence by Project Participant			
Updated MR with version #2			
Auditor's assessment comment		Date:	09/04/2024

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	01
Raised by:	Dr. Atul Takarkhede	Ref. to checklist in above tables:	1.3
1. Template alterations are still observed along with formatting issues in the various sections of the MR submitted by PP. Comment#01 is Open. 2. Monitoring report submitted by PP has updated some sections of the MR. Although some sections of the MR are still need to revised as per the GS MR Template guidelines. Comment #02 is Open. 3. PP has reviewed and revised the MR in line with the comments raised in the various sections of the MR. Although some comments are still raised in the MR which need to resolve. Comment #03 is Open.			
Project Participant's response		Date:	16/04/2024
2) MR has been revised according to all the comments raised.			
Documentation provided as evidence by Project Participant			
MR Version 3			
Auditor's assessment comment		Date:	17/04/2024
1. Template alterations are still observed along with formatting issues in the various sections of the MR submitted by PP. Comment#01 is Open. 2. Monitoring report submitted by PP has updated some sections of the MR. Although some sections of the MR are still need to revised as per the GS MR Template guidelines. Comment #02 is Open.			
Project Participant's response		Date:	14/05/2024
1) Formatting issues have been corrected. 2) MR has been revised by removing the timeline of the project activities and calculation of Emission Factor as per the guidelines.			

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	02
Raised by:	Dr. Atul Takarkhede	Ref. to checklist in above tables:	1.3
Description of the audit finding		Date:	30/01/2024
1. Version number of the registered PDD found not in line with the final PDD available on project webpage. Corrective action sought for the same. 2. Date of project design date certification found missing in the MR submitted. Corrective action sought for the same. 3. Version of the applied methodology found not in line with the registered PDD. Corrective action sought for the same. 4. Monitoring period number found missing in the MR. Corrective action sought for the same.			

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	02
Raised by:	Dr. Atul Takarkhede	Ref. to checklist in above tables:	1.3
5. Discrepancies were observed in the various sections of the MR and same provided as comments in the submitted MR. Corrective action sought for the same.			
Project Participant's response		Date:	29/03/2024
1) Version Number of the registered PD has been corrected 2) Design Date has been added 3) Version of the applied methodology is now in line with the registered PD 4) Monitoring period number has been corrected 5) MR has been updated as per the comments marked in MR			
Documentation provided as evidence by Project Participant			
Updated MR version #2			
Auditor's assessment comment		Date:	09/04/2024
1. PP has updated the version number of the registered PDD which is now found in line with the final PDD available on the project webpage. 2. PP has updated the project design certification date on the cover page of the MR version 02 which is not found in line with the previous GS registered documents. Comment#02 is Open. 3. Version of the applied methodology in some sections of the MR version 02 is still not found in line with the registered PDD. Comment#03 is Open. 4. Monitoring period number is updated now on the cover page of the MR version 02 which is found correct. 5. PP has updated the various sections of the MR which are found correct.			
Project Participant's response		Date:	16/04/2024
2) Screenshot from Sustain-Cert platform has been shared. Project has been design certified on 10/06/2021. As per the GHG Emissions Reductions & Seq. Product Requirements V.2.2 para 10.2.1 start date of the crediting period is the start date of the project operation or two years prior to the date of Project Design certification whichever is later. As in-line with the registered PD crediting start date is defined as 01/07/2019 (which is within 2 years retroactive from the Project Design Certification date. Crediting start and end date on the MR is now in line with the registered PDD. 3) Version of the Applied Methodologies has been updated and now in-line with the registered PDD.			
Documentation provided as evidence by Project Participant			
1) Screenshot from Sustain-cert platform 2) MR Version 3			
Auditor's assessment comment		Date:	17/04/2024
2. PP has submitted the screenshot from Sustain-Cert platform which is in line with the Design certification date 10/06/2021 mentioned on cover page of the MR version 03. Date of the			

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	02
Raised by:	Dr. Atul Takarkhede	Ref. to checklist in above tables:	1.3
design certification is also found in line with the para 10.2.1 of the GHG Emissions Reductions & Seq. Product Requirements V.2.2. 3. Version of the applied methodology in all sections of the MR version 03 is now found in line with the registered PDD. Thus, CAR#02 is closed.			

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	03
Raised by:	Dr. Atul Takarkhede	Ref. to checklist in above tables:	3.5
Description of the audit finding		Date:	30/01/2024
- Monthly monitoring data for the all-monitoring parameters found missing in the ER calculation sheet. Corrective action sought for the same. - Various inconsistencies were observed in the ER sheet. PP requested kindly review and submit revised ER sheet. Corrective action sought for the same. Emission reductions reserved till submission of the revised ER sheet for monthly monitoring data and supporting evidence submissions.			
Project Participant's response		Date:	29/03/2024
- Monthly Monitoring data has been added in the ER sheet - ER sheet has been updated and MR has been made consistent with the ER Sheet.			
Documentation provided as evidence by Project Participant			
Updated ER sheet			
Auditor's assessment comment		Date:	09/04/2024
- Monthly monitoring data for the all-monitoring parameters found now updated in the ER calculation sheet which is found correct. - PP has updated some inconsistencies in the ER sheet which are found correct. Although few comments are raised for the ER sheet which need to resolve. Comment#02 is Open.			
Project Participant's response		Date:	16/04/2024
ER sheet has been updated according to the comments raised.			
Documentation provided as evidence by Project Participant			
ER Sheet Version 2			
Auditor's assessment comment		Date:	17/04/2024
Revised ER sheet verified by VVB team, Emission reduction values found not rounded down for conservative approach. Thus, CAR is open.			
Project Participant's response		Date:	18/04/2024
Emission Reductions have been rounded down			

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	03
Raised by:	Dr. Atul Takarkhede	Ref. to checklist in above tables:	3.5
Documentation provided as evidence by Project Participant			
ER Sheet Version 3			
Auditor's assessment comment		Date:	14/05/2024
PP has revised the ER sheet according to the comment, Thus found acceptable to VVB team.			

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	04
Raised by:	Dr. Atul Takarkhede	Ref. to checklist in above tables:	3.4
Description of the audit finding		Date:	30/01/2024
During site visit it was observed that main meter is changed twice since commissioning of the project activity. However, complete details of the same found missing in the MR along with supporting evidences. Corrective action sought for the same.			
Project Participant's response		Date:	25/03/2024
Electricity meter #1 with serial number 40761750 (Main Meter) has been replaced by a new meter with serial number 50714836 on 06.11.2020 by SEDAS (Distribution Company) as the call button (which allows you to enter the menu of the meter) of the electricity meter was not functioning. MR has been updated with relevant information			
Documentation provided as evidence by Project Participant			
Calibration and Acceptance of Electricity meter#3 Document			
Auditor's assessment comment		Date:	09/04/2024
PP has submitted the meter replacement certificate dated 06/11/2020 issued by the SEDAS (Distribution Company) in which it is found that Meter serial number 40761750 of the main meter has been replaced by the new meter having serial number 50714836. Meter details mentioned in the Section D.2 of the MR are in line with the submitted meter certificate. Hence, accepted to the VVB. Thus, CAR#04 is closed.			

Appendix 2: Calibration Details

MEASUREMENT EQUIPMENT	MODEL	MANUFACTURER	SERIAL NO.	ACCURACY CLASS	CALIBRATION FREQUENCY	DATE OF CALIBRATION	VALIDITY OF CALIBRATION	DELAY IN CALIBRATION
Gas Analyzer 1	SSM-100BIOGAS	MRU	80942	2%-3% OF FULL SCALE	10 years	29/05/2018	28/05/2028	No Delay
Weighbridge	LL2	TUNAYLAR	18468	80.000KG ± 50KG	2 Years	21/12/2020 09/12/2021 14/03/2023	19/12/2022 08/12/2023 13/03/2025	No Delay
Flow meter 1	ORIFICE PLATE - DCMD200016CS	TECNOVA HT	16218-FE-01	2%-3% OF FULL SCALE	10 years	8/05/2018	07/05/2028	No Delay
Flowmeter 2	ORIFICE PLATE - DCMD200016CS	TECNOVA HT	16218-FE-02	2%-3% OF FULL SCALE	10 years	8/05/2018	07/05/2028	No Delay
Pressure meter 1	FKCT22V5AKCYA2YY	FUJI ELECTRIC	AIC5385F	0.065% OF FULL SCALE	10 years	29/05/2018	28/05/2028	No Delay
Pressure meter 2	FKCT22V5AKCYA2YY	FUJI ELECTRIC	AIC616F	0.065% OF FULL SCALE	10 years	29/05/2018	28/05/2028	No Delay
Thermocouple 1	TC 1XK AISI 446 D.21X650	CONVECO	ADK13G*2100 0650	IEC60584 CLASSE 1	10 years	3/10/2018	02/10/2028	No Delay
Thermocouple 2	TC 1XK AISI 446 D.21X650	CONVECO	ADK13G*2130 0450	IEC60584 CLASSE 1	10 years	3/10/2018	02/10/2028	No Delay
ELECTRICITY METER 1 (MAIN)	LANDISGYR ZG405CR4	LANDIS+GYR	40761750	IEC-EN 60687 0.5 class	10 years	11/10/2018	10/10/2028	No Delay
ELECTRICITY METER 2 (SPARE)	LANDISGYR ZG405CR4	LANDIS +GYR	40761749	IEC-EN 60687 0.5 class	10 years	11/10/2018	10/10/2028	No Delay
ELECTRICITY METER 3 ELECTRICTY METER REPLACED WITH SERIAL 40761750	LANDISGYR ZG405CR4	LANDIS+GYR	50714836	IEC-EN 60687 0.5 class	10 years	6/11/2020	05/11/2030	No Delay

Appendix 3: Audit Team CVs

Name	SHORT CV. BACKGROUND INFORMATION
Mr. Atul Takarkhede	Dr. Atul Takarkhede, is Ph.D. (Environmental Sciences) from Institute of Science, RTM Nagpur University, Nagpur, and he has already published different technical papers related to environmental sciences. He counts with more than 18 years of experience in field of Environmental Auditing, Consulting and Accreditation. He is an expert in ISO 9001-14001, CO₂/GHG Reporting, Carbon Foot Print, Energy, Water and Waste Management reporting for organizations' environmental performance. His professional portfolio is mainly related with carrying out EIA, conducting QA/QC of EIA Reports; conducting environmental/water audits; NABET requirements appliance, functional area expert in Water Pollution & Solid & Hazardous Waste management among others. Furthermore, he counts with solid experience on CDM-VCS-GS consultancy and auditing. He has extensive experience of about 10 years with various DOEs, including UNFCCC CDM and other carbon related schemes (e.g. VCS, GS, GCC) in renewable energy, cement industries, biomass projects and waste handling & management projects. Currently he is associated with True Quality Certifications Private Limited (Applus+ Certification's Outsourced Entity) and empanelled with Applus+ Certification to carry out GHG audits in the aforementioned schemes. Dr. Atul Takarkhede is based in Nagpur, India. Dr. Atul Takarkhede participates as part of the Audit Team as the Lead Auditor and Technical Expert.
Dr. Yusuf Serengil	Dr. Yusuf Serengil is a Forest Engineer with a Ph.D. in Watershed Management. He has experience in climate change at both policy and technical accounting (GHG inventory) levels. He has been involved in the UNFCCC process since 2010 as a technical land-use sector advisor. He participated in projects in Kyrgyzstan, Palestine, and USA and took part in review teams reviewing several countries' GHG inventories. He is a LULUCF expert with all the UNFCCC GHG expert certificates, including GHG inventory review expert, Biennial Report expert, Biennial Update Report expert, and National Communications. Dr. Yusuf Serengil is based in Istanbul. Currently he is associated with True Quality Certifications Pvt. Ltd. as Local Expert in Turkey.
Mr. Denny Xue	Mr. Denny Xue, has a bachelor's degree on Thermal Energy Engineering and Master's Degree on Environmental Engineering. He has more than 10 years of experience on CDM project development. Before he joined Applus+ LGAI, he has been worked for Shanghai Chuanji Investment and Management which is a CDM consultancy company as a project manager for CDM project development. He is working with Applus+ since 2011 carrying out Validation and verification for CDM/GS/VCS project under scope 1 and 13 as auditor, lead auditor, technical expert and technical reviewer.