



RINA

GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

Final

“Kayseri Molu Landfill Gas To Electricity Project, Turkey”
in
Turkey

Monitoring period: 01/12/2011 to 31/03/2014

Report N° 2014-TQ-29-MD

Revision N° 1.3 Aa

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Project Title: Kayseri Molu Landfill Gas to Electricity Project, Turkey	Country: Turkey	Estimated VERs (tCO_{2e}): 126,925
GS Registration Reference N°: 1061	Monitoring period: 01/12/2011 to 31/03/2014	Certified VERs (tCO_{2e}): 244,503
Client: Her Enerji ve Cevre Teknolojileri Sanayi Ticaret A.S.	Client contact: Mr. Hakki Azizlerlioglu	
Report No.: 2014-TQ-29-MD	Revision: 1.3 Aa	Date of this report: 19/01/2016
Approved by (Final Report – AO Authorized office signing for the DOE):  Laura SEVERINO		Date of approval: 20/01/2016

Methodology

Number:	Version:	Title:	Scale	SS(s):
ACM0001	13.0.0 of 11/05/2012	Flaring or use of landfill gas	Large	13

RINA Services S.p.A. (RINA), commissioned by Her Enerji ve Cevre Teknolojileri Sanayi Ticaret A.S., has verified the greenhouse gas emission reductions reported for the project activity “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, GS Registration Reference N° 1061, for the period 01/12/2011 to 31/03/2014, with regard to the relevant requirements for GS activities. The verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable GS VER requirements, which refer to CDM rules, in order to be certified.

The project was validated by Bureau Veritas (Validation Report No: TURKEY-CER/1345.11.C45, Version 05 issued on 09/04/2014) and it was registered on 08/10/2013 under GS registration reference N° 1061.

The GHG emission reductions were calculated on the basis of the approved methodology ACM0001, version 13.0.0, Flaring or use of landfill gas of 11/05/2012 and the monitoring plan included in the registered Project Design Document, version 08 of 24/03/2014.

In conclusion, it is RINA’s opinion that the project activity “Kayseri Molu Landfill Gas to Electricity Project, Turkey”, in “Turkey, as described in the Monitoring Report version 0.9 of 14/01/2016, meets all relevant requirements for GS and CDM activities and all relevant host Party criteria and correctly applies the baseline and monitoring methodology “ACM0001”, “Flaring or use of landfill gas”, version 13.0 of 11/05/2012. Hence, RINA is able to certify that the emission reductions from the project during the monitoring period 01/12/2011 to 31/03/2014 amount to 244,503 tCO_{2e}.

Baseline Emissions	244,545 tCO _{2e}
Project Emissions	42.04 tCO _{2e}
Leakage	0 tCO _{2e}
Net GHG emission reductions/removal	244,503 tCO _{2e}

Work carried out by: Tuğçe KIRATLI	<input checked="" type="checkbox"/> No distribution without permission from the Client or organizational unit responsible <input type="checkbox"/> Strictly confidential <input type="checkbox"/> Unrestricted distribution
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Work verified by (Final Report – Scheme Manager)  Rita VALOROSO	Keywords: Climate Change, Kyoto Protocol, Verification, Gold Standard
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Abbreviations

BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CDM-PCP	Clean Development Mechanism Project Cycle Procedure
CDM-PS	Clean Development Mechanism Project Standard
CDM-VVS	Clean Development Mechanism Validation and Verification Standard
CER(s)	Certified Emission Reduction (s)
CH ₄	Methane
CR	Clarification Request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
ER	Emission Reductions
GHG(s)	Greenhouse gas(es)
GS	Gold Standard
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LSC	Large scale
MoV	Means of Verification
MP	Monitoring Plan
MR	Monitoring Report
NGO	Non-governmental Organization
ODA	Official Development Assistance
PDD	Project Design Document
PE	Project Emission
PMUM	Market Financial Conciliation Center (Piyasa Mali Uzlastirma Merkezi)
PP(s)	Project Participant(s)
Ref.	Document Reference
RINA	RINA Services Spa
SDI	Sustainable Development Indicator
SS(s)	Sectoral Scope(s)
SSC	Small Scale
TEDAS	Turkey Electricity Distribution Company (Turkiye Elektrik Dagitim A.S.)
TEIAS	Turkish Electricity Transmission Company (Turkiye Elektrik Iletim A.S.)
UNFCCC	United Nations Framework Convention on Climate Change
VERs	Verified Emission Reduction(s)

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Appendix A: Gold Standard Verification Protocol

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1 INTRODUCTION

Her Enerji ve Çevre Teknolojileri Sanayi Ticaret A.S. has commissioned RINA to carry out the verification and certification of emission reductions reported for the registered "Kayseri Molu Landfill Gas to Electricity Project, Turkey" project in Turkey, GS Registration Reference N°1061, for the period 01/12/2011 to 31/03/2014.

This report summarizes the findings of the verification of the project, performed on the basis of GS VER requirements, which refer to CDM rules, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The objective of the verification is to have an independent review ex post determination by a Designated Operational Entity (DOE) of the monitored reductions in GHG emissions that have occurred as a result of the registered GS project activity during a defined monitoring period and to monitor the impact of project activity on sustainable development, throughout the monitoring of the non-neutral Sustainable Development Indicators and moreover to monitor all the mitigation and compensation measures put in place. Certification is the written assurance by the DOE that, during a specific time period, a proposed GS project activity achieved the reductions in anthropogenic emissions by sources of GHGs as verified and that all the defined Sustainable Development Indicators to be monitored have been monitored according to the sustainability monitoring plan and that all the mitigation measures forecast have been correctly and effectively implemented.

The objective of this verification/certification was to verify and certify emission reductions and effective implementation of the monitoring of sustainable development indicators and mitigation measures, reported for the "Kayseri Molu Landfill Gas to Electricity Project, Turkey" project in Turkey for the period 01/12/2011 to 31/03/2014.

1.2 Scope

The verification scope is:

- to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan;
- to evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement;
- to verify that reported GHG emission data is sufficiently supported by evidence;
- to evaluate whether all the mitigation measures have been effectively put in place according to the monitoring plan and that all the sustainable development indicators have been correctly monitored.

Verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable GS VER requirements which refer to CDM rules, in order to be certified.

UNFCCC criteria for CDM refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, and the subsequent decisions by the CDM Executive Board.

The GS criteria refer to GS requirements, GS Toolkit and supporting annexes.

Verification is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring.

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2 METHODOLOGY

Verification was conducted using RINA procedures in line with the requirements specified in the GS Requirements, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques.

The verification consisted of the following three phases:

- Desk review;
- On-site assessment:
- The resolution of outstanding issues and the issuance of the final verification report and certification.

The following sections outline each step in more detail.

2.1 Desk Review

The monitoring report, version 0.9 of 14/01/2016 [/3/](#), the emission reduction calculations provided in the form of a spreadsheet, “ER_Kayseri Landfill_v6.xlsx” version 06 of 18/01/2016 [/4/](#), the approved baseline and monitoring methodology ACM0001 version 13.0.0 of 11/05/2012 [/11/](#), and all the documentation provided to support the monitoring period [/1 – 60/](#) were assessed as part of the verification. In addition, the Project Design Document (PDD) version 08 of 24/03/2014 [/1/](#), in particular as regards the baseline estimations and the monitoring plan, the Passport version 01 of 20/07/2011 [/2/](#), and the validation report, revision 05 of 09/04/2014 [/12/](#) for the project, were reviewed.

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

/1/	FutureCamp: CDM-PDD for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 08 of 24/03/2014
/2/	FutureCamp: GS Passport for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 06 of 24/03/2014
/3/	FutureCamp: Monitoring Report for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 0.9 of 14/01/2016 FutureCamp: Monitoring Report for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 0.8 of 29/09/2015 FutureCamp: Monitoring Report for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 0.7 of 06/09/2015 FutureCamp: Monitoring Report for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 0.6 of 24/06/2015 FutureCamp: Monitoring Report for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 0.5 of 16/05/2015 FutureCamp: Monitoring Report for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 0.4 of 01/02/2015 FutureCamp: Monitoring Report for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 0.3 of 05/11/2014 FutureCamp: Monitoring Report for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 0.2 of 26/08/2014 FutureCamp: Monitoring Report for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 0.1 of 01/06/2014
/4/	FutureCamp: Emission Reduction Calculation Spreadsheet “ER_Kayseri Landfill_v5.xlsx” version 6 of 18/01/2016 FutureCamp: Emission Reduction Calculation Spreadsheet “ER_Kayseri Landfill_v5.xlsx” version 5 of 24/06/2015 FutureCamp: Emission Reduction Calculation Spreadsheet “ER_Kayseri Landfill_v4.xlsx” version 4 of 05/06/2015 FutureCamp: Emission Reduction Calculation Spreadsheet “ER_Kayseri Landfillv3.xlsx”

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	<p>version 3 of 01/02/2015</p> <p>FutureCamp: Emission Reduction Calculation Spreadsheet "ER_Kayseri Landfillv2.xlsx" version 2 of 14/11/2014</p> <p>FutureCamp: Emission Reduction Calculation Spreadsheet "ER_Kayseri Landfillv1.xlsx" version 1 of 26/08/2014</p> <p>FutureCamp: Emission Reduction Calculation Spreadsheet "Calculation_ER.xlsx" version 0 of 09/06/2014</p>
/5/	The Gold Standard: The Gold Standard Validation & Verification Standard for Voluntary Offset Projects of June 2007
/6/	The Gold Standard: Voluntary Emission Reductions (VERs) Manual for Project Developers, of May 2006
/7/	Gold Standard Foundation: Gold Standard Requirements, version 2.1 of 01/07/2009
/8/	Gold Standard Foundation: Gold Standard Toolkit, version 2.1 of 01/07/2009
/9/	The Gold Standard Foundation: Kayseri Molu Landfill Gas to Energy Project, Turkey (GS1061) 8-week Registration Review Period Document of 21/04/2014
/10/	CDM Executive Board: Validation and Verification Standard, 07.0 of 01/07/2014
/11/	CDM Executive Board: Baseline and Monitoring Methodology "ACM0001", " Flaring or use of landfill gas ", version 13.0.0 of 11/05/2012
/12/	Bureau Veritas: Validation Report for "Kayseri Molu Landfill Gas to Electricity Project, Turkey" in Turkey, No. TURKEY-CER/1345.11.C45 revision 05 of 09/04/2014
/13/	CDM Executive Board: Methodological Tool "Combined tool to identify the baseline scenario and demonstrate the additionality" version 05.0.0 of 23/11/2012
/14/	CDM Executive Board: Methodological Tool "Project emissions from flaring" version 02.0.0 of 20/07/2012
/15/	CDM Executive Board: Methodological Tool "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 02.0.0 of 03/06/2011
/16/	CDM Executive Board: Methodological Tool "Emissions from solid waste disposal sites" version 06.0.0 of 25/11/2011
/17/	CDM Executive Board: Methodological Tool "Tool to calculate the emission factor for an electricity system" Version 02.2.1 of 29/09/2011
/18/	CDM Executive Board: Methodological Tool 'Tool to calculate baseline, project and/or leakage emissions from electricity consumption' version 01 of 16/05/2008
/19/	CDM Executive Board: Monitoring Report Form (CDM-MR-FORM), version 04.0 of 25/06/2014
/20/	Keos: The Certificates of the Health and Safety Training for 6 Employees of 17/05/2014
/21/	TEDAS: The Certificate of the Health and Safety Training for 1 Employee of 28-29/03/2012
/22/	TEDAS: The Certificate of Working under the High Voltage in Electrical Power Plants for 1 Employee of 10/05/2012
/23/	Social Security Agency: Residence Certificate of 7 Employees, submitted on 26/06/2014
/24/	Social Security Institution: Declaration of Employment for 20 Employees of 01/2014 Social Security Institution: Declaration of Employment for 20 Employees of 02/2014 Social Security Institution: Declaration of Employment for 20 Employees of 03/2014
/25/	Kayseri Metropolitan Municipality, General Directorate of Water and Sewerage Administration, Wastewater Treatment Department: Correspondance about the Leachate of 05/02/2014
/26/	Ministry of Energy and Natural Resources: Temporary Acceptance Protocol of 01/11/2011 (1x1.560 MWe)
/27/	Ministry of Energy and Natural Resources: Temporary Acceptance Protocol of 27/07/2012 (1x1.305 MWe)

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/28/	Ministry of Energy and Natural Resources: Temporary Acceptance Protocol of 05/07/2013 (1x1.357 MWe)
/29/	Conveco S.r.l.: Declaration About Kayseri Landfill Gas Project Gold Standard Verification of 14/05/2015 Conveco S.r.l.: Declaration About Kayseri Landfill Gas Project Gold Standard Verification of 22/07/2014 Conveco S.r.l.: Declaration About Kayseri Landfill Gas Project Gold Standard Verification of 30/06/2014
/30/	Kayseri ve Civari Elektrik T.A.S.: Connection Agreement of 29/04/2014
/31/	Energy Market Regulatory Authority: Generation License numbered EU/3354-6/2038 of 11/08/2011
/32/	FutureCamp: Excel Sheet Including Raw Data of Motor, submitted on 02/07/2014
/33/	FutureCamp: Excel Sheet Including Raw Data of Flare, submitted on 02/07/2014
/34/	Pronova: User Manuel of SSM 6000, submitted on 02/07/2014
/35/	User Manuel of The Model 415 Gas&Steam Flow Computer, submitted on 02/07/2014
/36/	Tecnova HT: Correspondence about the Accuracy and Calibration Frequency of Liquid and Gas Analyses Systems of 25/06/2014
/37/	Schematic Representation of the Gas Booster Unit and Flare, submitted on 02/07/2014
/38/	Isocontrolli: Confirmity Decleration of Thermocouple of 10/05/2014
/39/	TEIAS: First Index Protocol for the Electricity Meters with a serial no: 447413 of 16/11/2011
/40/	Keos: Health and Safety Training for 12 Employees of 01/12/2011
/41/	Keos: Health and Safety Training for 16 Employees of 01/05/2012
/42/	Keos: Health and Safety Training for 18 Employees of 01/11/2012
/43/	Keos: Health and Safety Training for 19 Employees of 01/05/2013
/44/	Keos: Health and Safety Training for 19 Employees of 01/11/2013
/45/	Kayserigaz: Correspondence About Natural Gas Pipeline, No. 14/756 of 12/08/2014
/46/	Teksan Generator: Photo of the Generator including the Working Hours and the Label, submitted on 26/08/2014
/47/	Teksan Generator: Perhour Consumption of the Generator, submitted on 26/08/2014
/48/	Market Financial Settlement Center (PMUM): All Monthly Electricity Records from 01/12/2011 to 31/03/2014
/49/	Fuji Electric: Data Sheet for the Pressure Transmitter of FCX-AIII Series, submitted on 07/04/2015
/50/	Pronova: Calibration Certificate of the CH ₄ -CO ₂ -O ₂ Analyzer of 19/05/2011
/51/	Tecnova HT: Conformity Report for Biogas Analyzer of 25/05/2011
/52/	Tecnova HT: Conformity Report for Pressure Meter of 25/05/2011
/53/	Tecnova HT: Conformity Report for Flow Meters of 25/05/2011
/54/	Isocontrolli: Conformity Report for Thermocouple of 10/05/2014
/55/	Website: http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html#table-2-14 Argument: IPCC, The New Global Warming Potentials Language: English, Retrieved on: 10/07/2015
/56/	The Ministry of Trade and Industry: Regulation of Metering and Testing of Metering Systems of 24/07/1994
/57/	Iltekno: Article about Start-up Fuel is not Used in the Project Activity of 09/10/2015
/58/	MWM: Biogas Applications Catalog submitted on 09/10/2015

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/59/	MWM: Product Catalog submitted on 09/10/2015
/60/	Website: http://www.teksangenerator.com.tr/pdf/bakim_ve_kullanim.pdf Argument: Operation and Maintenance Manuel for Diesel Generator Sets of Teksan Generator Language: Turkish; Retrieved on:19/01/2016

2.2 On-site assessment

On 15-16/07/2014, RINA visited the plant located in Koca Sinan district, Kayseri province of Turkey. During the on-site assessment of the project, RINA assessed the implementation and operation of the proposed project activity, reviewed the information flows for generating, aggregating and reporting the monitoring parameters, interviewed key personnel of the plant to confirm the operational and data collection procedures, cross-checked between information provided in the monitoring report and data plant, checked the monitoring equipment including calibration performance, reviewed calculations and assumptions made in determining the GHG data and emission reductions, checked the quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters, checked the correct and effective implementation of the mitigation measures foreseen in the sustainability monitoring plan, to prevent violation or the risk of violating a safeguarding principle of the “Do No Harm” Assessment or to “neutralize” a Sustainable Development Indicator.

The project area was visited on 15-16/07/2014. The project employee were interviewed about the implementation status of the project, monitoring equipment and operation, generated electricity, calibration certificates, training certificates, employment, leachate, measuring devices of the project activity.

In addition, the stakeholders were visited on Molu Village. They were interviewed about the benefit of the project to the village and young stakeholders to work in the project area. They all know the state of the pitch before the project activity. They confirmed that the smell of the wastes and the fires are reduced after the project starts operation. They also mentioned that there is no young population in the village to work on the project.

Mustafa Aydemir, who is a waste picker, is interviewed about the previous state of the project activity. He confirmed that before Her Enerji employed them, they were working under difficult conditions.

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

	Date	Name and Role	Organization	Topic
/a/	16/07/2014	Ali DUZGUN <i>General Manager</i>	HER Enerji	Monitoring plan Monitoring methodology
/b/	15-16/07/2014	Fariz TASDAN <i>The Consultant</i>	HER Enerji	Monitoring data Implementation status of the project
/c/	15-16/07/2014	Hakki AZIZLERLIOGLU <i>Financial and Administrative Affairs</i>	HER Enerji	Monitoring equipments and operation
/d/	15-16/07/2014	Duran Arman SARITAS <i>Operating Manager</i>	HER Enerji	Calibration certificates Training Certificates
/e/	16/07/2014	Murat CAGLAYAN <i>Environmental Engineer</i>	HER Enerji	Electricity Generation Employment
/f/	15-16/07/2014	Kadir ARSLANER <i>Technical Staff</i>	HER Enerji	Leachate Measuring Devices
/g/	16/07/2014	Mustafa KULAHCI	Molu Village	Benefit of the project to the

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		<i>Farmer</i>		village
/h/	16/07/2014	Ahmet CIRAY <i>Farmer</i>	Molu Village	Project Effects Employment
/i/	16/07/2014	Mustafa ARARSLAN <i>Farmer</i>	Molu Village	Odor Fire
/j/	16/07/2014	Sare GULAC <i>Housewife</i>	Molu Village	
/k/	16/07/2014	Mustafa AYDEMIR <i>Driver</i>	HER Enerji	Previous state of the project activity

2.3 Resolution of outstanding issues

The objective of this phase of the verification is to resolve any outstanding issues which need to be clarified for RINA's positive conclusion on the monitoring report and emission reductions.

To guarantee transparency a verification protocol has been customized for the project. The protocol shows in a transparent manner the requirements, means of verification and the results from verifying the identified criteria. The verification protocol consists of three tables; the different columns in these tables are described in the figure below (see Figure 1). The completed verification protocol is enclosed in Appendix A to this report.

A corrective action request (CAR) is raised if one of the following occurs:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions;
- Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.

A clarification request (CR) is raised if information is insufficient or not clear enough to determine whether the applicable GS VER requirements, which refer to CDM rules, have been met.

CARs, CRs identified are included in the verification protocol in Appendix A of this report.

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Figure 1 Gold Standard Verification protocol tables

Verification Protocol, Table 1 - Requirement checklist				
Checklist Question	Ref.	MoV	Comments	Conclusion
Checklist questions organized in five different sections.	Makes reference to documents where the answer to the checklist question or item is found.	Explain how conformance with the checklist question is investigated. Examples are document review (DR), interview or any other follow-up actions (I), cross checking (CC) with available information relating to projects, (N/A) means not applicable.	The discussion on how the conclusion is arrived at and the conclusion on the compliance with checklist question so far.	For CAR and CR see the definitions above. OK is used if the information and evidence provided is adequate to demonstrate compliance with GS VER/CDC requirements which refer to CDM rules.

Verification Protocol, Table 2: Resolution of Corrective Action Requests and Clarification			
Corrective action requests and/or clarification requests	Reference to Table 1	Response by project participants	Verification Conclusion
The CAR and/or CRs raised in table 1 are repeated here.	Reference to the checklist question number in Table 1 where the CAR or CR is explained.	The responses given by the project participants to address the CARs and/or CRs.	The verification team's assessment and final conclusion of the CARs and/or CRs.

Verification Protocol, Table 3 - Forward Action Requests		
Forward action request	Reference to Table 1	Response by project participants Verification Conclusion
The FAR raised in table 1 is repeated here.	Reference to the checklist question number in Table 1 where the FAR is explained.	Response by the project participants on how forward action request will be addressed.

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2.4 Internal quality control

All the revisions of the verification report, before being submitted to the client, were subjected to an independent internal technical review to confirm that all verification activities had been completed according to the pertinent RINA instructions.

The technical review was performed by a technical reviewer(s) qualified in accordance with RINA's qualification scheme for CDM/GS validation and verification.

2.5 Verification team and the technical reviewer(s)

The verification team and the technical reviewers consist of the following personnel:

Role/Qualification	Last Name	First Name	Type of involvement*					
			DR	SV	REP	TE	TR	TER
GS Team Leader, GS Verifier, Technical Expert	Kıratlı	Tuğçe	x	x	x			
Technical Reviewer	Menon	Rekha					x	x

*DR: Document Review; SV: Site Visit/Interview; REP: Reporting; TE: Technical Expert in Technical Area; TR: Technical Review; TER: Technical Expert in Technical Area for Technical Review.

3 VERIFICATION FINDINGS

The findings of the verification related to the monitoring period from 01/12/2011 to 31/03/2014 as documented and described in the monitoring report version 0.9 of 14/01/2016 and previous versions /3/ are stated in the following sections.

The verification requirements, the means of verification and the results from verifying the identified criteria are documented in more detail in the verification protocol in Appendix A.

3.1 Description of the project activity

The main information of the project is summarized in the table below.

Project Participant(s)	Her Enerji ve Cevre Teknolojileri Sanayi Ticaret A.S.		
Project Title	Kayseri Molu Landfill Gas to Electricity Project, Turkey		
Location of the project	Koca Sinan District, Kayseri, Turkey		
Methodology(ies)	" ACM0001", " Flaring or use of landfill gas ", version 13.0.0 of 11/05/2012 /11/		
Sectoral Scope(s)	13	RINA's Technical Area(s)	13.1
Registered PDD	Revision 08 of 24/03/2014		
Date of registration	08/10/2013 /9/	GS Registration Reference N°	1061
Starting date of the crediting period	01/12/2011		

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Project's crediting period	01/12/2011 to 30/11/2021
Monitoring period	01/12/2011 to 31/03/2014
Project documentation link	http://mer.markit.com/br-reg/public/project.jsp?project_id=103000000001869

The purpose of the project activity is the generation of the electricity by using the LFG from the landfill. The project aims at avoiding greenhouse gas (GHG) emissions from existing landfill area by collecting biogas to generate electricity. The total installed capacity of the project is 4.222 MWe. The electricity produced is delivered to the Turkish national grid (TEIAS). The annual emission reductions are estimated to be 126,925 tCO₂e for this monitoring period from 01/12/2011 to 31/03/2014. During the monitoring period of 01/12/2011 to 31/03/2014 (both days included) the actual emission reductions is 244,503 tCO₂e.

3.2 Remaining issues (FARs) from previous validation or verification

Based on the review of the Gold Standard Foundation /9/, there was no FARs to be addressed during validation. However, based on the review of the validation report, 2 FARs were raised during the validation. All FARs have been successfully closed.

FAR #1: It was informed by the plant operating personnel that there is no mixing of any auxiliary gas to boost calorific value of LFG or as a startup fuel for the Engine or the flare system. However, it is to be confirmed during the DOE site visit for verification. If it is found that some auxiliary fuels are being utilized, the corresponding amount of fuel should be accounted for project emissions.

During on site visit, the project owner mentioned that there is no natural gas line or connection to mix an auxiliary gas to boost calorific value of LFG or as a startup fuel for the Engine or the flare system. They also provided an official paper /45/ from Natural Gas Distribution Company and an article /57/ from supplying, installation and commissioning company to confirm this situation.

This issue was closed.

FAR #2: Project consists of three blowers their electricity consumption will be monitoring ex-post calculation. Please verify the project emission in verification process.

The electricity consumption is monitored through the PMUM records. As stated in the registered PDD, for the simplicity of emission reduction calculation, project emission from electricity consumption is assumed to be "0". There are no project emissions from consumption of electricity while the electricity consumed is already subtracted from gross electricity generation. Project emission is caused by consumption of fossil fuel by the project activity.

This issue was closed.

3.3 Monitoring Report

The Monitoring Report for the project activity "Kayseri Molu Landfill Gas to Electricity Project, Turkey", in "Turkey", version 0.9 of 14/01/2016 submitted by the Her Enerji ve Cevre Teknolojileri Sanayi Ticaret A.S. has been the basis for the verification process.

The main changes between the MR version version 0.1 of 01/06/2014 at the starting date of the verification activity and the MR version 0.9 of 14/01/2016 submitted for registration are the following:

Section of the MR	Description and reason for changing the information in that section
First Page	Actual and Estimated Emission Reduction is revised. The registration date is corrected.
B.2.2. Corrections	Necessary explanations about the generator consumption calculation and the changes to start date of the crediting period.
Section C. Description of monitoring system	The necessary informations are now presented for the electricity meters with their model, serial no, accuracy class, calibration frequency and

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	calibration date.
D.1. Data and parameters fixed ex ante or at renewal of crediting period	The emission factor for the project activity calculated in validation period is now added to the parameters since it is not monitored during the crediting period.
D.2. Data and parameters monitored	The values, measuring/reading/recording frequencies are now corrected for all the monitoring parameters.
SECTION E. Calculation of emission reductions or GHG removals by sinks	The given formulas could now be in lie with the calculation. The baseline, project emissions and emission reduction values are now corrected. Remarks on difference from estimated and actual is now discussed.
F.1 Sustainability Monitoring Plan	The number of the employees are now presented in Quantitative employment and income generation. The value for the current situation of soil condition and air quality is now revised.

RINA confirms that the above MR is based on the currently valid MR template /19/ and is completed in accordance with the applicable guidance document /19/.

3.4 Project implementation

Actual implementation of the registered project activity

It was verified during the site visit conducted on 15-16/07/2014 that the proposed project activity has been implemented and it is in operation in accordance with the project activity described in the registered PDD /1/. The total installed capacity of the project activity is to 4.222 MWe with 3 units of gas engines installed with a capacity of 1.560 MW, 1.305 MW and 1.357 MW.

The project activity is registered as Gold Standard Project activity on 08/10/2013 as confirmed through the Gold Standard Foundation document /9/.

It was confirmed during on site visit that the gas collection system, booster, blower, the enclosed flare system, and the gas engine were installed by the end of first monitoring period.

3 units of gas engine have been installed with a total capacity of 4.222 MWe (1x1.560 MWe, 1x1.305 MWe and 1x1.357 MWe), which are dedicated to the landfill gas extracted from the landfill area. 3 engines have been commissioned in three phase as explained below:

- On 01/11/2011, one power generation unit has commissioned as confirmed through the Temporary Acceptance Protocol /26/.
- On 27/07/2012, one power generation unit has commissioned as confirmed through the Temporary Acceptance Protocol /27/.
- On 05/07/2013, one power generation unit has commissioned as confirmed through the Temporary Acceptance Protocol /28/.

No change in the registered PDD /1/ has been occurred during the 1st monitoring period of 01/12/2011 to 31/03/2014.

Based on the on-site inspection and checking the above documents, RINA confirms that the project activity has been implemented and it is in operation as described above in accordance with the project activity in the registered PDD /1/.

Post registration changes

The emission of the diesel consumption from the generator is calculated with the working hour of the generator instead of monitoring mass or volume of the fuel consumed since the invoices for purchase of diesel could not be provided. The invoices could not be separated for the amount of diesel fuel since the fuel is purchased for both the generator and the cars. The diesel generator has own counting system and a screen /46/. The working hours is monitored by this screen. Also, per hour of the consumed fuel is confirmed as per the data sheet of the diesel generator /47/.

In addition, the start date of the crediting period is changed as 01/12/2011 instead of the first operation date of 01/11/2011 since the first month there have been some disruptions and generation was not

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achieved. According to the data excel sheet, the first month of the operation, the engines did not work most of the time as confirmed through the calculation raw data excel sheet /4/.

3.5 Methodology for determining Emission Reductions.

According to the applied methodology ACM0001 “Flaring or use of landfill gas” version 11 /11/, the emission reductions have been calculated based on the following formula:

$$ER_y = BE_y - PE_y - L_y$$

Where:

BE_y = Baseline emissions in year y (tCO₂e/yr)

PE_y = Project emissions in year y (tCO₂e/yr)

L_y = Leakage emissions in year y (tCO₂e/yr)

Baseline emissions

According to the registered PDD /1/, the baseline emissions have been calculated based on the following formula, which is defined as per the methodology ACM0001 version 13 /11/:

$$BE_y = BE_{CH_4,y} + BE_{EC,y}$$

Where:

BE_y = Baseline emissions in year y (tCO₂e)

$BE_{CH_4,y}$ = Baseline emissions of methane from the SWDS in year y (tCO₂e/yr)

$BE_{EC,y}$ = Baseline emissions associated with electricity generation in year y (tCO₂/yr)

Project emissions

According to methodology ACM0001 version 13 /11/, the project emissions have been calculated based on the following formula:

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

$PE_{EC,y}$ = Emissions from consumption of electricity due to the project activity in year y (tCO₂/yr)

$PE_{FC,y}$ = Emissions from consumption of fossil fuels due to the project activity, for purpose other than electricity generation, in year y (tCO₂/yr)

Leakage

According to methodology ACM0001 version 13 /11/, no leakage effects need to be accounted. The project activity does not involve off-site transportation of waste materials.

3.5.1 Compliance of the monitoring plan with the monitoring methodology and applicable methodological tools

The registered project activity applies the approved baseline and monitoring methodology of ACM0001 /11/. RINA confirms that the monitoring plan in the registered PDD /1/ complies with the applied CDM methodology and with the sustainability indicators established by the Appendix D of the Gold Standard requirements /7/.

3.5.2 Deviation in GHG emission reduction

Additionality assessment has been performed according to the “Tool for the demonstration and assessment of additionality” approved by UNFCCC in the registered PDD /1/. The baseline scenario selection and the calculation of emission reductions have been carried out in a conservative manner.

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An approved CDM methodology, ACM0001 /11/ has been applied in order to determine the baseline scenario and calculate emission reductions.

3.5.3 Compliance of monitoring with monitoring plan

The monitoring plan in the monitoring report version 0.9 of 14/01/2016 /3/ complies with the monitoring plan in the registered PDD /1/ and the monitoring methodology, ACM0001 /11/ has been properly implemented and followed. All the parameters, as listed in the following sections, have been monitored according the applied methodology and the relevant CDM EB decisions and GS requirements. The sustainability indicators in the monitoring report /3/ comply with the sustainability indicators established by the Appendix D of the Gold Standard Requirements. Any change has been occurred to the key sustainable development indicators during the monitoring period. RINA can thus confirm the implementation of the project monitoring was appropriate.

The following parameters have been monitored in accordance with the monitoring plan in the registered PDD /1/ and the monitoring report /3/.

3.5.3.1 Data and parameters fixed ex-ante or at renewal crediting period

DATA/PARAMETER	Source of data	Reported value for the project period	Assessment/Observation
W_x Quantity of MSW land filled	Landfill gas power generation report of Kayseri Molu Landfill gas project	1,196,885 t	The data is provided in the report of landfill gas power generation report and this data is used to for calculation of energy generation /1/.
GWP_{CH₄} Global Warming Potential of Methane	IPCC	21 and 25 tCO ₂ e/tCH ₄	As per the IPCC the value is fixed for the first and second commitment period. It shall be updated according to any future COP/MOP decision /55/.
D_{CH₄} Density of methane	ACM0001 version 11.0 /11/	0.0007168 tCH ₄ /m ³ CH ₄	The value considered is according with the approved methodology ACM0001 /11/ and it is fixed at standard temperature 0°C and pressure 1.013 bar.
φ Model correction factor to account for model uncertainties	Methodological tool /16/	0.75	The value has been applied according to the methodological tool "Tool to determine emissions avoided from disposal of waste at a solid waste disposal site" /16/.
OX Oxidation Factor	IPCC 2006 Guidelines for National Greenhouse Gas Inventories	0.1	The value considered is according with the IPCC /55/ and it is fixed as 0.1.
F Fraction of methane in the SWDS gas	IPCC 2006 Guidelines for National Greenhouse Gas Inventories	0.5	A default value of 0.5 has been used as recommended by IPCC 2006 Guidelines for National Greenhouse Gas Inventories /55/.
DOC_f Fraction of degradable organic carbon	IPCC 2006 Guidelines for National Greenhouse Gas Inventories	0.5	A default value of 0.5 has been used as recommended by IPCC 2006 Guidelines for National Greenhouse Gas Inventories /55/.

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MCF Methane correction factor	IPCC 2006 Guidelines for National Greenhouse Gas Inventories	0.8	According to IPCC the value of 0.8 has been used justified for unmanaged solid waste disposal sites – deep and/or with high water table.
DOC_j Fraction of degradable organic carbon	IPCC 2006 Guidelines for National Greenhouse Gas Inventories	Different values	The following values for the different waste types have been applied (% wet waste): <ul style="list-style-type: none"> – 43% wood and wood products – 40% pulp, paper and cardboard – 15% food, food waste, beverages and tobacco – 20% non-food organic
k_j Decay rate of the waste	IPCC 2006 Guidelines for National Greenhouse Gas Inventories	Different values	The following values for the different waste types have been applied (boreal and temperature – dry): <ul style="list-style-type: none"> – 0.02% wood, wood products and straw – 0.04% pulp, paper, cardboard – 0.06% food, food waste, sewage sludge, beverage and tobacco – 0.05% non-food organics, putrescible garden and park waste
η_{p,j} Efficiency of the LFG capture system that will be installed in the project activity	Methodology ACM0001	50%	The parameter is used for the calculation of the baseline emission.
R_u Universal ideal gases constant	Tool to determine the mass flow of a greenhousegas in a gaseous stream	8.314 Pa.m ³ /kmol.K	The parameter is used for the calculation of the baseline emission. According to the tool /15/, the value is fixed as 8.314 Pa.m ³ /kmol.K.
MM_{CH4} Molecular mass of CH ₄	Tool to determine the mass flow of a greenhousegas in a gaseous stream	16.04 kg/kmol	The parameter is used for calculation of baseline emission. As per the tool /15/ the value is fixed as 16.04 kg/kmol.
P_n Total pressure at normal conditions	Tool to determine the mass flow of a greenhousegas in a gaseous stream	101.325 Pa	The parameter is used for calculation of emission reduction. As per the tool /15/ the value is fixed as 101.325 Pa.
T_n Temperature at normal conditions	Tool to determine the mass flow of a greenhousegas in a gaseous stream	273.15 kg/kmol	The parameter is used for calculation of emission reduction. As per the tool /15/ the value is fixed as 273.15 kg/kmol.
f_y	Methodology	0	The parameter is used for determining



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Fraction of methane captured at the SWDS and flared	ACM0001		MCF. The value is defined as zero "0" as per the Methodology ACM0001 /11/.
EF _{grid,CM,y} Combined Margin Emission Factor	TEIAS statistics	0.602 tCO ₂ /MWh	As per the approved methodology ACM0002, the combined emission factor has been determined using the ex-ante option and so it is not requested to monitor and recalculate the emission factors during the crediting period. The combined emission factor is determined to be 0.5313 tCO ₂ /MWh in the registered PDD /1/ and validation report /12/.

3.5.3.2 Sampling plan

Not available.

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3.5.3.3 Data and parameters monitored ex-post

DATA/PARAMETER	$F_{CH_4, \text{sent flare}, y}$
Data Unit	t_{CH_4} / y
Description	Amount of methane in LFG which is sent to the flare in year y
Source of data to be used	The parameter is monitored continuously by flow meters.
Value data for the monitoring period	87.65 2011: 6.82 2012: 68.73 2013: 11.78 2014: 0.31
Measuring and reporting frequency; recording procedure	The parameter is measured continuously by flow meters in line with the registered monitoring plan. The amount is also read and recorded continuously. Each booster has a server unit, which receives all the data from the flow meter and saves automatically every 10 minutes.
Type of monitoring equipment and its accuracy	The parameter is monitored continuously by volume flow meters. During the monitoring period the following instrument has been used: – Flow Meter ORIFICE PLATE – DCMD200016CS sn ABF0859F The accuracy of the flow meter is ± 0.1 as confirmed through the user manual of the flow meter /35/ .
Calibration frequency/interval	The flow meter has been calibrated on 25/05/2011 by the supplier as confirmed through the conformity report /53/ . The calibration frequency has been defined every 10 years by the supplier as confirmed through the regulation /56/ . No calibrations have been carried out during this monitoring period.
How were the values in the monitoring report verified and cross-checked?	The values reported in the monitoring report /3/ have been crosschecked with raw data given in the excel sheet /4/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory every 10 minutes.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	$F_{CH_4,EL,y}$
Data Unit	t_{CH_4} /y
Description	Amount of methane in LFG which is sent to the gas engine in year y
Source of data to be used	The parameter is monitored continuously by flow meters on engine line.
Value data for the monitoring period	Total:9,829.02 2011: 126.35 2012: 2,670.24 2013: 5,478.92 2014: 1,553.51
Measuring and reporting frequency; recording procedure	The parameter is measured continuously by flow meters in line with the registered monitoring plan. It is programmed to save automatically every 10 minutes. The data are stored automatically at the booster.
Type of monitoring equipment and its accuracy	The parameter is monitored continuously by volume flow meters. The measurements of the flow rate of the gas and the measurements of the volumetric fraction of methane in the gas refer to the same basis, which is a wet basis. During the monitoring period the following instrument has been used: <ul style="list-style-type: none"> - Flow Meter ORIFICE PLATE - DCMD125016CS sn ABF1701F The accuracy of the flow meter is ± 0.1 as confirmed through the user manual of the flow meter /35/ .
Calibration frequency/interval	The flow meter has been calibrated on 25/05/2011 by the supplier as confirmed through the conformity report /53/ . The calibration frequency has been defined every 10 years by the supplier as confirmed through the regulation /56/ . No calibrations have been carried out during this monitoring period.
How were the values in the monitoring report verified and cross-checked?	The values reported in the monitoring report /3/ have been crosschecked with raw data given in the excel sheet /4/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory every 10 minutes.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	V_{t,wb}
Data Unit	m ³ wet gas/h
Description	Volumetric flow of the gaseous stream in the hour h on a wet basis
Source of data to be used	The parameter is monitored continuously by flow meters on main line.
Value data for the monitoring period	Total: 25,188,358.53 m ³ gas 2011: 330,025.83 2012: 7,142,136.62 2013: 13,658,249.45 2014: 4,057,946.64
Measuring and reporting frequency; recording procedure	The parameter is measured continuously by flow meters in line with the registered monitoring plan. It is programmed to save automatically every 10 minutes. The data are stored automatically at the booster.
Type of monitoring equipment and its accuracy	The parameter is monitored continuously by volume flow meters. The measurements of the flow rate of the gas and the measurements of the volumetric fraction of methane in the gas refer to the same basis, which is a wet basis. During the monitoring period the following instrument has been used: <ul style="list-style-type: none"> - Flow Meter ORIFICE PLATE - DCMD200016CS sn ABF1699F The accuracy of the flow meter is ±0.1 as confirmed through the user manual of the flow meter /35/ .
Calibration frequency/interval	The flow meter has been calibrated on 25/05/2011 by the supplier as confirmed through the conformity report /53/ . The calibration frequency has been defined every 10 years by the supplier as confirmed through the regulation /56/ . No calibrations have been carried out during this monitoring period.
How were the values in the monitoring report verified and cross-checked?	The values reported in the monitoring report /3/ have been crosschecked with raw data given in the excel sheet /4/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory every 10 minutes.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	V _{CH4,t,wb}
Data Unit	m ³ CH ₄ / m ³ wet gas
Description	Volumetric flow of CH ₄ in time interval on a wet basis
Source of data to be used	The parameter is monitored continuously by flow meters.
Value data for the monitoring period	Average: 47.88% 2011: 28.01 2012: 53.21 2013: 56.35 2014: 53.97
Measuring and reporting frequency; recording procedure	The parameter is measured continuously by flow meters in line with the registered monitoring plan. It is programmed to save automatically every 10 minutes. The data are stored automatically at the booster.
Type of monitoring equipment and its accuracy	The parameter is monitored continuously by volume flow meters. The measurements of the flow rate of the gas and the measurements of the volumetric fraction of methane in the gas refer to the same basis, which is a wet basis. During the monitoring period the following instrument has been used: <ul style="list-style-type: none"> - Flow Meter ORIFICE PLATE - DCMD200016CS sn ABF1699F The accuracy of the flow meter is ±0.1 as confirmed through the user manual of the flow meter /35/ .
Calibration frequency/interval	The flow meter has been calibrated on 25/05/2011 by the supplier as confirmed through the conformity report /53/ . The calibration frequency has been defined every 10 years by the supplier as confirmed through the regulation /56/ . No calibrations have been carried out during this monitoring period.
How were the values in the monitoring report verified and cross-checked?	The values reported in the monitoring report /3/ have been crosschecked with raw data given in the excel sheet /4/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory every 10 minutes.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	Pt
Data Unit	Pa or Mbar
Description	Pressure of the gaseous stream in the hour h
Source of data to be used	Pressure is monitored with using pressure meter.
Value data for the monitoring period	127.42
Measuring and reporting frequency; recording procedure	The parameter is measured continuously by pressure meters in line with the registered monitoring plan. It is programmed to save automatically every 10 minutes. The data are stored automatically at the booster.
Type of monitoring equipment and its accuracy	Pressure is measured using pressure meters. During the monitoring period the following pressure meters have been used: <ul style="list-style-type: none"> - FUJI Electric: FCX-FKP – <li style="padding-left: 80px;">FKGT01V5AMCYYAA1YY sn D6500B- <li style="padding-left: 80px;">3/84447450 The accuracy of the pressure meters is 0.065% as confirmed through the data sheet of supplier /49/ .
Calibration frequency/interval	The flow meter has been calibrated on 25/05/2011 by the supplier as confirmed through the conformity report /52/ . The calibration frequency has been defined every 10 years by the supplier as confirmed through the regulation /56/ . No calibrations have been carried out during this monitoring period.
How were the values in the monitoring report verified and cross-checked?	The values reported in the monitoring report /3/ have been crosschecked with raw data given in the excel sheet /4/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory every 10 minutes.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	TDL _{ky}
Data Unit	-
Description	Average technical transmission and distribution losses for providing electricity to source k in year y
Source of data to be used	The value is provided by the grid company.
Value data for the monitoring period	0
Measuring and reporting frequency; recording procedure	Annually provided by the Turkish grid company. For the monitoring period, the grid company calculated the TDL factor monthly and uses the factor directly for the creation of the monthly reports /48/.
Type of monitoring equipment and its accuracy	NA
Calibration frequency/interval	NA
How were the values in the monitoring report verified and cross-checked?	The value data for the monitoring period is 0% as confirmed through the PMUM records /48/.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	NA
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

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DATA/PARAMETER	$PE_{flare,y}$
Data Unit	tCO _{2e}
Description	Project emissions from flaring of the residual gas stream in year y
Source of data to be used	Calculated as per the “Tool to determine project emissions from flaring gases containing methane”
Value data for the monitoring period	Total: 2,075 tCO _{2e} 2011:162.37 2012:1,631.01 2013: 273.96 2014: 7.28
Measuring and reporting frequency; recording procedure	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 ($F_{CH_4,RG,m}$) and the flare efficiency ($\eta_{flare,m}$)
Type of monitoring equipment and its accuracy	The value has been determined according to the methodological tool “Project emissions from flaring” /14/.
Calibration frequency/interval	The parameter is calculated as per the “Project emissions from flaring” /14/. Data is derived from the parameters of “GWP _{CH₄”, “F_{CH₄,RG,m}” and “$\eta_{flare,m}$”.}
How were the values in the monitoring report verified and cross-checked?	The parameter is calculated by using the parameters of “GWP _{CH₄”, “F_{CH₄,RG,m}” and “$\eta_{flare,m}$”.}
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The values are aggregated and automatically transferred to the ERs spreadsheet calculation.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period.



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DATA/PARAMETER	FC _{i,j,y}
Data Unit	t/year
Description	Quantity of diesel combusted for auxiliary purposes
Source of data to be used	Working hour of gen-set and per hour fuel consumption
Value data for the monitoring period	13,19 ton
Measuring and reporting frequency; recording procedure	The quantity of diesel combusted for auxiliary purposes is calculated using a working hour of gen-set and per hour consumption of diesel
Type of monitoring equipment and its accuracy	/
Calibration frequency/interval	NA
How were the values in the monitoring report verified and cross-checked?	The value of the working hours is verified and cross-checked with the photo of the generator including the working hours and the label /46/
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	NA
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

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DATA/PARAMETER	W_{CH_4}
Data Unit	(m^3CH_4/m^3LFG)
Description	Methane fraction in the landfill gas
Source of data to be used	The methane fraction is measured continuously by a gas analyzer.
Value data for the monitoring period	47.88 2011: 28.01 2012: 53.21 2013: 56.35 2014: 53.97
Measuring and reporting frequency; recording procedure	The gas analyzer measures continuously and it is programmed to save automatically on real time. Each booster has a server unit that received all the data from the monitoring equipment and saves automatically every 10 minutes.
Type of monitoring equipment and its accuracy	The methane fraction is measured continuously by a gas analyzer. The measurements of the flow rate of the gas and the measurements of the volumetric fraction of methane in the gas refer to the same basis, which is a wet basis. During the monitoring period the following instrument has been used: - Gas Analyzer: Pronova SSM6000 - LT sn 80021000-1598 The accuracy of Gas Analyzer is 2-3% as confirmed through the data sheet of Gas Analyses Systems /36/.
Calibration frequency/interval	The gas analyzer has been calibrated on 19/05/2011 by the supplier as confirmed through the conformity report /50/. The calibration frequency has been defined every 10 years by the supplier as confirmed through the regulation /56/. No calibrations have been carried out during this monitoring period.
How were the values in the monitoring report verified and cross-checked?	The values reported in the monitoring report /3/ have been crosschecked with raw data given in the excel sheet /4/.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory every 10 minutes.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	$T_{\text{flare}}/T_{\text{EG,m}}$
Data Unit	°C
Description	Temperature in the exhaust gas of the enclosed flare in minute m
Source of data to be used	The temperature is measured in continuous by thermocouple. Measurement of temperature above 500 °C in the exhaust gas stream in the flare indicated that the flare is operating in a reliable way.
Value data for the monitoring period	147.10
Measuring and reporting frequency; recording procedure	The thermocouple measures continuously and it is programmed to save automatically on real time with pressure. Each booster has a server unit that received all the data from the monitoring equipment and saves automatically every 10 minutes.
Type of monitoring equipment and its accuracy	The flare temperature is measured continuously by a thermocouple. During the monitoring period the following instrument has been used: - Thermocouple: K TYPE Isocontrolli sn 2012OF000652
Calibration frequency/interval	The thermocouple has been calibrated on 10/05/2014 by the supplier as confirmed through the conformity report /54/.
How were the values in the monitoring report verified and cross-checked?	The values reported in the monitoring report /3/ have been crosschecked with raw data given in the excel sheet /4/.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory every 10 minutes.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	EC _{BL,y}
Data Unit	MWh
Description	Net electricity delivered to the grid
Source of data to be used	It is measured by electricity meters of the grid company.
Value data for the monitoring period	Total: 43,832 2011: 631.03 2012:11,862.79 2013: 24,905.64 2014: 6,432.38
Measuring and reporting frequency; recording procedure	The electricity consumption is measured from electricity meters monthly in line with the registered monitoring plan. The grid company, responsible for maintenance and calibration of the monitoring equipment, carried out maintenance and calibration of equipment according to recognized procedures. The monitoring team collects monthly measuring protocols for power delivered from the grid.
Type of monitoring equipment and its accuracy	The installed Electricity meters are Elster A1500 as observed during the site visit. The accuracy of the meter is 0.5s as confirmed through the meter calibration certificate /39/.
Calibration frequency/interval	The amount of electricity produced by the project and delivered to the grid is measured by an electricity meters operated by the grid company who is the owner of the monitoring equipment. The grid company, responsible for maintenance and calibration of the monitoring equipment, carried out maintenance and calibration of equipment according to recognized procedures. The meter is calibrated on 16/11/2011 as confirmed through the first index protocol /39/. As per the "Regulation of Metering and Testing of Metering Systems" /56/, the meters shall be calibrated every 10 years. The calibration of meters is deemed appropriate and in compliance with the national regulation.
How were the values in the monitoring report verified and cross-checked?	The values used for the ERs calculation /4/ and reported in the monitoring report /3/ have been crosschecked with monthly PMUM records /48/.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The electricity consumption is monitored continuously by two electricity meters. TEIAS is responsible for the calibration and maintenance of the electricity meters.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

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DATA/PARAMETER	Opj,h
Data Unit	-
Description	Operation of the equipment that consumes the LFG
Source of data to be used	PLC of the system
Value data for the monitoring period	-
Measuring and reporting frequency; recording procedure	The working hour can be monitored with the PLC system on the genset.
Type of monitoring equipment and its accuracy	Counting device
Calibration frequency/interval	NA
How were the values in the monitoring report verified and cross-checked?	No products are generated in the hour h Otherwise Opj,h = 1
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The amount of hours is registered by the counting device and the total number of operating hours is recorded manually daily. No special events occurred during the monitoring period.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	EC _{PJ,y}
Data Unit	MWh
Description	Quantity of electricity consumed by the project activity during the year y
Source of data to be used	Onsite measurement. It is measured by electricity meters of the grid company.
Value data for the monitoring period	-
Measuring and reporting frequency; recording procedure	The electricity consumption is measured from electricity meters monthly in line with the registered monitoring plan. The grid company, responsible for maintenance and calibration of the monitoring equipment, carried out maintenance and calibration of equipment according to recognized procedures. The monitoring team collects monthly measuring protocols for power delivered from the grid.
Type of monitoring equipment and its accuracy	The installed Electricity meters are Elster A1500 as observed during the site visit. The accuracy of the meter is 0.5s as confirmed through the meter calibration certificate /39/ .
Calibration frequency/interval	The amount of electricity consumed by the project is measured by an electricity meters operated by the grid company who is the owner of the monitoring equipment. The grid company, responsible for maintenance and calibration of the monitoring equipment, carried out maintenance and calibration of equipment according to recognized procedures. The meter is calibrated on 16/11/2011 as confirmed through the first index protocol /39/ . As per the "Regulation of Metering and Testing of Metering Systems" /56/ , the meters shall be calibrated every 10 years. The calibration of meters is deemed appropriate and in compliance with the national regulation.
How were the values in the monitoring report verified and cross-checked?	The values used for the ERs calculation /4/ and reported in the monitoring report /3/ have been crosschecked with monthly PMUM records /48/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The electricity consumption is monitored continuously by two electricity meters. TEIAS is responsible for the calibration and maintenance of the electricity meters.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

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3.5.3.4 Gold Standard sustainability monitored parameters

Data variable	Source of Data	Reported value for the project period
Air Quality Amount of CO and NMVOC	The electricity delivered to the grid by the project activity result in 0.570 tons/GWh CO and 0.057 tons/GWh NMVOC emission reductions.	25 tons CO 2.5 tons NMVOC
Assessment		
It is calculated with the electricity generated based on the data available from TUIK. It is monitored annually by Plant Manager and carbon consultant. The value for this monitoring period is defined as "25 tons/GWh" for CO and "2.5 tons/GWh" for NMVOC.		

Data variable	Source of Data	Reported value for the project period
Water Quality Amount of avoided wastewater Leachate	Amount of the generated electricity Correspondence	- 898,200 m ³ /year - stored in a septic tank and vacuumed by truck
Assessment		
The parameter is calculated as per the amount of electricity generated. It is monitored annually by Plant Manager or Carbon Consultant. For this monitoring period the value for the parameter is defined as 898,200 m ³ /year.		
The parameter is monitored annually as per the transfer receipts provided by Municipality. According to the correspondence given by Kayseri Metropolitan Municipality, General Directorate of Water and Sewerage Administration, Wastewater treatment department of 05/02/2014 /25/. The leachate is stored in a septic tank and vacuumed by truck continuously.		

Data variable	Source of Data	Reported value for the project period
Soil Condition Amount of avoided NOx emissions	Amount of the generated electricity	68.2 ton NOx
Assessment		
The parameter is monitored annually with amount of electricity generated by Plant Manager or Carbon Consultant. The value of the parameter is given as 68.2 ton NOx.		

Data variable	Source of Data	Reported value for the project period
Quality of Employment Health and Safety Trainings	Training certificates or records for attendance to the trainings	7 internal and external trainings were organized
Assessment		
The provided trainings are monitored through the list of attendance to trainings given in the monitoring report as confirmed through the trainings /40/ /41/ /42/ /43/ /44/.		

GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

Data variable	Source of Data	Reported value for the project period
Access to affordable and clean energy services Change in Energy Use	Amount of the generated electricity	43.8 GW electricity generation
Assessment		
The parameter is monitored annually with amount of electricity generated by Plant Manager or Carbon Consultant. The value of the parameter is given as “43.8 GW” in the MR.		

Data variable	Source of Data	Reported value for the project period
Quantitative Employment and income generation Number of employment	Social Security Records	20 people are employed
Assessment		
The parameter is monitored annually with social security records of the employees. According to the Social Security Records /24/, 20 employees are hired for the project.		

3.5.4 Assessment of data and calculation of emission reductions

Availability of the data

All PMUM records /48/ within this monitoring period was checked during the site visit. In addition, daily data that includes the parameters used to calculate emission reduction was sampled for the whole monitoring period and crosschecked with the raw data excel sheet /4/.

Cross-check reported data

The data of generated electricity are transferred correctly to the excel sheet /4/ and emission reduction is calculated correctly. The excel sheet is crosschecked with the PMUM records /48/ and raw data of the LFG /4/ and it seems appropriate.

3.5.5 Accuracy of emission reduction calculations

The emission reduction calculations provided in the spreadsheet /4/ have been verified to be correct and in line with the registered PDD /1/.

The emission reductions from the project for the monitoring period as reported in the monitoring report revision 0.9 of 14/01/2016 /3/ is equivalent to 244,503 tCO₂e. The reported emission reductions are 92% higher than the estimated emission reduction of 126,925 tCO₂e for the period as per the registered PDD /1/. This was due to conservative default factors and values of IPCC used to estimated ex-ante emission reduction amount from methane destruction. Some of the default values used in ex-ante calculation were methane correction factor (MCF), Fraction of degradable organic carbon (by weight) in the waste type j (DOC_j), Efficiency of the LFG capture system that will be installed in the project activity (η_{PJ}), Fraction of methane in the SWDS gas (volume fraction) (F). These values have been higher when the project realized which caused methane destruction value to be higher compared to ex-ante calculation..

The data presented in the monitoring report /3/ were assessed by reviewing in detail project documentation, collection of monitored data, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. Sufficient evidence was presented and verified by RINA for the reported emission reductions as listed in the above Section 3.4.3.2.



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3.5.6 Accuracy of the GS indicators of sustainable development

All the documented evidences related to the sustainable monitored parameters such as payroll sheets of social security institution /24/, training certificates and attendance list /40/ /41/ /42/ /43/ /44/, and PMUM records /48/ are provided as objective evidence.

3.5.7 Management system and quality control

All the procedures required as per the approved methodology ACM0001 /11/ and validated monitoring plan presented in the registered PDD /1/. To guarantee the accuracy of the monitoring data periodic calibration of the installed monitoring equipment has been carried out according to definitions included in the monitoring plan of the registered PDD /1/ and in accordance with the requirements of the manufacturer. All data are registered and processed electronically. At each booster station, a server unit receives all data sent from the meters and data in real time is saved to an internal memory every 10 minutes. The server also automatically calculates every 10 minutes the normal flow of landfill gas captured; the gas flow is multiplied with the real gas formula normalizing the gas flow to standard temperature and pressure. Temperature and pressure are real time values. The data stored at the booster station server are transferred once per month to a computer and a backup hard drive. In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the period without data recording. The electricity generations supplied to the grid and electricity consumption from the grid are read remotely from the electricity meters by Automatic Meter Reading System (OSOS) by the TEIAS personnel. The data from the protocols are transferred to the excel sheet used for the emission reduction calculations.

The calculation of GS VERs for the first verification period is carried out through the spreadsheet "ER_Kayseri Landfill_v5.xlsx" /4/. The on-site visit at Konya landfill waste management plant confirmed that the monitoring and reporting is carried out consistently and in line with the established procedures.

The collected data during the monitoring period will be kept by the project owner at least two years after the last issuance of VERs as stated in the registered PDD /1/ and monitoring report /3/.

GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

4 VERIFICATION AND CERTIFICATION OPINION

RINA Services Spa (RINA) has performed verification of the emission reductions reported for the project activity “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, GS Registration Reference N° 1061, for the period 01/12/2011 to 31/03/2014, with regard to the relevant requirements for GS activities.

The project participants of the “Kayseri Molu Landfill Gas to Electricity Project, Turkey” project are responsible for:

- the preparation of greenhouse gas emissions data and the reported greenhouse gas emission reductions from the project on the basis set out in the monitoring plan contained in the registered project design document revision 08 of 24/03/2014
- the development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of greenhouse gas emission reductions of the project

It is the responsibility of RINA to express an independent verification opinion about the project's conformity with the requirements of paragraph 62 of the CDM modalities and procedures, GS requirements and on the reported greenhouse gas emission reductions from the project.

Based on documented evidence and corroborated by an on-site assessment RINA can confirm that:

- the project has been implemented and operated as per the registered PDD;
- the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable CDM and GS VER requirements;
- monitoring is in place as per the applied baseline and monitoring methodology;
- monitoring complies with the monitoring plan in the registered PDD;
- the monitoring plan in the registered PDD is as per the applied baseline and monitoring methodology.

It is RINA's opinion that the GHG emission reductions stated in the monitoring report version 0.9 of 14/01/2016 for the “Kayseri Molu Landfill Gas to Electricity Project, Turkey” project in Turkey for the period 01/12/2011 to 31/03/2014 are fairly stated. The GHG emission reductions were calculated correctly, the sustainability development indicators were correctly monitored, on the basis of the approved monitoring methodology “ACM0001”, “Flaring or use of landfill gas”, version 13.0 of 11/05/2012 and the monitoring plan contained in the registered PDD.

Hence, RINA is able to certify that the emission reductions from the project during the monitoring period 01/12/2011 to 31/03/2014 amount to 244,503 tCO₂e.

Year 2011 01/12/2011 to 31/12/2011 3,185 tCO₂e

Year 2012 01/01/2012 to 31/12/2012 66,462 tCO₂e

Year 2013 01/01/2013 to 31/12/2013 136,526 tCO₂e

Year 2014 01/01/2014 to 31/03/2014 38,330 tCO₂e

GHG Emission Reductions or Removals	tCO₂e
Baseline Emissions	244,545
Project Emissions	42.04
Leakage	0
Net GHG emission reductions or removals	244,503



RINA

GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

Istanbul, 19/01/2016

Genova, 20/01/2016

Tugce KIRATLI
GS Team Leader

RINA Denizcilik ve Belgelendirme Ltd. Sti.

Laura SEVERINO
Authorized officer signing for the DOE

RINA Services S.p.A.

APPENDIX A

GOLD STANDARD VERIFICATION PROTOCOL

TABLE 1 REQUIREMENTS CHECKLIST

Checklist Question		Reference	MoV ¹	Comments	Conclusion
A Description of Project Activity					
A.1	Title of the project activity, revision number and date of Monitoring Report	/1/ /3/ /19/	DR, CC	<p>The title of the project activity is defined as “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in the registered PDD /1/ and Monitoring Report version 0.1 /3/. It is also in line with the GS Registry Market.</p> <p>However, the format of the completion date, registration date and Monitoring period should be corrected as DD/MM/YYYY according to the guideline “Guidelines for Completing the CDM-MR-FORM” /19/.</p> <p>In addition, please explain the monitoring period number “4” given in the first page of the MR since it is the first verification. Please also correct the date of the monitoring period and registration date of the project activity.</p> <p>The new version of the CDM-MR-FORM (version 04.0) is available. Please apply.</p>	CR-1 OK
A.2	Is the actual implementation and operation of the proposed project activity in accordance with the project activity in the registered PDD?	/1/ /3/ /14/ /26/ /27/ /28/	DR, CC, I	<p>It is confirmed during the site visit performed on 15-16/07/2014 that project activity is implemented and operated as per the registered PDD /1/.</p> <p>The starting date of project activity is 29/04/2011 which is electromechanical agreement as per the registered PDD.</p> <p>It is defined in the registered PDD that the estimated starting date of the first crediting period is 01/01/2012. However, the first engines operation date is 01/11/2011 as per the Provisional Acceptance Protocol /26/. Please correct the date and also please give a clear definition in Post Registration Changes-Corrections in the monitoring report.</p> <p>During on site visit, it was confirmed that the gas collection system, the enclosed flares, and the power</p>	CAR-1 OK

¹ MoV: DR document review, I interview, CC cross checking

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>generation unit was installed by the end of first monitoring period as per the Provisional Acceptance Protocol /26/ /27/ /28/.</p> <p>3 units of gas engine have been installed with a total capacity of 4.222 MWe (1x1.560 MWe, 1x1.305 MWe and 1x1.357 MWe), which are dedicated to the landfill gas extracted from the landfill area. 3 engine has been commissioned in three phase as explained below:</p> <ul style="list-style-type: none"> - On 01/11/2011, one power generation unit has commissioned as confirmed through the Temporary Acceptance Protocol /26/. - On 27/07/2012, one power generation unit has commissioned as confirmed through the Temporary Acceptance Protocol /27/. - On 05/07/2013, one power generation unit has commissioned as confirmed through the Temporary Acceptance Protocol /28/. <p>The implementation table of the project activity is in line with the registered PDD. However, operation date for the third gas engine given as “21/06/2013” could not be confirmed since there is no supporting document.</p> <p>The end date of monitoring period is defined as 30/05/2014 in the Monitoring Report /3/. However, during on site visit, 31/03/2014 was agreed by the PP and the consultant. According to the alteration, please revise all the necessary changes.</p> <p>Estimated Emission Reduction is indicated as 128,329 tCO2 in the first page and Section E.5 of the monitoring report. However, it could not be confirmed. Please clarify the calculation. In addition, the value should be updated as per the revised monitoring period.</p> <p>The explanation given in the Section E.1 of the MR (baseline emissions calculation) is not in line with the registered PDD /1/. Please be sure that AC0001 is applied.</p> <p>As per the Validation report /12/, it is defined that GS Requirements version 2.1 is applied. However, 2.2 is</p>	

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				mentioned in Section F of the monitoring report. Please correct.	
A.3	Methodology applied for the registered project activity	/1/ /11/	DR	The registered project activity applies the approved baseline and monitoring methodology ACM0001 version 13.0.0 of 11/05/2012 /11/.	OK
B Monitoring					
B.1 Monitoring plan					
B.1.1	Does the monitoring plan included in the registered GS project activity comply with the applied methodology?	/1/ /3/ /11/	DR, CC	The monitoring plan of the registered GS project activity complies with the applied methodology ACM0001 version 13.0.0 of 11/05/2012 /11/.	OK
B.1.2	Does the monitoring comply with the monitoring plan in the registered PDD?	/1/ /2/ /3/	DR, CC	The description of the monitoring plan given in Section B of the MR does not comply with the monitoring plan presented in the registered PDD /1/ and GS Passport /2/. Please give a clear definition about the monitoring system and also please add the roles and responsibilities. The data and parameters that need to be monitored as per the registered PDD /1/ and GS Passport /2/ are listed in the following section of this verification protocol.	CR-2 OK
B.1.3	Do the sustainability indicators included in the monitoring report comply with the minimum contents specified in paragraph 4.1 of the GS toolkit?	/1/ /3/ /8/ /19/	DR, CC	The sustainability indicators included in the monitoring report /3/ does not comply with the minimum contents specified in paragraph 4.1 of the GS Toolkit /8/. Please revise them as per the last version of the MR template /19/.	CR-3 OK
B.1.4	Have any changes been made to the key sustainable development indicators?	/2/ /3/	DR, CC, I	No change has been occurred to the sustainable development indicators during the monitoring period of 01/11/2011 to 31/03/2014 as confirmed through the site visit.	OK
B.2 Data and parameters that are available at validation and that are not monitored					
B.2.1	Which parameters were available at validation and how were they verified?	/1/ /3/ /11/ /16/	DR, CC	The following parameters were available at validation stage and that doesn't need to be monitored during the crediting period: Quantity of MSW land filled during 1996~2012 (Wx): It is defined as "see Section B.6.3". However, it could not be confirmed since there is no section B.6.3 in the MR.	CR-4 OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>Please gives the current value or current reference.</p> <p>Global Warning Potential of CH₄ (GWP_{CH4}): It is defined as 21 tCO₂e/tCH₄ for the monitoring period that falls within the first commitment period and it should be also defined as 25 tCO₂e/tCH₄ for the monitoring period that falls within the second commitment period as per the Kyoto Protocol.</p> <p>Methane Density (D_{CH4}): It is defined as 0.000716 tCH₄/m³ tCH₄ in the registered PDD /1/.</p> <p>Default value for the model correction factor to account for model uncertainties (Φ): It is defined as 0.75 as per the “Methodological Tool: Emissions from solid waste disposal sites” /16/.</p> <p>Oxidation factor (OX): It is defined as 0.1 as per the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 5 Waste, Table 3.2.</p> <p>Fraction of methane in the SWDS gas (F): It is defined as 0.5 as per the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 5 Waste.</p> <p>Default value for the fraction of degradable organic carbon in MSW that decomposes in the SWDS (DOC_j): It is defined as 0.5 as per the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 5 Waste.</p> <p>Methane correction factor (MCF): It is defined as 0.8 as per the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 5 Waste, Table 3.1.</p> <p>Fraction of degradable organic carbon (by weight) in the waste type j (DOC_j): The values given in 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 5 Waste, Tables 2.4 and 2.5 are used.</p> <p>Decay rate for the waste type j (k_j): The values given in 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 5 Waste, Table 3.3 is used.</p> <p>Efficiency of the LFG capture system that will be installed in the project activity (η_{PC}): The default value</p>	

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>of 50% is applied for the Project as per the methodology ACM0001 /11/.</p> <p>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 (fy): "0" is applied as per the methodology ACM0001 /11/.</p> <p>Gross Electricity supplied to the grid by relevant sources (2008-2010) (Gross electricity generation): It is defined as "Table 11". However, it could not be confirmed since there is no Table 11 in the MR. Please gives the current value or current reference.</p> <p>Net electricity fed into the grid. Used for the calculation of the net/gross relation (Net electricity generation): It is defined as "Table 12". However, it could not be confirmed since there is no Table 12 in the MR. Please gives the current value or current reference.</p> <p>Heating Values of fuels consumed for electricity generation (HV_{i,y}): It is defined as "Table 20". However, it could not be confirmed since there is no Table 20 in the MR. Please gives the current value or current reference.</p> <p>Fuels consumed for electricity generation (FC_{i,y}): It is defined as "Table 21". However, it could not be confirmed since there is no Table 21 in the MR. Please gives the current value or current reference.</p> <p>Net Calorific Value of fuel types (NCV_{i,y}): It is defined as "Table 23". However, it could not be confirmed since there is no Table 23 in the MR. Please gives the current value or current reference.</p> <p>Most recent power plants which compromise 20% of total generation (Sample Group for BM emission factor): It is defined as "Table 25". However, it could not be confirmed since there is no Table 25 in the MR. Please gives the current value or current reference.</p> <p>Emission factor for fuel type I (EF_i): It is defined as "Table 24". However, it could not be confirmed since</p>	

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				<p>there is no Table 24 in the MR. Please gives the current value or current reference.</p> <p>Average energy conversion efficiency of power unit m in year y ($\eta_{i,y}$): It is defined as “Table 16”. However, it could not be confirmed since there is no Table 16 in the MR. Please gives the current value or current reference.</p> <p>Universal ideal gas constant (R_u): It is defined as 8,314 Pa.m³/kmol.K as per the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”.</p> <p>Molecular mass of greenhouse gas (MM_{CH4}): It is defined as 16.04 kg/kmol as per the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”.</p> <p>Total pressure at normal conditions (P_n): It is defined as 101,325 Pa as per the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”.</p> <p>Temperature at normal conditions (T_n): It is defined as 273.15 K as per the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”.</p> <p>In addition, emission factor of the project activity should also be added to the “not monitoring parameters” since it is fixed for the crediting period.</p>	
B.3 Data and parameters monitored					
B.3.1	Data/Parameter monitored / Data unit / Description / Source of data to be used / Value data for the monitoring period	/1/ /3/ /11/ /13/ /14/ /15/ /16/ /17/ /18/	DR, CC, I	<p>Amount of methane in LFG which is sent to the flare in year y ($F_{CH4,sent\ flare,y}$ (= LFG_{flare})): It is calculated based on the flow of LFG and the concentration of methane in the LFG that will be sent to the flare(s). The unit of the data is defined as “t_{CH4/y}”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Amount of methane in LFG which is sent to the genset for electricity generation in year y ($F_{CH4,EL,y}$ (= $LFG_{electricity,y}$)): It is calculated based on the flow of LFG and the concentration of methane in the LFG that will be sent to the genset. The unit of the data is defined as “tCH4 /year”. However, the value of the parameter is not</p>	GAR-2 OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>discussed in the monitoring report. Please add the value.</p> <p>Volumetric flow of the gaseous stream in the hour h on a dry basis ($V_{t,db}$): It is measured continuously by a mass flow meter. The unit of the data is defined as “m³dry gas/h”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Volumetric flow of CH₄ in time interval on a dry basis ($V_{CH_4,t,db}$): It is measured continuously by a gas analyzer. The unit of the data is defined as “m³CH₄/m³dry gas”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Temperature of the landfill gas (T_t): It is measured by a temperature meter. The unit of the data is defined as “K”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Pressure of the gaseous stream in the hour h (P_t): It is measured by a manometer. The unit of the data is defined as “Pa or mbar”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Average technical transmission and distribution losses for providing electricity to source k in year y ($TDL_{k,y}$): According to the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” a default factor is used. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): It is calculated as per the “Tool to determine project emissions from flaring gases containing methane”. The unit and the value of the data is defined as “0 tCO₂e” since no significant methane contents in exhaust gas of flare are expected.</p>	

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>Quantity of diesel combusted for auxiliary purposes ($FC_{i,j,y}$): It is measured and the unit of the parameter is defined as “t/year” in the monitoring report. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Methane fraction in the landfill gas (w_{CH4}): It is measured by a gas quality analyzer. The unit of the data is defined as “m³CH₄/m³LFG”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$): It is measured by a thermocouple. The unit of the data is defined as “°C”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Operation of the equipment that consumes the LFG (Op_j,h): It is measured and recorded In the project area. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Net electricity delivered to the grid ($EC_{BL,y}$): It is measured by two electricity meters. The data from the Electricity Meters are the basis for the settlement notification of PMUM. The unit of the data is defined as “MWh”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Quantity of electricity consumed by the project activity during the year y ($EC_{P,j,y}$): It is measured by authorized electricity meters. The unit of the data is defined as “MWh”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Net calorific value of diesel combusted for auxiliary purposes ($NCV_{i,y}$): According to the “Table 1.2. of chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines” a default factor 43.3 GJ/t is used.</p>	

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>CO2 emission factor of diesel in year y ($EF_{CO_2,i,y}$): According to the “Table 1.4. of chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines” a default factor 0.0748 t/GJ is used.</p>	
<p>B.3.2 Is the measurement equipment described? Is the accuracy of the measurement equipment addressed and deemed appropriate?</p>	<p>1/ /3/ /11/ /13/ /14/ /15/ /16/ /17/ /18/</p>	<p>DR, CC, I</p>	<p>Amount of methane in LFG which is sent to the flare in year y ($F_{CH_4, sent flare,y} (= LFG_{flare})$): It is measured by a flow meter and a gas analyzer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Amount of methane in LFG which is sent to the genset for electricity generation in year y ($F_{CH_4,EL,y} (= LFG_{electricity,y})$): It is measured by a flow meter and a gas analyzer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Volumetric flow of the gaseous stream in the hour h on a dry basis ($V_{t,db}$): It is measured by a flow meter. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Volumetric flow of CH₄ in time interval on a dry basis ($V_{CH_4,t,db}$): It is measured by a flow meter. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Temperature of the landfill gas (T_t): It is measured by a thermometer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Pressure of the gaseous stream in the hour h (P_t): It is measured by a manometer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Average technical transmission and distribution losses for providing electricity to source k in year y ($TDL_{k,y}$): It is used for calculation of project emission as per the “Tool to calculate baseline, project and/or leakage emission from electricity consumption”.</p> <p>Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): It is calculated as per the “Tool to determine project emissions from flaring gases”.</p>	<p>CAR-3 OK</p>

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>containing methane”</p> <p>Quantity of diesel combusted for auxiliary purposes ($FC_{i,y}$): There is no description for the equipment and the accuracy. Please add.</p> <p>Methane fraction in the landfill gas (w_{CH4}): It is measured by a gas quality analyzer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$): It is measured by a thermocouple. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Operation of the equipment that consumes the LFG (Opj,h): It is measured and recorded In the project area. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Net electricity delivered to the grid ($EC_{BL,y}$): It is measured by two electricity meters. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Quantity of electricity consumed by the project activity during the year y ($EC_{PJ,y}$): It is measured by authorized electricity meters. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Net calorific value of diesel combusted for auxiliary purposes ($NCV_{i,y}$): According to the “Table 1.2. of chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines” a default factor 43.3 GJ/t is used.</p> <p>CO2 emission factor of diesel in year y ($EF_{CO2,i,y}$): According to the “Table 1.4. of chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines” a default factor 0.0748 t/GJ is used.</p>	
<p>B.3.3 Are the requirements for maintenance and calibration of measurement equipment described and deemed appropriate?</p>	<p>1/ /3/ /11/ /13/ /14/ /15/ /16/</p>	<p>DR, CC, I</p>	<p>Amount of methane in LFG which is sent to the flare in year y ($F_{CH4,sent\ flare,y}$ (= LFG_{flare})): There is no description about the calibration of the equipment.</p>	<p>CAR 4 OK</p>

Checklist Question	Reference	MoV ¹	Comments	Conclusion
	/17/ /18/		<p>Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Amount of methane in LFG which is sent to the genset for electricity generation in year y ($F_{CH_4,EL,y}$ (= $LFG_{electricity,y}$)): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Volumetric flow of the gaseous stream in the hour h on a dry basis ($V_{t,db}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Volumetric flow of CH₄ in time interval on a dry basis ($V_{CH_4,t,db}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Temperature of the landfill gas (T_t): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Pressure of the gaseous stream in the hour h (P_t): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p>	

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>Average technical transmission and distribution losses for providing electricity to source k in year y ($TDL_{k,y}$): There is no need for calibration since default value is used as per the “Tool to calculate baseline, project and/or leakage emission from electricity consumption”.</p> <p>Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Quantity of diesel combusted for auxiliary purposes ($FC_{i,j,y}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Methane fraction in the landfill gas (w_{CH_4}): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Operation of the equipment that consumes the LFG (Op_j,h): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference</p>	

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>document to confirm the frequency.</p> <p>Net electricity delivered to the grid ($EC_{BL,y}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Quantity of electricity consumed by the project activity during the year y ($EC_{PJ,y}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Net calorific value of diesel combusted for auxiliary purposes ($NCV_{i,y}$): There is no need for calibration since default value is used as per the "IPCC 2006".</p> <p>CO2 emission factor of diesel in year y ($EF_{CO2,i,y}$): There is no need for calibration since default value is used as per the "IPCC 2006".</p>	
<p>B.3.4 Is the monitoring frequency adequate for all monitoring parameters? Is it in line with the registered monitoring plan?</p>	<p>1/ /3/ /11/ /13/ /14/ /15/ /16/ /17/ /18/</p>	<p>DR, CC, I</p>	<p>Amount of methane in LFG which is sent to the flare in year y ($F_{CH4,sent\ flare,y} (= LFG_{flare})$): It is monitored continuously by a flow meter and it is in line with the registered PDD.</p> <p>Amount of methane in LFG which is sent to the genset for electricity generation in year y ($F_{CH4,EL,y} (= LFG_{electricity,y})$): It is monitored continuously by a flow meter and it is in line with the registered PDD.</p> <p>Volumetric flow of the gaseous stream in the hour h on a dry basis ($V_{t,db}$): It is monitored continuously by a flow meter and it is in line with the registered PDD.</p> <p>Volumetric flow of CH₄ in time interval on a dry basis ($V_{CH4,t,db}$): It is monitored continuously by a flow meter and it is in line with the registered PDD.</p> <p>Temperature of the landfill gas (T_i): It is monitored continuously by a thermometer and it is in line with the</p>	<p>CR-5 OK</p>

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>registered PDD.</p> <p>Pressure of the gaseous stream in the hour h (P_t): It is monitored continuously by a manometer and it is in line with the registered PDD.</p> <p>Average technical transmission and distribution losses for providing electricity to source k in year y ($TDL_{k,y}$): It is monitored annually and a default value is used as per the “Tool to calculate baseline, project and/or leakage emission from electricity consumption”.</p> <p>Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): The parameter is calculated as per the “tool to determine project emissions from flaring gases containing methane”. Therefore there is no monitoring frequency.</p> <p>Quantity of diesel combusted for auxiliary purposes ($FC_{i,j,y}$): There is no explanation about the monitoring frequency of the parameter. Please add.</p> <p>Methane fraction in the landfill gas (w_{CH4}): It is monitored continuously by a gas quality analyzer and it is in line with the registered PDD.</p> <p>Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$): It is monitored continuously by a thermocouple and it is in line with the registered PDD.</p> <p>Operation of the equipment that consumes the LFG (Op_j,h): Three parameters (Temperature, Flame and Products generated) are monitored hourly and it is in line with the registered PDD.</p> <p>Net electricity delivered to the grid ($EC_{BL,y}$): The parameter is monitored continuously by two electricity meters. They measured the electricity hourly and reading monthly.</p> <p>Quantity of electricity consumed by the project activity during the year y ($EC_{P,J,y}$): The parameter is monitored continuously by authorized electricity meters.</p> <p>Net calorific value of diesel combusted for auxiliary</p>	

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				<p>purposes (NCV_{i,y}): There is no need for monitoring frequency since default value is used as per the "IPCC 2006".</p> <p>CO2 emission factor of diesel in year y (EF_{CO2,i,y}): There is no need for monitoring frequency since default value is used as per the "IPCC 2006".</p>	
B.3.5	Is the recording frequency adequate for all monitoring parameters? Is it in line with the registered monitoring plan?	1/ /3/	DR, CC, I	There is no recording frequency for all the monitoring parameters. Please add.	CAR-5 OK
B.3.6	Does data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	1/ /3/	DR, CC, I	The calculations from/of the parameters could not be monitored since there is no raw data provided to the verification team. Please revise the excel sheet.	CAR-6 OK
B.4 Monitoring of GS indicators of sustainable development /environmental impacts					
B.4.1	Data/Parameter monitored / Data unit / Description / Source of data to be used / Value data for the monitoring period	1/ /2/ /3/ /20/ /21/ /22/ /23/ /24/ /25/	DR, CC, I	<p>The following GS sustainable development parameters are monitored as per the monitoring plan presented in the registered Passport /2/.</p> <p>Air Quality:</p> <p><u>Amount of CO, NMVOC:</u> It is calculated with the electricity generated based on the data available from TUIK. It is monitored annually by Plant Manager and carbon consultant. The value for this monitoring period is defined as "6 tons/GWh" for CO and "1.5 tons/GWh" for NMVOC. However, in the calculation excel sheet the values are calculated as "2.5 tons/GWh" for CO and "0.6 tons/GWh". Please clarify. In addition, since the parameter is monitored annually, please calculate for 2011, 2012, 2013 and 2014 separately and give the total amount in the Monitoring Report. Please remove the parameter of NOx and add it to the soil condition.</p> <p>Water Quality and Quantity:</p> <p><u>Amount of avoided wastewater to be discharged to the environment by project activity:</u> The parameter is calculated as per the amount of electricity generated. It is monitored annually by Plant Manager or Carbon Consultant. For this monitoring period the value for the</p>	CAR-7 OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>parameter is defined as 917,600 m³/year. However, in the calculation excel sheet the value is calculated as “384,2 m³/year”. Please clarify. In addition, since the parameter is monitored annually, please calculate for 2011, 2012, 2013 and 2014 separately and give the total amount in the Monitoring Report.</p> <p>In addition, footnote 14 related to the parameter is for 2010 data. However, 2008 is written in the monitoring report in the web-link’s explanation. Please correct.</p> <p><u>Amount of avoided leachate be discharged to the environment:</u> The parameter is monitored annually as per the transfer receipts provided by Municipality. According to the correspondence given by Kayseri Metropolitan Municipality, General Directorate of Water and Sewerage Administration, Wastewater treatment department of 05/02/2014 /25/. The leachate is stored in a septic tank and vacuumed by truck continuously.</p> <p>Soil condition:</p> <p><u>Amount of avoided NOx emissions:</u> The parameter is monitored annually with amount of electricity generated by Plant Manager or Carbon Consultant. The value of the parameter is given as 99.3 ton NOx in the MR. However, in the calculation excel sheet the value is calculated as “41.7 ton NOx”. Please clarify. In addition, since the parameter is monitored annually, please calculate for 2011, 2012, 2013 and 2014 separately and give the total amount in the Monitoring Report.</p> <p>In addition, footnote 15 related to the parameter is for 2010 data. However, 2008 is written in the monitoring report. Please also clarify why estimated baseline value is changed from 1.651 to 2.218 m³.</p> <p>Quality of Employment:</p> <p><u>Health and Safety Trainings:</u> The provided trainings are monitored through the list of attendance to trainings given in the monitoring report. However, the given</p>	

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>training certificates /20/ /21/ /22/ does not belong to this monitoring period. Please clarify.</p> <p>In addition, the number of the employees attended to the health and safety trainings were not presented in the MR. Please add.</p> <p>Access to Affordable and Clean Energy Services:</p> <p><u>Change in Energy Use:</u> The parameter is monitored annually with amount of electricity generated by Plant Manager or Carbon Consultant. The value of the parameter is given as “44 GW” in the MR. However, in the calculation excel sheet the value is calculated as “1,973,701 m³”. Please clarify. In addition, since the parameter is monitored annually, please calculate for 2011, 2012, 2013 and 2014 separately and give the total amount in the Monitoring Report.</p> <p>Quantitative employment and income generation:</p> <p><u>Number of employment:</u> The parameter is monitored annually with social security records of the employees. According to the Social Security Records /24/, 20 employees are hired for the project. However, only 7 employee’s Registration Documents /23/ are provided to the verification team. Also, during on site visit, PP defined that 7 employees are hired by HER Enerji. Please clarify.</p>	
<p>B.4.2 Is the monitoring in line with the registered monitoring plan?</p>	<p>/1/ /3/</p>	<p>DR, CC</p>	<ul style="list-style-type: none"> - The monitoring does not comply with the monitoring plan presented in the registered PDD. The following GS sustainable development parameters are monitored as per the registered monitoring plan: - Air Quality - Water Quality and Quantity - Soil Condition - Quality of Employment - Access to Affordable and Clean Energy Services 	<p>OK</p>

Checklist Question	Reference	MoV ¹	Comments	Conclusion
<p>B.4.3 Does the monitoring report provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?</p>	<p>/1/ /2/ /3/ /20/ /21/ /22/ /23/ /24/ /25/</p>	<p>DR, CC</p>	<p>- Quantitative employment and income generation</p> <p>All the documented evidences related to the sustainable monitored parameters are not collected and kept. Please provide trainings related to this monitoring period and the correspondence to confirm that there is no mixing of any auxiliary gas to boost calorific value of LFG or startup fuel for the engines or the flare system.</p> <p>In addition, during on site visit, the project owner defined that engine failure has occurred. This situation should be explained clearly in the report and supporting documentation must be sent to the verification team.</p>	<p>CR-6 OK</p>
<p>B.5 Management, quality assurance and quality control</p>				
<p>B.5.1 How has it been assessed that the monitoring arrangements described in the monitoring plan are feasible within the project design?</p>	<p>/1/ /3/</p>	<p>DR, CC, I</p>	<p>An on-site inspection has been performed on 15-16/07/2014. It could not be confirmed that the monitoring arrangements in the monitoring plan are feasible within the project design. The monitoring plan does not described in the MR. Therefore, it is impossible to confirm monitoring arrangements. Please also add the schematic representation of the system and listed the monitoring equipment including all the information (such as mark, model, serial no, accuracy, calibration date and calibration frequency). Please also provide information about where the electricity meters are positioned.</p> <p>In addition, although there is a backup meter with a serial no 447412, there is no first index protocol for the backup meter. Please provide the supporting document.</p>	<p>CR-8 OK</p>
<p>B.5.2 Are procedures identified for day-to-day record handling (including what records to keep, storage area of records and how to process performance documentation)?</p>	<p>/1/ /3/</p>	<p>DR, CC, I</p>	<p>The Grid Company submits monthly a protocol to the project owner. The monthly electricity data are transferred to the excel sheet used for the emission reduction calculations.</p> <p>The electricity consumption is monitored continuously by two electricity meters stated in the distributing center. TEIAS is responsible for the calibration and maintenance of the electricity meters.</p> <p>Although the generated electricity is based on PMUM records, they were not provided to the verification team.</p>	<p>CR-7 OK</p>

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				Please send the PMUM screenshots.	
B.5.3	Are the data management and quality assurance and quality control procedures sufficient to ensure that the emission reductions achieved by/resulting from the project can be reported ex post and verified?	/1/ /3/	DR, CC, I	<p>Quality assurance and quality control procedure is taken to monitor the equipment and data collection. The monitoring systems on errors are checked regularly by the VER-Team. In the case of errors, corrective actions will be undertaken.</p> <p>The PLC system automatically reads measurement devices and records data on hard drives. These data will be used to calculate the total emission reductions.</p> <p>Her Enerji ve Cevre Teknolojileri Sanayi Ticaret A.S. (the project owner) is responsible for the operation and monitoring of the project activity and it is in line with the registered PDD /1/.</p>	OK
B.5.4	Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of VERs, for this project activity, whichever occurs later?	/1/ /3/	DR, CC	It is mentioned in the in the Monitoring Report version 0.1 /3/ that the collected data during the monitoring period will be kept for the full crediting period and a further two years after the end of the crediting period by the project owner.	OK

TABLE 2 RESOLUTION OF CORRECTIVE ACTION REQUESTS AND CLARIFICATION REQUESTS

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>CAR 1</p> <p>It is defined in the registered PDD that the estimated starting date of the first crediting period is 01/01/2012. However, the first engines operation date is 01/11/2011 as per the Provisional Acceptance Protocol /26/. Please correct the date and also please give a clear definition in Post Registration Changes-Corrections in the monitoring report.</p> <p>The implementation table of the project activity is in line with the registered PDD. However, operation date for the third gas engine given as "21/06/2013" could not be confirmed since there is no supporting document.</p> <p>The end date of monitoring period is defined as 30/05/2014 in the Monitoring Report /3/. However, during on site visit, 31/03/2014 was agreed by the PP and the consultant. According to the alteration, please revise all the necessary changes.</p> <p>Estimated Emission Reduction is indicated as 128,329 tCO2 in the first page and Section E.5 of the monitoring report. However, it could not be confirmed. Please clarify the calculation. In addition, the value should be updated as per the revised monitoring period.</p> <p>The explanation given in the Section E.1 of the MR (baseline emissions calculation) is not in line with the registered PDD /1/. Please be sure that ACM0001 is applied.</p> <p>As per the Validation report /12/, it is defined that GS Requirements version 2.1 is applied. However, 2.2 is mentioned in Section F of the monitoring report. Please correct.</p>	<p>A.2</p>	<p>Although the first engine operation started on 01/11/2011, the crediting period is started from 01/12/2011 due to credible date which mostly received starting from 01/12/2011. additionally, during first month of the operation the engines did not work more due to maintainance and testing. That is why it is decided that the crediting period start from 01/12/2011.</p> <p>Please find the start date of the third engine as attached as annex1. the date of operation is 05/07/2013. this is corrected in MR.</p> <p>The end of monitoring was revised as 31/03/2014</p> <p>Estimated emission reduction from PDD is revised as 126,929 tCO2e/ period. The calculation is: $(45,959/12)+ 45,959 + 61,433 + (62,812/4)$</p> <p>The explanation in Section E.1 of MR is corrected in line with PDD.</p> <p>GS requirement is corrected as version 2.1</p> <p>Respond 2: The explanation about revision of the crediting period was added to the MR</p>	<p>Review 1 (08/09/2014):</p> <p>The date chosen for the starting date (01/12/2011) of the crediting period seems appropriate. However, since it is mentioned as 01/01/2012 in the registered PDD, a clear definition should be added to the corrections part of the post registration changes given in the monitoring report. In addition, the crediting period given in Section A.5 of the monitoring report is not correct. Please revise the end date of the crediting period as per 10 years.</p> <p>The operation date for the third gas engine is corrected as "05/07/2013" and confirmed through the Temporary Acceptance Protocol /28/.</p> <p>The end date of the monitoring period is now corrected and the necessary corrections were made in the monitoring report and the excel sheet.</p> <p>As per the calculation given by PP the result is 126,925. Please correct the estimated emission reduction. In addition, please also give a clear definion for the difference from estimated value in registered PDD given in section E.6 of the monitoring period.</p> <p>The explanation given in Section E.1 for the baseline emission calculation is now in line with the registered PDD.</p> <p>It is now defined that GS Requirements version 2.1 is applied in Section F of the monitoring report.</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>The date of crediting period was revised</p> <p>The value of estimated emission reduction was corrected and a justification for the difference in emission reduction amount was provided in E.6 section of MR</p> <p>The completion date of MR was corrected.</p> <p>Respond 3: The value is corrected in section E5. The percentage value is provided with explanation.</p>	<p>In addition, please revise the completion date of the monitoring report. <u>Hence, CAR 1 is not closed.</u></p> <p><u>Review 2 (15/12/2014):</u> A clear definition is now added to the corrections part of the post registration changes in the monitoring report. The end date of the crediting period given in Section A.5 of the monitoring report is now corrected. As per the calculation given by PP the result is 126,925. the estimated emission reduction is now corrected in the first page of the report. However, the value is still not in line with Section E.5. Please revise it too. In addition, please also give a clear definition (such as the actual and estimated values and the difference in a form of “%”) for the difference from estimated value in registered PDD given in section E.6 of the monitoring period. The completion date of the monitoring report is now revised. <u>Hence, CAR 1 is not closed.</u></p> <p><u>Review 3 (08/02/2015):</u> The estimated emission reduction is now corrected in Section E.5 of the monitoring report. In addition, a clear definition is given for the difference between the estimated and the actual emission reduction in section E.6 of the MR. <u>Hence, CAR 1 is closed.</u></p>
<p>CAR 2 Amount of methane in LFG which is sent to</p>	<p>B.3.1</p>	<p>The monitored value for $F_{CH_4, sent\ flare, y}$ was added to the monitoring table in MR.</p>	<p><u>Review 1 (08/09/2014):</u> Amount of methane in LFG which is</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>the flare in year y ($F_{CH_4, sent\ flare, y}$ (= LFG_{flare})): It is calculated based on the flow of LFG and the concentration of methane in the LFG that will be sent to the flare(s). The unit of the data is defined as “t_{CH₄/y}”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Amount of methane in LFG which is sent to the genset for electricity generation in year y ($F_{CH_4, EL, y}$ (= $LFG_{electricity, y}$)): It is calculated based on the flow of LFG and the concentration of methane in the LFG that will be sent to the genset. The unit of the data is defined as “tCH₄/year”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Volumetric flow of the gaseous stream in the hour h on a dry basis ($V_{t, db}$): It is measured continuously by a mass flow meter. The unit of the data is defined as “m³dry gas/h”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Volumetric flow of CH₄ in time interval on a dry basis ($V_{CH_4, t, db}$): It is measured continuously by a gas analyzer. The unit of the data is defined as “m³CH₄/m³dry gas”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Temperature of the landfill gas (T_t): It is measured by a temperature meter. The unit of the data is defined as “K”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Pressure of the gaseous stream in the hour h (P_t): It is measured by a manometer. The unit of the data is defined as “Pa or mbar”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p>		<p>Please find the calculation as ER_Kayserilanfillv1.</p> <p>The monitored value for $F_{CH_4, EL, y}$ was added to the monitoring table in MR. Please find the calculation as ER_Kayserilanfillv1.</p> <p>The monitored value for $V_{t, db}$ was added to the monitoring table in MR. Please find the calculation as ER_Kayserilanfillv1.</p> <p>The monitored value for $V_{CH_4, t, db}$ was added to the monitoring table in MR. Please find the calculation as ER_Kayserilanfillv1.</p> <p>The temperature of landfill gas was not monitored that is why for calculation of Volumetric flow of the gaseous stream in the hour h choosen to be on wet bases and option C is applied according to the tool.</p> <p>The monitored value for P_t was added to the monitoring table in MR. Please find</p>	<p>sent to the flare in year y ($F_{CH_4, sent\ flare, y}$ (= LFG_{flare})): The value of the parameter is now mentioned as 87.65 tCH₄ in the monitoring report. However, the value could not be confirmed with the calculation excel sheet. Please clarify.</p> <p>Amount of methane in LFG which is sent to the genset for electricity generation in year y ($F_{CH_4, EL, y}$ (= $LFG_{electricity, y}$)): The value of the parameter is now mentioned as 9,829.02 tCH₄/y in the monitoring report. However, the value could not be confirmed with the calculation excel sheet. Please clarify.</p> <p>Volumetric flow of the gaseous stream in the hour h on a dry basis ($V_{t, db}$): The value of the parameter is now mentioned as 25,188,358.53 m³wet gas/h in the monitoring report. However, the value could not be confirmed with the calculation excel sheet. Please clarify.</p> <p>Volumetric flow of CH₄ in time interval on a dry basis ($V_{CH_4, t, db}$): The value of the parameter is now mentioned as % 47.88 in the monitoring report. However, the value could not be confirmed with the calculation excel sheet. Please clarify.</p> <p>Temperature of the landfill gas (T_t): The value of the parameter is not discussed in the monitoring report. Please add the average value.</p> <p>Pressure of the gaseous stream in the hour h (P_t): The value of the parameter is now mentioned as 127.42 mbar in the monitoring report. However, the value could not be confirmed with the calculation excel sheet. Please clarify.</p> <p>Average technical transmission and</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>Average technical transmission and distribution losses for providing electricity to source k in year y ($TDL_{k,y}$): According to the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” a default factor is used. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): It is calculated as per the “Tool to determine project emissions from flaring gases containing methane”. The unit and the value of the data is defined as “0 tCO₂e” since no significant methane contents in exhaust gas of flare are expected.</p> <p>Quantity of diesel combusted for auxiliary purposes ($FC_{i,j,y}$): It is measured and the unit of the parameter is defined as “t/year” in the monitoring report. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Methane fraction in the landfill gas (w_{CH4}): It is measured by a gas quality analyzer. The unit of the data is defined as “m³CH₄/m³LFG”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$): It is measured by a thermocouple. The unit of the data is defined as “°C”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Operation of the equipment that consumes the LFG (Opj,h): It is measured and recorded In the project area. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Net electricity delivered to the grid ($EC_{BL,y}$): It is</p>		<p>the calculation as ER_Kayserilandfillv1.</p> <p>$TDL_{k,y}$ is assumed to be zero which is an conservative approach.</p> <p>Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$) is calculated and emission amount is provided in ER_Kayserilandfillv1.</p> <p>Quantity of diesel combusted for auxiliary purposes is calculated ER_Kayserilandfillv1. And the vaule is added to the MR.</p> <p>Methane fraction in the landfill gas (w_{CH4}) is added to MR which is calculated in excel sheet of ER_Kayserilandfillv1.</p> <p>Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$) is added to MR.</p>	<p>distribution losses for providing electricity to source k in year y ($TDL_{k,y}$): According to the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” a default factor is used. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): It is calculated as per the “Tool to determine project emissions from flaring gases containing methane”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Quantity of diesel combusted for auxiliary purposes ($FC_{i,j,y}$): The value of the parameter is now mentioned as 13,19 ton in the monitoring report.</p> <p>Methane fraction in the landfill gas (w_{CH4}): The value of the parameter is now mentioned as 47.88 m³CH₄/m³LFG in the monitoring report. However, the value could not be confirmed with the calculation excel sheet. Please clarify.</p> <p>Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$): The value of the parameter is now mentioned as 147.10 °C in the monitoring report. However, the value could not be confirmed with the calculation excel sheet. Please clarify.</p> <p>Operation of the equipment that consumes the LFG (Opj,h): The value of the parameter is now mentioned as 147.10 in the monitoring report. However, it is not in line with the calculation excel</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>measured by two electricity meters. The data from the Electricity Meters are the basis for the settlement notification of PMUM. The unit of the data is defined as “MWh”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Quantity of electricity consumed by the project activity during the year y ($EC_{PJ,y}$): It is measured by authorized electricity meters. The unit of the data is defined as “MWh”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p>		<p>Operation of the equipment that consumes the LFG (Opj,h) is not required to be monitored if the default value for the flare is chosen. Thus in this case default value for flare is chosen and there is no need to monitor operation hours.</p> <p>Net electricity delivered to the grid ($EC_{BL,y}$) is provided in MR which is calculated in ER_Kayserilandfillv1.</p> <p>There is no need to discuss the value in MR while the baseline emission is calculated over net electricity delivered to the grid.</p> <p>Respond 2:</p> <ol style="list-style-type: none"> 1. the value of $F_{CH_4, sent\ flare, y}$ for monitoring period is calculated in excel sheet page: 'Emission Reduction'!D37 2. the value for $F_{CH_4, EL, y}$ for monitored period was calculated in excel sheet page: 'Emission Reduction'!E37 3. the value for $V_{t, db}$ for monitored period was calculated in excel sheet page: 'Emission Reduction'!B37 4. the value for $V_{CH_4, t, db}$ for monitored period was calculated in excel sheet page: 'Emission Reduction'!C37 5. The temperature of landfill gas was not monitored that is why for calculation of Volumetric flow of the gaseous stream in 	<p>sheet. Please correct.</p> <p>Net electricity delivered to the grid ($EC_{BL,y}$): The value of the parameter is now mentioned as 43,832 MWh in the monitoring report as confirmed through the PMUM records.</p> <p>Quantity of electricity consumed by the project activity during the year y ($EC_{PJ,y}$): The parameter is removed from the monitoring report version 0.2. Please clarify.</p> <p>All the values should be presented as for year 2012, 2013 and 2014 separately since the parameters are monitored annually.</p> <p>Hence, CAR 2 is not closed.</p> <p>Review 2 (19/12/2014):</p> <p>The used equations and the source of the formulas (tool/methodology) are not presented in MR. The description and definition of the each parameter could not be matched with the applied formula. Therefore, the parameters listed below are not reproducible and traceable.</p> <ul style="list-style-type: none"> - Mass flow of methane in the gaseous stream in time interval t ($F_{CH_4, flared}$) - Molecular mass of the residual gas ($MM_{RG, h}$) - Density of the residual gas ($\rho_{RG, n, h}$) - Mass flow rate of methane in residual gas ($F_{CH_4, RG, m}$) <p>Please clearly specify applied each formula by giving the reference tool or</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>the hour h chosen to be on wet bases and option C is applied according to the tool.</p> <p>6.The monitored value for Pt was added to the monitoring table in MR.</p> <p>7. $TDL_{k,y}$ value was added to MR</p> <p>8.The value for Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$) was added to MR</p> <p>9. Methane fraction in the landfill gas (w_{CH_4}) was calculated in excel sheet page: 'Emission Reduction'!C37</p> <p>10. Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$) is added 'RAW data'!I120966</p> <p>11. Operation of the equipment that consumes the LFG (Opj,h) is not required to be monitored if the default value for the flare is chosen. Thus in this case default value for flare is chosen and there is no need to monitor operation hours.</p> <p>12. baseline emission for electricity generation is calculated based on net electricity that is why electricity consumption was removed from MR, but it is provided in excel sheet for DOE.</p> <p>All values are presented separately in years now</p> <p>Respond 3:</p> <ul style="list-style-type: none"> - The parameter "$F_{CH_4,flared}$" is "Amount of methane in the LFG which is destroyed by flaring in year y", thus it is not Mass flow of methane in the gaseous stream in 	<p>methodology and be sure that the explanations given in the MR matches with the calculation excel sheet.</p> <p>For example: The parameter given in MR as "$F_{CH_4,sent\ flare,y}$" is not the same with the parameter of "$F_{CH_4,flared,y}$". Please check the calculation.</p> <p>The value of the parameter "$F_{CH_4,EL,y}$" could now be confirmed as 9,829.02 tCH₄/y in the monitoring report and the calculation excel sheet.</p> <p>The parameter of "Volumetric flow of the gaseous stream in the hour h on a wet basis ($V_{t,wb}$)" is defined as "Total amount of Landfill gas captured ($V_{t,wb}$, LFGtotal,y) in the calculation excel sheet. However, they are not same. Please clarify.</p> <p><u>Hence, CAR 2 is not closed.</u></p> <p><u>Review 3 (06/04/2015):</u></p> <p>The used equations and the source of the formulas (tool/methodology) are not presented in MR. The description and definition of the each parameter could not be matched with the applied formula. Please clearly specify applied each formula by giving the reference tool or methodology and be sure that the explanations given in the MR matches with the calculation excel sheet.</p> <p>The parameter given in MR as "$F_{CH_4,sent\ flare,y}$" is presented as "$F_{CH_4,flared,y}$" in the calculation excel sheet. Please correct. In addition, as per the calculation given in the "Baseline emission-Methane", it is</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>time interval t. The methodology that this parameter is derived from is ACM0001 Version 13: ' Flaring or use of landfill gas. The reference and the link of methodology is provided in MR.</p> <ul style="list-style-type: none"> - Molecular mass of the residual gas ($MM_{RG,h}$) is a default value used from Methodological tool: "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" (Version 02.0.0). the reference of the parameter is provided in table 3. - Density of the residual gas ($\rho_{RG,n,h}$) is a default value used from Methodological tool: "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" (Version 02.0.0). the reference of the parameter is provided in table 3. - Mass flow rate of methane in residual gas ($F_{CH4,RG,m}$) is a parameter used in formula 9 of MR. the reference tool of methodology was also provided in MR as Tool to determine project emissions from flaring" version 02.0.0. the calculation of Mass flow rate of methane in residual gas ($F_{CH4,RG,m}$) was also provided in excel of ER_Kayserilandfill v3, in the 'baseline emission methane' column of 'M' <p>The parameter given in MR as "$F_{CH4,sent flare,y}$" is not the same with the parameter</p>	<p>understood that the parameter "$F_{i,t}$" is calculated, not "$F_{CH4,flared,y}$".</p> <p>The parameter is now presented as "Volumetric flow of the gaseous stream in the hour h on a wet basis ($V_{t,wb}$)" in the calculation excel sheet.</p> <p>Hence, CAR 2 is not closed.</p> <p>Review 4 (24/06/2015):</p> <p>The used equations given below could not be confirmed.</p> <ul style="list-style-type: none"> - $F_{CH4,flared} = F_{CH4,sent-flare} (PE_{flare,y} / GWP_{CH4})$ - $BE_{CH4,y} = (1 - OX_{top-layer}) (F_{CH4,PJ,y} - F_{CH4,BL,y}) GWP_{CH4}$ <p>In addition, the parameter $PE_{flared,y}$ is presented as PE_y in the Baseline Emission-Methane page of the calculation excel sheet. Please be sure that all the parameters have the correct name, formula and unit.</p> <p>Hence, CAR 2 is not closed.</p> <p>Review 5 (06/07/2015):</p> <p>All the calculations, formulas are confirmed in the calculation excel sheet.</p> <p>Hence, CAR 2 is closed.</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>of "$F_{CH4,flared,y}$" because they are 2 different parameters. "$F_{CH4,flared,y}$" is sum of $F_{CH4,flared,y} - (PE_{flare,y} / GWP_{CH4})$. This is provided in MR as formula 7 and the reference methodology is Methodology ACM0001 Version 13: ' Flaring or use of landfill gas. Please be more specific with you question.</p> <p>It is corrected as "Volumetric flow of the gaseous stream in the hour h on a wet basis" in the excel sheet too.</p> <p>Response4:</p> <p>Please see below the reference of the equations. This also added to MR to make it clear:</p> <p>Equation 1: Calculate as per the consolidated Methodology ACM0001 version 13 and determined and comprise the following sources: (A) Methane emissions from the SWDS in the absence of the project activity; (B) Electricity generation using fossil fuels or supplied by the grid in the absence of the project activity;</p> <p>Equation 2: Calculates total emission reductions from electricity production. The calculation of equation is provided in excel sheet 'Baseline emission-electricity' according to the methodological tool "Tool to calculate baseline, project and/or</p>	

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>leakage emissions from electricity consumption. The reference was provided in MR. the parameters were corrected in excel sheet with line in MR</p> <p>Equation 3: Calculates emission factor according to the Methodological tool: "Combined tool to identify the baseline scenario and demonstrate additionality". the parameters were corrected in excel sheet with line in MR</p> <p>Equation 4 determines Baseline emissions of methane from the SWDS</p> <p>Equation 5 and 6: calculates total Amount of methane in the LFG which is flared and/or used in the project activity in year y according to the the Methodology ACM0001 Version 13: ' Flaring or use of landfill gas and the "Methodological Tool to determine the mass flow of a greenhouse gas in a gaseous stream" Version 02.0.0. the references were already provided in MR. the parameters were checked and corrected with excel sheet. The excel page 'emission reduction' column F represent the value.</p> <p>Equation 7 and 8: calculate Mass flow of greenhouse gas i in the gaseous stream in time interval t (kg gas/h) for $F_{CH_4,flared,y}$, $F_{CH_4,EL,y}$ and $F_{CH_4,PJ,y}$. The measurement devices measure gas flow in Nm³/hr, then it has to converted to mass flow. That is why these both equations were used. The excel sheet 'baseline emission-methane' column G,H,and I coverts Nm³/hr to kg/h for $F_{CH_4,flared,y}$, $F_{CH_4,EL,y}$ and</p>	

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>$F_{CH_4,PJ,y}$. The tool used for these calculation is provided in MR as “Methodological Tool to determine the mass flow of a greenhouse gas in a gaseous stream” Version 02.0.0</p> <p>Equation 9: $F_{CH_4, flared, y}$ is determined as the difference between the amount of methane supplied to the flare(s) and any methane emissions from the flare(s) using Methodology ACM0001 Version 13: ‘ Flaring or use of landfill gas. The excel page ‘emission reduction’ column D represent the value.</p> <p>Equation 10 determines Amount of methane destroyed by electricity production ($F_{CH_4, electricity, y}$) using Methodology ACM0001 Version 13: ‘ Flaring or use of landfill gas. The excel page ‘emission reduction’ column E represent the value.</p> <p>Equation 11 determines Project emissions from flaring gases containing methane ($PE_{flare,n}$) using the “Tool to determine project emissions from flaring gases containing methane”version 02.0. The excel page ‘emission reduction’ column E represent the value.</p> <p>Equation 12 determines Project emissions from Project emissions from consumption of fossil fuels due to project activity using the “Tool to calculate project or leakage CO emissions from fossil fuel combustion”. The excel page ‘emission reduction’ column I represent the value.</p>	

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>The parameter given in MR as “$F_{CH4, sent flare, y}$” was also corrected in excel sheet.</p> <p>All equations are reflected to the excel sheet for easy follow.</p> <p>Response5: The used equations given below provided in excel sheet page “emission reduction” as column F and I.</p> <ul style="list-style-type: none"> - $F_{CH4, flared} = F_{CH4, sent-flare} (PE_{flare, y} / GWP_{CH4})$ - $BE_{CH4, y} = (1 - OX_{top-layer}) (F_{CH4, PJ, y} - F_{CH4, BL, y}) GWP_{CH4}$ <p>the parameter $PE_{flared, y}$ was revise in the Baseline Emission-Methane page of the calculation excel sheet.</p>	
<p>CAR 3 Amount of methane in LFG which is sent to the flare in year y ($F_{CH4, sent flare, y}$ (= LFG_{flare})): It is measured by a flow meter and a gas analyzer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Amount of methane in LFG which is sent to the genset for electricity generation in year y ($F_{CH4, EL, y}$ (= $LFG_{electricity, y}$)): It is measured by a flow meter and a gas analyzer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Volumetric flow of the gaseous stream in the hour h on a dry basis ($V_{t, db}$): It is measured by a flow meter. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Volumetric flow of CH_4 in time interval on a dry</p>	<p>B.3.2</p>	<p>Amount of methane in LFG which is sent to the flare in year measured by flow meter on flare line. The accuracy class is +-0.1. the description was added to MR.</p> <p>Amount of methane in LFG which is genset in year measured by flow meter on engine line. The accuracy class is +-0.1. the description was added to MR.</p> <p>Volumetric flow of the gaseous stream in the hour measured by flow meter on main line. The accuracy class is +-0.1. the description was added to MR.</p>	<p>Review 1 (08/09/2014): Please refer to CAR 8 of this protocol. Hence, CAR 3 is not closed.</p> <p>Review 2 (15/12/2014): Please refer to CAR 8 of this protocol. Hence, CAR 3 is not closed.</p> <p>Review 3 (09/02/2015): Please refer to CAR 8 of this protocol. Hence, CAR 3 is not closed.</p> <p>Review 4 (15/06/2015): Please refer to CAR 8 of this protocol.</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>basis ($V_{CH_4,t,db}$): It is measured by a flow meter. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Temperature of the landfill gas (T_l): It is measured by a thermometer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Pressure of the gaseous stream in the hour h (P_l): It is measured by a manometer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Quantity of diesel combusted for auxiliary purposes ($FC_{i,j,y}$): There is no description for the equipment and the accuracy. Please add.</p> <p>Methane fraction in the landfill gas (w_{CH_4}): It is measured by a gas quality analyzer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$): It is measured by a thermocouple. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Operation of the equipment that consumes the LFG (Op_j,h): It is measured and recorded In the project area. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Net electricity delivered to the grid ($EC_{BL,y}$): It is measured by two electricity meters. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Quantity of electricity consumed by the project activity during the year y ($EC_{P,j,y}$): It is measured by authorized electricity meters. However, there is no description for the equipment and the accuracy. Please add.</p>		<p>Volumetric flow of CH_4 in time interval on a dry basis measured by flow meter on main line. The accuracy class is ± 0.1. the description was added to MR.</p> <p>The description was added to MR, however there is no indicated accuracy class for the equipment.</p> <p>The description of the quipment was added to MR, however there is no accuracy of the equipment stated.</p> <p>The diesel consumption is calculated based on working hour of genset and per hour consumption of the gentset. Please find supporting documents of genset working hour as annex6a,perhour consumption as annex6b and name of genset as annex6c.</p> <p>Methane fraction in the landfill gas (w_{CH_4}): It is measured by a gas quality analyzer. Accuracy $\pm 0,065\%$. the description was added to MR</p> <p>The description for the thermocouple was already added to MR. there is no accuracy class stated by equipment provider.</p> <p>The description of the equipment was added to MR. there is no accuracy class stated by equipment provider.</p> <p>The description of the electricity meter was already added to MR. the accuracy class of the meter defined by regulation</p>	<p>Hence, CAR 3 is not closed.</p> <p>Review 5 (06/07/2015): Please refer to CAR 8 of this protocol.</p> <p>Hence, CAR 3 is closed.</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>as it was already stated in MR.</p> <p>The description of the electricity meter was already added to MR. the accuracy class of the meter defined by regulation as it was already stated in MR.</p> <p>Response 2: It is not understood why the review forwarded to CAR8. Could you please go through my previous responses for CAR3</p>	
<p>CAR 4 Amount of methane in LFG which is sent to the flare in year y ($F_{CH4, sent flare, y}$ (= LFG_{flare}): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Amount of methane in LFG which is sent to the genset for electricity generation in year y ($F_{CH4, EL, y}$ (= $LFG_{electricity, y}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Volumetric flow of the gaseous stream in the hour h on a dry basis ($V_{t, db}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Volumetric flow of CH₄ in time interval on a dry basis ($V_{CH4, t, db}$): There is no description about the</p>	<p>B.3.3</p>	<p>The calibration procedure for flow meter was already added to MR which is “Flow meter will be subject to regular (in accordance to the manufacturer) maintenance and testing to ensure accuracy”. Please find declaration paper of equipment provider as annex2.</p> <p>The calibration procedure for flow meter was already added to MR which is “Flow meter will be subject to regular (in accordance to the manufacturer) maintenance and testing to ensure accuracy”. Please find declaration paper of equipment provider as annex2.</p> <p>The calibration procedure for flow meter was already added to MR which is “Flow meter will be subject to regular (in accordance to the manufacturer) maintenance and testing to ensure accuracy”. Please find declaration paper of equipment provider as annex2.</p> <p>The calibration procedure for flow meter</p>	<p><u>Review 1 (08/09/2014):</u> Please refer to CAR 8 of this protocol. <u>Hence, CAR 4 is not closed.</u></p> <p><u>Review 2 (15/12/2014):</u> Please refer to CAR 8 of this protocol. <u>Hence, CAR 4 is not closed.</u></p> <p><u>Review 3 (09/02/2015):</u> Please refer to CAR 8 of this protocol. <u>Hence, CAR 4 is not closed.</u></p> <p><u>Review 4 (15/06/2015):</u> Please refer to CAR 8 of this protocol. <u>Hence, CAR 4 is not closed.</u></p> <p><u>Review 5 (06/07/2015):</u> Please refer to CAR 8 of this protocol. <u>Hence, CAR 4 is closed.</u></p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Temperature of the landfill gas (T_t): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Pressure of the gaseous stream in the hour h (P_t): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Quantity of diesel combusted for auxiliary purposes ($FC_{i,j,y}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Methane fraction in the landfill gas (w_{CH_4}): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the</p>		<p>was already added to MR which is “Flow meter will be subject to regular (in accordance to the manufacturer) maintenance and testing to ensure accuracy”. Please find declaration paper of equipment provider as annex2.</p> <p>The calibration procedure for thermometer was already added to MR which is “The device is subject to regular maintenance and testing regime to ensure accuracy. They will be periodically calibrated according to the manufacturer’s recommendation by project participants”. Please find declaration paper of equipment provider as annex2.</p> <p>The calibration procedure for Pressure gauge was already added to MR which is “The device is subject to regular maintenance and testing regime to ensure accuracy. They will be periodically calibrated according to the manufacturer’s recommendation by project participants”. Please find declaration paper of equipment provider as annex2.</p> <p>Project emissions are calculated not measured.</p> <p>Diesel consumption measured based on value on invoices, no equipment.</p> <p>The calibration procedure for equipment to measure Methane fraction in the landfill gas was already added to MR which is “The device is subject to regular</p>	

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>frequency.</p> <p>Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Operation of the equipment that consumes the LFG (Op_j,h): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Net electricity delivered to the grid ($EC_{BL,y}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Quantity of electricity consumed by the project activity during the year y ($EC_{PJ,y}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p>		<p>maintenance and testing regime to ensure accuracy. They will be periodically calibrated according to the manufacturer's recommendation by project participants". Please find declaration paper of equipment provider as annex2.</p> <p>The calibration procedure for Thermocouple was already added to MR which is "The device is subject to regular maintenance and testing regime to ensure accuracy. They will be periodically calibrated according to the manufacturer's recommendation by project participants". Please find declaration paper of equipment provider as annex2.</p> <p>The calibration procedure for equipment to measure Operation of the equipment that consumes the LFG was already added to MR which is "The device is subject to regular maintenance and testing regime to ensure accuracy. They will be periodically calibrated according to the manufacturer's recommendation by project participants". Please find declaration paper of equipment provider as annex2.</p> <p>The calibration procedure for equipment to measure electricity meters was already added to MR, please consult the regulation and links provided.</p> <p>Response 2: It is not understood why the review forwarded to CAR8. Could you please go through my previous responses for CAR4</p>	
<p>CAR 5</p>	<p>B.3.5</p>	<p>Measuring and recording frequency was</p>	<p>Review 1 (09/09/2014):</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>There is no recording frequency for all the monitoring parameters. Please add.</p>		<p>added for all parameters</p> <p>Response 2: Measuring and recording frequency was added for all parameters</p> <p>Response 3: the measuring frequency is equal to recording frequency which is now also defined in MR</p> <p>Response 4: Please check the raw data in excel sheet, column D again starting from the month 01.12.2011, the it can be clearly seen that the data monitored and recorded 6 times every hour which means continuously.</p>	<p>Still there is no recording frequency for all the monitoring parameters. Only the measuring frequency is discussed. Please add.</p> <p><u>Hence, CAR 5 is not closed.</u></p> <p><u>Review 2 (23/12/2014):</u> The monitoring frequency for each parameter is defined in the MR, however, the recording frequencies are not clearly defined. Also, as understood from the "raw data", there is not a regularly recording frequency (half hourly, hourly etc.). The system shall be programed to automatically save according to the defined recording frequency. <u>Hence, CAR 5 is not closed.</u></p> <p><u>Review 3 (08/02/2015):</u> The monitoring frequency for each parameter is defined in the MR, however, the recording frequencies are not clearly defined. Also, as understood from the "raw data", there is not a regularly recording frequency (half hourly, hourly etc.). The system shall be programed to automatically save according to the defined recording frequency. Please clarify. <u>Hence, CAR 5 is not closed.</u></p> <p><u>Review 4 (15/06/2015):</u> It could be seen that in 01/11/2011, after the hour 16:42:27, there is no measurement until 10:13:58 of 03/11/2011. In addition, after the</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
			measurements on 03/11/2011, the next measurements are on 29/11/2011. So there is no continuity. However, 11/2011 is not included to the monitoring period and the other data are continuously measured. Hence, CAR 5 is closed.
CAR 6 The calculations from/of the parameters could not be monitored since there is no raw data provided to the verification team. Please revise the excel sheet.	B.3.6	Please find all calculation and raw data as in excel file named ER_Kayserilandfillv1	Review 1 (09/09/2014): The calculations from/of the parameters could now be monitored since the raw data is provided to the verification team. Hence, CAR 6 is closed.
CAR 7 Air Quality: <u>Amount of CO, NMVOC:</u> It is calculated with the electricity generated based on the data available from TUIK. It is monitored annually by Plant Manager and carbon consultant. The value for this monitoring period is defined as “6 tons/GWh” for CO and “1.5 tons/GWh” for NMVOC. However, in the calculation excel sheet the values are calculated as “2.5 tons/GWh” for CO and “0.6 tons/GWh”. Please clarify. In addition, since the parameter is monitored annually, please calculate for 2011, 2012, 2013 and 2014 separately and give the total amount in the Monitoring Report. Please remove the parameter of NOx and add it to the soil condition. Water Quality and Quantity: <u>Amount of avoided wastewater to be discharged to the environment by project activity:</u> The parameter is calculated as per the amount of electricity generated. It is monitored annually by Plant Manager or Carbon Consultant. For this monitoring period the value for the parameter is defined as 917,600 m ³ /year. However, in the	B.4.1	Air Quality: Amount of CO, NMVOC : That is corrected in line with excel sheet. Is there need for calculation of avoidance per year? As it can be seen an average value for electricity generation is calculated based on the electricity generation of the plant during the period which is a logical approach. Moreover, according to GS requirement what is important is to show the positive impact instead exact number of avoidance of emissions or waste water. Please find calculation in excel sheet of ER_kayserilandfillv1 Water Quality and Quantity: That is corrected in line with excel sheet. Is there need for calculation of avoidance per year? As it can be seen an average value for electricity generation is calculated based on the electricity generation of the plant during the period which is a logical approach. Moreover, according to GS requirement what is	Review 1 (09/09/2014): Air Quality: <u>Amount of CO, NMVOC:</u> According to the calculation given in the excel sheet, “Electricity generation in 2010” is not in lie with the given supporting web-link since the link does not contains the year 2010. Please revise them. In addition, the parameter of NOx is still presented under the air quality. Please remove and add it to the soil condition. Water Quality and Quantity: <u>Amount of avoided wastewater to be discharged to the environment by project activity:</u> The value given for total electricity generation in 2010 could not be confirmed since the given web link (in the excel sheet) is not available. Footnote 14 (hereafter referred to as the “footnote 10”) is now revised as 2010 data in the monitoring report. Soil condition:

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>calculation excel sheet the value is calculated as “384,2 m³/year”. Please clarify. In addition, since the parameter is monitored annually, please calculate for 2011, 2012, 2013 and 2014 separately and give the total amount in the Monitoring Report.</p> <p>In addition, footnote 14 related to the parameter is for 2010 data. However, 2008 is written in the monitoring report in the web-link’s explanation. Please correct.</p> <p>Soil condition:</p> <p><u>Amount of avoided NOx emissions:</u> The parameter is monitored annually with amount of electricity generated by Plant Manager or Carbon Consultant. The value of the parameter is given as 99.3 ton NOx in the MR. However, in the calculation excel sheet the value is calculated as “41.7 ton NOx”. Please clarify. In addition, since the parameter is monitored annually, please calculate for 2011, 2012, 2013 and 2014 separately and give the total amount in the Monitoring Report.</p> <p>In addition, footnote 15 related to the parameter is for 2010 data. However, 2008 is written in the monitoring report. Please also clarify why estimated baseline value is changed from 1.651 to 2.218 m³.</p> <p>Quality of Employment:</p> <p><u>Health and Safety Trainings:</u> The provided trainings are monitored through the list of attendance to trainings given in the monitoring report. However, the given training certificates /20/ /21/ /22/ does not belong to this monitoring period. Please clarify.</p> <p>In addition, the number of the employees attended</p>		<p>important is to show the positive impact instead exact number of avoidance of emissions or waste water. Please find calculation in excel sheet of ER_kayserilandfillv1</p> <p>The footnote was corrected.</p> <p>Soil condition:</p> <p>That is corrected in line with excel sheet. Is there need for calculation of avoidance per year? As it can be seen an average value for electricity generation is calculated based on the electricity generation of the plant during the period which is a logical approach. Moreover, according to GS requirement what is important is to show the positive impact instead exact number of avoidance of emissions or waste water. Please find calculation in excel sheet of ER_kayserilandfillv1</p> <p>The footnote 15 was revized. The number is revised due to the number in net electricity generation.</p> <p>Quality of Employment:</p> <p><i>The trainings related with the period were added to MR. Please find supporting documents as Annex 4.</i></p> <p>Access to Affordable and Clean Energy Services:</p> <p>In excel sheet, annual average electricity generation is 18.8 GW. That is corrected in line with excel sheet. Is there need for calculation of avoidance per year? As it can be seen an average value for electricity generation is calculated based on the electricity generation of the plant</p>	<p><u>Amount of avoided NOx emissions:</u> The parameter is calculated as per the 2009 data (given in the web-link of the excel sheet). However, 2010 data should be use for calculation as per the registered PDD. Please revise.</p> <p>In addition, footnote 15 related to the parameter NOx emission amount should be for 2010 data as per the registered PDD. However, still 2008 data is given in the web-link.</p> <p>Quality of Employment:</p> <p><u>Health and Safety Trainings:</u> The provided trainings are now monitored through the list of attendance to the trainings /40/ /41/ /42/ /43/ /44/ given in the monitoring report.</p> <p>Access to Affordable and Clean Energy Services:</p> <p><u>Change in Energy Use:</u> The value of the parameter is now corrected as “18.8 GW” in the MR.</p> <p>Quantitative employment and income generation:</p> <p><u>Number of employment:</u> According to the Social Security Records related to the last month of the monitoring period /24/, 20 employees are hired for the project. Please give the correct number in the monitoring report since the choosen parameter is “Number of Employment”.</p> <p>In addition, still 7 employee’s Registration Documents /23/ are provided to the verification team. Please provide the rest.</p> <p>Hence, CAR 7 is not closed.</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>to the health and safety trainings were not presented in the MR. Please add.</p> <p>Access to Affordable and Clean Energy Services:</p> <p><u>Change in Energy Use:</u> The parameter is monitored annually with amount of electricity generated by Plant Manager or Carbon Consultant. The value of the parameter is given as “44 GW” in the MR. However, in the calculation excel sheet the value is calculated as “1,973,701 m³”. Please clarify. In addition, since the parameter is monitored annually, please calculate for 2011, 2012, 2013 and 2014 separately and give the total amount in the Monitoring Report.</p> <p>Quantitative employment and income generation:</p> <p><u>Number of employment:</u> The parameter is monitored annually with social security records of the employees. According to the Social Security Records /24/, 20 employees are hired for the project. However, only 7 employee’s Registration Documents /23/ are provided to the verification team. Also, during on site visit, PP defined that 7 employees are hired by HER Enerji. Please clarify.</p>		<p>during the period which is a logical approach. Moreover, according to GS requirement what is important is to show the positive impact instead exact number of avoidance of emissions or waste water. Please find calculation in excel sheet of ER_kayserilandfillv1</p> <p>Quantitative employment and income generation:</p> <p>There are 21 employees of Her enerji as listed in the SGK Documents that is attached as annex5</p> <p>Response 2: Air Quality:</p> <p>The link for electricity generation was updated</p> <p>The parameter of NOx is already presented under the soil condition.</p> <p>Water Quality and Quantity:</p> <p>The link for electricity generation was updated</p> <p>Soil condition:</p> <p>The links and data was update for 2010</p> <p>Quantitative employment and income generation:</p> <p>The number of employees were added to MR.</p> <p>Please find the rest of registration as</p>	<p>Review 2 (07/01/2015):</p> <p>Air Quality:</p> <p><u>Amount of CO, NMVOC:</u> According to the calculation given in the excel sheet, “Electricity generation in 2010” is not in line with the given supporting web-link since the link does not contains the year 2010. Please revise them.</p> <p>Water Quality and Quantity:</p> <p><u>Amount of avoided wastewater to be discharged to the environment by project activity:</u> The value given for total electricity generation in 2010 could not be confirmed since the given web link (in the excel sheet) is not available.</p> <p>Soil condition:</p> <p><u>Amount of avoided NOx emissions:</u> The parameter is calculated as per the 2009 data (given in the web-link of the excel sheet). However, 2010 data should be use for calculation as per the registered PDD. Please revise.</p> <p>In addition, footnote 11 related to the parameter NOx emission amount is not available. Please revise the web-link</p> <p>Quantitative employment and income generation:</p> <p><u>Number of employment:</u> According to the Social Security Records related to the last month of the monitoring period /24/, 20 employees are hired for the project. The number is now corrected in the monitoring report.</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>annex 1.</p> <p>Response 3: Air Quality: the link of electricity generation for 2010 was revised Water Quality and Quantity: the link of electricity generation for 2010 was revised Soil condition: for NOx the link was revised with 2010 and the data was revised with 2010</p> <p>The link with NOx was added to MR as footnote 12.</p> <p>Response 4: Please close the CAR7 if possible, after reviewing the previous response 3.</p> <p>Reponse 5: All links for <u>CO</u>, <u>NMVOC</u>, <u>NOx</u> which were not working in excel and MR were revised.</p>	<p>Hence, CAR 7 is not closed.</p> <p>Review 3 (06/04/2015): Air Quality: <u>Amount of CO, NMVOC:</u> “Emission Amount due to Electricity Generation in 2010” given in the calculation excel sheet could not be confirmed since the web-links are not available. Water Quality and Quantity: <u>Amount of avoided wastewater to be discharged to the environment by project activity:</u> The value given for total electricity generation in 2010 could now be confirmed as per the given reference in the calculation excel sheet, version 03. Soil condition: <u>Amount of avoided NOx emissions:</u> “Emission Amount due to Electricity Generation in 2010” given in the calculation excel sheet could not be confirmed since the web-links are not available.</p> <p>In addition, footnote 14 related to the parameter NOx emission amount does not work. Please revise the web-link.</p> <p>Hence, CAR 7 is not closed.</p> <p>Review 4 (15/06/2015): Air Quality: <u>Amount of CO, NMVOC:</u> “Emission Amount due to Electricity Generation in 2010” given in the calculation excel sheet</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
			<p>could not be confirmed since the web-links are not available.</p> <p>Soil condition:</p> <p><u>Amount of avoided NOx emissions:</u> ‘Emission Amount due to Electricity Generation in 2010’ given in the calculation excel sheet could not be confirmed since the web-links are not available.</p> <p>In addition, footnote 14 related to the parameter NOx emission amount does not work. Please revise the web-link.</p> <p><u>Hence, CAR 7 is not closed.</u></p> <p><u>Review 5 (06/07/2015):</u> The web-links are now revised in the calculation excel sheet and the monitoring report.</p> <p><u>Hence, CAR 7 is closed.</u></p>
<p>CAR 8</p> <p>An on-site inspection has been performed on 15-16/07/2014. It could not be confirmed that the monitoring arrangements in the monitoring plan are feasible within the project design. The monitoring plan does not described in the MR. Therefore, it is impossible to confirm monitoring arrangements. Please also add the schematic representation of the system and listed the monitoring equipment including all the information (such as mark, model, serial no, accuracy, calibration date and calibration frequency). Please also provide information about where the electricity meters are positioned.</p> <p>In addition, although there is a backup meter with a serial no 447412, there is no first index protocol</p>	<p>B.5.1</p>	<p>The monitoring plan was already provided in section C under description of monitoring plan. A schematic representation of the place of measuring devices and a list of measuring devices are provided.</p> <p>Response2: the list of meters are linked with raw data for easy follow. Please check excell sheet ‘raw data’ where you can see which data is taken from which meter. Moreover Conveco is the supplier and produces of the booster, thus the informations are reliable.</p> <p>Although there was four pressure gauge, the one provided by Conveco is the main</p>	<p><u>Review 1 (09/09/2014):</u></p> <p>The monitoring plan is now described in the monitoring report. The monitoring arrangements were added to the MR with their ID, Installation date, calibration date and calibration frequency.</p> <p>However, the given list with a signature by Conveco are not in line with the real situation. During on site visit, it is confirmed that 4 pressure meter are positioned in the project area. However, in the list only one pressure meter were discussed. The list is not reliable.</p> <p>In addition, the list still does not contain mark and model of the meters to verify the accuracy from their data sheet. Also,</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>for the backup meter. Please provide the supporting document.</p>		<p>one where data is take from. The mark and model of the meters are added to the excel file in annex2 The date of instalation was already provided, but it can also be seen in annex3</p> <p>Electricity meter is located in the sub-station center.</p> <p>While the electricity meters are located in sub-station center and under responsibility of TEİAŞ, the related document of back-up meter was not provided by them to Her Enerji.</p> <p>Response 3: Flow meter with a serial no ABF0859F for main pipe is now added to excel sheet 'Raw data' column E. the thermocouple with a serial no 2012OF000652 was not added to excell sheet of raw data because there is no temparature of LFG recorded. As information provided on site, the temparature of LFG is measured but not recorded. That is why the calculation of flow measurement is wet based according to the option C of the "Methodological Tool to determine the mass flow of a greenhouse gas in a gaseous stream" Version 02.0.0.</p> <p>the electricity meters are now provided in MR and list of devices. The explanation about location of electricity meter is now</p>	<p>the correspondance about "there is no need for calibration" should be taken from the manufacturers not the suppliers. Please provide the supporting document to confirm the installation dates of the meters. Please also provide information about where the electricity meters are positioned. In addition, although there is a backup meter with a serial no 447412, there is no first index protocol for the backup meter. Please provide the supporting document. Hence, CAR 8 is not closed.</p> <p>Review 2 (25/12/2014): According to the PP's explanation, the devices could be matched with the raw data page of the excel sheet. However, flow meter with a serial no ABF0859F and the thermocouple with a serial no 2012OF000652 could not be confirmed. Please clarify. In addition, the electricity meters are not presented in the devices table with their accuracy, serial no, calibration date and frequency. Please add. It is stated in the responses that the electricity meters are located in the substation center. However, it is not discussed in the monitoring report. Please clarify. The given supporting documents for the measurement devices to confirm the accuracy and the calibration frequency does not match with the devices table since no model of the devices are</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>provided in MR under section C.1.2 Electricity Generation</p> <p>The model of devices are now provided in the table of devices. The supporting document for calibration was already provided to DOE in previous round. It is also attached as annex 1 to this document.</p> <p>Response 4: Please find supporting document for calibration, conformity and accuracy as:</p> <ol style="list-style-type: none"> 1. Annex A1:Declaration of conformity for Flare flow meter 2. Annex A2:Declaration of conformity for Engine and Total flow meter 3. Annex A3:Declaration of conformity for Pressure sensor 4. Annex A4:Declaration of conformity for Analyzer 5. Annex B: Calibration of Analyzer 6. Annex C: Calibration_ Flow meter 7. Annex_D:Declaration of calibration <p>Response 5: Information on electricity meters were added now.Please see revised MR v5. Supporting document for the main meter is provided as attachment of this document.</p> <p>Information for termocouple was added, but temprature was removed due to not</p>	<p>presented in the monitoring report. In addition, please provide calibration certificates for confirm the given calibration dates in the devices table.</p> <p><u>Hence, CAR 8 is not closed.</u></p> <p><u>Review 3 (06/04/2015):</u> The missing devices could now be matched with the raw data page of the excel sheet. In addition, the explanation given for the thermocouple is found acceptable.</p> <p>The electrity meters are now presented in the devices table. However, their accuracy and model are not discussed.</p> <p>It is now presented that the electricity meters are located in the substation center.</p> <p>Please provide all the documents to confirm the calibration dates, calibration frequencies and the accuracy class of the measurement devices.</p> <p><u>Hence, CAR 8 is not closed.</u></p> <p><u>Review 4 (15/06/2015):</u> The information about the electrity meters are now removed from the devices table. Therefore, no explanation is given for the meters about their model, serial no, calibration date and frequency.</p> <p>According to the provided supporting documents, the serial no, the model the accuracy of the meters are confirmed except the temperature meter and thermocouple. There is no supporting documents for these meters. In addition,</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>being used in measuring the data. Please find supporting document for thermocouple as attachment of this document.</p> <p>The date of calibration is revised according to the conformity paper of the meters as 25.05.2011</p> <p>Please find supporting document of pressure meter as attachment of this document.</p>	<p>the calibration dates for the flow meters could not be verified since the date of the supporting documents is 25/05/2011. Also, the model no of the pressure meter is not in line with the given supporting documents. Please clarify.</p> <p>Hence, CAR 8 is not closed.</p> <p>Review 5 (06/07/2015):</p> <p>The information about the electricity meters are now added to the devices table. The necessary explanation is now given for the meters about their model, serial no, calibration date and frequency.</p> <p>The supporting documents for the thermocouple and pressure meter are now provided to the verification team. In addition, the calibration dates for the flow meters could now be verified with the date given in the supporting documents. Also, the model no of the pressure meter is now in line with the given supporting documents.</p> <p>Hence, CAR 8 is closed.</p>
<p>CR 1</p> <p>The format of the completion date, registration date and Monitoring period should be corrected as DD/MM/YYYY according to the guideline "Guidelines for Completing the CDM-MR-FORM" /19/.</p> <p>In addition, please explain the monitoring period number "4" given in the first page of the MR since it is the first verification. Please also correct the date of the monitoring period and registration date of the project activity.</p> <p>The new version of the CDM-MR-FORM (version</p>	<p>A.1</p>	<p>The formats of the dates are corrected.</p> <p>The term of 4. Verification was revised as first verification.</p> <p>The new version of MR was used.</p> <p>Response 2: registration date was revised</p> <p>Response3: the registration date was revised now</p>	<p>Review 1 (08/09/2014):</p> <p>The format of the dates are now corrected as DD/MM/YYYY in the monitoring report version 0.2.</p> <p>The monitoring number is now corrected as "1" in the first page of the monitoring report. However, the registration date of the project activity is still not correct. Please revise it as per the GS 8-week registration review report and the e-mail.</p> <p>The new version of the CDM-MR-FORM (version 04.0 is now applied.</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>04.0) is available. Please apply.</p>		<p>Response4: According to the GS review form the data of registration was mistakenly stated as 08.10.2012. however, as per e-mail from Mr. Omer Akyürek and per request of registration date which is 23.08.2013, the date of registration is 08.10.2013.</p>	<p><u>Hence, CR 1 is not closed.</u></p> <p><u>Review 2 (15/12/2014):</u> The registration date of the project activity is still not correct. Please revise it as per the GS 8-week registration review report. <u>Hence, CR 1 is not closed.</u></p> <p><u>Review 3 (08/02/2015):</u> The registration date of the project activity is still not correct. Please revise it as per the GS 8-week registration review report. <u>Hence, CR 1 is not closed.</u></p> <p><u>Review 4 (15/06/2015):</u> The registration date of the project activity could now be confirmed as per the e-mail sent by Gold Standard. <u>Hence, CR 1 is closed.</u></p>
<p>CR 2 The description of the monitoring plan given in Section B of the MR does not comply with the monitoring plan presented in the registered PDD /1/ and GS Passport /2/. Please give a clear definition about the monitoring system and also please add the roles and responsibilities.</p>	<p>B.1.2</p>	<p>The description of monitoring plan in MR was corrected in line with PDD. Role and responsibilities were also added to MR.</p> <p>Response 2: the tense of the monitoring plan was revised</p>	<p><u>Review 1 (08/09/2014):</u> The description of the monitoring plan given in Section B of the MR now complies with the monitoring plan presented in the registered PDD /1/ and GS Passport /2/. However, the given responsibilities are mentioned as future tense (like given in the registered PDD). Please correct them as actual. <u>Hence, CR 2 is not closed.</u></p> <p><u>Review 2 (15/12/2014):</u> The given responsibilities are now mentioned correctly in the monitoring report.</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>CR 3</p> <p>The sustainability indicators included in the monitoring report /3/ does not comply with the minimum contents specified in paragraph 4.1 of the GS Toolkit /8/. Please revise them as per the last version of the MR template /19/.</p>	<p>B.1.3</p>	<p>The sustainability indicators were copied from gold standard passport which had been already registered. Please be more specific about your request.</p>	<p>Hence, CR 2 is closed.</p> <p>Review 1 (08/09/2014):</p> <p>The sustainability indicators included in the monitoring report /3/ now complies with the minimum contents specified in paragraph 4.1 of the GS Toolkit /8/ since the MR template is revised to the last version and values or necessary informations are added to the indicators.</p> <p>Hence, CR 3 is closed.</p>
<p>CR 4</p> <p>Quantity of MSW land filled during 1996~2012 (Wx): It is defined as “see Section B.6.3”. However, it could not be confirmed since there is no section B.6.3 in the MR. Please gives the current value or current reference.</p> <p>Global Warning Potential of CH₄ (GWP_{CH4}): It is defined as 21 tCO₂e/tCH₄ for the monitoring period that falls within the first commitment period and it should be also defined as 25 tCO₂e/tCH₄ for the monitoring period that falls within the second commitment period as per the Kyoto Protocol.</p> <p>Gross Electricity supplied to the grid by relevant sources (2008-2010) (Gross electricity generation): It is defined as “Table 11”. However, it could not be confirmed since there is no Table 11 in the MR. Please gives the current value or current reference.</p> <p>Net electricity fed into the grid. Used for the calculation of the net/gross relation (Net electricity generation): It is defined as “Table 12”. However, it could not be confirmed since there is no Table 12 in the MR. Please gives the current value or current reference.</p> <p>Heating Values of fuels consumed for electricity generation (HV_{i,y}): It is defined as “Table 20”. However, it could not be confirmed</p>	<p>B.2.1</p>	<p>The indicators listed under CR4 are the parameter not to be monitored. Thus, the parameters were copied from registered PDD. The referings in table of parameters were to PDD, thus they are corrected accordingly. Additionally, there is no need to provide current values while there are not subject to monitoring. Please consult to registered PDD for references.</p> <p>Quantity of MSW land filled during 1996~2012 (Wx) is defined in section B.6.3 of PDD. It is not subject to monitoring, thus no need for current value.</p> <p>Global Warning Potential of CH₄ (GWP_{CH4}): is defined as 25 tCO₂e/tCH₄ for the monitoring period t</p> <p>Gross Electricity supplied to the grid by relevant sources (2008-2010) (Gross electricity generation) is defined in table 11 of PDD.</p> <p>Net electricity fed into the grid. Used for the calculation of the net/gross relation (Net electricity generation) is defined in table 12 of PDD</p>	<p>Review 1 (09/09/2014):</p> <p>Quantity of MSW land filled during 1996~2012 (Wx): The current reference was given now in the monitoring report.</p> <p>Global Warning Potential of CH₄ (GWP_{CH4}): It is now defined as 25 tCO₂e/tCH₄ for the monitoring period that falls within the second commitment period as per the Kyoto Protocol.</p> <p>Gross Electricity supplied to the grid by relevant sources (2008-2010) (Gross electricity generation): It is now defined as “Table 11 of the PDD”.</p> <p>Net electricity fed into the grid. Used for the calculation of the net/gross relation (Net electricity generation): It is defined as “Table 12”. However, the value could be confirmed with table 11 of the PDD. Please correct.</p> <p>Heating Values of fuels consumed for electricity generation (HV_{i,y}): It is defined as “Table 20 of the PDD”. However, the correct table is Table 21. Please revise.</p> <p>Fuels consumed for electricity generation (FC_{i,y}): It is now defined as “Table 21 of the PDD”. However, the</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>since there is no Table 20 in the MR. Please gives the current value or current reference.</p> <p>Fuels consumed for electricity generation ($FC_{i,y}$): It is defined as “Table 21”. However, it could not be confirmed since there is no Table 21 in the MR. Please gives the current value or current reference.</p> <p>Net Calorific Value of fuel types ($NCV_{i,y}$): It is defined as “Table 23”. However, it could not be confirmed since there is no Table 23 in the MR. Please gives the current value or current reference.</p> <p>Most recent power plants which compromise 20% of total generation (Sample Group for BM emission factor): It is defined as “Table 25”. However, it could not be confirmed since there is no Table 25 in the MR. Please gives the current value or current reference.</p> <p>Emission factor for fuel type I (EF_i): It is defined as “Table 24”. However, it could not be confirmed since there is no Table 24 in the MR. Please gives the current value or current reference.</p> <p>Average energy conversion efficiency of power unit m in year y ($\eta_{i,y}$): It is defined as “Table 16”. However, it could not be confirmed since there is no Table 16 in the MR. Please gives the current value or current reference.</p> <p>Temperature at normal conditions (T_n): It is defined as 273.15 K as per the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”.</p> <p>In addition, emission factor of the project activity should also be added to the “not monitoring parameters” since it is fixed for the crediting period.</p>		<p>Heating Values of fuels consumed for electricity generation ($HV_{i,y}$) is defined in Table 20 of PDD.</p> <p>Fuels consumed for electricity generation ($FC_{i,y}$) is defined in Table 21 of PDD.</p> <p>Net Calorific Value of fuel types ($NCV_{i,y}$) is defined in Table 23 of PDD.</p> <p>Most recent power plants which compromise 20% of total generation (Sample Group for BM emission factor) is defined in Table 25 of PDD.</p> <p>Emission factor for fuel type I (EF_i) is defined in Table 24 of PDD.</p> <p>Average energy conversion efficiency of power unit m in year y ($\eta_{i,y}$) is defined in Table 16 of PDD.</p> <p>The parameters not monitoring is copied from registered PDD ad they are fixed for the crediting period. But, emission factor is not a parameter to be used, instead it is a value reached by using parameters, thus there is no need to add it in parameters fixed in PDD.</p> <p>Response 2:</p>	<p>correct table is Table 22. Please revise.</p> <p>Net Calorific Value of fuel types ($NCV_{i,y}$): It is now defined as “Table 23 of the PDD”.</p> <p>Most recent power plants which compromise 20% of total generation (Sample Group for BM emission factor): It is now defined as “Table 25 of the PDD”.</p> <p>Emission factor for fuel type I (EF_i): It is now defined as “Table 24 of PDD”.</p> <p>Average energy conversion efficiency of power unit m in year y ($\eta_{i,y}$): It is now defined as “Table 16 of PDD”.</p> <p>In addition, emission factor of the project activity ($EF_{Grid,CM,y}$) should also be added to the “not monitoring parameters” since it is fixed for the crediting period.</p> <p>Hence, CR 4 is not closed.</p> <p>Review 2 (15/12/2014):</p> <p>Net electricity fed into the grid. Used for the calculation of the net/gross relation (Net electricity generation): It is now defined as “Table 11” in the monitoring report version 0.3.</p> <p>Heating Values of fuels consumed for electricity generation ($HV_{i,y}$): It is now defined as “Table 21 of the PDD” in the monitoring report version 0.3.</p> <p>Fuels consumed for electricity generation ($FC_{i,y}$): It is now defined as “Table 22 of the PDD” in the monitoring report version 0.3.</p> <p>It is mandatory to mention the emission factor of the project activity in the monitoring report. Therefore, it is logical</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>The related table was revised as table 11 in MR</p> <p>The related table was revised as table 21 in MR.</p> <p>The related table was revised as table 22 in MR</p> <p>While emission factor of the pproject activity was not added under 'parameters not monitored' in PDD, it can not be add to the MR,</p> <p>Response 3: the emission factor, $EF_{grid,CM,y}$ is now added under parameters not monitored.</p>	<p>to add to the “not monitoring parameters” since it is fixed for the crediting period. As you know that the parameters given in the registered PDD is used to calculate the combined margin, it is totally up to the selection of the PP that all the parameters could be removed instead of adding $EF_{grid,CM,y}$.</p> <p><u>Hence, CR 4 is not closed.</u></p> <p><u>Review 2 (15/12/2014):</u></p> <p>The parameter of $EF_{grid,CM,y}$ is now added to the “not monitoring parameters” of the monitoring report.</p> <p><u>Hence, CR 4 is closed.</u></p>
<p>CR 5</p> <p><i>Quantity of diesel combusted for auxiliary purposes ($FC_{i,j,y}$):</i> There is no explanation about the monitoring frequency of the parameter. Please add.</p>	<p>B.3.4</p>	<p>In the registered PDD, it is stated that “Fuel consumption is calculated using a mass balance approach based on the quantity of fuel purchased and the difference in the quantity held in stock”. Thus there is no frequency of the parameter. Please consult to the registered PDD.</p> <p>Response2: although monitoring frequency is not defined in registered PDD, it is defined in MR as per monitoring period.</p> <p>While the invoices for purchase of diesel can not be reached, the working hour of jenerator and per hour consumption were stated in PE_Generator sheet of excel file ER_Kayseri_landfill. Please have a look to the calculation. The explanation in Monitored parameter was also revised in MR</p>	<p><u>Review 1 (08/09/2014):</u></p> <p>If the parameter is monitoring with the quantity of the fuel purchased and the difference in the quantity held in stock, the monitoring frequency (such as, “is monitoring” annually, monthly, daily etc.) should be defined. In addition, if the invoices can not be reached for the calculation (as confirmed during on site visit), please give a clear explanation in the correction part of post registration changes about the current issue.</p> <p><u>Hence, CR 5 is not closed.</u></p> <p><u>Review 2 (07/01/2015):</u></p> <p>The monitoring frequency is now added in the monitoring report.</p> <p>However, the explanation given in the <i>Measuring/Reading/Recording frequency</i> of the monitoring report is not in line with</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>Response 3: Project Emission due to diesel consumption is calculated based on the working hour of jenerator and per hour consumption. The calculation method was already provided in "Project emissions from consumption of fossil fuels due to project activity" section of MR under formula 10,11 and 12.</p> <p>The calculation method of emission from diesel consumption was stated in part of post registration changes about the current issue.</p>	<p>the explanation given in the registered PDD as "Fuel consumption is calculated using a mass balance approach based on the quantity of fuel purchased and the difference in the quantity held in stock" in the registered PDD. Please clarify if it is measured or calculated. If it is calculated, please present the calculation method of the parameter in the MR.</p> <p>In addition, since the invoices can not be reached for the calculation (as confirmed during on site visit), please give a clear explanation in the correction part of post registration changes about the current issue.</p> <p><u>Hence, CR 5 is not closed.</u></p> <p><u>Review 2 (07/01/2015):</u></p> <p>The monitoring report should be in line with the registered PDD. Otherwise, the difference between them should be explained clearly in Section B.2 "Post Registration Changes" of the MR. In this context, the calculation method of the parameter "FC_{i,j,y}" is clearly defined in the MR since "Measuring / Reading / Recording frequency" given in the MR is different with the registered PDD.</p> <p><u>Hence, CR 5 is closed.</u></p>
<p>CR 6</p> <p>All the documented evidences related to the sustainable monitored parameters are not collected and kept. Please provide trainings related to this monitoring period and the correspondence to confirm that there is no mixing of any auxiliary gas to boost calorific value of LFG or startup fuel for the engines or the flare system.</p>	<p>B.4.3</p>	<p>All the documented evidences related to the sustainable monitored parameters were collecte and kept. Please consult to Gold standard sustainability parts of MR.</p> <p>Please find training documents which were already provided on site visit.</p>	<p><u>Review 1 (09/09/2014):</u></p> <p>The correspondence to confirm that there is no mixing of any auxiliary gas to boost calorific value of LFG or startup fuel for the engines or the flare system does still not provided to the verification team.</p> <p>In addition, the engine failures affecting the eletricity generation (not the daily</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>In addition, during on site visit, the project owner defined that engine failure has occurred. This situation should be explained clearly in the report and supporting documentation must be sent to the verification team.</p>		<p>The failure of the engine was already expressed in raw data of excel sheet.</p> <p>Response 2: The project owner already stated that there is no pipeline to mix auxiliary gas to boost calorific value of the LFG. Moreover, if there was even pipeline, the auxiliary gas could have been much more expensive compared to LFG and it could have been out-lawed to mix it.</p> <p>The engine failures were listed in raw data of excel sheet. Bu there is no need to monitor the failures, because when the failures happen, LFG is burned in flare and the flare is monitored.</p> <p>Response 3: As it is already stated on site visit there is no pipeline of kayserigaz I the project area and moreover it is also unlawfull to use mixing of any auxiliary gas to boost calorific value of LFG. Thus there is no need to provide an additional document for something which is not existing.</p> <p>For next verifications the failures will be recorded.</p>	<p>disruptions) should be recorded and presented in the monitoring report. <u>Hence, CR 6 is not closed.</u></p> <p><u>Review 2 (16/12/2014):</u> It is requested by the Validation Team that there is no mixing of any auxiliary gas to boost calorific value of LFG or startup fuel for the engines or the flare system. During on site-visit, PP mentioned that a brief about no pipeline is available in the project area could be provided from Kayserigaz. However, it does still not provided to the verification team. Please clarify.</p> <p>In addition, any failures about the engines or flare should be monitored and presented in the monitoring report for information purposes only. Such records should be kept for internal quality. <u>Hence, CR 6 is not closed.</u></p> <p><u>Review 3 (08/02/2015):</u> The correspondance related to no natural gas pipeline is positioned in the project area is now provided to the verification team by Kayserigaz /45/.</p> <p>However, any failures about the engines or flare should be monitored and presented in the monitoring report for information purposes only. Such records should be kept for internal quality. This parameter should be monitored during the next verification. <u>Hence, CR 6 is closed and 1 FAR is raised.</u></p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>CR 7 Although the generated electricity is based on PMUM records, they were not provided to the verification team. Please send the PMUM screenshots.</p>	<p>B.5.2</p>	<p>The PMUM records were presented to DOE on site visit with project developer, and DOE has crosschecked PMUM and monthly records and confirmed correctness.</p> <p>Response2: the PMUM records were provided to DOE by e-mail aside of the protocol</p> <p>Response 3: the PMUM documents were provided to verification team on site visit. Additionally they were downloaded from PMUM site and already provided in previous round. If DOE does not believe the document provided by project developer, then we invite DOE to office of project developer in Istanbul to go through the documents again.</p> <p>Response 4: Please find PMUM data for december 2011 as attached Annex_E</p>	<p><u>Review 1 (08/09/2014):</u> It is clearly defined when sending the on-site visit draft plan that the originals will be seen during on site visit and the scanned digital copies should be provided to the verification team. Please send the PMUM records. <u>Hence, CR 7 is not closed.</u></p> <p><u>Review 2 (28/11/2014):</u> The provided documents could not be verified as PMUM records since there is no expression related with PMUM on it. Please provide the PMUM screenshots. <u>Hence, CR 7 is not closed.</u></p> <p><u>Review 3 (06/04/2015):</u> The PMUM records are now provided to the verification team and confirmed that the data is transferred correctly to the excel sheet. However, the supporting document related to December 2011 is missing. Please provide. <u>Hence, CR 7 is not closed.</u></p> <p><u>Review 4 (15/06/2015):</u> The PMUM record related to December 2011 is now provided to the verification team and confirmed that the data is transferred correctly to the excel sheet. <u>Hence, CR 7 is closed.</u></p>

TABLE 3 FORWARD ACTION REQUEST

Forward action request	Reference to Table 1	Response by project participants Verification conclusion
<p>FAR 1</p> <p>It is requested by the Validation Team that there is no mixing of any auxiliary gas to boost calorific value of LFG or startup fuel for the engines or the flare system. During on site-visit, PP mentioned that a brief about no pipeline is available in the project area could be provided from Kayserigaz. However, it does still not provided to the verification team. Therefore, this document should be provided and this parameter should be monitored during the next verification.</p>	<p>B.4.3</p>	<p>Please find as attachment of this document the declaration of kayseri gaz that there is no natural pipeline close to the project.</p> <p>RINA Opinion: The supporting document about no pipeline is available in the project area is now provided from Kayserigaz. <u>Hence, FAR 1 is closed.</u></p>
<p>FAR 2</p> <p>Any failures about the engines or flare should be monitored and presented in the monitoring report for information purposes only. Such records should be kept for internal quality. This parameter should be monitored during the next verification.</p>	<p>B.4.3</p>	<p>This monitoring will be done correctly for next verification.</p> <p>RINA Opinion: This parameter will be monitored during the next verification period.</p>



RINA

CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Tugce Kiratli

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

è qualificato come¹:
is qualified as:

VCS/GS-TEC, VCS-VAL, VCS-VER, GS-VAL, GS-VER,
GS-TL, VCS-TL, SCS – TEC, SCS-VAL, SCS-VER, SCS-
TL

1.2, 13.1

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

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Energy generation from renewable energy sources	1
13.1	Waste handling and disposal	13

in accordo alle istruzioni della Divisione Certificazione.
in accordance with the instructions of the Certification Division.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	26/11/2012	-
6	08/06/2015	Update qualification according new AS 6.0

Il Resp. QPT
Head of QPT

¹ Legend:

VAL.: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
DET: Determiner

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

RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports



RINA

CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

Rekha Menon

Si attesta che il sig./sig.ra:
We declare that Mr/Mrs/Ms:

è qualificato come¹:
is qualified as:

CDM-TEC, -VAL, -VER, -TL

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

1.2, 2.1, 13.1, 13.2, 14.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Renewables	1
2.1	Energy Demand	2
13.1	Solid Waste and wastewater	13
13.2	Manure	13
14.1	Afforestation and reforestation	14

in accordo alle istruzioni della Divisione Certificazione.
in accordance with the instructions of the Certification Division.

REVISIONE REVISION	DATA DATE	MOTIVAZIONI PER LA REVISIONE REASON FOR THE REVISION
0	06-03-2008	-
10	22-12-2014	Update qualification according to AS ver.6.0

Il Resp. QPT
Head of QPT

¹ Legend:

VAL.: Validator
VER: Verifier
TEC: Technical Expert
TL: Team Leader
FIN-EXP: Financial Expert
DET: Determiner

CDM: Clean Development Mechanism
VCS : Verified Carbon Standard:
GS: Gold Standard
SCS: SocialCarbon Standard
JI: Joint Implementation

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RINA Services S.p.A. is accredited by the UNFCCC, as Designated Operational Entity (DOE), to carry out Validation and Verification of CDM Projects, by the VCSA, to carry out Validation and Verification of VCS Projects, by the GS Foundation, to carry out Validation and Verification of GS Projects and by the Ecologica Institute, to carry out Validation and Verification of SCS Reports



RINA

GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

Final

“Kayseri Molu Landfill Gas To Electricity Project, Turkey”
in
Turkey

Monitoring period: 01/12/2011 to 31/03/2014

Report N° 2014-TQ-29-MD

Revision N° 1.3 Aa

**GOLD STANDARD VERIFICATION/CERTIFICATION REPORT**

Project Title: Kayseri Molu Landfill Gas to Electricity Project, Turkey	Country: Turkey	Estimated VERs (tCO_{2e}): 126,925
GS Registration Reference N°: 1061	Monitoring period: 01/12/2011 to 31/03/2014	Certified VERs (tCO_{2e}): 244,503
Client: Her Enerji ve Cevre Teknolojileri Sanayi Ticaret A.S.	Client contact: Mr. Hakki Azizlerlioglu	
Report No.: 2014-TQ-29-MD	Revision: 1.3 Aa	Date of this report: 19/01/2016
Approved by (Final Report – AO Authorized office signing for the DOE):  Laura SEVERINO		Date of approval: 20/01/2016

Methodology

Number:	Version:	Title:	Scale	SS(s):
ACM0001	13.0.0 of 11/05/2012	Flaring or use of landfill gas	Large	13

RINA Services S.p.A. (RINA), commissioned by Her Enerji ve Cevre Teknolojileri Sanayi Ticaret A.S., has verified the greenhouse gas emission reductions reported for the project activity “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, GS Registration Reference N° 1061, for the period 01/12/2011 to 31/03/2014, with regard to the relevant requirements for GS activities. The verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable GS VER requirements, which refer to CDM rules, in order to be certified.

The project was validated by Bureau Veritas (Validation Report No: TURKEY-CER/1345.11.C45, Version 05 issued on 09/04/2014) and it was registered on 08/10/2013 under GS registration reference N° 1061.

The GHG emission reductions were calculated on the basis of the approved methodology ACM0001, version 13.0.0, Flaring or use of landfill gas of 11/05/2012 and the monitoring plan included in the registered Project Design Document, version 08 of 24/03/2014.

In conclusion, it is RINA’s opinion that the project activity “Kayseri Molu Landfill Gas to Electricity Project, Turkey”, in “Turkey, as described in the Monitoring Report version 0.9 of 14/01/2016, meets all relevant requirements for GS and CDM activities and all relevant host Party criteria and correctly applies the baseline and monitoring methodology “ACM0001”, “Flaring or use of landfill gas”, version 13.0 of 11/05/2012. Hence, RINA is able to certify that the emission reductions from the project during the monitoring period 01/12/2011 to 31/03/2014 amount to 244,503 tCO_{2e}.

Baseline Emissions	244,545 tCO _{2e}
Project Emissions	42.04 tCO _{2e}
Leakage	0 tCO _{2e}
Net GHG emission reductions/removal	244,503 tCO _{2e}

Work carried out by: Tuğçe KIRATLI	<input checked="" type="checkbox"/> No distribution without permission from the Client or organizational unit responsible <input type="checkbox"/> Strictly confidential <input type="checkbox"/> Unrestricted distribution
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Work verified by (Final Report – Scheme Manager)  Rita VALOROSO	Keywords: Climate Change, Kyoto Protocol, Verification, Gold Standard
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GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

Abbreviations

BE	Baseline Emissions
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM M&P	Modalities and Procedures CDM
CDM-PCP	Clean Development Mechanism Project Cycle Procedure
CDM-PS	Clean Development Mechanism Project Standard
CDM-VVS	Clean Development Mechanism Validation and Verification Standard
CER(s)	Certified Emission Reduction (s)
CH ₄	Methane
CR	Clarification Request
CO ₂	Carbon dioxide
CO ₂ e	Carbon dioxide equivalent
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
ER	Emission Reductions
GHG(s)	Greenhouse gas(es)
GS	Gold Standard
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
LSC	Large scale
MoV	Means of Verification
MP	Monitoring Plan
MR	Monitoring Report
NGO	Non-governmental Organization
ODA	Official Development Assistance
PDD	Project Design Document
PE	Project Emission
PMUM	Market Financial Conciliation Center (Piyasa Mali Uzlastirma Merkezi)
PP(s)	Project Participant(s)
Ref.	Document Reference
RINA	RINA Services Spa
SDI	Sustainable Development Indicator
SS(s)	Sectoral Scope(s)
SSC	Small Scale
TEDAS	Turkey Electricity Distribution Company (Turkiye Elektrik Dagitim A.S.)
TEIAS	Turkish Electricity Transmission Company (Turkiye Elektrik Iletim A.S.)
UNFCCC	United Nations Framework Convention on Climate Change
VERs	Verified Emission Reduction(s)

GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

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Appendix A: Gold Standard Verification Protocol

GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

1 INTRODUCTION

Her Enerji ve Çevre Teknolojileri Sanayi Ticaret A.S. has commissioned RINA to carry out the verification and certification of emission reductions reported for the registered "Kayseri Molu Landfill Gas to Electricity Project, Turkey" project in Turkey, GS Registration Reference N°1061, for the period 01/12/2011 to 31/03/2014.

This report summarizes the findings of the verification of the project, performed on the basis of GS VER requirements, which refer to CDM rules, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The objective of the verification is to have an independent review ex post determination by a Designated Operational Entity (DOE) of the monitored reductions in GHG emissions that have occurred as a result of the registered GS project activity during a defined monitoring period and to monitor the impact of project activity on sustainable development, throughout the monitoring of the non-neutral Sustainable Development Indicators and moreover to monitor all the mitigation and compensation measures put in place. Certification is the written assurance by the DOE that, during a specific time period, a proposed GS project activity achieved the reductions in anthropogenic emissions by sources of GHGs as verified and that all the defined Sustainable Development Indicators to be monitored have been monitored according to the sustainability monitoring plan and that all the mitigation measures forecast have been correctly and effectively implemented.

The objective of this verification/certification was to verify and certify emission reductions and effective implementation of the monitoring of sustainable development indicators and mitigation measures, reported for the "Kayseri Molu Landfill Gas to Electricity Project, Turkey" project in Turkey for the period 01/12/2011 to 31/03/2014.

1.2 Scope

The verification scope is:

- to verify that actual monitoring systems and procedures are in compliance with the monitoring systems and procedures described in the monitoring plan;
- to evaluate the GHG emission reduction data and express a conclusion with a reasonable level of assurance about whether the reported GHG emission reduction data is free from material misstatement;
- to verify that reported GHG emission data is sufficiently supported by evidence;
- to evaluate whether all the mitigation measures have been effectively put in place according to the monitoring plan and that all the sustainable development indicators have been correctly monitored.

Verification shall ensure that reported emission reductions are complete and accurate in accordance with applicable GS VER requirements which refer to CDM rules, in order to be certified.

UNFCCC criteria for CDM refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures, and the subsequent decisions by the CDM Executive Board.

The GS criteria refer to GS requirements, GS Toolkit and supporting annexes.

Verification is not meant to provide any consultancy towards the project participants. However, stated requests for clarifications and/or corrective actions may have provided input for improvement of the monitoring.

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2 METHODOLOGY

Verification was conducted using RINA procedures in line with the requirements specified in the GS Requirements, CDM M&P, the latest version of the CDM Validation and Verification Standard, and relevant decisions of the COP/MOP and the CDM EB and applying standard auditing techniques.

The verification consisted of the following three phases:

- Desk review;
- On-site assessment:
- The resolution of outstanding issues and the issuance of the final verification report and certification.

The following sections outline each step in more detail.

2.1 Desk Review

The monitoring report, version 0.9 of 14/01/2016 [/3/](#), the emission reduction calculations provided in the form of a spreadsheet, “ER_Kayseri Landfill_v6.xlsx” version 06 of 18/01/2016 [/4/](#), the approved baseline and monitoring methodology ACM0001 version 13.0.0 of 11/05/2012 [/11/](#), and all the documentation provided to support the monitoring period [/1 – 60/](#) were assessed as part of the verification. In addition, the Project Design Document (PDD) version 08 of 24/03/2014 [/1/](#), in particular as regards the baseline estimations and the monitoring plan, the Passport version 01 of 20/07/2011 [/2/](#), and the validation report, revision 05 of 09/04/2014 [/12/](#) for the project, were reviewed.

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

/1/	FutureCamp: CDM-PDD for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 08 of 24/03/2014
/2/	FutureCamp: GS Passport for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 06 of 24/03/2014
/3/	FutureCamp: Monitoring Report for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 0.9 of 14/01/2016 FutureCamp: Monitoring Report for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 0.8 of 29/09/2015 FutureCamp: Monitoring Report for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 0.7 of 06/09/2015 FutureCamp: Monitoring Report for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 0.6 of 24/06/2015 FutureCamp: Monitoring Report for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 0.5 of 16/05/2015 FutureCamp: Monitoring Report for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 0.4 of 01/02/2015 FutureCamp: Monitoring Report for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 0.3 of 05/11/2014 FutureCamp: Monitoring Report for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 0.2 of 26/08/2014 FutureCamp: Monitoring Report for “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, version 0.1 of 01/06/2014
/4/	FutureCamp: Emission Reduction Calculation Spreadsheet “ER_Kayseri Landfill_v5.xlsx” version 6 of 18/01/2016 FutureCamp: Emission Reduction Calculation Spreadsheet “ER_Kayseri Landfill_v5.xlsx” version 5 of 24/06/2015 FutureCamp: Emission Reduction Calculation Spreadsheet “ER_Kayseri Landfill_v4.xlsx” version 4 of 05/06/2015 FutureCamp: Emission Reduction Calculation Spreadsheet “ER_Kayseri Landfillv3.xlsx”

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	<p>version 3 of 01/02/2015</p> <p>FutureCamp: Emission Reduction Calculation Spreadsheet "ER_Kayseri Landfillv2.xlsx" version 2 of 14/11/2014</p> <p>FutureCamp: Emission Reduction Calculation Spreadsheet "ER_Kayseri Landfillv1.xlsx" version 1 of 26/08/2014</p> <p>FutureCamp: Emission Reduction Calculation Spreadsheet "Calculation_ER.xlsx" version 0 of 09/06/2014</p>
/5/	The Gold Standard: The Gold Standard Validation & Verification Standard for Voluntary Offset Projects of June 2007
/6/	The Gold Standard: Voluntary Emission Reductions (VERs) Manual for Project Developers, of May 2006
/7/	Gold Standard Foundation: Gold Standard Requirements, version 2.1 of 01/07/2009
/8/	Gold Standard Foundation: Gold Standard Toolkit, version 2.1 of 01/07/2009
/9/	The Gold Standard Foundation: Kayseri Molu Landfill Gas to Energy Project, Turkey (GS1061) 8-week Registration Review Period Document of 21/04/2014
/10/	CDM Executive Board: Validation and Verification Standard, 07.0 of 01/07/2014
/11/	CDM Executive Board: Baseline and Monitoring Methodology "ACM0001", " Flaring or use of landfill gas ", version 13.0.0 of 11/05/2012
/12/	Bureau Veritas: Validation Report for "Kayseri Molu Landfill Gas to Electricity Project, Turkey" in Turkey, No. TURKEY-CER/1345.11.C45 revision 05 of 09/04/2014
/13/	CDM Executive Board: Methodological Tool "Combined tool to identify the baseline scenario and demonstrate the additionality" version 05.0.0 of 23/11/2012
/14/	CDM Executive Board: Methodological Tool "Project emissions from flaring" version 02.0.0 of 20/07/2012
/15/	CDM Executive Board: Methodological Tool "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 02.0.0 of 03/06/2011
/16/	CDM Executive Board: Methodological Tool "Emissions from solid waste disposal sites" version 06.0.0 of 25/11/2011
/17/	CDM Executive Board: Methodological Tool "Tool to calculate the emission factor for an electricity system" Version 02.2.1 of 29/09/2011
/18/	CDM Executive Board: Methodological Tool 'Tool to calculate baseline, project and/or leakage emissions from electricity consumption' version 01 of 16/05/2008
/19/	CDM Executive Board: Monitoring Report Form (CDM-MR-FORM), version 04.0 of 25/06/2014
/20/	Keos: The Certificates of the Health and Safety Training for 6 Employees of 17/05/2014
/21/	TEDAS: The Certificate of the Health and Safety Training for 1 Employee of 28-29/03/2012
/22/	TEDAS: The Certificate of Working under the High Voltage in Electrical Power Plants for 1 Employee of 10/05/2012
/23/	Social Security Agency: Residence Certificate of 7 Employees, submitted on 26/06/2014
/24/	Social Security Institution: Declaration of Employment for 20 Employees of 01/2014 Social Security Institution: Declaration of Employment for 20 Employees of 02/2014 Social Security Institution: Declaration of Employment for 20 Employees of 03/2014
/25/	Kayseri Metropolitan Municipality, General Directorate of Water and Sewerage Administration, Wastewater Treatment Department: Correspondance about the Leachate of 05/02/2014
/26/	Ministry of Energy and Natural Resources: Temporary Acceptance Protocol of 01/11/2011 (1x1.560 MWe)
/27/	Ministry of Energy and Natural Resources: Temporary Acceptance Protocol of 27/07/2012 (1x1.305 MWe)

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/28/	Ministry of Energy and Natural Resources: Temporary Acceptance Protocol of 05/07/2013 (1x1.357 MWe)
/29/	Conveco S.r.l.: Declaration About Kayseri Landfill Gas Project Gold Standard Verification of 14/05/2015 Conveco S.r.l.: Declaration About Kayseri Landfill Gas Project Gold Standard Verification of 22/07/2014 Conveco S.r.l.: Declaration About Kayseri Landfill Gas Project Gold Standard Verification of 30/06/2014
/30/	Kayseri ve Civari Elektrik T.A.S.: Connection Agreement of 29/04/2014
/31/	Energy Market Regulatory Authority: Generation License numbered EU/3354-6/2038 of 11/08/2011
/32/	FutureCamp: Excel Sheet Including Raw Data of Motor, submitted on 02/07/2014
/33/	FutureCamp: Excel Sheet Including Raw Data of Flare, submitted on 02/07/2014
/34/	Pronova: User Manuel of SSM 6000, submitted on 02/07/2014
/35/	User Manuel of The Model 415 Gas&Steam Flow Computer, submitted on 02/07/2014
/36/	Tecnova HT: Correspondence about the Accuracy and Calibration Frequency of Liquid and Gas Analyses Systems of 25/06/2014
/37/	Schematic Representation of the Gas Booster Unit and Flare, submitted on 02/07/2014
/38/	Isocontrolli: Confirmity Decleration of Thermocouple of 10/05/2014
/39/	TEIAS: First Index Protocol for the Electricity Meters with a serial no: 447413 of 16/11/2011
/40/	Keos: Health and Safety Training for 12 Employees of 01/12/2011
/41/	Keos: Health and Safety Training for 16 Employees of 01/05/2012
/42/	Keos: Health and Safety Training for 18 Employees of 01/11/2012
/43/	Keos: Health and Safety Training for 19 Employees of 01/05/2013
/44/	Keos: Health and Safety Training for 19 Employees of 01/11/2013
/45/	Kayserigaz: Correspondence About Natural Gas Pipeline, No. 14/756 of 12/08/2014
/46/	Teksan Generator: Photo of the Generator including the Working Hours and the Label, submitted on 26/08/2014
/47/	Teksan Generator: Perhour Consumption of the Generator, submitted on 26/08/2014
/48/	Market Financial Settlement Center (PMUM): All Monthly Electricity Records from 01/12/2011 to 31/03/2014
/49/	Fuji Electric: Data Sheet for the Pressure Transmitter of FCX-AIII Series, submitted on 07/04/2015
/50/	Pronova: Calibration Certificate of the CH ₄ -CO ₂ -O ₂ Analyzer of 19/05/2011
/51/	Tecnova HT: Conformity Report for Biogas Analyzer of 25/05/2011
/52/	Tecnova HT: Conformity Report for Pressure Meter of 25/05/2011
/53/	Tecnova HT: Conformity Report for Flow Meters of 25/05/2011
/54/	Isocontrolli: Conformity Report for Thermocouple of 10/05/2014
/55/	Website: http://www.ipcc.ch/publications_and_data/ar4/wg1/en/ch2s2-10-2.html#table-2-14 Argument: IPCC, The New Global Warming Potentials Language: English, Retrieved on: 10/07/2015
/56/	The Ministry of Trade and Industry: Regulation of Metering and Testing of Metering Systems of 24/07/1994
/57/	Iltekno: Article about Start-up Fuel is not Used in the Project Activity of 09/10/2015
/58/	MWM: Biogas Applications Catalog submitted on 09/10/2015

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/59/	MWM: Product Catalog submitted on 09/10/2015
/60/	Website: http://www.teksangenerator.com.tr/pdf/bakim_ve_kullanim.pdf Argument: Operation and Maintenance Manuel for Diesel Generator Sets of Teksan Generator Language: Turkish; Retrieved on:19/01/2016

2.2 On-site assessment

On 15-16/07/2014, RINA visited the plant located in Koca Sinan district, Kayseri province of Turkey. During the on-site assessment of the project, RINA assessed the implementation and operation of the proposed project activity, reviewed the information flows for generating, aggregating and reporting the monitoring parameters, interviewed key personnel of the plant to confirm the operational and data collection procedures, cross-checked between information provided in the monitoring report and data plant, checked the monitoring equipment including calibration performance, reviewed calculations and assumptions made in determining the GHG data and emission reductions, checked the quality control and quality assurance procedures in place to prevent or identify and correct any errors or omissions in the reported monitoring parameters, checked the correct and effective implementation of the mitigation measures foreseen in the sustainability monitoring plan, to prevent violation or the risk of violating a safeguarding principle of the “Do No Harm” Assessment or to “neutralize” a Sustainable Development Indicator.

The project area was visited on 15-16/07/2014. The project employee were interviewed about the implementation status of the project, monitoring equipment and operation, generated electricity, calibration certificates, training certificates, employment, leachate, measuring devices of the project activity.

In addition, the stakeholders were visited on Molu Village. They were interviewed about the benefit of the project to the village and young stakeholders to work in the project area. They all know the state of the pitch before the project activity. They confirmed that the smell of the wastes and the fires are reduced after the project starts operation. They also mentioned that there is no young population in the village to work on the project.

Mustafa Aydemir, who is a waste picker, is interviewed about the previous state of the project activity. He confirmed that before Her Enerji employed them, they were working under difficult conditions.

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

	Date	Name and Role	Organization	Topic
/a/	16/07/2014	Ali DUZGUN <i>General Manager</i>	HER Enerji	Monitoring plan Monitoring methodology
/b/	15-16/07/2014	Fariz TASDAN <i>The Consultant</i>	HER Enerji	Monitoring data Implementation status of the project
/c/	15-16/07/2014	Hakki AZIZLERLIOGLU <i>Financial and Administrative Affairs</i>	HER Enerji	Monitoring equipments and operation
/d/	15-16/07/2014	Duran Arman SARITAS <i>Operating Manager</i>	HER Enerji	Calibration certificates Training Certificates
/e/	16/07/2014	Murat CAGLAYAN <i>Environmental Engineer</i>	HER Enerji	Electricity Generation Employment
/f/	15-16/07/2014	Kadir ARSLANER <i>Technical Staff</i>	HER Enerji	Leachate Measuring Devices
/g/	16/07/2014	Mustafa KULAHCI	Molu Village	Benefit of the project to the

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		<i>Farmer</i>		village
/h/	16/07/2014	Ahmet CIRAY <i>Farmer</i>	Molu Village	Project Effects Employment
/i/	16/07/2014	Mustafa ARARSLAN <i>Farmer</i>	Molu Village	Odor Fire
/j/	16/07/2014	Sare GULAC <i>Housewife</i>	Molu Village	
/k/	16/07/2014	Mustafa AYDEMIR <i>Driver</i>	HER Enerji	Previous state of the project activity

2.3 Resolution of outstanding issues

The objective of this phase of the verification is to resolve any outstanding issues which need to be clarified for RINA's positive conclusion on the monitoring report and emission reductions.

To guarantee transparency a verification protocol has been customized for the project. The protocol shows in a transparent manner the requirements, means of verification and the results from verifying the identified criteria. The verification protocol consists of three tables; the different columns in these tables are described in the figure below (see Figure 1). The completed verification protocol is enclosed in Appendix A to this report.

A corrective action request (CAR) is raised if one of the following occurs:

- Non-conformities with the monitoring plan or methodology are found in monitoring and reporting, or if the evidence provided to prove conformity is insufficient;
- Mistakes have been made in applying assumptions, data or calculations of emission reductions that will impair the estimate of emission reductions;
- Issues identified in a FAR during validation to be verified during verification have not been resolved by the project participants.

A clarification request (CR) is raised if information is insufficient or not clear enough to determine whether the applicable GS VER requirements, which refer to CDM rules, have been met.

CARs, CRs identified are included in the verification protocol in Appendix A of this report.

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Figure 1 Gold Standard Verification protocol tables

Verification Protocol, Table 1 - Requirement checklist				
Checklist Question	Ref.	MoV	Comments	Conclusion
Checklist questions organized in five different sections.	Makes reference to documents where the answer to the checklist question or item is found.	Explain how conformance with the checklist question is investigated. Examples are document review (DR), interview or any other follow-up actions (I), cross checking (CC) with available information relating to projects, (N/A) means not applicable.	The discussion on how the conclusion is arrived at and the conclusion on the compliance with checklist question so far.	For CAR and CR see the definitions above. OK is used if the information and evidence provided is adequate to demonstrate compliance with GS VER/CDC requirements which refer to CDM rules.

Verification Protocol, Table 2: Resolution of Corrective Action Requests and Clarification			
Corrective action requests and/or clarification requests	Reference to Table 1	Response by project participants	Verification Conclusion
The CAR and/or CRs raised in table 1 are repeated here.	Reference to the checklist question number in Table 1 where the CAR or CR is explained.	The responses given by the project participants to address the CARs and/or CRs.	The verification team's assessment and final conclusion of the CARs and/or CRs.

Verification Protocol, Table 3 - Forward Action Requests		
Forward action request	Reference to Table 1	Response by project participants Verification Conclusion
The FAR raised in table 1 is repeated here.	Reference to the checklist question number in Table 1 where the FAR is explained.	Response by the project participants on how forward action request will be addressed.

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2.4 Internal quality control

All the revisions of the verification report, before being submitted to the client, were subjected to an independent internal technical review to confirm that all verification activities had been completed according to the pertinent RINA instructions.

The technical review was performed by a technical reviewer(s) qualified in accordance with RINA's qualification scheme for CDM/GS validation and verification.

2.5 Verification team and the technical reviewer(s)

The verification team and the technical reviewers consist of the following personnel:

Role/Qualification	Last Name	First Name	Type of involvement*					
			DR	SV	REP	TE	TR	TER
GS Team Leader, GS Verifier, Technical Expert	Kıratlı	Tuğçe	x	x	x			
Technical Reviewer	Menon	Rekha					x	x

*DR: Document Review; SV: Site Visit/Interview; REP: Reporting; TE: Technical Expert in Technical Area; TR: Technical Review; TER: Technical Expert in Technical Area for Technical Review.

3 VERIFICATION FINDINGS

The findings of the verification related to the monitoring period from 01/12/2011 to 31/03/2014 as documented and described in the monitoring report version 0.9 of 14/01/2016 and previous versions /3/ are stated in the following sections.

The verification requirements, the means of verification and the results from verifying the identified criteria are documented in more detail in the verification protocol in Appendix A.

3.1 Description of the project activity

The main information of the project is summarized in the table below.

Project Participant(s)	Her Enerji ve Cevre Teknolojileri Sanayi Ticaret A.S.		
Project Title	Kayseri Molu Landfill Gas to Electricity Project, Turkey		
Location of the project	Koca Sinan District, Kayseri, Turkey		
Methodology(ies)	" ACM0001", " Flaring or use of landfill gas ", version 13.0.0 of 11/05/2012 /11/		
Sectoral Scope(s)	13	RINA's Technical Area(s)	13.1
Registered PDD	Revision 08 of 24/03/2014		
Date of registration	08/10/2013 /9/	GS Registration Reference N°	1061
Starting date of the crediting period	01/12/2011		

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Project's crediting period	01/12/2011 to 30/11/2021
Monitoring period	01/12/2011 to 31/03/2014
Project documentation link	http://mer.markit.com/br-reg/public/project.jsp?project_id=103000000001869

The purpose of the project activity is the generation of the electricity by using the LFG from the landfill. The project aims at avoiding greenhouse gas (GHG) emissions from existing landfill area by collecting biogas to generate electricity. The total installed capacity of the project is 4.222 MWe. The electricity produced is delivered to the Turkish national grid (TEIAS). The annual emission reductions are estimated to be 126,925 tCO₂e for this monitoring period from 01/12/2011 to 31/03/2014. During the monitoring period of 01/12/2011 to 31/03/2014 (both days included) the actual emission reductions is 244,503 tCO₂e.

3.2 Remaining issues (FARs) from previous validation or verification

Based on the review of the Gold Standard Foundation /9/, there was no FARs to be addressed during validation. However, based on the review of the validation report, 2 FARs were raised during the validation. All FARs have been successfully closed.

FAR #1: It was informed by the plant operating personnel that there is no mixing of any auxiliary gas to boost calorific value of LFG or as a startup fuel for the Engine or the flare system. However, it is to be confirmed during the DOE site visit for verification. If it is found that some auxiliary fuels are being utilized, the corresponding amount of fuel should be accounted for project emissions.

During on site visit, the project owner mentioned that there is no natural gas line or connection to mix an auxiliary gas to boost calorific value of LFG or as a startup fuel for the Engine or the flare system. They also provided an official paper /45/ from Natural Gas Distribution Company and an article /57/ from supplying, installation and commissioning company to confirm this situation.

This issue was closed.

FAR #2: Project consists of three blowers their electricity consumption will be monitoring ex-post calculation. Please verify the project emission in verification process.

The electricity consumption is monitored through the PMUM records. As stated in the registered PDD, for the simplicity of emission reduction calculation, project emission from electricity consumption is assumed to be "0". There are no project emissions from consumption of electricity while the electricity consumed is already subtracted from gross electricity generation. Project emission is caused by consumption of fossil fuel by the project activity.

This issue was closed.

3.3 Monitoring Report

The Monitoring Report for the project activity "Kayseri Molu Landfill Gas to Electricity Project, Turkey", in "Turkey", version 0.9 of 14/01/2016 submitted by the Her Enerji ve Cevre Teknolojileri Sanayi Ticaret A.S. has been the basis for the verification process.

The main changes between the MR version version 0.1 of 01/06/2014 at the starting date of the verification activity and the MR version 0.9 of 14/01/2016 submitted for registration are the following:

Section of the MR	Description and reason for changing the information in that section
First Page	Actual and Estimated Emission Reduction is revised. The registration date is corrected.
B.2.2. Corrections	Necessary explanations about the generator consumption calculation and the changes to start date of the crediting period.
Section C. Description of monitoring system	The necessary informations are now presented for the electricity meters with their model, serial no, accuracy class, calibration frequency and

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	calibration date.
D.1. Data and parameters fixed ex ante or at renewal of crediting period	The emission factor for the project activity calculated in validation period is now added to the parameters since it is not monitored during the crediting period.
D.2. Data and parameters monitored	The values, measuring/reading/recording frequencies are now corrected for all the monitoring parameters.
SECTION E. Calculation of emission reductions or GHG removals by sinks	The given formulas could now be in lie with the calculation. The baseline, project emissions and emission reduction values are now corrected. Remarks on difference from estimated and actual is now discussed.
F.1 Sustainability Monitoring Plan	The number of the employees are now presented in Quantitative employment and income generation. The value for the current situation of soil condition and air quality is now revised.

RINA confirms that the above MR is based on the currently valid MR template /19/ and is completed in accordance with the applicable guidance document /19/.

3.4 Project implementation

Actual implementation of the registered project activity

It was verified during the site visit conducted on 15-16/07/2014 that the proposed project activity has been implemented and it is in operation in accordance with the project activity described in the registered PDD /1/. The total installed capacity of the project activity is to 4.222 MWe with 3 units of gas engines installed with a capacity of 1.560 MW, 1.305 MW and 1.357 MW.

The project activity is registered as Gold Standard Project activity on 08/10/2013 as confirmed through the Gold Standard Foundation document /9/.

It was confirmed during on site visit that the gas collection system, booster, blower, the enclosed flare system, and the gas engine were installed by the end of first monitoring period.

3 units of gas engine have been installed with a total capacity of 4.222 MWe (1x1.560 MWe, 1x1.305 MWe and 1x1.357 MWe), which are dedicated to the landfill gas extracted from the landfill area. 3 engines have been commissioned in three phase as explained below:

- On 01/11/2011, one power generation unit has commissioned as confirmed through the Temporary Acceptance Protocol /26/.
- On 27/07/2012, one power generation unit has commissioned as confirmed through the Temporary Acceptance Protocol /27/.
- On 05/07/2013, one power generation unit has commissioned as confirmed through the Temporary Acceptance Protocol /28/.

No change in the registered PDD /1/ has been occurred during the 1st monitoring period of 01/12/2011 to 31/03/2014.

Based on the on-site inspection and checking the above documents, RINA confirms that the project activity has been implemented and it is in operation as described above in accordance with the project activity in the registered PDD /1/.

Post registration changes

The emission of the diesel consumption from the generator is calculated with the working hour of the generator instead of monitoring mass or volume of the fuel consumed since the invoices for purchase of diesel could not be provided. The invoices could not be separated for the amount of diesel fuel since the fuel is purchased for both the generator and the cars. The diesel generator has own counting system and a screen /46/. The working hours is monitored by this screen. Also, per hour of the consumed fuel is confirmed as per the data sheet of the diesel generator /47/.

In addition, the start date of the crediting period is changed as 01/12/2011 instead of the first operation date of 01/11/2011 since the first month there have been some disruptions and generation was not

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achieved. According to the data excel sheet, the first month of the operation, the engines did not work most of the time as confirmed through the calculation raw data excel sheet /4/.

3.5 Methodology for determining Emission Reductions.

According to the applied methodology ACM0001 “Flaring or use of landfill gas” version 11 /11/, the emission reductions have been calculated based on the following formula:

$$ER_y = BE_y - PE_y - L_y$$

Where:

BE_y = Baseline emissions in year y (tCO₂e/yr)

PE_y = Project emissions in year y (tCO₂e/yr)

L_y = Leakage emissions in year y (tCO₂e/yr)

Baseline emissions

According to the registered PDD /1/, the baseline emissions have been calculated based on the following formula, which is defined as per the methodology ACM0001 version 13 /11/:

$$BE_y = BE_{CH_4,y} + BE_{EC,y}$$

Where:

BE_y = Baseline emissions in year y (tCO₂e)

$BE_{CH_4,y}$ = Baseline emissions of methane from the SWDS in year y (tCO₂e/yr)

$BE_{EC,y}$ = Baseline emissions associated with electricity generation in year y (tCO₂/yr)

Project emissions

According to methodology ACM0001 version 13 /11/, the project emissions have been calculated based on the following formula:

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

$PE_{EC,y}$ = Emissions from consumption of electricity due to the project activity in year y (tCO₂/yr)

$PE_{FC,y}$ = Emissions from consumption of fossil fuels due to the project activity, for purpose other than electricity generation, in year y (tCO₂/yr)

Leakage

According to methodology ACM0001 version 13 /11/, no leakage effects need to be accounted. The project activity does not involve off-site transportation of waste materials.

3.5.1 Compliance of the monitoring plan with the monitoring methodology and applicable methodological tools

The registered project activity applies the approved baseline and monitoring methodology of ACM0001 /11/. RINA confirms that the monitoring plan in the registered PDD /1/ complies with the applied CDM methodology and with the sustainability indicators established by the Appendix D of the Gold Standard requirements /7/.

3.5.2 Deviation in GHG emission reduction

Additionality assessment has been performed according to the “Tool for the demonstration and assessment of additionality” approved by UNFCCC in the registered PDD /1/. The baseline scenario selection and the calculation of emission reductions have been carried out in a conservative manner.

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An approved CDM methodology, ACM0001 /11/ has been applied in order to determine the baseline scenario and calculate emission reductions.

3.5.3 Compliance of monitoring with monitoring plan

The monitoring plan in the monitoring report version 0.9 of 14/01/2016 /3/ complies with the monitoring plan in the registered PDD /1/ and the monitoring methodology, ACM0001 /11/ has been properly implemented and followed. All the parameters, as listed in the following sections, have been monitored according the applied methodology and the relevant CDM EB decisions and GS requirements. The sustainability indicators in the monitoring report /3/ comply with the sustainability indicators established by the Appendix D of the Gold Standard Requirements. Any change has been occurred to the key sustainable development indicators during the monitoring period. RINA can thus confirm the implementation of the project monitoring was appropriate.

The following parameters have been monitored in accordance with the monitoring plan in the registered PDD /1/ and the monitoring report /3/.

3.5.3.1 Data and parameters fixed ex-ante or at renewal crediting period

DATA/PARAMETER	Source of data	Reported value for the project period	Assessment/Observation
W_x Quantity of MSW land filled	Landfill gas power generation report of Kayseri Molu Landfill gas project	1,196,885 t	The data is provided in the report of landfill gas power generation report and this data is used to for calculation of energy generation /1/.
GWP_{CH₄} Global Warming Potential of Methane	IPCC	21 and 25 tCO ₂ e/tCH ₄	As per the IPCC the value is fixed for the first and second commitment period. It shall be updated according to any future COP/MOP decision /55/.
D_{CH₄} Density of methane	ACM0001 version 11.0 /11/	0.0007168 tCH ₄ /m ³ CH ₄	The value considered is according with the approved methodology ACM0001 /11/ and it is fixed at standard temperature 0°C and pressure 1.013 bar.
φ Model correction factor to account for model uncertainties	Methodological tool /16/	0.75	The value has been applied according to the methodological tool "Tool to determine emissions avoided from disposal of waste at a solid waste disposal site" /16/.
OX Oxidation Factor	IPCC 2006 Guidelines for National Greenhouse Gas Inventories	0.1	The value considered is according with the IPCC /55/ and it is fixed as 0.1.
F Fraction of methane in the SWDS gas	IPCC 2006 Guidelines for National Greenhouse Gas Inventories	0.5	A default value of 0.5 has been used as recommended by IPCC 2006 Guidelines for National Greenhouse Gas Inventories /55/.
DOC_f Fraction of degradable organic carbon	IPCC 2006 Guidelines for National Greenhouse Gas Inventories	0.5	A default value of 0.5 has been used as recommended by IPCC 2006 Guidelines for National Greenhouse Gas Inventories /55/.

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MCF Methane correction factor	IPCC 2006 Guidelines for National Greenhouse Gas Inventories	0.8	According to IPCC the value of 0.8 has been used justified for unmanaged solid waste disposal sites – deep and/or with high water table.
DOC_j Fraction of degradable organic carbon	IPCC 2006 Guidelines for National Greenhouse Gas Inventories	Different values	The following values for the different waste types have been applied (% wet waste): – 43% wood and wood products – 40% pulp, paper and cardboard – 15% food, food waste, beverages and tobacco – 20% non-food organic
k_j Decay rate of the waste	IPCC 2006 Guidelines for National Greenhouse Gas Inventories	Different values	The following values for the different waste types have been applied (boreal and temperature – dry): – 0.02% wood, wood products and straw – 0.04% pulp, paper, cardboard – 0.06% food, food waste, sewage sludge, beverage and tobacco – 0.05% non-food organics, putrescible garden and park waste
n_{p,j} Efficiency of the LFG capture system that will be installed in the project activity	Methodology ACM0001	50%	The parameter is used for the calculation of the baseline emission.
R_u Universal ideal gases constant	Tool to determine the mass flow of a greenhousegas in a gaseous stream	8.314 Pa.m ³ /kmol.K	The parameter is used for the calculation of the baseline emission. According to the tool /15/, the value is fixed as 8.314 Pa.m ³ /kmol.K.
MM_{CH4} Molecular mass of CH ₄	Tool to determine the mass flow of a greenhousegas in a gaseous stream	16.04 kg/kmol	The parameter is used for calculation of baseline emission. As per the tool /15/ the value is fixed as 16.04 kg/kmol.
P_n Total pressure at normal conditions	Tool to determine the mass flow of a greenhousegas in a gaseous stream	101.325 Pa	The parameter is used for calculation of emission reduction. As per the tool /15/ the value is fixed as 101.325 Pa.
T_n Temperature at normal conditions	Tool to determine the mass flow of a greenhousegas in a gaseous stream	273.15 kg/kmol	The parameter is used for calculation of emission reduction. As per the tool /15/ the value is fixed as 273.15 kg/kmol.
fy	Methodology	0	The parameter is used for determining



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Fraction of methane captured at the SWDS and flared	ACM0001		MCF. The value is defined as zero "0" as per the Methodology ACM0001 /11/.
EF _{grid,CM,y} Combined Margin Emission Factor	TEIAS statistics	0.602 tCO ₂ /MWh	As per the approved methodology ACM0002, the combined emission factor has been determined using the ex-ante option and so it is not requested to monitor and recalculate the emission factors during the crediting period. The combined emission factor is determined to be 0.5313 tCO ₂ /MWh in the registered PDD /1/ and validation report /12/.

3.5.3.2 Sampling plan

Not available.

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3.5.3.3 Data and parameters monitored ex-post

DATA/PARAMETER	$F_{CH_4, \text{sent flare}, y}$
Data Unit	t_{CH_4} / y
Description	Amount of methane in LFG which is sent to the flare in year y
Source of data to be used	The parameter is monitored continuously by flow meters.
Value data for the monitoring period	87.65 2011: 6.82 2012: 68.73 2013: 11.78 2014: 0.31
Measuring and reporting frequency; recording procedure	The parameter is measured continuously by flow meters in line with the registered monitoring plan. The amount is also read and recorded continuously. Each booster has a server unit, which receives all the data from the flow meter and saves automatically every 10 minutes.
Type of monitoring equipment and its accuracy	The parameter is monitored continuously by volume flow meters. During the monitoring period the following instrument has been used: – Flow Meter ORIFICE PLATE – DCMD200016CS sn ABF0859F The accuracy of the flow meter is ± 0.1 as confirmed through the user manual of the flow meter /35/ .
Calibration frequency/interval	The flow meter has been calibrated on 25/05/2011 by the supplier as confirmed through the conformity report /53/ . The calibration frequency has been defined every 10 years by the supplier as confirmed through the regulation /56/ . No calibrations have been carried out during this monitoring period.
How were the values in the monitoring report verified and cross-checked?	The values reported in the monitoring report /3/ have been crosschecked with raw data given in the excel sheet /4/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory every 10 minutes.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	$F_{CH_4,EL,y}$
Data Unit	t_{CH_4} / y
Description	Amount of methane in LFG which is sent to the gas engine in year y
Source of data to be used	The parameter is monitored continuously by flow meters on engine line.
Value data for the monitoring period	Total: 9,829.02 2011: 126.35 2012: 2,670.24 2013: 5,478.92 2014: 1,553.51
Measuring and reporting frequency; recording procedure	The parameter is measured continuously by flow meters in line with the registered monitoring plan. It is programmed to save automatically every 10 minutes. The data are stored automatically at the booster.
Type of monitoring equipment and its accuracy	The parameter is monitored continuously by volume flow meters. The measurements of the flow rate of the gas and the measurements of the volumetric fraction of methane in the gas refer to the same basis, which is a wet basis. During the monitoring period the following instrument has been used: <ul style="list-style-type: none"> - Flow Meter ORIFICE PLATE - DCMD125016CS sn ABF1701F The accuracy of the flow meter is ± 0.1 as confirmed through the user manual of the flow meter /35/ .
Calibration frequency/interval	The flow meter has been calibrated on 25/05/2011 by the supplier as confirmed through the conformity report /53/ . The calibration frequency has been defined every 10 years by the supplier as confirmed through the regulation /56/ . No calibrations have been carried out during this monitoring period.
How were the values in the monitoring report verified and cross-checked?	The values reported in the monitoring report /3/ have been crosschecked with raw data given in the excel sheet /4/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory every 10 minutes.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	V_{t,wb}
Data Unit	m ³ wet gas/h
Description	Volumetric flow of the gaseous stream in the hour h on a wet basis
Source of data to be used	The parameter is monitored continuously by flow meters on main line.
Value data for the monitoring period	Total: 25,188,358.53 m ³ gas 2011: 330,025.83 2012: 7,142,136.62 2013: 13,658,249.45 2014: 4,057,946.64
Measuring and reporting frequency; recording procedure	The parameter is measured continuously by flow meters in line with the registered monitoring plan. It is programmed to save automatically every 10 minutes. The data are stored automatically at the booster.
Type of monitoring equipment and its accuracy	The parameter is monitored continuously by volume flow meters. The measurements of the flow rate of the gas and the measurements of the volumetric fraction of methane in the gas refer to the same basis, which is a wet basis. During the monitoring period the following instrument has been used: <ul style="list-style-type: none"> - Flow Meter ORIFICE PLATE - DCMD200016CS sn ABF1699F The accuracy of the flow meter is ±0.1 as confirmed through the user manual of the flow meter /35/ .
Calibration frequency/interval	The flow meter has been calibrated on 25/05/2011 by the supplier as confirmed through the conformity report /53/ . The calibration frequency has been defined every 10 years by the supplier as confirmed through the regulation /56/ . No calibrations have been carried out during this monitoring period.
How were the values in the monitoring report verified and cross-checked?	The values reported in the monitoring report /3/ have been crosschecked with raw data given in the excel sheet /4/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory every 10 minutes.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	V _{CH4,t,wb}
Data Unit	m ³ CH ₄ / m ³ wet gas
Description	Volumetric flow of CH ₄ in time interval on a wet basis
Source of data to be used	The parameter is monitored continuously by flow meters.
Value data for the monitoring period	Average: 47.88% 2011: 28.01 2012: 53.21 2013: 56.35 2014: 53.97
Measuring and reporting frequency; recording procedure	The parameter is measured continuously by flow meters in line with the registered monitoring plan. It is programmed to save automatically every 10 minutes. The data are stored automatically at the booster.
Type of monitoring equipment and its accuracy	The parameter is monitored continuously by volume flow meters. The measurements of the flow rate of the gas and the measurements of the volumetric fraction of methane in the gas refer to the same basis, which is a wet basis. During the monitoring period the following instrument has been used: <ul style="list-style-type: none"> - Flow Meter ORIFICE PLATE - DCMD200016CS sn ABF1699F The accuracy of the flow meter is ±0.1 as confirmed through the user manual of the flow meter /35/ .
Calibration frequency/interval	The flow meter has been calibrated on 25/05/2011 by the supplier as confirmed through the conformity report /53/ . The calibration frequency has been defined every 10 years by the supplier as confirmed through the regulation /56/ . No calibrations have been carried out during this monitoring period.
How were the values in the monitoring report verified and cross-checked?	The values reported in the monitoring report /3/ have been crosschecked with raw data given in the excel sheet /4/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory every 10 minutes.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	Pt
Data Unit	Pa or Mbar
Description	Pressure of the gaseous stream in the hour h
Source of data to be used	Pressure is monitored with using pressure meter.
Value data for the monitoring period	127.42
Measuring and reporting frequency; recording procedure	The parameter is measured continuously by pressure meters in line with the registered monitoring plan. It is programmed to save automatically every 10 minutes. The data are stored automatically at the booster.
Type of monitoring equipment and its accuracy	Pressure is measured using pressure meters. During the monitoring period the following pressure meters have been used: <ul style="list-style-type: none"> - FUJI Electric: FCX-FKP – <li style="padding-left: 80px;">FKGT01V5AMCYYAA1YY sn D6500B- <li style="padding-left: 80px;">3/84447450 The accuracy of the pressure meters is 0.065% as confirmed through the data sheet of supplier /49/.
Calibration frequency/interval	The flow meter has been calibrated on 25/05/2011 by the supplier as confirmed through the conformity report /52/. The calibration frequency has been defined every 10 years by the supplier as confirmed through the regulation /56/. No calibrations have been carried out during this monitoring period.
How were the values in the monitoring report verified and cross-checked?	The values reported in the monitoring report /3/ have been crosschecked with raw data given in the excel sheet /4/.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory every 10 minutes.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	TDL _{ky}
Data Unit	-
Description	Average technical transmission and distribution losses for providing electricity to source k in year y
Source of data to be used	The value is provided by the grid company.
Value data for the monitoring period	0
Measuring and reporting frequency; recording procedure	Annually provided by the Turkish grid company. For the monitoring period, the grid company calculated the TDL factor monthly and uses the factor directly for the creation of the monthly reports /48/.
Type of monitoring equipment and its accuracy	NA
Calibration frequency/interval	NA
How were the values in the monitoring report verified and cross-checked?	The value data for the monitoring period is 0% as confirmed through the PMUM records /48/.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	NA
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

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DATA/PARAMETER	$PE_{flare,y}$
Data Unit	tCO _{2e}
Description	Project emissions from flaring of the residual gas stream in year y
Source of data to be used	Calculated as per the “Tool to determine project emissions from flaring gases containing methane”
Value data for the monitoring period	Total: 2,075 tCO _{2e} 2011:162.37 2012:1,631.01 2013: 273.96 2014: 7.28
Measuring and reporting frequency; recording procedure	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 ($F_{CH_4,RG,m}$) and the flare efficiency ($\eta_{flare,m}$)
Type of monitoring equipment and its accuracy	The value has been determined according to the methodological tool “Project emissions from flaring” /14/.
Calibration frequency/interval	The parameter is calculated as per the “Project emissions from flaring” /14/. Data is derived from the parameters of “GWP _{CH₄”, “F_{CH₄,RG,m}” and “$\eta_{flare,m}$”.}
How were the values in the monitoring report verified and cross-checked?	The parameter is calculated by using the parameters of “GWP _{CH₄”, “F_{CH₄,RG,m}” and “$\eta_{flare,m}$”.}
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The values are aggregated and automatically transferred to the ERs spreadsheet calculation.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period.



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DATA/PARAMETER	FC _{i,j,y}
Data Unit	t/year
Description	Quantity of diesel combusted for auxiliary purposes
Source of data to be used	Working hour of gen-set and per hour fuel consumption
Value data for the monitoring period	13,19 ton
Measuring and reporting frequency; recording procedure	The quantity of diesel combusted for auxiliary purposes is calculated using a working hour of gen-set and per hour consumption of diesel
Type of monitoring equipment and its accuracy	/
Calibration frequency/interval	NA
How were the values in the monitoring report verified and cross-checked?	The value of the working hours is verified and cross-checked with the photo of the generator including the working hours and the label /46/
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	NA
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

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DATA/PARAMETER	W_{CH_4}
Data Unit	(m^3CH_4/m^3LFG)
Description	Methane fraction in the landfill gas
Source of data to be used	The methane fraction is measured continuously by a gas analyzer.
Value data for the monitoring period	47.88 2011: 28.01 2012: 53.21 2013: 56.35 2014: 53.97
Measuring and reporting frequency; recording procedure	The gas analyzer measures continuously and it is programmed to save automatically on real time. Each booster has a server unit that received all the data from the monitoring equipment and saves automatically every 10 minutes.
Type of monitoring equipment and its accuracy	The methane fraction is measured continuously by a gas analyzer. The measurements of the flow rate of the gas and the measurements of the volumetric fraction of methane in the gas refer to the same basis, which is a wet basis. During the monitoring period the following instrument has been used: - Gas Analyzer: Pronova SSM6000 - LT sn 80021000-1598 The accuracy of Gas Analyzer is 2-3% as confirmed through the data sheet of Gas Analyses Systems /36/.
Calibration frequency/interval	The gas analyzer has been calibrated on 19/05/2011 by the supplier as confirmed through the conformity report /50/. The calibration frequency has been defined every 10 years by the supplier as confirmed through the regulation /56/. No calibrations have been carried out during this monitoring period.
How were the values in the monitoring report verified and cross-checked?	The values reported in the monitoring report /3/ have been crosschecked with raw data given in the excel sheet /4/.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory every 10 minutes.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	$T_{\text{flare}}/T_{\text{EG,m}}$
Data Unit	°C
Description	Temperature in the exhaust gas of the enclosed flare in minute m
Source of data to be used	The temperature is measured in continuous by thermocouple. Measurement of temperature above 500 °C in the exhaust gas stream in the flare indicated that the flare is operating in a reliable way.
Value data for the monitoring period	147.10
Measuring and reporting frequency; recording procedure	The thermocouple measures continuously and it is programmed to save automatically on real time with pressure. Each booster has a server unit that received all the data from the monitoring equipment and saves automatically every 10 minutes.
Type of monitoring equipment and its accuracy	The flare temperature is measured continuously by a thermocouple. During the monitoring period the following instrument has been used: - Thermocouple: K TYPE Isocontrolli sn 2012OF000652
Calibration frequency/interval	The thermocouple has been calibrated on 10/05/2014 by the supplier as confirmed through the conformity report /54/.
How were the values in the monitoring report verified and cross-checked?	The values reported in the monitoring report /3/ have been crosschecked with raw data given in the excel sheet /4/.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The data stored at the booster station by a server unit, which receives all data from the meters and data is saved to an internal memory every 10 minutes.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	EC _{BL,y}
Data Unit	MWh
Description	Net electricity delivered to the grid
Source of data to be used	It is measured by electricity meters of the grid company.
Value data for the monitoring period	Total: 43,832 2011: 631.03 2012:11,862.79 2013: 24,905.64 2014: 6,432.38
Measuring and reporting frequency; recording procedure	The electricity consumption is measured from electricity meters monthly in line with the registered monitoring plan. The grid company, responsible for maintenance and calibration of the monitoring equipment, carried out maintenance and calibration of equipment according to recognized procedures. The monitoring team collects monthly measuring protocols for power delivered from the grid.
Type of monitoring equipment and its accuracy	The installed Electricity meters are Elster A1500 as observed during the site visit. The accuracy of the meter is 0.5s as confirmed through the meter calibration certificate /39/ .
Calibration frequency/interval	The amount of electricity produced by the project and delivered to the grid is measured by an electricity meters operated by the grid company who is the owner of the monitoring equipment. The grid company, responsible for maintenance and calibration of the monitoring equipment, carried out maintenance and calibration of equipment according to recognized procedures. The meter is calibrated on 16/11/2011 as confirmed through the first index protocol /39/ . As per the "Regulation of Metering and Testing of Metering Systems" /56/ , the meters shall be calibrated every 10 years. The calibration of meters is deemed appropriate and in compliance with the national regulation.
How were the values in the monitoring report verified and cross-checked?	The values used for the ERs calculation /4/ and reported in the monitoring report /3/ have been crosschecked with monthly PMUM records /48/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The electricity consumption is monitored continuously by two electricity meters. TEIAS is responsible for the calibration and maintenance of the electricity meters.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

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DATA/PARAMETER	Opj,h
Data Unit	-
Description	Operation of the equipment that consumes the LFG
Source of data to be used	PLC of the system
Value data for the monitoring period	-
Measuring and reporting frequency; recording procedure	The working hour can be monitored with the PLC system on the genset.
Type of monitoring equipment and its accuracy	Counting device
Calibration frequency/interval	NA
How were the values in the monitoring report verified and cross-checked?	No products are generated in the hour h Otherwise Opj,h = 1
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The amount of hours is registered by the counting device and the total number of operating hours is recorded manually daily. No special events occurred during the monitoring period.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the without data recording.

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DATA/PARAMETER	EC _{PJ,y}
Data Unit	MWh
Description	Quantity of electricity consumed by the project activity during the year y
Source of data to be used	Onsite measurement. It is measured by electricity meters of the grid company.
Value data for the monitoring period	-
Measuring and reporting frequency; recording procedure	The electricity consumption is measured from electricity meters monthly in line with the registered monitoring plan. The grid company, responsible for maintenance and calibration of the monitoring equipment, carried out maintenance and calibration of equipment according to recognized procedures. The monitoring team collects monthly measuring protocols for power delivered from the grid.
Type of monitoring equipment and its accuracy	The installed Electricity meters are Elster A1500 as observed during the site visit. The accuracy of the meter is 0.5s as confirmed through the meter calibration certificate /39/.
Calibration frequency/interval	The amount of electricity consumed by the project is measured by an electricity meters operated by the grid company who is the owner of the monitoring equipment. The grid company, responsible for maintenance and calibration of the monitoring equipment, carried out maintenance and calibration of equipment according to recognized procedures. The meter is calibrated on 16/11/2011 as confirmed through the first index protocol /39/. As per the "Regulation of Metering and Testing of Metering Systems" /56/, the meters shall be calibrated every 10 years. The calibration of meters is deemed appropriate and in compliance with the national regulation.
How were the values in the monitoring report verified and cross-checked?	The values used for the ERs calculation /4/ and reported in the monitoring report /3/ have been crosschecked with monthly PMUM records /48/.
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The electricity consumption is monitored continuously by two electricity meters. TEIAS is responsible for the calibration and maintenance of the electricity meters.
If only partial data are available because activity levels or non-activity parameters have not been monitored in accordance with the registered monitoring plan, has the most conservative assumption theoretically possible been applied or has a request for deviation been approved?	NA

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3.5.3.4 Gold Standard sustainability monitored parameters

Data variable	Source of Data	Reported value for the project period
Air Quality Amount of CO and NMVOC	The electricity delivered to the grid by the project activity result in 0.570 tons/GWh CO and 0.057 tons/GWh NMVOC emission reductions.	25 tons CO 2.5 tons NMVOC
Assessment		
It is calculated with the electricity generated based on the data available from TUIK. It is monitored annually by Plant Manager and carbon consultant. The value for this monitoring period is defined as "25 tons/GWh" for CO and "2.5 tons/GWh" for NMVOC.		

Data variable	Source of Data	Reported value for the project period
Water Quality Amount of avoided wastewater Leachate	Amount of the generated electricity Correspondence	- 898,200 m ³ /year - stored in a septic tank and vacuumed by truck
Assessment		
The parameter is calculated as per the amount of electricity generated. It is monitored annually by Plant Manager or Carbon Consultant. For this monitoring period the value for the parameter is defined as 898,200 m ³ /year.		
The parameter is monitored annually as per the transfer receipts provided by Municipality. According to the correspondence given by Kayseri Metropolitan Municipality, General Directorate of Water and Sewerage Administration, Wastewater treatment department of 05/02/2014 /25/. The leachate is stored in a septic tank and vacuumed by truck continuously.		

Data variable	Source of Data	Reported value for the project period
Soil Condition Amount of avoided NOx emissions	Amount of the generated electricity	68.2 ton NOx
Assessment		
The parameter is monitored annually with amount of electricity generated by Plant Manager or Carbon Consultant. The value of the parameter is given as 68.2 ton NOx.		

Data variable	Source of Data	Reported value for the project period
Quality of Employment Health and Safety Trainings	Training certificates or records for attendance to the trainings	7 internal and external trainings were organized
Assessment		
The provided trainings are monitored through the list of attendance to trainings given in the monitoring report as confirmed through the trainings /40/ /41/ /42/ /43/ /44/.		

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Data variable	Source of Data	Reported value for the project period
Access to affordable and clean energy services Change in Energy Use	Amount of the generated electricity	43.8 GW electricity generation
Assessment		
The parameter is monitored annually with amount of electricity generated by Plant Manager or Carbon Consultant. The value of the parameter is given as “43.8 GW” in the MR.		

Data variable	Source of Data	Reported value for the project period
Quantitative Employment and income generation Number of employment	Social Security Records	20 people are employed
Assessment		
The parameter is monitored annually with social security records of the employees. According to the Social Security Records /24/, 20 employees are hired for the project.		

3.5.4 Assessment of data and calculation of emission reductions

Availability of the data

All PMUM records /48/ within this monitoring period was checked during the site visit. In addition, daily data that includes the parameters used to calculate emission reduction was sampled for the whole monitoring period and crosschecked with the raw data excel sheet /4/.

Cross-check reported data

The data of generated electricity are transferred correctly to the excel sheet /4/ and emission reduction is calculated correctly. The excel sheet is crosschecked with the PMUM records /48/ and raw data of the LFG /4/ and it seems appropriate.

3.5.5 Accuracy of emission reduction calculations

The emission reduction calculations provided in the spreadsheet /4/ have been verified to be correct and in line with the registered PDD /1/.

The emission reductions from the project for the monitoring period as reported in the monitoring report revision 0.9 of 14/01/2016 /3/ is equivalent to 244,503 tCO₂e. The reported emission reductions are 92% higher than the estimated emission reduction of 126,925 tCO₂e for the period as per the registered PDD /1/. This was due to conservative default factors and values of IPCC used to estimated ex-ante emission reduction amount from methane destruction. Some of the default values used in ex-ante calculation were methane correction factor (MCF), Fraction of degradable organic carbon (by weight) in the waste type j (DOC_j), Efficiency of the LFG capture system that will be installed in the project activity (η_{PJ}), Fraction of methane in the SWDS gas (volume fraction) (F). These values have been higher when the project realized which caused methane destruction value to be higher compared to ex-ante calculation..

The data presented in the monitoring report /3/ were assessed by reviewing in detail project documentation, collection of monitored data, observation of established monitoring and reporting practices and assessment of the reliability of monitoring equipment. Sufficient evidence was presented and verified by RINA for the reported emission reductions as listed in the above Section 3.4.3.2.



GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

3.5.6 Accuracy of the GS indicators of sustainable development

All the documented evidences related to the sustainable monitored parameters such as payroll sheets of social security institution /24/, training certificates and attendance list /40/ /41/ /42/ /43/ /44/, and PMUM records /48/ are provided as objective evidence.

3.5.7 Management system and quality control

All the procedures required as per the approved methodology ACM0001 /11/ and validated monitoring plan presented in the registered PDD /1/. To guarantee the accuracy of the monitoring data periodic calibration of the installed monitoring equipment has been carried out according to definitions included in the monitoring plan of the registered PDD /1/ and in accordance with the requirements of the manufacturer. All data are registered and processed electronically. At each booster station, a server unit receives all data sent from the meters and data in real time is saved to an internal memory every 10 minutes. The server also automatically calculates every 10 minutes the normal flow of landfill gas captured; the gas flow is multiplied with the real gas formula normalizing the gas flow to standard temperature and pressure. Temperature and pressure are real time values. The data stored at the booster station server are transferred once per month to a computer and a backup hard drive. In case of failures of the data recording system, no emission reduction will be claimed for that period. A logbook will be written and will be registered the period without data recording. The electricity generations supplied to the grid and electricity consumption from the grid are read remotely from the electricity meters by Automatic Meter Reading System (OSOS) by the TEIAS personnel. The data from the protocols are transferred to the excel sheet used for the emission reduction calculations.

The calculation of GS VERs for the first verification period is carried out through the spreadsheet "ER_Kayseri Landfill_v5.xlsx" /4/. The on-site visit at Konya landfill waste management plant confirmed that the monitoring and reporting is carried out consistently and in line with the established procedures.

The collected data during the monitoring period will be kept by the project owner at least two years after the last issuance of VERs as stated in the registered PDD /1/ and monitoring report /3/.

GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

4 VERIFICATION AND CERTIFICATION OPINION

RINA Services Spa (RINA) has performed verification of the emission reductions reported for the project activity “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in Turkey, GS Registration Reference N° 1061, for the period 01/12/2011 to 31/03/2014, with regard to the relevant requirements for GS activities.

The project participants of the “Kayseri Molu Landfill Gas to Electricity Project, Turkey” project are responsible for:

- the preparation of greenhouse gas emissions data and the reported greenhouse gas emission reductions from the project on the basis set out in the monitoring plan contained in the registered project design document revision 08 of 24/03/2014
- the development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of greenhouse gas emission reductions of the project

It is the responsibility of RINA to express an independent verification opinion about the project's conformity with the requirements of paragraph 62 of the CDM modalities and procedures, GS requirements and on the reported greenhouse gas emission reductions from the project.

Based on documented evidence and corroborated by an on-site assessment RINA can confirm that:

- the project has been implemented and operated as per the registered PDD;
- the monitoring report and other supporting documents provided are complete and verifiable and in accordance with the applicable CDM and GS VER requirements;
- monitoring is in place as per the applied baseline and monitoring methodology;
- monitoring complies with the monitoring plan in the registered PDD;
- the monitoring plan in the registered PDD is as per the applied baseline and monitoring methodology.

It is RINA's opinion that the GHG emission reductions stated in the monitoring report version 0.9 of 14/01/2016 for the “Kayseri Molu Landfill Gas to Electricity Project, Turkey” project in Turkey for the period 01/12/2011 to 31/03/2014 are fairly stated. The GHG emission reductions were calculated correctly, the sustainability development indicators were correctly monitored, on the basis of the approved monitoring methodology “ACM0001”, “Flaring or use of landfill gas”, version 13.0 of 11/05/2012 and the monitoring plan contained in the registered PDD.

Hence, RINA is able to certify that the emission reductions from the project during the monitoring period 01/12/2011 to 31/03/2014 amount to 244,503 tCO₂e.

Year 2011 01/12/2011 to 31/12/2011 3,185 tCO₂e

Year 2012 01/01/2012 to 31/12/2012 66,462 tCO₂e

Year 2013 01/01/2013 to 31/12/2013 136,526 tCO₂e

Year 2014 01/01/2014 to 31/03/2014 38,330 tCO₂e

GHG Emission Reductions or Removals	tCO₂e
Baseline Emissions	244,545
Project Emissions	42.04
Leakage	0
Net GHG emission reductions or removals	244,503



RINA

GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

Istanbul, 19/01/2016

Genova, 20/01/2016

Tugce KIRATLI
GS Team Leader

RINA Denizcilik ve Belgelendirme Ltd. Sti.

Laura SEVERINO
Authorized officer signing for the DOE

RINA Services S.p.A.

APPENDIX A

GOLD STANDARD VERIFICATION PROTOCOL

TABLE 1 REQUIREMENTS CHECKLIST

Checklist Question		Reference	MoV ¹	Comments	Conclusion
A Description of Project Activity					
A.1	Title of the project activity, revision number and date of Monitoring Report	/1/ /3/ /19/	DR, CC	<p>The title of the project activity is defined as “Kayseri Molu Landfill Gas to Electricity Project, Turkey” in the registered PDD /1/ and Monitoring Report version 0.1 /3/. It is also in line with the GS Registry Market.</p> <p>However, the format of the completion date, registration date and Monitoring period should be corrected as DD/MM/YYYY according to the guideline “Guidelines for Completing the CDM-MR-FORM” /19/.</p> <p>In addition, please explain the monitoring period number “4” given in the first page of the MR since it is the first verification. Please also correct the date of the monitoring period and registration date of the project activity.</p> <p>The new version of the CDM-MR-FORM (version 04.0) is available. Please apply.</p>	CR-1 OK
A.2	Is the actual implementation and operation of the proposed project activity in accordance with the project activity in the registered PDD?	/1/ /3/ /14/ /26/ /27/ /28/	DR, CC, I	<p>It is confirmed during the site visit performed on 15-16/07/2014 that project activity is implemented and operated as per the registered PDD /1/.</p> <p>The starting date of project activity is 29/04/2011 which is electromechanical agreement as per the registered PDD.</p> <p>It is defined in the registered PDD that the estimated starting date of the first crediting period is 01/01/2012. However, the first engines operation date is 01/11/2011 as per the Provisional Acceptance Protocol /26/. Please correct the date and also please give a clear definition in Post Registration Changes-Corrections in the monitoring report.</p> <p>During on site visit, it was confirmed that the gas collection system, the enclosed flares, and the power</p>	CAR-1 OK

¹ MoV: DR document review, I interview, CC cross checking

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>generation unit was installed by the end of first monitoring period as per the Provisional Acceptance Protocol /26/ /27/ /28/.</p> <p>3 units of gas engine have been installed with a total capacity of 4.222 MWe (1x1.560 MWe, 1x1.305 MWe and 1x1.357 MWe), which are dedicated to the landfill gas extracted from the landfill area. 3 engine has been commissioned in three phase as explained below:</p> <ul style="list-style-type: none"> - On 01/11/2011, one power generation unit has commissioned as confirmed through the Temporary Acceptance Protocol /26/. - On 27/07/2012, one power generation unit has commissioned as confirmed through the Temporary Acceptance Protocol /27/. - On 05/07/2013, one power generation unit has commissioned as confirmed through the Temporary Acceptance Protocol /28/. <p>The implementation table of the project activity is in line with the registered PDD. However, operation date for the third gas engine given as “21/06/2013” could not be confirmed since there is no supporting document.</p> <p>The end date of monitoring period is defined as 30/05/2014 in the Monitoring Report /3/. However, during on site visit, 31/03/2014 was agreed by the PP and the consultant. According to the alteration, please revise all the necessary changes.</p> <p>Estimated Emission Reduction is indicated as 128,329 tCO2 in the first page and Section E.5 of the monitoring report. However, it could not be confirmed. Please clarify the calculation. In addition, the value should be updated as per the revised monitoring period.</p> <p>The explanation given in the Section E.1 of the MR (baseline emissions calculation) is not in line with the registered PDD /1/. Please be sure that AC0001 is applied.</p> <p>As per the Validation report /12/, it is defined that GS Requirements version 2.1 is applied. However, 2.2 is</p>	

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				mentioned in Section F of the monitoring report. Please correct.	
A.3	Methodology applied for the registered project activity	/1/ /11/	DR	The registered project activity applies the approved baseline and monitoring methodology ACM0001 version 13.0.0 of 11/05/2012 /11/.	OK
B Monitoring					
B.1 Monitoring plan					
B.1.1	Does the monitoring plan included in the registered GS project activity comply with the applied methodology?	/1/ /3/ /11/	DR, CC	The monitoring plan of the registered GS project activity complies with the applied methodology ACM0001 version 13.0.0 of 11/05/2012 /11/.	OK
B.1.2	Does the monitoring comply with the monitoring plan in the registered PDD?	/1/ /2/ /3/	DR, CC	The description of the monitoring plan given in Section B of the MR does not comply with the monitoring plan presented in the registered PDD /1/ and GS Passport /2/. Please give a clear definition about the monitoring system and also please add the roles and responsibilities. The data and parameters that need to be monitored as per the registered PDD /1/ and GS Passport /2/ are listed in the following section of this verification protocol.	CR-2 OK
B.1.3	Do the sustainability indicators included in the monitoring report comply with the minimum contents specified in paragraph 4.1 of the GS toolkit?	/1/ /3/ /8/ /19/	DR, CC	The sustainability indicators included in the monitoring report /3/ does not comply with the minimum contents specified in paragraph 4.1 of the GS Toolkit /8/. Please revise them as per the last version of the MR template /19/.	CR-3 OK
B.1.4	Have any changes been made to the key sustainable development indicators?	/2/ /3/	DR, CC, I	No change has been occurred to the sustainable development indicators during the monitoring period of 01/11/2011 to 31/03/2014 as confirmed through the site visit.	OK
B.2 Data and parameters that are available at validation and that are not monitored					
B.2.1	Which parameters were available at validation and how were they verified?	/1/ /3/ /11/ /16/	DR, CC	The following parameters were available at validation stage and that doesn't need to be monitored during the crediting period: Quantity of MSW land filled during 1996~2012 (Wx): It is defined as "see Section B.6.3". However, it could not be confirmed since there is no section B.6.3 in the MR.	CR-4 OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>Please gives the current value or current reference.</p> <p>Global Warning Potential of CH₄ (GWP_{CH4}): It is defined as 21 tCO₂e/tCH₄ for the monitoring period that falls within the first commitment period and it should be also defined as 25 tCO₂e/tCH₄ for the monitoring period that falls within the second commitment period as per the Kyoto Protocol.</p> <p>Methane Density (D_{CH4}): It is defined as 0.000716 tCH₄/m³ tCH₄ in the registered PDD /1/.</p> <p>Default value for the model correction factor to account for model uncertainties (Φ): It is defined as 0.75 as per the “Methodological Tool: Emissions from solid waste disposal sites” /16/.</p> <p>Oxidation factor (OX): It is defined as 0.1 as per the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 5 Waste, Table 3.2.</p> <p>Fraction of methane in the SWDS gas (F): It is defined as 0.5 as per the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 5 Waste.</p> <p>Default value for the fraction of degradable organic carbon in MSW that decomposes in the SWDS (DOC_j): It is defined as 0.5 as per the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 5 Waste.</p> <p>Methane correction factor (MCF): It is defined as 0.8 as per the 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 5 Waste, Table 3.1.</p> <p>Fraction of degradable organic carbon (by weight) in the waste type j (DOC_j): The values given in 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 5 Waste, Tables 2.4 and 2.5 are used.</p> <p>Decay rate for the waste type j (k_j): The values given in 2006 IPCC Guidelines for National Greenhouse Gas Inventories, Vol. 5 Waste, Table 3.3 is used.</p> <p>Efficiency of the LFG capture system that will be installed in the project activity (η_{PC}): The default value</p>	

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>of 50% is applied for the Project as per the methodology ACM0001 /11/.</p> <p>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 (fy): "0" is applied as per the methodology ACM0001 /11/.</p> <p>Gross Electricity supplied to the grid by relevant sources (2008-2010) (Gross electricity generation): It is defined as "Table 11". However, it could not be confirmed since there is no Table 11 in the MR. Please gives the current value or current reference.</p> <p>Net electricity fed into the grid. Used for the calculation of the net/gross relation (Net electricity generation): It is defined as "Table 12". However, it could not be confirmed since there is no Table 12 in the MR. Please gives the current value or current reference.</p> <p>Heating Values of fuels consumed for electricity generation (HV_{i,y}): It is defined as "Table 20". However, it could not be confirmed since there is no Table 20 in the MR. Please gives the current value or current reference.</p> <p>Fuels consumed for electricity generation (FC_{i,y}): It is defined as "Table 21". However, it could not be confirmed since there is no Table 21 in the MR. Please gives the current value or current reference.</p> <p>Net Calorific Value of fuel types (NCV_{i,y}): It is defined as "Table 23". However, it could not be confirmed since there is no Table 23 in the MR. Please gives the current value or current reference.</p> <p>Most recent power plants which compromise 20% of total generation (Sample Group for BM emission factor): It is defined as "Table 25". However, it could not be confirmed since there is no Table 25 in the MR. Please gives the current value or current reference.</p> <p>Emission factor for fuel type I (EF_i): It is defined as "Table 24". However, it could not be confirmed since</p>	

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				<p>there is no Table 24 in the MR. Please gives the current value or current reference.</p> <p>Average energy conversion efficiency of power unit m in year y ($\eta_{i,y}$): It is defined as “Table 16”. However, it could not be confirmed since there is no Table 16 in the MR. Please gives the current value or current reference.</p> <p>Universal ideal gas constant (R_u): It is defined as 8,314 Pa.m³/kmol.K as per the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”.</p> <p>Molecular mass of greenhouse gas (MM_{CH4}): It is defined as 16.04 kg/kmol as per the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”.</p> <p>Total pressure at normal conditions (P_n): It is defined as 101,325 Pa as per the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”.</p> <p>Temperature at normal conditions (T_n): It is defined as 273.15 K as per the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”.</p> <p>In addition, emission factor of the project activity should also be added to the “not monitoring parameters” since it is fixed for the crediting period.</p>	
B.3 Data and parameters monitored					
B.3.1	Data/Parameter monitored / Data unit / Description / Source of data to be used / Value data for the monitoring period	/1/ /3/ /11/ /13/ /14/ /15/ /16/ /17/ /18/	DR, CC, I	<p>Amount of methane in LFG which is sent to the flare in year y ($F_{CH4,sent\ flare,y}$ (= LFG_{flare})): It is calculated based on the flow of LFG and the concentration of methane in the LFG that will be sent to the flare(s). The unit of the data is defined as “t_{CH4/y}”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Amount of methane in LFG which is sent to the genset for electricity generation in year y ($F_{CH4,EL,y}$ (= $LFG_{electricity,y}$)): It is calculated based on the flow of LFG and the concentration of methane in the LFG that will be sent to the genset. The unit of the data is defined as “tCH4 /year”. However, the value of the parameter is not</p>	GAR-2 OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>discussed in the monitoring report. Please add the value.</p> <p>Volumetric flow of the gaseous stream in the hour h on a dry basis ($V_{t,db}$): It is measured continuously by a mass flow meter. The unit of the data is defined as “m³dry gas/h”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Volumetric flow of CH₄ in time interval on a dry basis ($V_{CH_4,t,db}$): It is measured continuously by a gas analyzer. The unit of the data is defined as “m³CH₄/m³dry gas”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Temperature of the landfill gas (T_t): It is measured by a temperature meter. The unit of the data is defined as “K”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Pressure of the gaseous stream in the hour h (P_t): It is measured by a manometer. The unit of the data is defined as “Pa or mbar”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Average technical transmission and distribution losses for providing electricity to source k in year y ($TDL_{k,y}$): According to the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” a default factor is used. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): It is calculated as per the “Tool to determine project emissions from flaring gases containing methane”. The unit and the value of the data is defined as “0 tCO₂e” since no significant methane contents in exhaust gas of flare are expected.</p>	

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>Quantity of diesel combusted for auxiliary purposes ($FC_{i,j,y}$): It is measured and the unit of the parameter is defined as “t/year” in the monitoring report. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Methane fraction in the landfill gas (w_{CH4}): It is measured by a gas quality analyzer. The unit of the data is defined as “m³CH₄/m³LFG”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$): It is measured by a thermocouple. The unit of the data is defined as “°C”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Operation of the equipment that consumes the LFG (Op_j,h): It is measured and recorded In the project area. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Net electricity delivered to the grid ($EC_{BL,y}$): It is measured by two electricity meters. The data from the Electricity Meters are the basis for the settlement notification of PMUM. The unit of the data is defined as “MWh”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Quantity of electricity consumed by the project activity during the year y ($EC_{P,j,y}$): It is measured by authorized electricity meters. The unit of the data is defined as “MWh”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Net calorific value of diesel combusted for auxiliary purposes ($NCV_{i,y}$): According to the “Table 1.2. of chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines” a default factor 43.3 GJ/t is used.</p>	

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>CO2 emission factor of diesel in year y ($EF_{CO2,i,y}$): According to the “Table 1.4. of chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines” a default factor 0.0748 t/GJ is used.</p>	
<p>B.3.2 Is the measurement equipment described? Is the accuracy of the measurement equipment addressed and deemed appropriate?</p>	<p>1/ /3/ /11/ /13/ /14/ /15/ /16/ /17/ /18/</p>	<p>DR, CC, I</p>	<p>Amount of methane in LFG which is sent to the flare in year y ($F_{CH4, sent flare,y} (= LFG_{flare})$): It is measured by a flow meter and a gas analyzer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Amount of methane in LFG which is sent to the genset for electricity generation in year y ($F_{CH4,EL,y} (= LFG_{electricity,y})$): It is measured by a flow meter and a gas analyzer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Volumetric flow of the gaseous stream in the hour h on a dry basis ($V_{t,db}$): It is measured by a flow meter. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Volumetric flow of CH₄ in time interval on a dry basis ($V_{CH4,t,db}$): It is measured by a flow meter. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Temperature of the landfill gas (T_t): It is measured by a thermometer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Pressure of the gaseous stream in the hour h (P_t): It is measured by a manometer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Average technical transmission and distribution losses for providing electricity to source k in year y ($TDL_{k,y}$): It is used for calculation of project emission as per the “Tool to calculate baseline, project and/or leakage emission from electricity consumption”.</p> <p>Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): It is calculated as per the “Tool to determine project emissions from flaring gases”.</p>	<p>CAR-3 OK</p>

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>containing methane”</p> <p>Quantity of diesel combusted for auxiliary purposes ($FC_{i,y}$): There is no description for the equipment and the accuracy. Please add.</p> <p>Methane fraction in the landfill gas (w_{CH_4}): It is measured by a gas quality analyzer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$): It is measured by a thermocouple. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Operation of the equipment that consumes the LFG (Opj,h): It is measured and recorded In the project area. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Net electricity delivered to the grid ($EC_{BL,y}$): It is measured by two electricity meters. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Quantity of electricity consumed by the project activity during the year y ($EC_{PJ,y}$): It is measured by authorized electricity meters. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Net calorific value of diesel combusted for auxiliary purposes ($NCV_{i,y}$): According to the “Table 1.2. of chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines” a default factor 43.3 GJ/t is used.</p> <p>CO2 emission factor of diesel in year y ($EF_{CO_2,i,y}$): According to the “Table 1.4. of chapter 1 of Vol. 2 (Energy) of the 2006 IPCC Guidelines” a default factor 0.0748 t/GJ is used.</p>	
<p>B.3.3 Are the requirements for maintenance and calibration of measurement equipment described and deemed appropriate?</p>	<p>1/ /3/ /11/ /13/ /14/ /15/ /16/</p>	<p>DR, CC, I</p>	<p>Amount of methane in LFG which is sent to the flare in year y ($F_{CH_4, sent flare,y}$ (= LFG_{flare})): There is no description about the calibration of the equipment.</p>	<p>CAR 4 OK</p>

Checklist Question	Reference	MoV ¹	Comments	Conclusion
	/17/ /18/		<p>Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Amount of methane in LFG which is sent to the genset for electricity generation in year y ($F_{CH_4,EL,y}$ (= $LFG_{electricity,y}$)): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Volumetric flow of the gaseous stream in the hour h on a dry basis ($V_{t,db}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Volumetric flow of CH₄ in time interval on a dry basis ($V_{CH_4,t,db}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Temperature of the landfill gas (T_t): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Pressure of the gaseous stream in the hour h (P_t): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p>	

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>Average technical transmission and distribution losses for providing electricity to source k in year y ($TDL_{k,y}$): There is no need for calibration since default value is used as per the “Tool to calculate baseline, project and/or leakage emission from electricity consumption”.</p> <p>Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Quantity of diesel combusted for auxiliary purposes ($FC_{i,j,y}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Methane fraction in the landfill gas (w_{CH_4}): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Operation of the equipment that consumes the LFG (Op_j,h): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference</p>	

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>document to confirm the frequency.</p> <p>Net electricity delivered to the grid ($EC_{BL,y}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Quantity of electricity consumed by the project activity during the year y ($EC_{PJ,y}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Net calorific value of diesel combusted for auxiliary purposes ($NCV_{i,y}$): There is no need for calibration since default value is used as per the "IPCC 2006".</p> <p>CO2 emission factor of diesel in year y ($EF_{CO2,i,y}$): There is no need for calibration since default value is used as per the "IPCC 2006".</p>	
<p>B.3.4 Is the monitoring frequency adequate for all monitoring parameters? Is it in line with the registered monitoring plan?</p>	<p>1/ /3/ /11/ /13/ /14/ /15/ /16/ /17/ /18/</p>	<p>DR, CC, I</p>	<p>Amount of methane in LFG which is sent to the flare in year y ($F_{CH4,sent\ flare,y}$ (= LFG_{flare}): It is monitored continuously by a flow meter and it is in line with the registered PDD.</p> <p>Amount of methane in LFG which is sent to the genset for electricity generation in year y ($F_{CH4,EL,y}$ (= $LFG_{electricity,y}$): It is monitored continuously by a flow meter and it is in line with the registered PDD.</p> <p>Volumetric flow of the gaseous stream in the hour h on a dry basis ($V_{t,db}$): It is monitored continuously by a flow meter and it is in line with the registered PDD.</p> <p>Volumetric flow of CH₄ in time interval on a dry basis ($V_{CH4,t,db}$): It is monitored continuously by a flow meter and it is in line with the registered PDD.</p> <p>Temperature of the landfill gas (T_i): It is monitored continuously by a thermometer and it is in line with the</p>	<p>CR-5 OK</p>

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>registered PDD.</p> <p>Pressure of the gaseous stream in the hour h (P_t): It is monitored continuously by a manometer and it is in line with the registered PDD.</p> <p>Average technical transmission and distribution losses for providing electricity to source k in year y ($TDL_{k,y}$): It is monitored annually and a default value is used as per the “Tool to calculate baseline, project and/or leakage emission from electricity consumption”.</p> <p>Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): The parameter is calculated as per the “tool to determine project emissions from flaring gases containing methane”. Therefore there is no monitoring frequency.</p> <p>Quantity of diesel combusted for auxiliary purposes ($FC_{i,j,y}$): There is no explanation about the monitoring frequency of the parameter. Please add.</p> <p>Methane fraction in the landfill gas (w_{CH_4}): It is monitored continuously by a gas quality analyzer and it is in line with the registered PDD.</p> <p>Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$): It is monitored continuously by a thermocouple and it is in line with the registered PDD.</p> <p>Operation of the equipment that consumes the LFG (Op_j,h): Three parameters (Temperature, Flame and Products generated) are monitored hourly and it is in line with the registered PDD.</p> <p>Net electricity delivered to the grid ($EC_{BL,y}$): The parameter is monitored continuously by two electricity meters. They measured the electricity hourly and reading monthly.</p> <p>Quantity of electricity consumed by the project activity during the year y ($EC_{P,J,y}$): The parameter is monitored continuously by authorized electricity meters.</p> <p>Net calorific value of diesel combusted for auxiliary</p>	

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				<p>purposes (NCV_{i,y}): There is no need for monitoring frequency since default value is used as per the "IPCC 2006".</p> <p>CO2 emission factor of diesel in year y (EF_{CO2,i,y}): There is no need for monitoring frequency since default value is used as per the "IPCC 2006".</p>	
B.3.5	Is the recording frequency adequate for all monitoring parameters? Is it in line with the registered monitoring plan?	1/ /3/	DR, CC, I	There is no recording frequency for all the monitoring parameters. Please add.	CAR-5 OK
B.3.6	Does data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	1/ /3/	DR, CC, I	The calculations from/of the parameters could not be monitored since there is no raw data provided to the verification team. Please revise the excel sheet.	CAR-6 OK
B.4 Monitoring of GS indicators of sustainable development /environmental impacts					
B.4.1	Data/Parameter monitored / Data unit / Description / Source of data to be used / Value data for the monitoring period	1/ /2/ /3/ /20/ /21/ /22/ /23/ /24/ /25/	DR, CC, I	<p>The following GS sustainable development parameters are monitored as per the monitoring plan presented in the registered Passport /2/.</p> <p>Air Quality:</p> <p><u>Amount of CO, NMVOC:</u> It is calculated with the electricity generated based on the data available from TUIK. It is monitored annually by Plant Manager and carbon consultant. The value for this monitoring period is defined as "6 tons/GWh" for CO and "1.5 tons/GWh" for NMVOC. However, in the calculation excel sheet the values are calculated as "2.5 tons/GWh" for CO and "0.6 tons/GWh". Please clarify. In addition, since the parameter is monitored annually, please calculate for 2011, 2012, 2013 and 2014 separately and give the total amount in the Monitoring Report. Please remove the parameter of NOx and add it to the soil condition.</p> <p>Water Quality and Quantity:</p> <p><u>Amount of avoided wastewater to be discharged to the environment by project activity:</u> The parameter is calculated as per the amount of electricity generated. It is monitored annually by Plant Manager or Carbon Consultant. For this monitoring period the value for the</p>	CAR-7 OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>parameter is defined as 917,600 m³/year. However, in the calculation excel sheet the value is calculated as “384,2 m³/year”. Please clarify. In addition, since the parameter is monitored annually, please calculate for 2011, 2012, 2013 and 2014 separately and give the total amount in the Monitoring Report.</p> <p>In addition, footnote 14 related to the parameter is for 2010 data. However, 2008 is written in the monitoring report in the web-link’s explanation. Please correct.</p> <p><u>Amount of avoided leachate be discharged to the environment:</u> The parameter is monitored annually as per the transfer receipts provided by Municipality. According to the correspondence given by Kayseri Metropolitan Municipality, General Directorate of Water and Sewerage Administration, Wastewater treatment department of 05/02/2014 /25/. The leachate is stored in a septic tank and vacuumed by truck continuously.</p> <p>Soil condition:</p> <p><u>Amount of avoided NOx emissions:</u> The parameter is monitored annually with amount of electricity generated by Plant Manager or Carbon Consultant. The value of the parameter is given as 99.3 ton NOx in the MR. However, in the calculation excel sheet the value is calculated as “41.7 ton NOx”. Please clarify. In addition, since the parameter is monitored annually, please calculate for 2011, 2012, 2013 and 2014 separately and give the total amount in the Monitoring Report.</p> <p>In addition, footnote 15 related to the parameter is for 2010 data. However, 2008 is written in the monitoring report. Please also clarify why estimated baseline value is changed from 1.651 to 2.218 m³.</p> <p>Quality of Employment:</p> <p><u>Health and Safety Trainings:</u> The provided trainings are monitored through the list of attendance to trainings given in the monitoring report. However, the given</p>	

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			<p>training certificates /20/ /21/ /22/ does not belong to this monitoring period. Please clarify.</p> <p>In addition, the number of the employees attended to the health and safety trainings were not presented in the MR. Please add.</p> <p>Access to Affordable and Clean Energy Services:</p> <p><u>Change in Energy Use:</u> The parameter is monitored annually with amount of electricity generated by Plant Manager or Carbon Consultant. The value of the parameter is given as “44 GW” in the MR. However, in the calculation excel sheet the value is calculated as “1,973,701 m³”. Please clarify. In addition, since the parameter is monitored annually, please calculate for 2011, 2012, 2013 and 2014 separately and give the total amount in the Monitoring Report.</p> <p>Quantitative employment and income generation:</p> <p><u>Number of employment:</u> The parameter is monitored annually with social security records of the employees. According to the Social Security Records /24/, 20 employees are hired for the project. However, only 7 employee’s Registration Documents /23/ are provided to the verification team. Also, during on site visit, PP defined that 7 employees are hired by HER Enerji. Please clarify.</p>	
<p>B.4.2 Is the monitoring in line with the registered monitoring plan?</p>	<p>/1/ /3/</p>	<p>DR, CC</p>	<ul style="list-style-type: none"> - The monitoring does not comply with the monitoring plan presented in the registered PDD. The following GS sustainable development parameters are monitored as per the registered monitoring plan: - Air Quality - Water Quality and Quantity - Soil Condition - Quality of Employment - Access to Affordable and Clean Energy Services 	<p>OK</p>

Checklist Question	Reference	MoV ¹	Comments	Conclusion
<p>B.4.3 Does the monitoring report provide for the collection and archiving of relevant data concerning environmental, social and economic impacts?</p>	<p>/1/ /2/ /3/ /20/ /21/ /22/ /23/ /24/ /25/</p>	<p>DR, CC</p>	<p>- Quantitative employment and income generation</p> <p>All the documented evidences related to the sustainable monitored parameters are not collected and kept. Please provide trainings related to this monitoring period and the correspondence to confirm that there is no mixing of any auxiliary gas to boost calorific value of LFG or startup fuel for the engines or the flare system.</p> <p>In addition, during on site visit, the project owner defined that engine failure has occurred. This situation should be explained clearly in the report and supporting documentation must be sent to the verification team.</p>	<p>CR-6 OK</p>
<p>B.5 Management, quality assurance and quality control</p>				
<p>B.5.1 How has it been assessed that the monitoring arrangements described in the monitoring plan are feasible within the project design?</p>	<p>/1/ /3/</p>	<p>DR, CC, I</p>	<p>An on-site inspection has been performed on 15-16/07/2014. It could not be confirmed that the monitoring arrangements in the monitoring plan are feasible within the project design. The monitoring plan does not described in the MR. Therefore, it is impossible to confirm monitoring arrangements. Please also add the schematic representation of the system and listed the monitoring equipment including all the information (such as mark, model, serial no, accuracy, calibration date and calibration frequency). Please also provide information about where the electricity meters are positioned.</p> <p>In addition, although there is a backup meter with a serial no 447412, there is no first index protocol for the backup meter. Please provide the supporting document.</p>	<p>CR-8 OK</p>
<p>B.5.2 Are procedures identified for day-to-day record handling (including what records to keep, storage area of records and how to process performance documentation)?</p>	<p>/1/ /3/</p>	<p>DR, CC, I</p>	<p>The Grid Company submits monthly a protocol to the project owner. The monthly electricity data are transferred to the excel sheet used for the emission reduction calculations.</p> <p>The electricity consumption is monitored continuously by two electricity meters stated in the distributing center. TEIAS is responsible for the calibration and maintenance of the electricity meters.</p> <p>Although the generated electricity is based on PMUM records, they were not provided to the verification team.</p>	<p>CR-7 OK</p>

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				Please send the PMUM screenshots.	
B.5.3	Are the data management and quality assurance and quality control procedures sufficient to ensure that the emission reductions achieved by/resulting from the project can be reported ex post and verified?	/1/ /3/	DR, CC, I	<p>Quality assurance and quality control procedure is taken to monitor the equipment and data collection. The monitoring systems on errors are checked regularly by the VER-Team. In the case of errors, corrective actions will be undertaken.</p> <p>The PLC system automatically reads measurement devices and records data on hard drives. These data will be used to calculate the total emission reductions.</p> <p>Her Enerji ve Cevre Teknolojileri Sanayi Ticaret A.S. (the project owner) is responsible for the operation and monitoring of the project activity and it is in line with the registered PDD /1/.</p>	OK
B.5.4	Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of VERs, for this project activity, whichever occurs later?	/1/ /3/	DR, CC	It is mentioned in the in the Monitoring Report version 0.1 /3/ that the collected data during the monitoring period will be kept for the full crediting period and a further two years after the end of the crediting period by the project owner.	OK

TABLE 2 RESOLUTION OF CORRECTIVE ACTION REQUESTS AND CLARIFICATION REQUESTS

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>CAR 1</p> <p>It is defined in the registered PDD that the estimated starting date of the first crediting period is 01/01/2012. However, the first engines operation date is 01/11/2011 as per the Provisional Acceptance Protocol /26/. Please correct the date and also please give a clear definition in Post Registration Changes-Corrections in the monitoring report.</p> <p>The implementation table of the project activity is in line with the registered PDD. However, operation date for the third gas engine given as "21/06/2013" could not be confirmed since there is no supporting document.</p> <p>The end date of monitoring period is defined as 30/05/2014 in the Monitoring Report /3/. However, during on site visit, 31/03/2014 was agreed by the PP and the consultant. According to the alteration, please revise all the necessary changes.</p> <p>Estimated Emission Reduction is indicated as 128,329 tCO2 in the first page and Section E.5 of the monitoring report. However, it could not be confirmed. Please clarify the calculation. In addition, the value should be updated as per the revised monitoring period.</p> <p>The explanation given in the Section E.1 of the MR (baseline emissions calculation) is not in line with the registered PDD /1/. Please be sure that ACM0001 is applied.</p> <p>As per the Validation report /12/, it is defined that GS Requirements version 2.1 is applied. However, 2.2 is mentioned in Section F of the monitoring report. Please correct.</p>	<p>A.2</p>	<p>Although the first engine operation started on 01/11/2011, the crediting period is started from 01/12/2011 due to credible date which mostly received starting from 01/12/2011. additionally, during first month of the operation the engines did not work more due to maintainance and testing. That is why it is decided that the crediting period start from 01/12/2011.</p> <p>Please find the start date of the third engine as attached as annex1. the date of operation is 05/07/2013. this is corrected in MR.</p> <p>The end of monitoring was revised as 31/03/2014</p> <p>Estimated emission reduction from PDD is revised as 126,929 tCO2e/ period. The calculation is: $(45,959/12)+ 45,959 + 61,433 + (62,812/4)$</p> <p>The explanation in Section E.1 of MR is corrected in line with PDD.</p> <p>GS requirement is corrected as version 2.1</p> <p>Respond 2: The explanation about revision of the crediting period was added to the MR</p>	<p>Review 1 (08/09/2014):</p> <p>The date chosen for the starting date (01/12/2011) of the crediting period seems appropriate. However, since it is mentioned as 01/01/2012 in the registered PDD, a clear definition should be added to the corrections part of the post registration changes given in the monitoring report. In addition, the crediting period given in Section A.5 of the monitoring report is not correct. Please revise the end date of the crediting period as per 10 years.</p> <p>The operation date for the third gas engine is corrected as "05/07/2013" and confirmed through the Temporary Acceptance Protocol /28/.</p> <p>The end date of the monitoring period is now corrected and the necessary corrections were made in the monitoring report and the excel sheet.</p> <p>As per the calculation given by PP the result is 126,925. Please correct the estimated emission reduction. In addition, please also give a clear definion for the difference from estimated value in registered PDD given in section E.6 of the monitoring period.</p> <p>The explanation given in Section E.1 for the baseline emission calculation is now in line with the registered PDD.</p> <p>It is now defined that GS Requirements version 2.1 is applied in Section F of the monitoring report.</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>The date of crediting period was revised</p> <p>The value of estimated emission reduction was corrected and a justification for the difference in emission reduction amount was provided in E.6 section of MR</p> <p>The completion date of MR was corrected.</p> <p>Respond 3: The value is corrected in section E5. The percentage value is provided with explanation.</p>	<p>In addition, please revise the completion date of the monitoring report. <u>Hence, CAR 1 is not closed.</u></p> <p><u>Review 2 (15/12/2014):</u> A clear definition is now added to the corrections part of the post registration changes in the monitoring report. The end date of the crediting period given in Section A.5 of the monitoring report is now corrected. As per the calculation given by PP the result is 126,925. the estimated emission reduction is now corrected in the first page of the report. However, the value is still not in line with Section E.5. Please revise it too. In addition, please also give a clear definition (such as the actual and estimated values and the difference in a form of "%") for the difference from estimated value in registered PDD given in section E.6 of the monitoring period. The completion date of the monitoring report is now revised. <u>Hence, CAR 1 is not closed.</u></p> <p><u>Review 3 (08/02/2015):</u> The estimated emission reduction is now corrected in Section E.5 of the monitoring report. In addition, a clear definition is given for the difference between the estimated and the actual emission reduction in section E.6 of the MR. <u>Hence, CAR 1 is closed.</u></p>
<p>CAR 2 <i>Amount of methane in LFG which is sent to</i></p>	<p>B.3.1</p>	<p>The monitored value for $F_{CH_4, sent\ flare, y}$ was added to the monitoring table in MR.</p>	<p><u>Review 1 (08/09/2014):</u> <i>Amount of methane in LFG which is</i></p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>the flare in year y ($F_{CH_4, sent flare, y}$ (= LFG_{flare})): It is calculated based on the flow of LFG and the concentration of methane in the LFG that will be sent to the flare(s). The unit of the data is defined as “t_{CH₄/y}”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Amount of methane in LFG which is sent to the genset for electricity generation in year y ($F_{CH_4, EL, y}$ (= $LFG_{electricity, y}$)): It is calculated based on the flow of LFG and the concentration of methane in the LFG that will be sent to the genset. The unit of the data is defined as “tCH₄/year”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Volumetric flow of the gaseous stream in the hour h on a dry basis ($V_{t, db}$): It is measured continuously by a mass flow meter. The unit of the data is defined as “m³dry gas/h”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Volumetric flow of CH₄ in time interval on a dry basis ($V_{CH_4, t, db}$): It is measured continuously by a gas analyzer. The unit of the data is defined as “m³CH₄/m³dry gas”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Temperature of the landfill gas (T_t): It is measured by a temperature meter. The unit of the data is defined as “K”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Pressure of the gaseous stream in the hour h (P_t): It is measured by a manometer. The unit of the data is defined as “Pa or mbar”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p>		<p>Please find the calculation as ER_Kayserilanfillv1.</p> <p>The monitored value for $F_{CH_4, EL, y}$ was added to the monitoring table in MR. Please find the calculation as ER_Kayserilanfillv1.</p> <p>The monitored value for $V_{t, db}$ was added to the monitoring table in MR. Please find the calculation as ER_Kayserilanfillv1.</p> <p>The monitored value for $V_{CH_4, t, db}$ was added to the monitoring table in MR. Please find the calculation as ER_Kayserilanfillv1.</p> <p>The temperature of landfill gas was not monitored that is why for calculation of Volumetric flow of the gaseous stream in the hour h chosen to be on wet bases and option C is applied according to the tool.</p> <p>The monitored value for P_t was added to the monitoring table in MR. Please find</p>	<p>sent to the flare in year y ($F_{CH_4, sent flare, y}$ (= LFG_{flare})): The value of the parameter is now mentioned as 87.65 tCH₄ in the monitoring report. However, the value could not be confirmed with the calculation excel sheet. Please clarify.</p> <p>Amount of methane in LFG which is sent to the genset for electricity generation in year y ($F_{CH_4, EL, y}$ (= $LFG_{electricity, y}$)): The value of the parameter is now mentioned as 9,829.02 tCH₄/y in the monitoring report. However, the value could not be confirmed with the calculation excel sheet. Please clarify.</p> <p>Volumetric flow of the gaseous stream in the hour h on a dry basis ($V_{t, db}$): The value of the parameter is now mentioned as 25,188,358.53 m³wet gas/h in the monitoring report. However, the value could not be confirmed with the calculation excel sheet. Please clarify.</p> <p>Volumetric flow of CH₄ in time interval on a dry basis ($V_{CH_4, t, db}$): The value of the parameter is now mentioned as % 47.88 in the monitoring report. However, the value could not be confirmed with the calculation excel sheet. Please clarify.</p> <p>Temperature of the landfill gas (T_t): The value of the parameter is not discussed in the monitoring report. Please add the average value.</p> <p>Pressure of the gaseous stream in the hour h (P_t): The value of the parameter is now mentioned as 127.42 mbar in the monitoring report. However, the value could not be confirmed with the calculation excel sheet. Please clarify.</p> <p>Average technical transmission and</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>Average technical transmission and distribution losses for providing electricity to source k in year y ($TDL_{k,y}$): According to the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” a default factor is used. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): It is calculated as per the “Tool to determine project emissions from flaring gases containing methane”. The unit and the value of the data is defined as “0 tCO₂e” since no significant methane contents in exhaust gas of flare are expected.</p> <p>Quantity of diesel combusted for auxiliary purposes ($FC_{i,j,y}$): It is measured and the unit of the parameter is defined as “t/year” in the monitoring report. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Methane fraction in the landfill gas (w_{CH4}): It is measured by a gas quality analyzer. The unit of the data is defined as “m³CH₄/m³LFG”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$): It is measured by a thermocouple. The unit of the data is defined as “°C”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Operation of the equipment that consumes the LFG (Opj,h): It is measured and recorded In the project area. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Net electricity delivered to the grid ($EC_{BL,y}$): It is</p>		<p>the calculation as ER_Kayserilandfillv1.</p> <p>$TDL_{k,y}$ is assumed to be zero which is an conservative approach.</p> <p>Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$) is calculated and emission amount is provided in ER_Kayserilandfillv1.</p> <p>Quantity of diesel combusted for auxiliary purposes is calculated ER_Kayserilandfillv1. And the vaule is added to the MR.</p> <p>Methane fraction in the landfill gas (w_{CH4}) is added to MR which is calculated in excel sheet of ER_Kayserilandfillv1.</p> <p>Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$) is added to MR.</p>	<p>distribution losses for providing electricity to source k in year y ($TDL_{k,y}$): According to the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” a default factor is used. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): It is calculated as per the “Tool to determine project emissions from flaring gases containing methane”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Quantity of diesel combusted for auxiliary purposes ($FC_{i,j,y}$): The value of the parameter is now mentioned as 13,19 ton in the monitoring report.</p> <p>Methane fraction in the landfill gas (w_{CH4}): The value of the parameter is now mentioned as 47.88 m³CH₄/m³LFG in the monitoring report. However, the value could not be confirmed with the calculation excel sheet. Please clarify.</p> <p>Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$): The value of the parameter is now mentioned as 147.10 °C in the monitoring report. However, the value could not be confirmed with the calculation excel sheet. Please clarify.</p> <p>Operation of the equipment that consumes the LFG (Opj,h): The value of the parameter is now mentioned as 147.10 in the monitoring report. However, it is not in line with the calculation excel</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>measured by two electricity meters. The data from the Electricity Meters are the basis for the settlement notification of PMUM. The unit of the data is defined as “MWh”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p> <p>Quantity of electricity consumed by the project activity during the year y ($EC_{PJ,y}$): It is measured by authorized electricity meters. The unit of the data is defined as “MWh”. However, the value of the parameter is not discussed in the monitoring report. Please add the value.</p>		<p>Operation of the equipment that consumes the LFG (Opj,h) is not required to be monitored if the default value for the flare is chosen. Thus in this case default value for flare is chosen and there is no need to monitor operation hours.</p> <p>Net electricity delivered to the grid ($EC_{BL,y}$) is provided in MR which is calculated in ER_Kayserilandfillv1.</p> <p>There is no need to discuss the value in MR while the baseline emission is calculated over net electricity delivered to the grid.</p> <p>Respond 2:</p> <ol style="list-style-type: none"> 1. the value of $F_{CH_4, sent\ flare,y}$ for monitoring period is calculated in excel sheet page: 'Emission Reduction'!D37 2. the value for $F_{CH_4, EL,y}$ for monitored period was calculated in excel sheet page: 'Emission Reduction'!E37 3. the value for $V_{t,db}$ for monitored period was calculated in excel sheet page: 'Emission Reduction'!B37 4. the value for $V_{CH_4,t,db}$ for monitored period was calculated in excel sheet page: 'Emission Reduction'!C37 5. The temperature of landfill gas was not monitored that is why for calculation of Volumetric flow of the gaseous stream in 	<p>sheet. Please correct.</p> <p>Net electricity delivered to the grid ($EC_{BL,y}$): The value of the parameter is now mentioned as 43,832 MWh in the monitoring report as confirmed through the PMUM records.</p> <p>Quantity of electricity consumed by the project activity during the year y ($EC_{PJ,y}$): The parameter is removed from the monitoring report version 0.2. Please clarify.</p> <p>All the values should be presented as for year 2012, 2013 and 2014 separately since the parameters are monitored annually.</p> <p>Hence, CAR 2 is not closed.</p> <p>Review 2 (19/12/2014):</p> <p>The used equations and the source of the formulas (tool/methodology) are not presented in MR. The description and definition of the each parameter could not be matched with the applied formula. Therefore, the parameters listed below are not reproducible and traceable.</p> <ul style="list-style-type: none"> - Mass flow of methane in the gaseous stream in time interval t ($F_{CH_4, flared}$) - Molecular mass of the residual gas ($MM_{RG,h}$) - Density of the residual gas ($\rho_{RG,n,h}$) - Mass flow rate of methane in residual gas ($F_{CH_4, RG,m}$) <p>Please clearly specify applied each formula by giving the reference tool or</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>the hour h chosen to be on wet bases and option C is applied according to the tool.</p> <p>6.The monitored value for Pt was added to the monitoring table in MR.</p> <p>7. $TDL_{k,y}$ value was added to MR</p> <p>8.The value for Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$) was added to MR</p> <p>9. Methane fraction in the landfill gas (w_{CH_4}) was calculated in excel sheet page: 'Emission Reduction'!C37</p> <p>10. Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$) is added 'RAW data'!I120966</p> <p>11. Operation of the equipment that consumes the LFG (Opj,h) is not required to be monitored if the default value for the flare is chosen. Thus in this case default value for flare is chosen and there is no need to monitor operation hours.</p> <p>12. baseline emission for electricity generation is calculated based on net electricity that is why electricity consumption was removed from MR, but it is provided in excel sheet for DOE.</p> <p>All values are presented separately in years now</p> <p>Respond 3:</p> <ul style="list-style-type: none"> - The parameter "$F_{CH_4,flared}$" is "Amount of methane in the LFG which is destroyed by flaring in year y", thus it is not Mass flow of methane in the gaseous stream in 	<p>methodology and be sure that the explanations given in the MR matches with the calculation excel sheet.</p> <p>For example: The parameter given in MR as "$F_{CH_4,sent\ flare,y}$" is not the same with the parameter of "$F_{CH_4,flared,y}$". Please check the calculation.</p> <p>The value of the parameter "$F_{CH_4,EL,y}$" could now be confirmed as 9,829.02 tCH₄/y in the monitoring report and the calculation excel sheet.</p> <p>The parameter of "Volumetric flow of the gaseous stream in the hour h on a wet basis ($V_{t,wb}$)" is defined as "Total amount of Landfill gas captured ($V_{t,wb}$, LFGtotal,y) in the calculation excel sheet. However, they are not same. Please clarify.</p> <p><u>Hence, CAR 2 is not closed.</u></p> <p><u>Review 3 (06/04/2015):</u></p> <p>The used equations and the source of the formulas (tool/methodology) are not presented in MR. The description and definition of the each parameter could not be matched with the applied formula. Please clearly specify applied each formula by giving the reference tool or methodology and be sure that the explanations given in the MR matches with the calculation excel sheet.</p> <p>The parameter given in MR as "$F_{CH_4,sent\ flare,y}$" is presented as "$F_{CH_4,flared,y}$" in the calculation excel sheet. Please correct. In addition, as per the calculation given in the "Baseline emission-Methane", it is</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>time interval t. The methodology that this parameter is derived from is ACM0001 Version 13: ' Flaring or use of landfill gas. The reference and the link of methodology is provided in MR.</p> <ul style="list-style-type: none"> - Molecular mass of the residual gas ($MM_{RG,h}$) is a default value used from Methodological tool: "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" (Version 02.0.0). the reference of the parameter is provided in table 3. - Density of the residual gas ($\rho_{RG,n,h}$) is a default value used from Methodological tool: "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" (Version 02.0.0). the reference of the parameter is provided in table 3. - Mass flow rate of methane in residual gas ($F_{CH4,RG,m}$) is a parameter used in formula 9 of MR. the reference tool of methodology was also provided in MR as Tool to determine project emissions from flaring" version 02.0.0. the calculation of Mass flow rate of methane in residual gas ($F_{CH4,RG,m}$) was also provided in excel of ER_Kayserilandfill v3, in the 'baseline emission methane' column of 'M' <p>The parameter given in MR as "$F_{CH4,sent flare,y}$" is not the same with the parameter</p>	<p>understood that the parameter "$F_{i,t}$" is calculated, not "$F_{CH4,flared,y}$".</p> <p>The parameter is now presented as "Volumetric flow of the gaseous stream in the hour h on a wet basis ($V_{t,wb}$)" in the calculation excel sheet.</p> <p>Hence, CAR 2 is not closed.</p> <p>Review 4 (24/06/2015):</p> <p>The used equations given below could not be confirmed.</p> <ul style="list-style-type: none"> - $F_{CH4,flared} = F_{CH4,sent-flare} (PE_{flare,y} / GWP_{CH4})$ - $BE_{CH4,y} = (1 - OX_{top-layer}) (F_{CH4,PJ,y} - F_{CH4,BL,y}) GWP_{CH4}$ <p>In addition, the parameter $PE_{flared,y}$ is presented as PE_y in the Baseline Emission-Methane page of the calculation excel sheet. Please be sure that all the parameters have the correct name, formula and unit.</p> <p>Hence, CAR 2 is not closed.</p> <p>Review 5 (06/07/2015):</p> <p>All the calculations, formulas are confirmed in the calculation excel sheet.</p> <p>Hence, CAR 2 is closed.</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>of "$F_{CH4,flared,y}$" because they are 2 different parameters. "$F_{CH4,flared,y}$" is sum of $F_{CH4,flared,y} - (PE_{flare,y} / GWP_{CH4})$. This is provided in MR as formula 7 and the reference methodology is Methodology ACM0001 Version 13: ' Flaring or use of landfill gas. Please be more specific with you question.</p> <p>It is corrected as "Volumetric flow of the gaseous stream in the hour h on a wet basis" in the excel sheet too.</p> <p>Response4:</p> <p>Please see below the reference of the equations. This also added to MR to make it clear:</p> <p>Equation 1: Calculate as per the consolidated Methodology ACM0001 version 13 and determined and comprise the following sources: (A) Methane emissions from the SWDS in the absence of the project activity; (B) Electricity generation using fossil fuels or supplied by the grid in the absence of the project activity;</p> <p>Equation 2: Calculates total emission reductions from electricity production. The calculation of equation is provided in excel sheet 'Baseline emission-electricity' according to the methodological tool "Tool to calculate baseline, project and/or</p>	

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>leakage emissions from electricity consumption. The reference was provided in MR. the parameters were corrected in excel sheet with line in MR</p> <p>Equation 3: Calculates emission factor according to the Methodological tool: "Combined tool to identify the baseline scenario and demonstrate additionality". the parameters were corrected in excel sheet with line in MR</p> <p>Equation 4 determines Baseline emissions of methane from the SWDS</p> <p>Equation 5 and 6: calculates total Amount of methane in the LFG which is flared and/or used in the project activity in year y according to the the Methodology ACM0001 Version 13: ' Flaring or use of landfill gas and the "Methodological Tool to determine the mass flow of a greenhouse gas in a gaseous stream" Version 02.0.0. the references were already provided in MR. the parameters were checked and corrected with excel sheet. The excel page 'emission reduction' column F represent the value.</p> <p>Equation 7 and 8: calculate Mass flow of greenhouse gas i in the gaseous stream in time interval t (kg gas/h) for $F_{CH_4,flared,y}$, $F_{CH_4,EL,y}$ and $F_{CH_4,PJ,y}$. The measurement devices measure gas flow in Nm³/hr, then it has to converted to mass flow. That is why these both equations were used. The excel sheet 'baseline emission-methane' column G,H,and I coverts Nm³/hr to kg/h for $F_{CH_4,flared,y}$, $F_{CH_4,EL,y}$ and</p>	

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>$F_{CH_4,PJ,y}$. The tool used for these calculation is provided in MR as “Methodological Tool to determine the mass flow of a greenhouse gas in a gaseous stream” Version 02.0.0</p> <p>Equation 9: $F_{CH_4, flared, y}$ is determined as the difference between the amount of methane supplied to the flare(s) and any methane emissions from the flare(s) using Methodology ACM0001 Version 13: ‘ Flaring or use of landfill gas. The excel page ‘emission reduction’ column D represent the value.</p> <p>Equation 10 determines Amount of methane destroyed by electricity production ($F_{CH_4, electricity, y}$) using Methodology ACM0001 Version 13: ‘ Flaring or use of landfill gas. The excel page ‘emission reduction’ column E represent the value.</p> <p>Equation 11 determines Project emissions from flaring gases containing methane ($PE_{flare,n}$) using the “Tool to determine project emissions from flaring gases containing methane”version 02.0. The excel page ‘emission reduction’ column E represent the value.</p> <p>Equation 12 determines Project emissions from Project emissions from consumption of fossil fuels due to project activity using the “Tool to calculate project or leakage CO emissions from fossil fuel combustion”. The excel page ‘emission reduction’ column I represent the value.</p>	

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>The parameter given in MR as “$F_{CH4, sent flare, y}$” was also corrected in excel sheet.</p> <p>All equations are reflected to the excel sheet for easy follow.</p> <p>Response5: The used equations given below provided in excel sheet page “emission reduction” as column F and I.</p> <ul style="list-style-type: none"> - $F_{CH4, flared} = F_{CH4, sent-flare} (PE_{flare, y} / GWP_{CH4})$ - $BE_{CH4, y} = (1 - OX_{top-layer}) (F_{CH4, PJ, y} - F_{CH4, BL, y}) GWP_{CH4}$ <p>the parameter $PE_{flared, y}$ was revise in the Baseline Emission-Methane page of the calculation excel sheet.</p>	
<p>CAR 3 Amount of methane in LFG which is sent to the flare in year y ($F_{CH4, sent flare, y}$ (= LFG_{flare})): It is measured by a flow meter and a gas analyzer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Amount of methane in LFG which is sent to the genset for electricity generation in year y ($F_{CH4, EL, y}$ (= $LFG_{electricity, y}$)): It is measured by a flow meter and a gas analyzer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Volumetric flow of the gaseous stream in the hour h on a dry basis ($V_{t, db}$): It is measured by a flow meter. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Volumetric flow of CH_4 in time interval on a dry</p>	<p>B.3.2</p>	<p>Amount of methane in LFG which is sent to the flare in year measured by flow meter on flare line. The accuracy class is +-0.1. the description was added to MR.</p> <p>Amount of methane in LFG which is genset in year measured by flow meter on engine line. The accuracy class is +-0.1. the description was added to MR.</p> <p>Volumetric flow of the gaseous stream in the hour measured by flow meter on main line. The accuracy class is +-0.1. the description was added to MR.</p>	<p>Review 1 (08/09/2014): Please refer to CAR 8 of this protocol. Hence, CAR 3 is not closed.</p> <p>Review 2 (15/12/2014): Please refer to CAR 8 of this protocol. Hence, CAR 3 is not closed.</p> <p>Review 3 (09/02/2015): Please refer to CAR 8 of this protocol. Hence, CAR 3 is not closed.</p> <p>Review 4 (15/06/2015): Please refer to CAR 8 of this protocol.</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>basis ($V_{CH_4,t,db}$): It is measured by a flow meter. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Temperature of the landfill gas (T_t): It is measured by a thermometer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Pressure of the gaseous stream in the hour h (P_t): It is measured by a manometer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Quantity of diesel combusted for auxiliary purposes ($FC_{i,j,y}$): There is no description for the equipment and the accuracy. Please add.</p> <p>Methane fraction in the landfill gas (w_{CH_4}): It is measured by a gas quality analyzer. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$): It is measured by a thermocouple. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Operation of the equipment that consumes the LFG (Op_j,h): It is measured and recorded In the project area. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Net electricity delivered to the grid ($EC_{BL,y}$): It is measured by two electricity meters. However, there is no description for the equipment and the accuracy. Please add.</p> <p>Quantity of electricity consumed by the project activity during the year y ($EC_{PJ,y}$): It is measured by authorized electricity meters. However, there is no description for the equipment and the accuracy. Please add.</p>		<p>Volumetric flow of CH_4 in time interval on a dry basis measured by flow meter on main line. The accuracy class is ± 0.1. the description was added to MR.</p> <p>The description was added to MR, however there is no indicated accuracy class for the equipment.</p> <p>The description of the quipment was added to MR, however there is no accuracy of the equipment stated.</p> <p>The diesel consumption is calculated based on working hour of genset and per hour consumption of the gentset. Please find supporting documents of genset working hour as annex6a,perhour consumption as annex6b and name of genset as annex6c.</p> <p>Methane fraction in the landfill gas (w_{CH_4}): It is measured by a gas quality analyzer. Accuracy $\pm 0,065\%$. the description was added to MR</p> <p>The description for the thermocouple was already added to MR. there is no accuracy class stated by equipment provider.</p> <p>The description of the equipment was added to MR. there is no accuracy class stated by equipment provider.</p> <p>The description of the electricity meter was already added to MR. the accuracy class of the meter defined by regulation</p>	<p>Hence, CAR 3 is not closed.</p> <p>Review 5 (06/07/2015): Please refer to CAR 8 of this protocol.</p> <p>Hence, CAR 3 is closed.</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>as it was already stated in MR.</p> <p>The description of the electricity meter was already added to MR. the accuracy class of the meter defined by regulation as it was already stated in MR.</p> <p>Response 2: It is not understood why the review forwarded to CAR8. Could you please go through my previous responses for CAR3</p>	
<p>CAR 4 Amount of methane in LFG which is sent to the flare in year y ($F_{CH4, sent flare, y}$ (= LFG_{flare}): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Amount of methane in LFG which is sent to the genset for electricity generation in year y ($F_{CH4, EL, y}$ (= $LFG_{electricity, y}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Volumetric flow of the gaseous stream in the hour h on a dry basis ($V_{t, db}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Volumetric flow of CH₄ in time interval on a dry basis ($V_{CH4, t, db}$): There is no description about the</p>	<p>B.3.3</p>	<p>The calibration procedure for flow meter was already added to MR which is “Flow meter will be subject to regular (in accordance to the manufacturer) maintenance and testing to ensure accuracy”. Please find declaration paper of equipment provider as annex2.</p> <p>The calibration procedure for flow meter was already added to MR which is “Flow meter will be subject to regular (in accordance to the manufacturer) maintenance and testing to ensure accuracy”. Please find declaration paper of equipment provider as annex2.</p> <p>The calibration procedure for flow meter was already added to MR which is “Flow meter will be subject to regular (in accordance to the manufacturer) maintenance and testing to ensure accuracy”. Please find declaration paper of equipment provider as annex2.</p> <p>The calibration procedure for flow meter</p>	<p><u>Review 1 (08/09/2014):</u> Please refer to CAR 8 of this protocol. <u>Hence, CAR 4 is not closed.</u></p> <p><u>Review 2 (15/12/2014):</u> Please refer to CAR 8 of this protocol. <u>Hence, CAR 4 is not closed.</u></p> <p><u>Review 3 (09/02/2015):</u> Please refer to CAR 8 of this protocol. <u>Hence, CAR 4 is not closed.</u></p> <p><u>Review 4 (15/06/2015):</u> Please refer to CAR 8 of this protocol. <u>Hence, CAR 4 is not closed.</u></p> <p><u>Review 5 (06/07/2015):</u> Please refer to CAR 8 of this protocol. <u>Hence, CAR 4 is closed.</u></p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Temperature of the landfill gas (T_t): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Pressure of the gaseous stream in the hour h (P_t): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Quantity of diesel combusted for auxiliary purposes ($FC_{i,j,y}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Methane fraction in the landfill gas (w_{CH_4}): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the</p>		<p>was already added to MR which is “Flow meter will be subject to regular (in accordance to the manufacturer) maintenance and testing to ensure accuracy”. Please find declaration paper of equipment provider as annex2.</p> <p>The calibration procedure for thermometer was already added to MR which is “The device is subject to regular maintenance and testing regime to ensure accuracy. They will be periodically calibrated according to the manufacturer’s recommendation by project participants”. Please find declaration paper of equipment provider as annex2.</p> <p>The calibration procedure for Pressure gauge was already added to MR which is “The device is subject to regular maintenance and testing regime to ensure accuracy. They will be periodically calibrated according to the manufacturer’s recommendation by project participants”. Please find declaration paper of equipment provider as annex2.</p> <p>Project emissions are calculated not measured.</p> <p>Diesel consumption measured based on value on invoices, no equipment.</p> <p>The calibration procedure for equipment to measure Methane fraction in the landfill gas was already added to MR which is “The device is subject to regular</p>	

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>frequency.</p> <p>Temperature in the exhaust gas of the enclosed flare in minute m ($T_{flare}/T_{EG,m}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Operation of the equipment that consumes the LFG (Op_j,h): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Net electricity delivered to the grid ($EC_{BL,y}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p> <p>Quantity of electricity consumed by the project activity during the year y ($EC_{PJ,y}$): There is no description about the calibration of the equipment. Please add the first calibration date and the calibration frequency to the monitoring report. Also, please provide the calibration reports and the reference document to confirm the frequency.</p>		<p>maintenance and testing regime to ensure accuracy. They will be periodically calibrated according to the manufacturer's recommendation by project participants". Please find declaration paper of equipment provider as annex2.</p> <p>The calibration procedure for Thermocouple was already added to MR which is "The device is subject to regular maintenance and testing regime to ensure accuracy. They will be periodically calibrated according to the manufacturer's recommendation by project participants". Please find declaration paper of equipment provider as annex2.</p> <p>The calibration procedure for equipment to measure Operation of the equipment that consumes the LFG was already added to MR which is "The device is subject to regular maintenance and testing regime to ensure accuracy. They will be periodically calibrated according to the manufacturer's recommendation by project participants". Please find declaration paper of equipment provider as annex2.</p> <p>The calibration procedure for equipment to measure electricity meters was already added to MR, please consult the regulation and links provided.</p> <p>Response 2: It is not understood why the review forwarded to CAR8. Could you please go through my previous responses for CAR4</p>	
<p>CAR 5</p>	<p>B.3.5</p>	<p>Measuring and recording frequency was</p>	<p>Review 1 (09/09/2014):</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>There is no recording frequency for all the monitoring parameters. Please add.</p>		<p>added for all parameters</p> <p>Response 2: Measuring and recording frequency was added for all parameters</p> <p>Response 3: the measuring frequency is equal to recording frequency which is now also defined in MR</p> <p>Response 4: Please check the raw data in excel sheet, column D again starting from the month 01.12.2011, the it can be clearly seen that the data monitored and recorded 6 times every hour which means continuously.</p>	<p>Still there is no recording frequency for all the monitoring parameters. Only the measuring frequency is discussed. Please add.</p> <p><u>Hence, CAR 5 is not closed.</u></p> <p><u>Review 2 (23/12/2014):</u> The monitoring frequency for each parameter is defined in the MR, however, the recording frequencies are not clearly defined. Also, as understood from the "raw data", there is not a regularly recording frequency (half hourly, hourly etc.). The system shall be programed to automatically save according to the defined recording frequency. <u>Hence, CAR 5 is not closed.</u></p> <p><u>Review 3 (08/02/2015):</u> The monitoring frequency for each parameter is defined in the MR, however, the recording frequencies are not clearly defined. Also, as understood from the "raw data", there is not a regularly recording frequency (half hourly, hourly etc.). The system shall be programed to automatically save according to the defined recording frequency. Please clarify. <u>Hence, CAR 5 is not closed.</u></p> <p><u>Review 4 (15/06/2015):</u> It could be seen that in 01/11/2011, after the hour 16:42:27, there is no measurement until 10:13:58 of 03/11/2011. In addition, after the</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
			<p>measurements on 03/11/2011, the next measurements are on 29/11/2011. So there is no continuity. However, 11/2011 is not included to the monitoring period and the other data are continuously measured.</p> <p>Hence, CAR 5 is closed.</p>
<p>CAR 6</p> <p>The calculations from/of the parameters could not be monitored since there is no raw data provided to the verification team. Please revise the excel sheet.</p>	<p>B.3.6</p>	<p>Please find all calculation and raw data as in excel file named ER_Kayserilandfillv1</p>	<p>Review 1 (09/09/2014):</p> <p>The calculations from/of the parameters could now be monitored since the raw data is provided to the verification team.</p> <p>Hence, CAR 6 is closed.</p>
<p>CAR 7</p> <p>Air Quality:</p> <p><u>Amount of CO, NMVOC:</u> It is calculated with the electricity generated based on the data available from TUIK. It is monitored annually by Plant Manager and carbon consultant. The value for this monitoring period is defined as “6 tons/GWh” for CO and “1.5 tons/GWh” for NMVOC. However, in the calculation excel sheet the values are calculated as “2.5 tons/GWh” for CO and “0.6 tons/GWh”. Please clarify. In addition, since the parameter is monitored annually, please calculate for 2011, 2012, 2013 and 2014 separately and give the total amount in the Monitoring Report. Please remove the parameter of NOx and add it to the soil condition.</p> <p>Water Quality and Quantity:</p> <p><u>Amount of avoided wastewater to be discharged to the environment by project activity:</u> The parameter is calculated as per the amount of electricity generated. It is monitored annually by Plant Manager or Carbon Consultant. For this monitoring period the value for the parameter is defined as 917,600 m³/year. However, in the</p>	<p>B.4.1</p>	<p>Air Quality:</p> <p>Amount of CO, NMVOC :</p> <p>That is corrected in line with excel sheet. Is there need for calculation of avoidance per year? As it can be seen an average value for electricity generation is calculated based on the electricity generation of the plant during the period which is a logical approach. Moreover, according to GS requirement what is important is to show the positive impact instead exact number of avoidance of emissions or waste water. Please find calculation in excel sheet of ER_kayserilandfillv1</p> <p>Water Quality and Quantity:</p> <p>That is corrected in line with excel sheet. Is there need for calculation of avoidance per year? As it can be seen an average value for electricity generation is calculated based on the electricity generation of the plant during the period which is a logical approach. Moreover, according to GS requirement what is</p>	<p>Review 1 (09/09/2014):</p> <p>Air Quality:</p> <p><u>Amount of CO, NMVOC:</u> According to the calculation given in the excel sheet, “Electricity generation in 2010” is not in lie with the given supporting web-link since the link does not contains the year 2010. Please revise them. In addition, the parameter of NOx is still presented under the air quality. Please remove and add it to the soil condition.</p> <p>Water Quality and Quantity:</p> <p><u>Amount of avoided wastewater to be discharged to the environment by project activity:</u> The value given for total electricity generation in 2010 could not be confirmed since the given web link (in the excel sheet) is not available.</p> <p>Footnote 14 (hereafter referred to as the “footnote 10”) is now revised as 2010 data in the monitoring report.</p> <p>Soil condition:</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>calculation excel sheet the value is calculated as “384,2 m³/year”. Please clarify. In addition, since the parameter is monitored annually, please calculate for 2011, 2012, 2013 and 2014 separately and give the total amount in the Monitoring Report.</p> <p>In addition, footnote 14 related to the parameter is for 2010 data. However, 2008 is written in the monitoring report in the web-link’s explanation. Please correct.</p> <p>Soil condition:</p> <p><u>Amount of avoided NOx emissions:</u> The parameter is monitored annually with amount of electricity generated by Plant Manager or Carbon Consultant. The value of the parameter is given as 99.3 ton NOx in the MR. However, in the calculation excel sheet the value is calculated as “41.7 ton NOx”. Please clarify. In addition, since the parameter is monitored annually, please calculate for 2011, 2012, 2013 and 2014 separately and give the total amount in the Monitoring Report.</p> <p>In addition, footnote 15 related to the parameter is for 2010 data. However, 2008 is written in the monitoring report. Please also clarify why estimated baseline value is changed from 1.651 to 2.218 m³.</p> <p>Quality of Employment:</p> <p><u>Health and Safety Trainings:</u> The provided trainings are monitored through the list of attendance to trainings given in the monitoring report. However, the given training certificates /20/ /21/ /22/ does not belong to this monitoring period. Please clarify.</p> <p>In addition, the number of the employees attended</p>		<p>important is to show the positive impact instead exact number of avoidance of emissions or waste water. Please find calculation in excel sheet of ER_kayserilandfillv1</p> <p>The footnote was corrected.</p> <p>Soil condition:</p> <p>That is corrected in line with excel sheet. Is there need for calculation of avoidance per year? As it can be seen an average value for electricity generation is calculated based on the electricity generation of the plant during the period which is a logical approach. Moreover, according to GS requirement what is important is to show the positive impact instead exact number of avoidance of emissions or waste water. Please find calculation in excel sheet of ER_kayserilandfillv1</p> <p>The footnote 15 was revized. The number is revised due to the number in net electricity generation.</p> <p>Quality of Employment:</p> <p><i>The trainings related with the period were added to MR. Please find supporting documents as Annex 4.</i></p> <p>Access to Affordable and Clean Energy Services:</p> <p>In excel sheet, annual average electricity generation is 18.8 GW. That is corrected in line with excel sheet. Is there need for calculation of avoidance per year? As it can be seen an average value for electricity generation is calculated based on the electricity generation of the plant</p>	<p><u>Amount of avoided NOx emissions:</u> The parameter is calculated as per the 2009 data (given in the web-link of the excel sheet). However, 2010 data should be use for calculation as per the registered PDD. Please revise.</p> <p>In addition, footnote 15 related to the parameter NOx emission amount should be for 2010 data as per the registered PDD. However, still 2008 data is given in the web-link.</p> <p>Quality of Employment:</p> <p><u>Health and Safety Trainings:</u> The provided trainings are now monitored through the list of attendance to the trainings /40/ /41/ /42/ /43/ /44/ given in the monitoring report.</p> <p>Access to Affordable and Clean Energy Services:</p> <p><u>Change in Energy Use:</u> The value of the parameter is now corrected as “18.8 GW” in the MR.</p> <p>Quantitative employment and income generation:</p> <p><u>Number of employment:</u> According to the Social Security Records related to the last month of the monitoring period /24/, 20 employees are hired for the project. Please give the correct number in the monitoring report since the choosen parameter is “Number of Employment”.</p> <p>In addition, still 7 employee’s Registration Documents /23/ are provided to the verification team. Please provide the rest.</p> <p>Hence, CAR 7 is not closed.</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>to the health and safety trainings were not presented in the MR. Please add.</p> <p>Access to Affordable and Clean Energy Services:</p> <p><u>Change in Energy Use:</u> The parameter is monitored annually with amount of electricity generated by Plant Manager or Carbon Consultant. The value of the parameter is given as “44 GW” in the MR. However, in the calculation excel sheet the value is calculated as “1,973,701 m³”. Please clarify. In addition, since the parameter is monitored annually, please calculate for 2011, 2012, 2013 and 2014 separately and give the total amount in the Monitoring Report.</p> <p>Quantitative employment and income generation:</p> <p><u>Number of employment:</u> The parameter is monitored annually with social security records of the employees. According to the Social Security Records /24/, 20 employees are hired for the project. However, only 7 employee’s Registration Documents /23/ are provided to the verification team. Also, during on site visit, PP defined that 7 employees are hired by HER Enerji. Please clarify.</p>		<p>during the period which is a logical approach. Moreover, according to GS requirement what is important is to show the positive impact instead exact number of avoidance of emissions or waste water. Please find calculation in excel sheet of ER_kayserilandfillv1</p> <p>Quantitative employment and income generation:</p> <p>There are 21 employees of Her enerji as listed in the SGK Documents that is attached as annex5</p> <p>Response 2: Air Quality:</p> <p>The link for electricity generation was updated</p> <p>The parameter of NOx is already presented under the soil condition.</p> <p>Water Quality and Quantity:</p> <p>The link for electricity generation was updated</p> <p>Soil condition:</p> <p>The links and data was update for 2010</p> <p>Quantitative employment and income generation:</p> <p>The number of employees were added to MR.</p> <p>Please find the rest of registration as</p>	<p>Review 2 (07/01/2015):</p> <p>Air Quality:</p> <p><u>Amount of CO, NMVOC:</u> According to the calculation given in the excel sheet, “Electricity generation in 2010” is not in line with the given supporting web-link since the link does not contains the year 2010. Please revise them.</p> <p>Water Quality and Quantity:</p> <p><u>Amount of avoided wastewater to be discharged to the environment by project activity:</u> The value given for total electricity generation in 2010 could not be confirmed since the given web link (in the excel sheet) is not available.</p> <p>Soil condition:</p> <p><u>Amount of avoided NOx emissions:</u> The parameter is calculated as per the 2009 data (given in the web-link of the excel sheet). However, 2010 data should be use for calculation as per the registered PDD. Please revise.</p> <p>In addition, footnote 11 related to the parameter NOx emission amount is not available. Please revise the web-link</p> <p>Quantitative employment and income generation:</p> <p><u>Number of employment:</u> According to the Social Security Records related to the last month of the monitoring period /24/, 20 employees are hired for the project. The number is now corrected in the monitoring report.</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>annex 1.</p> <p>Response 3: Air Quality: the link of electricity generation for 2010 was revised Water Quality and Quantity: the link of electricity generation for 2010 was revised Soil condition: for NOx the link was revised with 2010 and the data was revised with 2010</p> <p>The link with NOx was added to MR as footnote 12.</p> <p>Response 4: Please close the CAR7 if possible, after reviewing the previous response 3.</p> <p>Reponse 5: All links for <u>CO</u>, <u>NM VOC</u>, <u>NOx</u> which were not working in excel and MR were revised.</p>	<p>Hence, CAR 7 is not closed.</p> <p>Review 3 (06/04/2015): Air Quality: <u>Amount of CO, NMVOC:</u> “Emission Amount due to Electricity Generation in 2010” given in the calculation excel sheet could not be confirmed since the web-links are not available. Water Quality and Quantity: <u>Amount of avoided wastewater to be discharged to the environment by project activity:</u> The value given for total electricity generation in 2010 could now be confirmed as per the given reference in the calculation excel sheet, version 03. Soil condition: <u>Amount of avoided NOx emissions:</u> “Emission Amount due to Electricity Generation in 2010” given in the calculation excel sheet could not be confirmed since the web-links are not available.</p> <p>In addition, footnote 14 related to the parameter NOx emission amount does not work. Please revise the web-link.</p> <p>Hence, CAR 7 is not closed.</p> <p>Review 4 (15/06/2015): Air Quality: <u>Amount of CO, NMVOC:</u> “Emission Amount due to Electricity Generation in 2010” given in the calculation excel sheet</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
			<p>could not be confirmed since the web-links are not available.</p> <p>Soil condition:</p> <p><u>Amount of avoided NOx emissions:</u> ‘Emission Amount due to Electricity Generation in 2010’ given in the calculation excel sheet could not be confirmed since the web-links are not available.</p> <p>In addition, footnote 14 related to the parameter NOx emission amount does not work. Please revise the web-link.</p> <p><u>Hence, CAR 7 is not closed.</u></p> <p><u>Review 5 (06/07/2015):</u> The web-links are now revised in the calculation excel sheet and the monitoring report.</p> <p><u>Hence, CAR 7 is closed.</u></p>
<p>CAR 8</p> <p>An on-site inspection has been performed on 15-16/07/2014. It could not be confirmed that the monitoring arrangements in the monitoring plan are feasible within the project design. The monitoring plan does not described in the MR. Therefore, it is impossible to confirm monitoring arrangements. Please also add the schematic representation of the system and listed the monitoring equipment including all the information (such as mark, model, serial no, accuracy, calibration date and calibration frequency). Please also provide information about where the electricity meters are positioned.</p> <p>In addition, although there is a backup meter with a serial no 447412, there is no first index protocol</p>	<p>B.5.1</p>	<p>The monitoring plan was already provided in section C under description of monitoring plan. A schematic representation of the place of measuring devices and a list of measuring devices are provided.</p> <p>Response2: the list of meters are linked with raw data for easy follow. Please check excell sheet ‘raw data’ where you can see which data is taken from which meter. Moreover Conveco is the supplier and produces of the booster, thus the informations are reliable.</p> <p>Although there was four pressure gauge, the one provided by Conveco is the main</p>	<p><u>Review 1 (09/09/2014):</u></p> <p>The monitoring plan is now described in the monitoring report. The monitoring arrangements were added to the MR with their ID, Installation date, calibration date and calibration frequency.</p> <p>However, the given list with a signature by Conveco are not in line with the real situation. During on site visit, it is confirmed that 4 pressure meter are positioned in the project area. However, in the list only one pressure meter were discussed. The list is not reliable.</p> <p>In addition, the list still does not contain mark and model of the meters to verify the accuracy from their data sheet. Also,</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>for the backup meter. Please provide the supporting document.</p>		<p>one where data is take from. The mark and model of the meters are added to the excel file in annex2 The date of instalation was already provided, but it can also be seen in annex3</p> <p>Electricity meter is located in the sub-station center.</p> <p>While the electricity meters are located in sub-station center and under responsibility of TEİAŞ, the related document of back-up meter was not provided by them to Her Enerji.</p> <p>Response 3: Flow meter with a serial no ABF0859F for main pipe is now added to excel sheet 'Raw data' column E. the thermocouple with a serial no 2012OF000652 was not added to excell sheet of raw data because there is no temparature of LFG recorded. As information provided on site, the temparature of LFG is measured but not recorded. That is why the calculation of flow measurement is wet based according to the option C of the "Methodological Tool to determine the mass flow of a greenhouse gas in a gaseous stream" Version 02.0.0.</p> <p>the electricity meters are now provided in MR and list of devices. The explanation about location of electricity meter is now</p>	<p>the correspondance about "there is no need for calibration" should be taken from the manufacturers not the suppliers. Please provide the supporting document to confirm the installation dates of the meters. Please also provide information about where the electricity meters are positioned. In addition, although there is a backup meter with a serial no 447412, there is no first index protocol for the backup meter. Please provide the supporting document. Hence, CAR 8 is not closed.</p> <p>Review 2 (25/12/2014): According to the PP's explanation, the devices could be matched with the raw data page of the excel sheet. However, flow meter with a serial no ABF0859F and the thermocouple with a serial no 2012OF000652 could not be confirmed. Please clarify. In addition, the electricity meters are not presented in the devices table with their accuracy, serial no, calibration date and frequency. Please add. It is stated in the responses that the electricity meters are located in the substation center. However, it is not discussed in the monitoring report. Please clarify. The given supporting documents for the measurement devices to confirm the accuracy and the calibration frequency does not match with the devices table since no model of the devices are</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>provided in MR under section C.1.2 Electricity Generation</p> <p>The model of devices are now provided in the table of devices. The supporting document for calibration was already provided to DOE in previous round. It is also attached as annex 1 to this document.</p> <p>Response 4: Please find supporting document for calibration, conformity and accuracy as:</p> <ol style="list-style-type: none"> 1. Annex A1:Declaration of conformity for Flare flow meter 2. Annex A2:Declaration of conformity for Engine and Total flow meter 3. Annex A3:Declaration of conformity for Pressure sensor 4. Annex A4:Declaration of conformity for Analyzer 5. Annex B: Calibration of Analyzer 6. Annex C: Calibration_ Flow meter 7. Annex_D:Declaration of calibration <p>Response 5: Information on electricity meters were added now.Please see revised MR v5. Supporting document for the main meter is provided as attachment of this document.</p> <p>Information for termocouple was added, but temprature was removed due to not</p>	<p>presented in the monitoring report. In addition, please provide calibration certificates for confirm the given calibration dates in the devices table.</p> <p><u>Hence, CAR 8 is not closed.</u></p> <p><u>Review 3 (06/04/2015):</u> The missing devices could now be matched with the raw data page of the excel sheet. In addition, the explanation given for the thermocouple is found acceptable.</p> <p>The electrity meters are now presented in the devices table. However, their accuracy and model are not discussed.</p> <p>It is now presented that the electricity meters are located in the substation center.</p> <p>Please provide all the documents to confirm the calibration dates, calibration frequencies and the accuracy class of the measurement devices.</p> <p><u>Hence, CAR 8 is not closed.</u></p> <p><u>Review 4 (15/06/2015):</u> The information about the electrity meters are now removed from the devices table. Therefore, no explanation is given for the meters about their model, serial no, calibration date and frequency.</p> <p>According to the provided supporting documents, the serial no, the model the accuracy of the meters are confirmed except the temperature meter and thermocouple. There is no supporting documents for these meters. In addition,</p>

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		<p>being used in measuring the data. Please find supporting document for thermocouple as attachment of this document.</p> <p>The date of calibration is revised according to the conformity paper of the meters as 25.05.2011</p> <p>Please find supporting document of pressure meter as attachment of this document.</p>	<p>the calibration dates for the flow meters could not be verified since the date of the supporting documents is 25/05/2011. Also, the model no of the pressure meter is not in line with the given supporting documents. Please clarify.</p> <p>Hence, CAR 8 is not closed.</p> <p>Review 5 (06/07/2015):</p> <p>The information about the electricity meters are now added to the devices table. The necessary explanation is now given for the meters about their model, serial no, calibration date and frequency.</p> <p>The supporting documents for the thermocouple and pressure meter are now provided to the verification team. In addition, the calibration dates for the flow meters could now be verified with the date given in the supporting documents. Also, the model no of the pressure meter is now in line with the given supporting documents.</p> <p>Hence, CAR 8 is closed.</p>
<p>CR 1</p> <p>The format of the completion date, registration date and Monitoring period should be corrected as DD/MM/YYYY according to the guideline "Guidelines for Completing the CDM-MR-FORM" /19/.</p> <p>In addition, please explain the monitoring period number "4" given in the first page of the MR since it is the first verification. Please also correct the date of the monitoring period and registration date of the project activity.</p> <p>The new version of the CDM-MR-FORM (version</p>	A.1	<p>The formats of the dates are corrected.</p> <p>The term of 4. Verification was revised as first verification.</p> <p>The new version of MR was used.</p> <p>Response 2: registration date was revised</p> <p>Response3: the registration date was revised now</p>	<p>Review 1 (08/09/2014):</p> <p>The format of the dates are now corrected as DD/MM/YYYY in the monitoring report version 0.2.</p> <p>The monitoring number is now corrected as "1" in the first page of the monitoring report. However, the registration date of the project activity is still not correct. Please revise it as per the GS 8-week registration review report and the e-mail.</p> <p>The new version of the CDM-MR-FORM (version 04.0 is now applied.</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>04.0) is available. Please apply.</p>		<p>Response4: According to the GS review form the data of registration was mistakenly stated as 08.10.2012. however, as per e-mail from Mr. Omer Akyürek and per request of registration date which is 23.08.2013, the date of registration is 08.10.2013.</p>	<p><u>Hence, CR 1 is not closed.</u></p> <p><u>Review 2 (15/12/2014):</u> The registration date of the project activity is still not correct. Please revise it as per the GS 8-week registration review report. <u>Hence, CR 1 is not closed.</u></p> <p><u>Review 3 (08/02/2015):</u> The registration date of the project activity is still not correct. Please revise it as per the GS 8-week registration review report. <u>Hence, CR 1 is not closed.</u></p> <p><u>Review 4 (15/06/2015):</u> The registration date of the project activity could now be confirmed as per the e-mail sent by Gold Standard. <u>Hence, CR 1 is closed.</u></p>
<p>CR 2 The description of the monitoring plan given in Section B of the MR does not comply with the monitoring plan presented in the registered PDD /1/ and GS Passport /2/. Please give a clear definition about the monitoring system and also please add the roles and responsibilities.</p>	<p>B.1.2</p>	<p>The description of monitoring plan in MR was corrected in line with PDD. Role and responsibilities were also added to MR.</p> <p>Response 2: the tense of the monitoring plan was revised</p>	<p><u>Review 1 (08/09/2014):</u> The description of the monitoring plan given in Section B of the MR now complies with the monitoring plan presented in the registered PDD /1/ and GS Passport /2/. However, the given responsibilities are mentioned as future tense (like given in the registered PDD). Please correct them as actual. <u>Hence, CR 2 is not closed.</u></p> <p><u>Review 2 (15/12/2014):</u> The given responsibilities are now mentioned correctly in the monitoring report.</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>CR 3</p> <p>The sustainability indicators included in the monitoring report /3/ does not comply with the minimum contents specified in paragraph 4.1 of the GS Toolkit /8/. Please revise them as per the last version of the MR template /19/.</p>	<p>B.1.3</p>	<p>The sustainability indicators were copied from gold standard passport which had been already registered. Please be more specific about your request.</p>	<p>Hence, CR 2 is closed.</p> <p>Review 1 (08/09/2014):</p> <p>The sustainability indicators included in the monitoring report /3/ now complies with the minimum contents specified in paragraph 4.1 of the GS Toolkit /8/ since the MR template is revised to the last version and values or necessary informations are added to the indicators.</p> <p>Hence, CR 3 is closed.</p>
<p>CR 4</p> <p>Quantity of MSW land filled during 1996~2012 (Wx): It is defined as “see Section B.6.3”. However, it could not be confirmed since there is no section B.6.3 in the MR. Please gives the current value or current reference.</p> <p>Global Warning Potential of CH₄ (GWP_{CH4}): It is defined as 21 tCO₂e/tCH₄ for the monitoring period that falls within the first commitment period and it should be also defined as 25 tCO₂e/tCH₄ for the monitoring period that falls within the second commitment period as per the Kyoto Protocol.</p> <p>Gross Electricity supplied to the grid by relevant sources (2008-2010) (Gross electricity generation): It is defined as “Table 11”. However, it could not be confirmed since there is no Table 11 in the MR. Please gives the current value or current reference.</p> <p>Net electricity fed into the grid. Used for the calculation of the net/gross relation (Net electricity generation): It is defined as “Table 12”. However, it could not be confirmed since there is no Table 12 in the MR. Please gives the current value or current reference.</p> <p>Heating Values of fuels consumed for electricity generation (HV_{i,y}): It is defined as “Table 20”. However, it could not be confirmed</p>	<p>B.2.1</p>	<p>The indicators listed under CR4 are the parameter not to be monitored. Thus, the parameters were copied from registered PDD. The referings in table of parameters were to PDD, thus they are corrected accordingly. Additionally, there is no need to provide current values while there are not subject to monitoring. Please consult to registered PDD for references.</p> <p>Quantity of MSW land filled during 1996~2012 (Wx) is defined in section B.6.3 of PDD. It is not subject to monitoring, thus no need for current value.</p> <p>Global Warning Potential of CH₄ (GWP_{CH4}): is defined as 25 tCO₂e/tCH₄ for the monitoring period t</p> <p>Gross Electricity supplied to the grid by relevant sources (2008-2010) (Gross electricity generation) is defined in table 11 of PDD.</p> <p>Net electricity fed into the grid. Used for the calculation of the net/gross relation (Net electricity generation) is defined in table 12 of PDD</p>	<p>Review 1 (09/09/2014):</p> <p>Quantity of MSW land filled during 1996~2012 (Wx): The current reference was given now in the monitoring report.</p> <p>Global Warning Potential of CH₄ (GWP_{CH4}): It is now defined as 25 tCO₂e/tCH₄ for the monitoring period that falls within the second commitment period as per the Kyoto Protocol.</p> <p>Gross Electricity supplied to the grid by relevant sources (2008-2010) (Gross electricity generation): It is now defined as “Table 11 of the PDD”.</p> <p>Net electricity fed into the grid. Used for the calculation of the net/gross relation (Net electricity generation): It is defined as “Table 12”. However, the value could be confirmed with table 11 of the PDD. Please correct.</p> <p>Heating Values of fuels consumed for electricity generation (HV_{i,y}): It is defined as “Table 20 of the PDD”. However, the correct table is Table 21. Please revise.</p> <p>Fuels consumed for electricity generation (FC_{i,y}): It is now defined as “Table 21 of the PDD”. However, the</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>since there is no Table 20 in the MR. Please gives the current value or current reference.</p> <p>Fuels consumed for electricity generation ($FC_{i,y}$): It is defined as “Table 21”. However, it could not be confirmed since there is no Table 21 in the MR. Please gives the current value or current reference.</p> <p>Net Calorific Value of fuel types ($NCV_{i,y}$): It is defined as “Table 23”. However, it could not be confirmed since there is no Table 23 in the MR. Please gives the current value or current reference.</p> <p>Most recent power plants which compromise 20% of total generation (Sample Group for BM emission factor): It is defined as “Table 25”. However, it could not be confirmed since there is no Table 25 in the MR. Please gives the current value or current reference.</p> <p>Emission factor for fuel type I (EF_i): It is defined as “Table 24”. However, it could not be confirmed since there is no Table 24 in the MR. Please gives the current value or current reference.</p> <p>Average energy conversion efficiency of power unit m in year y ($\eta_{i,y}$): It is defined as “Table 16”. However, it could not be confirmed since there is no Table 16 in the MR. Please gives the current value or current reference.</p> <p>Temperature at normal conditions (T_n): It is defined as 273.15 K as per the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”.</p> <p>In addition, emission factor of the project activity should also be added to the “not monitoring parameters” since it is fixed for the crediting period.</p>		<p>Heating Values of fuels consumed for electricity generation ($HV_{i,y}$) is defined in Table 20 of PDD.</p> <p>Fuels consumed for electricity generation ($FC_{i,y}$) is defined in Table 21 of PDD.</p> <p>Net Calorific Value of fuel types ($NCV_{i,y}$) is defined in Table 23 of PDD.</p> <p>Most recent power plants which compromise 20% of total generation (Sample Group for BM emission factor) is defined in Table 25 of PDD.</p> <p>Emission factor for fuel type I (EF_i) is defined in Table 24 of PDD.</p> <p>Average energy conversion efficiency of power unit m in year y ($\eta_{i,y}$) is defined in Table 16 of PDD.</p> <p>The parameters not monitoring is copied from registered PDD ad they are fixed for the crediting period. But, emission factor is not a parameter to be used, instead it is a value reached by using parameters, thus there is no need to add it in parameters fixed in PDD.</p> <p>Response 2:</p>	<p>correct table is Table 22. Please revise.</p> <p>Net Calorific Value of fuel types ($NCV_{i,y}$): It is now defined as “Table 23 of the PDD”.</p> <p>Most recent power plants which compromise 20% of total generation (Sample Group for BM emission factor): It is now defined as “Table 25 of the PDD”.</p> <p>Emission factor for fuel type I (EF_i): It is now defined as “Table 24 of PDD”.</p> <p>Average energy conversion efficiency of power unit m in year y ($\eta_{i,y}$): It is now defined as “Table 16 of PDD”.</p> <p>In addition, emission factor of the project activity ($EF_{Grid,CM,y}$) should also be added to the “not monitoring parameters” since it is fixed for the crediting period.</p> <p>Hence, CR 4 is not closed.</p> <p>Review 2 (15/12/2014):</p> <p>Net electricity fed into the grid. Used for the calculation of the net/gross relation (Net electricity generation): It is now defined as “Table 11” in the monitoring report version 0.3.</p> <p>Heating Values of fuels consumed for electricity generation ($HV_{i,y}$): It is now defined as “Table 21 of the PDD” in the monitoring report version 0.3.</p> <p>Fuels consumed for electricity generation ($FC_{i,y}$): It is now defined as “Table 22 of the PDD” in the monitoring report version 0.3.</p> <p>It is mandatory to mention the emission factor of the project activity in the monitoring report. Therefore, it is logical</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>The related table was revised as table 11 in MR</p> <p>The related table was revised as table 21 in MR.</p> <p>The related table was revised as table 22 in MR</p> <p>While emission factor of the pproject activity was not added under 'parameters not monitored' in PDD, it can not be add to the MR,</p> <p>Response 3: the emission factor, $EF_{grid,CM,y}$ is now added under parameters not monitored.</p>	<p>to add to the “not monitoring parameters” since it is fixed for the crediting period. As you know that the parameters given in the registered PDD is used to calculate the combined margin, it is totally up to the selection of the PP that all the parameters could be removed instead of adding $EF_{grid,CM,y}$.</p> <p><u>Hence, CR 4 is not closed.</u></p> <p><u>Review 2 (15/12/2014):</u></p> <p>The parameter of $EF_{grid,CM,y}$ is now added to the “not monitoring parameters” of the monitoring report.</p> <p><u>Hence, CR 4 is closed.</u></p>
<p>CR 5</p> <p>Quantity of diesel combusted for auxiliary purposes ($FC_{i,j,y}$): There is no explanation about the monitoring frequency of the parameter. Please add.</p>	<p>B.3.4</p>	<p>In the registered PDD, it is stated that “Fuel consumption is calculated using a mass balance approach based on the quantity of fuel purchased and the difference in the quantity held in stock”. Thus there is no frequency of the parameter. Please consult to the registered PDD.</p> <p>Response2: although monitoring frequency is not defined in registered PDD, it is defined in MR as per monitoring period.</p> <p>While the invoices for purchase of diesel can not be reached, the working hour of jenerator and per hour consumption were stated in PE_Generator sheet of excel file ER_Kayseri_landfill. Please have a look to the calculation. The explanation in Monitored parameter was also revised in MR</p>	<p><u>Review 1 (08/09/2014):</u></p> <p>If the parameter is monitoring with the quantity of the fuel purchased and the difference in the quantity held in stock, the monitoring frequency (such as, “is monitoring” annually, monthly, daily etc.) should be defined. In addition, if the invoices can not be reached for the calculation (as confirmed during on site visit), please give a clear explanation in the correction part of post registration changes about the current issue.</p> <p><u>Hence, CR 5 is not closed.</u></p> <p><u>Review 2 (07/01/2015):</u></p> <p>The monitoring frequency is now added in the monitoring report.</p> <p>However, the explanation given in the <i>Measuring/Reading/Recording frequency</i> of the monitoring report is not in line with</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		<p>Response 3: Project Emission due to diesel consumption is calculated based on the working hour of jenerator and per hour consumption. The calculation method was already provided in "Project emissions from consumption of fossil fuels due to project activity" section of MR under formula 10,11 and 12.</p> <p>The calculation method of emission from diesel consumption was stated in part of post registration changes about the current issue.</p>	<p>the explanation given in the registered PDD as "Fuel consumption is calculated using a mass balance approach based on the quantity of fuel purchased and the difference in the quantity held in stock" in the registered PDD. Please clarify if it is measured or calculated. If it is calculated, please present the calculation method of the parameter in the MR.</p> <p>In addition, since the invoices can not be reached for the calculation (as confirmed during on site visit), please give a clear explanation in the correction part of post registration changes about the current issue.</p> <p><u>Hence, CR 5 is not closed.</u></p> <p><u>Review 2 (07/01/2015):</u></p> <p>The monitoring report should be in line with the registered PDD. Otherwise, the difference between them should be explained clearly in Section B.2 "Post Registration Changes" of the MR. In this context, the calculation method of the parameter "FC_{i,j,y}" is clearly defined in the MR since "Measuring / Reading / Recording frequency" given in the MR is different with the registered PDD.</p> <p><u>Hence, CR 5 is closed.</u></p>
<p>CR 6</p> <p>All the documented evidences related to the sustainable monitored parameters are not collected and kept. Please provide trainings related to this monitoring period and the correspondence to confirm that there is no mixing of any auxiliary gas to boost calorific value of LFG or startup fuel for the engines or the flare system.</p>	<p>B.4.3</p>	<p>All the documented evidences related to the sustainable monitored parameters were collecte and kept. Please consult to Gold standard sustainability parts of MR.</p> <p>Please find training documents which were already provided on site visit.</p>	<p><u>Review 1 (09/09/2014):</u></p> <p>The correspondence to confirm that there is no mixing of any auxiliary gas to boost calorific value of LFG or startup fuel for the engines or the flare system does still not provided to the verification team.</p> <p>In addition, the engine failures affecting the eletricity generation (not the daily</p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>In addition, during on site visit, the project owner defined that engine failure has occurred. This situation should be explained clearly in the report and supporting documentation must be sent to the verification team.</p>		<p>The failure of the engine was already expressed in raw data of excel sheet.</p> <p>Response 2: The project owner already stated that there is no pipeline to mix auxiliary gas to boost calorific value of the LFG. Moreover, if there was even pipeline, the auxiliary gas could have been much more expensive compared to LFG and it could have been out-lawed to mix it.</p> <p>The engine failures were listed in raw data of excel sheet. Bu there is no need to monitor the failures, because when the failures happen, LFG is burned in flare and the flare is monitored.</p> <p>Response 3: As it is already stated on site visit there is no pipeline of kayserigaz I the project area and moreover it is also unlawfull to use mixing of any auxiliary gas to boost calorific value of LFG. Thus there is no need to provide an additional document for something which is not existing.</p> <p>For next verifications the failures will be recorded.</p>	<p>disruptions) should be recorded and presented in the monitoring report. <u>Hence, CR 6 is not closed.</u></p> <p><u>Review 2 (16/12/2014):</u> It is requested by the Validation Team that there is no mixing of any auxiliary gas to boost calorific value of LFG or startup fuel for the engines or the flare system. During on site-visit, PP mentioned that a brief about no pipeline is available in the project area could be provided from Kayserigaz. However, it does still not provided to the verification team. Please clarify.</p> <p>In addition, any failures about the engines or flare should be monitored and presented in the monitoring report for information purposes only. Such records should be kept for internal quality. <u>Hence, CR 6 is not closed.</u></p> <p><u>Review 3 (08/02/2015):</u> The correspondance related to no natural gas pipeline is positioned in the project area is now provided to the verification team by Kayserigaz /45/.</p> <p>However, any failures about the engines or flare should be monitored and presented in the monitoring report for information purposes only. Such records should be kept for internal quality. This parameter should be monitored during the next verification. <u>Hence, CR 6 is closed and 1 FAR is raised.</u></p>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
<p>CR 7 Although the generated electricity is based on PMUM records, they were not provided to the verification team. Please send the PMUM screenshots.</p>	<p>B.5.2</p>	<p>The PMUM records were presented to DOE on site visit with project developer, and DOE has crosschecked PMUM and monthly records and confirmed correctness.</p> <p>Response2: the PMUM records were provided to DOE by e-mail aside of the protocol</p> <p>Response 3: the PMUM documents were provided to verification team on site visit. Additionally they were downloaded from PMUM site and already provided in previous round. If DOE does not believe the document provided by project developer, then we invite DOE to office of project developer in Istanbul to go through the documents again.</p> <p>Response 4: Please find PMUM data for december 2011 as attached Annex_E</p>	<p><u>Review 1 (08/09/2014):</u> It is clearly defined when sending the on-site visit draft plan that the originals will be seen during on site visit and the scanned digital copies should be provided to the verification team. Please send the PMUM records. <u>Hence, CR 7 is not closed.</u></p> <p><u>Review 2 (28/11/2014):</u> The provided documents could not be verified as PMUM records since there is no expression related with PMUM on it. Please provide the PMUM screenshots. <u>Hence, CR 7 is not closed.</u></p> <p><u>Review 3 (06/04/2015):</u> The PMUM records are now provided to the verification team and confirmed that the data is transferred correctly to the excel sheet. However, the supporting document related to December 2011 is missing. Please provide. <u>Hence, CR 7 is not closed.</u></p> <p><u>Review 4 (15/06/2015):</u> The PMUM record related to December 2011 is now provided to the verification team and confirmed that the data is transferred correctly to the excel sheet. <u>Hence, CR 7 is closed.</u></p>

TABLE 3 FORWARD ACTION REQUEST

Forward action request	Reference to Table 1	Response by project participants Verification conclusion
<p>FAR 1</p> <p>It is requested by the Validation Team that there is no mixing of any auxiliary gas to boost calorific value of LFG or startup fuel for the engines or the flare system. During on site-visit, PP mentioned that a brief about no pipeline is available in the project area could be provided from Kayserigaz. However, it does still not provided to the verification team. Therefore, this document should be provided and this parameter should be monitored during the next verification.</p>	<p>B.4.3</p>	<p>Please find as attachment of this document the declaration of kayseri gaz that there is no natural pipeline close to the project.</p> <p>RINA Opinion: The supporting document about no pipeline is available in the project area is now provided from Kayserigaz. <u>Hence, FAR 1 is closed.</u></p>
<p>FAR 2</p> <p>Any failures about the engines or flare should be monitored and presented in the monitoring report for information purposes only. Such records should be kept for internal quality. This parameter should be monitored during the next verification.</p>	<p>B.4.3</p>	<p>This monitoring will be done correctly for next verification.</p> <p>RINA Opinion: This parameter will be monitored during the next verification period.</p>