



RINA

GOLD STANDARD VERIFICATION/CERTIFICATION REPORT

Final

“Bursa-Hamitler Landfill Gas Collection and Utilization
Project”
in
Turkey

Monitoring period: 19/05/2012 to 31/12/2013

Report N° 2014-TQ-35-MD

Revision N° 1.3 Aa



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Project Title: Bursa-Hamitler Landfill Gas Collection and Utilization Project		Country: Turkey	Estimated VERs (tCO₂e): 281,331									
GS Registration Reference N°: 1068		Monitoring period: 19/05/2012 to 31/12/2013	Certified VERs (tCO₂e): 510,297									
Client: ITC Bursa Enerji Uretim San. ve Tic. A.S.		Client contact: Tugba KIRER										
Report No.: 2014-TQ-35-MD		Revision: 1.3 Aa	Date of this report: 06/04/2015									
Approved by (Final Report – Authorized officer signing for the DOE):  Laura Severino			Date of approval: 07/04/2015									
Methodology												
Number: ACM0001	Version: 13.0.0 of 11/05/2012	Title: Consolidated methodology for landfill gas project activities	Scale Large	SS(s): 13								
RINA Services S.p.A. (RINA), commissioned by ITC Bursa Enerji Uretim San. ve Tic. A.S., has verified the greenhouse gas emission reductions reported for the project activity “Bursa-Hamitler Landfill Gas Collection and Utilization Project” in Turkey, GS Registration Reference N° 1068, for the period 19/05/2012 to 31/12/2013, 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 Det Norske Veritas (Validation Report No: 2012-9757, Version no: 02 issued on 20/12/2013) and it was registered on 29/08/2013 under GS registration reference N° 1068. The GHG emission reductions were calculated on the basis of the approved methodology ACM0001, version 13.0.0, Consolidated methodology for landfill gas project activities of 11/05/2012 and the monitoring plan included in the registered Project Design Document, version 12 of 18/12/2013. In conclusion, it is RINA's opinion that the project activity “Bursa-Hamitler Landfill Gas Collection and Utilization Project”, in “Turkey, as described in the Monitoring Report version 07 of 26/03/2015, meets all relevant requirements for GS and CDM activities and all relevant host Party criteria and correctly applies the baseline and monitoring methodology “ACM0001”, “Consolidated baseline and monitoring methodology for landfill gas project activities”, version 13.0 of 11/05/2012. Hence, RINA is able to certify that the emission reductions from the project during the monitoring period 19/05/2012 to 31/12/2013 amount to 510,297 tCO₂e. <table> <tr> <td>Baseline Emissions</td> <td>510,299.5 tCO₂e</td> </tr> <tr> <td>Project Emissions</td> <td>2.3 tCO₂e</td> </tr> <tr> <td>Leakage</td> <td>0 tCO₂e</td> </tr> <tr> <td>Net GHG emission reductions/removal</td> <td>510,297 tCO₂e</td> </tr> </table>					Baseline Emissions	510,299.5 tCO ₂ e	Project Emissions	2.3 tCO ₂ e	Leakage	0 tCO ₂ e	Net GHG emission reductions/removal	510,297 tCO ₂ e
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Net GHG emission reductions/removal	510,297 tCO ₂ e											

Work carried out by: Tugçe KIRATLI	☒	No distribution without permission from the Client or organizational unit responsible
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Work verified by (Final Report)  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
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

ITC Bursa Enerji Uretim San. ve Tic. A.S. has commissioned RINA to carry out the verification and certification of emission reductions reported for the registered "Bursa-Hamitler Landfill Gas Collection and Utilization Project" project in Turkey, GS Registration Reference N° 1068, for the period 19/05/2012 to 31/12/2013.

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 "Bursa-Hamitler Landfill Gas Collection and Utilization Project" project in Turkey for the period 19/05/2012 to 31/12/2013.

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 07 of 26/03/2015 [/3/](#), the emission reduction calculations provided in the form of a spreadsheet, "GS1068 Bursa Hamiler Landfill Gas Collection and Utilization Project 2014 ER Calculation v3 26012015.xlsx" version 03 of 26/01/2015 [/4/](#), the approved baseline and monitoring methodology ACM0001 version 13 [/11/](#), and all the documentation provided to support the monitoring period [/1 – 49/](#) were assessed as part of the verification. In addition, the Project Design Document version 12 of 18/12/2013 [/1/](#), in particular as regards the baseline estimations and the monitoring plan, the Passport version 05 of 18/12/2013 [/2/](#), and the validation report, revision 02 of 20/12/2013 [/12/](#) for the project, were reviewed.

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

/1/	Oak Danismanlik: CDM-PDD for project activity "Bursa-Hamitler Landfill Gas Collection and Utilization Project" in Turkey, version 12 of 18/12/2013
/2/	OAK Danışmanlık: GS Passport for "Bursa-Hamitler Landfill Gas Collection and Utilization Project" in Turkey, version 05 of 18/12/2013
/3/	Oak Danismanlik: Monitoring Report for project activity "Bursa-Hamitler Landfill Gas Collection and Utilization Project" in Turkey, version 07 of 26/03/2015 Oak Danismanlik: Monitoring Report for project activity "Bursa-Hamitler Landfill Gas Collection and Utilization Project" in Turkey, version 06 of 17/03/2015 Oak Danismanlik: Monitoring Report for project activity "Bursa-Hamitler Landfill Gas Collection and Utilization Project" in Turkey, version 05 of 26/01/2015 Oak Danismanlik: Monitoring Report for project activity "Bursa-Hamitler Landfill Gas Collection and Utilization Project" in Turkey, version 04 of 14/01/2015 Oak Danismanlik: Monitoring Report for project activity "Bursa-Hamitler Landfill Gas Collection and Utilization Project" in Turkey, version 03 of 17/11/2014 Oak Danismanlik: Monitoring Report for project activity "Bursa-Hamitler Landfill Gas Collection and Utilization Project" in Turkey, version 02 of 14/10/2014 Oak Danismanlik: Monitoring Report for project activity "Bursa-Hamitler Landfill Gas Collection and Utilization Project" in Turkey, version 01 of 18/07/2014
/4/	OAK Danışmanlık: Emission Reduction Calculation Spreadsheet " GS1068 Bursa Hamiler Landfill Gas Collection and Utilization Project 2014 ER Calculation v3 26012015.xlsx" version 03 of 26/10/2014 OAK Danışmanlık: Emission Reduction Calculation Spreadsheet "GS1068 Bursa Hamiler Landfill Gas Collection and Utilization Project 2014 ER Calculation v2 14102014.xlsx" version 02 of 14/10/2014 OAK Danışmanlık: Emission Reduction Calculation Spreadsheet "GS1068 Bursa Hamitler Landfill Gas Collection and Utilization Project 2014 ER Calculation v1 18072014.xlsx" version 01 of 18/07/2014
/5/	CDM Executive Board: Glossary of CDM Terms, version 07.0 of 23/11/2012
/6/	The Gold Standard: Clean Development Mechanism Validation and Verification Manual ,

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	version 30/07/2010
/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: Bursa-Hamitler Landfill Gas Collection and Utilization Project (GS1068) 8-week Registration Review Period Document of 27/01/2014
/10/	CDM Executive Board: Validation and Verification Standard, 07.0 of 01/06/2014
/11/	CDM Executive Board: Baseline and Monitoring Methodology "ACM0001", " Flaring or use of landfill gas ", version 13.0.0 of 11/05/2012
/12/	Det Norske Veritas: Validation Report for "Bursa-Hamitler Landfill Gas Collection and Utilization Project" in Turkey, No. 2012-9757 revision 02 of 20/12/2013
/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 "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 02.0.0 of 03/06/2011
/15/	CDM Executive Board: Methodological Tool "Emissions from solid waste disposal sites" version 06.0.1 of 02/03/2012
/16/	CDM Executive Board: Methodological Tool "Tool to calculate the emission factor for an electricity system" Version 03.0.0 of 23/11/2012
/17/	CDM Executive Board: Methodological Tool 'Tool to calculate baseline, project and/or leakage emissions from electricity consumption' version 01 of 16/05/2008
/18/	CDM Executive Board: Monitoring Report Form (CDM-MR-FORM), version 04.0 of 25/06/2014
/19/	ABB Group Company: Data Sheet for 2600 T Flow Meter No SS264XS_6
/20/	Nova-Z: Correspondence About the Calibration Frequency of Thermocouple of 09/05/2011
/21/	Measurement and Measuring Instruments Inspection Regulations, No. 22000 of 24/07/1994
/22/	Market Financial Conciliation Center (PMUM): All Monthly Electricity Records within the Monitoring Period (from 19/05/2012 to 31/12/2013)
/23/	Itron: Calibration Report of the Electricity Meters, Certificate No: CC_SL7000 07_014122 of 16/06/2011
/24/	SIEMENS: Data Sheet for Gas Analyzer Siemens Ultramat 23
/25/	Energy Market Regulatory Authority: Generation License numbered EU/3519-39/2166 of 01/12/2011
/26/	ITC Invest Trading & Consulting AG: Operating Hours of Engines GM1 to GM7 Monthly Reading Form, from 19/05/2012 to 31/12/2013
/27/	The Ministry of Energy and Natural Resources: Temporary Acceptance Protocol of 19/05/2012 (for 5 turbines)
/28/	The Ministry of Energy and Natural Resources: Temporary Acceptance Protocol of 27/07/2012 (for 1 turbines)
/29/	The Ministry of Energy and Natural Resources: Temporary Acceptance Protocol of 07/09/2012 (for 1 Turbine)
/30/	Energy Market Regulatory Authority: Generation License numbered EU/3519-39/2166 of 01/12/2011
/31/	Energy Market Regulatory Authority: Communiqué for Measurement Devices used in the Electricity Market of 22/03/2003
/32/	The Ministry of Trade and Industry: Regulation of Metering and Testing of Metering Systems of 24/07/1994
/33/	Itron: Calibration Report of the Electricity Meters of 16/06/2011
/34/	ITC Invest Trading & Consulting AG: Device Changing Forms (6 records), submitted on 11/07/2014

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/35/	Social Security Institution: Payroll Sheet List for all ITC Employees for 12/2013, submitted on 08/08/2014
/36/	Fire Brigade Department of Bursa Metropolitan Municipality: Basic Fire Training for 10 Employees of 12/06/2012
/37/	Tega Muhendislik Sanayi ve Ticaret A.S.: Electrofusion Welding Course for 6 Employees of 18/04/2013
/38/	Bilgemed: First Aid ID Card, valid up to 18/11/2015 (for 1 employee)
/39/	Pictures for the Visits of Delegation From Afganist, submitted on 06/08/2014
/40/	Pictures for the Visits of Union of Municipalities of Turkey, submitted on 06/08/2014
/41/	Pictures for the Visits of Delegation from Japan, submitted on 06/08/2014
/42/	ITC Invest Trading & Consulting AG: The list of the Trainings and Visitors, submitted on 06/08/2014
/43/	ABB Elektrik Sanayi A.S.: Calibration Certificate No 1000471282 of 24/08/2011 – Pressure Transducers ABB 2600T sn 3K646611009238
/44/	ABB Elektrik Sanayi A.S.: Calibration Certificate No 1000471518 of 04/08/2011 – Pressure Transducers ABB 2600T sn 3K646611009412
/45/	PR Electronics: Calibration Certificate of PR 5333A3B of 15/05/2011 – Temperature Transducers sn. 100567276
/46/	Türk Standartları Enstitüsü: Calibration Certificate No 13G0020 of 23/07/2013 – Gas Analyzer SIEMENS ULTRAMAT 23 sn N1-T4-0144
/47/	Türk Standartları Enstitüsü: Calibration Certificate No 12G0023 of 14/08/2012 – Gas Analyzer Teledyne 7500 A sn 293284
/48/	Teledyne Instruments: Calibration Report of Gas Analyzer Teledyne 7500 A sn 293284 of 26/08/2011
/49/	Novazet Endüstriyel Ürünleri Pazarlama Tic. Ltd. Şti.: Stability Protocol of 04/03/2010 - Temperature Transmitter

2.2 On-site assessment

On 07/08/2014, RINA visited the plant located in Hamitler district, Bursa 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 personnel were interviewed with the purpose to see how the monitoring procedures were implemented; the whole process was explained to the verification team during the site visit on 07/08/2014. The carbon consultants were interviewed about the monitoring report and related parameters on, which the whole process related emission reduction calculation and sustainability monitoring plan was explained.

During the site visit, the Deputy Branch Manager of Bursa Metropolitan Municipality was also interviewed about the soil condition caused by the project activity. She confirmed that the leachate is collected and transferred to the Municipalities Waste Water Treatment Center. She also represented that there is no damage to the environment due to the project activity.

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

	Date	Name and Role	Organization	Topic
/a/	07/08/2014	Omer AKYUREK <i>Consultant</i>	OAK Danismanlik	Monitoring plan Monitoring methodology
/b/	07/08/2014	Tugba KIRER <i>Environmental Manager</i>	ITC	Monitoring data Implementation status of the project
/c/	07/08/2014	M. Fikret SERT <i>Project Manager</i>	ITC	Monitoring equipments and operation Calibration certificates
/d/	07/08/2014	Serif YAKUT <i>Site Supervisor</i>	ITC	Training Certificates Electricity Generation
/e/	07/08/2014	Esra ESER <i>Deputy Manager</i> Branch	Bursa Metropolitan Municipality Waste Management Branch	Benefit of the project Treatment of Leachate

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	X	-	-
Technical Reviewer (DVRP)	Timuroglu	Isil	-	-	-	-	X	X
Technical Reviewer (DFVR)	Valoroso	Rita					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 19/05/2012 to 31/12/2013 as documented and described in the monitoring report version 07 of 26/03/2015 [/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)	ITC Bursa Enerji Uretim San. ve Tic. A.S.		
Project Title	Bursa-Hamitler Landfill Gas Collection and Utilization Project		
Location of the project	Hamitler District, Bursa Province of Turkey		
Methodology(ies)	"ACM0001", "Consolidated methodology for landfill gas project activities", version 13.0.0 of 11/05/2012 /11/		
Sectoral Scope(s)	13	RINA's Technical Area(s)	13.1
Registered PDD	Revision 12 of 18/12/2013		
Date of registration	29/08/2013	GS Registration Reference N°	1068

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Starting date of the crediting period	19/05/2012
Project's crediting period	19/05/2012 to 18/05/2019
Monitoring period	19/05/2012 to 31/12/2013
Project documentation link	http://mer.markit.com/br-reg/public/project.jsp?project_id=103000000001862

The purpose of the project activity is the generation of the electricity by using the LFG from the landfill. It involves the installation of gas engines, gas extraction system, flaring system, a leachate drainage system, and gas engines. The total capacity is to reach 9.8 MW through the crediting period. The electricity produced is delivered to the Turkish national grid (TEIAS). The emission reductions are estimated to be 281,331 tCO₂e from 19/05/2012 to 31/12/2013. The actual emission reduction for the monitoring period from 19/05/2012 to 31/12/2013 (both days included) is 510,297 tCO₂e.

3.2 Remaining issues (FARs) from previous validation or verification

Based on the review of 8-week Registration Review Period Document of 27/01/2014 /9/ 2 FARs were addressed during verification period.

FAR#1: The Validation DOE shall consider interviewing locals other than muhtars and public authorities on SD aspects of the project at next validations. Verification DOE shall ensure obtaining feedbacks and provide entire contact details of these people to the GS Secretariat during verification period.

The only parameter that has to be monitored during this period is water quality and soil condition. The best way is interviewing with the authorized person from municipality to confirm if the leachate is really collected and transferred to the water treatment center or not. Therefore, Mrs. Esra ESER, Deputy Waste Branch Manager of Bursa Metropolitan Municipality, was interviewed on the subject. Her contact details are given below:

Esra ESER
E-mail: esra.eser@bursa.bel.tr
Tel: (0224) 234 40 00
Mobile: (0532) 566 83 93

Hence, FAR#1 is closed.

FAR#2: In order to ensure transparent and open talk with stakeholders, interviewees, the DOE shall please ensure not depending on translation provided by the project owner/developer parties. The DOE shall consider conducting site visits with a professional translator or an employee of DNV who speaks Turkish well through next validation/verifications.

RINA has commissioned a local auditor for this verification period. For this reason, there is no need for translation.

Hence, FAR#2 is closed.

3.3 Monitoring Report

The Monitoring Report for the project activity "Bursa-Hamitler Landfill Gas Collection and Utilization Project", in "Turkey", version 07 of 26/03/2015 submitted by the ITC Bursa Enerji Uretim San. ve Tic. A.S. has been the basis for the verification process.

RINA confirms that the above MR is based on the currently valid MR template /18/ and is completed in accordance with the applicable guidance document /18/.

The main changes between the MR version 07 of 26/03/2015 at the starting date of the verification activity and the MR version 1 of 18/07/2014 submitted for publication are the following:

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Section of the MR	Description and reason for changing the information in that section
First Page	The date formats are revised as DD/MM/YYYY. The estimated and actual emission reduction is revised.
A.5. Crediting period of project activity	The starting date of the first crediting period is revised.
SECTION C. Description of monitoring system	The calibration frequency of the NOVA-Z temperature meter is revised as 5 years. The calibration date of ABB Pressure is revised.
D.2. Data and parameters monitored	The parameter of "Opj,h" is added. The value of the " $V_{t,db}$ " and " $V_{CH4,t,db}$ " is recalculated. Calibration date of the electricity meters are added.
E.4. Summary of calculation of emission reductions or net anthropogenic GHG removals by sinks	Baseline emission and emission reduction is re-calculated.
SD.4 Quality of employment	The training list is added.
SD.5 Human and Institutional Capacity	List of visits is added.
SD.6 Quantitative employment and income generation	The number of the contracted employees is revised.

3.4 Project implementation

Actual implementation of the registered project activity

It was verified during the site visit conducted on 07/08/2014 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 9.8 MW with 7 units of gas engines installed with each capacity of 1.4 MW.

The project activity is registered as Gold Standard Project activity on 29/08/2013 as confirmed through the GS 8-week registration review document [/9/](#).

It was confirmed during on site visit that the gas collection system, the enclosed flares, and the power generation unit was installed by the end of first monitoring period.

7 units of gas engine have been installed with a total capacity of 9.8 MW, which are dedicated to the landfill gas extracted from the landfill area. 7 engines have been commissioned in three phase as explained below:

- On 19/05/2012, five power generation units have commissioned as confirmed through the Temporary Acceptance Protocol [/27/](#).
- On 27/07/2012, one power generation unit has commissioned as confirmed through the Temporary Acceptance Protocol [/28/](#).
- On 07/09/2012, one power generation unit has commissioned as confirmed through the Temporary Acceptance Protocol [/29/](#).

No change in the registered PDD [/1/](#) has been occurred during the 1st monitoring period of 19/05/2012 to 31/12/2013.

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

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The estimated starting date of the crediting period is defined as 01/09/2012 as per the registered PDD /1/. However, first five gas engines were in operation on 19/05/2012 as confirmed through the temporary acceptance protocol /27/. Therefore, the date is revised in the monitoring report.

3.5 Methodology for determining Emission Reductions

According to the applied methodology ACM0001 "Consolidated baseline and monitoring methodology for landfill gas project activities" version 13.0.0 /11/, the emission reductions have been calculated based on the following formula:

$$ER_y = BE_y - PE_y$$

Where:

ER_y = Emission reduction in year y (tCO₂e/yr)

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

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

Baseline emissions

In accordance with ACM0001 "Flaring or Use of Landfill Gas" version 13.0.0 /11/, baseline emissions are calculated as follows:

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

Where:

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

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

$BE_{EC,y}$ = Baseline emissions associated with electricity generation in year y (tCO₂eq/yr)

Project emissions

In accordance with ACM0001 "Flaring or Use of Landfill Gas" version 13.0.0, the project emissions are calculated as follows:

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

Where:

$PE_{EC,y}$ = Emission from consumption of electricity due to the project activity in year y (tCO₂e/yr).

Since there is no consumption of fossil fuels due to the project activity, for the purpose other than electricity generation, there are no emissions from fossil fuel consumption and therefore $PE_{FC,y}$, is equal to "0" and has not been included in equation.

The project emissions from consumption of electricity by the project activity $PE_{EC,y}$ shall be calculated using the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption".

When applying the tool, electricity sources j in the tool corresponds to the sources of electricity consumed due to the project activity.

$PE_{EC,y}$ is calculated as follows:

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

Where:

$PE_{EC,y}$ = Project emissions from electricity consumption in year y (tCO₂e/year)

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

$EF_{EL,j,y}$ = Emission factor for electricity generation for source j in year y (tCO₂e/MWh)

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

Leakage

According to methodology ACM0001 version 13.0.0 [/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 ACM0001 version 13 [/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. An approved CDM methodology, ACM0001 version 13 [/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 07 of 26/03/2015 [/3/](#) complies with the monitoring plan in the registered PDD [/1/](#) and both the monitoring methodologies, ACM0001 version 13 [/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. No 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
OX_{top-layer} Fraction of methane that would be oxidized in the top layer of the SWDS in the baseline	Tool: Emissions from solid waste disposal sites	0.1	The parameter is used for the calculation of baseline emission as per the tool of “Emissions from solid waste disposal sites” /15/ .
GWP_{CH4} Global Warming Potential of	IPCC	2012: 21 tCO ₂ e/tCH ₄ 2013:	As per the IPCC the value 21 is fixed for the first and 25 is fixed for the second commitment period. It shall be updated

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Methane		25 tCO ₂ e/tCH ₄	according to any future COP/MOP decision.
n_{p,i} Efficiency of the LFG capture system that will be installed in the project activity	Methodology ACM0001	-	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 /14/ , 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 /14/ the value is fixed as 16.04 kg/kmol.
EF_{grid,CM} Combined margin emission factor	As per the registered PDD /1/	0.535 tCO ₂ e/MWh	According to the registered PDD, the combined emission factor has been determined using the ex-ante option and so it is not requested to monitor and recalculate it during the first crediting period.
W_{H2S} Fraction of Sulphide within the LFG	Registered Gold Standard Project Passport /2/	0.5%	As per the registered Gold Standard Project Passport /2/ is used for Gold Standard Sustainable Development Monitoring Parameter SD.1 "Air Quality".

3.5.3.2 Sampling plan

N/A.

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3.5.3.3 Data and parameters monitored ex-post

DATA/PARAMETER	Op _{j,h} – ID.20
Data Unit	-
Description	Operation of the equipment that consumes the LFG
Source of data to be used	The amount of hours is monitored with a counting device in each power generation unit by project participant
Value data for the monitoring period	2012: 31,437 h 2013: 51,916 h
Measuring and reporting frequency; recording procedure	The counting devices of the engines are counting the operational hours continuously as the operational hours are also used for maintenance reasons. The operational hours of the engines are recorded manual by the monitoring system at least monthly.
Type of monitoring equipment and its accuracy	The operation of the energy plant is measured for each power generation unit by a counting device. Every power generation unit has its own counting device totalizing the amount of hours.
Calibration frequency/interval	N/A
How were the values in the monitoring report verified and cross-checked?	The values used for calculation of baseline emission have been crosschecked with Monthly Reading Form /26/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The counting devices of the engines are counting the operational hours continuously as the operational hours are also used for maintenance reasons. The operational hours of the engines are recorded manual by the monitoring system at least monthly.
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. During this monitoring period all the data were available and no failure is recorded.

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DATA/PARAMETER	Management of SWDS – ID.21
Data Unit	-
Description	Management of SWDS
Source of data to be used	Original design of the landfill, technical specifications for the management of the SWDS and local or national regulations will be used as source.
Value data for the monitoring period	One of the following sources could be used: -Original design of the landfill -Technical specifications for the management of the SWDS -Local or national regulations
Measuring and reporting frequency; recording procedure	The parameter is monitored annually.
Type of monitoring equipment and its accuracy	NA
Calibration frequency/interval	NA
How were the values in the monitoring report verified and cross-checked?	NA
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	V _{t,db} – ID.22
Data Unit	m ³ dry gas / h
Description	Volumetric flow of the gaseous stream
Source of data to be used	The Volumetric flow of the gaseous stream is measured continuously through a mass flow meter
Value data for the monitoring period	2012: 23,017,272 2013: 34,430,270
Measuring and reporting frequency; recording procedure	The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server.
Type of monitoring equipment and its accuracy	During the monitoring period the following instruments have been used: – Flow measuring system by ABB, 2600 T, sn 3K646611009412 – Temperature Meter by NOVA-Z, PR 5333A3B, sn 11/32114 T 100567276 – Pressure Meter by ABB, 2600 T, sn 3K646611009238 The accuracy of ABB 2600 T is defined as 0.075% as confirmed through the initial calibration of supplier /43/ /44/. The accuracy of the NOVA-Z temperature meters is 0.1% as confirmed through the stability protocol of the supplier /49/.
Calibration frequency/interval	The flow meter has been calibrated on 04/08/2011 by the supplier as confirmed through the calibration record /44/ . The pressure meter has been calibrated on 24/08/2011 as confirmed through the calibration record /43/ . The calibration frequency has been defined every 5 years by the ABB supplier as confirmed through the data sheet of supplier /19/ . No calibrations have been carried out during this monitoring period as it has been considered still valid the supplier calibration.
How were the values in the monitoring report verified and cross-checked?	The values used for calculation of baseline emission have been crosschecked with the raw data given in the ER Calculation of 14/10/2014 /4/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server.
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. During this monitoring period all the data were available and no failure is recorded.

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DATA/PARAMETER	V_{CH₄,t,db} – ID.23
Data Unit	m ³ gas CH ₄ / m ³ dry gas
Description	Volumetric fraction of CH ₄ in a time interval t on a dry basis
Source of data to be used	The methane fraction in the LFG is measured continuously by a gas analyzer.
Value data for the monitoring period	2012: 51.63% 2013: 51.97%
Measuring and reporting frequency; recording procedure	The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server.
Type of monitoring equipment and its accuracy	During the monitoring period the following instruments have been used: – Gas Analyzer, Siemens ULTRAMAT 23 , sn N1-T4-0144 – Gas Analyzer, TELEDYNE, 7500, sn A1H5020T/293284 The accuracy of the gas analyzer ULTRAMAT 23 is 0.2% as confirmed through the ULTRAMAT data sheet of supplier /24/. The accuracy of the gas analyzer TELEDYNE 7500 is 1% as confirmed through the calibration report /48/.
Calibration frequency/interval	The Ultramat gas analyzer has been calibrated on 23/07/2013 as confirmed through the calibration report /46/. The Teledyne gas analyzer has been calibrated on 26/08/2011 and 14/08/2012 as confirmed through the calibration records /47/ /48/. The calibration frequency has been established 6-12 months for Siemens Ultramat 23 gas analyzer as confirmed through the recommendation of the supplier /24/. The calibration frequency has been established 6-12 months for Teledyne gas analyzer in the monitoring report as confirmed through the regulation /21/.
How were the values in the monitoring report verified and cross-checked?	The values used for calculation of baseline emission have been crosschecked with the raw data given in the ER Calculation of 14/10/2014 /4/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server.
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. During this monitoring period all the data were available and no failure is recorded.

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DATA/PARAMETER	T_t – ID.24
Data Unit	C
Description	Temperature of the gaseous stream in a time interval t
Source of data to be used	Temperature measure
Value data for the monitoring period	2012: 54.9 °C (328.05 °K) 2013: 54.1 °C (327.25 °K)
Measuring and reporting frequency; recording procedure	The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server.
Type of monitoring equipment and its accuracy	During this monitoring period the following temperature meters have been used: – Temperature meter NOVA-Z, PR 5333A3B, sn 11/32114 T 100567276 The accuracy of the NOVA-Z temperature meters is 0.1% as confirmed through the stability protocol of the supplier /49/ .
Calibration frequency/interval	The temperature meter has been calibrated on 15/05/2011 as confirmed through the calibration report /45/ . The calibration frequency has been established every 5 years for NOVA-Z temperature meters as confirmed through the recommendation of the supplier /20/ .
How were the values in the monitoring report verified and cross-checked?	The values used for calculation of baseline emission have been crosschecked with the raw data given in the ER Calculation of 14/10/2014 /4/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server.
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. During this monitoring period all the data were available and no failure is recorded.

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DATA/PARAMETER	EC _{BL,y} – ID.25
Data Unit	MWh
Description	Net amount of electricity generated using LFG
Source of data to be used	PMUM records /22/ .
Value data for the monitoring period	2012: 41,644 MWh 2013: 69,423 MWh
Measuring and reporting frequency; recording procedure	The electricity generation is measured from electricity meters continuously in line with the registered monitoring plan. The monitoring team collects monthly measuring protocols for power delivered from the grid.
Type of monitoring equipment and its accuracy	During this monitoring period the following electricity meters have been used: – Electricity meters ACTARIS SL7000, sn 62008740 – Electricity meters ACTARIS SL7000, sn 62008741 The accuracy of the electricity meter ACTARIS SL7000 is 0.5s as confirmed through the calibration report of the electricity meter /23/ and was seen on site visit.
Calibration frequency/interval	The electricity meter has been calibrated on 16/06/2011 by the Itron manufacturer as confirmed through the calibration record /23/ . As per the “Regulation of Metering and Testing of Metering Systems”, the meters shall be calibrated every 10 years. The calibration of meters is deemed appropriate and in compliance with the national regulation /32/ .
How were the values in the monitoring report verified and cross-checked?	The values used for calculation of baseline emission have been crosschecked with the PMUM records /22/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server and reported monthly. It is also stored by PMUM on the web site.
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. During this monitoring period, all the data were available and no failure is recorded.

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DATA/PARAMETER	EC_{PJ,y} – ID.26
Data Unit	MWh
Description	Quantity of electricity consumed by the project activity
Source of data to be used	PMUM records /22/ .
Value data for the monitoring period	2012: 2.64 MWh 2013: 0.98 MWh
Measuring and reporting frequency; recording procedure	The electricity consumption is measured from electricity meters continuously in line with the registered monitoring plan. The monitoring team collects monthly measuring protocols for power delivered from the grid.
Type of monitoring equipment and its accuracy	During this monitoring period the following electricity meters have been used: – Electricity meters ACTARIS SL7000, sn 62008740 – Electricity meters ACTARIS SL7000, sn 62008741 The accuracy of the electricity meter ACTARIS SL7000 is 0.5s as confirmed through the calibration report of the electricity meter /23/ and was seen on site visit.
Calibration frequency/interval	The electricity meter has been calibrated on 16/06/2011 by the Itron manufacturer as confirmed through the calibration record /23/ . As per the “Regulation of Metering and Testing of Metering Systems”, the meters shall be calibrated every 10 years. The calibration of meters is deemed appropriate and in compliance with the national regulation /32/ .
How were the values in the monitoring report verified and cross-checked?	The values used for calculation of baseline emission have been crosschecked with the raw data given in the ER Calculation of 14/10/2014 /4/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server.
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. During this monitoring period, all the data were available and no failure is recorded.

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DATA/PARAMETER	TDL _y – ID.27
Data Unit	%
Description	Average technical transmission and distribution losses in year y
Source of data to be used	As no reliable information could be found for this period, a default factor of 20% is used for TDL _{j,y} (used to calculate PE _{EC}) and a default factor of 3% is used for TDL _{k,y} (used to calculate BE _{EC}), which is in line with the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption.
Value data for the monitoring period	20%; 3%
Measuring and reporting frequency; recording procedure	It is used for calculation of project emission as per the “Tool to calculate baseline, project and/or leakage emission from electricity consumption”.
Type of monitoring equipment and its accuracy	-
Calibration frequency/interval	-
How were the values in the monitoring report verified and cross-checked?	The values used for calculation of project emission are confirmed through the methodological tool /17/ .
Does the data management (from monitoring equipment to emission reduction calculation) ensure correct transfer of data and reporting of emission reductions?	It is used for calculation of project emission as per the “Tool to calculate baseline, project and/or leakage emission from electricity consumption”.
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. During this monitoring period all the data were available and no failure is recorded.

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3.5.3.4 Gold Standard sustainability monitored parameters

Data variable	Source of Data	Reported value for the project period
SDI.1 Air Quality Levels of Sulphide combusted in the landfill gas engines	Data are calculated based on the amount of LFG destroyed in the engines.	285,249 m ³
Assessment		
The levels of Sulphide combusted in the landfill gas engines is calculated based on the amount of landfill gas combusted in the engines as 285,249 m ³ of H ₂ S has been reduced due to the project activity within this monitoring period as presented and calculated in the excel sheet /4/ .		

Data variable	Source of Data	Reported value for the project period
SDI.2 Water Quality Management of leachate water	Interviews	Collected leachate
Assessment		
The management of leachate is monitored each monitoring period by documentation on leachate collection. The leachate from the landfill area is collected and transferred to the Municipalities Waste Treatment Centre as confirmed through the interviews with Mrs. Esra ESER, Deputy Waste Branch Manager of Bursa Metropolitan Municipality.		

Data variable	Source of Data	Reported value for the project period
SDI.4 Quality of Employment The number of trainings and attendance provided to employees	List and attendance of trainings	3 trainings were organized
Assessment		
The provided trainings are monitored through the list of attendance to trainings given in the monitoring report. The three given trainings during this monitoring period could be confirmed through the training certificates and attendance list /36/ /37/ /38/ /42/ .		

Data variable	Source of Data	Reported value for the project period
SDI.5 Soil Condition Collection of leachate	Interviews	Collected leachate
Assessment		
The management of leachate is monitored each monitoring period by documentation on leachate collection. The leachate from the landfill area is collected and transferred to the Municipalities Waste Treatment Centre as confirmed through the interviews with Mrs. Esra ESER, Deputy Waste Branch Manager of Bursa Metropolitan Municipality.		

Data variable	Source of Data	Reported value for the project period
SDI.8 Human and Institutional Capacity Procedures and	Awareness campaign list	3 visits, 35 visitors

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evidence of campaigns/trainings		
Assessment		
The procedures and evidences of campaigns/trainings are monitored in each monitoring period by the visit list and photos. Three visits were performed during this monitoring period as confirmed through the list and the photos /39/ /40/ /41/ /42/ .		

Data variable	Source of Data	Reported value for the project period
SDI.9 Quantitative Employment and income generation Number of contracts	Payroll Sheets of Social Security Institution	23 people are employed
Assessment		
The number of contracts is monitored through the documentation of Payroll sheets obtained from Social Security Institution /35/ . According to the payroll sheets, 23 employees are working in the project activity for the monitoring period.		

3.5.4 Assessment of data and calculation of emission reductions

Availability of the data

All PMUM records [/22/](#) within this monitoring period was checked during the site visit. In addition, raw data given in the excel sheet [/4/](#) that includes the parameters used to calculate emission reduction was checked for the whole monitoring period.

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 [/22/](#) 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 04 of 14/01/2015 [/3/](#) is equivalent to 510,297 tCO₂e. The reported emission reductions are 81.3% higher than the estimated emission reduction of 281,331 tCO₂e for the period as per the registered PDD [/1/](#). According to the PP's explanation, the difference between the ex-ante estimation and ex-post calculations could be explained by the cumulative effect of several conditions such as the year 2012 emission reductions were "corrected" according to an estimated start date in September, while the engines were commissioned in May, as per the methodology a correction factor of 0.75 has been used during the PDD preparation and as per the methodology a default value of 50% efficiency has been for the overall system.

Specifically the combination of the use of default values during the ex-ante calculations result in approximately a deviation of 37% from the actual result from the FOD model. If these default values were not applied the FOD model would have resulted in approximately 620,000 t CO₂e.

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 [/35/](#), training certificates and attendance list [/36/ /37/ /38/ /42/](#), visit list and photos [/39/ /40/ /41/ /42/](#) and PMUM records [/22/](#) 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 30 minutes. Every day the server creates a file with all half-hourly data saved. The server also automatically calculates every 30 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 fourth verification period is carried out through the spreadsheet "GS1068 Bursa Hamiler Landfill Gas Collection and Utilization Project 2014 ER Calculation v2 14102014.xlsx" [/4/](#). The on-site visit at Bursa 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/](#).

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4 VERIFICATION AND CERTIFICATION OPINION

RINA Services Spa (RINA) has performed verification of the emission reductions reported for the project activity "Bursa-Hamitler Landfill Gas Collection and Utilization Project" in Turkey, GS Registration Reference N° 1068, for the period 19/05/2012 to 31/12/2013, with regard to the relevant requirements for GS activities.

The project participants of the "Bursa-Hamitler Landfill Gas Collection and Utilization Project" 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 version 12 of 18/12/2013
- 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 07 of 26/03/2015 for the "Bursa-Hamitler Landfill Gas Collection and Utilization Project" project in Turkey for the period 19/05/2012 to 31/12/2013 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", "Consolidated baseline and monitoring methodology for landfill gas project activities", version 13 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 19/05/2012 to 31/12/2013 amount to 510,297 tCO₂e.

Year 2012 - 19/05/2012 to 31/12/2012 = 183,778 tCO₂e

Year 2013 - 01/01/2013 to 31/12/2013 = 326,519 tCO₂e

GHG Emission Reductions or Removals	tCO ₂ e
Baseline Emissions	510,299.5
Project Emissions	2.3
Leakage	0
Net GHG emission reductions or removals	510,297

Istanbul, 06/04/2015

Genova, 07/04/2015



Tuğçe 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/ /12/	DR, CC	The title of the project activity is defined as “Bursa Hamitler Landfill Gas Collection and Utilization Project - Turkey” in the Monitoring Report version 01 /3/. However, it is not in line with the registered PDD /1/, Validation Report /12/ and GS Registry. Please clarify. The new version 04.0 of the CDM-MR-FORM /18/ is available. Please apply. Please also take into consideration that the dates should be given as “DD/MM/YYYY” format as per the template /18/.	~~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/ /4/ /27/ /28/ /29/	DR, CC, I	It is confirmed during the site visit performed on 07/08/2014 that project activity is implemented and operated as per the registered PDD /1/. The starting date of the crediting period is 19/05/2012 as confirmed through the Temporary Acceptance Protocol /27/. However, in the monitoring report, the date is mentioned as 29/05/2012. Please make all the necessary changes including excel calculations. During on site visit, it was confirmed through the Provisional Acceptance Protocol /27/ /28/ /29/ that the gas collection system, the enclosed flares, and the power generation unit was installed by the end of first monitoring period. 7 units of gas engine have been installed with a total capacity of 9.8 MW, which are dedicated to the landfill gas extracted from the landfill area. 7 engines have been commissioned in three phase as explained below: - On 19/05/2012, five power generation units have commissioned as confirmed through the Temporary Acceptance Protocol /27/.	~~CAR-1~~ OK

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

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				- On 27/07/2012, one power generation unit has commissioned as confirmed through the Temporary Acceptance Protocol /28/. - On 07/09/2012, one power generation unit has commissioned as confirmed through the Temporary Acceptance Protocol /29/. No change in the registered PDD /1/ has been occurred during the 1st monitoring period of 19/05/2012 to 31/12/2013. Estimated emission reduction is indicated as 229,417 tCO₂ in the first page and Section E.5 of the monitoring report related to the monitoring period from 01/09/2012 to 31/12/2013. However, the starting date of the crediting period is confirmed as 19/05/2012 /27/. Please clarify. In addition, the actual emission reduction is defined as 180,877 tCO₂e up to 31 December 2012 in the monitoring report. However, the amount is not correct. Also, the name of the company given in the Informative Questionnaire and Offer + Request, is not in line with the registered PDD and Generation License. Please clarify.	
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 monitoring complies with the monitoring plan presented in the registered PDD /1/ and GS Passport /2/ . 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.	OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
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/	DR, CC	The sustainability indicators included in the monitoring report /3/ complies with the minimum contents specified in paragraph 4.1 of the GS Toolkit /8/.	OK
B.1.4	Have any changes been made to the key sustainable development indicators?	/1/ /3/	DR, CC, I	No change has been occurred during the monitoring period of 19/05/2012 to 31/12/2013 as confirmed through the site inspection and interviews.	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/ /2/ /3/ /11/ /14/	DR, CC	The following parameters were available at validation stage and that doesn't need to be monitored during the crediting period: ID.1 Fraction of methane that would be oxidized in the top of layer of the SWDS in the baseline ($OX_{top-layer}$): It is defined as 0.1 as per the methodological tool "Emission from solid waste disposal sites". ID.2 Global Warming Potential of methane (GWP_{CH_4}): It is defined as 21 tCO₂e/tCH₄ for the monitoring period that falls within the first commitment period and 25 tCO₂e/tCH₄ for the monitoring period that falls within the second commitment period as per the Kyoto Protocol in the registered PDD. ID.3 Efficiency of the LFG capture system that will be installed in the project activity (n_{PJ}): It is used for the baseline emission calculation as per the methodology ACM0001 /11/. ID.4 Universal ideal gases 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" /14/. ID.5 Molecular mass of CH₄ (MM_{CH_4}): 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" /14/. Combined margin emission factor ($EF_{grid,CM}$): The emission factor has been determined using the ex-ante option, so it is not requested to monitor and recalculate	OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				in this crediting period. The emission factor is determined to be 0.535 tCO₂/MWh in the registered PDD /1/. SD.1 Fraction of sulphide within the LFG determined ex-ante for SDI.3 (W_{H_2S}): It is defined as 0.5% in the registered GS Passport /2/. The parameter is used for GS Sustainable Development Monitoring Parameter SD.1 Air Quality. However, it is mentioned as SD.3 Other Pollutants in the monitoring report.	
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/ /4/ /22/	DR, CC, I	ID.21 Management of SWDS: Management of SWDS is measured by the original design of the landfill and technical specifications for the management of SWDS. There is no change in the design change on the original design of landfill during this monitoring period. ID.22 Volumetric flow of the gaseous stream (to the electricity generating units) in time interval t on a dry basis ($V_{t,db}$): It is measured continuously by a volumetric flow meter. The 2012 data is 22,619,708 and the 2013 data is 34,430,270 as confirmed through the calculation excel sheet /4/. ID.23 Volumetric fraction of CH₄ in a time interval t on a dry basis ($V_{CH_4,t,db}$): It is measured continuously by a gas analyzer. The 2012 data is defined as 51.64% and the 2013 data is defined as 51.97% in the monitoring report as confirmed through the raw data given in the calculation excel sheet /4/. ID.24 Temperature of the gaseous stream in a time interval t (T_t): It is measured by a temperature meter. The 2012 data is 54.9°C and the 2013 data is 54.1°C. However, the unit of the parameter is defined as "K" in the registered PDD. Please clarify. ID.25 Net amount of electricity generated using LFG ($EC_{BL,y}$): It is measured continuously by electricity meter of the grid company. The 2012 value is 41,664 MWh and the 2013 value is 69,423 MWh as confirmed through the	CR-2 OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			PMUM records /22/. ID.26 Quantity of electricity consumed by the project activity ($EC_{PJ,y}$): It is measured continuously by electricity meter of the grid company. The 2012 value is 2.64 MWh and the 2013 value is 0.98 MWh as confirmed through the PMUM records /22/. ID.27 Average technical transmission and distribution losses in year y (TDL_y): According to the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” a default factor of 20% is used for calculating PE_{EC} and 3% is used for calculating BE_{EC}. In addition, as per the registered PDD the parameter of $O_{pj,h}$ (ID.20) is not discussed in the monitoring report. Please clarify.	
B.3.2 Is the measurement equipment described? Is the accuracy of the measurement equipment addressed and deemed appropriate?	1/ /3/ /23/ /24/ /43/ /44/ /48/ /49/	DR, CC, I	ID.21 Management of SWDS: The parameter is monitored by the original design of the landfill and technical specifications for the management of SWDS. ID.22 Volumetric flow of the gaseous stream (to the electricity generating units) in time interval t on a dry basis ($V_{t,db}$): The volumetric flow of the gaseous stream is measured continuously through the mass flow meter. During the monitoring period the following instruments have been used: – Flow measuring system by ABB, 2600 T, sn 3K646611009412 – Temperature Meter by NOVA-Z, PR 5333A3B, sn 11/32114 T 100567276 – Pressure Meter by ABB, 2600 T, sn 3K646611009238 The accuracy of ABB 2600 T is defined as 0.075% as confirmed through the initial calibration of supplier /43/ /44/. The accuracy of the NOVA-Z temperature meters is 0.1% as confirmed through the stability protocol of the	CR-3 OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			supplier /49/. ID.23 Volumetric fraction of CH₄ in a time interval t on a dry basis ($V_{CH_4,t,db}$): The volumetric fraction is measured by a gas analyzer. During the monitoring period the following instruments have been used: – Gas Analyzer, Siemens ULTRAMAT 23 , sn N1-T4-0144 – Gas Analyzer, TELEDYNE, 7500, sn A1H5020T/293284 The accuracy of the gas analyzer ULTRAMAT 23 is 0.2% as confirmed through the ULTRAMAT data sheet of supplier /24/. The accuracy of the gas analyzer TELEDYNE 7500 is 1% as confirmed through the calibration report /48/. However, the accuracy of the gas analyzer TELEDYNE is not discussed in ID. 23. Please clarify. ID.24 Temperature of the gaseous stream in a time interval t (T_t): It is measured using temperature meter. During this monitoring period the following temperature meters have been used: – Temperature meter NOVA-Z, PR 5333A3B, sn 11/32114 T 100567276 The accuracy of the NOVA-Z temperature meters is 0.1% as confirmed through the stability protocol of the supplier /49/. ID.25 Net amount of electricity generated using LFG ($EC_{BL,y}$): It is measured using electricity meters. During this monitoring period the following electricity meters have been used: – Electricity meters ACTARIS SL7000, sn 62008740 – Electricity meters ACTARIS SL7000, sn 62008741 The accuracy of the electricity meter ACTARIS SL7000 is 0.5s as confirmed through the calibration report of the electricity meter /23/ and was seen on site visit.	

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			ID.26 Quantity of electricity consumed by the project activity ($EC_{PJ,y}$): It is measured using electricity meters. During this monitoring period the following electricity meters have been used: – Electricity meters ACTARIS SL7000, sn 62008740 – Electricity meters ACTARIS SL7000, sn 62008741 The accuracy of the electricity meter ACTARIS SL7000 is 0.5s as confirmed through the calibration report of the electricity meter /23/ and was seen on site visit. ID.27 Average technical transmission and distribution losses in year y (TDL_y): It is used for calculation of project emission as per the “Tool to calculate baseline, project and/or leakage emission from electricity consumption”.	
B.3.3 Are the requirements for maintenance and calibration of measurement equipment described and deemed appropriate?	1/ /3/ /23/ /24/ /32/ /43/ /44/ /45/ /46/ /47/ /48/ /49/ /19/	DR, CC, I	ID.21 Management of SWDS: The parameter is monitored by the original design of the landfill and technical specifications for the management of SWDS. ID.22 Volumetric flow of the gaseous stream (to the electricity generating units) in time interval t on a dry basis ($V_{t,db}$): The flow meter has been calibrated on 04/08/2011 by the supplier as confirmed through the calibration record /44/. The pressure meter has been calibrated on 24/08/2011 as confirmed through the calibration record /43/. However, it is mentioned as 02/08/2011 in the monitoring report. Please correct. The calibration frequency has been defined every 5 years by the ABB supplier as confirmed through the data sheet of supplier /19/. No calibrations have been carried out during this monitoring period as it has been considered still valid the supplier calibration. ID.23 Volumetric fraction of CH_4 in a time interval t on a dry basis ($V_{CH_4,t,db}$): The Ultramat gas analyzer has been calibrated on 23/07/2013 as confirmed through the calibration report /46/. The Teledyne gas analyzer	CR-4 OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			has been calibrated on 26/08/2011 and 14/08/2012 as confirmed through the calibration records /47/ /48/. The calibration frequency has been established 6-12 months for Siemens Ultramat 23 gas analyzer as confirmed through the recommendation of the supplier /24/. The calibration frequency has been established 6-12 months for Teledyne gas analyzer in the monitoring report. However, it could not be confirmed since there is no documentation for the frequency. Please justify. ID.24 Temperature of the gaseous stream in a time interval t (T_j): The temperature meter has been calibrated on 15/05/2011 as confirmed through the calibration report /45/. The calibration frequency has been established every 10 years for NOVA-Z temperature meters as confirmed through the recommendation of the supplier /49/. However, in the monitoring report it is defined as "5 years". Please correct. ID.25 Net amount of electricity generated using LFG ($EC_{BL,y}$): The electricity meter has been calibrated on 16/06/2011 by the Itron manufacturer as confirmed through the calibration record /23/. As per the "Regulation of Metering and Testing of Metering Systems", the meters shall be calibrated every 10 years. The calibration of meters is deemed appropriate and in compliance with the national regulation /32/. However, the calibration date and the frequency are not mentioned in the monitoring report. ID.26 Quantity of electricity consumed by the project activity ($EC_{PJ,y}$): The electricity meter has been calibrated on 16/06/2011 by the Itron manufacturer as confirmed through the calibration record /23/. As per the "Regulation of Metering and Testing of Metering Systems", the meters shall be calibrated every 10 years. The calibration of meters is deemed appropriate and in compliance with the national regulation /32/. However,	

Checklist Question	Reference	MoV ¹	Comments	Conclusion
			the calibration date and the frequency are not mentioned in the monitoring report. ID.27 Average technical transmission and distribution losses in year y (TDL_y): It is used for calculation of project emission as per the “Tool to calculate baseline, project and/or leakage emission from electricity consumption”.	
B.3.4 Is the monitoring frequency adequate for all monitoring parameters? Is it in line with the registered monitoring plan?	1/ /3/ /4/	DR, CC, I	ID.21 Management of SWDS: The parameter is monitored by the original design of the landfill and technical specifications for the management of SWDS. ID.22 Volumetric flow of the gaseous stream (to the electricity generating units) in time interval t on a dry basis ($V_{t,db}$): The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server. ID.23 Volumetric fraction of CH_4 in a time interval t on a dry basis ($V_{CH_4,t,db}$): The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server. ID.24 Temperature of the gaseous stream in a time interval t (T_t): The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server. ID.25 Net amount of electricity generated using LFG ($EC_{BL,y}$): The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server. ID.26 Quantity of electricity consumed by the project activity ($EC_{PJ,y}$): The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server.	OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				ID.27 Average technical transmission and distribution losses in year y (TDL_y): It is used for calculation of project emission as per the "Tool to calculate baseline, project and/or leakage emission from electricity consumption".	
B.3.5	Is the recording frequency adequate for all monitoring parameters? Is it in line with the registered monitoring plan?	1/ 3/ 4/	DR, CC, I	ID.21 Management of SWDS: The parameter is monitored by the original design of the landfill and technical specifications for the management of SWDS. ID.22 Volumetric flow of the gaseous stream (to the electricity generating units) in time interval t on a dry basis ($V_{t,db}$): The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server. ID.23 Volumetric fraction of CH_4 in a time interval t on a dry basis ($V_{CH_4,t,db}$): The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server. ID.24 Temperature of the gaseous stream in a time interval t (T_t): The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server. ID.25 Net amount of electricity generated using LFG ($EC_{BL,y}$): The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server. ID.26 Quantity of electricity consumed by the project activity ($EC_{PJ,y}$): The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server. ID.27 Average technical transmission and distribution losses in year y (TDL_y): It is used for calculation of project emission as per the "Tool to	OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				calculate baseline, project and/or leakage emission from electricity consumption".	
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	ID.21 Management of SWDS: The parameter is monitored by the original design of the landfill and technical specifications for the management of SWDS. ID.22 Volumetric flow of the gaseous stream (to the electricity generating units) in time interval t on a dry basis ($V_{t,db}$): The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server. ID.23 Volumetric fraction of CH_4 in a time interval t on a dry basis ($V_{CH_4,t,db}$): The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server. ID.24 Temperature of the gaseous stream in a time interval t (T_t): The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server. ID.25 Net amount of electricity generated using LFG ($EC_{BL,y}$): The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server. ID.26 Quantity of electricity consumed by the project activity ($EC_{PJ,y}$): The monitoring system works with continuous measurement devices. It is programmed to automatically save half-hourly values. The data are stored automatically at the server. ID.27 Average technical transmission and distribution losses in year y (TDL_y): It is used for calculation of project emission as per the "Tool to calculate baseline, project and/or leakage emission from electricity consumption".	OK

Checklist Question	Reference	MoV ¹	Comments	Conclusion
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/ /4/ /35/ /36/ /37/ /38/ /39/ /40/ /41/ /42/	DR, CC, I	The following GS sustainable development parameters are monitored as per the monitoring plan presented in the registered PDD /1/. SD.1 Air Quality: The level of sulphide combusted in the landfill gas engine is monitored at each monitoring period. The amount of H₂S is calculated based on the amount of LFG destroyed in the engines. As per the registered GS Passport /2/, in the calculation is used a conservative approach of 0.5% for the sulphide content. The 2012 data is defined as 113,098 m³ for sulphide and 22,619,708 m³ for LFG. The 2013 data is defined as 172,151 m³ for sulphide and 34,430270 m³ for LFG as confirmed through the raw data and the calculation in the excel sheet /4/. SD.2 Water Quality: The management of leachate is monitored each monitoring period by documentation on leachate collection. The leachate from the landfill area is collected and transferred to the Municipalities Waste Treatment Centre as confirmed through the interviews with Mrs. Esra ESER, Deputy Waste Branch Manager of Bursa Metropolitan Municipality. Please also give a definition for the current situation performed on this monitoring period. SD.3 Quality of Employment: The provided trainings are monitored through the list of attendance to trainings given in the monitoring report. The four given trainings during this monitoring period could be confirmed through the training certificates and attendance list /36/ /37/ /38/ /42/. However, the number of the trainings and the list is not discussed and presented in the monitoring report. Please add. SD.4 Soil Condition: The management of leachate is monitored each monitoring period by documentation on leachate collection. The leachate from the landfill area is collected and transferred to the Municipalities Waste	CAR-2 OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
				Treatment Centre as confirmed through the interviews with Mrs. Esra ESER, Deputy Waste Branch Manager of Bursa Metropolitan Municipality. Please also give a definition for the current situation performed on this monitoring period. SD.5 Human and Institutional Capacity: The procedures and evidences of campaigns/trainings are monitored in each monitoring period by the visit list and photos. Three visits were performed during this monitoring period as confirmed through the list and the photos /39/ /40/ /41/ /42/. Please add the visit list to the monitoring report. SD.6 Quantitative employment and income generation: The number of contracts is monitored through the documentation of Payroll sheets obtained from Social Security Institution /35/. 19 employees are defined in the Monitoring Report /3/. However, according to the payroll sheets, 23 employees are working in the project activity for the monitoring period.	
B.4.2	Is the monitoring in line with the registered monitoring plan?	/1/ /3/	DR, CC	The monitoring complies with the monitoring plan presented in the registered PDD.	OK
B.5 Management, quality assurance and quality control					
B.5.1	How has it been assessed that the monitoring arrangements described in the monitoring plan are feasible within the project design?	/1/ /3/	DR, CC, I	An on-site inspection has been performed on 07/08/2014 and it is confirmed that the monitoring arrangements in the monitoring plan are feasible within the project design.	OK
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)?	/1/ /3/	DR, CC, I	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 30 minutes. Every day the server creates a file with all half-hourly data saved. The stored data are transferred monthly to a computer and a back-up hard drive. The electricity consumption is monitored continuously by two electricity meters. TEIAS is responsible for the calibration and maintenance of the electricity meters.	OK

Checklist Question		Reference	MoV ¹	Comments	Conclusion
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	There are daily checks if the data from the day before was stored successfully on the servers in the booster station. Three times a day the operating hours of the engines are checked. Aggregation of data and cross checks takes place periodically.	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 1.0 /3/ that the collected data during the monitoring period will be kept by the project owner during the crediting period and two years after.	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
CAR 1 The starting date of the crediting period is 19/05/2012 as confirmed through the Temporary Acceptance Protocol /27/. However, in the monitoring report, the date is mentioned as 29/05/2012. Please make all the necessary changes including excel calculations. Estimated emission reduction is indicated as 229,417 tCO₂ in the first page and Section E.5 of the monitoring report related to the monitoring period from 01/09/2012 to 31/12/2013. However, the starting date of the crediting period is confirmed as 19/05/2012 /27/. Please clarify. In addition, the actual emission reduction is defined as 180,877 tCO₂e up to 31 December 2012 in the monitoring report. However, the amount is not correct. Also, the name of the company given in the Informative Questionnaire and Offer + Request, is not in line with the registered PDD and Generation License. Please clarify.	A.2	The ER calculation is revised to start from 19/05/2012. The monitoring report has been revised accordingly. The values provided under the column “values estimated in ex-ante calculation of the registered PDD” are taken from the registered PDD as required. Under the registered PDD, the ex-ante estimations were based on the assumption that the crediting period will start on 01/09/2012. Please refer to “footnote 67” of the registered PDD. Value of the ERs up to 31 December 2012 has been corrected accordingly. The Project Participant is ITC Bursa Enerji Üretim San ve Tic A.Ş. This information has been provided in a consistent way under the PDD, Monitoring Report and The Generation License. If the DOE is referring to the commercial agreement between ITC and Rina, there is no requirement that the PP mentioned under the PDD shall be the same entity that assigns the DOE as well on a commercial level. In fact there are many examples under Gold Standard where the Generation License to X company while the DOE is assigned by Y company (as an example through a consultancy). 3rd Round Respond PP:	<u>Review 1 (14/11/2014):</u> The starting date of the crediting period is now corrected as 19/05/2012 and all necessary changes are made in the calculation excel sheet. The estimated emission reduction does not reflect the truth. The date given in the registered PDD as 01/09/2012 is an estimation. However, the real starting date of the crediting period is 19/05/2012. Therefore, please recalculate the estimated emission reduction as per the value given in the registered PDD. The actual emission reduction is now defined as 183,778 tCO₂e up to 31 December 2012 in the monitoring report. Please provide the agreement between the main company and the sub-company or a correspondence showing the relationship between two companies. <u>Hence, CAR 1 is not closed.</u> <u>Review 2 (28/11/2014):</u> The estimated emission reduction does not reflect the truth. The date given in the registered PDD as 01/09/2012 is an estimation. However, the real starting date of the crediting period is 19/05/2012. Therefore, please recalculate the estimated emission reduction as per the value given in the registered PDD. Please provide the agreement between the main company and the sub-company or a correspondence showing the relationship

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
		The ex-ante estiamte has been revised according to start of crediting period (44,919 *263 days/122 days) Regarding company name: The issue is not related to UNFCCC rules or GS rules. The DOE may refer to theGeneration Lincese for the relationship between thecompanies.	between two companies. <u>Hence, CAR 1 is not closed.</u> <u>Review 3 (16/01/2015):</u> The estimated emission reduction is now corrected as 281,331 tCO₂ as per the real starting date of the crediting period 19/05/2012. It could be confirmed through the Generation License /22/ of Bursa Landfill that ITC-Bursa Enerji Uretim Sanayi Ve Ticaret Anonim Sirketi is a subcompany of ITC-KA Enerji Üretim Sanayi ve Ticaret A.Ş. <u>Hence, CAR 1 is closed.</u>
CAR 2 SD.2 Water Quality: The management of leachate is monitored each monitoring period by documentation on leachate collection. The leachate from the landfill area is collected and transferred to the Municipalities Waste Treatment Centre as confirmed through the interviews with Mrs. Esra ESER, Deputy Waste Branch Manager of Bursa Metropolitan Municipality. Please also give a definition for the current situation performed on this monitoring period. SD.3 Quality of Employment: The number of the trainings and the list is not discussed and presented in the monitoring report. Please add. SD.4 Soil Condition: The management of leachate is monitored each monitoring period by documentation on leachate collection. The leachate from the landfill area is collected and transferred to the Municipalities Waste Treatment Centre as confirmed through the interviews with Mrs. Esra ESER, Deputy Waste Branch Manager	B.4.1	SD.2 Water Quality: Monitoring report has been revised accordingly. SD.3 Quality of Employment: MR has been revised. SD.4 Soil Condition: Monitoring report has been revised accordingly. SD.5 Human and Institutional Capacity: Monitoring report has been revised accordingly. SD.6 Quantitative employment and income generation: Monitoring report has been revised accordingly. 2nd Round Respond PP:	<u>Review 1 (14/11/2014):</u> SD.2 Water Quality: A clear definition is given for the current situation performed on this monitoring period. SD.3 Quality of Employment: The training list is now presented in the monitoring report. SD.4 Soil Condition: A clear definition is given for the current situation performed on this monitoring period. SD.5 Human and Institutional Capacity: The visit list is now added to the monitoring report. SD.6 Quantitative employment and income generation: The number of contracts are still defined as 19 employees in the monitoring period. Please correct. <u>Hence, CAR 2 is not closed.</u>

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
of Bursa Metropolitan Municipality. Please also give a definition for the current situation performed on this monitoring period. SD.5 Human and Institutional Capacity: Please add the visit list to the monitoring report. SD.6 Quantitative employment and income generation: The number of contracts is monitored through the documentation of Payroll sheets obtained from Social Security Institution /35/. 19 employees are defined in the Monitoring Report /3/. However, according to the payroll sheets, 23 employees are working in the project activity for the monitoring period.		SD.6 Quantitative employment and income generation: Monitoring report has been revised accordingly.	Review 2 (28/11/2014): SD.6 Quantitative employment and income generation: The number of contracts is now defined as 23 in the monitoring period. Hence, CAR 2 is closed.
CR 1 The title of the project activity is defined as “Bursa Hamitler Landfill Gas Collection and Utilization Project - Turkey” in the Monitoring Report version 01 /3/. However, it is not in line with the registered PDD /1/, Validation Report /12/ and GS Registry. Please clarify. The new version 04.0 of the CDM-MR-FORM /18/ is available. Please apply. Please also take into consideration that the dates should be given as “DD/MM/YYYY” format as per the template.	A.1	The name has been revised as “Bursa-Hamitler Landfill Gas Collection and Utilization Project” under the monitoring report, which is now in line with other referred documents. The used format is in line with the requirements of GS. In accordance with the GS toolkit section 4.1, The monitoring report does not have a fixed format. The date format in the cover page has been revised as DD/MM/YYYY.	Review 1 (14/11/2014): The title of the project activity is now revised as “Bursa - Hamitler Landfill Gas Collection and Utilization Project” and it is in line with the registered PDD /1/, Validation Report /12/ and GS Registry. The date of the format is now corrected as DD/MM/YYYY in the monitoring report. The explanation about the version of the MR is found acceptable. Hence, CR 1 is closed.
CR 2 ID.24 Temperature of the gaseous stream in a time interval t (T_j): It is measured by a temperature meter. The 2012 data is 54.9°C and the 2013 data is 54.1°C. However, the unit of the parameter is defined as “K” in the registered PDD. Please clarify. In addition, as per the registered PDD the parameter of $O_{pj,h}$ (ID.20) is not discussed in the	B.3.1	ID.24 Temperature of the gaseous stream in a time interval t (T_j): 0°C is 273.15 K. Kelvin equivalents of Celcius values have been also mentioned under ID. 24. Monitoring Report has been revised accordingly. ID.20 “$O_{pj,h}$” has been included to the Monitoring Report accordingly.	Review 1 (14/11/2014): ID.24 Temperature of the gaseous stream in a time interval t (T_j): The unit of the parameter is also defined as “K” in the monitoring report and it is now in line with the registered PDD. The parameter of $O_{pj,h}$ (ID.20) is now discussed in the monitoring report. The 2012 data is defined as 31.437 h and 2013

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
monitoring report. Please clarify.			data is defined as 51.916 h that are in line with the forms of operational hours and the calculation excel sheet. Hence, CR 2 is closed.
CR 3 ID.23 Volumetric fraction of CH₄ in a time interval t on a dry basis (V_{CH₄,t,db}): The accuracy of the gas analyzer TELEDYNE is not discussed in ID. 23. Please clarify.	B.3.2	ID.23 Volumetric fraction of CH₄ in a time interval t on a dry basis (V_{CH₄,t,db}): The accuracy of TELEDYNE is considered 1% conservatively. Please refer to the inspection report provided to the DOE "TELEDYNE-A1H5020T 293284-26082011". TELEDYNE was de-installed on 05.08.2013 and is no longer in use therefore not mentioned under ID.23. However information has been inserted under table.3 of the MR.	Review 1 (14/11/2014): ID.23 Volumetric fraction of CH₄ in a time interval t on a dry basis (V_{CH₄,t,db}): The accuracy of the gas analyzer TELEDYNE is now discussed in the monitoring report. Hence, CR 3 is closed.
CR 4 ID.22 Volumetric flow of the gaseous stream (to the electricity generating units) in time interval t on a dry basis (V_{t,db}): The pressure meter has been calibrated on 24/08/2011 as confirmed through the calibration record /43/. However, it is mentioned as 02/08/2011 in the monitoring report. Please correct. ID.23 Volumetric fraction of CH₄ in a time interval t on a dry basis (V_{CH₄,t,db}): The calibration frequency has been established 6-12 months for Teledyne gas analyzer in the monitoring report. However, it could not be confirmed since there is no documentation for the frequency. Please justify. ID.24 Temperature of the gaseous stream in a time interval t (T_j): The calibration frequency has been established every 10 years for NOVA-Z temperature meters as confirmed through the recommendation of the supplier /49/. However, in the monitoring report it is defined as "5 years". Please correct.	B.3.3	ID.22 Volumetric flow of the gaseous stream (to the electricity generating units) in time interval t on a dry basis (V _{t,db}): Monitoring report has been revised accordingly. ID.23 Volumetric fraction of CH₄ in a time interval t on a dry basis (V_{CH₄,t,db}): The equipment has an auto calibration feature and no calibration frequencies has been recommended. In accordance with the "Regulation on Measurement and Measuring Devices Inspection" gas meters has to be calibrated every 3 years (http://www.mevzuat.gov.tr/Metin.Aspx?MevzuatKod=7.5.6381&sourceXmlSearch=&MevzuatIliski=0). The PP has conservatively calibrated the device within a year. ID.24 Temperature of the gaseous stream in a time interval t (T_j): Document	Review 1 (14/11/2014): ID.22 Volumetric flow of the gaseous stream (to the electricity generating units) in time interval t on a dry basis (V _{t,db}): The pressure meter is now corrected as 24/08/2011 in the monitoring report. ID.23 Volumetric fraction of CH₄ in a time interval t on a dry basis (V_{CH₄,t,db}): The explanation is found acceptable. ID.24 Temperature of the gaseous stream in a time interval t (T_j): The calibration frequency has been established every 5 years for NOVA-Z temperature meters as confirmed through the recommendation of the supplier /20/. ID.25 Net amount of electricity generated using LFG (EC_{BL,y}): The calibration date and the frequency are now mentioned in the monitoring report. ID.26 Quantity of electricity consumed by the project activity (EC_{PJ,y}): The calibration date and the frequency are now

Corrective action and/ or clarification requests	Reference to Table 1	Response by project participants	Verification conclusion
ID.25 Net amount of electricity generated using LFG ($EC_{BL,y}$): The electricity meter has been calibrated on 16/06/2011 by the Itron manufacturer as confirmed through the calibration record /23/. As per the “Regulation of Metering and Testing of Metering Systems”, the meters shall be calibrated every 10 years. The calibration of meters is deemed appropriate and in compliance with the national regulation /32/. However, the calibration date and the frequency are not mentioned in the monitoring report. ID.26 Quantity of electricity consumed by the project activity ($EC_{PJ,y}$): The electricity meter has been calibrated on 16/06/2011 by the Itron manufacturer as confirmed through the calibration record /23/. As per the “Regulation of Metering and Testing of Metering Systems”, the meters shall be calibrated every 10 years. The calibration of meters is deemed appropriate and in compliance with the national regulation /32/. However, the calibration date and the frequency are not mentioned in the monitoring report.		on 5 years calibration frequency has been provided to the DOE. ID.25 Net amount of electricity generated using LFG ($EC_{BL,y}$): Monitoring Report has been revised accordingly. Please refer to 9 and 10 for frequency information. ID.26 Quantity of electricity consumed by the project activity ($EC_{PJ,y}$): Monitoring Report has been revised accordingly. Please refer to 9 and 10 for frequency information.	mentioned in the monitoring report. Hence, CR 4 is closed.

TABLE 3 FORWARD ACTION REQUEST

Forward action request	Reference to Table 1	Response by project participants Verification conclusion
FAR 1		



RINA

CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

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

Tugce Kiratli

è qualificato come¹:
is qualified as:

**CDM-TEC, JI-TEC, VCS-TEC, GS-TEC, VCS-VAL, VCS-
VER, GS-VAL, GS-VER, GS-TL, VCS-TL**

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

1.2, 13.1

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

*Just for GS and VCS, not for CDM

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	-
5	07/11/2014	Update qualification according to IS-QPT-GHG-00 REV13

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

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**

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

Isil Timuroglu

è qualificato come¹:
is qualified as:

**CDM/GS/VCS/SCS- TEC, VAL, VER, TL
Local expert (Turkish language),
ITRP**

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

1.2, 13.1

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
-	13/02/2012	-
5	07/11/2014	Update qualification according to IS-QPT-GHG-00 REV 13

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

CERTIFICATO DI QUALIFICA QUALIFICATION CERTIFICATE

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

Rita Valoroso

è qualificato come1:
is qualified as:

CDM -TEC, -VAL, -VER, -TL
TECHNICAL REVIEWER

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

1.2, 13.1

AREE TECNICHE TECHNICAL AREAS	DESCRIZIONE DELL'AREA TECNICA TECHNICAL AREA DESCRIPTION	SCOPO SETTORIALE SECTORAL SCOPE
1.2	Renewables	1
13.1	Solid Waste and waste water	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	18-01-10	-
9	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

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