



FINAL VALIDATION REPORT

for the GS-VER Project Activity

“Bolu Landfill Gas to Energy Project”

in

Turkey

Report No. 01 21214441

Version No. 03, 2011-04-28

TÜV Rheinland Japan Ltd.

I. Project description:

Project title: GS VER Project Bolu Landfill Gas to Energy Project
GS 746

Host Country: Turkey

Methodology: AMS-III.G. v.6.1 ☐ Large Scale ☒ Small Scale
ACM0002. v.12.1.0

Annual average emission reductions (estimate): 24.718 tCO₂e/yr

GHG reducing measure/technology: Methane recovery in landfill for energy production, displacing fossil fuel based power grid generation with renewable energy

Party	Project Participants	Party considered a project participant
Turkey (Host)	CEV Enerji Uretim San. Ve Tic. Ltd. Sti (Project Owner)	No
Turkey (Host)	Mavi Consultants (Carbon Consultants)	No

II. Validation:

Contract party: CEV Enerji Uretim San. Ve Tic. Ltd. Sti

Validation Team:

Role	Full name	Appointed for Sectoral Scopes	Affiliation
Team Leader Technical Review	Norbert Heidelmann Ralf Kober (TR)	1,2,3,4,13 1,7,13	TÜV Rheinland Energie und Umwelt GmbH
Team Member and Expert	Timothy Cowman	N/A	TÜV Rheinland Energie und Umwelt GmbH
Local Expert	Guerhan Bahadir	N/A	TÜV Rheinland Turkey

Validation Phases:

- ☒ Desk Review
☒ Follow up interviews
☒ Resolution of outstanding issues

Validation Status:

- ☒ Corrective Actions / Clarifications Requested
☒ Full Approval and Submission for Registration
☐ Rejected

III. Validation Report:

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Final approval: ☒	Released Date: 2011-04-28 By:	Designated Operational Entity (DOE): TÜV Rheinland Japan Ltd. Shin Yokohama Daini Center Bldg., 3-19-5, Shin Yokohama Kohoku-ku, Yokohama, JAPAN 222-0033 Tel.: +81 45 470 1850, Fax: +81 45 470-2361 E-mail: cdm@tuv.com
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Abbreviations

BE	Baseline Emission
BM	Build Margin
CAR	Corrective Action Request
CCPG	Central China Power Grid
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CL	Clarification Request
CM	Combined Margin
CO ₂	Carbon Dioxide
DECC	The Department of Energy and Climate Change
DNA	Designated National Authority
DOE	Designated Operational Entity
DR	Document Review
EB	Executive Board
EIA	Environmental Impact Assessment
ER	Emission Reduction
ERPA	Emission Reduction Purchase Agreement
FSR	Feasibility Study Report
GHG	Greenhouse Gas
GS	Gold Standard
GSC	Global Stakeholder Consultation
I	Interview
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
kw	Kilo Watt
kWh	Kilo Watt Hours
LoA	Letter of Approval
MoV	Means of Verification
MW	Mega Watt
MWh	Mega Watt Hours
NDRC	National Development and Reform Commission
NGO	Non Government Organisation
OM	Operating Margin
OSV	On Site Visit
PDD	Project Design Document
PD	Project Developer
PO	Project Owner
PE	Project Emission
SA	Sensitivity Analysis
SItC	Supplier Information to Client
STHS	Stakeholder Survey

t	Tonne
UNFCCC	United Nations Framework Convention on Climate Change
VER	Verified Emissions Reductions
VVM	Validation and Verification Manual

Executive Summary – Validation Opinion

The validation team assigned by the DOE (TÜV Rheinland Japan Ltd.) concludes that the GS VER Project Activity “Bolu Landfill Gas to Energy Project” in Turkey as described in the Passport (version 3, Date: 22.02.2011) and PDD (version 3, Date: 22.02.2011), meets all relevant requirements of the Gold Standard (GS) for VER project activities including GS Requirements version 2.1, GS Toolkit, article 12 of the Kyoto Protocol, the modalities and procedures for CDM (Marrakesh Accords), the subsequent decisions by the COP/MOP and CDM Executive Board. The selected baseline/monitoring methodologies are applicable to the project and correctly applied. The validation report and the validation protocol are summarizing the findings of the validation. The reviews of the final Passport and PDD and the subsequent follow-up interviews have provided the validation team with sufficient evidence to determine the fulfilment of all stated criteria

The validation team of TÜV Rheinland has performed a validation of the “Bolu Landfill Gas to Energy Project” in the Turkey as described in the Passport (version 3, Date: 22.02.2011) and PDD (version 3, Date: 22.02.2011), in the Republic of Turkey. The validation has been performed under consideration of the following validation processes, criteria and methodology:

Validation Process: Validation has been performed in the following steps:

- Desk review of publicly available and confidential documents (10/2011)
- On-site assessment (19 & 20/10/2011)
- Review of resubmitted PDD and GS Passport (version 01, 21/11/2010)
- Initial list of CARs and CLs (02/12/2010)
- Initial feedback to CARs and CLs from Project Proponents with updated versions of PDD and GS Passport (version 2, 13/01/2011)
- Delivery of the Draft Validation report (08.02.2011)
- Assessment of feedback and updating of list of CARs and CLs (18.02.2011)
- Further feedback from Project Proponents with updated versions of PDD and GS Passport (version 3, 22/02/2011)
- Assessment of feedback and revision of Validation Protocol (03/03/2011)
- Validation Report - Version 01 (22/03/2011)
- Internal Review (28/03/2011);
- Validation Report - Version 02 (02/04/2011)

Validation Criteria: the following G/S VER Project requirements have been considered:

- Article 12 of the Kyoto Protocol,
- Modalities and procedures for CDM (Marrakech Accords)
- Subsequent decisions by the COP/MOP and CDM Executive Board
- Gold Standard Requirements for Gold Standard Version 2.0/2.1
- Gold Standard Toolkit for Gold Standard Version 2.0/2.1
- Host Country Criteria
- Criteria given to provide for consistent project operations, monitoring and reporting.
- Validation Methodology: The procedures as described in the CLEAN DEVELOPMENT MECHANISM VALIDATION AND VERIFICATION MANUAL (Version 01.1) – Annex 3 to EB 51 Report and the Gold Standard Requirements for Gold Standard Version 2 for the regular project cycle have been applied by the validation team.

The host country is the Republic of Turkey, which ratified the Kyoto Protocol on 28th May 2009 and is considered an Annex I Party to the United Nations Framework Convention on Climate Change. There is so far no national agency in place responsible for issuing a Letter of Approval. Through the verification of the original invitations it was possible to validate that the Ministry of Environment and Forestry and the GS focal point/25/ were made aware of the project, and were invited to but did not attend the Stakeholder Consultation meeting and have been solicited for feedback though no formal approval is required as the project is voluntary.

The project correctly applies the small-scale methodology AMS III.G version 6.1 and large-scale CDM methodology ACM 0002, version 12.1.0.

By recovering methane from a landfill site in order to produce energy in the process displacing fossil fuel based power grid generation with renewable energy, the project results in reductions of CO₂ emissions and non CO₂ emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project is not a likely baseline scenario as there is no regulation for flaring in Turkey or for the generation of energy from landfill gas as validated through the analysis of relevant local environmental and waste management legislation. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity.

The total emission reductions from the project are estimated to be on the average 24,718tCO₂equivalent per year over the selected 7 year crediting period. The emission reduction forecast has been checked through detailed analysis of the supplied project documentation and spreadsheets and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

The project proponent has resolved all Corrective Action Requests and Clarification Requests as stated in the Validation Protocol. In summary, it is Validation Team's opinion that the GS VER Project "Bolu Landfill Gas to Energy Project" in Turkey as described in the PDD of Version 03, 22 February 2011 and Passport Version 03, 22 February 2011, meets all relevant GS requirements for the VER and all relevant host country criteria and applies the baseline and monitoring methodologies AMS III.G, Version 6.1 and ACM0006 Version 12.1.0 correctly. TÜV Rheinland thus requests the registration of the Project as a VER GS project activity.

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2 INTRODUCTION

CEV Enerji Uretim San. Ve Tic. Ltd. Sti (Project Owner) has commissioned TÜV Rheinland to perform a validation of the Gold Standard VER Project Activity “Bolu Landfill Gas to Energy Project ” in the Republic of Turkey (hereafter called “the project”). This report summarises the findings of the validation of the project, performed on the basis of UNFCCC/CDM, Gold Standard and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting. The term “UNFCCC criteria” refers to Article 12 of the Kyoto Protocol, the CDM modalities and procedures or the modalities and procedures for large-scale and small-scale CDM project activities (as applicable) and the subsequent decisions by the CDM Executive Board (EB) and the requirements of Gold Standard Foundation for GS-VER.

2.1 Objective

The purpose of a validation is to have an independent third party assess the project design. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant GS and UNFCCC criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the identified criteria. Validation is a requirement for all GS VER projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of verified emission reductions (VERs).

2.2 Scope

The validation scope is defined as an independent and objective review of the GS Passport and PDD. The GS Passport is reviewed against the relevant criteria stated in GS Requirements Version 2.1 and the GS Toolkit. The PDD is reviewed against the relevant criteria stated in Article 12 of the Kyoto Protocol, the simplified modalities and procedures for small-scale CDM project activities and decisions by the CDM Executive Board, including the approved baseline and monitoring methodology AMS III.G version 6.1 and ACM 00002 version 12.10. The validation team has, based on the recommendations on the Validation and Verification Manual (VVM) employed a risk-based approach, focusing on the identification of significant risks for project implementation and the generation of VERs.

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

3 METHODOLOGY

The validation consists of the following three phases:

- I a desk review of the GS passport and PDD
- II on-site visit and follow-up interviews with project stakeholders
- III the resolution of outstanding issues and the issuance of the final validation report and opinion.

The following sections outline each step in more detail.

3.1 Desk Review of the Project Design Documentation

The following table outlines the documentation reviewed during the validation:

Nº	Document
1	a) PDD for the “Bolu Landfill Gas to Energy Project” version 1, 21/11/2010 b) PDD for the “Bolu Landfill Gas to Energy Project” version 2, 13/01/2011 c) PDD for the “Bolu Landfill Gas to Energy Project” version 3, 22/02/2011
2	a) GS Passport for the “Bolu Landfill Gas to Energy Project” version 1, 21/11/2010 b) GS Passport “Bolu Landfill Gas to Energy Project” version 2, 13/01/2011 c) GS Passport “Bolu Landfill Gas to Energy Project” version 3, 22/02/2011
3	CDM Project Design Document Form (CDM-SSC-PDD), Version 03, in effect as of 22 December 2006
4	Approved consolidated baseline and monitoring methodology AMS III.G version 6.1,
5	Approved consolidated baseline and monitoring methodology ACM0002 version 12.1.0,
6	Methodological Tool “for the demonstration and assessment of additionality”, version 05.2
7	Methodological Tool “Combined tool to identify the baseline scenario and demonstrate additionality”, version 02.2
8	Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site version 4
9	Tool to determine project emissions from flaring gases containing methane EB28 Annex 13
10	Tool to calculate the emission factor for an electricity system, version 1.1
11	Guidelines on the assessment of investment analysis, version 03.1
12	Gold Standard Requirements version 2.1, effective June 2009 (hereafter GS Requirements)
13	Gold Standard Toolkit for Gold Standard Version 2.1, June 2009 (hereafter GS Toolkit)
14	Gold Standard Pre-feasibility Assessment Checklist for GS V2.1 Retroactive Projects
15	Feasibility Study of Turkey Bolu LFG to Energy Project, November 2009
16	Construction and Operational Permits
17	Organizational Structure of the Company (Organogram)

18	Documentation on legal status of the land
19	Electricity Generation License/ EMRA Approval incl. eventual capacity changes
20	Environmental Impact Assessment Report in the form of written confirmation that no EIA is requested for the project (EIA Exemption Certificate – ÇED)
21	ODA Declaration of project developer for the project as Annex 1 within the GS passport version 03 22/02/2011
22	Initial Loan agreement of the project considered as the project start date
23	Supporting spreadsheet on Investment Analysis 28/12/2010
24	Supporting spreadsheet on emission reduction calculation 28/12/2010
25	Local Stakeholder Consultation Report including invitation tracking table, copies of invitations and participant list.
26	Non-technical summary and presentation for the Stakeholder Feedback Round
27	Invitations for the Stakeholder Feedback Round
28	Stakeholder feedback evaluation form
29	Technical information relating to projects - site layout and equipment specifications
30	Monitoring manual for Gold Standard Landfill gas projects Mavi Consultants (03.01.2011)
31	Extract of Test Report on flow measurements at the project location from the FSR
32	List of LFG collection of energy projects in Turkey. Source: License database of Energy Market Regulatory Agency
33	Specifications of monitoring meters
34	Waste Disposal figures - Gaziantep Environmental and Forestry Department
35	Environmental Map of Turkey for Efficiency Factors.
36	Documentation from the Turkish Energy Market Regulatory Authority
37	Forest Law (Nr. 6831)
38	Energy Efficiency Law (Nr. 5627)
39	Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electricity Energy (Nr. 5346)
40	Environmental law 3 Law Nr. 2872 4 Law Nr: 5216, Article 7
41	World Bank Doing Business Report
42	European bank for Reconstruction and Development - Strategic Review,
43	OECD report – “Country Risk Classifications of the Participants to the Arrangement on Officially Supported Export Credits”
44	Relevant information from the Turkish Electricity Transmissions Company (TEAIS)
45	“TURKEY Greenhouse Gas Inventory, 1990 to 2005” Annex 2
46	IPCC 2006 Guidelines for National Greenhouse Gas Inventories For climate data (1975-2006 Averages):
47	Guidelines for completing the simplified project design document (CDM-SSC-PDD) and the form for proposed new small scale methodologies (CDM-SSC-NM, Version 05
48	GS Registry online
49	Loan Agreement – “Main Contract for Landfill gas to energy project in Bolu, Turkey”.
51	Law on Utilization of Renewable Energy Resources for the Purpose of Generating

	Electrical Energy "Law No. 5346"
53	The Environmental Law (Nr. 2872)

Main changes that have occurred between the originally submitted PDD (version 01 21/11/2010) and the Passport (version 01 21/11/2010) and the final version submitted for registration (versions 03, 22/02/2011) are as follows:

- Changes related to the CAR's and CL's contained with the ANNEX A the Validation Protocol;

3.2 Follow-up Interviews with Project Stakeholders

On the 19 & 20/10/2010 the Validation Team of TÜV Rheinland performed personal interviews with representatives of the project owner, local authorities, relevant stakeholders and the carbon consultant at Bolu city and landfill site in Turkey in order to confirm and to resolve issues identified during the desk review. The main topics of the interviews were:

- Background information;
- Licensing and permits;
- Present onsite situation and project implementation status;
- Carbon and Sustainability Monitoring;
- The local stakeholder consultation process;
- Project technology;
- Baseline and additionality determination;
- Host country specific information – electricity grid, relevant legislation etc.

Interviews were carried out with the following stakeholders and the main topics of focus are highlighted in the table below:

Time	Organization	Agenda/Topic/ Objectives	Interviewed Persons
Audit Day 1 19/10/2010 – On-Site (Bolu)			
9:00	CEV Enerji Uretim Sanayive Tic. Ltd. Sti	Opening Meetings - Introduction of Participants Introduction of Audit Procedure and Method, Review of Agenda	Plant Manager - Yalcin Dizdar(site and administrative technical director) Key Staff - Fatih Kodaloglu (field manager) Head Office Manager - Beyhan Doganci
10.00	Local Municipality	History of Site, tender agreement and environmental licensing procedure and situation.	Local Municipality Environmental Department - Adnan Demirel (engineer-cleaning services manager)

11.00	CEV Enerji U��nretim Sanayive Tic. Ltd. Sti	Project Site Inspection – present situation and plans for expansion, working conditions, power plant, environmental issues, leachate lagoons and recycling centre.	Local Municipality onsite - Sinasi Keskin (Site Foreman), Key Technical Staff - Yasin Uryani (electric technician), Yalcin Dizdar (electric Technician) Recycling centre manager
14.00	CEV Enerji U��nretim Sanayive Tic. Ltd. Sti	On site Technical Document review (Licenses, Feasibility Study, EIA/PIF)	Plant Manager Key Staff Head Office Staff
16.00	Local Stakeholders	Interviews with local stakeholder (local authorities and directly affected people) in relation to the project and sustainability issues.	Mukhtars of neighbouring villages, local residents - Abdullah Aktas (Asagisoku Muhtar) & Ismail Elmaci (Yukarisoku Muhtar), Yalcin Dizdar & Ali Bilgen (Machine Operator)
Audit Day 2 20/10/2010 – Head Office (Istanbul)			
10.00	CEV Enerji U��nretim Sanayive Tic. Ltd. Sti	Document Review for investment analysis, licensing and company structure	CEO - Ata Ceylan
14.00	Mavi Consultants	Review of PDD, Passport, Investment Analysis, Emissions Calculations, country specific data and procedure for following steps.	CDM Consultant - Yagmur Karabulut

3.3 Resolution of Outstanding Issues

The objective of this phase of the validation is to resolve any outstanding issues which need to be clarified prior to TÜV Rheinland's positive conclusion on the project design. In order to ensure transparency a validation protocol is customised for the project. The protocol shows in transparent manner criteria (requirements), means of verification and the results from validating the identified criteria. The validation protocol serves the following purposes:

- It organises, details and clarifies the requirements a GS VER project is expected to meet;
- It ensures a transparent validation process where the validator will document how a particular requirement has been validated and the result of the validation.

The validation protocol consists of three tables. The different columns in these tables are described in the figure below. The completed validation protocol for the GS Project of Bolu Landfill Gas to Energy Project is enclosed in Appendix A to this report.

Findings established during the validation can either be seen as a non-fulfilment of GS VER criteria or where a risk to the fulfilment of project objectives is identified. Corrective action requests (CAR) are issued, where:

- i) mistakes have been made with a direct influence on project results;
- ii) GS VER and/or methodology specific requirements have not been met; or
- iii) there is a risk that the project would not be accepted as a GS VER project or that emission reductions will not be certified.

A request for clarification (CL) may be used where additional information is needed to fully clarify an issue.

Validation Protocol Table 1: Mandatory Requirements for GS VER Project Activities		
Requirement	Reference	Conclusion
The requirements the project must meet.	Gives reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided (OK), a Corrective Action Request (CAR) of risk or non-compliance with stated requirements or a request for Clarification (CL) where further clarifications are needed.

Validation Protocol Table 2: Requirement checklist				
Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements in Table 2 are linked to checklist questions the project should meet. The checklist is organised in different sections, following the logic of the GS passport and the large-scale PDD template, version 03 - in effect as of: 28 July 2006. Each section is then further sub-divided.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (OK), or a corrective action request (CAR) due to non-compliance with the checklist question (See below). A request for clarification (CL) is used when the validation team has identified a need for further clarification.

Validation Protocol Table 3: Resolution of Corrective Action and Clarification Requests			
Draft report clarifications and corrective action requests	Ref. to checklist question in table 2	Summary of project owner response	Validation conclusion
If the conclusions from the draft Validation are either a CAR or a CL, these should be listed in this section.	Reference to the checklist question number in Table 2 where the CAR or CL is explained.	The responses given by the project participants during the communications with the validation team should be summarised in this section.	This section should summarise the validation team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".

Figure 1. Validation protocol tables

3.4 Internal Quality Control

The draft validation report including the initial validation findings underwent a technical review before being submitted to the project participants. The final validation report underwent another technical review before requesting registration of the project activity. The technical review was performed by a technical reviewer qualified in accordance with TÜV Rheinland's qualification scheme for GS VER validation and verification.

3.5 Validation Team

Role	Full name	Appointed for Sectoral Scopes	Affiliation
Team Leader Technical Review	Mr. Heidelbergmann Ralf Kober (TR)	1,2,3,4,13 1,7,13	TÜV Rheinland Energie und Umwelt GmbH
Team Member and Expert	Timothy Cowman	N/A	TÜV Rheinland Energie und Umwelt GmbH
Local Expert	Guerhan Bahadir	N/A	TÜV Rheinland Turkey

4 VALIDATION FINDINGS

The findings of the validation are stated in the following sections. The validation criteria (requirements), the means of verification and the results from validating the identified criteria are documented in more detail in the validation protocol in Appendix A.

The final validation findings relate to the project design as documented and described in the revised and resubmitted GS passport (Version 03 – 22/02/2011) and Project Design Document (Version 03 – 22/02/2011).

4.1 Project Eligibility

The project is located in Turkey, a host country that does not have a quantitative reduction target under the Kyoto Protocol. Turkey acceded as the 189th Party to the UNFCCC on 24 May 2004 and only ratified the Kyoto Protocol on the 28th May 2009. Turkey is therefore now listed in Annex-I to the UNFCCC, but not listed in Annex-B to the Kyoto Protocol (no quantified emissions limitation or mitigation commitment in the first commitment period of the Kyoto Protocol from 2008 to 2012), therefore, not a Party to the Kyoto Protocol. The reason is, that Turkey was not a party to the convention adopted in 1992 when the Kyoto Protocol was negotiated, and it is not currently included in the agreement's Annex-B, which includes 39 countries that are obliged to reduce their greenhouse emissions to 1990 levels between 2008-12. Turkey is therefore eligible as a host country for Gold Standard Voluntary Offset Projects and can participate efficiently in the Voluntary Carbon Markets.

In addition through reviewing the PDD and Passport and conducting an onsite visit it was possible to confirm that the project involves the reduction of the greenhouse gases eligible under the GS - Carbon Dioxide (CO₂) and Methane (CH₄).

The project is a landfill gas to energy project that replaces grid connected fossil-fuel power plants and hence qualifies as a Renewable Energy Supply type project within the GS:

- The Renewable Energy Supply category is defined as the generation and delivery of energy services (e.g. mechanical work, electricity, heat) from non-fossil and non-depletable (landfill gas excluded) energy sources.

Based on the Toolkit Annex C the project falls within the “Biogas (landfill gas and biogas from agro-processing, wastewater and other residues)” category. According to Gold Standard rules, 65% of the Landfill Gas must be in use for energy services delivery on average annual bases. The Feasibility Study Report (FSR)/15/ demonstrates a utilisation factor of 100%, and based on interviews and analysis of the business plan/23/ there is no doubt that project activity once implemented will look to utilise as close to 100% as possible of the LFG over the total crediting period.

The project qualifies as a small scale project as its renewable energy generation capacity of up to 3.3MW is well below the limit of 15MW for Type I projects and in addition the 24.718

tCO₂e/yr average emissions reductions is within the 60 kt CO₂ equivalent annual limit for type III projects within the CDM.

Category	Scale		
	Large	Small	Micro
CDM	Every project exceeding the small scale boundary	- Renewable energy project, capacity < 15 MW - Energy efficiency project, improvement <60 GWh per annum Source: UNFCCC Resources	Non existent
Jl			Non existent
VER			Any eligible project, reduction < 5,000 tCO ₂ equivalent per annum

Source: Gold Standard Requirements Version 2.1, effective June 2009

The project proponent (PP) clearly states in the PDD/1/ that the project is not a debundled part of a large or small-scale project and the validation team successfully crosschecked this statement through confirming that no similar projects in the region are registered on the GS registry/48/ and in addition that no project was witnessed within a kilometre of the site during the site visit.

The ODA declaration /21/ included within the project documentation is in direct accordance with the template from the GS Annex D.

The project in accordance with the GS requirements /12/, correctly applies the regular project cycle. The project was first submitted to the GS registry/48/ on 20.11.2009 through the uploading of the LSC report amongst other key documentation. The start date of the project within the PDD is conservatively considered as the date of the signing of the initial loan agreement /49/ the 03/06/2010 though mobilisation only began on the 11.11.2010.

4.2 Project Design Document

The Project Design Document (PDD), version 03, 22.02.2011, is based on the current valid Small Scale PDD template/3/ in affect as of 6th December 2006 and in accordance with the applicable guidance document/47/.

4.3 Project Description

The Project is located 3.5 km North East of Bolu City centre in Bolu Province in Turkey. The geographic coordinates of the project site are given as 40° 45' 8" N and 31° 38' 28" E these were confirmed during the physical vist to the site through checks made through the Internet.

The Project involves the utilization of methane gas collected from the landfill of Bolu city for energy generation. The present waste management system at the site involves no collection of methane gas for flaring or energy production with it therefore being released into atmosphere without any utilisation which was confirmed via visible witnessing and discussion regarding the history and present use of the site with the project participant and local municipality during the onsite visit.

The validation team reviewed the technical description and layout drawings of the project /31/ which will generate electrical energy from the LFG. The Project will employ up to 3 gas engine generators with 1.1 MWe capacity each producing an expected net electricity generation of 3,876MWh per year. Electricity produced by the project will meet the energy needs of the project site and the excess is to be exported to the Turkish Power. In emergency situations, the methane will be destroyed by an open flare located at the same projects site. The project activity does not reflect current practice in Turkey for waste management facilities. Of 08 registered Independent Power Producers(IPP) located at Landfill sites utilising similar power generation technology to the project activity all 08 of them, representing 100%, are considering the extra revenues from the potential sales of VERs which was validated through data available on the GS Registry/48/.

The start date of the project within the PDD is conservatively considered as the date of the signing of the initial loan agreement /49/ the 03/06/2010 validated through viewing of the original document by the validation team. Though the construction of the Project is stated as beginning on 11/11/2010 and the expected operational start date as listed in the PDD/1c/(C 2.1.1) is expected to be 01/06/2011, the initiation of the first crediting period.

Starting date of project	Expected project operational lifetime	Crediting period
01/06/2011	20years	7 years

It is the Validation teams opinion that the project description found in the PDD is complete and accurate.

In accordance with the methodology AMS III.G/4/ the project boundary is the physical, geographical site of the landfill where the gas is captured and destroyed/used. The supplied documentation included a technical description and design of the methane collection system and the LFG energy plant /31/. For methodology ACM0002 /5/ the project boundary is defined as the project power plant and all power plants connected physically to the Turkish national electricity grid. The national grid electricity importing statistics are clearly listed in Annex 3 of the PDD/1c/.

The table below summarizes the GHG emissions involved in the project boundary in accordance with the methodologies AMS.III.G and ACM0002:

	GHGs involved	Description
Baseline emissions	CO ₂	CO2 emissions from electricity generation in fossil fuel fired power plants that are displaced due to the project activity
	CH ₄	LFG emissions from waste degradation
Project emissions	CH ₄	LFG capture and flaring - When flare does not operate, methane emissions are subtracted.
	CO ₂	On-site electricity – project's own emissions from electricity consumption are to be subtracted.
Leakage	Not Involved	No leakage calculation is required since the equipment is not being transferred to or from another activity

Through the interviews with relevant technical staff from the project participants and the municipality, analysis of the technical information made available and physical witnessing on the onsite visit it is the validation teams opinion that the identified boundary is appropriate for the project and the selected sources and gases in the PDD Version 03 24.02.2011 are justified for the project activity.

4.4 Deviations in GHG Emission Reduction Estimation (GS Standard Conservativeness Principle)

The project has also been validated in direct response to the GS standard conservativeness principle. Firstly it is the opinion of the validation team that the baseline has been constructed in a conservative manner and this have been argued through utilisation of the correct tool and with the support of transparent data.

In addition, at the time of writing, the latest versions of the selected methodologies have been used as a base for completing the PDD. AMS III.G version 6 valid from 28th March 2008 onwards and ACM0002 version 12.1 valid from the 17th September 2010 onwards.

The choice of the baseline has been clearly described in the PDD/1/ and its conservative approach has been addressed further in the additionality section of this document. In relation to the overview of current relevant legislation within Turkey/40/, this is comprehensively presented within the PDD covering electricity, environmental and waste management areas. The common practice analysis has also been presented clearly within the additionality section.

4.5 GHG Emission Reductions

All assumptions made for estimating GHG are listed in the PDD	Yes	Grid emission factor according to combined margin calculation (Annex 2 of the PDD /1/. First order decay model utilised based on the waste disposal figures from the FSR/15/ and “tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site” /8/.
All data used by project participants are listed in the PDD	Yes	Net electricity production (Section A.2 of PDD /04/) Methane produced based on volume and waste and composition from FSR /15/ and the assumed collection ratio (PDD B.6.3).
Their references and sources also listed in the PDD	Yes	Reference documents for electricity production of fossil fuelled power stations from Turkish grid operator TEIAS, The FSR and default values from the selected methodologies.
Formulas, parameters, values are complete, accurate, transparent and conservative	Yes	See B.6.1 and Annex 3 of the PDD /01/.
Methodology has been applied correctly to calculate project emissions, baseline emissions, leakage emissions and emission reductions	Yes	See section B.6.1 of PDD/01/.
All the emissions of baseline emissions can be replicated using the information provided in the PDD	Yes	See section B.6.1 of PDD/01/.

4.6 Additionality

Gold Standard and CDM Criteria on Additionality

Additionality has been proven in the PDD/01/ by application of the “Tool for the demonstration and assessment of additionality” version 5.2 /6/ with the main components of “Investment Analysis” and “Common Practice Analysis”.

The consideration of the project as a Gold Standard VER project requires serious consideration of the VERs prior to implementation and as previously outlined in this report the start date of the project within the PDD is conservatively considered as the date of the signing of the initial loan agreement /49/ the 03/06/2010 though the construction of the Project is stated as beginning on 11/11/2010 and the expected operational start date as listed in the PDD/1c/(C 2.1.1) is expected to be 01/06/2011, the initiation of the first crediting period.

The prior consideration of the project is proven through the CDM and carbon credits revenues being present in the LFG utilization contract /49/ specifically within article 17.6. The contract was signed with the municipality on 24th November 2009.

Through analysis of the local legislation regarding waste management and the environment the project, due to the non-legal requirement/53/ within the host country to flare or indeed generate energy from landfill gas means the decision required for the implementation of the project is one of to invest or not. Therefore, in this case, the benchmark investment analysis has been correctly applied.

This investment analysis has been applied within the PDD to demonstrate that the Project is not the most economically or financially attractive or economically feasible one. The project will benefit from selling electricity to the grid so a benchmark analysis is adopted in the PDD. The calculation of the chosen financial indicator the IRR has been carried out inline with the “Guidelines on the assessment of Investment Analysis”. Through the stipulation from local legislation that no tipping fee is required the only income for the project has been correctly identified as the energy sales and no other saving. The assumptions within the IRR calculation are based on the investment figures as based on the FSR/15/ and therefore are consistent.

This investment analysis has been applied within the PDD to demonstrate that the Project is not the most economically or financially attractive or economically feasible one. The project will benefit from selling electricity to the grid so a benchmark analysis is adopted in the PDD. The calculation of the chosen financial indicator the IRR has been carried out inline with the “Guidelines on the assessment of Investment Analysis” as closely checked by the validation team. Through analysis of local legislation regarding waste management and the environment it was possible to validate that there is no stipulation from local legislation for a tipping fee /53/ therefore the only income for the project has been correctly identified as the energy sales and no other savings. Through cross-checking across the two relevant documents it was possible to validate that the assumptions within the IRR calculation are based on the investment figures from the feasibility study /15/ and therefore are consistent.

The only revenue generated by the project activity is the sale of electricity which depends on the price (€-cents per kWh) and the amount of electricity produced by the LFG to energy project and supplied to the grid. The price of 5.5 €-cents per kWh is according to the Law on Utilization of Renewable Energy Resources for the Purpose of Generating Electrical Energy

“Law No. 5346” /51/. Despite this the project owner, based on figures utilized within the feasibility study, has decided to use the conservative figure of 7€-cents per kWh.

The other crucial impact parameter in this calculation is the amount of electricity generated by the proposed VER project activity. The value is determined by the predicted amount of gas stored in the site, the Landfill gas collection rate and plant load factor. Based on the feasibility study/15/ the quantity and characteristics of the waste was determined through official figures from the municipality and conduction of onsite sampling tests. In addition the collection rate and plant load factor have been defined as 70% and 80% respectively, which is consistent with projects of this type.

FAR 2: The application of standard values, assumptions and figures based on sampling alone is considered as not suitable for the estimation of the achievable capacity factor in the long run. It is therefore requested to review the situation based on the first months of the true technical operation of the site at full power.

The costs of the project have been determined as the investment and operational and maintenance costs. These have been supplied in a broken down form within the projects spreadsheet/23/ which has been based mainly on the feasibility study /15/.

The key output of the Capital expenditure (CapEx), defined as the capital costs associated with the installation of the project equipment, has been validated both by a detailed review of the feasibility study and a comparison with similar projects within the country.

The common practice analysis contained within the project documents and validated within this report has proven that there are limited similar projects in operation within Turkey. The CapEx has not been further expanded beyond that shown in the feasibility study and therefore is validated through its comparison with other similar projects via information made available to TÜV Rheinland. As the scenario and technology varies between these projects, the CapEx per MWh generated is shown as a potentially meaningful statistic and both the O&M and CapEx have been further considered in the sensitivity analysis.

LFG Project	Country	CapEx	O & M	MWh/yr	CapEx Euro/MWh	O&M Euro/MWh
Bolu	Turkey	1,115,015	166,376	3,269	288	51
Real Project A	Turkey	10,655,807	2,194,188	36,626	291	60
Real Project B	Turkey	3,516,400	977,053	19,582	178	50

Though the project contains a CapEx cost significantly higher than one other similar project even at half the CapEx costs (144 Euro/MWh) the project would not break the chosen Benchmark.

The operation and maintenance costs are detailed within the aforementioned supplied spreadsheet/23/ and feasibility study /15/. The total O&M costs are validated as being consistent with similar plants as can be seen from the table above and once again if these costs are reduced to 60% of the quoted values then the project just reaches the benchmark with an IRR of 12%.

The benchmark has been selected as the WACC and is calculated inline with the Guidelines

on the assessment of investment analysis and has a value of 12.1%. The validation team reviewed these reference sources and confirmed the resulting benchmark as stated.

With the verified revenues and costs figures the calculation of the equity IRR is traceable and can be confirmed as 3.2% without any VER revenues after 20 years. This value is not very attractive for an investment as to the knowledge of the auditing team in the host country Turkey usually IRR values greater than or equal to 15% are desired for an investment linked to additional risks.

The following conclusion can be given by the audit team:

- The parameter used in the financial calculations could be validated according to the UNFCCC guidelines.
- The suitability of the applied/selected benchmark has been verified.
- All underlying assumptions are appropriate and traceable.
- The financial calculations are traceable and correct.

In addition a sensitivity analysis was performed by enforcing a variation on the main variables that could significantly affect the result. The chosen variables were power, gas collection, O&M and CAPEX, calculated at a variant up to $\pm 15\%$. These selected variables are found to be reasonable and were subject to the type of variations that could potentially make the project viable. It is the validation Team's opinion that there are no other variables that should be considered. The sensitivity analysis performed demonstrates that the project still would not achieve the benchmark IRR without revenue from the sale of GS VER's. Therefore it is appropriate to conclude that the investment analysis is sufficiently robust to demonstrate that the project is not financially or economically attractive under a range of varying assumptions.

The sensitivity performed by the project proponents demonstrates that the calculated IRR values are in all of the cases not higher than the selected benchmark if:

- The CAPEX is reduced by 15% (IRR = 5%)
- The operating cost is reduced by 15% (IRR = 6.3%)
- Electricity Revenues increase by 15% (IRR = 7.7%)
- The Gas collected is increased by 15% (IRR = 3.3%)

Thus the audit team concludes that the presented result of the investment analysis proves the required additionality of the proposed VER project activity by an investment barrier.

No additional barrier analysis has been included for this project through a comprehensive common practice analysis has been carried out. Turkey has been selected as the geographical boundary for the common practice analysis and due to the nation's unique position within the Kyoto Protocol this has been deemed appropriate. Firstly based on information as supplied by the Turkish Statistical Institute only 39% of the Turkish population is served by municipal disposal services. Of this waste that is delivered to landfills the project activity does not reflect current practice in Turkey for waste management facilities. Of 08 registered Independent Power Producers located at Landfill sites all 08 of them, representing 100%, considered the extra revenues from the potential sales of VERs.

In summary, it is sufficiently demonstrated that the project is not a likely a baseline scenario and that emission reductions occurring from this will hence be additional.

4.7 Sustainability Assessment

The project has utilised the sustainable development assessment matrix as required by the GS and it have been completed inline with the guidelines as presented in Annex I. The total score obtained has been presented as +12 with:

- Environmental Indicators having a subtotal of +5
- Social Indicators subtotal of +4
- Economic Indicators subtotal of +3

Therefore none of the subtotals have been scored as less than positive and in addition none of the individual indicators have been awarded with a negative score. Firstly the “Do no harm: assessment has been based on accurate and up-to-date information and it is safe to consider that the project will not cause any environmental or social harm through its implementation. All the assumptions used to define the score values have been revised by the validator, based on submitted documentation and the on-site visit and is considered valid and up-to-date.

4.8 Gold Standard for Stakeholder Consultation and SFR

The Local stakeholder consultation process has been carried out inline with the guidance as set out by the GS. The project was not required to carry out an official stakeholder procedure as an EIA exemption certificate was awarded by the Ministry of Environment and Forests /20/.

Therefore a meeting was set up in order to carry out the local stakeholder consultation for this development. This meeting took place on 11.11.2009 at the Bolu Municipality Hall in Bolu City. All relevant stakeholders have been invited through the project consultant's websites and through local newspaper announcements and written and personal invitations one week before the initial stakeholder meeting/25/. As required by the GS a list of the consulted stakeholders has been submitted to the validator. Moreover, the GS-supporting NGOs have been invited to participate. The National GS Focal Point of Turkey and the Ministry of Environment and Forestry were also invited and informed about the project activity. A report and a summary of the Local Stakeholder Meeting were submitted to the validation team.

The meeting and invitations contained a non-technical summary of the project, the explanation of the sustainable development impacts and a checklist on environmental and social impacts. Questions raised during the meeting were answered by the representatives of the project owner CEV Enerji Uretim San. Ve Tic. Ltd. Sti and the carbon consultant Mavi Consultants. The participants then took part in an exercise to complete the sustainability matrix and this was used to generate the final combined matrix.

The stakeholder feedback round has been commenced through the delivery of invitations/27/28/ in accordance with the GS requirements and toolkit. The latest versions of the PDD, LSC report and GS Passport have been made available to the relevant

stakeholders in electronic form on the GS registry, can be requested directly from the carbon consultant and in addition in hard copy from the local village head. The Stakeholder Feedback Round (SFR) was initiated on January 31, 2011. Underlying documentation made available to the validation team includes:

- The original e-mail files that were sent out for invitation of stakeholders
- The fax transmission reports of the original stakeholder invitations
- The postal service delivery slips of the stakeholder invitations

The invitation tracking table in the SFR report is produced according to GS modalities and follows the instructions as per Table 2.1 of the GS toolkit to identify the coded stakeholder invitees. According to the SFR report forty stakeholders received an invitation by either surface mail, fax or e-mail. The validation team was able to conclude that the invitation process was properly initiated on January the 31st as indicated in the SFR report. Supporting evidence documentation as mentioned above suggests that nineteen stakeholders received the invitation by Fax, seven stakeholders received the invitation by surface mail and fourteen have been invited by e-mail. This is consistent with the invitation tracking table in section A.1 of the SFR report.

The invitation letters have been submitted and were reviewed pertaining to the consistency with the description in the PDD, whereas the invitation text itself is written in a comprehensive manner and all relevant information is given on the letter of invitation to enable the stakeholder to either download the project documentation by using the GS project database or referring to the submitted contact details of the carbon consultant.

The consolidated SD matrix is written in a comprehensive and transparent manner taking into account that no stakeholder feedback was received ever since the SFR was initiated. The SD matrix includes sufficient information related to the single parameters and monitoring implementation as required by the GS toolkit. The validation team was therefore able to conclude that SFR was carried out in conformity with GS requirements, the documentation was transparent and reflects the actual SFR process as taken place without physical meeting and the correct conclusions were made that affect monitoring of the project based on the SD matrix assessment.

Hence the requirements for local stakeholder process for Gold Standard projects have been fulfilled.

4.9 Pre-feasibility Assessment

This project is not already under operation or previously been submitted to the UNFCCC and therefore this step is not applicable.

4.10 Monitoring Requirements and Plan

The validator has verified that the monitoring plan is in accordance with the applied methodologies, all parameters that are deemed necessary for the estimation of the emission reductions have been included. In particular a monitoring plan overview and system flow

diagram PDD/1/ (section B.7.2) and the detailed monitoring manual /47/ have been submitted to the validation team in conjunction with interviews that took place on the site visit.

In addition the following 12 additional parameters are included in the Passport and will be monitored to further confirm that the project is contributing positively to Sustainable Development in the region.

Air Quality (Score: +)

Water Quality and Quantity (Score: +)

Soil condition (Score: +)

Other pollutants (Score: +)

Biodiversity (Score: +)

Quality of employment (Score: +)

Livelihood of the poor (Score: +)

Access to affordable and clean energy services (Score: +)

Human and institutional capacity (Score: +)

Human and institutional capacity (Score: +)

Quantitative employment and income generation (Score +)

Balance of payments and investment (Score: +)

Technology transfer and technological self-reliance (Score: +)

These indicators are further described in the LSC Report and GS Passport.

These parameters and the process for monitoring are clearly shown under section G of the Passport. There is a clear indication of the method of monitoring, the frequency and who is responsible which is further elaborated within the monitoring manual/47/. Hence the sustainability monitoring plan is plausible and verifiable if implemented as stated in the GS Passport.

Carbon Monitoring:

The selected methodologies require the monitoring of the electricity supplied by the project activity to the grid, the electricity imported from the grid, the emissions factor for the Turkish national electricity grid, total amount of landfill gas, amount of landfill gas used for electricity generation, temperature, pressure, methane fraction of the landfill gas, amount of landfill gas flared and the operational hours of power plant.

Data and parameters that are available at validation

Parameters necessary to calculate the grid emission factor have to be determined ex-ante are listed in the PDD and have been verified during the desk research and on-site assessment. The combined margin emission factor is determined ex-ante based on the most recent information available.

Data and parameters to be monitored

The parameter to be monitored during the operation of the landfill gas to energy project activity can be split clearly into two sections those for the electricity element components and those for the methane capture and destruction.

For the electricity component the net electricity supply and electricity imported from the grid are the basis for the emission reduction calculation. Both will be measured continuously and

recorded monthly by two separate meters from both the project proponent and the local authority TEIAS and crosschecked with energy sales invoices. There are two main electricity meters, owned and sealed by TEIAS: a primary meter and a secondary or back-up meter.

For the landfill gas component the total quantity of landfill gas generated and the landfill gas fed into the electricity generator is measured by continuous flow meter. The average methane fraction of the landfill gas is measured by a continuous analyzer, the temperature by a temperature sensor on gas pipe and the pressure of the landfill gas by a pressure gauge.

In both cases the procedure for calibration, accuracy and maintenance of monitoring equipment and the responsibilities are clearly mentioned in section B.7. of the PDD. The data is collected in a central information management system and will be kept for at least 2 years following the end of the crediting period.

Overall Management system

The management system has been clearly outlined in the monitoring manual /47/ and is deemed suitable with a general manager identified to oversee the power plant manager and technical maintenance staff who it is stated will receive relevant training where applicable.

The monitoring plan presented in the PDD /01/ and the more detailed monitoring manual /47/. Are in compliance with the requirements of the selected methodologies/4/5/. The implementation of the monitoring plan has been discussed with the project proponents and carbon consultant. Sufficient evidence has been given that the project proponent will be able to implement the monitoring plan.

4.11 Environmental Impact Assessment G/S

In accordance with the requirements as set out by the GS the project has fulfilled Turkish requirements concerning Environmental Impact Assessments through obtaining a letter of exemption from carrying out a EIA from the Ministry of Forest and Environment /30/. This document, the No EIA Required Certificate ÇED in the Turkish language has been approved on 15.04.2009, has been made available in hard copy to the validation team on the site visit and subsequently in digital form.

As the Sustainable Indicator Matrix of the project does also not contain any negative scores, from the view of Gold Standard requirements no voluntary EIA was necessary to be conducted in addition.

Hence the project is considered to comply with the environmental impact criteria.

4.12 Gold Standard Requirements from 8-week registration review period

Appendix A

GS VER VALIDATION PROTOCOL

Bolu Landfill Gas to Energy Project

REPORT No. 01 21214441

Table 1: GS VER Validation requirements					
Checklist question	Ref.	MoV ¹	Findings, comments, references, data sources	Draft conclusion	Final conclusion
1. Project Eligibility					
1.1 Has the correct project size been selected?	PDD	DR	Yes. In accordance with the scale of project activity as set out by the GS the project has a renewable energy generation capacity of 1.1MW below that of the stated 15MW limit inline with the “Further guidance relating to the clean development mechanism (Decision -/CMP.2). Additionally Type III project activities within the CDM shall have less than or equal to 60 kt CO2 equivalent annually, in this case the figure is less than 19,000 tCO2 even in the highest performing year. Hence, the criteria for small-scale project activities are fulfilled.	CL2	OK
1.2. Does a written statement (e.g. in the PDD) clearly describe that the project is not a de-bundled part of a large or small scale project?	PDD	DR www	Yes. The project participant clearly states in the PDD that the project is not a debundled part of a larger or small-scale project. The validation team crosschecked the proposed project activity against similar projects listed within the Gold Standard and similar VER project registries and confirms that the project is not a debundled component. In addition during the on-site assessment no other landfill gas to Energy installation within a radius of 1 km of the project site was detected.	OK	OK
1.3 If there is an applicable cap-and-trade scheme in the project’s host country, has an arrangement been made to cancel		DR www	Yes. The host country does not have a quantitative reduction target under the Kyoto Protocol. Turkey acceded as the 189th Party to	OK	OK

¹ MoV = Means of Verification, DR = Document Review, I = Interview, www = internet search.

allowances in the applicable scheme?			the UNFCCC on 24 May 2004. Turkey is therefore now listed in Annex-I to the UNFCCC, but not listed in Annex-B to the Kyoto Protocol (no quantified emissions limitation or mitigation commitment yet), therefore, not a Party to the Kyoto Protocol. Conclusion: Turkey is eligible as host country for Gold Standard Voluntary Offset Projects.		
1.4 Does the project clearly demonstrate its eligibility under the Gold Standard?		DR	Yes. The project is a landfill gas to energy project involving investment in energy technologies directed towards a transition to a non-fossil energy system. The project type is covered as a methane recovery project activity within Annex C and the activity aims to utilise more than 65% of the landfill gas for energy production and therefore reaches the threshold of 65% as stated in the toolkit.	CL 33	OK
1.5 Does the project reduce an applicable GHG?		DR	Yes. The project activity is set to reduce emissions of the Greenhouse gases carbon dioxide and methane, two of the three gases eligible under the Gold Standard.	OK	OK
1.6 Does the project clearly demonstrate that no ODA has been used under the condition that the credits coming out of the project are transferred to the donor country?		DR	Yes. The ODA declaration signed by the project proponent and in direct accordance with the template as set out in the GS Annex D has been supplied.	CL1 CL21	OK
1.7 Does the project apply the correct project cycle (regular vs. prefeasibility assessment)?		DR I	Yes. The Project is proceeding under the correct regular cycle as the start date of the project is stated as February and this situation was confirmed on the site visit and through interviews. The project was first submitted on the 20.11.2009.	CL5	OK
1.8 Is the project being registered under any other certification scheme for the same or overlapping crediting periods?		DR I	No. The validation team crosschecked the proposed project activity against similar projects listed within the Gold Standard and other	OK	OK

			relevant VER registries and confirms that the project is not a registered within any VERs registry for the same or overlapping crediting periods.		
2. Project Design Document					
2.1 Is the PDD presented for validation based on the latest template available at the UNFCCC website?		DR	Yes. The PDD presented for validation is based on the latest Version 03 from 22 December 2006	OK	OK
2.2 Has the PDD been established in accordance with the CDM requirements for completing PDDs issued by the CDM EB?		DR	Please refer to tables 2 & 3.	CAR 1 CAR 3 CL2 CL4	OK
3. Project Description					
3.1 Project Description					
3.1.1 Does the PDD contain a description, which provides the reader with a clear understanding of the precise nature of the project activity and the technical aspects of its implementation?		DR	Please refer to tables 2 & 3.	CAR3 CL2 CL3 CL16 CL25	OK
3.1.3 Does the project activity reflects current good practices, use state of the art technology or would the technology result in a significantly better performance, than any commonly used technologies in the host country?		DR	The project activity does not reflect current practice in Turkey. Of similar projects utilising the same technology and business model revenues from VERs have been considered in all of the cases. Please refer to table 3.	CL6	OK
3.1.4 In cases where the project activity involves the alteration of an existing installation or process, does the PDD provide a clear description of the differences between the project and the pre-project scenario?		DR I	The project is to be implemented at an existing landfill site that originally contained a total of 8 venting pipes though due to sporadic waste dumping these vents were no longer visible	CL3	OK

			during the site visit. Please refer to tables 2 & 3		
4. Project Boundary					
3.2.1 Does the PDD correctly describe the project boundary?		DR I	Yes. The Project boundary is correctly described as the landfill site and the energy generation system as in accordance with the guidelines as set out by AMS-III.G and ACM0002.	OK	OK
3.2.2 Does the PDD correctly indicate and describe the emission sources and sinks of GHG gases that are included in the project boundary?		DR	Yes. The GHG emissions are identified and included within the project boundary.	OK	OK
3.2.3 In cases where the methodology allows project participants to choose whether a source or gas is to be included in the project boundary, is the choice explained and justified by PPs?		DR	Yes. The PP has successfully selected and justified the sources and gas in accordance with the selected methodology and the particular project situation.	OK	OK
4. B/L Emissions and Monitoring Plan					
4.1 Deviations in GHG Emission Reduction Estimation (Gold Standard Conservativeness Principle)					
4.1.1 Has the baseline scenario been constructed in a conservative manner (i.e. assumptions are made explicitly and choices are substantiated)?		DR	Yes. The baseline scenario seems plausible and has been constructed in a conservative manner based on the existing facilities at the landfill and the type and range of landfill gas to energy projects in Turkey. Please refer to tables 2 & 3.	CL31 CL4	OK
4.1.2. Does the PDD use the latest version of the methodology and the latest interpretation from the EB at the time of first submission to the GS?		DR	The project applies the latest versions of the selected methodologies AMS – III.G version 6 is the latest version and has been valid from 28th March 2008 onwards. Though it is also possible to apply the small scale methodology AMS I.D the PP, for conservative reasons, has decided to utilise ACM0002 and the	OK	OK

			latest version of this methodology ver12.1 valid from 17th September 10 onwards has been correctly applied.		
4.1.3 Does the PDD describe the baseline methodology?		DR	Yes. The baseline methodology is clearly described within the PDD.	OK	OK
4.1.4 Does the PDD describe the quantified baseline scenario?		DR	Yes. Quantified baseline scenario is clearly described within the PDD.	OK	OK
4.1.5. Does the PDD include and overview of the current and known future legally binding regulatory instruments and assess whether the project would be implemented anyway because of these?			Yes. There is a comprehensive outline of relevant Turkish legalisation regarding environmental and electricity generation elements within the PDD. This covers clearly the non-requirement for tipping fees, flaring and energy generation at landfills	CL7	OK
4.1.6.Does the PDD provide evidence based on which “common practice” of the technology used can be assessed?			Yes. The project conducts a common practice analysis based official national statistics relating to waste management in the country and in addition primary research carried out by the PP on similar landfill gas to energy projects presently in operation or under development in the country.	CL6	OK
4.1.7.Does the PDD address leakage issues as part of the baseline and project boundary?			Yes. Leakage issues inline with the selected methodologies are addressed.	OK	OK
4.1.8.Does the project apply the methodology that results in the lowest baseline emission?			Yes. The most conservative methodology has been selected, especially in this case due to the selection of the ACM0002 despite the qualification of the project for the small-scale methodology AMS I.D.	CL38	OK
4.1.9. Are all likely baseline scenarios developed and quantified in the PDD?			Yes. In this case no legislation exist with regards to the flaring of gas on Turkish landfills and as there is no potential economic returns from this activity then it cannot be considered as an	OK	OK

			alternative. Therefore the likely baseline scenarios are rightly listed in PDD as the present situation or the development of the project activity with or without its registration within the GS.		
4.1.10. Are there any material uncertainties over the numerical data sets applied (e.g. generator efficiencies, and fuel types and resulting emission factors, etc.)?		DR	No. The data utilised within the project carries enough confidence. An extensive FS was conducted by the PP and it is this data that has been utilised for much of the projects financial models and consequently the data is not considered to have contained material uncertainties.	CL8	OK
4.1.11. Is there a systematic referencing to publicly available information or to expert or expert opinions?			Yes. The document contains a systematic referencing system and all of the sources are either national or international reputable entities.	CL10 CL12 CL13	OK
4.1.12. Is information verifiably presented with a sufficient degree of detail and transparency?		DR I	Yes. The information contained within the project documentation is of a good detail and is verifiable and all sources have been listed where applicable. In addition all support documentation has been made available on request both in electronic form and hardcopy during the site visit.	OK	OK
4.1.13. Is it fully transparent from the PDD which sets of data were selected based on the prerogative of conservativeness?			Yes. It is stated within the projects documents where a decision to use one source has been made in order to be conservative.	OK	OK
4.1.14. Does the PDD include full references to sources of data used?			Yes. Full referencing has been utilised. Please refer to table 3.	CL10 CL12 CL13	OK
5 Greenhouse Gas Emissions Estimates					
5.1 Algorithm and/or formulae used to determine the emissions reductions					

5.1.1 Are all calculations applied and documented according to the selected methodology and in a complete and transparent manner?		DR	Yes. The calculations are clearly documented inline with the chosen methodology.	CL8 CL19	OK
5.1.2 In case the methodology allows a selection between different options for equations or parameters, has adequate justification been given and have the correct equations and parameters been used, in accordance with the methodology selected?		DR	Yes. The correct parameters and adequate justification has been included within the relevant sections fo the PDD.	OK	OK
5.1.3 In case some data and parameters will not be monitored throughout the crediting period, but have already been determined and fixed, are all data sources, assumptions and calculations correct, applicable to the proposed CDM project activity and conservative?		DR	Yes. All calculations have been considered to be conservative and this includes those not to be monitored during the crediting period.	OK	OK
5.1.4 In case data and parameters will be monitored on implementation and hence become available only after validation of the project activity, are the estimates provided in the PDD for these data and parameters reasonable?		DR	Yes. The estimates provided by the PP are considered reasonable.	OK	OK
5.2 Leakage					
5.2.1 Has the leakage been identified and calculated according to the approved methodology?		DR	Yes. As leakage effects only need to be accounted for under AMS III.G and under AMS I.D when equipment is transferred to or from another site or activity.	OK	OK
5.2.2 Have the leakage been addressed in complete, conservative and substantiated manner?		DR	Please refer to 5.2.1 above.	OK	OK
5.2.3 Are uncertainties in the leakage emission		DR	Please refer to 5.2.1 above.	OK	OK

estimates properly addressed?					
6 Additionality					
6.1 Gold Standard Criteria on Additionality					
6.1.1. Has the PP selected and applied the correct tool for demonstrating additionality?		DR	Yes. The “Tool for the demonstration and assessment of additionality” was applied in accordance with the guidelines as set out by the Gold Standard.	CL4	OK
6.1.2. Is the line of argumentation used by the PP to demonstrate additionality correct?		DR	Yes. As the project alternative represents a direct choice between investment in the project or not an investment analysis has been correctly conducted. Inline with the additionality tool a benchmark analysis has been applied. Additionality is then further investigated through a common practice analysis, once again inline with the correct tool. The barrier analysis, which was initially incorrectly applied, has been removed from all project documentation.	CL32	OK
6.1.3. Are the references used to demonstrate additionality up-to-date and reliable?		DR	Yes. All of the references have been checked and are up-to-date and reliable and where this has not been the case due to the time required to develop a CDM project these have been updated. Please refer to table 3.	CL10 CL17	OK
6.1.4. Has the PP compared the proposed project activity with normal practice in the region (especially if similar projects have already been implemented on a commercial basis in the region)?		DR	Yes. A conclusive common practice analysis has been conducted in relation to waste management practices within Turkey. In addition the present situation with regards to the types of landfill gas to energy projects in the country is investigated fully and as conclusion is drawn that 75% of projects of a similar business model have required additional revenues from potential sales from VERs prior to implementation. Please refer to table 3.	CL6 CL39	OK

6.1.5. Are assumptions (qualitative or quantitative) used to demonstrate additionality conservative?		DR	Yes. All of the assumptions used to demonstrate additionality are considered to be conservative.	OK	OK
6.2 CDM Additionality					
6.2.1 Investment Analysis					
6.2.1.1 Are all sources of revenues (including savings) have been considered in the PDD and all calculations?		DR I	Yes. The revenues from the project are calculated only as energy sold to the grid this is conservative as the project also has significant outlays in the management of the landfill for which is has not been officially contracted. There is in addition no charge for tipping at Turkish landfill based on the law of the country.	CAR4	OK
6.2.1.2 Is the type of investment analysis selected correctly in the PDD?		DR	Yes. As the decision is to invest or not in the project activity the benchmark analysis has been correctly applied.	OK	OK
6.2.1.3 Is the selected financial indicator chosen and applied correctly?		DR	Yes. The updated WACC has been correctly applied.	CL17	OK
6.2.1.4 Are all the values consistent between FSR and PDD and are inconsistencies properly justified?		DR	Yes. The business plan and investment analysis have been based on the FSR.	CL18	OK
6.2.1.5 Were all the values from FSR applicable and valid at the time of the investment decision?		DR	Yes. The values from the FSR are considered to be valid at the time of the decision to develop the project.	OK	OK
6.2.1.6 Is it reasonable to assume that no investment would be made at a rate of return lower than the benchmark by, for example, assessing previous investment decisions by the project participants or some verifiable circumstances that have lead to a change in the benchmark?		DR	Yes. It is reasonable to assume that no investment would take place at the calculated rate of return, which is significantly below the benchmark. It appears that initially strategic foreign investment at low rates was available to the project developer that has since been removed. It appears that only under these special circumstances would the PP be attracted to such a project.	CL1	OK

6.2.1.7 Is the Investment Analysis prepared in compliance with the latest version of the “Guidance on the Assessment of Investment Analysis” as provided by the CDM EB?			Yes. The Investment Analysis has been prepared in compliance with the latest version of the relevant Guidance. As clearly highlighted by the table on pages 17 and 18 of the PDD. Please refer to table 3.	CL28 CL29 CL30	OK
6.2.2 Barrier Analysis					
6.2.2.1 Are there any issues addressed in the barrier analysis that have a clear impact on the financial viability of the project activity and that shall be assessed by an investment analysis??		DR	The Barrier Analysis has been removed. Please refer to table 2.	CL32	OK
6.2.2.2 Do the listed barriers exist and is their existence substantiated?		DR	The Barrier Analysis has been removed. Please refer to table 2	OK	OK
6.2.2.3 Would any of the identified barriers prevent the implementation of the project activity but not equally prevent the implementation of the possible alternatives, in particular the implementation of the identified baseline scenario?		DR	The Barrier Analysis has been removed. Please refer to table 2	OK	OK
6.2.3.2 Are the geographical boundaries of the project activity identified correctly?					
6.2.3.3 Does the PDD provide an explanation why this region was selected and deemed more appropriate and are this explanation traceable and reliable?		DR I	Yes. Turkey has a unique position within the Kyoto Protocol and has been selected correctly as the geographical region.	CL36	OK
6.2.3.4 Are there similar operational project activities, other than CDM activities, “widely observed and commonly carried out” in the defined region?		DR	A conclusive common practice analysis has been conducted in relation to waste management practices within Turkey. These types of projects are not wide spread in Turkey with less than 50% of waste initially collected and dumped in controlled landfills across the country. On these	OK	OK

			limited landfill sites there are only 10 landfill gas to energy projects..		
6.2.3.5 In case there are similar commercially operated project activities, other than CDM activities, already “widely observed and commonly carried out” in the defined region, are there essential distinctions between the CDM project activity and the other similar activities?		DR	Of the 10 landfill gas to energy projects 100% of the ones with a similar business model and technology base as the project activity have considered additional revenues from VERs prior to implementation	OK	OK
7.2 Sustainability Assessment					
7.1. Is “Do no harm” assessment based on accurate information?		DR	Yes. It is considered that the ‘Do no harm” assessment is based on accurate information and the sources were validated.	CAR5 CL27 CL13 CL3	OK
7.2. Has a sustainable development matrix been developed? If yes, is it prepared according to the guidance under GS Toolkit Section 2.4.2, Table 3.2 and Annex I?		DR	Yes. The Sustainable Development Matrix has been developed and has been prepared based on the guidelines in section 2.4.2 of the GS toolkit, Table 3.2 and Annex 1. Please refer to table 2.	CL14 CAR5	OK
7.3. Is the matrix based on existing sources of information (data from existing reports, results from stakeholder consultation, experiences with similar projects in similar situations, expert judgement if data are unavailable or are of poor quality, etc)?			Yes. The information within the matrix has been validated as being from existing reports and up-to-date reliable sources at the time of production.	CL11 CL12	OK
7.4. Are data and expert opinions presented in a sufficient degree of detail and transparency? Are they verifiable?			Yes. The data presented has been validated as having a sufficient degree of detail and transparency and is verifiable.	OK	OK
7.5. Is ‘scoring’ reproducible and verifiable?			Yes. The scoring is reproducible and verifiable. Please refer to table 2.	CAR5	OK

7.6. Are at least two of the sub-totals (categories) positive? Is the third sub-total at least neutral?			Yes. The Subtotals based on the latest scoring are all now positive, representing the true impact of the project.	OK	OK
7.7. Is there a clear explanation on 'how the matrix was completed together with the stakeholders'?			Yes. There is clear description of the how the consolidated matrix has been developed and the final version represents the input of the relevant stakeholders.	CL14	OK
8. Gold Standard Criteria for Stakeholder Consultation					
8.1 Stakeholder Consultation					
8.1.1. Have PPs fulfilled the GS requirements, set out in GS Toolkit Section 2.6 and 2.11, regarding stakeholder consultation?		DR I	Yes. A stakeholder meeting was conducted inline with the guidance as set out by the GS.	OK	OK
8.1.2. Has an Invitation tracking table been filled out?		DR	Yes. The table has been filled out in accordance with the guidelines as set out by the GS.	OK	OK
8.1.3. Are copies of invitations published/sent out available?		DR I	Yes. Copies of the invitations as sent out have been made available.	OK	OK
8.1.4. Is a non-technical summary included in the Local Stakeholder Consultation report?		DR	Yes. A non technical-summary of the project has been included in the LSC and a translation of this document into English has also been presented.	OK	OK
8.1.5. Is a participant list available?		DR	Yes. Within the LSC Report there is a list of the participants, drawn up based on the stakeholders that took part. In addition in annex one there is a scanned version of the original list as signed by the participants and this document was validated during the site visit.	OK	OK
8.1.6. Are stakeholder evaluation forms available?		DR	Yes. Within the LSC Report there is a list of all the comments received from the consultation and, drawn up based on the stakeholders that took part. In addition in annex one there is a scanned version of the original list as signed by the participants and this document was validated during the site visit.	OK	OK

8.1.7. Are minutes of the meeting(s) available?		I	Yes. Within the LSC Report there is a copy of the minutes typed up in English. With a detailed explanation of the questions that were asked by the various identified stakeholders and the responses of the Project participants including the owner and the Carbon consultant	OK	OK
8.1.8. Has due account been made on comments received?		DR I	Yes. Listed in the LSC Report is an assessment of the comments received both within the SD matrix exercise and the open discussion during the meeting. Four of the issues are considered as beyond the scope of the project and this response is justified. Four further comments cover issues to which the project participants have already addressed through the original design of the project.	OK	OK
8.1.9. If stakeholders required a revisit of the sustainable development assessment, has this been done?		DR I	Yes. No negative comments directly related to the sphere of influence of the project were received and in addition the matrix represents the opinions of the stakeholders.	OK	OK
8.1.10. Is the consolidated sustainable development matrix presented based on own 'preliminary' scoring and the matrix from the outcome of the blind stakeholder exercise?		DR I	Yes. The Combined Matrix has taken into consideration the results of the SD Matrix exercise conducted within the consultation.	OK	OK
8.1.11. Were comments accepted and received by e-mail or other means and if so were they actually considered?		DR I	Yes. The project participants made themselves available to receive further comments outside of the meeting via e-mail etc though no further comments were received.	OK	OK
8.2 Stakeholder Feedback Round					
8.2.1 Is there evidence clearly showing that the latest version of the complete PDD (including the EIA, if applicable) was made publicly available for a period of		DR	Please refer to table 2	CAR2	OK

two months prior to completion of the validation in a readily accessible form?					
8.2.2 Is there evidence clearly showing that the non-technical summary of the project (in appropriate local language(s)) was made publicly available for a period of two months prior to completion of the validation in a readily accessible form?		DR	Please refer to table 2	CAR2	OK
8.2.3 Is there evidence clearly showing that all relevant supporting information (if available, in appropriate local language(s)) was made publicly available for a period of two months prior to completion of the validation in a readily accessible form?		DR	Please refer to table 2.	CAR2	OK
8.2.4 Does the Passport include a description of the procedure followed to invite comments, including addressing all the details of the oral hearing such as place, date, participants, language, local or national GS NGO supporters, etc.?		DR	Please refer to table 2	CAR2	FAR1
8.2.5 Does the Passport include all written or oral comments received?		DR	Please refer to table 2	CAR2	FAR1
8.2.6 Does the Passport include the argumentation on whether or not comments are taken into account and the respective changes to the project design?		DR	Please refer to table 2	CAR2	FAR1
9 Pre-feasibility Assessment					
9.1 Has the feedback from GS been followed-up?		DR	N/A for this project	OK	OK
10 Monitoring Plan					
10.1 Sustainability Monitoring Plan					

10.1.1 Are chosen parameters relevant to the indicators?		DR	Please refer to tables 2 & 3	CAR5 CL22 CL24	OK
10.1.2 Is the sustainability monitoring plan unambiguous about who will monitor with what frequency?		DR	Please refer to tables 2 & 3	CAR5 CAR6	OK
10.1.3 Is there any concern regarding the feasibility of the plan?		DR	Please refer to tables 2 & 3	CAR5 CAR6	OK
10.2 Carbon Monitoring Plan					
10.2.1 Are all parameters required by the selected approved methodology or tool identified and listed in the PDD?		DR	Yes. This applies for both the selected methodologies	CL20 CL34 CL23	OK
10.2.2 Is the measurement method clearly stated for each value to be monitored and deemed appropriate		DR	Yes. The method is clearly stated and is deemed appropriate.	OK	OK
10.2.3 Are values of the ex-ante parameters / monitoring parameters selected correctly and conservative in accordance to methodology or tools?		DR	Yes. The calculation conducted for the grid emissions factor in Turkey is deemed conservative.	OK	OK
10.2.4 Is the measurement equipment for each parameter described and deemed appropriate? Are the locations of all measurement equipment clearly identified and consistently described, incl. process flow-charts contained in the PDD?		DR	Yes. The equipment is deemed suitable and a diagram of its location within the projects has been supplied.	OK	OK
10.2.5 Is the measurement accuracy addressed and deemed appropriate?		DR	Yes. The accuracy based on the meters details is within that stipulated by the methodology.	OK	OK
10.2.6 Are procedures in place on how to deal with erroneous measurements and are the corrective actions identified?		DR	Yes. Back up procedures are in place.	OK	OK

10.2.7 Is the frequency of measurement identified and deemed appropriate?		DR	Yes. The frequency of the measurements in each cases deemed appropriate.	OK	OK
10.2.8 Is the monitoring plan documented according to the approved methodology and in a complete and transparent manner?		DR	Yes. The monitoring plan has been drawn up inline with the selected methodology.	OK	OK
10.2.9 Are the sampling, measurement methods and procedures defined?		DR	Yes. They are clearly in place and outlined within the plan.	OK	OK
10.2.10 Are procedures identified for maintenance of monitoring equipment and installations?		DR	Yes. This is outlined in monitoring plan.	OK	OK
10.2.11 Are the equipment calibration intervals identified and justified?		DR	Yes. A separate calibration record is set out in the monitoring plan.	OK	OK
10.2.12 Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)?		DR	Yes. All records are continuously stored electronically.	OK	OK
10.2.13 Are the monitoring arrangements described in the monitoring plan feasible within the project design?		DR	Yes. They appear appropriate based on the project design.	OK	OK
10.2.14 Are the means of implementation of the monitoring plan, including the data management and quality assurance and quality control procedures, sufficient to ensure that the emission reductions achieved by / resulting from the project activity can be reported ex post and verified?		DR	Yes. The comprehensive monitoring plan within the PDD and delivered separately ensure that the achieved emissions reductions can be reported and verified.	OK	OK
10.2.15 Do the PPs make provisions for personnel training needs?		DR	Yes. Provision for training and capacity building is clearly outlined in the supplied monitoring	OK	OK

			plan.		
10.2.16 Is the authority and responsibility of overall project management clearly described?		DR	Yes. Responsibilities of individual staff and overall management structures are clearly outlined in the monitoring plan.	OK	OK
10.2.17 Are procedures identified for review of reported results/data?		DR	Yes. Reporting procedures are in place.	OK	OK
10.2.18 Is the data archiving period for this project activity stated in the PDD and appropriate?		DR	Yes. It is stated and inline with the guidelines as set out in the selected methodologies.	OK	OK
10.3 Monitoring of leakage					
10.3.1 Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?		DR	Yes. Leakage monitoring as demanded by the selected methodology has been covered and is inline with local conditions.	OK	OK
10.3.2 Is the choice of project leakage indicators made according to selected methodology in a reasonable and conservative manner?		DR	Yes. Leakage monitoring as demanded by the selected methodology has been covered and is inline with local conditions.	OK	OK
10.3.3 Is the measurement method clearly stated and deemed appropriate for each leakage value?		DR	Yes. Leakage monitoring as demanded by the selected methodology has been covered and is inline with local conditions..	OK	OK
11 Environmental Impact Assessment					
11.1. Does the project activity conform to host country (local, regional or national) requirements concerning environmental impact assessment?		DR	Yes. It has been confirmed that the project has adhered to local environmental legislation through being awarded an environmental impact assessment exemption certificate. It has in addition been confirmed that the PP is contractually only responsible for the operation of landfill gas to energy project and not the management of the landfill (leachate, waste control etc).	CL15 CL26	OK
11.2. For micro-scale projects, is there an		DR	N/A as this project is a small scale and not micro.	OK	OK

owner declaration that guarantees that the project complies with local environmental regulations?					
12. Gold Standard Requirement for 8weeks review?					

Table 2: List of Requests for Corrective Action (CAR)				
No.	CAR	Reference	Summary of project owner response	Validation team conclusion
1	The complete monitoring plan for both the Carbon and Sustainability parameters needs to be submitted, including the management structure clearly stating individual responsibilities, management procedures, meter specifications and quality control measures.	PDD and Passport	Round 1: The PDD and Passport are revised, as requested. Round 2: Please see CAR6.	The complete Carbon and Sustainability Monitoring plan has been submitted with the management structure clearly outlined. CAR1 is closed though CAR6 has been opened in relation to the sustainability parameters.
2	The PP is required to inform the DOE and clearly describe in the Passport how the Stakeholder Feedback Round was conducted and its outcomes. In addition justify further why this method was chosen, clearly show that the non-technical summary of the project (in appropriate local language(s)) was made publicly available for a period of two months prior to completion of the validation in a readily accessible form, add a description of the procedure followed to invite comments and will include in the Passport all written or oral comments received.	Passport	Round 1: The SFR of the Project has not been completed yet. Once the process is completed, the report will be provided to the DOE. Round 2: The GS Passport will be updated once the SFR is over. The SFR ends in April 2011.	The invitations for the SFR have been delivered in accordance with the GS requirements and toolkit. The PDD, LSC report and GS Passport have been made available to the relevant stakeholders in electronic form on the GS registry, can be requested directly from the carbon consultant and in addition in hard copy from the local village head. CAR 2 is closed Please describe in the passport how the feedback round was organised, what the outcomes were and how you followed up on the feedback. FAR1 has been opened
3	In accordance with the document "Guidelines for completing the simplified Project Design Document (CDM-SSC-PDD)" the PP is asked to	PDD	Round 1: The PDD is revised, as requested.	The PDD has been completed inline with the Guidelines for completing the simplified Project Design Document

Table 2: List of Requests for Corrective Action (CAR)

No.	CAR	Reference	Summary of project owner response	Validation team conclusion
	make the following changes to the PDD - add the date of completion and PDD version section A.1, use the correct format for the table in section A.4.3, summarize the results of the ex-ante estimation of emission reductions for all years of the crediting period using the correct table format and separately present each component, add the date of completion of the baseline and monitoring methodology in the format DD/MM/YYYY, place the paragraph below section D in section D1.			(CDM-SSC-PDD)". CAR 3 is closed.
4	The assumptions and sensitivity analysis for the Investment Analysis need to be completed and fully inline with the data as presented in the project spreadsheet as supplied by the PP. In addition the Sensitivity Analysis should include an increase in gas collection.	PPD and Exl	Round 1: The PDD is revised so that it is in line with the spreadsheet, as requested. The benchmark is missing in the graph; this is corrected in the revised PDD. The sensitivity analysis is updated so that it now also considers the gas collection ratio, so that the increase in gas is also assessed.	The sensitivity analysis has been completed inline with the request of the CAR with the spreadsheets and data within the PDD equal. The addition of the final variant of gas collection within the Sensitivity proves to a satisfactory level that the IRR of the project without the addition revenues from the VERs sale does not pass through the established baseline. CAR4 is closed.
5	Please clarify why positive aspects of the project (as described by both the PP and Stakeholders) are considered as neutral within the combined SD matrix (e.g. Water Quality, Air Quality, Technology Transfer, Livelihood of the poor etc) or the justifications should be adjusted.	Passport	Round 1: The Passport is revised, as requested. .	The updated matrix now reflects the true impact of the project based on the comments of the PP and in addition the opinions of the stakeholders. The adjustments are well justified by the supporting text in the passport. The monitoring in addition reflects these changes and is much more wide

Table 2: List of Requests for Corrective Action (CAR)				
No.	CAR	Reference	Summary of project owner response	Validation team conclusion
				reaching. CAR5 is closed.
6	The PP is asked to clearly state who is responsible for the collection of the data for the sustainability monitoring parameters. In addition the PP is requested to consider if there are any further parameters suitable for direct monitoring.	Passport	Round 1: The passport (section " <i>Additional remarks monitoring</i> ") is revised, as requested. Please note that the PDD section " <i>B.7.2 Description of the monitoring plan</i> " explains in detail the responsibilities. The monitoring plan in the passport is revised such that proper leachate management is also monitored.	The information now contained within the passport and the additional information within the PDD section B.7.2 are deemed sufficient for the sustainability monitoring. CAR6 is closed.

Table 3: List of Requests for Clarification (CL)				
No.	CL	Reference	Summary of project owner response	Validation team conclusion
1	The PP should explain in more detail the phases of the project in relation to the securing and consequential removal of funding from the Korean Development Bank	PDD - sub-step 3a pg 21	Round 1: The PDD is revised (Section "Access to Finance", as requested. Round2: As correctly pointed out by the DOE, the barrier analysis is completely removed from the PDD for simplicity (though there have been considerable barriers regarding access to finance they have been omitted from the PDD).	This is not a critical issue though it appears that the "Access to Finance" section has been removed from the latest version of the PDD due to the removal of the barrier analysis argument. CL 1 Remains Open. Sufficient clarity has been supplied as to the involvement and removal of the Korean Development bank though the timeline of the project. CL1 is now closed
2	There remains a difference between the PDD and Passport section C.3 in relation to the quantity of emissions reductions attributed to the methane destruction component, please clarify which figure is correct.	Section C3 of Passport	Round 1: The relevant section in the Passport is deleted to ensure compliance.	The revision of the data has been made as requested and they are now compliant. CL2 is now closed
3	The PP is asked to clearly state in the text that the project activity is to be built within an existing landfill site.	Do Harm Assessment Pt 10	Round 1: The Passport is revised, as requested.	The added description of the project allows for much greater transparency with regards to the actual and historical management of the site and the present responsibilities of the parties involved. CL3 is now closed

Table 3: List of Requests for Clarification (CL)				
No.	CL	Reference	Summary of project owner response	Validation team conclusion
4	Please add a suitable phrase to the box in section H2 referencing that the baseline study is within the PDD and follows the Gold Standard Guidance.	Section H2 Passport	Round 1: The Passport is revised, as requested.	The term has been added as requested. CL 4 is closed.
5	The PP is requested to supply information to the DOE as to the date that the project was first submitted to the GS.		Round 1: The Project has first been submitted to the GS on 20.11.2009. This is the uploading date of the LSC report to the GS Registry (according to GS rules ¹ report upload means first submission).	The given date has been confirmed. CL 5 is closed.
6	For clarification purposes the PP should add more detail to table 14 on page 27 of the PDD in terms of the Voluntary crediting schemes and present registration status of the other similar projects and in addition give some context to this number of projects in relation to the total number of landfills within Turkey.	Table 14 pg 27 PDD	Round 1: The PDD is revised, as requested. A common practice worksheet is added to the baseline study.	The common practise analysis has been added to the PDD and firstly highlights with clarity that the municipal waste disposal services are available to a limited percentage of the Turkish population. Of that waste delivered to landfills there are only six that operate as energy providers. Four of these have comparable business model to the project and 75% of these have considered VERs revenues. From the information provided it is possible to conclude that energy generation from landfill gas is not common practise in Turkey.

¹ GS Toolkit v.2.1, p.34: "The time of first submission is defined as the date of upload of the Local Stakeholder Consultation report or in case of pre-feasibility assessment, the day of the application for a pre-feasibility assessment."

Table 3: List of Requests for Clarification (CL)				
No.	CL	Reference	Summary of project owner response	Validation team conclusion
				CL6 is closed
7	More detailed information relating to footnote 2 "Law Nr. 2872" should be added.	Pg 15 PDD	Round 1: The PDD is revised, as requested. Round 2: The PDD is revised, as requested.	This is not a critical issue though the footnote still does not clarify what Law Nr. 2872 refers too CL 7 remains open. Sufficient information has been added to the PDD. CL 7 is closed
8	The PP should clarify why the figures for waste composition from the FSR and not national averages have been utilised.	PDD Table 15	Round 1: The PP has carried out a pre-feasibility analysis (waste sampling and analysis of LFG etc.) for the Project on site. Therefore the waste composition in the FSR (and not national general figures) is the basis for the PP for the financial and technical feasibility. Since project specific waste composition data is already available, using general national figures would lead to over- or underestimated LFG generation figures.	The revision has been made as requested and due to the fact the feasibility study was carried out by a company with vast experience in this area and eventual developers of the project is it concluded that it is justified to utilise the locally supplied data. CL 8 is closed.
9	Please add the following phrase to the passport - Not applicable as the section in the PDD on additionality and choice of baseline follows Gold Standard guidance.	Section Passport - section H.1	Round 1: The Passport is revised, as requested.	The term has been added as requested. CL 9 is closed.

Table 3: List of Requests for Clarification (CL)

No.	CL	Reference	Summary of project owner response	Validation team conclusion
10	It appears that the link in footnote 15 doesn't work.	PDD pg 22	Round 1: The PDD is revised, as requested.	The correct link has no been added. CL 10 is closed.
11	Please clarify if Turkey is classified as High Human Development or a Medium Human Development based on 2010 data.	Passport F2	Round 1: The Passport is revised, as requested.	The incorrect indication had been deleted. CL 11 is closed.
12	Please clarify if the links for footnotes 4 and 5 on page 12 of the Passport in section F2 refer to figures from 2009 or 2007.	Passport F2	Round 1: The Passport is revised, as requested.	The correct year of reference has been added to the PDD. CL 12 is closed.
13	It appears that the link in footnote 7 doesn't work. http://www.undp.org/mdg/undp-mdg-world.shtml	Passport F2	Round 1: The Passport is revised, as requested.	The editorial mistake had been corrected. CL 13 is closed.
14	Please ensure the consolidated matrix in the Passport and LSC are scored the same.	Passport and LSC	Round 1: The LSC report is a standard document reflecting the scoring at the time of the stakeholder consultation. The scoring in the Passport has been updated with the latest monitoring plan. Therefore the difference between the two documents is normal.	The justification as made by the PP is accepted inline with the GS procedures. CL 14 is closed.

Table 3: List of Requests for Clarification (CL)				
No.	CL	Reference	Summary of project owner response	Validation team conclusion
15	The PP is requested to clearly define within the PDD and/or Passport who is responsible for the management and processing of leachate at the site. (E.g. environmental impacts section)	PDD and Passport	Round 1: The PDD and the Passport is revised, as requested. The monitoring manual is also submitted to the DOE.	The clear explanations as added by the PP allows for a transparent understanding that the contractual agreement for the PP's project is the utilisation of the landfill gas for energy production and not the operation of the site in the long term. The management of the site and its leachate is therefore the responsibility of the Municipality though the project will produce benefits in these areas. CL 15 is closed.
16	More detailed technical flow diagrams and equipment specifications should be added to the PDD clearly distinguishing between any equipment presently in place and that to be added in subsequent phases.	PDD A.4.3	Round 1: The PDD is revised with a more detailed flow diagram, as requested. The equipment decisions are not met yet, therefore a specification of equipment is unavailable. A single line chart is submitted to the DOE separately.	Detailed flow diagrams have been added to the PDD and have been supported by supplied site plans for the project development. They are fully inline with what was witnessed at the site in terms of layout. CL 16 is closed.
17	Please justify why data from October 2009 has been utilised to calculate the IRR and further clarify the suitability of risk premium added to bond rates to derive the final benchmark.	PDD	Round 1: The submitted investment analysis in the spreadsheet is not in agreement with the investment analysis section of the PDD. The investment analysis in the spreadsheet is revised accordingly. The PDD (investment analysis section) is corrected, as requested.	The investment analysis within the PDD and spreadsheet are now compatible. The benchmark has been calculated as the WACC and this is inline with guidance as set out by the Investment Analysis Guidelines. CL 17 is closed.

Table 3: List of Requests for Clarification (CL)

No.	CL	Reference	Summary of project owner response	Validation team conclusion
18	As the investment values from the FSR have been utilised the PP is asked to verify that these have not changed significantly with the development of the project.	PDD	Round 1: The Project is not under construction/installation/operation yet. Therefore there is no possible way to check any significant cost deviation. However the costs included in the investment analysis comply with standard costs in the industry and should be taken as applicable.	The explanation as offered by the PP is acceptable and is justified due to the present status of the development. In addition the sensitivity analysis proves that even with a 20% saving in the CapEx without additional revenue from the VERs the project IRR does not pass the threshold. CL 18 is closed.
19	Please expand the emissions calculation formulae in the PDD for clarification purposes.	PDD B.6.1	Round 1: No specific action is taken. The DOE can provide further requests on this issue if it deems necessary. Round 2: The PDD will be revised appropriately if more detailed requests are received.	The explanation as delivered by the PP is accepted. CL 19 remains open.
20	Please add a brief paragraph for the justification of selected parameters under B.6.2 according to the correct tools.	PDD B.6.2	Round 1: The PDD is revised, as requested.	The clarification phrases have been added as requested. CL 20 is closed.
21	Please add a copy of the ODA letter within the table in Annex 1 of the Passport.	Passport Annex 1	Round 1: The Passport is revised, as requested.	The ODA letter has been added as requested.

Table 3: List of Requests for Clarification (CL)				
No.	CL	Reference	Summary of project owner response	Validation team conclusion
				CL 21 is closed.
22	The PP shall consider including extra sustainability monitoring parameters (i.e. leachate management, interviews with local residents to monitor odour, monitoring of non-hazardous waste entering the site and professional training sessions). This section should also be revisited in light of CAR5.	Passport - Monitoring Plan	Round 1: The Passport is revised, as requested.	This requested information has been covered in response to CAR5. CL 22 is closed. Though CAR6 and CL35 have been opened.
23	As a QA/QC measure please add that the net electricity produced will be crosschecked with sales receipts.	PDD	Round 1: The PDD is revised, as requested.	The additional crosschecking parameter has been added. CL 23 is closed.
24	The PP is asked to justify the figure “Y” for the target number of jobs to be created.	Passport - Monitoring Plan	Round 1: The Passport is revised, as requested. Round 2: The Passport is revised, as requested.	The Y still remains. CL 24 remains open. A value for Y has been inserted in the Passport. CL 24 is closed
25	The PP will ensure that the project and crediting period start dates are the same in all of the supplied documentation - PDD, Spreadsheet and Passport	PDD & Passport	Round 1: The PDD, Passport and Spreadsheet are revised, as requested. Round 2: The table 10 in the PDD is corrected, as requested.	The start date has been adjusted so that it is unified across all of the documentation. Though there remains an inconsistency in Table 10 of the PDD. CL 25 remains open Table 10 of the PDD has been updated accordingly.

Table 3: List of Requests for Clarification (CL)

No.	CL	Reference	Summary of project owner response	Validation team conclusion
				CL 25 is closed
26	A copy of the certification of exemption for an Environmental Impact Assessment has not been added to Annex 5 to the PDD.	PDD	Round 1: The incorrect reference to Annex 5 is deleted from the PDD. This document is submitted to the DOE separately.	The reference has been removed as requested and the EIA exemption certified has been validated by the DOE. CL 26 is closed.
27	Please verify the tender information as it states Samsun not Bolu	Do Harm Assessment Pt 11	Round 1: The Passport is revised, as requested.	The correct name has been added to the documentation. CL 27 is closed.
28	The PP should justify why 15years has been selected as a project lifetime when the project contract has been signed for 29years and the guidance as set out in point 3 of the latest version of the "Guidelines on the Assessment of Investment Analysis" should be consulted.	IA	Round 1: Project investment horizon is selected as 20 years in agreement with the UNFCCC guidance. The scrap value of the Project at the end of 20 years is added to the spreadsheet.	The project investment analysis has been extended to 20years inline with the guidance on Investment Analysis and the scrap metal value has been added which is justified based on the expected lifetime of a project of this time. For validation purposes even a significant higher remaining asset value fee would not raise the IRR above the selected threshold. CL 28 is closed.
29	The PP should justify why Interest rates on loans has been calculated in the Investment Analysis in light of point 3 in the "Guidelines on the Assessment of Investment Analysis".	IA	The interest payments seen in the spreadsheet are for illustrative purposes only and do not have any impact on the IRR, as the IRR is calculated with the pre-tax cash flow. The calculation of WACC	The spreadsheet has been rechecked and indeed interest payments have been utilised to calculate the WACC and do not impact on the IRR. CL 29 is closed

Table 3: List of Requests for Clarification (CL)				
No.	CL	Reference	Summary of project owner response	Validation team conclusion
			requires the loan interest rate, though.	
30	The PP should justify the decision making process taken to arrive at the installed capacity of the energy production unit.	IA	Round 1: The justification for the capacity decision making process is already described in the FSR in detail. The PP does not prefer to describe its technical pre-planning in the PDD. No specific action is taken. The DOE can provide further requests on this issue if it deems necessary. Round 2: The PDD will be revised appropriately if more detailed requests are received.	The justification from the PP is accepted at this stage, as it remains inline with projects of this type. CL 30 is closed though FAR2 has been opened
31	Baseline determination. The section A.2 of the PDD should describe the pre-project situation in detail. It should be clearly described as to how the waste was managed and it should be clarified if the landfill had any provisions for passive venting with flaring of generated landfill gas to avoid explosions and fires.	PDD section A2	Round 1: The PDD is revised, as requested.	The baseline description has been extended within the PDD as to be inline with request. The situation as described can be confirmed as based on observations made during the site visit. CL 31 is closed.
32	As issues that have a clear, direct impact on the financial returns of the project activity cannot be considered in the barrier analysis the PP is asked to clarify why the following points have been considered 'High discount rate, country risk, high	PDD table 9	Round 1: The PDD is revised, as requested.	The unnecessary barrier analysis has been removed from the PDD and the additonality argument remains justifiable through the use of the Investment and Common Practise

Table 3: List of Requests for Clarification (CL)				
No.	CL	Reference	Summary of project owner response	Validation team conclusion
	cost, transmission line cost'.			analysis. CL32 is closed.
33	The PP is asked to clarify if they have selected to exclude the start-up phase of a methane recovery project activity from the calculation of the 65% threshold by opting-in at a later stage in the crediting period, when a stable utilisation of biogas is technically easier to achieve. If such a choice is made, which is likely given the information provided in section B.6.3, PP shall also discuss it in the PDD.	PDD	Round1: The Project does not consider this option as the feasibility study suggests that in overall it would be able to achieve the 65% threshold throughout the entire monitoring period.	The FSR indeed outlines that the project will reach this threshold as set out by the GS. The PDD and other relevant documentation also support this finding. CL33 is closed.
34	The PP should clarify why a monitoring parameter to ensure compliance with manufacturer's specification for efficient operation of flare (90%) has not been added.	PDD	Round 1: It is not clear yet whether a flare will be installed or not. The monitoring plan is revised and includes the flare efficiency in case a flare unit is used. The PDD is revised accordingly. A monitoring manual is also submitted to the DOE, which describes the selection of the flare efficiency.	The flare efficiency has been added to all of the relevant documentation as stated by the PP. CL33 is closed.
35	The PP is asked to clarify why leachate management has not been considered as a sustainable development indicator and consequentially as a sustainability monitoring parameter.	Passport	Round 1: The leachate management is added to the monitoring plan accordingly.	Leachate monitoring has been added as a sustainability monitoring parameter. CL35 is closed.

Table 3: List of Requests for Clarification (CL)

No.	CL	Reference	Summary of project owner response	Validation team conclusion
36	The PP is requested to state clearly within the PDD Common Practise analysis why the geographical region Turkey was selected.	PDD	Round 1: The PDD is revised accordingly.	The PDD has been updated and the reason is given by the Project Owner is deemed acceptable. CL36 is closed.
37	The PP is requested to clarify the date of the LSC as there is a discrepancy between the Passport and the LSR.	PDD & LSC	Round 1: The Passport is revised accordingly.	The Passport has been updated accordingly. CL37 is closed.
38	The PP is requested to state clearly why the large-scale methodology has been applied even if the small-scale methodology is applicable	PDD	Round 1: The use of combined margin usually results in a lower emission factor than using the weighed average approach. Therefore ACM0002 is preferred for conservative approach. The PDD is revised accordingly.	The PDD has been revised accordingly and the explanation as given by the Project owner is deemed acceptable. CL38 is closed.
39	The PP is requested to clarify how many projects within Turkey have been included in the common practice analysis as there is a discrepancy between the supplied spreadsheet and the PDD.	PDD and supporting spreadsheet	Round 1: This discrepancy stems from the time difference between PDD preparation and the creation of the spreadsheet table. The PDD is revised accordingly.	The PDD has been revised accordingly and the explanation as given by the Project owner is deemed acceptable. CL39 is closed

Table 4: List of Forward Action Requests (FAR)		
No.	FAR	Reference
1	Please describe in the passport how the feedback round was organised, what the outcomes were and how you followed up on the feedback.	CAR2 Passport
2	The application of standard values, assumptions and figure based on sampling alone is considered as not suitable for the estimation of the achievable capacity factor in the long run. It is therefore requested to review the situation based on the first months of the true technical operation of the site at full power	

