



Industrie Service

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Gold Standard Verification Report

of the Registered GS Project

“SAMSUN LANDFILL GAS TO ENERGY PROJECT, TURKEY”

GS reference number: 935

Monitoring Period 01: 09/02/2011 to 30/11/2012

Report No. GS-600501113

05 June 2013

TÜV SÜD Industrie Service GmbH
Carbon Management Service
Westendstrasse 199 – 80686 Munich – GERMANY

Date of first issue of this report	11/04/2013
Revision No. Of this report	04
Registered PDD (version/date)	Version 04 – 13/04/2012*
Registration date	24/06/2011
Revised Monitoring Plan	N/A
Methodology (title; number; version)	ACM0002, “Consolidated baseline methodology for grid-connected electricity generation from renewable sources”, v.12.1; ACM0001, “Consolidated baseline and monitoring methodology for landfill gas project activities”, v.11;
Crediting period	09/02/2011 to 08/02/2018 (renewable)
Published Monitoring Report (version/date)	Version 01 – 23/11/2012
Final Monitoring Report (version/date)	Version 1.9 – 28/05/2013
Scope	1 & 13
Technical Area	1.1 & 13.1
Location of the Project	Turkey, Samsun Province Geographic location: 41°14'45"N, 36°13'16"E
Project Participant (contractor)	Samsun Avdan Enerji Üretim ve Tic. A.Ş.
Project Documentation Link	N/A

VERIFICATION AND CERTIFICATION CONCLUSION

TÜV SÜD Industrie Service GmbH has performed the periodic verification of the aforementioned GS-VER, version 2.1 project activity. The verification is based on the currently valid documentation as it can be seen in the GS registry and has been prepared by the Project Participant.

The management of name of the Samsun Avdan Enerji Üretim ve Tic. A.Ş. is responsible for the preparation of the GHG emissions data and the reported GHG emission reductions on the basis set out within the project's Monitoring Plan indicated in the registered PDD and the applied methodologies.

The verifier can confirm that:

- the development and maintenance of records and reporting procedures are in accordance with the registered monitoring plan;
- the project is operated as planned and described in the project design document approved by GS;
- the installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately;

* The starting date of the crediting period has been re-set from 01/06/2011 (see registered PDD, version 4 from 13/04/2012) to 09/02/2011. This was according to the GS requirements and does not require the revision of the PDD.



- the monitoring system is in place and generates GHG emission reductions data;
- the GHG emission reductions are calculated without material misstatements;
- the monitoring activities as presented in the monitoring report are as per the PDD and monitoring plan approved by GS;
- the monitoring plan in the approved PDD is as per the applied methodologies;
- There is an audit trail that contains the evidence and records that validate the stated figures.

Based on the information we have seen and evaluated, we confirm that the project activity achieved the verified amount of reductions in anthropogenic emissions by sources of greenhouse gases that would not have occurred in the absence of the project activity.

Verified emission reductions in this monitoring period: 42,374 t CO_{2e}

Baseline: 42,374 tCO_{2e}
Project emissions: 0 tCO_{2e}
Leakage: 0 tCO_{2e}

Munich, 05/06/2013

Certification Body "climate and energy"
TÜV SÜD Industrie Service GmbH

Munich, 05/06/2013

Assessment Team Leader



Abbreviations

ACM	Approved Consolidated Methodology
BM	Build Margin
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CDM-EB	CDM Executive Board
CER	Certified Emission Reduction
CM	Combined Margin
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
CO_{2e}	Carbon dioxide equivalent
CR / CL	Clarification Request
DNA	Designated National Authority
AIE	Accredited Independent Entity
EF	Emission Factor
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission Reduction
FAR	Forward Action Request
FSR	Feasibility Study Report
GHG	Greenhouse Gas(es)
GS	Gold Standard
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
IRL	Information Reference List
KP	Kyoto Protocol
MP	Monitoring Plan
MR	Monitoring Report
NGO	Non-Governmental Organisation
OM	Operational Margin
PCP	Project Cycle Procedure
PDD	Project Design Document
PP	Project Participant
PS	Project Standard
TÜV SÜD	TÜV SÜD Industrie Service GmbH
UNFCCC	United Nations Framework Convention on Climate Change
VVS	Clean Development Mechanism Validation And Verification Standard



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1 METHODOLOGY

1.1 Objective

TÜV SÜD has been commissioned by the aforementioned client to perform an independent verification assessment.

The objective of the verification work is to comply with the requirements of GS. According to this assessment TÜV SÜD shall:

- ensure that the project activity has been implemented and operated as per the registered PDD and that all physical features (technology, project equipment, monitoring and metering equipment) of the project are in place,
- ensure that the published MR and other supporting documents provided are complete, verifiable and in accordance with applicable GS requirements,
- ensure that the actual monitoring systems and procedures comply with the monitoring systems and procedures described in the monitoring plan and the approved methodology,
- evaluate the data recorded and stored as per the applicable requirements.

1.2 Scope

The GS-verification scope encompasses an independent and objective review and ex-post determination of the monitored reductions in GHG emissions by the Accredited Independent Entity (AIE). The verification is based on the submitted monitoring report, the validated project design documents including its monitoring plan and validation report, previous verification reports (if any), the applied monitoring methodology, relevant decisions, clarifications and guidance from the CMP and the EB as well as GS and any other information and references relevant to the project activity's resulting emission reductions. These documents are reviewed against the GS requirements.

Based on the GS requirements, TÜV SÜD has applied a rule-based approach for the verification of the project. The principles of accuracy, completeness, relevance, reliability and credibility were combined with a conservative approach to establish a traceable and transparent verification opinion.

The verification considers both quantitative and qualitative information on emission reductions. The verification is not meant to provide any consultancy towards the client. However, stated requests for clarifications, corrective and/or forward actions may provide input for improvement of the monitoring activities.

1.3 Verification Process

The information provided by the project participants is assessed by applying the means of verification specified in the GS and in the absence of specific means of verification specified in the GS the standard auditing techniques are applied.

Once TÜV SÜD receives the Monitoring Report and a confirmation from any PP to upload, the MR is made publicly available through a dedicated interface on TÜV SÜD website.

A competent assessment team is selected prior to the start of the verification. The team is selected to cover the technical area(s), sectoral scope(s) and relevant host country experience for evaluating the GS project activity. Additionally a competent Technical Reviewer or Technical Reviewer Team is appointed to conduct checks on quality and completeness.

The verification team performs first a desk review, followed by an on-site visit, which results in the formation of a draft report and a list of findings. The next step involves the evaluation of the

findings through direct communication with the PPs and then finally the preparation of the verification report. This verification report and other supporting documents then undergo an internal quality control by the CB “climate and energy” before submission to the GS registry.

1.4 Appointment of the Team

According to the technical scopes and experiences in the sectoral or national business environment, TÜV SÜD has composed an assessment team in accordance with the appointment rules of the TÜV SÜD certification body “climate and energy”.

The composition of an assessment team has to be approved by the Certification Body (CB) to assure that the required skills are covered by the team. The CB TÜV SÜD operates the following qualification levels for team members that are assigned by formal appointment rules:

- Assessment Team Leader (ATL);
- Verifier (V);
- Verifier Trainee (T);
- Technical Experts (TE);
- Country expert (CE);
- Technical review (TR).

It is required that the sectoral scope(s) and the technical area(s) (TA) linked to the methodology/ies and project have to be covered by the assessment team. Qualification of the team members involved in the process is presented in the tables below.

Assessment Team:

Name	Qualification	Scope	Technical Area	Host country experience	Onsite visit
Khalid Mahmood	ATL	☒	☒ 13.1	☒	
Georgios Agrafiotis	V	☒	☒ (13.1)	☒	☒
Ali Bukhari, Syed Mahmood	TE	☒	☒ (1.1)		☒
Ahmet Gürel	CE	☒		☒	☒

Technical Reviewer:

Name	Qualification	Scope	Technical area
Robert Mitterwallner	TR	☒	☒ (All)
Thomas Kleiser	TR	☒	☒ (All)

1.5 Review of Documents

Publication has been initiated before the verification activities started. Based on the published MR the assessment team performed a desk review to:

- verify the completeness of the data and the information presented in the MR,
- check the compliance of the MR with respect to the monitoring plan depicted in the registered PDD and verify that the applied methodology was carried out. Particular attention to the frequency of measurements, the quality of the metering equipment including calibration requirements, and the quality assurance and quality control procedures was paid,
- evaluate the data management and the quality assurance and quality control system in the context of their influence on the generation and reporting of emission reductions.

A complete list of all documents reviewed is available in the Information Reference List attached as Annex 2 to this report.



1.6 On-site Assessment and follow-up Interviews

During on-site visit (dates of on-site visit (12/12/2012 - 13/12/2012)) TÜV SÜD performed a physical site inspection and interviewed project stakeholders to:

- confirm the implementation and operation of the project,
- review the data flow for generating, aggregating and reporting the monitoring parameters,
- confirm the correct implementation of procedures for operations and data collection,
- cross-check the information provided in the MR documentation with other sources,
- check the monitoring equipment against the requirements of the PDD and the approved methodology, including calibrations, maintenance, etc.,
- review the calculations and assumptions used to obtain the GHG data and ER,
- identify if the quality control and quality assurance procedures are in place to prevent or correct errors or omissions in the reported parameters.

A list of all persons interviewed is included in the IRL attached as Annex 2 to this report.

1.7 Resolution of Clarification and Corrective and Forward Action Requests

The objective of this phase of the verification is to resolve the requests for corrective actions, clarifications, and any other outstanding issues which need to be clarified for TÜV SÜD's conclusion on the achieved emission reductions. The CARs and CRs raised by TÜV SÜD are resolved during communication between the client and TÜV SÜD. To guarantee the transparency of the verification process, the concerns raised and responses that have been given are documented in detail in the List of Findings that is attached as Annex 1 to this report.

1.8 Internal Quality Control

Internal quality control within the team is assured by means of a technical review process that takes place after the on-site assessment and after closure of findings. The internal quality control in the verification process is given by the final decision (Verification and Certification Conclusion) made by the CB "climate and energy".

2 REPORTING REQUIREMENTS

In the following sections, the results of the verification are stated. The verification results relate to the project performance as documented and described in the final PDD and final Monitoring Report. The verification findings for each verification subject are presented below.

2.1 FARs from Validation / Previous Verification

No FARs have been presented in the validation report. The FAR from the validation regarding the leachate has been successfully considered, the official communication between PP and the municipality has been verified (IRL 38).

2.2 Project Implementation in accordance with the registered Project Design Document

The project is fully implemented according to the description presented in the registered PDD. The verifier confirms, through the visual inspection that all physical features of the proposed CDM project activity including data collecting systems and storage have been implemented in accordance with the registered PDD. The project activity is completely operational and the same has been confirmed during the on-site visit.

The difference between the values of the data and/or variables presented in the MR and the stated data in the registered PDD is only partly significant. The landfill gas production has not reached the one estimated in the registered PDD. The difference in the values does not lead to a substantial increment of the ER in this period or in future periods in relation to the estimates in the registered PDD. On the contrary the total final claimed ERs are less than estimated in the PDD.

2.3 Compliance of the Monitoring Plan with the Monitoring Methodology

The revised monitoring plan is in accordance with the approved methodology applied by this GS project activity. Guidanche has been sought by the PP from GS technical committee regarding one monitoring parameter that was included in the PDD although it was not required by any of the applicable methodologies and one additional monitoring parameter due to the application of the new version of the CDM Flaring tool. All issues were accepted by the GS technical committee (see IRL 57 & 59). No revision or deviation to the monitoring plan has been requested by the GS technical committee.

2.4 Compliance of the Monitoring with the Monitoring Plan and GS conservativeness principle

The monitoring has been carried out in accordance with the monitoring plan contained in the registered PDD with some exceptions, as explained in the above mentioned chapter. All parameters were basically monitored and determined as per the Monitoring Plan. The two exceptions are discussed in this chapter after the presentation of the monitoring parameters. The applied values are a result of detailed filtering as per minimum and maximum allowed values according to the technical specifications of the manufacturers. This has as result a conservative set of raw data.

The verification of the parameters required by the monitoring plan as per registered PDD is provided as follows (the presented parameters follow the same sequence as per PDD chapter B.7.1):

Data / Parameter:	$PE_{FC,i,y}$
Data unit:	tCO ₂ e
Description:	Project emissions from fossil fuel combustion in process j during the year y
Source of data used:	During the 1st monitoring period there was no fossil fuel consumption. Fuel invoices will document the fuel consumption during the monitoring period.
Means of verification/Comments:	The small quantities of electricity that were necessary for own consumption were delivered by the grid.
Cross-check	The data of electricity consumption from the grid were checked on-site for all months of the monitoring period. For this check the online system was used, from the computer on-site.

Data / Parameter:	$LFG_{total,y}$
Data unit:	Nm ³
Description:	Total amount of landfill gas (under normal pressure and temperature) captured in year y
Source of data used:	The measurements of LFG flow are continuously measured and recorded digitally every 10 minutes. The monitoring data is automatically collected and recorded by the system's datalogger. The data is displayed on the local monitors of all devices. Historical data as well as calculated parameters, such as the amount of methane burnt, can be consulted via the local computer and the CDs. The equipment used has been calibrated according to the requirements of as specified by the methodology. Dates of last calibrations (IRL 30): 24.11.2010 10.05.2012 Calibration frequency as per manufacturer: 10 years (IRL 48) The flow meter was delivered calibrated for the activity (IRL 44), hence the information can be considered verifiable.
Means of verification/Comments:	The complete set of data for the whole MR has been delivered to the audit team. All data have been checked against the minimum and maximum allowed values as per manufacturer requirements.
Cross-check	N/A

Data / Parameter:	$LFG_{flare,y}$
Data unit:	Nm ³
Description:	Total amount of landfill gas (under normal conditions of 0° and 1 Atm) flared in year y
Source of data used:	The measurements of LFG flow are continuously measured and recorded digitally every 10 minutes. The monitoring data is automatically collected and recorded by the system's datalogger.

	The data is displayed on the local monitors of all devices. Historical data as well as calculated parameters, such as the amount of methane burnt, can be consulted via the local computer and the CDs. The equipment used has been calibrated according to the requirements of as specified by the methodology. Dates of last calibrations (IRL 30): 24.11.2010 10.05.2012 Calibration frequency as per manufacturer: 10 years (IRL 48) The flow meter was delivered calibrated for the activity (IRL 44), hence the information can be considered verifiable.
Means of verification/Comments:	The complete set of data for the whole MR has been delivered to the audit team. All data have been checked against the minimum and maximum allowed values as per manufacturer requirements.
Cross-check	N/A

Data / Parameter:	LFG _{electricity,y}
Data unit:	Nm ³
Description:	Total amount of landfill gas (under normal conditions of 0° and 1 Atm) combusted in year y
Source of data used:	The measurements of LFG flow are continuously measured and recorded digitally every 10 minutes. The monitoring data is automatically collected and recorded by the system's datalogger. The data is displayed on the local monitors of all devices. Historical data as well as calculated parameters, such as the amount of methane burnt, can be consulted via the local computer and the CDs. The equipment used has been calibrated according to the requirements of as specified by the methodology. Dates of last calibrations (IRL 30): 24.11.2010 10.05.2012 Calibration frequency as per manufacturer: 10 years (IRL 48) The flow meter was delivered calibrated for the activity (IRL 44), hence the information can be considered verifiable.
Means of verification/Comments:	The complete set of data for the whole MR has been delivered to the audit team. All data have been checked against the minimum and maximum allowed values as per manufacturer requirements.
Cross-check	N/A

Data / Parameter:	W _{CH4}
Data unit:	%
Description:	Methane fraction in the landfill gas
Source of data used:	The measurements of methane fraction in the LFG are continuously measured and recorded digitally every 10 minutes. The monitoring data is automatically collected and recorded by the system's datalogger. The data is displayed on the local monitors of all devices.

	Historical data as well as calculated parameters, such as the amount of methane burnt, can be consulted via the local computer and the CDs. Accuracy: 2% Calibration frequency: annually (IRL 19) Dates of last calibrations (IRL 20): 23.10.2010 03.08.2011 10.05.2012 The flow meter was delivered calibrated for the activity (IRL 44), hence the information can be considered verifiable.
Means of verification/Comments:	The complete set of data for the whole MR has been delivered to the audit team. All data have been checked against the minimum and maximum allowed values as per manufacturer requirements.
Cross-check	N/A

Data / Parameter:	$PE_{\text{flare},y}$
Data unit:	tCO ₂ e
Description:	Project emissions from flaring of residual gas in year y
Source of data used:	The preproject emissions from flaring are being calculated by applying the formula of the Methodological tool "Project emissions from flaring"; v.02.0.0, EB68, Annex 15. This approach has been deemed as appropriate from GS (IRL 59). The emissions are calculated based on the flare efficiency (fixed value of 90% when the necessary conditions are fulfilled) and the flow of LFG. The equipment that delivers the values has been calibrated according to the requirements, as explained in the previous parameters.
Means of verification/Comments:	N/A
Cross-check	N/A

Data / Parameter:	T_{flare}
Data unit:	°C
Description:	Temperature in the exhaust gas of the flare.
Source of data used:	The temperature data is measured by the thermocouple which is installed on the flare at the position of the exhaust gases. The values are transmitted to the local computer and stored every ten minutes. No calibration required. The thermocouple is replaced annually (IRL 38).
Means of verification/Comments:	N/A
Cross-check	N/A

Data / Parameter:	Operation of the power plant
Data unit:	h
Description:	Operation hours of the power plant
Source of data used:	When at least one of the two generators is in operation, the hour counter measures the working hours. In other case there is no

	measurement.
Means of verification/Comments:	N/A
Cross-check	N/A

Data / Parameter:	AF
Data unit:	%
Description:	Regulatory requirements relating landfill gas projects
Source of data used:	National laws and regulations in Turkey regarding waste treatment. Local expertise of TÜV SÜD was used in order to check any modifications in the legal requirements.
Means of verification/Comments:	N/A
Cross-check	N/A

Data / Parameter:	$EL_{LFG,y}$
Data unit:	MWh
Description:	Quantity of net electricity generation supplied by the project plant/unit to the grid in year y
Source of data used:	The values of gross electricity production and consumption from grid are being measured by main and back-up meter on-site. These values are stored electronically at the computer on-site and also are being transmitted to the grid operator. www.dgpys.teieas.gov.tr/dgpys The equipment used has been calibrated according to the requirements of Turkey (calibration frequency 10 years). Last calibration was at 22.02.2011 (IRL 14)
Means of verification/Comments:	The values used in the calculation tool (excel file) and reported in the MR are correct and the same as in the raw data (IRL 54). The electricity production is confirmed by comparing the value with the values stated in the monthly protocols of the grid operator which are obtained from the physical electricity meters.
Cross-check	The monthly invoices have been also checked (IRL 12, 13, 41) in order to cross-check the values in the calculation tool.

In comparison to the monitoring plan (MP) of the registered PDD there are two modifications in the current MP. Both modifications have been deemed as acceptable by the technical committee of GS (IRL 57 & 59):

- 1) Although the parameter $MG_{PR,y}$ had been included in the registered PDD as a monitoring parameter, it is not required by the applicable tools and methodologies. Therefore, this parameter is removed from the MR as a permanent deviation from the monitoring plan.
- 2) The parameter $F_{CH_4,RG,m}$ has been included in the MR for the 1 PV although it was not foreseen in the PDD. Finally this parameter has been included in the MR because of the use of methodological tool "Project emissions from flaring", v.02.0.0 (EB68, Annex 15). At the time of registration, this tool had not been introduced, therefore the inclusion of this parameter has been requested and accepted by GS as a permanent deviation to the monitoring plan in the revised MR. The flow of LFG [Nm^3] is automatically converted in [kg] at dry basis and normal conditions by the PLC system without any intervention of the PP.

2.5 Assessment of Data and Calculation of Greenhouse Gas Emission Reductions

All data has been available and all the parameters have been monitored in accordance with the registered monitoring plan.

The reported data have been cross-checked against other sources available as explained above in chapter 2.4.

The verifier confirms that the methods and formulae used to obtain the baseline, project and leakage emissions are appropriate. The same has been done in accordance with the methods and formulae described in the registered monitoring plan and applicable methodology.

The verifier confirms that the monitoring report includes all parameters and the monitored data at the intervals required by the methodology and PDD.

The verifier confirms that all the emission factors and default values (ex-ante values from PDD) have been correctly justified. All the emission factors and default values are explicitly mentioned in the monitoring report.

2.6 Gold Standard Indicators

All nine monitored parameters mentioned in the GS passport have been correctly monitored and the information given in the final GS monitoring report has been confirmed to be correct.

The improvement in the environmental performance and social impact to the local community is marginal due to the rather small scale of the GS project. Still, it has been documented transparently as defined in the GS passport.

2.6.1 Air quality: SO₂ and NO_x emissions reduced

The Project, by replacing electricity from fossil fuel combustion and the related fuel consumption, reduces the baseline SO₂ and NO_x emissions from electricity generation.

The reductions of SO₂ and NO_x emissions have been calculated by multiplying net electricity generation of the Project activity with the SO₂ and NO_x intensities. The value of each intensity stems from the national grid. The values of the respective intensities (SO₂ = 5.31 kg/MWh and SO_x = 1.65 kg/MWh) have been defined in the GS Passport (IRL 61). In each periodic verification only the electricity generation varies. This approach has been approved by GS in the published GS Passport.

2.6.2 Water quality and quantity

The Project, by replacing electricity from fossil fuel combustion and the related fuel consumption, reduces the baseline cooling water emissions generated by thermal power plants. The reductions of cooling water emissions have been calculated by multiplying net electricity generation of the Project activity with the ex-ante calculated cooling water intensities.

Information about the respective intensity were found at the official web-pages: Turkish Statistical Institute (<http://www.turkstat.gov.tr/PreHaberBultenleri.do?id=6171>) and TEIAS, [http://www.teias.gov.tr/T%C3%BCrkiyeElektrik%C4%B0statistikleri/istatistik2008/30\(84-08\).xls](http://www.teias.gov.tr/T%C3%BCrkiyeElektrik%C4%B0statistikleri/istatistik2008/30(84-08).xls)

2.6.3 Soil condition

The landfill area only accepts municipal (household) solid waste. This was proven by the respective evidence (IRL 51). Hazardous waste is not accepted at the gate of the landfill, which is operated by the Municipality. The Municipality collects an industrial waste collection fee, therefore it effectively minimizes the hazardous waste amount in the solid waste that is stored at the Project site.



2.6.4 Other pollutants

Under this category fall according to the GS passport the Volatile Organic Compounds that are found in the LFG. By combusting and flaring the LFG the biggest part of the VOCs is destroyed. The reduction of VOCs is calculated by multiplying the total methane amount that is destroyed with the ex-ante constants for VOC fraction (2%) and combustion VOC destruction percentage (98%). Both percentages have been validated and approved from GS in the published GS Passport (IRL 61). In each periodic verification only the volume of captured LFG varies.

2.6.5 Quality of employment

The achieved improvement in the quality of employment is measured based on the working conditions on-site. All safety equipment is available and used by personnel. No work accident has happened during the monitoring period. Necessary trainings are given to the personnel regarding safety and emergency procedures. The tasks carried out by personnel are in compliance with legal employment and EHS requirements. All of the personnel have social security and they are paid in a timely manner. The respective evidence has been delivered in form of social security documents (IRL 5), Emergency Action Plan (IRL 9), Training certificates (IRL 6 & 7).

2.6.6 Access to affordable and clean energy services

The Project will generate and supply clean energy to the national grid, improving the carbon intensity of the power mix. It is assumed that the net electricity generation during the monitoring period will be distributed among fossil fuels with the same weight as per the energy mix of the Turkish grid. These values will be multiplied with the ex-ante fuel consumption intensities given above to find the respective reduction of fossil fuel consumption.

2.6.7 Quantitative employment and income generation

Regarding this indicator the creation of new jobs has been monitored. The employees have a contract with the operator of the GS project "Samsun Avdan Enerji Üretim ve Tic. A.Ş.". During the 1 PV the social security records which include also salary information have been verified (IRL 5).

2.6.8 Balance of payments and investment

Regarding the contribution of this GS project to the country's economy, the avoided natural gas amount has been taken from the indicator "Access to affordable and clean energy services". The energy content of this amount has been multiplied by the ex-ante natural gas price. This calculation delivered the final value of import savings. This approach has been approved by GS in the published GS Passport (IRL 61). The price of gas will remain fixed and only the energy generation will vary.

2.6.9 Technology transfer and technological self-reliance

Local stakeholders and the Municipality gain information and best practice applications through site visits, training sessions and/or know how contributions made by international experts. This has been verified on-site through the interviews with the local employees of Samsun Avdan Enerji Üretim ve Tic. A.Ş.: Mr. Celim, Mr. Edem.



Annex 1

List of Findings

List of Findings - Compilation and Resolutions

Project Title: Samsun Landfill Gas to Energy Project, Turkey

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Compilation and Resolutions of CARs, CRs and FARs

Corrective Action Requests by the assessment team		
	Comments and Results	Conclusion and IRL
Issue	<u>The commissioning of the flare needs to be evidenced.</u>	☒ Finding Closed IRL 44
Requirement	GS Toolkit v. 2.1, chapter 4.6: Project implementation	
Corrective Action Request	<u>Corrective Action Request No.1</u> The commissioning letter for the flare with date 16.12.2010 needs to be delivered to the DOE.	
Response	The report indicating the commissioning letter for the flare with date 16.12.2010 has been delivered to the DOE (Annex 4t).	
Assessment Means of / verification	The issue is closed, the commissioning letter has been delivered and contains date and all technical aspects that were checked before starting the operation.	
Adjustment on project design OR Changes in the monitoring report or supporting annexes	N/A	

Corrective Action Requests by the assessment team

List of Findings - Compilation and Resolutions

Project Title: Samsun Landfill Gas to Energy Project, Turkey

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Corrective Action Requests by the assessment team		
	Comments and Results	Conclusion and IRL
Issue	<u>The MR is not consistent with the MP of the registered PDD and the methodology ACM0001 v.11.</u>	☒ Finding Closed IRL 55 IRL 57 IRL 42 IRL 30
Requirement	GS Toolkit v 2.1, chapter 4.1: The GHG emission reductions resulting from your project have to be monitored according to the monitoring plan of the PDD;	
Corrective Action Request	<u>Corrective Action Request No.2</u> - The three parameters regarding the total flow, electricity flow and flare flow shall be presented in the MR exactly as per MP. The additional flow parameter $F_{ch4,RG,m}$, which is measured due to the new version of the UNFCCC Flaring tool, shall be presented afterwards. A request for deviation shall be submitted by the PP. - The MR shall contain a complete presentation of all important technical specifications of the flow meters. All calibrations dates before the beginning of and during the monitoring period shall be also included. - The MR shall contain the measurement range of the flow meters as per manufacturer.	
Response	- All three parameters have been added to the MR. The parameter $F_{ch4,RG,m}$ has been presented as a deviation in the revised MR. - Technical specification for each flow meters have been added to the MR, including all calibration dates. Please note that for the total flow meter (FM1), the serial number contains a typo. (Annex 4aa) - The measurement ranges of the flow meters have been added to the MR (Annex 4d).	
Assessment Means of validation / verification	- The parameters are now included in the MR as they are foreseen in the PDD. - Calibration dates and technical specifications are included in the MR. - Measurement range has been added in the MR.	
Adjustment on project design	The MR has been revised at several places including the additional information. The parameter $F_{ch4,RG,m}$ may be removed from the MR according to Gold Standard (IRL	

List of Findings - Compilation and Resolutions

Project Title: Samsun Landfill Gas to Energy Project, Turkey

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Corrective Action Requests by the assessment team		
OR Changes in the monitoring report or supporting annexes	57). b. All calibration certificates are available (IRL 30, IRL 42) c. The MR has been revised.	
Corrective Action Requests by the assessment team		
	Comments and Results	Conclusion and IRL
Issue	In the first version of the MR and of the calculation tool, for the methane concentration in the LFG the "Guidelines to Calculate the Fraction of Methane in the Landfill Gas from Periodical Measurements" have been applied.	☒ Finding Closed IRL 55 IRL 50
Requirement	GS Toolkit v 2.1, chapter 4.1: The GHG emission reductions resulting from your project have to be monitored according to the monitoring plan of the PDD;	
Corrective Action Request	<u>Corrective Action Request No.3</u> a. Since there are available continuous data of CH ₄ concentration, as they are delivered by the installed gas analyzer, the actual real values shall be applied in the calculation of the ERs. b. The MR shall contain the minimum CH ₄ that can be properly flared as per manufacturer.	
Response	a. The MR and the calculation spreadsheet have been revised such that continuous CH ₄ percentage is used. b. The flare can burn landfill gas with at least 25% CH ₄ content. The spreadsheet and the MR have been revised accordingly.	
Assessment Means of validation / verification	a. The calculation of the ERs is being done using the real data as they have been measured by the gas analyzer. b. Proof has been delivered stating the minimum value of 25% of CH ₄ concentration guaranteeing proper flaring (IRL 50).	

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Corrective Action Requests by the assessment team		
Adjustment on project design OR Changes in the monitoring report or supporting annexes	a. The calculation tool has been revised. b. N/A	

Corrective Action Requests by the assessment team		
	Comments and Results	Conclusion and IRL
Issue	<u>The MR is not consistent with the MP of the registered PDD and the methodology ACM0001 v.11.</u>	☒ Finding Closed IRL 29 IRL 30 IRL 58
Requirement	GS Toolkit v 2.1, chapter 4.1: The GHG emission reductions resulting from your project have to be monitored according to the monitoring plan of the PDD;	
Corrective Action Request	<u>Corrective Action Request No.4</u> Regarding the gas analyzer all calibrations dates before the beginning of and during the monitoring period shall be also included in the MR.	
Response	According to the manufacturer of the gas analyser, this instrument has to be calibrated every year. The calibrations that are carried out during the monitoring period satisfy this requirement. The dates are included in the MR and the relevant documents are provided to the DOE (Annex 4p, p.56).	
Assessment Means of validation / verification	The calibration frequency of one year has been proven by the manufacturer's specifications. The calibrations dates of the gas analyzer have been added to the MR and proven by the respective certificates (IRL 30, IRL 58)	

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Corrective Action Requests by the assessment team		
Adjustment on project design OR Changes in the monitoring report or supporting annexes		

Corrective Action Requests by the assessment team		
	Comments and Results	Conclusion and IRL
Issue	<u>One of the Sustainability Parameters are the hazardous waste and if they are deposited at the landfill.</u>	☒ Finding Closed IRL 51
Requirement	GS Toolkit 2.1, chapter 4.1: The sustainability impact of your project should be monitored according to the sustainability monitoring report.	
Corrective Action Request	<u>Corrective Action Request No.5</u> An official statement from the local municipality regarding the deposition or not of hazardous waste shall be delivered to the DOE.	
Response	The document has been provided to the DOE (Annex 7f).	
Assessment Means of validation / verification	An official statement from the municipality of Samsun has been delivered to the DOE (IRL 51).	
Adjustment on project design OR	N/A	

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Project Title: Samsun Landfill Gas to Energy Project, Turkey

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Corrective Action Requests by the assessment team		
Changes in the monitoring report or supporting annexes		

Corrective Action Requests by the assessment team		
	Comments and Results	Conclusion and IRL
Issue	<u>Regarding the Sustainable Development Indicator “Quality of employment” the monitoring method is not consistent with the indicated method in the GS-Passport.</u>	☒ Finding Closed IRL 55
Requirement	GS Toolkit 2.1, chapter 4.1: The sustainability impact of your project should be monitored according to the sustainability monitoring report.	
Corrective Action Request	<u>Corrective Action Request No.6</u> The tasks of the employees are stated in the GS-Passport as the way to monitor the “Quality of the employment” and thus it shall be added in the MR.	
Response	The MR has been revised accordingly (Monitoring Parameter ID 05).	
Assessment Means of validation / verification	The MR contains now the same monitoring method for the sustainability parameter “Quality of employment” as it has been defined in the GS-Passport.	
Adjustment on project design OR Changes in the monitoring report or supporting annexes	N/A	

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Clarification Requests by the assessment team		
	Comments and Results	Conclusion and IRL
Issue	<u>For the period in time when only flaring took place (09.02.11-09.03.2012) the measured value of LFG_{total} is different than the measured value of LFG_{flare}.</u>	☒ Finding Closed IRL 46
Requirement	GS Toolkit 2.1, chapter 4.1: For the verification, in principle the rules as laid down in the CDM Validation and Verification Manual are applicable, unless Gold Standard requirements go beyond or are otherwise stated.	
Clarification Request	<u>Clarification Request No. 1</u> It shall be clarified why there is a difference in the values between LFG _{total} and LFG _{flare} although there is no other use of the LFG for a certain period of time.	
Response	Until the electricity generation started, all of the collected landfill gas (LFG _{total}) should in principle be equal to LFG _{flare} . Considering the measurement range of both flow meters and their accuracies, small differences may occur. The accuracy of both flow meters is 2%, therefore any data set with a difference larger than 4% has been omitted. In addition, the lower value of both data is used for emission reduction calculations.	
Assessment Means of validation / verification	The applied approach is conservative and thus deemed as acceptable. As per TÜV SÜD's technical experience from similar projects minor discrepancies between LFG _{total} and LFG _{flow} occur often. The deviation cannot exceed the accuracy limits.	
Adjustment on project design OR Changes in the monitoring report or supporting annexes	N/A	

Clarification Requests by the assessment team

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Clarification Requests by the assessment team		
	Comments and Results	Conclusion and IRL
Issue	<u>Although there are several flow streams in the calculation tool there is only one pressure value indicated.</u>	☒ Finding Closed IRL 52
Requirement	<u>GS Toolkit 2.1, chapter 4.1:</u> For the verification, in principle the rules as laid down in the CDM Validation and Verification Manual are applicable, unless Gold Standard requirements go beyond or are otherwise stated. The MR must be consistent with the monitoring plan in the PDD.	
Clarification Request	<u>Clarification Request No. 2</u> It shall be clarified the indicated pressure value to which flow value it corresponds.	
Response	The indicated pressure value corresponds to the flow value that is in the main line (LFG _{total} measured by FM1). The corresponding document is provided to the DOE (Annex 7g).	
Assessment Means of validation / verification	The diagram from the installations shows that the pressure meter is installed on the main pipe, thus referring to the LFG _{total} .	
Adjustment on project design OR Changes in the monitoring report or supporting annexes	N/A	

Clarification Requests by the assessment team		
	Comments and Results	Conclusion and IRL
Issue	<u>The sum of LFG_{flare} and LFG_{elec} does not match exactly the measured LFG_{total}.</u>	☒ Finding Closed
Requirement	<u>GS Toolkit 2.1, chapter 4.1:</u>	

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Clarification Requests by the assessment team		
	For the verification, in principle the rules as laid down in the CDM Validation and Verification Manual are applicable, unless Gold Standard requirements go beyond or are otherwise stated. The MR must be consistent with the monitoring plan in the PDD.	IRL 46 IRL 48
Clarification Request	<u>Clarification Request No. 3</u> a. It shall be explained why the sum of LFG_{flare} and LFG_{elec} does not match exactly the measured LFG_{total}. b. A confirmation from the company that installed the flaring equipment shall be delivered, regarding the maximum possible error of 2% of the flow meter as per manufacturer. c. It shall be also explained what would be the influence on the ERs-calculation if the maximum error occurred simultaneously on the three LFG values.	
Response	a. Please refer to CL No.1 for the explanation of this issue. LFG_{total} is not a parameter that is directly used in calculations. It is rather used for checking the quality of the data. Therefore, for each data, the total of LFG_{electricity} and LFG_{flare} is compared to LFG_{total}. For measurements that indicate a difference larger than 4% (cumulative accuracy), the whole data set is conservatively discarded. Moreover, to prevent overestimation, the measurements have been adjusted in proportion to the lower value. b. The document is provided to the DOE (Annex 4x). c. According to the system provider, there are 3 different and independent instruments in the plant. Each instrument has +/- 2-3 % of accuracy, so the global accuracy is +/- 4-6 % when accuracy is defined as the following: $\text{Accuracy \%} = [\text{LFG (total)} - \text{LFG (flare)} - \text{LFG (generator)}] / \text{LFG (total)}$ This document has been provided to the DOE (Annex 4v).	
Assessment Means of validation / verification	The applied approach is conservative and thus deemed as acceptable. As per TÜV SÜD's technical experience from similar projects minor discrepancies between LFG _{total} and LFG _{flow} occur often. The deviation cannot exceed the accuracy limits.	
Adjustment on pro-	N/A	

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Clarification Requests by the assessment team		
ject design OR Changes in the monitoring report or supporting annexes		

Clarification Requests by the assessment team		
	Comments and Results	Conclusion and IRL
Issue	<u>The MR is not consistent with the monitoring plan in the registered PDD.</u>	☒ Finding Closed IRL 55
Requirement	<u>GS Toolkit 2.1, chapter 4.1:</u> For the verification, in principle the rules as laid down in the CDM Validation and Verification Manual are applicable, unless Gold Standard requirements go beyond or are otherwise stated. The MR must be consistent with the monitoring plan in the PDD.	
Clarification Request	<u>Clarification Request No. 4</u> - It shall be clarified why the parameter $MG_{PR,y}$ has not been monitored during the 1 PV. - It shall be clarified why the parameter $F_{CH4,RG,m}$ has been included in the MR for the 1 PV although it was not foreseen in the PDD. - It shall be clarified why the parameter “flame detector” has been included in the MR for the 1 PV although it was not foreseen in the PDD.	
Response	- Although this parameter had been included in the registered PDD as a monitoring parameter, it is not required by the applicable tools and methodologies. Therefore, this parameter is removed from the MR as a permanent deviation from the monitoring plan. $F_{CH4,RG,m}$ has been included in the MR because of the use of methodological tool “Project emissions from flaring”, v.02.0.0 (EB68, Annex 15). At the time of registration, this tool had not been introduced, therefore the inclusion of this parameter is requested as a permanent deviation.	

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Clarification Requests by the assessment team		
	tion to the monitoring plan in the revised MR. c. According to the use of methodological tool "Project emissions from flaring", v.02.0.0 (EB68, Annex 15), the parameter "flame detector" shall be included in the monitoring plan. Since the flare unit installed for the project activity already includes a flame detector as an integral safety component, it has not been included as a separate parameter in the MR. The MR has been revised accordingly.	
Assessment Means of validation / verification	a. A request for deviation has been submitted to GS foundation. As per GS the parameter $MG_{PR,y}$ may be removed from the MR. b. A request for deviation has been submitted to GS foundation. As per GS the parameter $F_{CH4,RG,m}$ did not have at the first place to be inserted and thus may be removed. c. The parameter "flame detector" that was included in the initial version of the MR has been removed. The instrument itself not, this approach was deemed by GS as acceptable.	
Adjustment on project design OR Changes in the monitoring report or supporting annexes	All three issues have been clarified by the technical committee of GS. The final MR reflects the accepted approach.	

Clarification Requests by the assessment team		
	Comments and Results	Conclusion and IRL
Issue	<u>The MR is not consistent with the monitoring plan in the registered PDD.</u> <u>Several technical issues need to be clarified.</u>	☒ Finding Closed

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Clarification Requests by the assessment team		
Requirement	<u>GS Toolkit 2.1, chapter 4.1:</u> For the verification, in principle the rules as laid down in the CDM Validation and Verification Manual are applicable, unless Gold Standard requirements go beyond or are otherwise stated. The MR must be consistent with the monitoring plan in the PDD.	IRL 55 IRL 45 IRL 50
Clarification Request	<u>Clarification Request No. 5</u> a. In the PDD the planned flaring temperature was defined 900-1,200 °C. In the MR finally the range is 800-1,200 °C. It shall be clarified why there is a difference between the two documents. b. In the monitored parameter "Operation of the power plant" technical information regarding the measuring device need to be added. c. In the monitored parameter "Temperature in the exhaust gas of the enclosed flare in minute m" regarding the requested values as per template the actual values are required (at least average-minimum-maximum values).	
Response	a. The installed flare unit has different exhaust gas temperature parameters than the information provided in the registered PDD. This change has been included in the revised MR as a permanent design deviation. b. The parameter "Operation of the power plant" is obtained by checking the actual power generation of the engine units for the data that are included in the emission reduction calculations. This power generation data is obtained from the Genset Control Devices. The technical information has been given in the relevant section of the PDD. The calibration documents have been provided to the DOE (Annex 4bb). c. For this monitoring parameter, the "time series" has been replaced with the average exhaust gas temperature.	
Assessment Means of validation / verification	a. The MR contains now the correct measurement range of the thermocouple as per manufacturer. b. Technical information has been added for this parameter. c. Actual values have been added.	

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Clarification Requests by the assessment team		
Adjustment on project design OR Changes in the monitoring report or supporting annexes	a. MR has been revised. b. MR has been revised. c. MR has been revised.	

Forward Action Requests by the assessment team		
	Comments and Results	
Issue	The measured data of the monitored parameters for both electricity generation and flaring are lacking of overall quality as they are delivered automatically by the software. The processing of these data is not free of risks.	☒ To be checked during the next verification.
Requirement	GS Toolkit 2.1 The GHG emission reductions resulting from your project have to be monitored according to the monitoring plan of the PDD; this will give the amount of credits to be issued. The MR shall include data entry sheets of self-monitored parameters.	
Forward Action Request	<u>Forward Action Request No. 1</u> The software provider is requested to improve the quality of the delivered data in respect to the following observations during the on-site visit: a. The format of the data changes at some points in time without any particular reason causing risks due to manual modifications. b. An hourly display of the measured parameters is within the defined limit as per methodology and would simplify the overview of the values minimizing the risks of a proper cal-	

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Forward Action Requests by the assessment team		
	culuation of the ERs. c. Instead of two separate data sets one data set is requested.	
Response	The project owner commits to comply with this request for the next monitoring period.	
Means of verification		
Any resulting changes in the monitoring report or supporting annexes		



Annex 2

Information Reference List

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Project title: Samsun Landfill Gas to Energy Project, Turkey

Interviewed Persons during onsite assessment:

Name	Function	Company
Erol Iren	Project owner	Samsun Avdan
Yagmur Karabulut	Project developer	Mavis Consultants
Metin Celik	Project developer	Mavis Consultants

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Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date (dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
1.	GS Webpage	https://gs2.apx.com/mymodule/ProjectDoc/EditProjectDoc.asp?id1=935	N/A	General information
2.	Samsun Avdan Enerji Üretim ve Tic. A.Ş.	Registered PDD , version 4 Samsun Landfill Gas to Energy Project, Turkey	13/04/2012	General information
3.	Mavi Consultants	MR for 1 PV Samsun Landfill Gas to Energy Project, Turkey	27/11/2012	General information
4.	City of Samsun	Annex 1a-Samsun-Residence Certificates	09/11/2012	GS Passport
5.	City of Samsun	Annex 1b-Samsun-Social Security Registries	09/11/2012	GS Passport
6.	Iltekno	Annex 2a-Samsun-Training by Iltekno	09/11/2012	Technical information
7.	Conveco	Annex 2b-Samsun-Training by Conveco	09/11/2012	Technical information
8.	Samsun Avdan Enerji Üretim ve Tic. A.Ş.	Annex 2c-Samsun-Equipment Protocol	09/11/2012	Technical information
9.	Samsun Avdan	Annex 2d-Samsun-Emergency Action Plan	09/11/2012	GS Passport
10.	Samsun Avdan	Annex 2e-Samsun-Work Instructions	09/11/2012	GS Passport
11.	Samsun Avdan	Annex 2f-Samsun-Stakeholder Site Visit Forms	09/11/2012	GS Passport
12.	Grid operator	Annex 3a-Samsun-PMUM Records_2	09/11/2012	Raw data/Invoices
13.	Samsun Avdan	Annex 3b-Samsun-Electricity Invoices_2	09/11/2012	Raw data/Invoices
14.	Elster	Annex 4a-Samsun-Measurement Devices Calibration Protocols	09/11/2012	Technical information

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Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date (dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
15.	Calik Yedas	Annex 4b-Samsun-Measurement Devices First Index Protocols	09/11/2012	Technical information
16.	Elster	Annex 4c-Samsun-Measurement Devices Brochure	09/11/2012	Technical information
17.	Conveco	Annex 4d-Samsun-Flowmeters Calibration Protocols	09/11/2012	Technical information
18.	Fuji Electric	Annex 4e-Samsun-Differential Pressure Transmitter Brochure	09/11/2012	Technical information
19.	Fuji Electric	Annex 4f-Samsun-Gas Analyser Technical Specifications	09/11/2012	Technical information
20.	Tecnova HT	Annex 4g-Samsun-Gas Analyser Calibration Protocol	09/11/2012	Technical information
21.	Contrec	Annex 4h-Samsun-Gas and Steam Flow Computer Brochure	09/11/2012	Technical information
22.	Fuji Electric	Annex 4i-Samsun-Pressure Transmitter Brochure	09/11/2012	Technical information
23.	Conveco	Annex 4j-Samsun-Gas Booster and Flare Stack Brochure	09/11/2012	Technical information
24.	AFAQ	Annex 4k-Samsun-Pressure Transmitter Inspection Report	09/11/2012	Technical information
25.	Fuji Electric	Annex 4l-Samsun-Pressure Transmitter Declaration of Conformity	09/11/2012	Technical information
26.	Fuji Electric	Annex 4m-Samsun-Pressure Transmitter Instructions Manual	09/11/2012	Technical information
27.	Fuji Electric	Annex 4n-Samsun-Pressure Transmitter-Safe Installation Instruction	09/11/2012	Technical information
28.	Conveco	Annex 4o-Samsun-Flow Computer User Manual	09/11/2012	Technical information
29.	Pronova	Annex 4p-Samsun-Gas Analyser User Manual	09/11/2012	Technical information
30.	Conveco	Annex 4r-Samsun-Periodical Calibration Protocol for Gas Analyzer and Flowmeter	09/11/2012	Technical information
31.	EPDK	Annex 5a-Samsun-Generation License	09/11/2012	Technical information
32.	Grid operator	Annex 5b-Samsun-Temporary Approval Document	09/11/2012	Technical information
33.	Samsun Avdan	Annex 6a-Samsun-Flare Raw Data	09/11/2012	Raw data/Invoices

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Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date (dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
34.	Samsun Avdan	Annex 6b-Samsun-Engine Raw Data	09/11/2012	Raw data/Invoices
35.	BARTEK	Annex 7a-Samsun-Electricity Block Diagram	09/11/2012	Technical information
36.	Conveco	Annex 7b-Samsun-Gas Booster Unit and Flare Model	09/11/2012	Technical information
37.	BARTEK	Annex 7c-Samsun-Site Plan	09/11/2012	Technical information
38.	Samsun Avdan	Annex 7d-Samsun-Corrspondance on Leachate with the Municipality	09/11/2012	GS Passport
39.	Samsun Avdan	Annex 7e-Samsun-Details of Equipment Malfunction and Maintenance	09/11/2012	Technical information
40.	SGK	Annex 1c-Samsun-Social Security Registries (Oct-Nov)	08/02/2013	GS Passport
41.	Grid operator	Annex 3a-Samsun-PMUM Records and Electricity Invoices (Oct-Nov)	08/02/2013	Raw data/Invoices
42.	Tecnova HT	Annex 4aa-Samsun-Pressure Transmitter Calibration Documents	08/02/2013	Technical information
43.	Woodward	Annex 4bb-Samsun-Genset Controller Calibration Documents	08/02/2013	Technical information
44.	Conveco	Annex 4t-Samsun-Factory Acceptance Tests Certificates	08/02/2013	Technical information
45.	Conveco	Annex 4u-Samsun-Declaration about Thermocouple	01/02/2013	Technical information
46.	Conveco	Annex 4v-Samsun-Declaration about Flow meter accuracy	01/02/2013	Technical information
47.	Conveco	Annex 4w-Samsun-Declaration about Analysis System Maintenance Operation	08/02/2013	Technical information
48.	Technova HT	Annex 4x-Samsun-Declaration about Flow meter Calibration	21/12/2012	Technical information
49.	MWM	Annex 4y-Samsun-Power Generation Unit Brochure (V12)	08/02/2013	Technical information
50.	Conveco	Annex 4z-Samsun-Gas Booster and Flare Stack Brochure (full version)	08/02/2013	Technical information
51.	Samsun municipality	Annex 7f-Samsun-Corrspondance on Hazardous Wastes	15/01/2013	Technical information

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Ref. No.	Author/Editor/ Issuer	Title/Type of Document. Publication place	Issuance and/or submission date (dd/mm/yyyy)	Additional Information (Relevance in CDM Context)
52.	Samsun Avdan	Annex 7g-Samsun-Measured Pressure Value Location	08/02/2013	Technical information
53.	Samsun Avdan	Annex 6c-Samsun-Flare Raw Data (Oct-Nov)	08/02/2013	Raw data/Invoices
54.	Samsun Avdan	Annex 6d-Samsun-Engine Raw Data (Oct-Nov)	08/02/2013	Raw data/Invoices
55.	Mavi	SamsunLFG-MR1-v.1.3-20130208-changes	08/02/2013	General information
56.	Mavi	Samsun-ERcalculation-20130208	08/02/2013	General information
57.	GS	Feedback from GS Technical Experts	06/03/2013	GS feedback
58.	Conveco	Annex 4s-Samsun-Periodical Calibration Protocol for Gas Analyzer (2)	27/02/2013	Technical information
59.	GS	Confirmation from GS Turkey to use the new flaring tool	01/04/2013	GS feedback
60.	Mavi	SamsunLFG-MR1-v.1.4-20130403-final	03/04/2013	General information
61.	Mavi	GS Passport-Approved by GS upon registration		General Information