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

Project Title:	Samsun Landfill Gas to Energy Project, Turkey
Monitoring Period:	01/05/2021 to 31/05/2023 (Both days included)
GS project ID:	GS 935
Internal ID:	BELL_GS_VER_26023
Customer:	Samsun Avdan Enerji Üretim ve Tic. A.Ş.
Date:	18/03/2025
Revision:	01.1

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SUMMARY			
Reference No.	**Date** *(first version)*	**Version No.**	**Date** *(last version)*
BELL_GS_VER_26023	06/03/2025	01.1	18/03/2025
GS4GG Verification			
GS4GG Certified Product *(sought)*:	GHG Emission Reductions		
GS4GG SDG Impact Statement *(sought)*:	Impact Certification		
General Information			
Client	Samsun Avdan Enerji Üretim ve Tic. A.Ş.		
Project Title	Samsun Landfill Gas to Energy Project, Turkey		
Project Participants	Samsun Avdan Enerji Üretim ve Tic. A.Ş.		
Project Location	The Project activity is located in Samsun city, Blacksea Region, Republic of Turkey		
Contact Person	Mr. Erol Iren		
Monitoring Period	01/05/2021 to 31/05/2023 (both days included)		
GS4GG Version: GS4GG Principles and Requirements v2.1 GS4GG Activity Requirements: RE Activity Requirements v1.4 Applied Methodologies Versions: ACM0001 "Flaring or use of landfill gas" Version 19.0 & ACM0002 "Grid- connected electricity generation from renewable sources" Version 19.0		GS4GG Sectoral Scope: 2 UNFCCC CDM Sectoral Scopes: 1 & 13 Technical Areas: 1.1 & 13.1	
Initial Monitoring Report Version: 01 Date: 21/05/2024		Final Monitoring Report Version: 04 Date: 17/03/2025	
GS CP Renewal PDD: Version 09, dated 21/01/2020			
Estimated SDG Goals: SDG 7 (Affordable and clean energy): 113,837.26 MWh for current monitoring period SDG 8 (Decent work and economic growth): Between 20 and 25 employees and at least one training per employee for current monitoring period SDG 13 (Climate action): 363,258 tCO_2e for current monitoring period			
Actual SDG Goals achieved during current monitoring period: SDG 7 (Affordable and clean energy): 72,009.05 MWh during the current monitoring period SDG 8 (Decent work and economic growth): 25 employees and 02 training sessions conducted for all 25 employees during current monitoring period SDG 13 (Climate action): 346,560 tCO_2e during the current monitoring period			
Selected Sustainable Development Goals (SDGs): 7, 8 and 13			
Verification Summary			
LGAI Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by Samsun Avdan Enerji Üretim ve Tic. A.Ş. to perform the fifth (2nd verification of 2nd CP) verification of "Samsun Landfill Gas to Energy Project, Turkey" applying the methodologies, ACM0001 "Flaring or use of landfill gas" Version 19.0 and ACM0002: "Grid connected electricity generation from renewable sources" Version 19.0. The management of Samsun Avdan Enerji Üretim ve Tic. A.Ş. is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions. A desk review and a site visit have been conducted to verify the data submitted in the monitoring report. Applus+ Certification confirms the following have been reviewed: • GS PDD Version 09, dated 21/01/2020/01/; • Monitoring report/66/; • The applied monitoring methodologies/02/; • Relevant decisions, clarifications and guidance from the CMP and the CDM Executive Board;			

- The Gold Standard for Global Goals "Principles and Requirements" Version 2.1/12/ and GS4GG guideline.
- All information and references relevant to the project activity's resulting in emission reductions.

Accordingly, total of 05 CARs and 03 CRs were issued all of which are listed and closed out as in the Appendix-1 of this report. There hasn't been any FARs issued during this verification.

The project is a Landfill Gas ("LFG") to Energy Project, developed by "Samsun Avdan Enerji Üretim ve Tic. A.Ş.", located in the south-west of Samsun city centre. The project activity involves the collection and utilization of the LFG along with the electricity generation with the total installed capacity of 8.4 MWe. The total utilized and processed waste amount by the project activity for the current monitoring period is 621,590 tonnes as checked and confirmed through the signed letter/42/ by Samsun Metropolitan Municipality. The electricity produced is fed into the national grid of Turkiye and is transmitted to substation Samsun I TM, 34.5 kV bara as checked through the generation licence/37/ and as already confirmed during the previous verification periods.

The second crediting period start date of the project as verified from the information provided on provided on CP renewal validation report/16/ and registered CP renewal PDD/01/ is 09/02/2018. The second crediting period is from 09/02/2018 to 08/02/2025.

The project activity assists the sustainable growth by providing clean and green electricity to Turkish national grid. The project leads to reduce greenhouse gas emissions because it displaces electricity which would have otherwise generated from various sources dominated by fossil fuel fired power projects connected to Turkish national grid.

Applus+ Certification confirms that the project is implemented in accordance with the registered CP renewal PDD/01/. The monitoring plan complies with the applied methodologies ACM0001 Version 19.0 and ACM0002 Version 19.0/02/, the Gold Standard for Global Goals "Principles and Requirements" Version 2.1/12/ and other relevant GS4GG documents. 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 and the level of assurance of this verification report is reasonable. 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 supplied 72,009.05 MWh to the grid and resulted in 346,560 tCO_2e emission reductions during period 01/05/2021 to 31/05/2023 (Both days included).

VERIFICATION TEAM		
Team Members	**Type of Resource**	**Organization** *(for OEs)*
Lead Auditor: Mr. Anıl Söyler	☐IR ☒EI ☐OE	Applus+ Certification
Technical Expert: Mr. Anıl Söyler	☐IR ☒EI ☐OE	Applus+ Certification
Local (Country) Expert: Mr. Anıl Söyler	☐IR ☒EI ☐OE	Applus+ Certification
Technical Reviewer and Technical Expert: Mr. Denny Xue	☐IR ☒EI ☐OE	Applus+ Certification

ABBREVIATIONS	
ACM	Approved Consolidated Methodology
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM EB	CDM Executive Board
CL/CR	Clarification Request
CM	Combined Margin
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
CP	Crediting Period
DNA	Designated National Authority
DOE	Designated Operational Entity
EF	Emission Factor
EIA	Environmental Impact Assessment
EMRA	Energy Market Regulatory Authority
EPIAS	Energy Market Operation Corporation
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
VER	Verified Emission Reduction
VVB	Validation and Verification Body
VVS	Validation and Verification Standard
YEDAŞ	Yesilirmak Elektrik Dagitim A.Ş.

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1. INTRODUCTION

1.1 Objective

LGAI Technological Center, S.A. (hereafter referred to as Applus+ Certification) has been contracted by Samsun Avdan Enerji Üretim ve Tic. A.Ş. to perform the fifth (2nd verification of 2nd CP) verification of "Samsun Landfill Gas to Energy Project, Turkey" applying the methodologies, ACM0001 Version 19.0 and ACM0002 Version 19.0/02/, Gold Standard for Global Goals "Principles and Requirements" Version 2.1[12/] and other relevant GS4GG guidelines for the period between 01/05/2021 and 31/05/2023 (both days included). 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 CP renewal PDD/01/ and that all physical features (technology, project equipment, monitoring and metering equipment) of the project are in place;
- Ensure that the published MR/66/ and other supporting documents provided are complete, verifiable and in accordance with applicable CDM VVS for project activities version 03 for the project activity,Gold Standard for Global Goals "Principles and Requirements" Version 2.1[12/] and other relevant 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 ACM0001 Version 19.0 and ACM0002 Version 19.0/02/.

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 VVB. The verification is based on the submitted Monitoring Report/66/, the registered CP renewal PDD/01/ as well as CP renewal validation report/16/, the applied monitoring methodology/02/, 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 guidelines 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 3.0/10/, CDM Project Standard for project activities, version 3.0/11/, GS Validation and Verification Standard version 2.0/12/ and Gold Standard for Global Goals (GS4GG) version 2.1/12/ and other relevant GS4GG requirements including GHG Emissions Reductions & Sequestration Product Requirements version 3.0/13/ and Renewable Energy Activity Requirements version

1.4/14/. 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 and the monitoring of sustainable parameters.

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.

The only purpose of the verification and certification is its usage during the issuance process as part of the GS project cycle. Therefore, Applus+ Certification can't be held liable by any party for decisions made or not made based on the verification and certification opinion, which will go beyond that purpose.

1.3 Description of the project activity

The project is a Landfill Gas ("LFG") to Energy Project, developed by "Samsun Avdan Enerji Üretim ve Tic. A.Ş.", located in the south-west of Samsun city centre. The project activity involves the collection and utilization of the LFG along with the electricity generation with an installed capacity 8.4 MWe. The total utilized and processed waste amount by the project activity for the current monitoring period is 621,590 tonnes as checked and confirmed through the signed letter/42/ by Samsun Metropolitan Municipality. The electricity produced is fed into the national grid of Turkiye and is transmitted to substation Samsun I TM, 34.5 kV bara as checked through the generation licence/37/ and as already confirmed during the previous verification periods.

The second crediting period start date of the project as verified from the information provided on provided on CP renewal validation report/16/ and registered CP renewal PDD/01/ is 09/02/2018. The second crediting period is from 09/02/2018 to 08/02/2025.

The project activity assists the sustainable growth by providing clean and green electricity to Turkish national grid and leads to reduce greenhouse gas emissions because it displaces electricity which would have otherwise generated from various sources dominated by fossil fuel fired power projects connected to Turkish national grid.

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 verification report.

Applus+ Certification applied a risk-based assessment of the parameters and data collection and handling processes for each of those parameters, describes the verification approach and the sampling plan.

In the 2nd stage, Applus+ Certification verified the implementation of the monitoring plan and the data presented in the Monitoring Report/66/ for the period in question. This involved interviewing PP representative during the site visit and a desk review of the Monitoring Report/66/. 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 verification team shall be approved by the LGAI Technological Center, S.A. (Applus+ Certification) ensuring that the required skills are covered by the team.

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

- Lead Auditor (LA)
- Auditor in Training (AiT)/Technical Expert in training (TEiT)
- Technical Expert (TE)
- Technical Reviewer (TR)
- Other supporting roles such as Country Expert (CE) or Financial Expert (FE) when needed.
- Any of the above-mentioned roles in training (iT, e.g. AiT for Auditor in Training, TEiT for Technical Expert in Training, etc.).

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

Name	Role	SS Coverage	TA Coverage	Financial aspect	Host country experience
Mr. Anıl Söyler	LA/TE/CE	YES	YES	N/A	YES
Mr. Denny Xue	TR/TE	YES	YES	N/A	N/A

The complete list of CVs is included as Appendix-2 of this report.

2.2 Document review

The basis for the verification activity is the monitoring report version 01, dated 21/05/2024/04/ which was submitted to the verification team on the same day. This monitoring report was revised due to the issued CARs and CLs, version 04 dated 17/03/2025/66/ being the final version. The monitoring report and the monitoring activities were assessed against the registered CP renewal PDD/01/, the applied methodologies ACM0001 Version 19.0 and ACM0002 Version 19.0/02/, the relevant CDM rules and regulations, CDM Validation and Verification Standard for project activities version 3.0/11/, GS Validation and Verification Standard version 2.0/12/, Gold Standard for Global Goals (GS4GG) version 2.1/12/, the CP renewal validation report/16/ and the fourth verification report/19/.

The aim of the assessment in the desk review was to:

- Verify the completeness of the data and the information presented in the MR/66/;
- Check the compliance of the MR/66/ with respect to the monitoring plan depicted in the registered CP renewal PDD/01/ and verify that the applied methodology/02/ 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 were 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.

A list of all the documents that were reviewed can be found in the Section 4 of this verification report.

2.3 On site assessment and follow up interviews

As a part of the verification, the on-site inspection has been performed by the verification team on 05/06/2024 and 06/06/2024 and the details are given in Table 2-1 below:

Table 2-1: On-site visit details

Sr. No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
1.	Yılmaz	Mr. Selim	Plant Manager, Samsun Avdan Enerji Üretim ve Tic. A.Ş.	05/06/2024 & 06/06/2024	General aspects of the project, Changes since validation, Quality management system, Implementation of the monitoring plan, GHG emission	Mr. Anıl Söyler
2.	Özden	Mr. Erol	General Manager, Samsun Avdan Enerji Üretim ve Tic. A.Ş.			

Sr. No.	Interviewee			Date	Subject	Team member
	Last name	First name	Affiliation			
3.	Çokşen	Mr. Güven	Enviromental Engineer, Samsun Avdan Enerji Üretim ve Tic. A.Ş.		reduction calculations, Involved personnel and responsibilities, Training and practice of the operational personnel, Maintenance, Compliance to regulatory requirements, Environmental and social requirements, Project's contribution to sustainable development goals	
4.	Balcı Eriş	Ms. Çağla	Consultant, Rüzgar Danışmanlık			
5.	Genç	Mr. Kamuran	Mukhtar (Village Head), Aşağı Avdan Village		The impact of the project activity on the local stakeholders and effectiveness of grievance mechanism, Project's contribution to sustainable development goals	
6.	Konaklı	Ms. Emine	Villager, Aşağı Avdan Village			
7.	Şener	Mr. Abdullah	Villager, Aşağı Avdan Village			
8.	Öztürk	Mr. Adem	Villager, Aşağı Avdan Village			
9.	Deniz	Mr. Hakan	Villager, Kadamut Village			
10.	Yılmaz	Ms. Dürdane	Villager, Kadamut Village			

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 registered CP renewal PDD/01/ 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 parameters as per the registered CP renewal PDD/01/.
- Check if there are any grievances and feedbacks from the local stakeholders during the monitoring period.

The verbal consent by the interviewed stakeholders has been obtained by the verification team during the on-site visit and there hadn't been any verbal objection to include their name in the verification report.

The local stakeholders stated in the Table 2-1 above were interviewed about the following issues and there hadn't been any complaint by the interviewed local stakeholders during the on-site visit:

- Odour due to the project activity
- Sufficiency of local employment
- Waste management practices implemented by PP
- Impact of the project on flora and fauna
- Impact of the project on soil condition

It was also concluded that the grievance mechanism is in place and this was also confirmed by the interviewed local stakeholders during the on-site verification visit. The document showing the contact details of the relevant person within PP with the signature of Aşağı Avdan Village Mukhtar (Village Head) and dated as 22/05/2024/44/ were also provided to VVB and it could be confirmed that there hasn't been any complaint during the monitoring period by the interviewed local stakeholders in line with the handled interviews.

The logbook is available in Aşağı Avdan Village Mukhtar (Village Head) offices during the monitoring period as confirmed through the interviews with the local stakeholders including Mukhtars during the verification on-site visit. It could also be confirmed by the verification team that it is easier to access the Mukhtar (Village Head) office since Mukhtar is the representative of village, so it is deemed as acceptable and logical to place the grievance logbook/44/ in there.

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 Version 04 dated 17/03/2025[/66/]. Specific cross-checks have been handled in cases that further sources are available. The data collection system meets the requirements of the monitoring plan as per the applied methodologies[/02/]. The calculations have also been reproduced by the verification team and the source data (EPIAS records[/22/]) are presented by PP.

2.5 Reporting of findings

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

Where a non-conformance arises the verification 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 verification 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 and CRs 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.

According to these principles, total of 05 CARs and 03 CRs were issued and closed out all of which are listed in the Appendix-1 of this report. There hasn't been any FARs issued during this verification.

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 VVB'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 verification team, the final approval can only be given by the person who is not a part of the verification 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

There are two FARs from the previous (4th) verification process including its GS review stage as checked and confirmed through the fourth verification final report/19/ and fourth verification GS performance (issuance) review final document/20/ as in below:

a) FAR-1: "Remote audit shall be resumed when Covid-19 situation eases. PD shall refer to the latest version of the COVID-19 interim measures published by GS4GG".

The on-site visit has been handled on 05/06/2024 and 06/06/2024 by the VVB and please also see the Section 2.3 of this report for the further details. Hence, this FAR has been closed out by the verification team.

b) FAR-2: "Considering the difference of realized from estimated, 73% more ER monitored during 1st MP. It was reasoned with account of better collection of gas and utilization in the engines rather than flaring. Besides that, the gas projection from the first order decay model as per the methodology deviating from the actuals is indicated. If similar difference is observed during 2nd MP, project shall apply for design change request as per Design Change Requirements para 3.1.5 (a-i)".

There has been post registration permanent change handled during this verification that the waste dumping process had been initiated as of 2016 for the calculations in the registered ER Calculation Excel Spreadsheet/57/ of the 2nd CP but the same should have been 2011 instead of 2016 considering the start date of the project as 09/02/2011 in line with the registered initial PDD/18/ and registered CP renewal PDD/01/. Accordingly, the calculations in the ER Calculation Excel Spreadsheet/57/ of the 2nd CP have been revised by PP as in the revised ER Calculation Excel Spreadsheet/58/ of the 2nd CP, the estimated annual emission reduction would be 174,230 tCO_2e and corresponding total estimated amount for the monitoring period would be 363,258 tCO_2e and the same has been found to be correct and valid by the verification team. The actual value achieved for the current monitoring period is 346,560 tCO_2e. Therefore, the actual amount of emission reduction for the current monitoring period is 4.60% less than the estimated emission reduction amount as checked and confirmed by the verification team through the review of the revised ER Calculation Excel Spreadsheet/58/ of the 2nd CP and ER Calculation Excel Spreadsheet/67/. Hence, this FAR has been closed out by the verification team.

3.2 Project Implementation in Accordance with the Registered Project Design Document

The project activity was fully implemented according to the description presented in registered CP renewal PDD/01/. The verification team confirms, through the visual inspection during the site visit that all physical features of the proposed project activity including data collecting systems and storage have been implemented in accordance with the registered CP renewal PDD/01/. Electricity meters were also seen during the on-site visit. That means, the project activity is completely operational and the same has been confirmed through on-site visit.

The project was operational as of 09/03/2012 as confirmed through the provided provisional acceptance protocols/39/ and during the previous verification periods. The implementation of the 1st phase (2.4 MWe) was on 09/03/2012, the 2nd phase (1.2 MWe) was on 27/09/2013, the 3rd phase (2.4 MWe) was on 27/09/2014 and the 4th phase (2.4 MWe) was on 22/05/2018.

The relevant data set (EPIAS records/22/ from 01/05/2021 – 31/05/2023) has been checked by the verification team and each day of production is included in these readings. These readings are exact and are the basis for billing. They are recorded and saved automatically by the relevant government authority and there is no base for any option of material information. Similarly, there haven't been any observed omission, misstatement, or material errors among the reviewed documents as checked and confirmed by the verification team and the applied materiality threshold is 1% in line with 346,560 tCO_2e emission reductions during the monitoring period.

Level of materiality is ensured by application of "Guideline on the Application of Materiality in Verifications"/11/ version 02 and GS Validation and Verification Standard version 2.0/12/. To guarantee this level of assurance all data that is used in the GHG emission reduction calculations have been reviewed without any sampling.

There has been post registration permanent change handled during this verification that the waste dumping process had been initiated as of 2016 for the calculations in the registered ER Calculation Excel Spreadsheet/57/ of the 2nd CP but the same should have been 2011 instead of 2016 considering the start date of the project as 09/02/2011 in line with the registered initial PDD/18/ and registered CP renewal PDD/01/. Accordingly, the calculations in the ER Calculation Excel Spreadsheet/57/ of the 2nd CP have been revised by PP as in the revised ER Calculation Excel Spreadsheet/58/ of the 2nd CP, the estimated annual emission reduction would be 174,230 tCO_2e and corresponding total estimated amount for the monitoring period would be 363,258 tCO_2e and the same has been found to be correct and valid by the verification team. The actual value achieved for the current monitoring period is 346,560 tCO_2e. Therefore, the actual amount of emission reduction for the current monitoring period is 4.60% less than the estimated emission reduction amount as checked and confirmed by the verification team through the review of the revised ER Calculation Excel Spreadsheet/58/ of the 2nd CP and ER Calculation Excel Spreadsheet/67/.

There have also been post design certification corrections during this verification that up to 10 years calibration validity period for the flow meter-1, flow meter-2 and flow meter-3 as included in the registered CP renewal PDD/01/ isn't applicable at the time of this verification and the same has been checked and confirmed as a post design certification correction by the verification team as checked and confirmed through the signed declaration/60/ by PP and signed letter/63/ by Ariş Enerji and handled interviews during the on-site visit. Similarly, the annual calibration period of the gas analyser as included in the registered CP renewal PDD/01/ isn't applicable at the time of this verification and the same has been checked and confirmed as a post design certification correction by the verification team through the review of the last calibration certificate of the gas analyser system/36/ and handled interviews during the on-site visit. Finally, the serial numbers of all seven gas engines have been corrected by the PP as a as a post design certification correction with the actual correct serial numbers comparing with the

registered CP renewal PDD/01/ as checked and confirmed by the verification team through the screenshots of the gas engines control system/51/, on-site visit and handled interviews during the on-site visit.
There hasn't been any significant breakdown during the monitoring period except for the scheduled maintenance activities as checked through the EPIAS records/22/, YEDAŞ Meter Reading Forms/21/ and during the on-site visit.

The project's geo-coordinates were also checked by the verification team through the review of generation licence/37/ and during the on-site visit.

Furthermore, double counting issue has also been assessed and the verification team has also checked the I-REC registry (https://evident.app/IREC/device-register/table)/47/ and this project isn't available within I-REC Registry database as of this verification report date. Similarly, VCS registry/47/ (https://registry.verra.org/app/search/VCS/All%20Projects), Bio Carbon registry/47/ (https://biocarbonregistry.com/en/projects/), ICR registry/47/ (https://www.carbonregistry.com/explore/projects), Social Carbon registry/47/ (https://wilder.earth/social_carbon), UCR registry/47/ (https://www.ucarbonregistry.io/), Cercarbono registry/47/ (https://www.ecoregistry.io/projects-list/cercarbono-co2) and GCC registry/47/ (https://projects.globalcarboncouncil.com/pages/submitted_projects) were checked and this project isn't available within any of these registries, either. Given that CDM projects are not applicable in Turkey and the project does not appear on domestic REC scheme (YEK-G), I-REC, VCS, BioCarbon, ICR, Social Carbon, UCR, Cercarbono and GCC registries, it could be confirmed that no RECs and other VER carbon credits are being issued for the project at the time of this verification. Besides that, the signed declaration by PP/46/ confirming about non-existence of double counting and dated as 01/09/2024 have also been provided and the same has also been confirmed by PP that the claimed VERs that are not included within and counted under a regulated domestic climate mitigation target or Nationally Determined Contribution (NDC).

3.3 Compliance of the Monitoring Plan with the Monitoring Methodology

The monitoring plan applied by the project activity is in accordance with the approved methodologies, ACM0001 Version 19.0 and ACM0002 Version 19.0/02/.

During the verification, all relevant monitoring parameters included in the registered CP renewal PDD/01/ have been verified with regard to the appropriateness of the applied measurement/determination method, the correctness of the values applied for ER calculation, the accuracy, and applied QA/QC measures. The relevant monitoring requirements of the applied methodologies/02/ have also been met.

Therefore, it could be confirmed by the verification team that the monitoring plan mentioned in the monitoring report is in line with the applied methodologies, ACM0001 Version 19.0 and ACM0002 Version 19.0/02/.

3.4 Completeness of Monitoring

The monitoring has been carried out in accordance with the monitoring plan contained in the registered CP renewal PDD/01/. During the course of verification, all relevant monitoring parameters have been verified with regard to the appropriateness of the applied measurement / determination method and applied QA/QC procedures. It is confirmed that the monitoring parameters have been measured / determined without material misstatements.

The actual monitoring including the monitoring techniques has been reviewed by the verification team during the verification site visit and through the document review and the same has been compared against the requirements of the monitoring plan in the registered documents and has been found in line with the monitoring plan.

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

$EF_{grid,OM,y}$, $EF_{grid,BM,y}$ and $EF_{grid,CM,y}/EF_{CO2,grid,y}$ are the ex-ante fixed parameters in line with the registered CP renewal PDD/01/ as in below:

$EF_{grid,OM,y}$ (Relevant SDG: SDG-13) = 0.6604 tCO_2e/MWh
$EF_{grid,BM,y}$ (Relevant SDG: SDG-13) = 0.3070 tCO_2e/MWh
$EF_{grid,CM,y}$ (Relevant SDG: SDG-13) = 0.3953 tCO_2e/MWh

The following data/parameters are also fixed ex-ante in line with the applied methodologies/02/, associated tools and the registered CP renewal PDD/01/ as in Table 3-1 below:

Table 3-1: Fixed ex-ante data/parameters

Data/Parameter	Unit	Value applied
GWP_{CH4} (Global Warming Potential of methane valid for the commitment period)	tCO_2e / tCH_4	28
Φ (Default model correction factor to account for model uncertainties)	-	0.75 (For baseline emissions)
OX (Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)	-	0.1
F (Fraction of methane in the SWDS gas (volume	-	0.5

Data/Parameter	Unit	Value applied
fraction)		
$DOC_{f,default}$ (Default value for the fraction of degradable organic carbon (DOC) in MSW that can decompose in the SWDS)	Weight fraction	0.5
$MCF_{default}$	-	1
DOCj (Fraction of degradable organic carbon in the waste type j (weight fraction)	-	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%
k_j	1/yr	Temperate (MAT≤20°C) and wet MAP/PET >1) Wood, wood products and straw: 0.03 Pulp, paper and cardboard (other than sludge: 0.06 Food, food waste, sewage sludge, beverages and tobacco: 0.185 Textiles:0.06, Other (non-food) organic putrescible garden and park waste: 0.10
ρ_{CH4} (D_{CH4} in the registered in the registered CP renewal PDD[/01/]) (Density of methane at normal conditions)	tCH_4 / m^3CH_4	0.0007168
η_{PJ} (Efficiency of the LFG capture system	Dimensionless	70%

Data/Parameter	Unit	Value applied
that has been installed in the project activity)		
Ru (Universal ideal gases constant)	$Pa.m^3$ / kmol.K	8,314
MM_{CH4} (Molecular mass of CH_4)	kg/kmol	16.04
P_n (Total pressure at normal conditions)	Pa	101,325
T_n (Temperature at normal conditions)	K	273.15
$SPEC_{flare}$ (Manufacturer's flare operating specifications for temperature, flow rate and maintenance schedule)	Temperature - °C Flow rate - Nm3/h Maintenance schedule - number of days	900-1200 °C 500 Nm^3/h 180 days

The data/parameters including EG_{gross}, $FC_{i,y}$, $NCV_{i,y}$, $EFCO_{2,i,y}$ and $\eta_{m,y}$ used for the calculation of data/parameters of $EF_{grid,OM,y}$, $EF_{grid,BM,y}$ and $EF_{grid,CM,y}/EF_{CO2,grid,}$in the registered CP renewal PDD/01/ haven't been included in Table 3-1 above.

b. Data and parameters monitored

The sustainable development indicators and safeguarding principles indicated in the registered CP renewal PDD/01/ for the fifth (2nd verification of 2nd CP) verification are as follows:

- Air quality
- Quality of employment
- Quantitative employment
- Soil condition
- Hazardous waste processing
- Leachate management

As there are no missing parameters, it could be concluded that the monitoring is complete. The detailed assessment of SDG related monitoring parameters has been given in the Section 3.5 of the report.

The assessment of other monitored data/parameters other than the SDG related ones have been included as in Table 3-2 below:

Table 3-2: Other monitored data/parameters

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
f_y (Fraction of methane captured at the SWDS and flared, combusted or used in another manner that prevents the emissions of methane to the atmosphere in year y)	-	0	Relevant municipal entities including Samsun Metropolitan Municipality	N/A	The value has checked and confirmed by the verification team through the applied methodology , ACM0001 version 19.0/02/ and the same has been found to be valid and correct.
Wx (Amount of municipal solid waste in the year x)	t	621,590 t/year (Total value for the monitoring period)	Based on historical information as in Application A of Tool 04: CDM methodological tool "Emissions from solid waste disposal sites" version 08.0/55/ and signed letter/42/ by Samsun Metropolitan Municipality	N/A	The total municipal solid waste amount utilized and processed is 621,590 t as checked and confirmed through the review of signed letter/42/ by Samsun Metropolitan Municipality and Section 6.3.2.1 of Tool 04: CDM methodologic al tool

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
					"Emissions from solid waste disposal sites" version 08.0/55/ and handled interviews during the on-site visit considering that the Application A is employed.
$EG_{PJ,,y}$ (Net amount of electricity supplied to the grid in year y)	MWh	72,009.05	EPIAS records/22/, YEDAŞYEDAS Meter Reading Forms/21/	The electricity meters will be calibrated every 10 years as checked and confirmed through the relevant legal regulation /52/ (https://www.resmigazete.gov.tr/eskiler/2016/06/20160629-22.htm) and (https://www.resmigazete.gov.tr/eskiler/2023/11/20231123-2-1.pdf). The main meter's initial calibration date is 07/09/2016/26/ and that of back-up meter is 02/12/2021/26/ and there	The generation values have been checked and confirmed through the EPIAS records/22/, YEDAŞ (The authorized electricity distribution company in the project's region) Meter Reading Forms/21/ and during the on-site visit and the generated electricity has been measured continuously and aggregated

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
				haven't been any other meter tests after 2016 and 2021 due to ten-year calibration period of the meters.	at least monthly during the monitoring period as checked and confirmed through the review of ACM0002 version 19.0/02/ and "Tool 05: Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" version 03.0/55/ and registered CP renewal PDD/01/. The main data source has been included as Meter reading protocols (OSOS records) in the registered CP renewal

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
					PDD/01/ but the main data source is EPIAS records whereas YEDAŞ meter reading protocols are the cross-check source as confirmed through the sectoral and local knowledge of the verification team. This parameter has also been monitored as part of the SDG-7 monitoring.
W_{CH4} (Methane fraction in the landfill gas)	%	52.51	Gas analyser (at the main booster pipe)	The gas analyser has calibrated in line with the recommendations by the manufacturer and the same has been deemed as acceptable through the review of registered CP renewal PDD/01/ and technical	CH_4 fraction has been measured continuously during the monitoring period as checked and confirmed through the review of registered CP renewal PDD/01/, ER Calculation Excel

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
				and sectoral knowledge of the verification team. The last calibration date of the gas analyser is 21/07/2019 through the review of the last calibration certificate of the gas analyser system/36/ and there hasn't been any specific calibration period (annual calibration period as included in the registered CP renewal PDD/01/ isn't applicable at the time of this verification and the same has been checked and confirmed as a post design certification correction by the verification team) due to the auto calibration function of the gas analyser as checked and	Spreadsheet/67/ (2021, 2022 and 2023 Raw Data Excel Spreadsheets) and handled interviews during the on-site visit.

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
				confirmed by the verification team through the review of the calibration certificate of the gas analyser system/36/ and handled interviews during the on-site visit. The details of the currently available gas analyser are as follows as checked and confirmed through the on-site visit: Brand/model: MRU SWG100 Bio compact Serial number: 80695	
T_t (Temperature of the gaseous stream in time interval t)	K	01/05/2021 – 31/12/2021 : 32.62 °C 2022: 30.16 °C 01/012023 – 31/05/2023 : 27.94 °C	Temperature measurement device of MRU gas analyser system (at the main booster pipe)	The temperature measurement device of MRU gas analyser system (integrated circuit member of MRU gas analyser system) has been calibrated in line with the recommendations by the manufacturer	The temperature of the gas has been measured continuously during the monitoring period as checked and confirmed through the registered CP renewal PDD/01/, ER

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
				and the same has been deemed as acceptable through the review of "Tool 08: Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 3.0/55/ and through the technical and sectoral knowledge of the verification team. The last calibration date of temperature measurement device of MRU gas analyser is 21/07/2019/36/ and there hasn't been any specific calibration period by the manufacturer as checked and confirmed through the review of the registered CP renewal PDD/01/, signed confirmation declaration by the supplier firm	Calculation Excel Spreadsheet/67/ (2021, 2022 and 2023 Raw Data Excel Spreadsheets) "Tool 08: Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 3.0/55/ and handled interviews during the on-site visit.

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
				about the non-necessity of the calibration of the sensors of the temperature measurement device of MRU gas analyser/35/ and handled interviews during the on-site visit. The details of the currently available temperature measurement device of MRU gas analyser are as follows as checked and confirmed through the review of the last calibration certificate of the temperature measurement device of MRU gas analyser system (integrated circuit member of MRU gas analyser system/36/, signed confirmation declaration by the supplier firm about the non-necessity of the	

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
				calibration of the sensors of the temperature measurement device of MRU gas analyser/35/ and through the on-site visit: Brand/model: MRU SWG100 Type: TKT-35 Thermistor type Serial number: 80695	
$F_{CH4,RG,m}$ (Mass flow of methane in the residual gas stream in the minute m)	kg	0	Measurement through the flow meter-2 (Static orifice + differential pressure type flow meter)	The flow meter has been calibrated in case of any drift/deviation in line with the recommendations by the manufacturer and the same has been deemed as acceptable through the review of registered CP renewal PDD/01/ and technical and sectoral knowledge of the verification team. The calibration dates of the	The amount of landfill gas flared has been measured continuously during the monitoring period as checked and confirmed through the review of the registered CP renewal PDD/01/, ER Calculation Excel Spreadsheet/67/ (2021, 2022 and 2023 Raw Data Excel Spreadsheets

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
				flow meter-2 are 21/07/2019/64/ & 24/04/2022/52/ & 15/04/2024/63/ and there hasn't been any specific calibration validity period of the flow meter-2 (up to 10 years as included in the registered CP renewal PDD/01/ isn't applicable at the time of this verification and the same has been checked and confirmed as a post design certification correction by the verification team)as checked and confirmed through the signed declaration/60/ by PP and signed letter/63/ by Arış Enerji and handled interviews during the on-site visit. The details of the currently available flowmeter-2 are	) and on-site visit observations.

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
				as follows as checked and confirmed through the review of the last calibration certificate of the pressure sensors of the flowmeter/52/ and through the on-site visit: Manufacturer: Technova HT Model: (Static orifice + Differential pressure type flow meter) Serial Number: AAL3829F	
$\eta_{flare,m}$ (Flare efficiency in minute m)	%	The flare efficiency for the minute m ($\eta_{flare,m}$) is 90% when the following two conditions are met to demonstrate that the flare is operating: • The temperature of the flare	Registered CP renewal PDD/01/	N/A	The flare efficiency has been determined in line with the Option A of enclosed flares as checked and confirmed through the review of the registered CP renewal PDD/01/.

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
		($T_{EG.m}$) and the flow rate of the residual gas to the flare ($F_{RG,m}$) is within the manufacturer's operating specification for the flare ($SPEC_{flare}$) in the minute m; and • The flame is detected in the minute m (Flame m). Otherwise $\eta_{flare,m}$ is 0%			
$PE_{FC,j,y}$ (Project emissions from fossil fuel combustion in process j during the	tCO_2e	0	Calculated by PP	N/A	The project emissions from fossil fuel combustion

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
year y)					as checked and confirmed through the review of the registered CP renewal PDD/01/, ER Calculation Excel Spreadsheet/67/ (2021, 2022 and 2023 Raw Data Excel Spreadsheets and 2021-23 methane destruction Excel spreadsheet) and since there hasn't been any fossil fuel consumption during the monitoring period as checked and confirmed by through the review of the signed declaration by PP/43/ confirming about no usage of any fossil fuel during the monitoring

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
					period and handled interviews during the on-site visit.
$PE_{flare,y}$ (Project emissions from flaring of the residual gas in year y)	tCO_2e	0	Calculated by PP	N/A	The project emissions from flaring are calculated as the sum of emissions for each minute m in year y, based on the methane mass flow in the residual gas ($F_{CH4,RG,m}$) and the flare efficiency ($\eta_{flare,m}$) as checked and confirmed through the review of registered CP renewal PDD/01/, ER Calculation Excel Spreadsheet/67/ (2021-23 methane destruction Excel spreadsheet) and since the flare hasn't been used by the PP during

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
					the monitoring period as checked and confirmed by through the review of the signed declaration by PP/48/ confirming about no usage of flare during the monitoring period and handled interviews during the on-site visit.
$Flame_m$ (Flame detection of flare in the minute m)	Flame on or Flame off	-	Provided by PP	There hasn't been any defined calibration frequency as checked and confirmed through the signed declaration/60/ by PP and signed letter/63/ by Ariş Enerji and handled interviews during the on-site visit and the details of the currently available UV flame detector	The frequency of the monitoring is once per minute and the detection of flame recorded as a minute that the flame was on, otherwise recorded as a minute that the flame was off through the UV flame detector as checked and

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
				are as follows as checked and confirmed through the on-site visit: Brand/model: Eris-3 Serial Number: 2111-0306 Manufacturer: Eris	confirmed through the review of the registered CP renewal PDD/01/ and handled interviews during the on-site visit.
Operational hours of the power plant	h	82,218	Signed declaration by PP	The operational hours of the power plant have been determined through the programmable logic controller or programmable controller (PLC) data of the gas engines' automation system during the monitoring period and there hasn't been any defined calibration frequency in line with the recommendations by the manufacturer of the gas engines' control system and since it is a closed automation	The operational hours of the power plant has been calculated based on the engines' supplied amount of power (kW) and the same has been recorded continuously by the automation system review of registered CP renewal PDD/01/, signed declaration/49/ by the PP confirming about the operational hours of the

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
				system, the same has been deemed as acceptable by the verification team. The details of the gas engines' control system are as follows as checked and confirmed through the screenshots of the gas engines control system/51/, on-site visit and handled interviews during the on-site visit and the serial numbers of all seven gas engines have been corrected by the PP as a as a post design certification correction with the actual correct serial numbers comparing with the registered CP renewal PDD/01/ as checked and confirmed by the verification team:	power plant during the monitoring period, sample invoices/50/ about the gas engines' maintenance work including the operational hours indexes and handled interviews during the on-site visit.

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
				Brand/model: MWM TEM System Log Easygen-3200-5 Serial numbers: GENSET-1 2209051 GENSET-2 2209398 GENSET-3 2210872 GENSET-4 2211580 GENSET-5 2211579 GENSET-6 2212959 GENSET-7 2213990	
$T_{EG,m}$ (Temperature in the exhaust gas of the enclosed flare in the minute m)	ºC	-	Provided by PP	The thermocouple has been replaced and calibrated in case of any drift/deviation in line with the recommendations by the manufacturer and due to the high temperature working conditions and the same has been deemed as acceptable and valid through the review of	The frequency of the monitoring is continuously (once per minute) and has been measured through the thermocouple as checked and confirmed through the review of the registered CP renewal PDD/01/.

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
				the registered CP renewal PDD/01/ and technical and sectoral knowledge of the verification team. The control and calibration dates of the thermocouple are 21/07/2019/64/ and 15/04/2024/54/ and there hasn't been any specific calibration validity period as checked and confirmed through the review of the last replacement and calibration certificate of the thermocouple/54/ and the signed letter/63/ by Ariş Enerji signed letter by handled interviews during the on-site visit. The details of the currently available thermocouple are as follows as	

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
				checked and confirmed through the review of the last replacement ad calibration certificate of the thermocouple/54/ and through the on-site visit: Manufacturer: Ordel Model: OT-03-K12L15-20HTT Serial Number: 2304-13785	
$LFG_{electricity,y}$ (Total amount of landfill gas and biogas combusted in the generator unit in year y)	Nm^3	34,258,676 m^3 (Total amount of landfill gas and biogas combusted during the monitoring period) 2021 (01.05.2021-31.12.2021): 13,162,775 m^3 2022 (01.01.2022-31.12.2022): 16,366,162 m^3	Measurement through the flow meters-1, 2 and 3	The flow meters have been calibrated in case of any drift/deviation in line with the recommendations by the manufacturer and the same has been deemed as acceptable through the review of review of the registered CP renewal PDD/01/ and technical and sectoral knowledge of the verification team. The details of	The amount of landfill gas flared has been measured continuously during the monitoring period as checked and confirmed through the review of the registered CP renewal PDD/01/, on-site visit observations and on-site visit observations.

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
		2023 (01.01.2023-31.05.2023): 4,729,738 m^3		the currently available flowmeters have been included under the $F_{CH4,RG,m}$, $LFG_{total,y}$ and $LFG_{biogasl,y}$ parameters.	
$LFG_{biogas,y}$ or V_{biogas} (Total amount of biogas combusted in the generator unit in year y)	Nm^3	380,304 m^3 (Total amount of biogas combusted during the monitoring period)	Measurement through the flow meter-3	The flow meter has been calibrated in case of any drift/deviation in line with the recommendations by the manufacturer and the same has been deemed as acceptable through the review of registered CP renewal PDD/01/ and technical and sectoral knowledge of the verification team. The biogas part is not within the context of this project as checked through the of the Section B.7.1 of the registered CP renewal PDD/01/, on-site	The amount of biogas flared has been measured continuously but the same is not within the context of this project as checked through the of the Section B.7.1 of the registered CP renewal PDD/01/, on-site visit observations and handled interviews during the on-site visit.

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
				visit observations and handled interviews during the on-site visit. The calibration dates of the flow meter-3 are 02/11/2018 & 11/06/2019as checked and confirmed through the photographic evidence/59/of flow meter-3, and the signed letter/63/ by Aris Enerji A.Ş. and there hasn't been any specific calibration validity period as checked and confirmed through the review of the photographic evidence of flow meter-3/59/, signed declaration/60/ by PP and signed letter/63/ by Ariş Enerji both confirming that there hasn't been any specific calibration	

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
				validity period of the flow meter-3 (up to 10 years as included in the registered CP renewal PDD/01/ isn't applicable at the time of this verification and the same has been checked and confirmed as a as a post design certification correction by the verification team) and handled interviews during the on-site visit. The details of the flow meter-3 available during the monitoring period are as follows as checked and confirmed through the review of the signed letter/63/ by Ariş Enerji: Manufacturer: CS Instruments Model: VA 550 CS Ex (Atex thermal mass flow	

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
				meter) Serial Number: 50151515 The currently available flowmeter-3 placed on 15/04/2024 are as follows as checked and confirmed through the review of the photographic evidence of flow meter-3[/59/], signed letter[/63/] by Ariş Enerji and through the on-site visit: Manufacturer: CS Instruments Model: VA 550 CS Ex (Atex thermal mass flow meter) Serial Number: 44182175	
$LFG_{flare,y}$ (Total amount of landfill gas flared in year y)	Nm^3	0	Measurement through the flow meter-2 (Static orifice + differential pressure type flow meter)	The flow meter has been calibrated in case of any drift/deviation in line with the recommendations by the manufacturer and the same has been	The amount of landfill gas flared has been measured continuously during the monitoring period as checked and confirmed

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
				deemed as acceptable through the review of registered CP renewal PDD/01/ and technical and sectoral knowledge of the verification team. The calibration dates of the flow meter-2 are 21/07/2019/64/ & 24/04/2022/52/ & 15/04/2024/63/ and there hasn't been any specific calibration validity period of the flow meter-2 (up to 10 years as included in the registered CP renewal PDD/01/ isn't applicable at the time of this verification and the same has been checked and confirmed as a post design certification correction by the verification team) as checked and confirmed through the	through the review of the signed declaration by PP/48/ confirming about no usage of flare during the monitoring period, on-site visit observations and handled interviews during the on-site visit.

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
				signed declaration[60] by PP and signed letter[63] by Arış Enerji and handled interviews during the on-site visit. The details of the currently available flowmeter-2 are as follows as checked and confirmed through the review of the last calibration certificate of the pressure sensors of the flowmeter[52] and through the on-site visit: Manufacturer: Technova HT Model: (Static orifice + Differential pressure type flow meter Serial Number: AAL3829F	
$LFG_{total,y}$ (Total amount of landfill gas and biogas captured in year y)	Nm^3	33,878,372	Measurement through the flow meter-1 (Static orifice + differential	The flow meter has been calibrated in case of any drift/deviation in	The amount of landfill gas flared has been measured

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
			pressure type flow meter)	line with the recommendations by the manufacturer and the same has been deemed as acceptable through the review of registered CP renewal PDD/01/ and technical and sectoral knowledge of the verification team. The calibration dates of the flow meter-1 are 21/07/2019/64/ & 24/04/2022/52/ & 15/04/2024/63//52/ and there hasn't been any specific calibration validity period of the flow meter-1 (up to 10 years as included in the registered CP renewal PDD/01/ isn't applicable at the time of this verification and the same has been checked and confirmed as a post design certification	continuously during the monitoring period as checked and confirmed through the review of the registered CP renewal PDD/01/ and on-site visit observations and handled interviews during the on-site visit.

Data/Parameter	Unit	Value applied	Source of data	Calibration requirements	Assessment by the verification team
				correction by the verification team) as checked and confirmed through the signed declaration[/60/] by PP and signed letter[/63/] by Ariş Enerji and handled interviews during the on-site visit. The details of the currently available flowmeter-1 are as follows as checked and confirmed through the review of the last calibration certificate of the pressure sensors of the flowmeter[/52/] and through the on-site visit: Manufacturer: Technova HT Model: (Static orifice + Differential pressure type flow meter Serial Number: AAL3824F	

c. Implementation of sampling plan

No sampling approach is used by the PP and all data that is used in the GHG emission reduction calculations have been reviewed by the verification team without any sampling.

d. Compliance with the calibration frequency requirements for measuring instruments

The net electricity is measured continuously by one main electricity meter at the grid interface and recorded monthly. There is also one back-up electricity meter. The calibrated meters were installed as per the relevant regulations. The initial calibration of the electricity meters was done on 21/12/2011 as confirmed during the previous verification periods. Although the calibration of the meters is valid for 10 years in line with the relevant legal regulation[1], nevertheless, in case of irregular difference between main and cross-check backup meters, YEDAŞ responsible are informed for the intervention. That means, YEDAŞ (the authorized distribution company in Samsun city) is responsible for the calibration and maintenance of the devices. The meter tests for the currently available meters were performed on 07/09/2016 and 02/12/2021, respectively. All these meters are bi-directional (meter the energy in two directions – generation and consumption).

The currently available meters are as follows at the time of this verification as in Table 3-3 below as checked and confirmed through the provided meter photos/27/, meter test reports/26/ and during the on-site visit. All documents regarding meter quality and test have been presented for the fifth (2nd verification of 2nd CP) verification period.

Table 3-3: Monitoring equipment details

Equipment type	Equipment model	Serial number	Accuracy class	Calibration Validity	Calibration Dates
Main meter	Makel C510.AMT. 5851	65001340	0.5s	10 years[2]	07/09/2016
Back-up meter	Elster A1500	00436730	0.5s	10 years[2]	21/12/2011[3] & 02/12/2021
Gas analyser (at the main booster pipe)	MRU SWG100 Bio compact	080695	2%	N/A	21/07/2019
Flow meter-1	Static orifice +differential	AAL3824F	2%	N/A[4] (Calibrated in case of any	21/07/2019 & 24/04/2022 &

[1] https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5
[2] https://www.mevzuat.gov.tr/mevzuat?MevzuatNo=6381&MevzuatTur=7&MevzuatTertip=5
[3] The initial meter calibration of the back-up meter is 21/12/2011 in line with the checked meter test report/26/.
[4] Up to 10 years part as included in the registered CP renewal PDD/01/ isn't applicable at the time of this verification and the same has been checked and confirmed as a correction by the verification team as detailed in the Table 3-2 of the report.

Equipment type	Equipment model	Serial number	Accuracy class	Calibration Validity	Calibration Dates
	pressure type flow meter Technova HT			drift/deviation in line with the recommend by the manufacturer)	15/04/2024
Flow meter-2	Static orifice + differential pressure type flow meter Technova HT	AAL3829F	2%	N/A[4] (Calibrated in case of any drift/deviation in line with the recommend by the manufacturer)	21/07/2019 & 24/04/2022 & 15/04/2024
Flow meter-3	CS Instruments VA 550 CS Ex (Atex thermal mass flow meter)	50151515[5]	1.5%	N/A[4] (Calibrated in case of any drift/deviation in line with the recommendation by the manufacturer)	02/11/2018 & 11/06/2019 15/04/2024[5]
UV flame detector	Eris-3	2111-0306	100%	N/A (As the equipment has a self-checking function)	21/07/2019 & 15/04/2024
Programmable logic controller or programmable controller (PLC) data of the gas engines' automation system	MWM TEM System Log Easygen-3200-5	GENSET-1[6] 2209051 GENSET-2 2209398 GENSET-3 2210872 GENSET-4 2211580 GENSET-5	100%	N/A (It is a closed automation system)	N/A

[5] The flow meter-3 has been replaced on 15/04/2024 and the serial number of the current flow meter-3 is 44182175.
[6] The serial numbers of all seven gas engines have been corrected by the PP as a post design certification correction with the actual correct serial numbers comparing with the registered CP renewal PDD/01/ as detailed in the Table 3-2 of the report.

Equipment type	Equipment model	Serial number	Accuracy class	Calibration Validity	Calibration Dates
		2211579 GENSET-6 2212959 GENSET-7 2213990			

The electricity meters have been controlled and maintained by the grid owner. The quantity of net electricity delivered to the grid has been calculated with the EPIAS (the financial settlement centre of YEDAŞ) records provided to the PP by YEDAŞ. All readings and billings are done via EPIAS records/22/.

There are always internal reviews of the metered data which is checked by different parties. SCADA system is available from which daily reports are taken. The data collected daily is saved in plant manager computer and backed up. Sample logbooks were checked and there were no differences in data.

The calibration requirements of the other monitoring equipment have also been included and assessed in detailed manner in the Table 3-2 of Data and parameters monitored part of the Section 3.4 of this report.

All data collected as part of monitoring will be archived electronically by the PP and be kept at least for 2 years after the end of the last crediting period.

Therefore, it could be confirmed by the verification team that the calibration process is appropriate and correct as traceability is ensured.

3.5 SDG Outcomes Monitoring

The sustainability measures are in line with the registered CP renewal PDD/01/. For verification of sustainability parameters in the current monitoring period, document review, on-site visit observations and interviews with local stakeholders were employed.

The compliance check of the parameters indicated in the registered CP renewal PDD/01/ have been carried out, as follows in Table 3-4 below:

Table 3-4: Sustainability monitoring parameters

No.	Indicator	Chosen Parameter	Way of Monitoring (When)	Compliance Check
1	Air quality (SDG-13 Target: 13.3 Indicator: 13.3.1)	Emission Reductions in year y (t CO_2e)	Measured and calculated (Once for each monitoring period)	The baseline, project and leakage emissions have been calculated in line with the registered CP renewal PDD/01/.

No.	Indicator	Chosen Parameter	Way of Monitoring (When)	Compliance Check
				As a result, 346,560 tCO_2e emission reduction has been achieved during this monitoring period in line with the provided and checked calculations. Please also see Section 3.6 for further details.
2	Quantity of electricity generated and supplied by the project power plant to the grid in year y (SDG 7 Target: 7.2 Indicator: 7.2.1)	$EG_{PJ,y}$	Through the YEDAŞ (grid company) and electricity meters (Continuous measurement and at least monthly recording)	The net electricity generation has been checked from the EPIAS records/22/, YEDAŞ Meter Reading Forms/21/ and the provided values in the ER calculations found to be correct. Please also see Section 3.6 for further details.
3	Quality of employment (SDG-8 Target: 8.8 Indicator: 8.8.2	Number of people trained on health and safety issues during per monitoring period	Through the training records/certificates for all employees (Once for each monitoring period)	As per the training records and certificates/28/ checked, the trainings were on basic HSE, occupational diseases, first aid, hygiene, lockout tagout and manual lifting dated 23-24/12/2021 (23 employees) and 08/12/2022 (2 employees) and 02 training sessions had been conducted and all 25 employees had been given the trainings. The safety equipment was also in place in line with the on-site visit observations. The social security payment records/29/ covering 30 days/month have been provided. Besides that, there hadn't been any complaint by the project site employees regarding

No.	Indicator	Chosen Parameter	Way of Monitoring (When)	Compliance Check
				working hours and fair payment during the on-site visit.
4	Quantitative employment (SDG 8 Target: 8.5 Indicator: 8.5.2)	Number of employment generation	Social security system (SGK) records (Once for each monitoring period)	As per the social security records[29] checked and handled interviews during the verification site visit, 25 employees have been employed including the subcontractor security staff and 16 of them are local employees.
5	Air Quality (Reduction of odour)	Reduction of odour: By effectively collecting LFG that would otherwise be emitted freely, the Project reduces H2S (a foul smelling gas) emissions	Interview with stakeholders (Once for each monitoring period)	There hasn't been any complaint by the interviewed local stakeholders regarding the odour during the on-site visit.
6	Soil Condition (Waste terracing)	Waste terracing is properly done with capping layers	Visual inspection (Once for each monitoring period)	There hasn't been any negative visual observation about the waste terracing within the context of the project activity site during the on-site visit. Besides that, there hasn't been any complaint by the interviewed local stakeholders including Aşağı Avdan Village Mukhtar (Village Head) during the on-site visit regarding the waste terracing.
7	Hazardous waste processing	No hazardous waste is accepted or processed at	Visual inspection (Once for each monitoring period)	There hasn't been any negative visual observation about the hazardous waste processing within the

No.	Indicator	Chosen Parameter	Way of Monitoring (When)	Compliance Check
		the landfill site		context of the project activity site during the on-site visit and through the review of the signed declaration/53/ by the PP confirming about non acceptance of any hazardous waste to the project site by Samsun Metropolitan Municipality. Besides that, there hasn't been any complaint by the interviewed local stakeholders including Aşağı Avdan Village Mukhtar (Village Head) during the on-site visit regarding the hazardous waste processing within the context of the project activity.
8	Leachate management	Leachate is successfully collected and treated	Interview with the stakeholders or Municipality Letter (Once for each monitoring period)	There hasn't been any negative visual observation about the leachate management within the context of the project activity site during the on-site visit and through the review of the signed letter/30/ by Samsun Metropolitan Municipality confirming about proper discharge and treatment of leachate by the project. Besides that, there hasn't been any complaint by the interviewed local stakeholders including Aşağı Avdan Village Mukhtar (Village Head) during the on-site visit regarding the leachate management

No.	Indicator	Chosen Parameter	Way of Monitoring (When)	Compliance Check
				within the context of the project activity.

The project contributes to SDG 7 (Affordable and Clean Energy with 72,009.05 MWh net electricity generation), SDG 8 (Decent Work and Economic Growth with total 25 employees during the recent year of operation period (16 of them are local) and 02 training sessions conducted) and SDG-13 (Climate Action with achieved emission reduction of 346,560 tCO_2e) during the monitoring period.

The relevant signed declaration by PP and dated as 21/10/2024/45/ confirming about no legal contest or dispute that has arisen with the project during the monitoring period has also been provided. Besides that, there hasn't been any occupational injury during the monitoring period in line with the information by PP and there hadn't been any complaint by the interviewed project site staff regarding this issue during the on-site site visit, either.

Therefore, based on the on-site visit observations, handled interviews and provided and checked documents, it can be confirmed that sustainability parameters are monitored in line with the monitoring plan of the registered CP renewal PDD/01/ under Gold Standard for the Global Goals.

3.6 Assessment of Data and Calculation of Greenhouse Gas Emission Reductions

EPIAS records/22/ have been presented to VVB for all months of the monitoring period and all data in emission reductions table are checked with these records. EPIAS records are the main data source whereas YEDAŞ meter reading protocols through on-site electricity meters have been utilized as the cross-check data source.
The net electricity generated during the current monitoring period was as follows in Table 3-5 below:
Table 3-5: Net electricity generation

Period	Amount	Compliance check
01/05/2021 – 31/12/2021	Export to Grid: 29,182.94 MWh Import from Grid: 0.75 MWh Net Electricity Supplied to Grid: 29,182.19 MWh	Monthly EPIAS records/22/
01/01/2022 – 31/12/2022	Export to Grid: 33,513.24 MWh Import from Grid: 1.55 MWh Net Electricity Supplied to Grid: 33,511.69 MWh	Monthly EPIAS records/22/
01/01/2023 – 31/05/2023	Export to Grid: 9,321.09 MWh Import from Grid: 5.92 MWh Net Electricity Supplied to Grid: 9,315.17 MWh	Monthly EPIAS records/22/
Total (01/05/2021 –	Export to Grid: 72,017.28 MWh Import from Grid: 8.23 MWh	Monthly EPIAS records/22/

Period	Amount	Compliance check
31/05/2023)	Net Electricity Supplied to Grid: 72,009.05 MWh	

VVB confirms that the data used for emission reductions are correct. The grid emission factor taken is 0.3953 tCO_2/MWh and the value is same as fixed ex-ante in the registered CP renewal PDD/01/.

VVB also confirms that the methods and formulae used for calculating baseline emissions are in line with the applied methodologies/02/ and the registered CP renewal PDD/01/. The net electricity generation is multiplied with the grid emission factor to arrive at the emission reductions.

The grid emission factor and data and parameters available before validation are also applied in line with the registered CP renewal PDD/01/ and registered ER Calculation Excel Spreadsheet/57/ of 2nd CP.

a) <u>Baseline emissions</u>:

Baseline emissions comprise the following sources in line with ACM0001 version 19.0/02/:

- Methane emissions from the SWDS in the absence of the project activity;
- Electricity generation using fossil fuels or supplied by the grid in the absence of the project activity;
- Heat generation using fossil fuels in the absence of the project activity; and
- Natural gas used from the natural gas network in the absence of the project activity.

$$BEy = BE_{CH4,y} + BE_{EC,y} + BE_{HG,y} + BE_{NG,y}$$

Where:

BEy = Baseline emissions in year y (tCO_2e/yr)

$BEC_{H4,y}$: Baseline emissions of methane from the SWDS in year y (t CO_2e/yr)

$BE_{EC,y}$: Baseline emissions associated with electricity generation in year y (tCO_2/yr)

$BE_{HG,y}$: Baseline emissions associated with heat generation in year y (t CO_2/yr)

$BE_{NG,y}$: Baseline emissions associated with natural gas use in year y (tCO_2/yr)

Baseline emissions of methane from the SWDS ($BE_{CH4,y}$):

The baseline emissions of methane from the SWDS ($BE_{CH4,y}$) have been calculated in line with ACM0001 version 19.0/02/:

$$BE_{CH4} = \left((1 - OX_{top\_layer}) \times F_{CH4,PJ,y} - F_{CH,BL,y}\right) \times GWP_{CH4}$$

Where:

$BE_{CH4,y}$: Baseline emissions of methane from the SWDS in year y (tCO_2e/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)

$F_{CH4,PJ,y}$: Amount of methane in the LFG which is flared and/or used in the project activity in year y (tCH_4/yr)

$F_{CH4,BL,y}$: Amount of methane in the LFG that would be flared in the baseline in year y (tCH_4/yr)

GWP_{CH4}: Global warming potential of CH4 (tCO_2e/tCH_4)

Accordingly, the ex-ante estimate of $F_{CH4,PJ,y}$ is has been determined as follows in line with ACM0001 version 19.0[/02/]:

$$F_{CH4,PJ,y} = \eta_{PJ} \times BE_{CH4,SWDS,y} / GWP_{CH4}$$

Where:

$F_{CH4,PJ,y}$: Amount of methane in the LFG which is flared and/or used in the project activity in year y (tCH_4/yr)

$BE_{CH4,SWDS,y}$: Amount of methane in the LFG that is generated from the SWDS in the baseline scenario in year y (tCO_2e/yr)

η_{PJ} = Efficiency of the LFG capture system that will be installed in the project activity

GWP_{CH4}: Global warming potential of CH_4 (tCO_2e/tCH_4)

$BE_{CH4,SWDS,y}$ has been determined using the "Tool 04: Emissions from solid waste disposal sites" version 08.0[″/55/]:

$$\left.\begin{matrix} BE_{CH4,SWDS,y} \\ PE_{CH4,SWDS,y} \\ LE_{CH4,SWDS,y} \end{matrix}\right\} = \varphi_y \times (1 - f_y) \times GWP_{CH4} \times (1 - OX) \times \frac{16}{12} \times F \times DOC_{f,y} \times MCF_y \times \sum_{x=1}^{y} \sum_{j} \left(W_{j,x} \times DOC_j \times e^{-k_j \times (y-x)} \times \left(1 - e^{-k_j}\right) \right)$$

Where, for the yearly model:

$BE_{CH4,SWDS,y}$ $PE_{CH4,SWDS,y}$ $LE_{CH4,SWDS,y}$: Baseline, project or leakage methane emissions occurring in year y generated from waste disposal at a SWDS during a time period ending in year y (tCO_2e/yr)

x: Years in the time period in which waste is disposed at the SWDS, extending from the first year in the time period (x = 1) to year y (x = y)

y: Year of the crediting period for which methane emissions are calculated (y is a consecutive period of 12 months)

$DOC_{f,y}$: Fraction of degradable organic carbon (DOC) that decomposes under the specific conditions occurring in the SWDS for year y (weight fraction)

$W_{j,x}$: Amount of solid waste type j disposed or prevented from disposal in the SWDS in the year x (t)

φ_y: Model correction factor to account for model uncertainties for year y

f_y: Fraction of methane captured at the SWDS and flared, combusted or used in another manner that prevents the emissions of methane to the atmosphere in year y

GWP_{CH4}: Global Warming Potential of methane

OX: Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)

F: Fraction of methane in the SWDS gas (volume fraction)

MCF_y: Methane correction factor for year y

DOC_j: Fraction of degradable organic carbon in the waste type j (weight fraction)

k: Decay rate for the waste type j (1 / yr)

j: Type of residual waste or types of waste in the MSW

Determining the model correction factor (φ_y):

If baseline emissions are being calculated, the following two options could be used to calculate φy in line with the "Tool 04: Emissions from Solid Waste Disposal Sites" version 08.0/55/:

- Option 1: Use a default value

- Option 2: Determine φy based on specific situation of the project activity.

Accordingly, Option 1 has been chosen by the PP and φy is 0.75 in line with the Samsun climate and meteorological data web site (https://en.climate-data.org/asia/Turkiye/samsun/samsun-268/)/62/ corresponding to the Application A and humid and wet conditions in the "Tool 04: Emissions from Solid Waste Disposal Sites" version 08.0/55/ with the mean annual temperature around 14.7°C and the mean annual precipitation around 721.8 mm per year as checked and confirmed by the verification team through the General Directorate of Meteorology in Turkiye Web Site/61/ (https://www.mgm.gov.tr/veridegerlendirme/il-ve-ilceler-istatistik.aspx?k=A&m=SAMSUN and https://www.mgm.gov.tr/arastirma/buharlasma.aspx?s=2023).

Determining the amounts of waste types j disposed in the SWDS ($W_{j,x}$ or $W_{j,i}$):

Where different waste types j are disposed or prevented from disposal in the SWDS (for example, in the case of MSW) it is necessary to determine the amount of different waste types (Wj,x or Wj,i).

In the case that only one type of waste is disposed (for example, in the case of a residual waste), then Wj,x = Wx and the following procedures do not need to be applied (e.g. waste sampling is not required).

Only municipal solid waste is disposed in the SWDS. Therefore, Wj,x = Wx and the same has been confirmed by the verification team through the review of the registered CP renewal PDD/01/, on-site visit observations and handled interviews during the on-site visit. Accordingly, the total utilized and processed waste amount by the project activity for the current monitoring period is 621,590 tonnes as checked and confirmed through the signed letter/42/ by Samsun Metropolitan Municipality.

Determining the fraction of DOC that decomposes in the SWDS ($DOC_{f,y}$):

In the case that the "Tool 04: Emissions from Solid Waste Disposal Sites" version 08.0/55/ is applied to MSW, the PP may choose to either apply a default value ($DOC_{f,y} = DOC_{f,default}$) or to determine $DOC_{f,y}$ based on measurements of the biochemical methane potential of the MSW (BMP_{MSW}).

The default value has been chosen by the PP and $DOC_{f,default}$ is 0.5 as checked and confirmed by the verification team through the review of review of the registered CP renewal PDD/01/.

Procedure to determine the methane correction factor (MCFy):

Since there is no water table above the bottom of the SWDS and the project activity applying Application A, MCF has been selected as the default value which is 1. The value has been checked and confirmed by the verification team through the review of "Tool 04: "Emissions from solid waste disposal sites" version 08.0/55/ corresponding to the anaerobic managed solid waste disposal sites, 2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories/56/ and through the on-site visit observations confirming the project site having control of fire, cover material and levelling of waste.

Accordingly, first order decay (FOD) model of the "Tool 04: "Emissions from solid waste disposal sites" version 08.0/55/ has been applied by PP as in the registered CP renewal PDD/01/ and the same has been checked and found to be appropriate and correct by the verification team.

Baseline emissions associated with electricity generation ($BE_{EC,y}$):

The baseline emissions associated with electricity generation ($BE_{EC,y}$) has been calculated by equation no. 3 of the ACM0002 version 19.0/02/ as checked and confirmed through the registered CP renewal PDD/01/.

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

Where,

$BE_{EC,y}$:: Baseline emissions associated with electricity generation in year y (tCO_2e)

$EG_{PJ,y}$ or $EG_{facility,y}$: 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)

$EF_{grid,CM,,y}$: Combined margin CO_2 emission factor for grid connected power generation in year y (tCO_2/MWh)

$EG_{PJ,y}$ ($EG_{facility,y}$) will be calculated as a difference between the measured values of export to grid and import from grid, which are sourced from monthly EPIAS records.

$EF_{grid,CM,y}$ is the grid emission factor, 0.3953 tCO_2/MWh, will be fixed ex-ante for the 2nd CP as in the registered CP renewal PDD /01/.

Baseline emissions associated with heat generation ($BE_{HG,y}$):

There hasn't been any heat generation within the context of the project activity as checked and confirmed by the verification team through the review of the registered CP renewal PDD /01/, on-site visit observations and handled interviews during the on-site visit. Therefore, the baseline emissions associated with heat generation ($BE_{HG,y}$) are 0.

Baseline emissions associated with natural gas use ($BE_{NG,y}$):

There hasn't been any natural gas use within the context of the project activity as checked and confirmed by the verification team through the review of the registered CP renewal PDD /01/, on-site visit observations and handled interviews during the on-site visit. Therefore, the baseline emissions associated with the natural gas use ($BE_{NG,y}$) are 0.

As a result, the baseline emissions have been calculated as follows:

$$BEy = BE_{CH4,y} + BE_{EC,y}$$

Where:

BEy: Baseline emissions in year y (tCO_2e)

$BE_{CH4,t,y}$: Baseline emissions of methane from the SWDS in year y (tCO_2e)

$BE_{EC,t,y}$: Baseline emissions associated with energy generation in year y (tCO_2)

Accordingly, the baseline emissions have been calculated as follows for the monitoring period as checked and confirmed by the verification team through the review of the ER Calculation Excel Spreadsheet /67/:

Baseline Emissions	2021 (01/05/2021-31/12/2021)	2022	2023 (01/01/2023-31/05/2023)	Total (01/05/2021-31/05/2023)
$BE_{CH4,t,y}$ (tCO_2e)	124,840	150,116	43,142	318,098
$BE_{EC,t,y}$ (tCO_2)	11,536	13,247	3,684	28,467
BEy (tCO_2e)	136,376	163,363	46,826	346,565

b) <u>Project emissions:</u>

The project activity involves the generation of electricity by the renewable source. Therefore, the generation of electricity does not result in greenhouse gas emissions and so, the project emission is taken as 0 tCO_2e / year in line with ACM0002 version 19.0 /02/.

The project emissions have been calculated as follows in line with ACM0001 version 19.0 /02/:

$$PEy = PE_{EC,y} + PE_{FC,y} + PE_{DT,y} + PE_{SP,y}$$

Where:

PEy: Project emissions in year y (tCO_2/yr)

$PE_{EC,y}$: Emissions from consumption of electricity due to the project activity in year y (tCO_2/yr)

$PE_{FC,y}$: Emissions from consumption of fossil fuels due to the project activity, for purpose other than electricity generation, in year y (tCO_2/yr)

$PE_{DT,y}$: Emissions from the distribution of compressed/liquefied LFG using trucks, in year y (tCO_2/yr)

$PE_{SP,y}$: Emissions from the supply of LFG to consumers through a dedicated pipeline, in year y (tCO_2/yr)

Project emissions from electricity consumption ($PE_{EC,y}$):

The project emissions from consumption of electricity by the project activity ($PE_{EC,y}$) is calculated using the "Tool 05: Tool to calculate baseline, project and/or leakage emissions from electricity consumption" version 03.0[/55/]:

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

Where:

$PE_{EC,y}$: Project emissions for electricity consumption in year y (tCO_2/yr)

$EC_{PJ,j,y}$: Quantity of electricity consumed by the project electricity consumption sources j in y (MWh/yr)

$FE_{EL,j,,y}$: Emission factor for electricity generation for source j in year y (tCO_2/MWh)

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

j: Sources of electricity consumption in the project

$EG_{PJ,y}$ ($EG_{facility,y}$) are the measured values of import from grid, which are sourced from monthly EPIAS records[/22/].

$FE_{EL,j,,y}$: is the grid emission factor, 0.3953 tCO_2/MWh, will be fixed ex-ante for the 2nd CP as in the registered CP renewal PDD[/01/].

$TDL_{k,y}$: is the average technical transmission and distribution losses for providing electricity in the host country is 0.1046 (10.46%) as checked and confirmed by the verification team through the Electrical Market Annual Sector 2023 Report/62/ and the average value is 10.46% in line with the latest report.

Accordingly, the project emissions from electricity consumption ($PE_{EC,y}$) has been calculated as 5 tCO_2e for the monitoring period and the same has been checked and confirmed by the verification team through the review of the ER Calculation Excel Spreadsheet/67/:

Project emissions from fossil fuel consumption ($PE_{FC,y}$):

The project emissions from fossil fuel combustion ($PE_{FC,j,y}$) is calculated using the "Tool 03: Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion" version 3.0/55/:

$$PE_{FC,j,y} = \sum FC_{i,j,y} \times COEF_{i,y\ i}$$

Where:

$PE_{FC,j,y}$: CO_2 emissions from fossil fuel combustion in process j during the year y (tCO_2/yr)

FCi,j,y: The quantity of fuel type i combusted in process j during the year y (mass or volume unit/yr)

$COEF_{i,y}$: CO_2 emission coefficient of fuel type i in year y (tCO2/mass or volume unit)

i: The fuel types combusted in process j during the year y

The project emissions from fossil fuel combustion ($PE_{FCj,y}$) has been included as 0 tCO_2e and the same has been checked and confirmed by the verification team through the review of the registered CP renewal PDD/01/, ER Calculation Excel Spreadsheet/67/ (2021, 2022 and 2023 Raw Data Excel Spreadsheets and 2021-23 methane destruction Excel spreadsheet), the signed declaration by PP/43/ confirming about no usage of any fossil fuel during the monitoring period and handled interviews during the on-site visit.

Project emissions from the distribution of compressed/liquefied LFG using trucks ($PE_{DT,y}$):

There haven't been any emissions from the distribution of compressed/liquefied LFG using trucks ($PE_{DT,y}$) considering the context of the project activity as checked and confirmed by the verification team through the review of the registered CP renewal PDD/01/, on-site visit observations and handled interviews during the on-site visit. Therefore, the project emissions from the distribution of compressed/liquefied LFG using trucks ($PE_{DT,y}$) are 0.

Project emissions from the supply of LFG to consumers through a dedicated pipeline ($PE_{SP,y}$):

There haven't been any emissions from the supply of LFG to consumers through a dedicated pipeline ($PE_{SP,y}$) considering the context of the project activity as checked and confirmed by the verification team through the review of the registered CP renewal PDD/01/, on-site visit observations and handled interviews during the on-site visit. Therefore, the project emissions from the supply of LFG to consumers through a dedicated pipeline ($PE_{SP,y}$) are 0.

Project emissions from flaring of landfill gas in year y ($PE_{flare,y}$):

The project emissions from flaring are calculated as the sum of emissions for each minute m in year y, based on the methane mass flow in the residual gas ($F_{CH4,RG,m}$) and the flare efficiency ($\eta_{flare,m}$), as follows using the "Tool 06: Project emissions from flaring" version 4.0/55/:

$$PE_{flare,y} = GWP_{CH4} \times \sum_{m=1}^{525600} F_{CH4,RG,m} \times \left(1 - \eta_{flare,m}\right) \times 10^{-3}$$

Where:

$PE_{flare,y}$: Project emissions from flaring of the residual gas in year y (tCO_2e)

GWP_{CH4}: Global warming potential of methane valid for the commitment period (tCO_2e/tCH_4)

$F_{CH4,RG,m}$: Mass flow of methane in the residual gas in the minute m (kg)

$\eta_{flare,m}$: Flare efficiency in the minute m

The project emissions from flaring of the residual gas ($PE_{flare,y}$) has been included as 0 tCO_2e and the same has been checked and confirmed by the verification team through the review of the registered CP renewal PDD/01/, ER Calculation Excel Spreadsheet/67/ (2021, 2022 and 2023 Raw Data Excel Spreadsheets and 2021-23 methane destruction Excel spreadsheet), the signed declaration by PP/48/ confirming about no usage of flare during the monitoring period and handled interviews during the on-site visit.

Therefore, the project emissions are calculated as follows:

$$PEy = PE_{EC,y}$$

Where:

PEy: Project emissions in year y (tCO_2/yr)

$PE_{EC,y}$: Emissions from consumption of electricity due to the project activity in year y (tCO_2/yr)

Accordingly, the project emissions have been calculated as follows for the monitoring period as checked and confirmed by the verification team through the review of the ER Calculation Excel Spreadsheet/67/:

Project Emissions	2021 (01/05/2021-31/12/2021)	2022	2023 (01/01/2023-31/05/2023)	Total (01/05/2021-31/05/2023)
$PE_{EC,t,y}$ (tCO_2e)	1	1	3	5
$PE_{FC,y}$ (tCO_2e)	0	0	0	0
$PE_{flare,y}$ (tCO_2e)	0	0	0	0
PE_y (tCO_2e)	1	1	3	5

c) Leakage (LE_y):

The technology used in this project is neither transferred to nor transferred from another activity, so the leakage is considered to be 0 tCO_2e/year in line with the applied methodologies, ACM0001 version 19.0 and ACM0002 version 19.0[/02/].

d) Emission reductions:

The emission reductions have been calculated through the following equation in line with the applied methodologies[/02/]:

$ER_y = BE_y – PE_y - LE_y$

Where:

ER_y: Emissions reductions in year y (tCO_2e)

BE_y: Baseline emissions in year y (tCO_2e)

PE_y: Project emissions in the year y (tCO_2e)

LE_y: Leakage emissions in year y (tCO_2e)

Accordingly, the ex-ante emission reductions have been calculated as follows for the monitoring period as checked and confirmed by the verification team through the review of the ER Calculation Excel Spreadsheet[/67/]:

	2021 (01/05/2021-31/12/2021)	2022	2023 (01/01/2023-31/05/2023)	Total (01/05/2021-31/05/2023)
BEy (tCO_2e)	136,376	163,363	46,826	346,565
PE_y (tCO_2e)	1	1	3	5
LE_y (tCO_2e)	0	0	0	0
ER_y (tCO_2e)	136,375	163,362	46,823	346,560

Therefore, it could be confirmed by the verification team that:

- The appropriate values in line with the registered CP renewal PDD/01/ are reasonably have been used relating to the project activity.
- The baseline methodologies/02/ and associated tools have been correctly applied for the calculation of emission reductions.
- The calculations are traceable and the values can be replicated using the data provided in the MR/66/ and ER Calculation Excel Spreadsheet/67/.

3.7 Management and Operational System

The monitoring responsibilities including the data measurement, collection, verifying, archiving etc. have been clearly defined in the registered CP renewal PDD/01/. The same practice is followed onsite and it is confirmed by the verification team during the verification site visit. 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 information flow of each parameter has been verified by the verification team via interviewing with responsible personnel and through the document review.

It's verified during the site visit, the monitoring procedure as well as the internal quality management and control procedures are stipulated in the registered CP renewal PDD/01/ and the Monitoring Report/66/. The monitoring personnel have been interviewed by the verification team and it's confirmed that the monitoring is implemented in line with the registered CP renewal PDD/01/.

All the data and documents, either hard copies or soft copies, will be kept by the PP for two years after the end of the last crediting period.

4. REFERENCE

LIST OF DOCUMENTS	
S. No.	**Document/Evidence/Reference/Web link, Version, Date**
01	Registered CP Renewal PDD version 09 dated 21/01/2020
02	ACM0001: "Flaring or use of landfill gas" Version 19.0 and ACM0002: "Grid connected electricity generation from renewable sources" Version 19.0
03	Verification Service Agreement dated 21/05/2024
04	Monitoring Report version 01 dated 21/05/2024
05	Monitoring Report version 02 dated 21/09/2024
06	Monitoring Report version 03 dated 03/02/2025
07	ER Calculation Excel Sheet version 01 dated 21/05/2024
08	ER Calculation Excel Sheet version 02 dated 21/09/2024
09	ER Calculation Excel Sheet version 03 dated 03/02/2025
10	CDM Validation and Verification Standard for Project Activities version 3.0
11	CDM Project Standard for Project Activities version 3.0 Guideline on the Application of Materiality in Verifications version 2.0
12	Gold Standard for Global Goals version 2.1 GS Validation and Verification Standard version 2.0 Gold Standard for Global Goals Principles and Requirements Version 2.1
13	GHG Emissions Reductions & Sequestration Product Requirements version 3.0
14	Renewable Energy Activity Requirements version 1.4
15	Design Renewal GS Review Final Document
16	Final CP Renewal Validation Report version 3.1 dated 22/01/2020
17	Initial Validation Final Report version 06 dated 23/07/2012 (1st CP)
18	Initial Registered PDD version 04 dated 13/04/2012 (1st CP)
19	Fourth Verification Final Report version 2.1 dated 13/03/2022
20	Fourth Verification GS Issuance Review Final Document
21	YEDAŞ Monthly Reading Protocols dated 05/2021 – 05/2023
22	EPIAS Screenshots dated 05/2021 – 05/2023
23	Project Introductory File dated 31/05/2012
24	EIA Not Necessary Decision dated 03/12/2013 and 22/11/2015
25	Registered GS Passport (1st CP)
26	Meters Test Reports dated 21/12/2011, 07/09/2016 and 02/12/2021
27	Electricity Meters' Photos
28	Training Records and Certificates dated 23-24/12/2021 and 08/12/2022 (As detailed in the Section 4.6)
29	Social Security Records for PP Site Employees
30	Signed Letter by Samsun Metropolitan Municipality dated 21/10/2024 (Confirming About Proper Discharge and Treatment of Leachate by the Project)
31	Hazardous Waste Declaration Forms Provided to Ministry of Environment and Urbanization dated 2021, 2022 and 2023
32	Hazardous Waste Storage Area Photographic Evidences
33	Wastewater Storage Tank Photographic Evidences

34	Domestic Waste Storage Container Photographic Evidences
35	Signed Confirmation Declaration by the Supplier Firm (MRU Baca Gazı Ltd. Şti.) dated 13/01/2025 (About the Non-Necessity of the Calibration of the Sensors of the Temperature Measurement Device of MRU Gas Analyser)
36	Calibration Certificate of Gas Analyser by MRU Ltd. dated 21/07/2019
37	Electricity Generation Licence dated 18/05/2011 and 22/03/2018 (Initial Issuance & Last Amendment)
38	Gas Engines Technical Datasheets (by MWM & İltekno)
39	Provisional Acceptance Protocols dated 09/03/2012, 27/09/2013, 27/09/2014 and 22/05/2018
40	Annual Reports to GS by PP dated as 08/12/2023 and 20/12/2024
41	Screenshots of 2022 And 2023 Annual Reports through the Sustaincert Account
42	Signed letter by Samsun Metropolitan Municipality (About the Waste Amount Utilized and Processed by the Project Activity During the Monitoring Period)
43	Signed Declaration by PP dated 21/10/2024 (Confirming About No Usage of Any Fossil Fuel During the Monitoring Period
44	Signed Letter by Aşağı Avdan Village Head (Mukhtar) dated as 22/05/2024 (About the Contact Details of PP Relevant Staff in case of Any Complaint and Availability of Logbook) Grievance Logbook in Aşağı Avdan Village
45	Signed Declaration by PP dated as 21/10/2024 (About No Dispute or Legal Case During Monitoring Period)
46	Signed Declaration by PP dated as 01/09/2024 (Confirming About Non-Existence of Double Counting)
47	I-REC registry (https://evident.app/IREC/device-register/table) VCS registry (https://registry.verra.org/app/search/VCS/All%20Projects) Bio Carbon registry (https://biocarbonregistry.com/en/projects/) ICR registry (https://www.carbonregistry.com/explore/projects) Social Carbon registry (https://wilder.earth/social_carbon) UCR registry (https://www.ucarbonregistry.io/) Cercarbono registry (https://www.ecoregistry.io/projects-list/cercarbono-co2) GCC registry (https://projects.globalcarboncouncil.com/pages/submitted_projects)
48	Signed Declaration by PP dated 21/10/2024 (Confirming About No Usage of Flare During the Monitoring Period)
49	Signed Declaration by the PP dated 21/10/2024 (Confirming About the Operational Hours of The Power Plant During the Monitoring Period)
50	Sample Invoices About the Gas Engines' Maintenance Work Including the Operational Hours dated 30/04/2021, 31/12/2021, 31/12/2022 and 31/05/2023
51	Screenshots of the Gas Engines Control System by MWM
52	Calibration Certificate of Flow Meter-1 & Flow Meter-2 by Conveco dated 24/04/2022
53	Signed Declaration by the PP dated 21/10/2024 (Confirming About Non-Acceptance of Any Hazardous Waste to the Project Site by Samsun Metropolitan Municipality)

54	Signed Letter by Aris Enerji A.Ş. dated 15/04/2024 (About Replacement, Commissioning and Control of the Thermocouple, Flow Meter-3 and UV Flame Detector)
55	Tool 03: "Tool to calculate project or leakage CO_2 emissions from fossil fuel combustion" version 3.0 (Registered CP renewal PDD) Tool 04: "Emissions from solid waste disposal sites" version 08.0 (Registered CP renewal PDD) Tool 05: "Baseline, project and/or leakage emissions from electricity consumption and monitoring of electricity generation" version 03.0 (Registered CP renewal PDD) Tool 06: "Project emissions from flaring" version 4.0 (Registered CP renewal PDD) Tool 08: "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 3.0 (Registered CP renewal PDD)
56	2019 Refinement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories
57	Registered ER Calculation Excel Spreadsheet (2nd CP)
58	Revised ER Calculation Excel Spreadsheet (2nd CP)
59	Photographic Evidence of Flow Meter-3 by CS Instruments
60	Signed Declaration by PP dated 13/01/2025 (Confirming About No Specific Calibration Period by the Manufacturer of The Flowmeter-3)
61	General Directorate of Meteorology in Turkiye Web Site (https://www.mgm.gov.tr/veridegerlendirme/il-ve-ilceler-istatistik.aspx?k=A&m=SAMSUN and https://www.mgm.gov.tr/arastirma/buharlasma.aspx?s=2023)
62	Electrical Market Annual Sector 2023 Report by EMRA (https://www.epdk.gov.tr/Detay/Icerik/3-0-24/elektrikyillik-sektor-raporu)
63	Signed Letter by Aris Enerji A.Ş. dated 15/04/2024 (Confirming That There Hasn't Been Any Specific Calibration Validity Period of the Thermocouple, Flow Meter-1, Flow Meter-2, Flow Meter-3 and UV Flame Detector)
64	Control and Calibration Report of Flow Meter-1, Flow Meter-2, Thermocouple and UV Flame Detector dated 21/07/2019
65	Site Photos
66	Monitoring Report version 04 dated 17/03/2025
67	ER Calculation Excel Sheet version 04 dated 03/02/2025

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5. FINAL VERIFICATION STATEMENT

Applus+ Certification has been engaged by Samsun Avdan Enerji Üretim ve Tic. A.Ş. to perform the fifth (2nd verification of 2nd CP) verification of the "Samsun Landfill Gas to Energy Project, Turkey".

The management of Samsun Avdan Enerji Üretim ve Tic. 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 CP renewal PDD/01/ and the applied methodologies, ACM0001 Version 19.0 and ACM0002 Version 19.0/02/.

The 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. The verification can confirm that:

- the project is operated as planned and described in the registered CP renewal PDD/01/;
- the monitoring plan is as per the applied methodologies/02/;
- the monitoring in Monitoring Report/66/ is as per the registered CP renewal PDD/01/ and approved by GS4GG;
- 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;
- the level of assurance of this verification report is reasonable.

In our opinion, the GHG emission reductions for "Samsun Landfill Gas to Energy Project, Turkey" for the monitoring period 01/05/2021 to 31/05/2023 (both days included) as reported in Monitoring Report/66/ 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:	01/05/2021 to 31/05/2023 (Both days included)

Verified emissions in the above reporting period:

Leakage emissions	0 tCO_2e equivalents
Project emissions	5 tCO_2e equivalents
Baseline emissions	346,565 tCO_2e equivalents
Emission reductions	346,560 tCO_2e equivalents (GS VERs)

Applus+ Certification also confirms the following based on the results of document review and on-site assessment:

Vintage	SDG 7 (Affordable and Clean Energy, net electricity)	SDG 8 (Decent Work and Economic Growth)	SDG 13 (Climate Action) Gold Standard Voluntary Emission Reductions (GS VERs)
01/05/2021 to 31/12/2021	29,182.19 MWh	01 training session conducted for all employees & 25 employees	136,375 tCO_2e
01/01/2022 to 31/12/2022	33,511.69 MWh	01 training session conducted for all employees & 25 employees	163,362 tCO_2e
01/01/2023 to 31/05/2023	9,315.17 MWh	No training sessions conducted & 25 employees	46,823 tCO_2e
Total (01/05/2021 to 31/05/2023) (Both days included)	72,009.05 MWh	02 training sessions conducted for all employees & 25 employees	346,560 tCO_2e

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Date: 18/03/2025

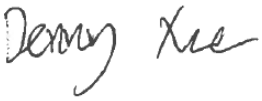
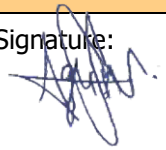
Lead Auditor: Mr. Anıl Söyler

Tech. Expert: Mr. Anıl Söyler

Tech. Reviewer: Mr. Denny Xue

Approver *(Applus+ Certification VVB Technical Manager)*

Mr. Agustín Calle de Miguel

ASSESSMENT TEAM	
Lead Auditor: Mr. Anıl Söyler	**Technical Reviewer:** Mr. Denny Xue
Signature: 	Signature: 
Approver: Mr. Agustín Calle de Miguel	
Signature: 	

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

Type:	☐ CAR ☒ CL/CR ☐ FAR	Number:	01
Raised by:	Anıl Söyler	Ref. to checklist in above tables:	-
Description of the audit finding		Date:	22/07/2024
Please provide the following records with regards to the sustainability monitoring parameters: - The waste water transfer and disposal records for the monitoring period - The official hazardous waste transfer and disposal records provided to Ministry of Environment and Urbanization for the monitoring period			
Project Participant's response		Date:	21/09/2024
- The waste water transfer and disposal official letter has been provided to the VVB for the monitoring period - The hazardous waste transfer and disposal documents provided to the Ministry of Environment and Urbanization for the monitoring period have been sent to the VVB			
Documentation provided as evidence by Project Participant			
Supporting documents			
Auditor's assessment comment		Date:	25/10/2024
- Ok Closed (The signed letter by Samsun Metropolitan Municipality confirming about the transfer and disposal of the waste water and dated as 21/10/2024 has been provided). - Ok Closed (The hazardous waste transfer and disposal documents provided to the Ministry of Environment and Urbanization for 2021, 2022 and 2023 years have been provided).			

Type:	☐ CAR ☒ CL/CR ☐ FAR	Number:	02
Raised by:	Anıl Söyler	Ref. to checklist in above tables:	-
Description of the audit finding		Date:	22/07/2024
Please provide the signed and sealed letter on company letterhead about any legal contest or dispute that has arisen with the project during the monitoring period.			
Project Participant's response		Date:	21/09/2024
The signed and sealed letter on company letterhead regarding any legal contest or dispute related to the project during the monitoring period has been provided to the VVB.			
Documentation provided as evidence by Project Participant			
Signed Declaration by PP			
Auditor's assessment comment		Date:	25/10/2024
Ok Closed (The signed declaration by PP confirming that there hasn't been any legal contest or dispute related to the project during the monitoring period and dated as 21/10/2024 has been provided).			

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Type:	☐ CAR ☒ CL/CR ☐ FAR	Number:	03
Raised by:	Anıl Söyler	Ref. to checklist in above tables:	-
Description of the audit finding		Date:	22/07/2024

There are two FARs from the last verification process including its GS performance review stage:

a) FAR-1: Remote audit shall be resumed when Covid-19 situation eases. PD shall refer to the latest version of the COVID-19 interim measures published by GS4GG.

b) FAR-2: Considering the difference of realized from estimated, 73% more ER monitored during 1st MP. It was reasoned with account of better collection of gas and utilization in the engines rather than flaring. Besides that, the gas projection from the first order decay model as per the methodology deviating from the actuals is indicated. If similar difference is observed during 2nd MP, project shall apply for design change request as per Design Change Requirements para 3.1.5 (a-i).

Project Participant's response	Date:	21/09/2024

a) The onsite visit has been made with VVB on 05/06/2024.

b) This is described under section B.5.1 and there is not similar increase in this monitoring period.

"The expected annual electricity generation value is 54,600 MWh and emission reduction is 173,019 tCO2 average according to calculation. According to monitoring period the expected electricity generation value is 113,817 MWh and emission reduction is 380,825 tCO2e according to registered PDD. And PP has monitored 761 days (between 01/05/2021 and 31/05/2023) so PP has calculated 317,150 tCO2 emission reduction which is %16.60 lower than estimation and 72,009 MWh electricity generation which is %36.74 lower than estimation for this monitoring period."

Documentation provided as evidence by Project Participant

Revised MR and ER Calculation Excel Spreasheet

Auditor's assessment comment	Date:	25/10/2024

a) Ok Closed (The on-site visit has been handled on 05/06/2024 by the VVB and please also see the Section of this report for the further details).

b) Ok Closed (There has been post registration permanent change handled during this verification that the waste dumping process had been initiated as of 2016 for the calculations in the registered ER Calculation Excel Spreadsheet/57/ of the 2nd CP but the same should have been 2011 instead of 2016 considering the start date of the project as 09/02/2011 in line with the registered initial PDD/18/ and registered CP renewal PDD/01/. Accordingly, the calculations in the ER Calculation Excel Spreadsheet/57/ of the 2nd CP have been revised by PP as in the revised ER Calculation Excel Spreadsheet/58/ of the 2nd CP, the estimated annual emission reduction would be 174,230 tCO_2e and corresponding total estimated amount for the monitoring period would be 363,258 tCO_2e and the same has been found to be correct and valid by the verification team. The actual value achieved for the current monitoring period is 346,560 tCO_2e. Therefore, the actual amount of emission reduction for the current monitoring period is 4.60% less than the estimated emission reduction amount as checked and confirmed by the verification team through the review of the revised ER Calculation Excel Spreadsheet of the 2nd CP and ER Calculation Excel Spreadsheet).

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	01
Raised by:	Anıl Söyler	Ref. to checklist in above tables:	-
Description of the audit finding		Date:	22/07/2024

a) Please correct the section numbering in the initial page of the MR.

b) Please correct the Activity Requirements applied row in the cover page of the MR.

c) Please include the SDG Impacts in the relevant column of the Table-1 of the MR. d) Please clarify the meaning of Product A in the Table-2 of the MR. e) Please clarify the following sentence in the Section B.2.5 of the MR: "During this 5th" verification period between 01/05/2021 and 31/05/2023, PP has made a preliminary calculation and if we benchmark against the existing base line emissions (115,062 tCO2) PP is still much more above %32.2 but if we benchmark against the corrected value of 173,019 tCO2 and project methane emission within the limits actually approximately 16.6% lower. The related documents have been provided to the VVB and SC-GS".		
Project Participant's response	Date:	21/09/2024
a) It has been corrected accordingly. b) Community services and renewable energy selected according to GS4GG. (https://globalgoals.goldstandard.org/documents/activity-requirement/) c) It has been already included relevant column of the Table-1 of the MR. d) It has been corrected as "GSVERs" e) It is related to correction of calculation on registered PDD. These are shared with SC-GS and VVB. After correction this shows that monitoring period ER value is lower than PD estimation.		
Documentation provided as evidence by Project Participant		
Revised MR		
Auditor's assessment comment	Date:	25/10/2024
a) Ok Closed (The initial page of the MR has been revised by PP accordingly). b) Ok Closed (The cover page of the MR has been revised by PP accordingly). c) Ok Closed (Table-1 has been revised by PP accordingly). d) Ok Closed (Table-2 has been revised by PP accordingly). e) Ok Closed (Section B.2.5 of the PDD has been revised by PP accordingly).		

Type:	☒ CAR	☐ CL/CR	☐ FAR	Number: 02
Raised by:	Anıl Söyler			Ref. to checklist in above tables: -
Description of the audit finding				Date: 22/07/2024
a) Please include last two-meter test dates in the Section D.2 of the MR along with the relevant evidence. b) The details of the monitoring equipment including the brand/type, serial number, accuracy class etc. haven't been included in the Sections C and D.2 of the MR. c) The calibration details of all monitoring equipment including the responsible staff/entity, frequency, validity period and relevant standard/regulation including the reference sources and justification etc. haven't been included in the Sections C and D.2 of the MR. d) Please include the relevant reference sources regarding the calibration validity periods including (no periodic calibration requires by manufacturer or non-applicability of the calibration period) and along with the relevant reference evidence documents. e) Please include all sustainability monitoring parameters in the Section D.2 of the MR in line with the registered PDD of the project. f) The values applied for the monitoring period for all monitored data/parameters haven't been provided in the Section D.2 of the MR. (e.g. Wx and training parameters)				

g) The current status of all monitored data/parameters along with the reference evidence documents hasn't been included in the Section D.2 of the MR. (e.g. air quality, soil condition, hazardous waste processing, leachate management, PEFC,j,y etc.) h) Please include the details of employment including the local ones in the Section D.2 of the MR. i) Please include the details of training parameter including the dates and scope of the same in the Section D.2 of the MR. j) Please clarify the applicability of Section D.3 of the MR considering the project type.		
Project Participant's response	Date:	21/09/2024
a) The two-meter test dates have been added in the Section D.2 of the MR along with the relevant evidence. b) The details of the monitoring equipment including the brand/type, serial number, accuracy class etc. have been already included in the Sections C and D.2 of the MR. c) The calibration details of all monitoring equipment including the responsible staff/entity, frequency, validity period and relevant standard/regulation including the reference sources and justification etc. have been already included in the Sections C and D.2 of the MR. d) The relevant reference sources regarding the calibration validity periods including (no periodic calibration requires by manufacturer or non-applicability of the calibration period) and along with the relevant reference evidence documents have been provided to the VVB e) All sustainability monitoring parameters in the Section D.2 of the MR in line with the registered PDD v0.9 with 21/01/2020 dated. There is no passport or Transition Annex of the project are available. f) The values applied for the monitoring period for all monitored data/parameters have been added in the Section D.2 of the MR. (e.g. Wx and training parameters) g) The current status of all monitored data/parameters along with the reference evidence documents has been already included in the Section D.2 of the MR. Because there is no evidence document for air quality and soil condition, the proof way is VVB observation or interview with stakeholder during the onsite visit for this air quality and soil condition parameters. And the official letter has been provided to the VVB related with hazardous waste processing and leachate management.) h) The local employment details have been included in the Section D.2 of the MR. i) The details of training parameter have been included the dates and scope of the same in the Section D.2 of the MR. j) This is marked and revised as not applicable because this is not a community service project activitiy.		
Documentation provided as evidence by Project Participant		
Revised MR		
Auditor's assessment comment	Date:	25/10/2024
a) b) c) Ok Closed (Section D.2 of the MR has been revised by PP accordingly). d) Ok Closed (The signed declaration by PP confirming about the calibration periods of the monitoring equipment with reference to the manufacturers and dated as has been provided). e) f) g) h) i) Ok Closed (Section D.2 of the MR has been revised by PP accordingly). j) Ok Closed (Section D.3 of the MR has been revised by PP accordingly).		

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Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	03
Raised by:	Anıl Söyler	Ref. to checklist in above tables:	-
Description of the audit finding		Date:	22/07/2024

a) The reference source of the raw data Excel has not been included in the Section B.1 of the MR.

b) The reference of the operational hours of the engines has not been provided.

c) Please clarify the values provided between the D10 and DXY10 cells in the 2021-2023 Methane Destruction Excel Spreadsheet along with the relevant reference document.

d) The latest transmission loss data has not been used in the 2021-2023 Methane Destruction Excel Spreadsheet.

e) The inclusion of 2019 transmission loss data is not clear in the 2021-2023 Methane Destruction Excel Spreadsheet.

f) The reference evidence sources of $V_{electricity,y,}$ $V_{CH4,t,wb,}$ V_{biogas} and V_{flare} parameters' values have not been provided in the 2021-2023 Methane Destruction Excel Spreadsheet.

g) The references of the values of Flow biogas (Vbiogas) and ECy parameters have not been provided in the 2021-2023 Methane Destruction Excel Spreadsheet.

h) Please provide the EPIAS records for the whole monitoring period.

i) The justification and relevant evidence sources for the values of PE_{FC} and PE_{flare} during monitoring period haven't been provided in the 2021-2023 Methane Destruction Excel Spreadsheet.

j) The round up function has not been applied for the project emission values in the Total ER 21-23 Excel Spreadsheet.

k) The round down function has not been applied for the baseline emission values in the Total ER 21-23 Excel Spreadsheet.

l) Please provide the complete ER Calculation Excel Spreadsheet including all relevant sustainability monitoring parameters and in line with the registered documents.

m) Please include the comparison of all actual SDG impacts with the estimated ones in the ER Calculation Excel spreadsheet along with the corrected estimated values.

Project Participant's response	Date:	21/09/2024

a) Description has been added as below; "The flowmeters continuously reads the data and all data are presented in RAW data excel sheet from the systems of project activity."

b) The reference document has been provided.

c) These values are temperature and depends on RAW data records.

d) Revised through 2023 values of EPDK.

e) It has been removed. It is not related to this monitoring period.

f) The reference has been corrected as "Flowmeter-RAW Data Records"

g) It is corrected as "Flowmeter-RAW Data Records" and OSF records.

h) EPIAS records for the whole monitoring period have been also provided.

i) For PE_{FC} there is not any fuel record so it is determined as "0". On the other hand source of data is "RAW Data Samsun Landfill" and added to MR.

j) Round up function has been added.

k) Round down function has been added.

l) The ER Calculation Excel Spreadsheet has been already included all relevant sustainability monitoring parameters and in line with the registered documents. It can be also seen approved 4th verification

documents which have been also provided to the VVB. m) Excel sheet corrected and revised accordingly.
Documentation provided as evidence by Project Participant
Revised MR, ER Calculation Excel Spreadsheet and supporting documents

Auditor's assessment comment	Date:	25/10/2024

a) Ok Closed (Section B.1 of the MR has been revised by PP accordingly).
b) Ok Closed (Section D.2 of the MR and ER Calculation Excel Spreadsheet have been revised by PP accordingly).
c) Ok Closed (2021-23 Methane Destruction Excel Spreadsheet has been revised by PP accordingly).
d) e) f) g) Ok Closed (2021-23 Methane Destruction Excel Spreadsheet has been revised by PP accordingly).
h) Ok Closed (EPIAS records have been provided for the monitoring period).
i) j) Ok Closed (2021-23 Methane Destruction Excel Spreadsheet has been revised by PP accordingly).
k) Ok Closed (Total ER 21-23 Excel Spreadsheet has been revised by PP accordingly).
l) Ok Closed (SDG Impacts Excel Spreadsheet has been revised by PP accordingly).
m) Ok Closed (ER Calculation Excel Spreadsheet has been revised by PP accordingly).

Type:	☒ CAR ☐ CL/CR ☐ FAR	Number:	04
Raised by:	Anıl Söyler	Ref. to checklist in above tables:	-
Description of the audit finding		Date:	22/07/2024

a) Please include baseline value or estimation of baseline situation of each SDG Impact in the Section E.1 of the MR along with the relevant details.
b) Please include project value or estimation of project situation of SDG-8 Impact in the Section E.2 of the MR along with the relevant details.
c) Please include the calculation of net benefits or direct calculation for each SDG impact in the Section E.4 of the MR.
d) Please include the project estimate and net benefit values for the training parameter under SDG-8 in the Section E.4 of the MR.
e) Please include the comparison of all SDG impacts in the Section E.5 of the MR.
f) Please include the explanation of calculation of value estimated ex ante calculation of approved PDD for this monitoring period in the Section E.5.1 of the MR.
g) Please include the remarks on increase in achieved emission reductions in the Section E.6 of the MR based on the revisions.

Project Participant's response	Date:	21/09/2024

a) The baseline value or estimation of baseline situation of each SDG Impact have been added in the Section E.1 of the MR along with the relevant details.
b) The project value of project situation has been added of SDG-8 Impact in the Section E.2 of the MR along with the relevant details.
c) The calculation of net benefits or direct calculation for each SDG impact has been included in the Section E.4 of the MR.
d) The project estimate and net benefit values for the training parameter has been already added under SDG-8 in the Section E.4 of the MR.

e) The comparison of all SDG impacts have been already included in the Section E.5 of the MR. f) The explanation of calculation of value estimated ex ante calculation of approved PDD has been added for this monitoring period in the Section E.5.1 of the MR. g) The remarks have been revised as decreased in achieved emission reductions in the Section E.6 of the MR based on the revisions.
Documentation provided as evidence by Project Participant
Revised MR

Auditor's assessment comment	Date:	25/10/2024
a) Ok Closed (Section E.1 of the MR has been revised by PP accordingly). b) Ok Closed (Section E.2 of the MR has been revised by PP accordingly). c) d) Ok Closed (Section E.4 of the MR has been revised by PP accordingly). e) Ok Closed (Section E.5 of the MR has been revised by PP accordingly). f) Ok Closed (Section E.5.1 of the MR has been revised by PP accordingly). g) Ok Closed (Section E.6 of the MR has been revised by PP accordingly).		

Type:	☒ CAR	☐ CL/CR ☐ FAR	Number:	05
Raised by:	Anıl Söyler		Ref. to checklist in above tables:	-
Description of the audit finding			Date:	22/07/2024
Please include the relevant procedure followed by PP in case of any complaint/grievance in the Section G.1 of the MR.				
Project Participant's response			Date:	21/09/2024
The relevant procedure followed by PP in case of any complaint/grievance has been already included in the Section G.1 of the MR.				
Documentation provided as evidence by Project Participant				
Revised MR				
Auditor's assessment comment			Date:	25/10/2024
Ok Closed (Section G.1 of the MR has been revised by PP accordingly).				

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Appendix 2: Audit Team CVs

Mr. Anıl Söyler	Mr. Anil Söyler has done Bsc. in Environmental Engineering. He has completed his Bachelor degree in Middle East Technical University, Turkey. He has more than 20 years of professional experience in environmental management, monitoring and auditing, waste and waste water management, environmental and social impact assessment, GHG emission report and projects' validation and verification, environmental reports, team and client relationship management and quality management systems and has been involved in the validation/verification services of more than 150 GHG emission reduction projects in total. He has also been involved in both national and international projects supported by IFC, World Bank and EBRD. Mr. Anil Söyler is based in Ankara, Turkey.
Mr. Denny Xue	Mr. Denny Xue (Master's Degree in Environmental Engineering, Bachelor's Degree in Thermal Engineering) is an Auditor appointed by Applus+ LGAI for the GHG project assessment, auditing and technical review. He has more than 6 years of work experience in CDM/GS4GG/VCS project assessment and technical review with Applus+. Before he joined Applus+ LGAI, he had been working for Shanghai Chuanji Investment and Management which is a CDM consultancy company as a project manager for CDM project development. Mr. Denny Xue is based in Shanghai, China.