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Gold Standard Validation Report

VALIDATION OF THE GS-VER-PROJECT:
MAMAK LANDFILL WASTE MANAGEMENT PROJECT - TURKEY

REPORT NO. 1175 963-GS

Revision 3

April 21st, 2009

TÜV SÜD Industrie Service GmbH

Carbon Management Service
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Report No.	Date of first issue	Revision No.	Date of this revision	Certificate No.
1 175 963 - GS	23/12/2008	3	03/04/2009	-

Subject: Validation of a GS VER Project

Accredited TÜV SÜD Unit:	**TÜV SÜD Contract Partner:**
TÜV SÜD Industrie Service GmbH Certification Body "climate and energy" Westendstr. 199 - 80686 Munich Federal Republic of Germany	TÜV SÜD Industrie Service GmbH Carbon Management Service Westendstr. 199 - 80686 Munich Federal Republic of Germany
Client: OneCarbon B.V. Eupener Str. 59 50933 Köln Germany	**Project Site(s):** Mamak landfill site Nato Yolu, Ege Mahallesi 06480 / Mamak Katı Atık Alanı Ankara / Turkey

Project Title: Mamak Landfill Waste Management Project - Turkey

Applied Methodology / Version:	ACM0001, version 8.1 AM0025, version 10	**Scope(s):**	13 (ACM0001 1 (AM0025))

First PDD Version:		**Final PDD version:**	
Date of issuance:	2008-02-01	Date of issuance:	2009-04-20
Version No.:	2	Version No.:	7
Submitted to GS	2008-05-26		

Estimated Annual Emission Reduction: 572'320 tons CO_{2e}

Assessment Team Leader:	**Further Assessment Team Members:**
Klaus Nürnberger	Dr. Thyge Weller Dr. Nuri Mol

Summary of the Validation Opinion:

☒ The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. In our opinion, the project is in line with all relevant requirements of the Gold Standard version 1and with all relevant requirements of the UN Framework Convention on Climate Change (UNFCCC). Hence, TÜV SÜD will recommend the project for registration as a Gold Standard VER project activity by the Gold Standard Advisory Board.

.☐ The review of the project design documentation and the subsequent follow-up interviews have not provided TÜV SÜD with sufficient evidence to determine the fulfilment of all stated criteria. Hence TÜV SÜD will not recommend the project for registration as a Gold Standard VER project activity by the Gold Standard Advisory Board and will inform the project participants on this decision.

Abbreviations

ACM	Approved Consolidated Methodology
AM	Approved Methodology
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CER	Certified Emission Reduction
CR	Clarification Request
DNA	Designated National Authority
DOE	Designated Operational Entity
EB	Executive Board
EIA / EA	Environmental Impact Assessment / Environmental Assessment
ER	Emission reduction
FAR	Forward Action Request
GHG	Greenhouse gas(es)
GS	Gold Standard
ITC	Invest Trading & Consulting A.G. [Turkish Ankara Branch]
KP	Kyoto Protocol
LFG	Land Fill Gas
MP	Monitoring Plan
NGO	Non Governmental Organisation
PDD	Project Design Document
PP	Project Participant
SD	Sustainable Development
TÜV SÜD	TÜV SÜD Industrie Service GmbH
TEIAS	Turkish Electricity Transmission Company
TSKB	Türkiye Sinai Kalkinma Bankasi
UNFCCC	United Nations Framework Convention on Climate Change
VER	Verified emission reduction
VVM	Validation and Verification Manual

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1. INTRODUCTION

1.1 Objective

OneCarbon B.V. has commissioned TÜV SÜD Industrie Service GmbH (TÜV SÜD) to validate the "Mamak Landfill Waste Management Project - Turkey" in accordance with the Gold Standard version 1. The purpose of a validation is to have an independent Third Party perform a compliance test against the additional requirements as set by the Gold Standard for VER projects.

The validation scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. Beyond the requirements for VER-projects the information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations and against the Gold Standard guidelines. This validation is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of verified emission reductions (VERs) according to the requirements of the Gold Standard organization. TÜV SÜD has, based on the recommendations in the Validation and Verification Manual (version 1, issued June 2007) employed a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of VERs. The ultimate decision on the GS-registration of the proposed project activity rests at the GS Advisory board.

The project activity discussed by this validation report has been submitted under the project title:

Mamak Landfill Waste Management Project - Turkey

1.2 Scope

The scope of any assessment is defined by the underlying legislation, regulation and guidance given by relevant entities or authorities. In the case of this GS-VER project activity the scope is set by:

- Gold Standard V.1
- The Kyoto Protocol, in particular § 12;
- Decision 2/CMP1 and Decision 3/CMP.1 (Marrakech Accords);
- Further COP/MOP decisions with reference to the CDM (e.g. decisions 4 – 8/CMP.1);
- Decisions by the EB published under http://cdm.unfccc.int;
- Specific guidance by the EB published under http://cdm.unfccc.int;
- Guidelines for Completing the Project Design Document (CDM-PDD), and the Proposed New Baseline and Monitoring Methodology (CDM-NM);
- The applied approved methodologies;
- The technical environment of the project (technical scope);
- Internal and national standards on monitoring and QA/QC;
- Technical guideline and information on best practice.

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

Once TÜV SÜD receives a first VER PDD version, it is made publicly available on the internet at TÜV SÜD's webpage for starting a 60 day global stakeholder consultation process (GSP). In the case of the Mamak project, this GSP was started only later, because it was apparent that the first PDD versions will be changed considerably. Therefore only PDD v5 was published. Information on the first version received by TÜV SÜD and on the final PDD version is presented at page 1.

2 METHODOLOGY

The proposed project will generate Verified Emission Reductions (VERs). However the methodologies applied are based on CDM methodologies. If the general framework changes accordingly in the future a validation of the project as a JI or CDM project activity is planned.

The project assessment aims at being a risk based approach and is based on the methodology developed in the Validation and Verification Manual, an initiative of Designated and Applicant Entities, which aims to harmonize the approach and quality of all such assessments.

In order to ensure transparency, a validation protocol was customised for the project. TÜV SÜD developed a "cook-book" for methodology-specific checklists and protocol based on the templates presented by the Validation and Verification Manual. The protocol shows, in a transparent manner, criteria (requirements), the discussion of each criterion by the assessment team 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 is enclosed in Annex 1 to this report.

Validation Protocol Table 1: Conformity of Project Activity and PDD				
Checklist Topic / Question	***Reference***	***Comments***	***PDD in GSP***	***Final PDD***
The checklist is organised in sections following the arrangement of the applied PDD version. Each section is then further subdivided. The lowest level constitutes a checklist question / crite-	*Gives reference to documents where the answer to the checklist question or item is found in case the comment refers to*	*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. In some cases sub-checklist are applied indicating yes/no decisions on the compliance with the stated criterion. Any **Request** has to be substanti-*	*Conclusions are presented based on the assessment of the first PDD version. This is either acceptable based on evidence provided (☑), or a **Corrective Action Request (CAR)** due to non-compliance with the*	*Conclusions are presented in the same manner based on the assessment of the final PDD version.*

rion.	*documents other than the PDD.*	*ated within this column*	*checklist question (See below).* ***Clarification Request (CR)*** *is used when the validation team has identified a need for further clarification. In case a conclusion is not yet possible at the time of finalizing the report, a* ***Forward Action Request (FAR)*** *is used. FARs have to be resolved latest at the time of the first verification.*	

Validation Protocol Table 2: Resolution of Corrective Action and Clarification Requests			
Clarifications and corrective action requests	***Ref. to table 1***	***Summary of project owner response***	***Validation team conclusion***
If the conclusions from table 1 are either a Corrective Action Request, a Clarification Request or a Forward Action Request, these should be listed in this section.	*Reference to the checklist question number in Table 1 where the Corrective Action Request, the Clarification Request or the Forward Action Request is explained.*	*The responses given by the client or other 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 1, under "Final PDD".*

In case of a denial of the project activity more detailed information on this decision will be presented in table 3.

Validation Protocol Table 3: Unresolved Corrective Action and Clarification Requests		
Clarifications and corrective action requests	***Id. of CAR/CR 1***	***Explanation of the Conclusion for Denial***
If the final conclusions from table 2 results in a denial the referenced request should be listed in this section.	*Identifier of the Request.*	*This section should present a detail explanation, why the project is finally considered not to be in compliance with a criterion.*

2.1 Appointment of the Assessment Team

According to the technical scopes and experiences in the sectoral or national business environment TÜV SÜD has composed a project team in accordance with the appointment rules of the TÜV SÜD certification body "climate and energy". The composition of an assessment team has to be approved by the Certification Body ensuring that the required skills are covered by the team. The Certification Body TÜV SÜD operates four qualification levels for team members that are assigned by formal appointment rules:

- Assessment Team Leader (ATL);
- Greenhouse Gas Auditor (GHG-A);
- Greenhouse Gas Auditor Trainee (T); and
- Experts (E).

It is required that the sectoral scope linked to the methodology has to be covered by the assessment team.

The validation team was consisting of the following experts (the responsible Assessment Team Leader in written in bold letters):

Name	Qualification	Coverage of technical scope	Coverage of sectoral expertise	Host country experience
Klaus Nürnberger	**ATL**	☑	☑	
Dr. Thyge Weller	GHG-A	☑	☑	
Dr. Nuri Mol	GHG-A		☑	☑

Klaus Nürnberger is head of the division energy certification at TÜV SÜD Industrie Service GmbH. In his position he is responsible for the implementation of verification and certifications processes for electricity production based on renewable sources. The division has assessed more than 600 plants and sites all over Europe in particular hydro power plants. He has received extensive training in the CDM and JI validation and verification processes and participated already in several CDM and JI project assessments.

Dr. Thyge Weller is lead auditor of the division energy certification at TÜV SÜD Industrie Service GmbH. In his position he implements verification and certifications processes for electricity production based on renewable sources. His technical specialization is in renewable energies, but covers also other CO2 emission reduction activities like landfill gas flaring. He has received extensive training in the CDM and JI validation processes and participated in several CDM and JI project assessments.

Dr. Nuri Mol is a consultant in environmental and renewable energy issues. He is lead auditor for Quality and Environmental Management Systems and advices industry and municipalities in

environmental protection technologies due to IPPC. He is associated with TÜV SÜD TGK Turkey and participated in various local projects.

2.2 Review of Documents

The first PDD version submitted by the client and additional background documents related to the project design and baseline were reviewed as initial step of the validation process. A complete list of all documents and proofs reviewed is attached as *Annex 2* to this report.

2.3 Follow-up Interviews

In the period February 06 / 07, 2008; TÜV SÜD performed interviews on-site with project stakeholders to confirm selected information and to resolve issues identified in the first document review. The table below provides a list of all persons interviewed in the context of this on-site visit.

Name	Organisation
Ali Kantur	ITC Invest Trading & Consulting A.G., Chairman
Hans von Meiss	ITC Invest Trading & Consulting A.G., Vize Chairman
Erdogan Göğen	ITC Invest Trading & Consulting A.G. Turkish Ankara Branch, general manager
Tuğba Kirer	ITC Invest Trading & Consulting A.G. Turkish Ankara Branch, environmental manager
Ömer Akyurek	OneCarbon Türkiye, Consultant

2.4 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the validation is to resolve the requests for corrective actions and clarifications and any other outstanding issues which needed to be clarified for TÜV SÜD`s positive conclusion on the project design. The Corrective Action Requests and Clarification Requests raised by TÜV SÜD were resolved during communication between the client and TÜV SÜD. To guarantee the transparency of the validation process, the concerns raised and responses that have been given are summarised in chapter 3 below and documented in more detail in the validation protocol in annex 1.

2.5 Internal Quality Control

As final step of a validation, the validation report and the protocol have to undergo an internal quality control procedure by the Certification Body “climate and energy”; i.e. each report has to

be approved either by the head of the certification body or his deputy. In case one of these two persons is part of the assessment team approval can only be given by the other one.

It rests at the decision of TÜV SÜD's Certification Body whether a project will be submitted for requesting registration by the GS Advisory board or not.

3 FINAL VALIDATION FINDINGS

The proposed project aims to reduce GHG emissions by realizing a land fill gas extraction and utilisation system in an existing land fill site. The LFG will be utilized in gas engines to produce electricity, fed into the Turkish grid. Further on, an increasing part of fresh waste, entering the landfill, will be diverted to a bio-digester and a gasifier. This results in the production of biogas resp. syn-gas, which again is used to produce electricity via gas engines. In the absence of the project there would be increased emissions by the electricity production by Turkish power plants and the unmanaged land fill site would result in the emanation of methane.

3.1 Project design

ITC and Ankara Greater Municipality have signed in 2002 an agreement which transferred the operation of the unmanaged Mamak landfill site and the rehabilitation of the area to ITC. The actual transfer of use of right was settled in April 2005 with the official concession report. ITC has now for 49 years the right and the obligation to operate the landfill.

The "generic project" of the project owner is very encompassing and ambitious with the final goal of establishing a "zero waste" landfill. It covers more activities than the "VER project". In the beginning, only the LFG extraction and utilisation system was included in the VER project. Therefore in its first two versions (PDD v.1 [18.01.2008], PDD v.2 [01.02.2008]) the project used only methodology ACM0001. Later on, it was decided to include also the subsystem "anaerobic digester" into the VER project scope. As a consequence, in PDD v.3 [04.07.2008], AM0025 was added as second methodology. This is still valid in the final PDD (v.5) with two methodologies:

- ACM0001, version 8.1: Consolidated baseline and monitoring methodology for landfill gas project activities"
- AM0025, version 10: Avoided emissions from organic waste through alternative waste treatment processes.

Another subsystem, the gasifier, has been excluded from the VER project scope. The reason is that according to GS rules, co-firing of renewable wastes is not permitted for eligibility. No emission reduction credits will be claimed from the gasifier. Another activity which is part of the generic project but not included into the VER project, is the sorting facility and the recycling center.

At present, the sorting facility and the recycling center are operational, as well as the LFG extraction and utilisation system (even if not yet with the full final capacity). The latter includes a leachate drainage system, covering of the landfill (done to 80%) and a gas flaring system. 8 gas engines with 1,4 MW each are processing the LFG. Not yet realized is the anaerobic digester system and the gasification system.

The information presented in the PDD on the technical design is consistent with the actual planning and implementation of the project activity as confirmed by the onsite visit of the audit team.

As previously mentioned, all finding are summarized in Table 2 of the attached validation protocol. In total the assessment team expressed thirteen (12) Clarification Requests and twenty two (22) Corrective Action Requests to be solved and/or clarified. Additionally, one (1) Forward Action Request was expressed as input to the first verification process.

3.2 PDD

The PDD is compliant with relevant form and guidance as provided by UNFCCC. The most recent version of the PDD form was used.

TÜV SÜD considers that the guidelines for the completion of the PDD in their most recent version have been followed. Relevant information has provided by the participants in the applying PDD sections. TÜV SÜD confirms that the included information sufficiently covers all relevant items, is accurate and provides the reader with a clear understanding of the nature of the project activity.

3.3 Findings

In total the assessment team expressed the following requests:

1	Validation protocol ACM0001	8 CAR, 16 CR, - FAR
2	Validation protocol AM0025	1 CAR, 2 CR, 1 FAR
3	Validation Protocol "Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site"	1 CAR, 1 CR, - FAR
4	Validation Protocol "Tool to calculate the emission factor for an electricity system	- CAR, 2 CR, - FAR
5	Validation Protocol "Tool for the demonstration and assessment of additionality"	2 CAR, 1 CR, - FAR
	Total	**12 CAR, 22 CR, 1 FAR**

All 34 requests were resolved by contacts between the project owner (resp. his consultants) and TÜV SÜD. They can be grouped as follows (the first number refers to the specific validation protocol according to above table):

Inconsistent information	1-CAR1	1-CAR5	1-CAR9	3-CR1		
Missing information	1-CAR4	1-CAR6	1-CAR7	1-CR5	1-CR7	1-CR8
	1-CR10	1-CR11	1-CR12	1-CR14	2-CAR1	3-CAR1
	5-CR1					
Unclear description	1-CAR2	1-CR1	1-CR2	1-CR3	1-CR4	1-CR6
	2-CR1	2-CR2	4-CR1	4-CR2	5-CAR1	5-CAR2
Formal deviation	1-CAR1	1-CAR8	1-CR13	1-CR15	1-CR16	

Table 2 of the various validation protocols give more details about the resolution of the requests.

3.4 GS Criteria - Project Type Eligibility Screen

According to the "Gold Standard Validation & Verification Manual *for* Voluntary Offset Projects" ecologically sound biogas projects are eligible when renewable electricity is produced through a biogas project. Landfill gas (LFG) and biogas from agro-processing, wastewater and other is included in this definition.

The assessed project consists of two parts: a LFG system and an anaerobic digester. While the first one uses the "old waste" in the landfill, the second uses the "fresh waste" delivered to the waste dump. Both systems avoid methane emissions and produce renewable energy by gas engines. As described in the above mentioned manual emission reductions due to the capture of methane that would normally be emitted from the project are applicable under the Gold Standard and count towards the project's overall emission reductions. This includes also the avoided CO2-emissions due to the feed-in of renewable electricity, leading to reduced production of fossil power plants.

According to the GS-VVM eligibility is limited to projects reducing methane emissions at existing sites that are not covered by existing legislation mandating LFG recovery. As there is no legislation in Turkey requiring LFG recovery, this requirement is also fulfilled.

According to Gold Standard rules, 65% of the Landfill Gas must be in use for energy services delivery on average annual bases. The actual utilization figures of 2007 and 2008 demonstrate an utilisation factor of 92%, climbing to 100% at the end of 2008. According to existing engine capacity and expansion plans there is no doubt that also in the future the project activity will utilise almost 100% of the LFG over the total crediting period."

In an e-mail (dated 17.07.2008) and in the document <Gold Standard: answer to "retroactive registration request Mamak Landfill Gas Recovery and Utilization Project, Turkey"> (dated 01.08.2008; [also referred to as "GS pre-feasability assessment"]) GS organisation has confirmed that the combined use of AM025 and ACM001 is accepted as long as no emission reductions are claimed for methane avoidance from the gasification or incineration (AM0025) of waste which would not be 100% renewable waste. This is why the gasification unit (which is part of the generic Mamak system) has not been included into the "VER system".

Hence, the project type is eligible for the Gold Standard.

3.5 GS Criteria – Additionality Screen

Previous public announcement check

In 2002 an agreement was signed between ITC and Ankara Greater Municipality. The scope of the agreement was limited to the construction and operation of the Mamak Waste Fill site with recycling and rehabilitation of the area. No commitment was included concerning GHG emission reductions; no statements about LFG extraction, anaerobic digestion or gasification were made. The audit team accepted therefore the view that this 2002 contract is not the public announcement of the assessed project, but has only created the foundation on which many possible project types could have realized.

The decision to choose a specific project layout was made in April 2005 when the actual transfer of use of right was settled with the official concession report. Before 2005 ITC had no right to use the landfill area. ITC studied now the various implementation options and their financial implications. According to the presented documents the decision to realize a LFG extraction and utilization approach (i.e. the current project design) was only made when the financial analysis demonstrated its applicability due to VER income. As a consequence, in 2006 the covering of the landfill started, the leachate system was installed and the first gas engines started to work.

Hence, the audit team concluded that there was no public announcement of the LFG extraction and utilization, prior to any payment being made for the implementation of the project.

Baseline and monitoring methodology

Compliance with each applicability condition as listed in the chosen baseline and monitoring methodologies ACM0001 / AM0025 has been demonstrated. The assessment was carried out for each applicability criteria and included among others the compliance check of the local project setting with the applicability conditions in regard to baseline setting and eligible project measures. TÜV SÜD confirms that the chosen baseline and monitoring methodology is applicable to the project activity.

The project boundary was assessed in the context of a site visit and based on the secondary evidence received on the design of the project. Hence, TÜV SÜD confirms that the identified boundary and the selected sources and gases as documented in the PDD are justified for the project activity.

Additionality Tool

As explained in above section “Previous public announcement check” CDM was considered prior to the project´s starting date; several documents were presented to support this conclusion. The applied methodology ACM0001 version 08.1 refers to the ”Tool for the demonstration and assessment of additionality”. According to this requirement the tool in its most recent version was applied in the PDD. The required procedures to identify the most reasonable baseline methodology have been applied. The following baseline scenario has been defined:

> Waste is disposed at the landfill without the capture of landfill gas. Electricity is generated by existing grid connected power plants.

The PDD correctly identifies all alternative scenarios and the consistence with the laws and regulations. It demonstrates the additionality via the Barrier Analysis and indicates clearly the barriers faced by this project activity, and that the identified baseline scenario is not prevented by any of the identified barriers. The primary argument is “first of its kind”. It was shown that the common practice in Turkey is unmanaged landfills. There are just 22 “controlled landfills”, of which 10 have an electricity generation licence. None of them corresponds with the Mamak project design.

The audit team concludes that the proposed project activity is not the baseline scenario. The additionality analysis shows that the project activity faces barriers that prevent the implementation of the project without VER revenues and that the income from VERs alleviate the identified barriers. Therefore the project activity can be considered as ‘additional’.

Conservative approach check

According to Gold Standard version 1 requirements, it must be assessed whether a sufficiently

conservative baseline scenario is chosen based on the baseline report and by consulting a local expert. The latter is demonstrated in the Assessment Letter by the local expert, which is attached to this report.

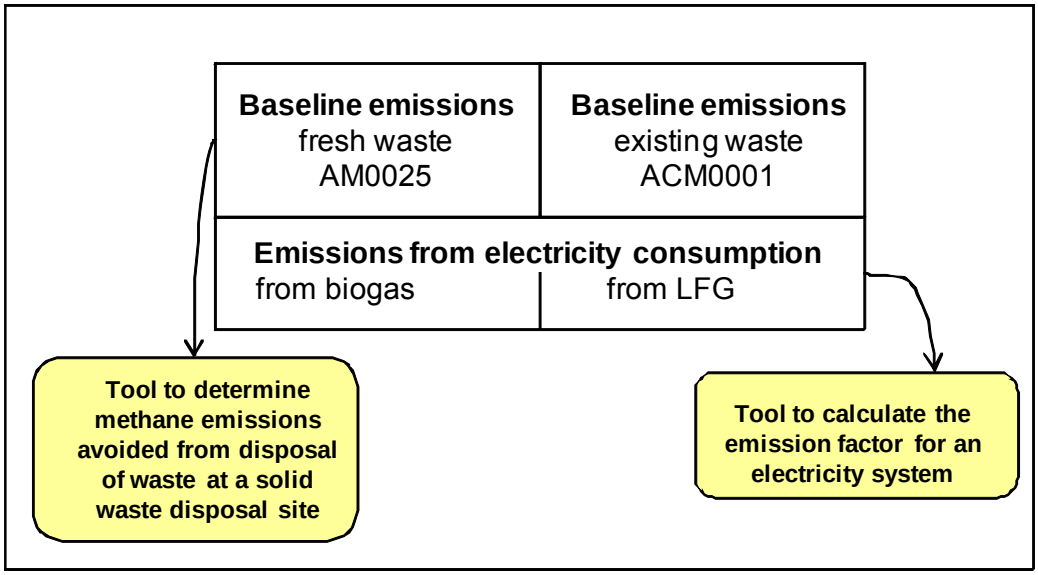
There is no separate baseline report, but the relevant content is part of the PDD. The PDD very clearly demonstrates that the most convincing baseline scenario has been chosen, and that all assumptions and parameters comply with the conservativeness criteria. To show how the calculation of emission reductions has been carried out in a conservative manner, the following examples are given:

- The sorting facility and recycling centre is not included in the project boundary. However as a conservative approach, emissions resulting from electricity usage from both facilities are included as project emissions. Altogether, the most conservative baseline scenario has been selected.
- In the ex-ante estimation of the methane avoided a correction factor has been included in order to lower the estimation as close as possible to realistic and conservative values
- The emission factor for the electricity grid is calculated as 0.636 tCO2e/MWh, which is one of the the lowest EF calculated for Turkey for other projects.

3.6 Baseline Emissions

By documents, pictures and detailed explanation of the project set-up it became evident that in the baseline no methane was captured and destroyed .TÜV SÜD has assessed the calculations of project emissions, baseline emissions and leakage and emission reductions. Corresponding calculations were checked by re-calculating the calculation spreadsheets.

Due to the different system components within the VER project boundary (LFG, biogas) and outside the VER project boundary (gasifier, recycling center) and –as a consequence - of two methodologies the calculation of baseline emissions, project emissions and emission reductions is rather complex. The adjoining diagram gives a first overview of those components.



It was verified, that the tools are properly applied. All assumptions and data used by the project participants are listed in the PDD, including their references and sources.

The operating margin emission factor (EF_{OM}) was determined based on the simple OM method. The ex-ante option was chosen for the calculation period 2004 – 2006. According to our information these were the most recent reliable data at the time of submitting the PDD for validation. Fuel consumption data were taken from the TEIAS website, the official source of electricity data in Turkey. NCV-data are Turkey-specific, but for the emission factors of fossil fuel types IPCC data have been used. The calculation of the build margin emission factor (EF_{BM}) was based on the most recently build power plants comprising 20% of the system generation. A full list of those plants is part of the PDD.

Project emissions are calculated according to AM0025. The gasifier is not part of the VER project boundary, but produces GHG emissions. On the other hand, its energy production and the avoided land filling of organics result in reduced GHG emissions. The conservative approach was chosen to consider any positive net emissions (emission greater than reduction) as project emission, while "negative net emissions" (reductions greater than emissions) will not be counted. The excel-sheet "Ex-Ante ER Calculation Mamak Waste Management Project" proves that the emissions are indeed negative, but that they are not considered.

In summary, the calculation of the baseline emissions, the project emissions and the emission reductions, respectively, can be considered to be correct.

3.7 Sustainable Development Screen

Sustainable development assessment

The project has used the sustainable development assessment matrix as required by the Gold Standard. The total score obtained is +11, where:

- Local/regional/global environment has a subtotal of +6
- Social sustainability and development has a subtotal of +3
- Economic and technological development has a subtotal of +2

None of the sub-total scores is negative, the total score is positive and none of the indicators has a score of -2 or -1. All the assumptions used in defining the score values have been reviewed by the validator based on the submitted documentation, the on-site visit made during the validation of the project and the Assessment Letter submitted by the local expert. Especially the "water quality" score was discussed in detail. The solution to transfer the leachate to the ASKI waste water treatment plant is much better than the previous status where the leachate was fed without any treatment into the Imrahor creek. Therefore it deserves certainly a positive score. The ASKI plant, however, has no denitrification unit. A higher ammonia-nitrogen reduction could have been achieved by an onsite denitrification process. Insofar the scopes +1 or +2 for the "water quality" indicator are both arguable. As there are no further consequences from either choice, the validation team concluded to accept the PDD-value of +2.

Hence, the project activity complies with this Gold Standard criterion.

The GS Documentation also includes additional parameters to be monitored to further confirm that it is in line with sustainable development. These parameters are:

- number of new jobs created for biogas project
- use of organic sludge as a fertilizer for land application
- safety of biogas plant

- Improvement in wastewater quality being released to the existing wastewater treatment system

A major effect is the number of newly created jobs and the chance to enter a firm employment relationship. The project owner demonstrated, that about 2/3 of the employees of Mamak have entered the social security system for the first time by Mamak project. About half of those people are former scavengers.

For more details on the additional monitoring parameters see section 3.8.

Environmental Impact Assessment (EIA)

No Environmental Impact Analysis is required for such projects in Turkey. According to the GS an EIA should be performed if any sustainable development indicator is rated -1. Since this is not the case in this project activity, an EIA is not necessary in order to comply with GS requirements. All the necessary permits have been obtained from related departments / organizations including the Ministry of Environment and Forestry.

Several studies have been conducted on the environmental impacts of Mamak Landfill area regarding the situation before the implementation of the project started. Significant negative effects on environment were attributed to the unmanaged landfill area. Most of the studies/reports were focusing on the leachate problem and the explosion danger of the unmanaged landfill area. One study proposed the derivation of leachate into sewer system of Ankara. The actual implementation is even better as the leachate water is now directly sent to the ASKI waste water treatment centre, where the leachate is treated. This prevents any threat to surrounding environment and also preserves the Imrahor Creek.

The project clearly contributes positively to the environment by reducing greenhouse gas emissions from methane and fossil fuels, by reducing wastewater pollution, and by reducing local odour pollution. In addition, the biogas plant will create new employment opportunities. The number of new jobs created will also be monitored during the crediting period.

Public consultation procedures

The project proponent has carried out two stakeholder consultations as required by the Gold Standard – a preliminary consultation and a second round consultation. Turkish branches of GS supporters have been included in the whole stakeholder's consultation process, including the preliminary consultation and second round consultation.

Preliminary Consultation

The preliminary consultation was a public meeting. It was carried out on November 26, 2007 at the Mamak landfill area. 18 people attended this meeting (NGO representatives, academics, local and regional administrators, the Imrahor Village muchtar, local people and consultants from OneCarbon). The range of stakeholders is appropriate, as is also confirmed in the Assessment Letter by the local expert. The meeting stakeholders were informed about the project and could share their views, opinions and recommendations.

The topic, date, place and hour of the public involvement and discussion meeting was announced in the local newspaper, Son Söz on November 23, 2007. Furthermore all the stakeholders were sent invitations via e-mail. The Imrahor Village Muchtar did not have e-mail access so he was invited orally by telephone and a written invitation was sent to his address. The Initial

Stakeholder Consultation report contains documentation of the invitation notice in the newspaper, the invitation sent to the muchtar, a full list of participants and photos from the meeting.

During the meeting it was concluded that no negative effects regarding environmental and social aspects of the project were expected. In particular, no significant impacts were identified which require the preparation of an EIA.

Second Stakeholder Consultation

Because of the changes between PDD v1/2 (LFG only) and PDD v3 (inclusion of anaerobic digestion) the second round consultation process, which took place between 14.02.2008 and 05.04.2008, was repeated between 03.09.2008 and 03.11.2008.

Relevant documents were sent to 17 stakeholders who attended the preliminary consultation round via e-mail, or were delivered by hand, where no e-mail was available. Furthermore, the mentioned documents have been made publicly available for download and comment. The muchtar as official representative of the local community was personally visited at the Imrahor Village. During the second round consultation only one feedback was provided, which was sent by CEDBIK (Environmental Protection Association). Full details on this feedback and ITC's response are provided in the PDD and in the 2nd round consultation report.

According to the validator's view the realized public consultation activities comply with the Gold Standard criteria.

3.8 Monitoring Requirements and Monitoring Plan

The validator has verified that the Monitoring Plan is in accordance with the applied monitoring methodologies. All parameters that are deemed necessary for the estimation of emission reductions have been included. In particular, a monitoring setup diagram has been created, indicating all locations where values are monitored. Very helpful is a monitoring device list with the details of all monitoring devices. The (draft) monitoring manual is a sound basis for all future monitoring activities.

In addition to the requirements of the applied monitoring methodologies the following seven additional parameters are included in the PDD and will be monitored to further confirm that the project is contributing positively to sustainable development in the region:

1	SDI.1	Water quality (leachate collection, treatment in ASKI water treatment plant)
2	SDI.2	Air quality (check of sulphide content in landfill gas)
3	SDI.4	Soil condition (check of anti-erosion measures)
4	SDI.6	Employment [job quality] (documentation of trainings, check of attendance)
5	SDI.7	Livelihood of the poor (documentation of new jobs created during the year and of the profile of new-hires)
6	SDI.9	Human and institutional capacity (documentation of campaigns to support recycling and waste reduction)
7	SDI.10	Employment [quantity] (documentation of newly created jobs)

These additional parameters will be monitored even though the sustainable development assessment matrix did not result in any crucial SD indicators.

Hence, the project complies with the Gold Standard requirements

3.9 Pre-Feasability assessment list

End of May 2008 OneCarbon submitted a retroactive registration request which was answered 01.08.2008 by GS. Both the request and OneCarbon's answer was communicated to TÜV SÜD. The GS requests were carefully considered and in some cases converted into additional CARs and CRs. As requested by GS a summary table of the GS requests and their consequences is included in the following.

Number	GS Review Results and Conclusions	OneCarbon International BV	Comments by DOE
1	**Eligibility**		
	Biogas usage. Per GS rules, for LFG-to-Energy projects, a minimal utilization threshold for captured biogas usage of 65% averaged over one year has been set. Although mentioned on page 11 of the PDD, this crucial point related to the eligibility of the emission reductions should be elaborated on in relation to the project's eligibility.	The PDD has been revised accordingly in version 3 submitted on 20.08.2008.	More information was required by val.prot. 1 / CR#14. The result fits with our on-site findings.
	ODA. Please provide clear documentation regarding public funding, such as a finance or business plan in order for the DOE to be able to validate this point, (documentation will remain confidential). Simply a statement about ODA usage is not sufficient under Gold Standard requirements.	The financial structure of the proposed project has been transparently made available for the DOE.	Separation achieved between guaranteed feed-in tariff and public funding by val.prot. 1 / CR#1. Finance plan gives evidence on financing purely by equity and loans from private commercial banks. No indication that ODA is or will be used for VER sales.
2	**Clarification on Additionality**		
	Additionally Tool. The use of the latest version, at the time of submission, of the Additionality Tool is mandatory under GS rules. Please revise, if necessary, the section on additionality assessment according to the version 5 of the Tool for the	"Tool for the demonstration and assessment of additionality" version 5 has been used for demonstration of additionality.	Request fulfilled by project owner.

	demonstration and assessment of additionality'.		
	Barriers. A low IRR is mentioned as a major barrier and the revenues from the VERs are shown to be critical in the investment decision. However, on what basis were these revenues calculated given that emission reductions are not provided? Please provide a revision of this section as soon as possible (during validation) via the GS registry & project administration.	Assumptions in the financial feasibility have been inserted in the PDD. Emission reduction calculations are made available to the DOE.	Assumptions were checked; emission reduction calculations were re-calculated.
3	**Baseline and Emission Reductions**		
	Baseline. GS cannot comment on the baseline calculation at this stage as no information is provided. Please provide as soon as possible (during validation), via the GS registry & project administration system key elements used to determine the baseline such as variables, parameters and data sources.	The baseline emission calculations along with the emission reduction calculations have been inserted to the PDD.	Request fulfilled by additional information in the PDD.
	Emission reductions. GS cannot comment on the calculation of emission reductions at this stage as no information is provided. Please provide as soon as possible (during validation), via the GS registry & project administration system estimated emissions reductions, as well as the calculations and a description of the formula used to estimate project emissions.	The baseline emission calculations along with the emission reduction calculations have been inserted to the PDD.	Request fulfilled by additional information in the PDD.
	Conservativeness. Please, in accor-dance with the GS conservativeness principle, make sure that the baseline considered is indeed the most conservative among the equally convincing baseline options. For example, if the option chosen leads to a lower grid emission factor than other project activities previously submitted which substitute	The emission factor for the electricity grid is calculated as 636 tCO2e/GWh, which is amongst the lowest emission factors calculated in other project activities previously submitted.	The emission factor was re-calculated and compared with other projects. It is considered conservative.

	electricity in the same grid, show that data provided in this PDD are more up to date or accurate that data previously used.		
4	**Sustainable Development Assessment matrix**		
	- Referencing. The scoring of the SD indicators must be easily reproducible by the DOE. Please systematically refer to available information sources (e.g. EIA, feasibility study, etc.) with page numbers, to specific sections of the PDD or annexes, or to expert opinions (provide expert contact details) in the argumentation provided to support the scoring of each one of the SD indicators (regardless of the score).	The scoring of the SD matrix have been justified and supported with references, documents and evidences. The PDD has been revised accordingly in version 3 submitted on 20.08.2008.	Val. prot.1 / CAR #6 required to include answers to GS preassessment questions / suggestions in the PDD. Request fulfilled by additional information in the PDD.
	Water quality. Please include the treatment of the leachate (waste water plant) in the Monitoring Plan as this is a crucial indicator of sustainability for this project activity.	The sustainable indicator "water quality" has been included to the monitoring plan.	Val. prot.1 / CAR #6 required to include answers to GS preassessment questions / suggestions in the PDD. Request fulfilled by additional information in the PDD.
	Air quality. Although no GHG emission reductions are claimed from the gasification plant, please monitor its impact on air and water quality as the nonorganic waste used as feedstock may lead to the release of atmospheric pollutants, or of pollutants in the water potentially used to wash the gases before usage in an engine, in case of inappropriate gas treatment equipment.	The sustainable indicator "air quality" has been included to the monitoring plan. Furthermore, the emissions from the gasifier are included in the monitoring plan.	Val. prot.1 / CAR #6 required to include answers to GS preassessment questions / suggestions in the PDD. Request fulfilled by additional information in the PDD.
	Other pollutants. Please consider a qualitative monitoring of this indicator (odor nuisance in particular) to support the claim of a strongly positive impact, for example in the form of regular surveys in the neighborhood.	With regards to reduction of odor effect, hydrogen sulphide (H2S) is set as the parameter for a qualitative monitoring and included in the monitoring plan.	Request fulfilled by additional information in the MP.

	Soil condition: Please consider including this indicator in the monitoring plan, as it is crucial that a GS project activity is not associated with pollution such as the release of heavy metals in the environment. Also, in reference to the planting of trees, the terracing and soil stabilization, this indicator should be monitored to ensure that soil erosion is indeed being avoided due to improvements from the project activity.	The sustainable indicator "soil condition" has been included to the monitoring plan.	Request fulfilled by additional information in the MP.
	Biodiversity: Please consider qualitative monitoring for this sensitive indicator in order to evaluate effect of the planting of around 4500 trees around the landfill on biodiversity.	The project activity involves the planting of 4500 trees around the landfill area which will positively affect the biodiversity of the area. However, tracking the positive impact to the biodiversity is very difficult, therefore this sustainable indicator scores is lowered to "0".	Considered as conservative.
	Employment number & quality: Please consider monitoring these indicators to support the claims. This can easily be monitored via the review of the job contracts delivered and of the training sessions provided.	The sustainable indicators "employment number & quality" have been included to the monitoring plan.	Val. prot.1 / CR #10 required to include more details on employment effects. Fulfilled by changes in the MP.
	Livelihood of the poor: Please consider monitoring this crucial indicator, as the conversion of former scavengers into skilled workers with a stable income and access to social security can be considered a very positive contribution to local sustainable development.	The sustainable indicator "livelihood of the poor" has been included to the monitoring plan.	Val. prot.1 / CR #10 required to include more details on employment effects. Fulfilled by changes in the MP.
	Human and institutional capacity: The educational benefits in terms of environmental awareness and recycling training provided can be considered as a positive	The sustainable indicator "human and institutional capacities" has been included to the	Val. prot.1 / CR #10 required to include more details on employment effects. Fulfilled by changes in the

	contribution to local sustainable development and therefore added to the monitoring plan. It would be possible, and recommended, for example, to monitor how many residents were visited and the number of educational brochures disseminated annually.	monitoring plan.	MP.
5	**Stakeholders Consultation**		
	Preliminary consultation. Please provide the DOE with copies of the original questionnaires that have been filled out by the villagers and clarify how illiterate villagers were actively invited to the consultation, especially the unemployed. If the presence of the Muhtar of the Imrahor Village, was sufficient to represent the local people, please ensure that a record of his minutes that has been/will be provided to the local people will be accessible by the DOE. Also, do not refer to the consultation as 'Initial Stakeholder Consultation1 as this is used for the GS stakeholder consultation taking place at the design phase under the conventional and not retroactive cycle. You may want to name it preliminary consultation.	The Initial stakeholders consultation report" has been revised to reflect the process in a more transparent and complete way. Also the term "initial stakeholders consultation" has been replaced by "preliminary consultation". The revised Preliminary consultation report is made available for the DOE.	Request fulfilled by changes in the documentation.
	Second round consultation. For the second round of consultation, please invite local NGOs and GS NGO supporters that were involved in the first round of consultation to comment on the existing project design (retroactively and based on the scored SD Indicator Matrix). Also go back to the stakeholders who were consulted earlier for them to comment on the way their concerns (e.g. related to odors and power generation) have been taken into account. A site-visit is strongly recommended and would be a good opportunity	All the involved stakeholders have been included in the second round consultation process. E-mail has been chosen as preferred communication for national/regional/and local policy makers, NGOs and academicians due from the fact that it is very difficult to organize a second live meeting with	Val. prot.1 / CR #12 required up-to-date information on the second “second round consultation”. Fulfilled by additional information and the second round consultation report.

	for collecting opinions, discussing the non-technical summary and the matrix, and for taking photographs. Stakeholder comments must be reported upon and action taken to resolve issues presented in a written and interpretable manner so as to provide a paper trail that underpins a decision by the validator.	meaningful attendance. However, face to face communication has been preferred for the muchtar, who is the official representative of the local community. The muchtar was visited at the Imrahor Village and the documents including the SD Matrix have been delivered giving information and explanation on the documents invited to provide feedback. Also several hard copies of the documents were handed out to be delivered to the villagers. A detailed report on the second round consultation has been developed explaining the process in detail and submitted to the DOE.	
	Please note that stakeholder comments do not necessarily refer only to negative comments. Positive or neutral comments (in other words, all valid comments) should also be recorded and summarized in the report. Please ensure that the next round of stakeholder consultation includes a summary of all written and oral stakeholder comments as well as the project developer argumentation on whether or not those comments are taken into account and the respective changes to the project design, if any (for example, comments may affect the monitoring plan in	A detailed report on the second round consultation has been submitted to the DOE.	See above

	terms of which indicators are chosen to be monitored).		
	GS strongly suggests that OneCarbon provide a report after the second round of stakeholder consultation has occurred, including all stakeholder comments, in order to facilitate a more efficient DOE validation.	A detailed report on the second round consultation has been submitted to the DOE.	See above
6	**Monitoring**		
	Biogas usage. According to GS rules for LFG-to-energy projects, a minimal utilization threshold for methane usage of 65% averaged over one year has been set. Please ensure that the monitoring plan provides for a transparent assessment of this condition, and includes a description of the methodology of how this parameter will be monitored.	Biogas usage has been included in the monitoring plan.	ok
	Emission reductions. GS cannot comment on the Monitoring Plan for emission reductions as none has been provided at this stage. Please include an appropriate monitoring plan along with the proper justification for the choice of this monitoring plan as soon as possible (during validation), via the GS registry & project administration system.	Monitoring plan has been included in the PDD.	ok
	SD indicators. Indicators deemed sensitive to changes in the framework conditions or important for an overall positive impact on sustainable development, and/or where the public consultation yield concerns of stakeholders must be monitored over the crediting period. Please include the SD indicators to be monitored in the Monitoring Plan. Please make clear in the monitoring plan and in the 2008 monitoring report the methods and equipment to be used for the monitoring, and describe how frequently the	The SD indicators, which are deemed sensitive, have been included in the monitoring plan.	ok

	selected indicators will be monitored, as well as quality assurance. Use of a table format highly recommended. The Validator will assess if the chosen indicators are appropriately monitored according to local circumstances		
	Mitigation or compensation measures. The Monitoring Plan must also allow for an assessment of the implementation and effectiveness of any identified mitigation and compensation measures for significant negative impacts as well as monitoring of these impacts. Although an EIA was not conducted and is not required per host country laws, the mitigation and compensation measures described in the feasibility studies/reports should be included in the monitoring plan (if not already covered by the SD indicators) so that the DOE can assess if the mitigation measures are sufficient, appropriate and adapted to local circumstances.	No significant negative impacts have been addressed therefore no mitigation measures have been introduced. However, 7 out of 12 sustainable indicators, which are deemed sensitive to changes in the framework conditions, have been included in the monitoring plan.	The approach by the project owner was considered conservative, thus fulfilling the GS request.
7	**Others**		
	Please make use of the GS VER PDD template.	As discussed and concluded earlier with GS, the first page of the GS VER PDD template has been used.	

4 COMMENTS BY PARTIES, STAKEHOLDERS AND GS NGO SUPPORTERS

The project owner had sent PDD v.2 to the Gold Standard organisation as part of the pre-feasibility test. The project was entered in the GS registry. TÜV SÜD published the project documents of the final PDD version on its own website and invited comments by Parties, Stakeholders and Non-Governmental Organisations during a period of 30 days.

The following table presents all key information on this process:

webpage:
First Global Stakeholder Process
No publication by TÜV SÜD
Second Global Stakeholder Process
http://www.netinform.net/KE/Wegweiser/Guide2.aspx?ID=5846&Ebene1_ID=49&Ebene2_ID=1838&mode=4

Starting date of the global stakeholder consultation process:	
First process starting date:	
By GS – date not known to TÜV SÜD	
Second process starting date:	
By TÜV SÜD: 19.12.2008	
Comment submitted by:	**Issues raised:**
No comments were submitted	-
Response by TÜV SÜD:	
-	

5 VALIDATION OPINION

TÜV SÜD has performed a validation of the following proposed GS-VER project activity:

"Mamak Landfill Waste Management Project - Turkey"

The review of the project design documentation and the subsequent follow-up interviews have provided TÜV SÜD with sufficient evidence to determine the fulfilment of stated criteria. In our opinion, the project meets all relevant Gold Standard v.1 requirements as well as UNFCCC requirements for the CDM. Hence, TÜV SÜD will recommend the project for registration as a Gold Standard VER project activity by the Gold Standard Advisory Board.

An analysis as provided by the applied methodology demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented as designed, the project is likely to achieve the estimated amount of emission reductions as specified within the final PDD version.

The validation is based on the information made available to us and the engagement conditions detailed in this report. The validation has been performed using a risk based approach as described above. The only purpose of this report is its use during the registration process as a GS-VER project. Hence, TÜV SÜD can not be held liable by any party for decisions made or not made based on the validation opinion, which will go beyond that purpose.

Munich, 2009-04-21

Thomas Kleiser

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

Munich, 2009-04-21

Klaus Nürnberger

Assessment Team Leader

Annex 1: Validation Protocol

1.1 Validation Protocol ACM0001 v.8.1

1.2 Validation Protocol ACM0025 v.10

1.3 Validation Protocol ”Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site

1.4 Validation Protocol ”Tool to calculate the emission factor for an electricity system”

1.5 Validation Protocol ”Tool for the demonstration and assessment of additionality”

1.1 Annex ”Validation Protocol ACM0001 v.8.1”

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
A. General description of project activity				
A.1. Title of the project activity				
A.1.1. Does the used project title clearly enable to identify the unique VER activity?	1	The project title clearly enables the identification of the project activity. There is no other Landfill recovery project in Mamak.	☑	☑
A.1.2. Are there any indication concerning the revision number and the date of the revision?	11, 12	The PDD numbering is not transparent. Several sub-versions of version 3 exist, and they carry all the same date. **Corrective Action Request #1** PDD-versions have to have a unique version number and a unique date of issuance.	**CAR#1**	☑
A.1.3. Is this consistent with the time line of the project's history?	1, 12, 13	The scheduled dates are consistent with the time-line of the project development.	☑	☑
A.2. Description of the project activity				
A.2.1. Is the description delivering a transparent overview of the project activities?	12, 24 – 28,	The project activity is rather complex, consisting of various segments within and outside the project boundary, partly contributing to VER reductions, partly not. **Corrective Action Request #2** Even if efforts are visible in the PDD to provide clarity a strict terminology has to be defined and consistently applied to avoid irritation. **Clarification Request #7** Some additional documents should be delivered to the DOE: • Feasibility study regarding "Carbon Financing for Mamak" prepared in March 2005;	**CAR#2** **CR#7**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		• correspondence with the Ministry of Energy and Natural Resources in April 2005; • board decision on investment decision based on VER-revenues in February 2006 • technical specifications of the anaerobic digester to be implemented • document of exemption for environmental impact analysis for Mamak project		
A.2.2. What proofs are available demonstrating that the project description is in compliance with the actual situation or planning?	12, 13, 24 – 28	The plant is in operation since 01 June 2006. This was confirmed during the onsite-assessment. Relevant documents were presented and checked. They include: • the production licence from EMRA • the EIA exemption document • the purchase and delivery agreement for gas engines • the drain water rehabilitation report • the single line diagram of the electrical system of the gas plant	☑	☑
A.2.3. Is the information provided by these proofs consistent with the information provided by the PDD?	12, 13 24 – 28	The information provided by the PDD corresponds with the information monitored by the assessment team	☑	☑
A.2.4. Is all information presented consistent with details provided by further chapters of the PDD?	12, 24 – 28	Detail information as well as summaries are consistent throughout the PDD.	☑	☑
A.2.5. Have the results of the sustainable development matrix been presented in the PDD?	12	Yes, they are mentioned	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
A.3. Project participants				
A.3.1. Is the form required for the indication of project participants correctly applied?	12	The project participant of the host country is clearly indicated according to the required form. The Turkish branch of ITC Invest Trading &Consulting A.G. as project participant has the concession to operate the Mamak Landfill for 49 years.	☑	☑
A.3.2. Is the participation of the listed entities or Parties confirmed by each one of them?	12	The project is uni-lateral at this moment and therefore there is just one participant. He has been contacted directly. The participation has been confirmed.	☑	☑
A.3.3. Is all information on participants / Parties provided in consistency with details provided by further chapters of the PDD (in particular annex 1)?	14 – 16	All provided information on participant ITC Invest Trading & Consulting AG is in consistency with the whole PDD. According to the rules of EMRA (Energy Market Regulating Agency), a power generation plant must be operated by an independent company. This is "ITC-KA Enerji Üretim San. Ve Tic. A.Ş.", which belongs to the project participant.	☑	☑
A.4. Technical description of the project activity				
A.4.1. *Location of the project activity*				
A.4.1.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)?	12	In the PDD there is one overview map and two detail maps (Google Earth) which clearly indicate the position of the project area. The geographical coordinates of the northern corner of the land fill area are listed in the PDD. The nearest settlement "İmrahor Village" is in 2 km distance. Settlements in closer distance to the landfill are being built due to its rehabilitation.	☑	☑
A.4.1.2. How is it ensured and/or demonstrated, that the project proponents can implement the project at this site (ownership, licenses, contracts etc.)?	14 – 16, 23	The production license by EMRA, the Turkish Energy Market Regulatory Authority, indicates the site of LFG Power Plant clearly. The purchase agreement for the gas engines and the respective loan contracts with financial institutions are presented. The	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		permissions for the grid-connections are documented.		
A.4.2. *Category(ies) of project activity*				
A.4.2.1. To which category(ies) does the project activity belonging to? Is the category correctly identified and indicated?	1, 12	According to Gold Standard VER Manual for Project Developers, the project belongs to the category "A.1.1.2 – Biogas". **Corrective Action Request #3** The PDD lists "A.1.1.2.1" as project category. This does not include the anaerobic digester and should be changed.	CAR#3	☑
A.4.2.2. Is the size of the project specified correctly in the GS-PDD according to the threshold described in the GS Requirement manual?	2 – 5, 12	No size has been mentioned in the PDD. The project is a large size project. **Clarification Request #13** Mention size of project according to GS Requirement manual	CR#13	☑
A.4.3. *Technology to be employed by the project activity*				
A.4.3.1. Does the technical design of the project activity reflect current good practices?	1,12, 17, 18	Yes. The design goes even beyond the present approach and includes some innovative aspects.	☑	☑
A.4.3.2. Does the description of the technology to be applied provide sufficient and transparent input/ information to evaluate its impact on the greenhouse gas balance?	12, 43	Yes. The project reflects a professional standard LFG plant with integrated electricity generation unit as it can be found in many European countries. Additionally, the rarely found gasifier component will be included. As part of the new energy strategy of the host country, renewable energy sources will be exploited intensively.	☑	☑
A.4.3.3. Does the implementation of the project activity require any technology transfer from annex-I-countries to the host country(ies)?	12, 42, 44	Yes. Important electromechanical components such as gas engines, generators and other equipment are imported from Annex I countries.	☑	☑
A.4.3.4. Is the technology implemented by the	12,	Yes. The project complies with the directives on environment.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
project activity environmentally safe?	28	This is supported by the statement that no Environmental Impact Assessment report is needed.		
A.4.3.5. Is the information provided in compliance with actual situation or planning?	1, 12, 13	Yes. The plant went into operation February 2006 and feeds into the Turkish grid since June 2006. GS requires a minimum usage of 65% of the captured LFG. It is not described in the PDD or accompanying documents how this is guaranteed. **Clarification Request #14:** Give clear evidence how the 65% threshold will be achieved (e.g. capacity of installed gas engines, amount of LFG flared in the last two years etc).	**CR#14**	☑
A.4.3.6. Does the project use state of the art technology and / or does the technology result in a significantly better performance than any commonly used technologies in the host country?	1, 12, 13, 43	The installed GE Jenbacher Gas Engines and Haase generators reflect modern state-of-the-art technology as it is used in many European countries. Similar Gas Utilization Plants with the same gas engines and generator are / will be built in the next future in Turkey.	☑	☑
A.4.3.7. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1, 12, 13, 44	No. It is not expected that today's highly efficient gas turbines will be substituted by more efficient technologies within the project period.	☑	☑
A.4.3.8. Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the project period?	12, 30, 32	Yes. Training of the operation and maintenance personnel is needed	☑	☑
A.4.3.9. Is information available on the demand and requirements for training and mainte-	30, 32	Yes. Extensive documentation and instruction material is supplied to the operation personnel. Training has been delivered to the key	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
nance?		people. This has been demonstrated by training certificates.		
A.4.3.10. Is a schedule available for the implementation of the project and are there any risks for delays?	1, 13	The project is retroactive. A detailed implementation history exists. The Landfill Gas Utility plant went into operation February 1, 2006. Eight gas engines are now in operation, two more are planned to come within 2008. Unforeseen delays, however, cannot be excluded. Starting date of crediting period is planned to be November 1, 2006, given registration before November 1, 2008.	☑	☑
A.4.4. *Estimated amount of emission reductions over the chosen crediting period*				
A.4.4.1. Is the form required for the indication of projected emission reductions correctly applied?	12, 19	The form has been correctly filled out. The assumed registration date is not given in footnote 14, just the month. **Corrective Action Request #8** An exact date is needed (e.g. November 1, 2006).	**CAR#8**	☑
A.4.4.2. Are the figures provided consistent with other data presented in the PDD?	12, 19	There is a difference (even if extremely small) to the document "ER Calculation Mamak Waste Management Project 200808 (ACM001+AM0025) v3 (EX-ANTE estimation).xls" **Corrective Action Request #5:** Please update the calculation spreadsheet.	**CAR#5**	☑
A.4.5. *Public funding of the project activity*				
A.4.5.1. Is the information provided on public funding provided in compliance with the actual situation or planning as available by the project	1, 12	According to the PDD no public funding is provided. However, the generated electricity is supplied into the grid and will be reimbursed by the feed-in tariff regulated by the Energy Efficiency Law		

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
participants?		(purchase obligation of 10 years to guaranteed price of 5 – 5.50 €Cent/kWh). **Clarification Request #1** More information is needed to explain the relationship between public funding and guaranteed feed-in tariffs.	**CR #1**	☑
A.4.5.2. Is all information provided consistent with the details given in remaining chapters of the PDD (in particular annex 2)?	1, 12	See above		☑
B. Application of a baseline and monitoring methodology				
B.1. Title and reference of the approved baseline and monitoring methodology				
B.1.1.1. Are reference number, version number, and title of the baseline and monitoring methodology clearly indicated?	6 – 10, 12,	Yes. The baseline and monitoring methodology (ACM 0001, version 08) is clearly indicated in section B.1 of the PDD. AM0025, version 10, is applied as second methodology. It is covered in a separate validation protocol 2.	☑	☑
B.1.1.2. Is the applied version the most recent one and / or is this version still applicable?	6 – 10, 12	Yes, version 8.1, which replaced version 8, is still applicable	☑	☑
B.2. Justification of the choice of the methodology and why it is applicable to the project activity				
B.2.1.1. Is the applied methodology considered the most appropriate one?	6 – 10, 12	Even if the project will generate GS VERs, a CDM-methodology has been applied to be prepared for a time where a registration of Turkish projects as CDM activity is possible. ACM0001, the “Consolidated baseline methodology for landfill gas project activities” (version 8.1) is the most appropriate methodology for the waste fill part of the project. The anaerobic digester parts of the project will be covered by AM0025, version 10.	☑	☑
B.2.2. Criteria 1: Is applicable to landfill gas	1, 6,	During the onsite visit the verifier team has proven that the project	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
capture project activities.	12	meets this criterion. Applicability checklist / Yes / No Criterion discussed in the PDD? Yes Compliance provable? Yes Compliance verified? Yes		
B.2.3. Criteria 2: applicable where the baseline scenario is the partial total atmospheric release of the gas.	1, 6, 12	During the onsite visit the verifier team has proven that the project meets this criterion. Applicability checklist / Yes / No Criterion discussed in the PDD? Yes Compliance provable? Yes Compliance verified? Yes	☑	☑
B.2.4. Criteria 3: the gas and the project activities include situations such as: a) The captured gas is flared; or b) The captured gas is used to produce energy (e.g. electricity/thermal energy), c) The captured gas is used to supply consumers through natural gas distribution network. If emission reductions are claimed for displacing natural gas, project activities may use approved methodology AM0053.	1, 6, 12	Applicability checklist / Yes / No Criterion discussed in the PDD? Yes Compliance provable? Yes Compliance verified? Yes Is the option correctly presented and confirmed?* Yes Yes The project activity corresponds to option b and in to a smaller extent also to option a.	☑	☑
B.3. Description of the sources and gases included in the project boundary				
Integrate the required amount of sub-checklists for sources and gases as given by the methodology applied and comment on at least every line answered with “No”				

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<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PPD in GSP</th><th>Final PDD</th></tr>
<tr><td>B.3.1. Source:
Emissions from decomposition of waste at the land-fill site

Description of Source
Gas(es): CH_4
Type: Baseline Emissions</td><td>1, 6, 12</td><td><table><tr><th>Boundary checklist</th><th>Yes / No</th></tr><tr><td>Source and gas(es) discussed in the PDD?</td><td>Yes</td></tr><tr><td>Inclusion / exclusion justified?</td><td>Yes</td></tr><tr><td>Explanation / Justification sufficient?</td><td>Yes</td></tr><tr><td>Consistency with monitoring plan?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.3.2. Source:
Emissions from electricity consumption

Description of Source
Gas(es): CO_2
Type: Baseline Emissions</td><td>1, 6, 12</td><td><table><tr><th>Boundary checklist</th><th>Yes / No</th></tr><tr><td>Source and gas(es) discussed in the PDD?</td><td>Yes</td></tr><tr><td>Inclusion / exclusion justified?</td><td>Yes</td></tr><tr><td>Explanation / Justification sufficient?</td><td>Yes</td></tr><tr><td>Consistency with monitoring plan?</td><td>Yes</td></tr></table>This is the amount of emissions produced by the Turkish grid in the absence of the electricity production by the project.</td><td>☑</td><td>☑</td></tr>
<tr><td>B.3.3. Source:
Emissions from thermal energy generation

Description of Source
Gas(es): CO2
Type: Project Emissions</td><td>1, 6, 12</td><td><table><tr><th>Boundary checklist</th><th>Yes / No</th></tr><tr><td>Source and gas(es) discussed in the PDD?</td><td>No</td></tr><tr><td>Inclusion / exclusion justified?</td><td>No</td></tr><tr><td>Explanation / Justification sufficient?</td><td>No</td></tr><tr><td>Consistency with monitoring plan?</td><td>No</td></tr></table>There is no thermal energy generation in the project scenario</td><td>☑</td><td>☑</td></tr>
<tr><td>B.3.4. Source:
Onsite fuel consumption due to the project activity other than for electricity generation</td><td>1, 6, 12</td><td><table><tr><th>Boundary checklist</th><th>Yes / No</th></tr><tr><td>Source and gas(es) discussed in the PDD?</td><td>No</td></tr><tr><td>Inclusion / exclusion justified?</td><td>No</td></tr></table></td><td>☑</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
Description of Source Gas(es): CO2 Type: Project Emissions		Explanation / Justification sufficient? — No Consistency with monitoring plan? — No There is no fuel consumption due to the project activity.		
B.3.5. Source: Emissions from on-site electric use Description of Source Gas(es): CO2 Type: Project Emissions	1, 6, 12	Boundary checklist — Yes / No Source and gas(es) discussed in the PDD? — Yes Inclusion justified? — Yes Explanation / Justification sufficient? — Yes Consistency with monitoring plan? — Yes Emissions resulting from electricity usage of sorting facility and recycling center will be handled as project emissions.	☑	☑
B.3.6. Do the spatial and technological boundaries as verified on-site comply with the discussion provided by / indication included to the PDD?	1, 6, 12	The boundaries comply with the PDD description. However, as indicated in A.2.1, the system is rather complex and needs a more transparent description.	**See CAR#2**	☑
B.4. Description of how the baseline scenario is identified and description of the identified baseline scenario				
B.4.1. Is it clearly described that the baseline is the atmospheric release of the gas and the baseline methodology considers that some of the methane generated by the landfill may be captured and destroyed?	12, 19 – 22	Yes. The baseline scenario is described according to the “Tool for demonstration and assessment of additionality (version 05.2)”. Most of the methane is utilized by combustion and electricity generation, which is supplied to the national grid.	☑	☑
B.4.2. Does the project identify correctly and excludes those options not in line with regulatory or legal requirements?	1, 12	Yes. Alternatives for the project activity are discussed and summarised.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
B.4.3. Does it correctly describe the situation about the requirement from the authority about the capture and destruction/utilization of the gas produced in the landfill?	12	Yes. The project activity is in compliance with the legislative requirements, i.e. Environmental Law (No. 2872), i.e. "Directive on Solid Waste Management, 1991". The gas utilization and electricity generation is regulated in Renewable Energy Law (No 5346)	☑	☑
B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM project activity (assessment and demonstration of additionality):				
See separate "Validation Protocol - Tool for the demonstration and assessment of additionality"				
B.6. Emissions reductions				
B.6.1. *Explanation of methodological choices*				
B.6.1.1. Is it explained how the procedures provided in the methodology are applied by the proposed project activity?	12, 19 - 22	Yes. Detailed explanations and all required formulae are given.	☑	☑
B.6.1.2. Is every selection of options offered by the methodology correctly justified and is this justification in line with the situation verified on-site?	12, 19 – 22	Yes, all options are explained and justifications are given for the selected option.	☑	☑
B.6.1.3. Are the formulae required for the determination of **project emissions** correctly presented, enabling a complete identification of parameter to be used and / or monitored?	12, 19 – 22	Yes.	☑	☑
B.6.1.4. Are the formulae required for the determination of **baseline emissions** correctly presented, enabling a complete identification of parameter to be used and / or monitored?	12, 19 – 22	Yes	☑	☑
B.6.1.5. Are the formulae required for the de-	12,	Yes	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
termination of **leakage emissions** correctly presented, enabling a complete identification of parameter to be used and / or monitored?	19 – 22			
B.6.1.6. Are the formulae required for the determination of **emission reductions** correctly presented?	12, 19 – 22	Yes	☑	☑
B.6.2. *Data and parameters that are available at validation*				
See also "Validation Protocol – Tool to calculate the emission factor for an electricity system" for additional parameters				
See also "Validation Protocol – Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" for additional parameters				
B.6.2.1. Is the list of parameters presented in chapter B.6.2 considered to be complete with regard to the requirements of the applied methodology?	6, 12,	Some parameters are listed in section B.6.1 of the PDD, but not part of the parameter list in B.6.2. **Corrective Action Request #7** List all parameters applied in B.6.1 in parameter list in B.6.2	**CAR#7**	☑
B.6.2.2. Parameter Title: Regulatory requirements relating to landfill gas project.	6, 12	Data Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? Yes Correct value provided? Yes Has this value been verified? Yes Choice of data correctly justified? Yes Measurement method correctly described? Yes	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
B.6.3. *Ex-ante calculation of emission reductions*				
B.6.3.1. Is the projection based on the same procedures as used for future monitoring?	6, 12	Yes, with the understanding, that the ex-ante estimate of some values is computed according to mathematical models while the monitoring process consists of real life measurements. In some cases (e.g. flaring) simplifications are made which are not necessarily conservative but have no negative influence on the monitoring results and are therefore accepted.	☑	☑
B.6.3.2. Are the GHG calculations documented in a complete and transparent manner?	6, 12	Yes, in the PDD as well as in a separate set of excel-sheets.	☑	☑
B.6.3.3. Is the data provided in this section consistent with data as presented in other chapters of the PDD?	6, 12	Yes, all data are consistent	☑	☑
B.6.4. *Summary of the ex-ante estimation of emission reductions*				
B.6.4.1. Will the project result in fewer GHG emissions than the baseline scenario?	6, 12, 19	Yes, the total emission reduction over 7 years is estimated to be 3.906.178 tCO2.	☑	☑
B.6.4.2. Is the form/table required for the indication of projected emission reductions correctly applied?	6, 12, 19	The presentation of emission reductions has been correctly applied. But see CAR#8.	**See CAR#8**	☑
B.6.4.3. Is the projection in line with the envisioned time schedule for the project's implementation and the indicated crediting period?	6, 12, 13, 19	See above	**See CAR#8**	☑
B.6.4.4. Is the data provided in this section in consistency with data as presented in other	6, 12,	Yes, data are consistent.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
chapters of the PDD?	13, 19			
B.7. Application of the monitoring methodology and description of the monitoring plan				
B.7.1. *Data and parameters monitored*				
B.7.1.1. Is the list of parameters presented in chapter B.7.1 considered to be complete with regard to the requirements of the applied methodology?	6, 12, 19, 40 - 43	Yes, all required parameters are presented	☑	☑
B.7.1.2. Parameter Title: Project Emission from flaring of the residual gas stream in year	6, 12, 19, 40 - 43	No monitored parameter, but calculated value	☑	☑
B.7.1.3. Parameter Title: $LFG_{total,y}$ Total amount of landfill gas captured at Normal Temperature and Pressure	6, 12, 19, 40 - 43	Monitoring Checklist / Yes / No Title in line with methodology? / No Data unit correctly expressed? / No Appropriate description of parameter? / No Source clearly referenced? / ?? Correct value provided for estimation? / n.a. Has this value been verified? / n.a. Measurement method correctly described? / ?? Correct reference to standards? / ?? Indication of accuracy provided? / QA/QC procedures described? / QA/QC procedures appropriate? /		☑

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PPD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td><u>Clarification Request #2</u>
It is unclear whether the value is the actual volume or the volume converted to normal temperature and normal pressure.</td><td>CR#2</td><td></td></tr>
<tr><td>B.7.1.4. Parameter Title:
$LFG_{flare,y}$

Amount of landfill gas flared at Normal Temperature and Pressure</td><td>6, 12, 19, 40 - 43</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td></td></tr><tr><td>Data unit correctly expressed?</td><td></td></tr><tr><td>Appropriate description of parameter?</td><td></td></tr><tr><td>Source clearly referenced?</td><td></td></tr><tr><td>Correct value provided for estimation?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Measurement method correctly described?</td><td></td></tr><tr><td>Correct reference to standards?</td><td></td></tr><tr><td>Indication of accuracy provided?</td><td></td></tr><tr><td>QA/QC procedures described?</td><td></td></tr><tr><td>QA/QC procedures appropriate?</td><td></td></tr></table>
See CR#2</td><td></td><td>☑</td></tr>
<tr><td>B.7.1.5. Parameter Title:
$LFG_{electricity,y}$

Amount of landfill gas combusted in power plant at Normal Temperature and Pressure</td><td>6, 12, 19, 40 - 43</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td></td></tr><tr><td>Data unit correctly expressed?</td><td></td></tr><tr><td>Appropriate description of parameter?</td><td></td></tr><tr><td>Source clearly referenced?</td><td></td></tr><tr><td>Correct value provided for estimation?</td><td></td></tr></table></td><td></td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		Has this value been verified? | Measurement method correctly described? | Correct reference to standards? | Indication of accuracy provided? | QA/QC procedures described? | QA/QC procedures appropriate? | **See CR#2**		
B.7.1.6. Parameter Title: W_{CH4} [% (m^3 CH_4 / m^3 LFG)] Methane fraction in the landfill gas	6, 12, 19, 40 - 43	Monitoring Checklist | Yes / No Title in line with methodology? | Yes Data unit correctly expressed? | Yes Appropriate description of parameter? | Yes Source clearly referenced? | Yes Correct value provided for estimation? | Yes Has this value been verified? | Yes Measurement method correctly described? | Yes Correct reference to standards? | No Indication of accuracy provided? | No QA/QC procedures described? | No QA/QC procedures appropriate? | No **See CAR#5**		☑
B.7.1.7. Parameter Title:	6, 12,	Monitoring Checklist | Yes / No		☑

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PPD in GSP</th><th>Final PDD</th></tr>
<tr><td>Temperature of the landfill gas</td><td>19, 40 – 43</td><td>
<table>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes</td></tr>
<tr><td>Appropriate description of parameter?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes</td></tr>
<tr><td>Correct value provided for estimation?</td><td></td></tr>
<tr><td>Has this value been verified?</td><td></td></tr>
<tr><td>Measurement method correctly described?</td><td></td></tr>
<tr><td>Correct reference to standards?</td><td></td></tr>
<tr><td>Indication of accuracy provided?</td><td></td></tr>
<tr><td>QA/QC procedures described?</td><td></td></tr>
<tr><td>QA/QC procedures appropriate?</td><td></td></tr>
</table>
<u>Clarification Request #3</u>
Please explain whether flow meters apply automatically the temperature to display normalized volumes. Please indicate whether temperature values are stored in the plant’s control system.
</td><td>CR#3</td><td></td></tr>
<tr><td>B.7.1.8. Parameter Title:

Pressure of the landfill gas</td><td>6, 12, 19, 40 - 43</td><td>
<table>
<tr><th>Monitoring Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes</td></tr>
<tr><td>Appropriate description of parameter?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes</td></tr>
<tr><td>Correct value provided for estimation?</td><td></td></tr>
<tr><td>Has this value been verified?</td><td></td></tr>
<tr><td>Measurement method correctly described?</td><td></td></tr>
<tr><td>Correct reference to standards?</td><td></td></tr>
<tr><td>Indication of accuracy provided?</td><td></td></tr>
<tr><td>QA/QC procedures described?</td><td></td></tr>
</table>
</td><td>CR #4</td><td>☑</td></tr>
</table>

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PPD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>QA/QC procedures appropriate?</td><td></td></tr>
</table>

<u>Clarification Request #4</u>
Please explain whether flow meters apply automatically the pressure to display normalized volumes. Please indicate whether pressure values are stored in the plant’s control system.
</td><td></td><td></td></tr>
<tr><td>B.7.1.9. Parameter Title:
$EG_{d,y}$

Total amount of electricity generated utilizing biogas and LFG</td><td>6, 6, 12, 19, 40 - 43</td><td>
<table>
<tr><th>Monitoring Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes</td></tr>
<tr><td>Appropriate description of parameter?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes</td></tr>
<tr><td>Correct value provided for estimation?</td><td></td></tr>
<tr><td>Has this value been verified?</td><td></td></tr>
<tr><td>Measurement method correctly described?</td><td></td></tr>
<tr><td>Correct reference to standards?</td><td></td></tr>
<tr><td>Indication of accuracy provided?</td><td></td></tr>
<tr><td>QA/QC procedures described?</td><td></td></tr>
<tr><td>QA/QC procedures appropriate?</td><td></td></tr>
</table>

See CAR#5
</td><td></td><td>☑</td></tr>
<tr><td>B.7.1.10. Parameter Title:
$EG_{d,g,y}$</td><td>6, 12, 19, 40 -</td><td>
<table>
<tr><th>Monitoring Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes</td></tr>
</table>
</td><td></td><td>☑</td></tr>
</table>

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PPD in GSP</th><th>Final PDD</th></tr>
<tr><td>Total amount of electricity generated utilizing syngas</td><td>43</td><td><table><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Measurement method correctly described?</td><td></td></tr><tr><td>Correct reference to standards?</td><td></td></tr><tr><td>Indication of accuracy provided?</td><td></td></tr><tr><td>QA/QC procedures described?</td><td></td></tr><tr><td>QA/QC procedures appropriate?</td><td></td></tr></table>
See CAR#5</td><td></td><td></td></tr>
<tr><td>B.7.1.11. Parameter Title:
$EG_{PJ, j, y}$

Amount of electricity consumed from the grid as a result of the project activity</td><td>6, 12, 19, 40 - 43</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Measurement method correctly described?</td><td></td></tr><tr><td>Correct reference to standards?</td><td></td></tr><tr><td>Indication of accuracy provided?</td><td></td></tr><tr><td>QA/QC procedures described?</td><td></td></tr><tr><td>QA/QC procedures appropriate?</td><td></td></tr></table>
See CR#5</td><td></td><td>☑</td></tr>
<tr><td>B.7.1.12. Parameter Title:</td><td></td><td>n.a.</td><td></td><td></td></tr>
</table>

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PPD in GSP</th><th>Final PDD</th></tr>
<tr><td>Thermal energy used in landfill during project.</td><td></td><td></td><td></td><td></td></tr>
<tr><td>B.7.1.13. Parameter Title:
[hours/year]

Operation of the energy plant</td><td>6, 12, 19, 40 - 43</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>n.a.</td></tr><tr><td>Indication of accuracy provided?</td><td>n.a.</td></tr><tr><td>QA/QC procedures described?</td><td>n.a.</td></tr><tr><td>QA/QC procedures appropriate?</td><td>n.a.</td></tr></table>
One separate counter per gas engine</td><td>☑</td><td>☑</td></tr>
<tr><td>B.7.1.14. Parameter Title:

Operation of the boiler</td><td></td><td>n.a.</td><td></td><td></td></tr>
<tr><td>B.7.1.15. Parameter Title:

Flare Efficiency</td><td>6, 12, 19, 40 - 43</td><td>Not mentioned in the list 7.1 of PDD.

<u>Corrective Action Request #4:</u>
Insert and describe flare efficiency in monitoring parameter list.</td><td>CAR #4</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		Clarification Request #6: Section B.6.1.a.2 defines a default value of flare efficiency of 90% for **ex-post** calculations. The monitoring section, however, mentions reading and application of metered flare efficiency values. Please explain.	**CR #6**	
B.7.1.16. Parameter Title: Temperature in the exhaust gas of the enclosed flare	6, 12, 19, 40 - 43	<table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>n.a.</td></tr><tr><td>Indication of accuracy provided?</td><td>n.a.</td></tr><tr><td>QA/QC procedures described?</td><td>n.a.</td></tr><tr><td>QA/QC procedures appropriate?</td><td>n.a.</td></tr></table> Continuously measured; transferred into hourly flare efficiency values	☑	☑
B.7.1.17. Parameter Title: Methane destroyed due to regulatory or other requirements		n.a.		

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
B.7.1.18. Is the Global Warming Potential going to be monitored at the end of the first commitment period?	12	Yes, it is indicated that the GWP-values are fixed for the first commitment period and shall be updated later according to any future COP/MOP decision	☑	☑
B.7.2. *Description of the monitoring plan*				
B.7.2.1. Is the operational and management structure clearly described and in compliance with the envisioned situation?	12, 40 - 43	There is an overview in the PDD. No detailed monitoring handbook was presented. Fulfilment of requests as described in the GS preassessment document cannot be validated on this basis. **Clarification Request #8** As the land fill site is for more than 2 years in operation detailed monitoring process descriptions have to exist. Please send additional information to give evidence of the present status of the monitoring plan implementation. If such a detailed process description does not exist, it has to be developed in such a detail that evidence of the fulfilment of GS requirements can be given.	**CR#8**	☑
B.7.2.2. Are responsibilities and institutional arrangements for data collection and archiving clearly provided?	12, 40 - 43	Yes.	☑	☑
B.7.2.3. Does the monitoring plan provide current good monitoring practice?	12, 40 – 43	**See CR#8**		☑
B.7.2.4. If applicable: Does annex 4 provide useful information enabling a better understanding of the envisioned monitoring provisions?	12, 40 - 43	No detailed data on metering devices is given. **Clarification Request #5** A list of all metering devices is needed, including function, type of device, producer, serial number, accuracy calibration status	**CR #5**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
B.8. Date of completion of the application of the baseline study and monitoring methodology an the name of the responsible person(s)/entity(ies)				
B.8.1.1. Is there any indication of a date when the baseline was determined?	12, 19 - 21	Yes, 01.02.2008	☑	☑
B.8.1.2. Is this consistent with the time line of the PDD history?	12, 13, 19 - 21	Yes.	☑	☑
B.8.1.3. Is the information on the person(s) / entity(ies) responsible for the application of the baseline and monitoring methodology provided consistent with the actual situation?	12	Yes, Ecofys Netherlands BV in consultation with ITC Invest Trading & Consulting A.G.	☑	☑
B.8.1.4. Is information provided whether this person / entity is also considered a project participant?	12	No. **Clarification Request #9** Please indicate whether Ecofys Netherlands BV is also considered a project participant.	**CR#9**	☑
C. Duration of the project activity / crediting period				
C.1. Duration of the project activity				
C.1.1. Are the project's starting date and operational lifetime clearly defined and reasonable?	12	Starting date is 01.02.2006. This is when the "go decision" for the project was taken. The lifetime for the project is 49 years (contract), but gas utilization period may be shorter.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
C.2. Choice of the crediting period and related information				
C.2.1. Is the assumed crediting time clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)?	12	The conformance of the starting date with the Gold-Standard-registration date is not clear. **Clarification Request #16** Please define the starting date exactly, including the type of registration (e.g. "November 1, 2006 or 2 years before the registration with gold Standard – whatever is later")	**CR #16**	☑
D. Environmental impacts				
D.1. Documentation on the analysis of the environmental impacts, including transboundary impacts				
D.1.1. Has the analysis of the environmental impacts of the project activity been sufficiently described?	12, 28, 29,	Yes. The project owner prepared a study for investigating the environmental impact of the project.	☑	☑
D.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, has an EIA been approved?	12, 28, 29	Even there was a preliminary environmental assessment, no EIA was required by the Ministry of Environment.	☑	☑
D.1.3. Will the project create any adverse environmental effects?	12, 28, 29	No. The rehabilitation of the landfill will have positive effects on the neighbouring districts. The covered drainage of the leachate will be passed to the municipal wastewater treatment plant and reduce the pollution effects.	☑	☑
D.1.4. Were transboundary environmental impacts identified in the analysis?	12, 28, 29	Positive regional effects can be identified, but no transboundary impacts.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
D.2. If environmental impacts are considered significant by the project participants or the host Party, please provide conclusions and all references to support documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party				
D.2.1. Have the identified environmental impacts been addressed in the project design sufficiently?	12, 28, 29	Yes.	☑	☑
D.2.2. Does the project comply with environmental legislation in the host country?	12, 28, 29	Yes. But regarding the high ammonia load in the leachate it is not yet clear, whether a nitrification / denitrification unit may be necessary within the project area.	☑	☑
D.3. Gold-standard specifics: Data and parameters monitored				
D.3.1. Is the list of parameters presented in chapter D.3 considered to be complete with regard to the Gold Standard requirements?	5, 12	Yes, the list is complete. However, the PDD does not give detailed information on the manifold questions and suggestions mentioned in chapter 4 of the GS preassessment document, dated August 1, 2008. **Corrective Action Request #6** Please include answers to GS preassessment questions / suggestions in the PDD and / or accompanying documents	**CAR#6**	
D.3.2. Parameter Title: Water quality	5, 12, 29, 34	Data Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? Yes Correct value provided? Yes Has this value been verified? Yes	**See CAR#6**	☑

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PPD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td>Water quality has a score of 2 points in the GS sustainable indicators matrix. This is considered appropriate due to the achieved improvements (transfer to the Ankara Water and Sewage Administration). The leachate system was checked during the on-site visit.</td><td></td><td></td></tr>
<tr><td>D.3.3. Parameter Title:
Air quality</td><td>5, 12, 29, 34</td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr></table>
Improvement of air quality is considerable and the score of 2 points in the GS sustainable indicators matrix is appropriate. During the on-site visit it was verified that covering of the land fill and extraction of LFG has basically eliminated bad odours.</td><td>See CAR#6</td><td>☑</td></tr>
<tr><td>D.3.4. Parameter Title:
Soil condition</td><td>5, 12, 29, 34</td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr></table></td><td>See CAR#6</td><td>☑</td></tr>
</table>

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PPD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td>Soil conditions have a score of 2 points in the GS sustainable indicators matrix. This is acceptable, because the formerly inaccessible surface of the land fill can now be used for tree planting and other purposes. This was demonstrated during the on-site visit.</td><td></td><td></td></tr>
<tr><td>D.3.5. Parameter Title:
Employment (job quality)</td><td>5, 12, 30 - 32, 34</td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr></table>
Employment has a score of 1 point in the GS sustainable indicators matrix. According to the manifold work opportunities in the land fill site this seems reasonable.

<u>Clarification Request #10</u>
More detailed information is needed on type, qualification profile and number of employments at Mamak landfill site.</td><td>See CAR#6

CR#10</td><td>☑</td></tr>
<tr><td>D.3.6. Parameter Title:
Livelihood of the poor</td><td>5, 12, 30 - 32, 34</td><td><table><tr><th>Data Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>No</td></tr><tr><td>Correct value provided?</td><td></td></tr></table></td><td>See CAR#6

See CR #10</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		Has this value been verified? No Livelihood of the poor has a score of 1 point in the GS sustainable indicators matrix. The landfill offers quite certainly new employment opportunities under much improved conditions for former scavengers on the landfill. If they don't get a job in the landfill, their old livelihood has disappeared. See CR #10		
D.3.7. Parameter Title: Human and institutional capacity	5, 12, 30 - 32, 34	Data Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? No Correct value provided? Has this value been verified? No Human and institutional capacity has a score of 1 point in the GS sustainable indicators matrix. This is based on the fact that the interest of the project participant in well separated waste matches the environmental goal of better re-use of waste. The project proponent is therefore promoting the idea of waste separation and recycling. **Clarification Request #11** More detailed information is needed on the awareness campaign by which the project proponent strives to promote waste separa-	**See CAR#6** **CR #11**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		tion and re-cycling.		
D.3.8. Parameter Title: Employment (quantity)	5, 12, 30 - 32, 34	<table><tr><td>Data Checklist</td><td>Yes / No</td></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>No</td></tr><tr><td>Correct value provided?</td><td></td></tr><tr><td>Has this value been verified?</td><td>No</td></tr></table> Human and institutional capacity has a score of 1 point in the GS sustainable indicators matrix. See section D.3.5	**See CAR#6**	☑
E. Stakeholders' comments				
E.1. Brief description how comments by local stakeholders have been invited and compiled				
E.1.1. Have relevant stakeholders been consulted?	12, 35 – 40	Yes. The stakeholders were consulted in several periods of the project activity, i.e. ministries of Energy end Environment, financial institutions, municipalities, local stakeholders. The preliminary consultation was held on November 26, 2007, a first second round consultation in the spring of 2008. **<u>Clarification Request #12.</u>** Please deliver up-to-date information on the second "second round consultation". Take into account remarks in GS preassessment report.	**CR #12**	☑
E.1.2. Have appropriate media been used to	12, 35 –	Relevant mass media (announcements in newspapers, invitation letters) were used to inform and invite the stakeholders	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
invite comments by local stakeholders?	40			
E.1.3. If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?	12, 35 – 40	There was no requirement by regulations or laws. However, Gold Standard requires such consultations. The second consultation round was planned and performed in coordination with Gold Standard.	☑	☑
E.1.4. Is the undertaken stakeholder process that was carried out described in a complete and transparent manner?	12, 35 – 40	Information / documentation exists on the preliminary consultation of November 2007. No information exists on the second round.	**See CR#12**	☑
E.2. Summary of the comments received				
E.2.1. Is a summary of the received stakeholder comments provided?	12, 35 – 40	Concerning the preliminary consultation - Yes. Not for the second round.	**See CR#12**	☑
E.3. Report on how due account was taken of any comments received				
E.3.1. Has due account been taken of any stakeholder comments received?	12, 35 – 40	There were no negative comments. No actions were required..	☑	☑
F. Annexes 1 – 4				
F.1. Annex 1: Contact Information				
F.1.1. Is the information provided consistent with the one given under section A.3?	12	No. In one case the supplement “Turkish branch” is added. **Clarification Request #15** Use consistent version of company names.	**CR #15**	☑
F.1.2. Is the information on all private participants and directly involved Parties pre-	1,12	Yes	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
sented?				
F.2. Annex 2: Information regarding public funding				
F.2.1. Is the information provided on the inclusion of public funding (if any) in consistency with the actual situation presented by the project participants?	1, 12	The project uses the Turkish "guaranteed feed-in tariff". CR#1 was put to give evidence whether this could be considered public funding. The result is that this is not the case. There is no indication that any public funding from Annex-1-countries is used for investments. The financial background of the proposed project demonstrates that the project is based on a combination of equity and loans from private commercial banks.	**See CR#1**	☑
F.2.2. If necessary: Is an affirmation available that any such funding from Annex-I-countries does not result in a diversion of ODA?		n.a.		
F.3. Annex 3: Baseline information				
F.3.1. If additional background information on baseline data is provided: Is this information consistent with data presented by other sections of the PDD?	12, 19 - 21	Yes.	☑	☑
F.3.2. Is the data provided verifiable? Has sufficient evidence been provided to the validation team?	12, 19 – 21	Yes.	☑	☑
F.3.3. Does the additional information substantiate / support statements given in other sections of the PDD?	12, 19 - 21	Yes	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
F.4. Annex 4: Monitoring information				
F.4.1. If additional background information on monitoring is provided: Is this information consistent with data presented in other sections of the PDD?	12, 41 – 43	Yes.	☑	☑
F.4.2. Is the information provided verifiable? Has sufficient evidence been provided to the validation team?	12, 41 – 43	Yes.	☑	☑
F.4.3. Do the additional information and / or documented procedures substantiate / support statements given in other sections of the PDD?	12, 41 – 43	Yes.	☑	☑

Industrie Service

Table 2 Resolution of Corrective Action and Clarification Requests

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
Corrective Action Request #1 PDD-versions have to have a unique version number and a unique date of issuance.	A.1.2	The version of the revised PDD is set as version 4 as well as for the revised emission reduction calculation sheet. The revision date is set as the date of submission of the PDD sent to the DOE. To avoid future confusions and clarity, each PDD submitted to the DOE during the validation process will be described with ascending version numbers with date of submission to the DOE. No sub versions will be used (ex: version 4.1).	The CAR has been resolved.
Corrective Action Request #2 Even if efforts are visible in the PDD to provide clarity a strict terminology has to be defined and consistently applied to avoid irritation..	A.2.1	Since the gasifier is included in the project boundary as a requirement of "Gold Standard", it is not a part of the VER project activity as described in the PDD. Furthermore the net emissions from the gasifier is taken into account for conservativeness. This situation may lead to more complex definitions under strict terminology use within the PDD. However, in order to provide clear separations between VER and the generic project activity, more pronounced definitions are introduced under section A "general description of the project".	The CAR has been resolved by changes in PDD v.4.
Corrective Action Request # 3 The PDD lists "A.1.1.2.1" as project category. This does not include the anaerobic digester and should be changed.	A.4.2.1	The project activity falls under A.1.1.2.1 landfill gas and A.1.1.2.3 methane avoidance, according to GS manual. The PDD has been revised accordingly.	The CAR has been resolved by changes in PDD v.4.
Corrective Action Request #4	B.7.1.15	The flare efficiency parameter n_{flare} has been introduced	The CAR has been resolved

Insert and describe flare efficiency in monitoring parameter list.		to the monitoring parameter list.	by changes in PDD v.4.
Corrective Action Request #5 Please update the calculation spreadsheet. **2. round request:** The calculation in the "ex-ante ER calculation" spreadsheet uses the following factors which differ from the footnote text in the PDD: 2007: 0,9 * 0,35 2008: 0,9 * 0,75 2009: 0,85 2010: 0,90	A.4.4.2	Taking into account the actual figures of 2007 and 2008, a correction factor has been introduced to the ex-ante baseline emission calculations (ACM001), to ensure conservativeness. The calculation sheet and the PDD has been updated. **2. round response:** The factors for year 2007 and 2008 have been corrected both in the PDD and the spreadsheet as followed: 2007: 0.315 2008: 0.675	The CAR has been resolved by changes in PDD v.5 and the calculation sheet.
Corrective Action Request #6 Please include answers to GS preassessment questions / suggestions in the PDD and / or accompanying documents	D.3.1	The PDD version 3 sent to the DOE on 20.08.2008 also included the revisions based on GS requests and comments in pre-assessment. A separate document has been submitted to the DOE summarizing the revisions and amendments.	The CAR has been resolved by an additional document.
Corrective Action Request #7 List all parameters applied in B.6.1 in parameter list in B.6.2	B.6.2.1	The flare efficiency to define emissions has been found to be missing in section B.6.2. The parameter has been included and the PDD has been revised accordingly.	The CAR has been resolved by changes in PDD v.4.
Corrective Action Request #8 An exact date is needed (e.g. November 1, 2006). **2. round request:**	A.4.4.1	The start of crediting period has been set to 01.02.2007. The PDD has been revised accordingly. **2. round response:** The end dates have been amended as 31/01/2014 for	The CAR has been resolved by changes in PDD v.5. Start and end of crediting period has been changed in PDD v.6 to 01.05.07 [start]

Footnotes 17 and 64 list a wrong end date (must be 31/01/2014)		mentioned footnotes in the PDD.	and 30.04.2014 [end].
Clarification Request #1 More information is needed to explain the relationship between public funding and guaranteed feed-in tariffs.	A.4.5.1	Under article 6 of the "Law on utilization of renewable energy resources for the purpose of generating electricity energy", it is stated that: "…*The electrical energy generated from the renewable energy resources in the scope of this Law shall be purchased by the legal entities holding retail sale license on the basis of bilateral agreements…*" "*…Each legal entity holding retail sale license shall be entitled to purchase RES certified electrical energy in an amount declared by EMRA considering the proportion of the energy amount he has sold within the previous calendar year to the total electrical energy amount which all legal entities holding retail sale license offered for sale in Turkey…*" "*…the legal entities holding retail sale license shall be entitled to purchase RES certified electrical energy not lower than eight per cent of the electrical energy they have sold in the previous calendar year…*" Based on the above statements, it can be concluded that the feed-in-tariff is the electricity price for renewable electricity to retail sale license holders, where the price is guaranteed by EMRA (Energy Market Regulatory Authority) by providing min and max ranges. The financial responsibility of the feed-in-tariff is on to the commercial entity holding the retail sale license.	The feedback provides just partial information. Additional research of the validation team gave evidence that the Turkish renewable energy feed-in tariff (REFITs) corresponds with the regulated electricity sale price after tax and levies, but provides a hedge against foreign exchange risk. Therefore the project owner's statement "the feed-in-tariff cannot be considered as public funding" is accepted and the CR has been resolved.

		Therefore the feed-in-tariff cannot be considered as public funding.	
Clarification Request #2 It is unclear whether the value is the actual volume or the volume converted to normal temperature and normal pressure. Parameter description has to be adapted.	B.7.1.3 B.7.1.4	The respective section has been revised	The CR has been resolved by changes in PDD v.4.
Clarification Request #3 Please explain whether flow meters apply automatically the temperature to display normalized volumes. Please indicate whether temperature values are stored in the plant's control system.	B.7.1.7	The respective section has been revised	The CR has been resolved by changes in PDD v.4.
Clarification Request #4 Please explain whether flow meters apply automatically the pressure to display normalized volumes. Please indicate whether pressure values are stored in the plant's control system.	B.7.1.8	The respective section has been revised	The CR has been resolved by changes in PDD v.4.
Clarification Request #5 A list of all metering devices is needed, including function, type of device, producer, serial number, accuracy calibration status. **2. round request:** The list has to be made available also to the verifier. This has to be committed by the project owner.	B.7.2.4	The list of metering devices, including function, type of device, producer, serial number and accuracy calibration status is provided as a supportive document (excel format) to the DOE . **2. round response:** The list of metering devices, including function, type of device, producer, serial number and accuracy calibration status is provided as a supportive document (excel format) to the DOE. The mentioned documents will be also made available to the verifying DOE during verifi-	The CR has been resolved by additional documentation and additional explanations.

		cation.	
Clarification Request #6 Section B.6.1.a.2 defines a default value of flare efficiency of 90% for ex-post calculations. The monitoring section, however, mentions reading and application of metered flare efficiency values. Please explain.	B.7.1.15	The wording has been changed under the section B.6.1.a.2 in the PDD.	Was also changed in ID27 (B.7.1). The CR has been resolved by changes in PDD v.4.
Clarification Request #7 Some additional documents should be delivered to the DOE: • Feasibility study regarding "Carbon Financing for Mamak" prepared in March 2005; • correspondence with the Ministry of Energy and Natural Resources in April 2005; • board decision on investment decision based on VER-revenues in February 2006 • technical specifications of the anaerobic digester to be implemented • document of exemption for environmental impact analysis for Mamak project	A.2.1	• "Full proposal ITC Development of Mamak CDM project" has been submitted to the DOE. Due from confidentiality reasons, sections including financial figures have been crossed out. • The Ministry of Energy and Natural Resources was referred in the PDD, however the correspondence was between the project participant and the Ministry of Environment and Forestry. The reference has been corrected in the revised PDD. "Correspondence with the Ministry of Environment and Forestry has been submitted to the DOE. • "Board decision" has been provided to the DOE. • "Document of exemption for environmental impact analyses" has been submitted to the DOE. • Technical specifications of the AD system have been submitted to the DOE.	The CR has been resolved by several additional documents and by one change in PDD v.4. Additional information was added in PDD v.6.
Clarification Request #8 As the land fill site is for more than 2 years in operation detailed monitoring process descriptions have to exist. Please send additional information to give evidence of the present status of the monitoring plan implemen-	B.7.2.1	The monitoring plan has been provided to the DOE as a supportive document.	The basic structure of the monitoring is sufficiently defined by the monitoring manual. It is up to the verifier to check as part of the initial / first periodic verification to

tation. If such a detailed process description does not exist, it has to be developed in such a detail that evidence of the fulfilment of GS requirements can be given.			what extent the processes are implemented. Insofar the CR has been resolved by additional documentation.
Clarification Request #9 Please indicate whether Ecofys Netherlands BV is also considered a project participant. **2. round request:** According to PDD V.4 there are two project participants. One is ITC AG Turkish Branch. In the mail by Erdoğan Göğen (22.11.08) is stated *ITC Invest Trading & Consulting AG Turkey Ankara Branch is a legal entity and established under the permission of undersecretary of treasury and having all the related authorization to execute the company and its all official obligations. It has full power to sign all legal documents and also give commitments.* Please support this statement by official documents indicating the registration of the company (registration number, place / time of registration). Further on the name is not clear – is it "ITC Invest Trading & Consulting AG Turkish Branch" or is it "ITC Invest Trading & Consulting AG Turkey Ankara Branch"? The other project participant is OneCarbon International BV. Annex 1 lists Utrecht as location. Therefore Turkey is not the host country and the table in section A.3 has to be	B.8.1.4	OneCarbon International BV is indicated as the project participant under section A.3 and contact details have been provided under Annex I of the PDD. **2. round response:** The following official documents are submitted to your attention: - Official document on Mr. Erdoğan Göğen authority to sign on behalf of "ITC Invest Trading & Consulting AG Turkey Ankara Branch". - Commercial registration of "ITC Invest Trading & Consulting AG" - Commercial registration of "ITC Invest Trading & Consulting AG Turkey Ankara Branch" (2 documents) The official name (as registered) is "ITC Invest Trading & Consulting AG Turkey Ankara Branch". The PDD has been revised accordingly. OneCarbon International BV is the carbon consultant of the project activity. OneCarbon International BV has been extracted from the participant list.	Ecofys Netherlands BV is no prokect participant. The CR has been resolved by changes in PDD v.5 and by several additional documents.

changed. The PDD reflects the fact that in former versions there was just one project participant (ITC). In about 20 cases a "project participant" is mentioned without indication whether this is ITC, OneCarbon or both together. This has to be changed.			
Clarification Request #10 More detailed information is needed on type, qualification profile and number of employments at Mamak landfill site.	D.3.5 D.3.8	Currently the project owner is preparing an informative report on type, qualification, profile and number of employments. This report will be submitted to the DOE as soon as it is available. **2. round response:** The spreadsheet has been submitted to the DOE.	The CR has been resolved by additional information
Clarification Request #11 More detailed information is needed on the awareness campaign by which the project proponent strives to promote waste separation and re-cycling.	D.3.7	Detailed information on the awareness campaign is submitted to the DOE. Also the Ministry approved "Yenimahalle Municipality, Packaging Wastes Management Plan" (Turkish), which provides detailed information has been submitted to the DOE.	The CR has been resolved by additional information.
Clarification Request #12 Please deliver up-to-date information on the second "second round consultation". Take into account remarks in GS preassessment report.	E.1.1	Second Round Consultation Period Report has been submitted to the DOE.	The CR has been resolved by additional information.
Clarification Request #13 Mention size of project according to GS Requirement manual	A.4.2.2	The project falls under large scale project activity. PDD has been revised accordingly	The CR has been resolved by changes in PDD v.4.

Clarification Request #14 Give clear evidence how the 65% threshold will be achieved (e.g. capacity of installed gas engines, amount of LFG flared in the last two years etc).	A.4.3.5	A quantitative table has been inserted in the PDD, providing amount of LFG flared and utilized through the first crediting period.	The CR has been resolved by changes in PDD v.4.
Clarification Request #15 Use consistent version of company names	F.1.1	The PDD has been revised accordingly	The CR has been resolved by changes in PDD v.4.
Clarification Request #16 Please define the starting date exactly, including the type of registration (e.g. "November 1, 2006 or 2 years before the registration with gold Standard – whatever is later")	C.2.1.1	The starting date of the first crediting period is set as 01/02/2007 and the PDD has been revised accordingly.	The CR has been resolved by changes in PDD v.4.

Table 3 Unresolved Corrective Action and Clarification Requests (in case of denials)

Clarifications and / or corrective action requests by validation team	Id. of CAR/CR	Explanation of Conclusion for Denial
-	-	-

1.2 Annex ”Validation Protocol ACM0025 v.10”

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
A. General description of project activity				
A.1. Title of the project activity				
See Validation Protocol 1 - ACM0001				
A.2. Description of the project activity				
See Validation Protocol 1 - ACM0001				
A.3. Project participants				
See Validation Protocol 1 - ACM0001				
A.4. Technical description of the project activity				
See Validation Protocol 1 - ACM0001				
B. Application of a baseline and monitoring methodology				
B.1. Title and reference of the approved baseline and monitoring methodology				
B.1.1.1. Are reference number, version number, and title of the baseline and monitoring methodology clearly indicated?	7, 12	Yes. The baseline and monitoring methodology (AM0025, version 10) is clearly indicated in section B.1 of the PDD. ACM0001, version 8.1, is applied as second methodology. It is covered in a separate validation protocol 1.	☑	☑
B.1.1.2. Is the applied version the most recent one and / or is this version still applicable?	7, 12	Yes, version 10.1 is the most recent one (no content changed from version 10)	☑	☑
B.2. Justification of the choice of the methodology and why it is applicable to the project activity				
B.2.1.1. Is the applied methodology considered the most appropriate one?	2, 7, 12	Even if the project will generate GS VERs, a CDM-methodology has been applied to be prepared for a time where a registration of Turkish projects as CDM activity is possible. ACM0025, the “approved baseline and monitoring methodology	☑	☑

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PPD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td>for “Avoided emission from organic waste through alternative waste treatment processes” (v.10) is the most appropriate methodology for the biogas / gasifier part of the project. The LFG part of the project will be covered by ACM0001, v.8.1.</td><td></td><td></td></tr>
<tr><td colspan="5">Integrate the required amount of sub-checklists on the applicability criteria as given by the applied methodology and comment on at least every line answered with “No”;</td></tr>
<tr><td>B.2.2. Criterion 1: Type of fresh waste treatment</td><td>2, 7, 12</td><td>During the onsite visit the verifier team has proven that the project will meet this criterion.
<table><tr><th>Applicability checklist</th><th>Yes / No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.2.3. Criterion 2: The residual waste from anaerobic digestion, gasification or RDF processing is aerobically composted and/or delivered to a landfill.</td><td>2, 7, 12</td><td><table><tr><th>Applicability checklist</th><th>Yes / No</th></tr><tr><td>Criterion discussed in the PDD?</td><td>Yes</td></tr><tr><td>Compliance provable?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table>
The residual waste will go directly to Mamak landfill.</td><td>☑</td><td>☑</td></tr>
<tr><td>B.2.4. Criterion 3: In case of composting the produced compost is either used as soil conditioner or disposed of in landfills</td><td>2, 7, 12</td><td>There will be no composting.</td><td>☑</td><td>☑</td></tr>
<tr><td>B.2.5. Criterion 4: RDF/stabilized biomass is not stored in a manner that may result in anaerobic conditions before its use. The handling and processing of RDF/SB is not</td><td>2, 7, 12</td><td>The project does not involve RDF/stabilized biomass</td><td>☑</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
resulting in the production of liquid wastes.				
B.2.6. Criterion 5: In case that RDF/SB is disposed of in a landfill: Methane generation in the life-cycle of the SB is below 1% of related emissions. Monitoring the fate of the produced RDF/SB if the characteristics of the produced RDF/SB allows for re-absorption of moisture of more than 3%.	2, 7, 12	The project does not involve RDF/stabilized biomass	☑	☑
B.2.7. Criterion 6: In case of incineration: waste storage not longer than 10 days, and no anaerobic decomposition	2, 7, 12	No incineration process is used.	☑	☑
B.2.8. Criterion 7: The proportions and characteristics of different types of organic waste processed in the project can be determined	2, 7, 12	Applicability checklist / Yes / No Criterion discussed in the PDD? Yes Compliance provable? Yes Compliance verified? Yes	☑	☑
B.2.9. Criterion 8: In case of electricity and/or thermal energy generation - Monitoring of RDF used for energy generation	2, 7, 12	The project does not involve RDF	☑	☑
B.2.10. Criterion 9: Waste handling in the baseline shows a continuation of current practice of disposing the waste in a landfill	2, 7, 12	Applicability checklist / Yes / No Criterion discussed in the PDD? Yes Compliance provable? Yes Compliance verified? Yes	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
B.2.11. Criterion 10: In case of incineration: residual waste does not contain more than 1% residual carbon.	2, 7, 12	No incineration process is used.	☑	☑
B.2.12. Criterion 11: Compliance rate of the environmental regulations during (part of) the crediting period is below 50%	2, 7, 12	There are no environmental regulations restricting disposal of waste in landfills.	☑	☑
B.2.13. Criterion 12: Local regulations do not constrain the establishment of RDF production plants/thermal treatment plants nor the use of RDF/stabilized biomass as fuel or raw material.	2, 7, 12	The project does not involve RDF	☑	☑
B.2.14. Criterion 13: In case of RDF/SB, project proponent shall provide evidences that no GHG emissions occur, other than biogenic CO_2, due to chemical reactions during the thermal treatment process (such as Chimney Gas Analysis report)	2, 7, 12	The project does not involve RDF/SB	☑	☑
B.2.15. Criterion 14: The project does not involve thermal treatment process of neither industrial nor hospital waste	2, 7, 12	Applicability checklist / Yes / No Criterion discussed in the PDD? Yes Compliance provable? Yes Compliance verified? Yes	☑	☑
B.2.16. Criterion 15: The project activity does not involve capture and flaring of methane from existing waste in the landfill.	2, 7, 12	Applicability checklist / Yes / No Criterion discussed in the PDD? Yes Compliance provable? Yes	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		Compliance verified? Yes The generic Mamak project includes a landfill collection system as well as an anaerobic digester system and a gasifier. The anaerobic digester / gasifier part does not use any existing waste from the landfill, but fresh waste, being daily delivered by trucks.		
B.3. Description of the sources and gases included in the project boundary				
There is no additional on-site fossil fuel consumption due to the project activity. There are also no emissions from thermal energy generation and waste water treatment. Therefore the sources and gases included in the project boundary are identical to those covered in Validation Protocol 1 (ACM0001 for the Mamak-project).				
B.4. Description of how the baseline scenario is identified and description of the identified baseline scenario				
According to AM0025, the baseline determination is a 4-step process. In the section below, the compliance with this 4-step process is assessed.				
B.4.1. Step 1: Identification of alternative scenarios. Is this provided in the PDD?	1, 12	Yes, three scenarios have been selected for the anaerobic digester part of the project. **Clarification Request #1:** The definition of scenario 3 in table 7 and in substep 3a is intransparent. Being a key statement of the PDD it should be rephrased in a simpler way.	**CR#1**	☑
B.4.2. Have all technically feasible baseline scenario alternatives to the project activity been identified and discussed by the PDD? Why can this list be considered as being complete?	1, 12	All options foreseen in the methodology have been identified and considered technically feasible.	☑	☑
B.4.3. Does the project identify correctly and ex-	1,	There are no limiting regulatory or legal requirements.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PPD in GSP	Final PDD
	cludes those options not in line with regulatory or legal requirements?	12			
B.4.4.	Have all applicable regulatory or legal requirements, policies and circumstances related to the management of landfills been identified and will they be monitored at the beginning of each crediting period?	1, 12	See above	☑	☑
B.4.5.	Are there other alternatives than the project in compliance with all regulations?	1, 12	Yes, all alternatives comply with all regulations	☑	☑
B.4.6.	Step 2: Identification of the baseline fuel taking into account the national and/or sectoral policies. Has this been done?	1, 12	The baseline fuel has not been explicitly identified, but it has been pointed out, that the baseline energy is electricity and insofar the baseline fuel is the fuel mix of the power plants connected to the Turkish national grid. This is acceptable.	☑	☑
Project participants should use steps 2 and/or step 3 of the latest version of the Additionality Tool to assess which of these alternatives should be excluded from further consideration.					
See "Validation Protocol 5 - Tool for the demonstration and assessment of additionality"					
B.4.7.	Is the most plausible baseline scenario for waste treatment the disposal of waste in a landfill without capture of landfill gas (M3) or the disposal of waste in a landfill where the landfill gas is partially captured and subsequently flared (M2)?	1, 12	In-depth investigations and discussions by the DOE led to the view that the Mamak project is from its beginning designed as one integrated entity. Even if out of financial, technical and contractual reasons the realisation of a controlled landfill with LFG usage was the first part to be realized, the second part with the anaerobic digester and the gasifier was conceived to be part of the overall system from the beginning. The project owner gave clear evidence, that his choice was either the integrated project, or no project at all. Against this background the baseline scenario for the waste treatment is the disposal of waste in an uncontrolled landfill site.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
B.4.8. Is the most plausible baseline scenario for the energy component P4 or P6 in combination with H4 or P2 in combination with H2?	1, 12	At the landfill site there is no infrastructure for the utilization or transportation of heat. Heat usage is therefore not part of the project.	☑	☑
B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM project activity (assessment and demonstration of additionality):				
See "Validation Protocol 5 - Tool for the demonstration and assessment of additionality"				
B.6. Emissions reductions				
B.6.1. *Explanation of methodological choices*				
See Validation Protocol 1 (ACM0001 for the Mamak-project)				
B.6.2. *Data and parameters that are available at validation*				
See also "Validation Protocol – Tool to calculate the emission factor for an electricity system" for additional parameters				
See also "Validation Protocol – Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" for additional parameters				
B.6.2.1. Is the list of parameters presented in chapter B.6.2 considered to be complete with regard to the requirements of the applied methodology?	7, 12	Yes, the list of parameters is complete with regard to the requirements of the anaerobic digester and gasifier.	☑	☑
Integrate the required amount of sub-checklists for parameters not to be monitored but remaining fixed throughout the crediting period and available at validation. Comment on any line answered with "No"				
B.6.2.2. Parameter Title: $EF_{c,N2O}$ Emission factor for N_2O emissions from the composting process (tN2O/tonnes of compost)	7, 12	There is no composting	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
B.6.2.3.Parameter Title: B_O Maximum methane producing capacity (tCH_4/t COD)	7, 12	There is no wastewater treatment	☑	☑
B.6.2.4.Parameter Title: MCF_p Methane conversion factor (fraction) (%)	7, 12	There is no wastewater treatment	☑	☑
In case the project activity includes waste water release, the wastewater is treated anaerobically and resulting methane is flared the AM0025 methodology requires the use of the "Tool to determine project emissions from flaring gases containing Methane" to estimate methane emissions. Please see chapter G of the Validation Protocol.				
B.6.2.5.Parameter Title: ε_{boiler} Energy efficiency of boilers used for thermal energy generation in the absence of project activity (%)		n.a.		
B.6.2.6.Parameter Title: $\varepsilon_{gen,b}$ Energy efficiency of power plant that would have generated electricity in the absence of project activity (%)		n.a.		
B.6.2.7.Parameter Title: η_{cogen} Efficiency of cogeneration plant that would have been used in the absence of project activity (%)		n.a.		
B.6.2.8.Parameter Title: $EF_{fuel,b}$ Emission factor of baseline fossil fuel used in the boiler, as identified in the		n.a.		

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
baseline scenario identification (t CO_2/MJ)				
B.6.2.9. Parameter Title: $EF_{fuel,c}$ Emission factor of baseline fossil fuel used in the cogeneration plant, as identified in the baseline scenario identification (t CO_2/MJ)		n.a.		
B.6.2.10. Parameter Title: GWP_{N2O} Global Warming Potential of nitrous oxide, (tCO_{2e}/tN_2O)		n.a.		
See "Validation Protocol 4 – Tool to calculate the emission factor for an electricity system" for additional parameters				
See "Validation Protocol 3 – Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" for additional parameters				
B.6.3. *Ex-ante calculation of emission reductions*				
B.6.3.1. Is the projection based on the same procedures as used for future monitoring?	12, 40 - 43	Leakage emissions from the residual waste from the anaerobic digestion and gasification are not considered. This is explained by the fact "that there is no legislation or contractual requirement in Turkey in force that regulates the destruction of methane". **Clarification Request #2:** According to AM0025 leakage emissions from the residual waste from the anaerobic digestion and gasification have to be considered. Please explain above counter-argument in detail.	**CR #2**	☑
B.6.3.2. Are the GHG calculations documented in a complete and transparent manner?	12, 19 -	Yes, in the PDD as well as in a separate set of excel-sheets.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
	22			
B.6.3.3. Is the data provided in this section consistent with data as presented in other chapters of the PDD?	12	Yes, all data are consistent	☑	☑
B.6.4. *Summary of the ex-ante estimation of emission reductions*				
See Validation Protocol 1 (ACM0001 for the Mamak-project)				
B.7. Application of the monitoring methodology and description of the monitoring plan				
B.7.1. *Data and parameters monitored*				
B.7.1.1. Is the list of parameters presented in chapter B.7.1 considered to be complete with regard to the requirements of the applied methodology?	7, 12	Yes, all required parameters are presented	☑	☑
Integrate the required amount of sub-checklists for monitoring parameter and comment on any line answered with "No"				
See also "Validation Protocol ACM0001" for additional parameters				
B.7.1.3. Parameter Title: Emission factor for the production of electricity in the project activity, (CEF_{elec}) – if calculated annually		Sep. protocol section		
B.7.1.4. Parameter Title: Fuel consumption on-site ($F_{cons,y}$)		n.a. (no fuel use onsite)		
B.7.1.5. Parameter Title: Net calorific value of fuel (NCV_{fuel})		n.a. (no fuel use onsite)		
B.7.1.6. Parameter Title: Emission factor of the fuel (EF_{fuel})		n.a. (no fuel use onsite)		
B.7.1.7. Parameter Title: Total quantity of compost produced		n.a. (no composting)		

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
($M_{compost,y}$)				
B.7.1.8.Parameter Title: P_l Leakage of methane emissions from an-aerobic digester		See CR#2 – n.a.	☑	☑
B.7.1.9.Parameter Title: Total methane produced from anaerobic digester ($M_{a,y}$)		This quantity is necessary to calculate the leakage of methane from the digester which has a default leakage of 15%. See CR#2 – n.a.	☑	☑
B.7.1.10. Parameter Title: $SG_{a,y}$ Stack gas volume flow rate	12, 41 - 43	<table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>n.a.</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>n.a.</td></tr><tr><td>Measurement method correctly described?</td><td>n.a.</td></tr><tr><td>Correct reference to standards?</td><td>n.a.</td></tr><tr><td>Indication of accuracy provided?</td><td>n.a.</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>n.a.</td></tr></table> **Forward Action Request #1:** Detailed data, monitoring and QA/QC procedures are needed	**FAR #1**	**FAR #1**

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PPD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td>after installation of the anaerobic digester system</td><td></td><td></td></tr>
<tr><td>B.7.1.11. Parameter Title:
$MC_{N2O,a,y}$

Concentration of N_2O in stack gas</td><td>12, 41 – 43</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>n.a.</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>n.a.</td></tr><tr><td>Measurement method correctly described?</td><td>n.a.</td></tr><tr><td>Correct reference to standards?</td><td>n.a.</td></tr><tr><td>Indication of accuracy provided?</td><td>n.a.</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>n.a.</td></tr></table>
See FAR #1</td><td>FAR #1</td><td>FAR #1</td></tr>
<tr><td>B.7.1.12. Parameter Title:
$MC_{CH4,a,y}$

Concentration of CH_4 in stack gas</td><td>12, 41 – 43</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>n.a.</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>n.a.</td></tr><tr><td>Measurement method correctly described?</td><td>n.a.</td></tr><tr><td>Correct reference to standards?</td><td>n.a.</td></tr><tr><td>Indication of accuracy provided?</td><td>n.a.</td></tr></table></td><td>FAR #1</td><td>FAR #1</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		QA/QC procedures described? — Yes QA/QC procedures appropriate? — n.a. **See FAR #1**		
B.7.1.13. Parameter Title: A_i Amount of each waste type i fed into the gasifier	12, 41 – 43	Monitoring Checklist — Yes / No Title in line with methodology? — Yes Data unit correctly expressed? — Yes Appropriate description of parameter? — Yes Source clearly referenced? — n.a. Correct value provided for estimation? — Yes Has this value been verified? — n.a. Measurement method correctly described? — n.a. Correct reference to standards? — n.a. Indication of accuracy provided? — n.a. QA/QC procedures described? — Yes QA/QC procedures appropriate? — n.a. **See FAR #1**	**FAR #1**	**FAR #1**
B.7.1.14. Parameter Title: (CCW_i) Fraction of carbon content in each waste type i	7, 12	Monitoring Checklist — Yes / No Title in line with methodology? — Yes Data unit correctly expressed? — Yes Appropriate description of parameter? — Yes Source clearly referenced? — n.a. Correct value provided for estimation? — Yes Has this value been verified? — n.a.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		Measurement method correctly described? n.a. Correct reference to standards? n.a. Indication of accuracy provided? n.a. QA/QC procedures described? n.a. QA/QC procedures appropriate? n.a.		
B.7.1.15. Parameter Title: (FCF_i) Fraction of fossil carbon in each waste type	7, 12	Monitoring Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? n.a. Correct value provided for estimation? Yes Has this value been verified? n.a. Measurement method correctly described? n.a. Correct reference to standards? n.a. Indication of accuracy provided? n.a. QA/QC procedures described? n.a. QA/QC procedures appropriate? n.a.	☑	☑
B.7.1.16. Parameter Title: (EF_i) Combustion efficiency for each waste type	7, 12	Monitoring Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? n.a. Correct value provided for estimation? Yes Has this value been verified? n.a. ex-ante value; fixed for crediting period.	☑	☑

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<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PPD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>B.7.1.17. Parameter Title: ($SG_{g/r/i,y}$)

Total volume of stack gas from gasification</td><td>7, 12</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>n.a.</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>n.a.</td></tr><tr><td>Measurement method correctly described?</td><td>n.a.</td></tr><tr><td>Correct reference to standards?</td><td>n.a.</td></tr><tr><td>Indication of accuracy provided?</td><td>n.a.</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>n.a.</td></tr></table>
Note: Detailed data, monitoring and QA/QC procedures needed after installation of the gasifier</td><td>☑</td><td>☑</td></tr>
<tr><td>B.7.1.18. Parameter Title: ($MC_{N2O,g/r/i,y}$)

Monitored content of nitrous oxide in the stack gas from gasification in year y</td><td>7, 12</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>n.a.</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>n.a.</td></tr><tr><td>Measurement method correctly described?</td><td>n.a.</td></tr><tr><td>Correct reference to standards?</td><td>n.a.</td></tr></table></td><td>☑</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		Indication of accuracy provided? n.a. QA/QC procedures described? Yes QA/QC procedures appropriate? n.a. Note: Detailed data, monitoring and QA/QC procedures needed after installation of the gasifier		
B.7.1.19. Parameter Title: ($MC_{CH4,g/r/i,y}$) Monitored content of methane in the stack gas from gasification	7, 12	Monitoring Checklist: Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? n.a. Correct value provided for estimation? Yes Has this value been verified? n.a. Measurement method correctly described? n.a. Correct reference to standards? n.a. Indication of accuracy provided? n.a. QA/QC procedures described? Yes QA/QC procedures appropriate? n.a. Note: Detailed data, monitoring and QA/QC procedures needed after installation of the gasifier	☑	☑
B.7.1.20. Parameter Title: (MB_y)	7, 12	No monitored parameter, but calculated	☑	☑

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PPD in GSP</th><th>Final PDD</th></tr>
<tr><td>Methane produced in the landfill in the absence of the project</td><td></td><td></td><td></td><td></td></tr>
<tr><td>B.7.1.21. Parameter Title:
Methane destroyed due to regulatory or other requirements (AF)</td><td></td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td></td></tr><tr><td>Data unit correctly expressed?</td><td></td></tr><tr><td>Appropriate description of parameter?</td><td></td></tr><tr><td>Source clearly referenced?</td><td></td></tr><tr><td>Correct value provided for estimation?</td><td></td></tr><tr><td>Has this value been verified?</td><td></td></tr><tr><td>Measurement method correctly described?</td><td></td></tr><tr><td>Correct reference to standards?</td><td></td></tr><tr><td>Indication of accuracy provided?</td><td></td></tr><tr><td>QA/QC procedures described?</td><td></td></tr><tr><td>QA/QC procedures appropriate?</td><td></td></tr></table>
<u>Corrective Action Request #1</u>
AF is not in the PDD-list; has to be entered and defined</td><td>CAR#1</td><td>☑</td></tr>
<tr><td>B.7.1.22. Parameter Title:
Amount of electricity generated utilizing the biogas / syngas collected / in the project activity</td><td></td><td>Listed in “Validation Protocol ACM0001”</td><td></td><td></td></tr>
<tr><td>B.7.1.23. Parameter Title:
Emission factor of displaced electricity by the project activity (CEF_d)</td><td>7, 12</td><td>No monitored parameter, but calculated</td><td>☑</td><td>☑</td></tr>
<tr><td colspan="5">B.7.1.24 – B.7.1.31 are part of the “Validation Protocol 4 – Tool to calculate the emission factor for an electricity system”.</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
B.7.1.32. Parameter Title: State-level compliance rate of the MSW Management Rules ($RATE^{compliance}_{y}$)	1, 12	No regulations mandating the use of one of the project activity treatment options and not being enforced	☑	☑
B.7.1.33. Parameter Title: Vehicles per carrying capacity ($NO_{vehi-cles,i,y}$)	12	No difference in transportation between baseline scenario and project	☑	☑
B.7.1.34. Parameter Title: Average additional distance travelled by each vehicle type compared to the base-line ($DT_{i,y}$)	12	See above	☑	☑
B.7.1.35. Parameter Title: Vehicle fuel consumption (VF_{cons})	12	See above	☑	☑
B.7.1.36. Parameter Title: Density of fuel (D_{fuel})	12	See above	☑	☑
B.7.1.37. Parameter Title: Amount of waste gasified ($Q_{biomass}$) – ($PE_{g/r/i,s,y}$ option 2)	12	See B.7.1.13	☑	☑
B.7.1.38. Parameter Title: Aggregate N_2O emission factor for waste incineration (EF_{N2O})	12	No waste incineration	☑	☑
B.7.1.39. Parameter Title: Aggregate CH_4 emission factor for waste incineration (EF_{CH4})	12	No waste incineration	☑	☑
B.7.1.40. Parameter Title: Share of the waste that degrades under anaerobic conditions in the composting plant ($S_{a,y}$)	12	No composting	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
B.7.1.41. Parameter Title: Number of samples with oxygen deficiency (emissions from composting) ($S_{OD,y}$)	12	No composting	☑	☑
B.7.1.42. Parameter Title: Total number of samples (emissions from composting) ($S_{total,y}$)	12	No composting	☑	☑
B.7.1.43. Parameter Title: Share of samples anaerobic (emissions from residual waste in case aerobically treated) (S_{LE})	12	Residual waste goes to landfill	☑	☑
B.7.1.44. Parameter Title: Number of samples with oxygen deficiency (emissions from residual waste in case aerobically treated) ($S_{OD,LE}$)	12	Residual waste goes to landfill	☑	☑
B.7.1.45. Parameter Title: Total number of samples (emissions from residual waste in case aerobically treated) ($S_{LE,total}$)	12	Residual waste goes to landfill	☑	☑
B.7.1.46. Parameter Title: Degradability analysis (stabilised biomass)	12	No stabilised biomass	☑	☑
B.7.1.47. Parameter Title: Amount of RDF/stabilized biomass used outside the project boundary	12	No RDF / stabilised biomass	☑	☑
B.7.1.48. Parameter Title: Temperature of the thermal treatment process	12	No thermal treatment process	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
B.7.1.49. Parameter Title: Amount of organic waste type prevented from disposal in the landfill ($A_{j,x}$)	12	Replaced by Wj,x in the "tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site"	☑	☑
B.7.1.50. Parameter Title: Amount of residual waste type 'ci' from anaerobic digestion or gasifier ($A_{ci,x}$)	12	See CR#2 – n.a.	☑	☑
B.7.1.51. Parameter Title: Weight of RDF/stabilized biomass sold offsite for which no sale invoices can be provided (R_n) (leakage emissions $L_{s,y}$)	12	No RDF/stabilized biomass	☑	☑
B.7.1.52. Parameter Title: Total weight of RDF/stabilized biomass produced (R_t) (leakage emissions $L_{s,y}$)	12	n.a.	☑	☑
B.7.1.53. Parameter Title: Amount of wastewater treated anaerobically or released untreated from the project activity ($Q_{COD,y}$)	12	No wastewater treatment	☑	☑
B.7.1.54. Parameter Title: Chemical Oxygen Demand of wastewater ($P_{COD,y}$)	12	No wastewater treatment	☑	☑
In case the project activity includes waste water release, the wastewater is treated anaerobically and resulting methane is flared the AM0025 methodology requires the use of the "Tool to determine project emissions from flaring gases containing Methane" to estimate methane emissions. Please see chapter G of the Validation Protocol.				
B.7.1.55. Parameter Title: Fraction of waste diverted from the landfill to all project activities:composting/gasification/anaerobic digestion/RDF/SB/incineration ($f_{c/g/d/r/i}$)	12	No composting	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
B.7.1.56. Parameter Title: Amount of compost produced	12	No composting	☑	☑
See "Validation Protocol 3 – Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site" for additional parameters				
B.7.2. *Description of the monitoring plan*				
See "Validation Protocol 1 - ACM0001"				
B.8. Date of completion of the application of the baseline study and monitoring methodology an the name of the responsible person(s)/entity(ies)				
See "Validation Protocol 1 - ACM0001"				
C. Duration of the project activity / crediting period				
See "Validation Protocol 1 - ACM0001"				
D. Environmental impacts				
See "Validation Protocol 1 - ACM0001"				
E. Stakeholders' comments				
See "Validation Protocol 1 - ACM0001"				
F. Annexes 1 – 4				
See "Validation Protocol 1 - ACM0001"				

Table 2 Resolution of Corrective Action Requests, Clarification Requests and Forward Action Requests

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
Corrective Action Request #1 AF is not in the PDD-list; has to be entered and defined	B.7.1.21	The PDD has been revised accordingly.	The CAR has been resolved by changes in PDD v.4.
Clarification Request #1: The definition of scenario 3 in table 7 and in substep 3a is overly complex and intransparent. Being a key statement of the PDD it should be rephrased in a simpler way.	B.4.1	The wording has been simplified in the PDD.	The CR has been resolved by changes in PDD v.4.
Clarification Request #2: According to AM0025 leakage emissions from the residual waste from the anaerobic digestion and gasification have to be considered. Please explain above counter-argument in detail.	B.6.3.1	The PDD has been revised accordingly giving detailed justification of the result.	The CR has been resolved by changes in PDD v.4.
Forward Action Request #1: Detailed data, monitoring and QA/QC procedures are needed after installation of the anaerobic digester system.	B.7.1.10 – B.7.1.13	open	To be handled during the first verification.

Table 3 Unresolved Corrective Action and Clarification Requests (in case of denials)

Clarifications and / or corrective action requests by validation team	Id. of CAR/CR	Explanation of Conclusion for Denial
-	-	-

1.3 Annex ”Validation Protocol ’Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site’ ”

Validation Protocol 3

Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site

Project Title: Mamak Landfill Waste Management Project - Turkey
Date of Completion: 03.03.2009
Number of Pages: 13

Industrie Service

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
A. General description of project activity				
B. Application of a baseline and monitoring procedure				
B.1. Title and reference of the approved baseline and monitoring procedure				
B.1.1. Are reference number, version number, and title of the tool clearly indicated?	12	Two approved methodologies are used: ACM0001, v.8.1, and AM0025, v.10. Both are correctly indicated in the PDD.	☑	☑
B.1.2. Is the applied version the most recent one and / or is this version still applicable?	6 – 10, 12,	Both applied versions are no longer recent, but still applicable.	☑	☑
B.2. Justification of the choice of the project category				
B.2.1.1. Is the latest version of the Tool to determine methane emissions avoided from dumping waste at a solid waste disposal the most appropriate one?	8, 12	Both methodologies refer explicitly to the tool; therefore it is the most appropriate choice.	☑	☑
Integrate the required amount of sub-checklists on the applicability criteria as given by the applied methodology and comment on at least every line answered with "No";				
B.2.1.2. Criterion 1: Is the solid waste disposal site no stockpile where anaerobic conditions are not ensured?	1, 8, 12, 18	Applicability checklist: Criterion discussed in the PDD? Yes; Compliance provable? Yes; Compliance verified? Yes	☑	☑
B.2.1.3. Criterion 2: Is the SWDS where the waste would be dumped clearly identified?	1, 8, 12, 18	Applicability checklist: Criterion discussed in the PDD? Yes; Compliance provable? Yes	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		Compliance verified? — Yes		
B.2.1.4. Criterion 3: Is the waste no hazardous waste?	1, 12	Applicability checklist — Yes / No Criterion discussed in the PDD? — Yes Compliance provable? — Yes Compliance verified? — Yes Yes, it is no hazardous waste but household waste from the city of Ankara.	☑	☑
B.3. Description of the parameters included in the tool				
Integrate the required amount of sub-checklists for parameters as given by the tool applied and comment on at least every line answered with "No"				
B.3.1.1. Parameter: BECH4,SWDS,y Methane emissions avoided during the year y from preventing waste disposal at the SWDS from the start of the project activity to the end of the year y (tCO2e) Unit: tCO2e/year	8, 12	Boundary checklist — Yes / No Parameter discussed in the PDD? — Yes Inclusion / exclusion justified? — Yes Explanation / Justification sufficient? — Yes Consistency with monitoring plan? — yes	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
B.4. Details of the baseline and its development				
B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered small-scale CDM project activity				
B.6. Emission reductions				
B.6.1. Explanation of methodological choices				
B.6.1.1. Is BECH4,SWDS,y calculated with a multiphase model?	8, 12, 19	yes	☑	☑
B.6.1.2. Is the calculation based on a FOD model?	8, 12, 19	Yes, a first order decay model is used	☑	☑
B.6.1.3. Does the Model differentiate between different types of waste j with different decay rates kj and different fractions of DOCj?	8, 12, 19	Yes	☑	☑
B.6.1.4. Does the model calculate the methane generation based on actual waste streams Wj,x disposed in each year x, starting with the first year after the start of the project activity until the end of the year y, for which baseline emissions are calculated (years x with x = 1 to x = y)?	8, 12, 19	Yes	☑	☑
B.6.1.5. In case of methane capture and destruction at SWDS: Are the baseline emissions adjusted for the frac-	8, 12, 19	In the baseline scenario there is no methane capture and destruction.	☑	☑

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PPD in GSP</th><th>Final PDD</th></tr>
<tr><td>tion of methane captured at SWDS?</td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="5">B.6.2. Data and parameters that are available at validation</td></tr>
<tr><td>B.6.2.1. Is the list of parameters presented in chapter B.6.2 considered to be complete with regard to the requirements of the applied methodology?</td><td>8, 12, 19</td><td>Yes, all required parameters are listed and explained in chapter B.6.2 of the PDD</td><td>☑</td><td>☑</td></tr>
<tr><td colspan="5">Comment on any line answered with “No”</td></tr>
<tr><td>B.6.2.2. Parameter Title:
φ: Model Correction Factor to account for uncertainties</td><td>8, 12</td><td><table><tr><th>Data Checklist</th><th>Yes / No / NA</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.6.2.3. Parameter Title:
OX: Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)</td><td>8, 12</td><td><table><tr><th>Data Checklist</th><th>Yes / No / NA</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr></table></td><td>☑</td><td>☑</td></tr>
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<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PPD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td><table><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr></table>As Mamak was an unmanaged landfill site, the oxidation factor 0 was used.</td><td></td><td></td></tr>
<tr><td>B.6.2.4. Parameter Title:
F: Fraction of methane in the SWDS gas (volume fraction)</td><td>8, 12</td><td><table><tr><th>Data Checklist</th><th>Yes / No / NA</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.6.2.5. Parameter Title:
DOCf: Fraction of degradable organic carbon (DOC) that can decompose</td><td>8, 12</td><td><table><tr><th>Data Checklist</th><th>Yes / No / NA</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr></table></td><td>☑</td><td>☑</td></tr>
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<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PPD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td>The non-food organics refer to both textile, garden, yard and park waste. Therefore a conservative approach has been used and a DOCj value of 20% was applied.</td><td></td><td></td></tr>
<tr><td>B.6.2.6. Parameter Title:
MCF: Methane correction factor</td><td>8, 12</td><td><table><tr><th>Data Checklist</th><th>Yes / No / NA</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td>B.6.2.7. Parameter Title:
DOCj: Fraction of degradable organic carbon (by weight) in the waste type j</td><td>8, 12</td><td><table><tr><th>Data Checklist</th><th>Yes / No / NA</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr></table></td><td>☑</td><td>☑</td></tr>
</table>

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<tr><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>B.6.2.8. Parameter Title:
kj: Decay rate of the waste type j</td><td>8, 12</td><td><table><tr><th>Data Checklist</th><th>Yes / No / NA</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Choice of data correctly justified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>NA</td></tr></table></td><td>☑</td><td>☑</td></tr>
<tr><td colspan="5">B.6.3. Ex-ante calculation of emission reductions</td></tr>
<tr><td>B.6.3.1. Are the formulae required for the determination of the methane emission avoided enabling a complete identification of parameters to be used and / or monitored?</td><td>8, 12, 19</td><td>Yes, the formulae are presented in part B.6.1.a of the PDD and they list all parameters to be used and monitored.</td><td>☑</td><td>☑</td></tr>
<tr><td colspan="5">B.6.4. Summary of the ex-ante estimation of emission reductions</td></tr>
<tr><td colspan="5">B.7. Application of the monitoring methodology and description of the monitoring plan</td></tr>
<tr><td colspan="5">B.7.1. Data and parameters monitored</td></tr>
<tr><td>B.7.1.1. Is the list of parameters presented in chapter B.7.1 considered to be complete with regard to the requirements of the applied tool?</td><td>8, 12</td><td>No, several parameters are missing which are not part of the methodology, but part of the tool.
<u>Corrective Action Request #1:</u>
As the methodology refers to the tool, a conservative approach is</td><td>CAR#1</td><td>☑</td></tr>
</table>

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PPD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td>to include the monitoring parameters of the tool in the PDD</td><td></td><td></td></tr>
<tr><td>B.7.1.2. Parameter Title:
f: Fraction of methane captured at SWDS and flared or combusted or used in another manner
Unit: -</td><td>8, 12</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>n.a.</td></tr><tr><td>Indication of accuracy provided?</td><td>n.a.</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table>
QA/QC procedures are part of the monitoring manual.
See CAR #1</td><td></td><td>☑</td></tr>
<tr><td>B.7.1.3. Parameter Title:

GWPCH4: Global Warming Potential of methane

Unit: tCO2e/ tCH4</td><td>8, 12</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>n.a.</td></tr><tr><td>Measurement method correctly described?</td><td>n.a.</td></tr><tr><td>Correct reference to standards?</td><td>n.a.</td></tr></table></td><td>☑</td><td>☑</td></tr>
</table>

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<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PPD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>Indication of accuracy provided?</td><td>n.a.</td></tr>
<tr><td>QA/QC procedures described?</td><td>n.a.</td></tr>
<tr><td>QA/QC procedures appropriate?</td><td>n.a.</td></tr>
</table>

See CAR#1</td><td></td><td></td></tr>
<tr><td>B.7.1.4. Parameter Title:

Wx: Total amount of organic waste prevented from disposal in year x

Unit: tons</td><td>8, 12</td><td>
<table>
<tr><th>Monitoring Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes</td></tr>
<tr><td>Appropriate description of parameter?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes</td></tr>
<tr><td>Correct value provided for estimation?</td><td>Yes</td></tr>
<tr><td>Has this value been verified?</td><td>Yes</td></tr>
<tr><td>Measurement method correctly described?</td><td>Yes</td></tr>
<tr><td>Correct reference to standards?</td><td>n.a</td></tr>
<tr><td>Indication of accuracy provided?</td><td>n.a.</td></tr>
<tr><td>QA/QC procedures described?</td><td>Yes</td></tr>
<tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr>
</table>

QA/QC procedures are part of the monitoring manual.
The “tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site” and AM0025 use a different set of parameters. While the tool uses Wx and pn,j,x as defined here in B.7.1.4 and B.7.1.5, AM0025 uses Aj,x. Aj,x however cannot be measured directly by weighbridges (as stated in AM0025). Therefore the tool-approach should be used.</td><td>CR#1</td><td>☑</td></tr>
</table>

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PPD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td><u>Change Request 1</u>:
Replace parameter Aj,x (ID.37) by parameters Wx and pn,j,x.</td><td></td><td></td></tr>
<tr><td>B.7.1.5. Parameter Title:
pn,j,x: Weight fraction of the waste type j in the sample n collected during the year x
Unit: -</td><td>8, 12</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr><tr><td>Correct reference to standards?</td><td>n.a</td></tr><tr><td>Indication of accuracy provided?</td><td>n.a.</td></tr><tr><td>QA/QC procedures described?</td><td>Yes</td></tr><tr><td>QA/QC procedures appropriate?</td><td>Yes</td></tr></table>QA/QC procedures are part of the monitoring manual
See CR#1</td><td>☑</td><td>☑</td></tr>
<tr><td>B.7.1.6. Parameter Title:
z: Number of samples collected during year x
Unit: -</td><td>8, 12</td><td><table><tr><th>Monitoring Checklist</th><th>Yes / No</th></tr><tr><td>Title in line with methodology?</td><td>Yes</td></tr><tr><td>Data unit correctly expressed?</td><td>Yes</td></tr><tr><td>Appropriate description of parameter?</td><td>Yes</td></tr><tr><td>Source clearly referenced?</td><td>Yes</td></tr><tr><td>Correct value provided for estimation?</td><td>Yes</td></tr><tr><td>Has this value been verified?</td><td>Yes</td></tr><tr><td>Measurement method correctly described?</td><td>Yes</td></tr></table></td><td></td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		Correct reference to standards? n.a Indication of accuracy provided? n.a. QA/QC procedures described? Yes QA/QC procedures appropriate? Yes QA/QC procedures are part of the monitoring manual See CAR#1	**see CAR#1**	
B.7.2. Description of the monitoring plan				
B.7.2.1. If applicable: Does annex 4 provide useful information enabling a better understanding of the envisioned monitoring provisions?	-	There is no annex 4 provided.	n.a.	
B.8. Date of completion of the application of the baseline study and monitoring methodology an the name of the responsible person(s)/entity(ies)				
C. Duration of the project activity / crediting period				
D. Environmental impacts				
E. Stakeholders' comments				
F. Annexes 1 – 4				
F.1. Annex 1: Contact Information				
F.2. Annex 2: Information regarding public funding				
F.3. Annex 3: Baseline information				
F.4. Annex 4: Monitoring information				
F.4.1. If additional background information on moni-	12,		n.a.	

	CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
	toring is provided: Is this information consistent with data presented in other sections of the PDD?	41 – 43			
F.4.2.	Is the information provided verifiable? Has sufficient evidence been provided to the validation team?	12, 41 – 43		n.a.	
F.4.3.	Do the additional information and / or documented procedures substantiate / support statements given in other sections of the PDD?	12, 41 – 43		n.a.	

Table 2 Resolution of Corrective Action and Clarification Requests

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team Conclusion
Corrective Action Request 1: As the methodology refers to the tool, a conservative approach is to include the monitoring parameters of the tool in the PDD	B.7.1.1	Wx, Pn,j,x and z have been introduced in the relevant sections of the PDD.	The CAR has been resolved by changes in PDD v.4.
Clarification Request 1: Replace parameter Aj,x (ID.37) by parameters Wx and pn,j,x.	B.7.1.4 B.7.1.5	Aj,x has been replaced by Wx, Pn,j,x and z parameters in the PDD.	The CR has been resolved by changes in PDD v.4.

Table 3 Unresolved Corrective Action and Clarification Requests (in case of denials)

Clarifications and / or corrective action requests by validation team	Id. of CAR/CR	Explanation of Conclusion for Denial
-	-	-

1.4 Annex ”Validation Protocol ’Tool to calculate the emission factor for an electricity system’

Industrie Service

Table 1 Conformity of Project Activity and PDD

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
A.1. Emissions reductions					
A.1.1.	*Explanation of methodological choices*				
A.1.1.1.	Is it explained how the procedures provided in the methodology are applied by the proposed project activity?	12	Yes, there is a separate section “Calculation of CEF” in the PDD	☑	☑
A.1.1.2.	Is the relevant electric power system identified and justified? (step 1)	12, 42	Yes, this is the interconnected Turkish National Grid	☑	☑
A.1.1.3.	Is the choice of options to determine the operating margin justified in a suitable and transparent manner? (step 2)	1, 12, 19 – 22	Yes, it is explained why options b, c and d are not applicable and why option a (simple OM) has been selected	☑	☑
A.1.1.4.	Are the formulae required for the determination of the operating margin factor correctly presented, enabling a complete identification of parameter to be used and / or monitored? (step 3)	12, 19 – 22	It is explained, why option C is used (based on data on the total net electricity generation of all power plants and the fuel types and total fuel consumption of the electricity system). . The corresponding formula to derive CEF is presented and the value is computed according to this formula.	☑	☑
A.1.1.5.	Is the cohort of power units to be included in the build margin appropriately identified (step 4)	12, 19 – 22	Yes, the complete list is given in appendix 3 of the PDD	☑	☑
A.1.1.6.	Are the formulae required for the determination of the build margin factor correctly presented, enabling a complete identification of parameter to be used and / or monitored? (step 5)	12, 19 – 22	The formulae are explicitly presented ; all parameters are identified and listed under B.6.2 “data and parameters that are available at validation”	☑	☑
A.1.1.7.	In case of alternative weighing factors for	12,	The default values of 0,5 have been used.	☑	☑

CHECKLIST TOPIC / QUESTION		Ref.	COMMENTS	PDD in GSP	Final PDD
	the Combined Margin: Is the quantification of the alternative weighing factor justified in a suitable and transparent manner?	19 – 22			
A.1.1.8.	In case of alternative weighing factors for the Combined Margin: Is the guidance for the PDD concerning the acceptability of alternative weights considered in the discussion?	12, 19 – 22	The default values of 0,5 have been used.	☑	☑
A.1.2.	*Data and parameters that need to be monitored or need to be calculated only once for the crediting period and thus are available at validation, depending on the data vintage chosen*				
A.1.2.1.	Is the list of parameters presented in chapter B.6.2/B.7.1 considered to be complete with regard to the requirements of the applied methodology?	9, 12	Yes, the list is complete	☑	☑
A.1.2.2.	Is the choice of ex-ante or ex-post vintage of OM and BM factors clearly specified in the PDD?	9, 12	Yes, the ex-ante option has been explicitly chosen.	☑	☑
A.1.2.3.	Is the calculation of the OM and BM factors documented electronically in a spreadsheet attached to the CDM-PDD including all data used for calculation as per the tool (page 17,18)?	9, 12, 19 – 22	Yes, an Excel-spreadsheet exists in which the OM, BM and CM are computed.	☑	☑
Fill in the required amount of sub checklists for monitoring parameter and comment any line answered with “No”					
A.1.2.4.	Parameter Title: $FC_{i,m,y}$; $FC_{i,y}$; $FC_{i,j,y;}$ $FC_{i,n,y;}$ $FC_{i,n,h}$ amount of fossil fuel type i consumed by power plant/unit *m,j,k* or *n* (or in the project electricity system in case of $FC_{i,y}$) in year *y* or hour *h* (mass or volume unit)	9, 12	Data Checklist / Yes / No Title in line with methodology? / Yes Data unit correctly expressed? / Yes Appropriate description of parameter? / Yes Source clearly referenced? / Yes		☑

Industrie Service

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td>
<table>
<tr><td>Correct value provided?</td><td>Yes</td></tr>
<tr><td>Has this value been verified?</td><td>yes</td></tr>
<tr><td>Choice of data correctly justified?</td><td>yes</td></tr>
<tr><td>Measurement method correctly described?</td><td>n.a.</td></tr>
</table>

<u>Clarification Request #1</u>
In table 13 reference is made to section B.6.2 (“further information”). But there is no information concerning $FC_{i,y}$ in B.6.2</td><td>CR #1</td><td></td></tr>
<tr><td>A.1.2.5. Parameter Title:
$NCV_{i,y}$
Net calorific value of fossil fuel type i in year y (GJ/mass or volume unit)</td><td>9, 12</td><td>
<table>
<tr><th>Data Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes</td></tr>
<tr><td>Appropriate description of parameter?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes</td></tr>
<tr><td>Correct value provided?</td><td>Yes</td></tr>
<tr><td>Has this value been verified?</td><td>yes</td></tr>
<tr><td>Choice of data correctly justified?</td><td>yes</td></tr>
<tr><td>Measurement method correctly described?</td><td>n.a.</td></tr>
</table>

NCV values are listed in Table 14 of the PDD.

<u>Clarification Request #2</u>
In table 14 reference is made to section B.6.2 (“further information”. But there is no information concerning NCV values in B.6.2</td><td>CR #2</td><td>☑</td></tr>
<tr><td>A.1.2.6. Parameter Title:
$EF_{CO2,i,y}$; $EF_{CO2,m,i,y}$
CO_2 emission factor of fossil fuel type i in the year y</td><td>9, 12</td><td>
<table>
<tr><th>Data Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes</td></tr>
</table>
</td><td>☑</td><td>☑</td></tr>
</table>

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PDD in GSP	Final PDD
		Appropriate description of parameter? Yes Source clearly referenced? Yes Correct value provided? Yes Has this value been verified? yes Choice of data correctly justified? yes Measurement method correctly described? n.a.		
A.1.2.7. Parameter Title: $EG_{m,y}$; EG_y; $EG_{j,y}$; $EG_{k,y}$; $EG_{n,h}$ Net electricity generated and delivered to the grid by power plant/unit *m,j,k* or *n* (or in the project electricity system in case of EG_y) in year *y* or hour *h* (mass or volume unit)	9, 12	Data Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes Appropriate description of parameter? Yes Source clearly referenced? Yes Correct value provided? Yes Has this value been verified? yes Choice of data correctly justified? yes Measurement method correctly described? yes	☑	☑
A.1.2.8. Applicable for the dispatch data OM Parameter Title: $EG_{PJ,h}$ Electricity displaced by the project activity in hour *h* of year *y*		n.a.		
A.1.2.9. Parameter Title: $\eta_{m,y}$ average net energy conversion efficiency of power unit *m* in year *y*	9, 12	Data Checklist / Yes / No Title in line with methodology? Yes Data unit correctly expressed? Yes	☑	☑

Industrie Service

<table>
<tr><th>CHECKLIST TOPIC / QUESTION</th><th>Ref.</th><th>COMMENTS</th><th>PDD in GSP</th><th>Final PDD</th></tr>
<tr><td></td><td></td><td><table>
<tr><td>Appropriate description of parameter?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes</td></tr>
<tr><td>Correct value provided?</td><td>Yes</td></tr>
<tr><td>Has this value been verified?</td><td>Yes</td></tr>
<tr><td>Choice of data correctly justified?</td><td>Yes</td></tr>
<tr><td>Measurement method correctly described?</td><td>n.a.</td></tr>
</table></td><td></td><td></td></tr>
<tr><td>A.1.2.10. Parameter Title:
$TDL_{j,y}$
average technical transmission and distribution losses for providing electricity by source j in year ynet energy conversion efficiency of power unit m in year y</td><td>9, 12</td><td><table>
<tr><th>Data Checklist</th><th>Yes / No</th></tr>
<tr><td>Title in line with methodology?</td><td>Yes</td></tr>
<tr><td>Data unit correctly expressed?</td><td>Yes</td></tr>
<tr><td>Appropriate description of parameter?</td><td>Yes</td></tr>
<tr><td>Source clearly referenced?</td><td>Yes</td></tr>
<tr><td>Correct value provided?</td><td>Yes</td></tr>
<tr><td>Has this value been verified?</td><td>Yes</td></tr>
<tr><td>Choice of data correctly justified?</td><td>Yes</td></tr>
<tr><td>Measurement method correctly described?</td><td>n.a.</td></tr>
</table></td><td>☑</td><td>☑</td></tr>
</table>

Table 2 Resolution of Corrective Action and Clarification Requests

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
Clarification Request #1 In table 13 reference is made to section B.6.2 ("further information"). But there is no information concerning $FC_{i,y}$ in B.6.2	A.1.2.4	By "further information" the references to the values and justification of the choice are referred. However, to avoid misunderstandings, the footnotes have been extracted from the PDD.	The CR has been resolved by changes in PDD v.4.
Clarification Request #2 In table 14 reference is made to section B.6.2 ("further information". But there is no information concerning NCV values in B.6.2	A.1.2.5	By "further information" the references to the values and justification of the choice are referred. However, to avoid misunderstandings, the footnotes have been extracted from the PDD.	The CR has been resolved by changes in PDD v.4.

Table 3 Unresolved Corrective Action and Clarification Requests (in case of denials)

Clarifications and / or corrective action requests by validation team	Id. of CAR/CR	Explanation of Conclusion for Denial
-	-	-

1.5 Annex ”Validation Protocol ’Tool for the demonstration and assessment of additionality’ ”

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
A. General description of project activity				
B. Application of a baseline and monitoring procedure				
B.1. Title and reference of the approved baseline and monitoring procedure				
B.1.1. Are reference number, version number, and title of the tool clearly indicated?	10, 12	EB 39 Report, Annex 10 - Methodological Tool "Tool for the demonstration and assessment of additionality" (Version 05.2)	☑	☑
B.1.2. Is the applied version the most recent one and / or is this version still applicable?	10, 12	Yes, it is the most recent tool	☑	☑
B.2. Justification of the choice of the tool and why it is applicable to the project activity				
B.2.1. Is the applied tool considered the most appropriate one?	10, 12	The tool is referenced in methodology ACM 0001 v.8.1 and therefore certainly appropriate	☑	☑
B.3. Description of the parameters included in the tool				
B.4. Description of how the baseline methodology procedure is identified and description of the identified baseline procedure				
B.5. Description of how the anthropogenic emissions of GHG by sources are reduced below those that would have occurred in the absence of the registered CDM / VER project activity (assessment and demonstration of additionality):				
B.5.1. Is the realisation of the project activity based on an approved or proposed new methodology?	6, 7, 12	Yes, the project is based the two approved methodologies ACM0001 (v.10) and on AM0025 (v8).	☑	☑
B.5.2. In case the project activity started before the validation activity, how is demonstrated that the CDM / VER was seriously taken into account for the decision to start the project?	12, 24 - 27	The project participant has the concession to operate the Mamak Landfill for 49 years. This contract commits the project participant not to take any waste fees. Therefore the operation as such does not provide any income. The only source of revenue for the project participant is therefore the sale of electricity, produced from LFG and biogas, and the income from VER certificates. It is		☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		demonstrated in the PDD that income from electricity sales alone is less than the operating expenses of the land fill site, i.e. the IRR is negative. Only VER income allows to operate profitably. **<u>Clarification Request #1</u>** Documentation is needed to give evidence that VER-income was part of the financial plans during the concession discussions with the city of Ankara.	**CR #1**	
Step 1 – Identification of alternatives to the project activity				
B.5.3. Are alternative scenarios defined that provide outputs or services comparable with the proposed CDM / VER project activity?	12	Yes, alternatives have been listed for the baseline methane emission for landfill extraction (ACM0001) as well as for the baseline methane emissions for anaerobic digesters (AM0025)	☑	☑
B.5.4. Can be the list of alternatives considered to be complete, why? Is the scenario project activity without being registered as CDM / VER project included?	1, 12	The list can be considered to be complete. It encompasses the status quo solution as well as the project not being considered as VER. Other technical solutions do not exist.	☑	☑
B.5.5. In case several different facilities, technologies, outputs or services are present in the project, are separately alternative scenarios for each of them included? Have realistic combinations been considered as project scenario?	1, 6, 7, 12	Yes, for LFG extraction / usage and biogas-usage from anaerobic digesters separate scenarios and their combinations have been selected. Indeed, the project as such is a combination of two different scenarios.	☑	☑
B.5.6. Describe why the alternative scenarios are credible and realistic (technology, practices, services, status of implementation)?	1, 12	The status quo approach is the apparent way to go – it is the Turkish standard. No investment is needed. There is no legal requirement to flare or otherwise use LFG from a land fill site. Therefore the status quo approach is the most realistic one.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
B.5.7. Do the alternative scenarios comply with mandatory laws and regulations?	1, 12	Yes, they do. As already mentioned, there is no legal requirement to flare or otherwise use LFG from a land fill site or to reduce waste volumes by anaerobic digesters.	☑	☑
B.5.8. If a scenario does not comply with the mandatory laws and regulations, it is clearly demonstrated that the law and/or regulation is systematically not enforced in the country?	1, 12	All scenarios comply with mandatory laws and regulations	☑	☑
Step 2 – Investment analysis (could be optional if step 3 is used) not being used				
B.5.9. Is the analysis method identified appropriately?		n.a.		
B.5.10. In case of Option I (simple cost analysis): Is it demonstrated that the activity and the alternatives identified in step 1 produce no economic benefits other than CDM / VER income? Is the project activity more costly than at least one alternative?		n.a.		
B.5.11. In case of Option II (investment comparison analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost) and reflects this indicator no economical and financial attractiveness or feasibility at all?		n.a.		
B.5.12. In case of use of IRR, it is clearly demonstrated why is equity of project IRR used?		n.a.		
B.5.13. In case of Option III (benchmark analysis): Is the most suitable financial/economic indicator clearly identified (project or equity IRR)?		n.a.		

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
B.5.14. How is it demonstrated that the financial/economic analysis (benchmark) represents standard returns in the market, considers the specific risk of the project type, but is not linked to the subjective profitability expectation or risk profile of a particular project developer (Option II and Option III)?		n.a.		
B.5.15. In case of company internal benchmark, is it clearly demonstrate that there is only one potential project developer and that the benchmark has been consistently used in the past (Option II and Option III)?		n.a.		
B.5.16. In case of Option II or Option III: Is the calculation of financial figures for this indicator correctly done for all alternatives (Option II) and the project activity (Option?		n.a.		
B.5.17. In case of Option II or Option III: Is the analysis presented in a transparent manner including publicly available proofs for the utilized data?		n.a.		
B.5.18. Are all assumptions and input data clearly presented, documented, evidenced and consistent with the rest of the PDD?		n.a.		
B.5.19. Does the sensitivity analysis shows that the conclusion of financial/economical attractiveness is robust to reasonable variations in the critical assumptions?		n.a.		
B.5.20. How is demonstrate that this variations have been adequately taken (range is ade-		n.a.		

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
quate)?				
Step 3 – Barriers analysis (is mandatory if step 2 is not used or does not shows additionality)				
B.5.21. Is a complete list of barriers developed that prevent the implementation of the proposed project and the different alternatives to occur?	1, 10, 12	The list of barriers includes investment barriers, prevailing practice barriers and other barriers.	☑	☑
B.5.22. Is transparent and documented evidence provided on the existence and significance of these barriers?	1, 10, 12	Prevailing practice barriers have been demonstrated by a list of all comparable LFG projects in Turkey. It was shown, that none of them was privately operated without subsidies. Investment barriers have been demonstrated by comparison of the project IRR with and without revenue. Under “other barriers” the problem of a “first of its kind” installation is listed, leading to various technical, maintenance and financial issues. The financials of the project are presented in the PDD under the investment barrier sub-category for the reason to demonstrate that the IRR and the ADSCR (Annual Debt Service Cover Ratio) of the project is too low to secure project financing without the income from VERs. As those data were the financials presented to the bank the interest payments and loan repayments were not excluded from the calculations.	☑	☑
B.5.23. Is it transparently shown that the execution of at least one of the alternatives is not prevented by the identified barriers?	1, 10, 12	Yes, the “status quo” solution is not prevented by those barriers.	☑	☑
B.5.24. How is confirmed that the CDM / VER does alleviate the barriers presented?	1, 10, 12, 22	This is confirmed by the IRR calculation and the project cost spreadsheet **<u>Corrective Action Request #1</u>**	**CAR#1**	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
		The project cost spreadsheet is not complete. The derivation of the IRR without VER has not been demonstrated. **<u>Corrective Action Request #2</u>** The project cost spreadsheet is available in a "value only" format without formulae. This makes it difficult to follow the calculation process. A full spreadsheet with all computational links is needed.	**CAR#2**	
Step 4 – Common practice analysis (is to complement based on the information given in step1 and reinforce step2 / step3)				
B.5.25. Have other activities in the host country / region similar to the project activity been identified and are these activities appropri-ately analyzed by the PDD?	12	Yes, a complete list of all comparable LFG projects in Turkey was presented. In each case it was explained why they enjoyed more favourable conditions than the Mamak project.	☑	☑
B.5.26. If similar activities are occurring: Is it demonstrated that in spite of these similarities the project activity would not be implemented without the CDM / VER component?	12	Yes, it was shown that there are similarities from a technical point of view, but different framework conditions, i.e. less barriers.	☑	☑

CHECKLIST TOPIC / QUESTION	Ref.	COMMENTS	PPD in GSP	Final PDD
B.6. Emissions reductions				
B.7. Application of the monitoring methodology and description of the monitoring plan				
B.8. Date of completion of the application of the baseline study and monitoring methodology an the name of the responsible person(s)/entity(ies)				
C. Duration of the project activity / crediting period				
D. Environmental impacts				
E. Stakeholders' comments				
F. Annexes 1 – 4				

Table 2 Resolution of Corrective Action and Clarification Requests

Clarifications and corrective action requests by validation team	Ref. to table 1	Summary of project owner response	Validation team conclusion
Clarification Request #1 Documentation is needed to give evidence that VER-income was part of the financial plans during the concession discussions with the city of Ankara.	B.5.2	The concession discussion with the Greater Municipality was limited with the transfer of right of use of the Mamak Landfill area with no reference to the activities as proposed. However, there are proofs of evidence that even during the concession of the landfill, the project proponent has taken VERs into consideration for investment decision and VER income was part of the financial plans. These evidences do include: + Feasibility study offer from Evelop. + Correspondence with the Ministry of Environment and Forestry + Board decision on investment decision based on VER-revenues + Bank statements on emission reduction credits were taken into account All of the above mentioned documents have been provided to the DOE. **2. round response:** The agreement signed between ITC and Ankara Greater Municipality in 2002 does not refer to any commitment to the project activates resulting in GHG emission reductions mentioned in the PDD. The scope of the agreement is limited to the construction and operation	The CR has been resolved by additional explanations.
2. round request: Present documents and information are not sufficient to prove that ITC would not have taken over the management of Mamak waste fill without VER credit income. Table 1 in the			

PDD lists the "sequential phases of the proposed project". What is missing in this list is the signature of the contract between ITC and the city of Ankara in 2002. This contract is mentioned in more detail on page 29 ("other barriers"). The flow of actions is not clearly demonstrated. In 2002 a document was signed which is apparently no letter of intent but a final contract, combined even with a deposit to be paid to the city administration. One could argue that the take-over of the land fill has been settled by this contract. The "right of use" seems to have been granted by the 2002-contract. Dependency on GHG activities or CO2 certificates is not mentioned. Insofar no documents are available to proof the statement (p.29) "Although the project owner's decision to invest in the project was based on VER credits…..". What happens between 2002 and 2005 is not clear. Why was the process delayed, why was it re-started in 2005? No explanation is given for the line *"2005: The project participant ITC has been granted the "Right of Use" for 49 years"* in table 1. All other activities referring to VER credit income are in 2005 or later.		of "Mamak Transfer Station With Recycling" and rehabilitation of the area. Therefore this agreement should not be referred as a moment of decision to invest in the project activities described in the PDD. The agreement signed in 2002 states that the takeover of the landfill will be settled with the landfill area concession official report, which is referred as the actual transfer of the right to use. The actual transfer of use of right is settled in April 2005 with the official concession report. A scanned copy of this report has been already submitted to you on 01.02.2008 under the name "img081.jpg". As the latter document signed in 2005 is the actual transfer (could be also referred as the permit to use the landfill), this date has been taken into account in Table 1 of the PDD as an important milestone of the project. Before 2005 ITC had no right to use the landfill area. The delay between the agreement and the actual transfer is mostly related with bureaucracy. To summarize the above statements: Neither the agreement signed in 2002 nor the actual transfer of the landfill area does refer or oblige ITC to any activity resulting in GHG reduction and therefore cannot be considered as a moment of decision to invest on the project activities described in the PDD (LFG extraction, AD system, gasification). This agreement grants only the right of use of the landfill area to ITC. The responsibilities defined with this transfer are limited with construction and operation of "Mamak Transfer Station with Recycling". Independent from the scope of the mentioned agreement, ITC has taken into the carbon credits to develop the project activates from the beginning. One of the oldest evidence of proof that carbon credits were taken	

		into consideration is the Correspondence with the Ministry sent on April 2005. This is also the date that the right of use was officially transferred to ITC, which enabled ITC to send a request to the Ministry.	
Corrective Action Request #1 The project cost spreadsheet is not complete. The derivation of the IRR without VER has not been demonstrated.	B.5.24	An editable version of the financials has been submitted to the DOE. At line 38 of sheet "Income-statement" with and without VER scenarios could be defined by setting the value "0" or "1". The project IRRs could be tracked from line 107-108 and 109.	The CR has been resolved by additional documentation..
Corrective Action Request #2 The project cost spreadsheet is available in a "value only" format without formulae. This makes it difficult to follow the calculation process. A full spreadsheet with all computational links is needed. **2. round request:** in file TSKB-FINANCING191108.xls, page CO2, methane density [0,67] is set identical to CEF. Please explain.	B.5.24	An editable version of the financials has been submitted to the DOE. At line 38 of sheet "Income-statement" with and without VER scenarios could be defined by setting the value "0" or "1". The project IRRs could be tracked from line 107-108 and 109. **2. round respond:** The similarity on the values for CEF and methane density is coincidental. The methane density varies between 0.550 and 0.720 kg/m^3 in the literature and the project owner has estimated a value of 0.67 for financial calculations.	The spreadsheet was changed to reflect the different sources of the two values. The CR has been resolved by changes in an accompanying document.

Table 3 Unresolved Corrective Action and Clarification Requests (in case of denials)

Clarifications and / or corrective action requests by validation team	Id. of CAR/CR	Explanation of Conclusion for Denial
-	-	-

Annex 2: Information Reference List

Information Reference List V4

Project Title: Mamak Landfill Waste Management Project - Turkey
Date of Completion: 20.04.2009
Number of Pages: 2

Reference No.	Document or Type of Information
1.	On-site interview in Turkey with the project developer and the CDM-consultant at the Mamak land fill site at February 6 / 7, 2008, by auditing team of TÜV SÜD Industrie Service GmbH Validation team on-site: Dr. Thyge Weller — TÜV SÜD Industrie Service GmbH, Munich, Germany Dr. Nuri Mol — TÜV SÜD / Türkiye, Istanbul, Turkey Interviewed persons: Ali Kantur — ITC Invest Trading & Consulting A.G., Chairman Hans von Meiss — ITC Invest Trading & Consulting A.G., Vize Chairman Erdogan Göğen — ITC Invest Trading & Consulting A.G. Turkish Ankara Branch, general manager Tuğba Kirer — ITC Invest Trading & Consulting A.G. Turkish Ankara Branch, environmental manager Ömer Akyurek — OneCarbon Türkiye, Consultant
2.	Gold Standard Project Developer Manual for Voluntary Offset Projects (GS VER), v.5, may 2006
3.	Gold Standard Rules and Procedures; Updates and Clarifications (17.12.2007)
4.	Gold Standard Validation and Verification Manual for Voluntary Offset Projects , June 2007
5.	Gold Standard: answer to “retroactive registration request Mamak Landfill Gas Recovery and Utilization Project, Turkey” [also referred to as “GS pre-feasability assessment”] ; 01.08.2008; including One Carbon’s response
6.	ACM0001, version 8.1: Consolidated baseline and monitoring methodology for landfill gas project activities”
7.	AM0025, version 10: “Avoided emissions from organic waste through alternative waste treatment processes”
8.	Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site, V.4
9.	Tool to calculate the emission factor for an electricity system V 01.1
10.	Tool for the demonstration and assessment of additionality, V.5.2
11.	PDD v.1, 18.01.2008 [first submitted PDD to TÜV SÜD]
12.	PDD v.7, 20.04.2009 [final PDD]
13.	Timeline of the project
14.	[legal] ITC commercial registration
15.	[legal] ITC Turkish Ankara Branch commercial registration
16.	[legal] Signature authority for ITC Turkish Ankara Branch
17.	[on site audit] list of participants
18.	[on site audit] various photos
19.	[baseline] Ex-Ante Emission Reduction Calculation Mamak Waste Management Project 081008 (ACM001+AM0025) v.6.xls
20.	[baseline] fuel consumption TEIAS power plants (excel)

Information Reference List V4

Project Title: Mamak Landfill Waste Management Project - Turkey
Date of Completion: 20.04.2009
Number of Pages: 2

Reference No.	Document or Type of Information
21.	[baseline] avoided CH4 computationfuel
22.	[finance] TSKB-FINANCING, 19.11.08
23.	[finance] statement of four banks concerning ITC / VERs, August / Sept. 2007
24.	[VER decision] Transfer of right of use of landfill, February / April 2005
25.	[VER decision] Evelop-study „CARBON FINANCING FOR THE MAMAK LANDFILL PROJECT IN TURKEY", March 2005
26.	[VER decision] information of ministry [Turkish / English], 13.04.2005
27.	[VER decision] ITC board decision to use VER, 09.02.2006
28.	[SD] EIA exemption document, 26.12.2007
29.	[SD] Characterization of Mamak Municipal Solid Waste Dump Leachate as Surface Seepage and its effect on Imrahor Creek; Middle East Technical University; 2004
30.	[SD] list of employees with social security number, activity and former background
31.	[SD] Sustainable Development Matrix 2nd round, 31.08.2008
32.	[SD] training certificates, 2007
33.	[SD] nitrogen handling in ASKI sewage treatment plant, 22.12.2008
34.	[SD] local experts evaluation report, 16.12.2008
35.	[awareness campaign] Brief Summary on the Awareness Campaign
36.	[awareness campaign] Yenimahalle Municipality Package Waste Management Plan
37.	[preliminary GS consultation] Initial stakeholder consultation report, Nov. 2007
38.	[2nd round GS consultation] Signed delivery report
39.	[2nd round GS consultation] Second Round Consultation Report (English / Turkish), 03.09.2008
40.	[2nd round GS consultation] Questionnaire second round consultation
41.	[monitoring] monitoring setup diagram
42.	[monitoring] monitoring device list
43.	[monitoring] draft monitoring manual, November 2008
44.	Technical description of the anaerobic digester

Annex 3: Assessment Letter of Local Expert

Dr. Mol Consulting Services **Environment & Energy**			
Home-Office : **Onur Sitesi C2** **34810 Anadoluhisari** **BEYKOZ – ISTANBUL** **TURKEY**		**Date :.16.12.2008**	**pages :**
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to **Tel.** **email**	**Dr. Thyge Weller** **TÜV SÜD** **Carbon Management Service** **+ 49 89 57 91 0** **Thyge.Weller@tuev-sued.de**		
Subject	**Expert Assessment : PDD MAMAK Landfill Gas Utilization Project developed by ECOFYS**		

Dear Dr. Weller,
enclosed please find a summary evaluation report regarding the MAMAK LFG project developed by ECOFYS.

Please do not hesitate to contact me for any questions.

Yours sincerely

Nuri MOL

Nuri Mol

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To	**TÜV SÜD Industry Service GmbH** **Carbon Management Service**
Re	**MAMAK Landfill Waste Management Project – Turkey** **PDD Assessment by Local Expert**
Terms of Reference dated	**16 December 2008**

Local Expert's Background and Relevant Experience

Mr. Nuri Mol has over 20 years of experience in consultancy and implementation of Environmental Technologies and Renewable Energy applications. He has been working in Germany, Switzerland and Turkey for various industry sectors and was technical adviser to investors. He was Project Manager and Consultant on Environmental Technologies with the Swiss Company Kuenzler&Partner AG in Lucerne; Switzerland. He was advisor to the food industry, iron&steel works and state institutions. Nuri Mol is auditor for Carbon Management Services and Environmental Management Systems (e.g. ISO 14001). He is a specialist in Due Diligence processes (SEA, EIA). He holds his M.Sc degree in Chemical Engineering from the Technical University Berlin and his PhD degree from ETH Zurich. Before switching to industry, he worked as a research assistant at the ETH Zurich.

Conclusion:

MAMAK Landfill Waste Management Project, Turkey offers many beneficiaries:

- Investor (Electricity sale to the grid, GHG carbon credits)
- Municipality (Sanitation of wild landfill, image)
- Local Community (Employment, Sanitation)
- Ministries (Energy, Environment, Health/Sanitation, Education)

There are many wild landfills in Turkey, which pose a great risk to population, e.g. odour, hygiene, leachate, gas explosion. This project is the first landfill rehabilitation project with the intension of utilizing the CDM instruments, while reducing the Greenhouse Gas Emissions, while getting “minimal waste”. Therefore it is a good example for similar landfill rehabilitation projects in the country. With this strategy, the project participant intends to minimize “untreated waste” and consequently extend the operational lifetime of the landfill. Further, the EU regulation on waste treatment “Integrated Pollution Prevention and Control IPPC (96/61/EC)” will be applied.
As a new issue, the project participants has considered the CDM relevance of the project, even if Turkey has not yet signed the Kyoto Protocol and has no obligations in GHG emission reductions yet. Thus, voluntary **VER** carbon credits are considered in the financial project feasibility of this project.

1. Project Summary due to Clean Development Mechanisms:

The Mamak Landfill Waste Management Project, developed by the Turkish branch of “ITC Invest Trading & Consulting A.G.” (referred as ITC “project participant”) is located at the Mamak landfill site in Ankara, the capital city of Turkey. ITC has required the rights for 49 years operation of the landfill in 2005. The landfill receives the waste of approximately 3.6 million people of the Ankara Metropolitan Municipality. The average daily amount of fresh waste land filled is estimated at 3500 ton/day. The landfill currently holds approx. 20 million tons of municipal solid waste (MSW).
Following operational units are planned:

- Phase I+II : The existing waste disposed of since 1980 will be utilized by supplying the accumulated landfill gas with approx. 50% methane content (LFG) to a proper combustion/electrification system. Thus emissions of methane (GHG) will be prevented. The electricity will be supplied to the grid.
- Phase III: The fresh (or future) waste disposed of the landfill will be utilized by an anaerobic digester (AD). The biogas (GHG) will be supplied to the combustion/electrification units. The electricity will be supplied to the grid.
- Phase III: Further, the project participant intends to utilize a recycling unit with an integrated gasifier facility on the Mamak landfill.
- **Both recycling and gasification units are not included in the VER project boundary, according to the methodologies ACM001/AM 0025 and Gold Standard requirements.**
- The project participant considers the revenues from carbon credits as necessary for the implementation of the project Phase I+II. The income

gained by the successful operation of Phase I+II will later be used for the implementation of Phase III, Anaerobic Digester and Gasification units.

The steps in project implementation are summarized in Table 1 (PDD, chapter A.2). The actual installed capacity of gas engines is 11.2 MW, with 75 % of the landfill area covered. The final installed capacity for the LFG utilization is expected to be 16.8 MW (calculated value corresponds to 15 MW).
The data in chapter A.4.4 (PDD) indicates the estimated carbon emission reduction amounts for the crediting period.

Comment on issue 1:
The baseline scenario is identified and implemented according to the step1 of „Tool for demonstration and assessment of additionality, version 05), and the methodologies ACM0001 „Consolidated baseline methodology for landfill gas project activities, version 08.1“ and AM0025 „Avoided emissions from organic waste through alternative waste treatment process (Version 10). The VER project boundary includes landfill gas and biogas recovery and utilization units. Emission reductions within the boundary of this VER project are according to the methodologies. Thus, conservative approach of the baseline scenario is demonstrated.

The investment offers many advantages. First of all, the rehabilitation of a wild landfill has a positive effect on environment (hygiene, pollution). The energy (electricity and heat) generated from landfill gas and biogas adds value to economy and reduces the import of energy. The applied technology is a good reference and can be modelled by other municipalities, besides that the project is good for the images of Ankara municipality. By offering employment for approx. 200 personnel (skilled/unskilled), the project has a considerable contribution to the social improvement in the region. The project introduces 2 new issues. The public consultation in the pre-investment process is a new phenomenon in the country. The stakeholder consultation meetings contribute very much to public awareness and also to social integration. The issue of greenhouse gas emissions and climate change is also new in the public, so the exchange of information will contribute to more acceptance of mitigation measures in greenhouse gas emissions. Finally this project will make the ratification of Kyoto Protocol possible.

2. Contribution to sustainable development:

The project contributes significantly to the region’s sustainable development in the following ways:

- The project sets an example for waste management in Turkey. The project including capture and utilization of LFG, anaerobic digestion and gasification units allows technology transfer;
- The project results in the creation of local employment both during the construction and operational phase. Within the project, approx. 200 persons are employed, most of which are recruited from the surrounding settlement units;

- The project reduces the risk of methane explosion, release of bad odours (hydrogen sulfide), release of toxic gases, e.g. hydrogen sulfide. Furthermore by covering the landfill, the waste is no longer in sight, improving the visible surroundings
- A greenhouse area is constructed on the landfill. In the greenhouse various types of flowers, vegetables and fruits are grown. Besides the greenhouse a public café is to be constructed. This area will play an important role in raising awareness for the public in the field of recycling and waste management;
- The sorting facility and the recycling plant ensure that metals, plastics, aluminium, paper, nylon and glass are recycled.
- Taking into account that the project is first of its kind in Turkey and integration of an anaerobic digester and gasifier in a LFG capture and utilization system is not common worldwide, the total capacities indicated in Table1 might be amended during the crediting period. Furthermore, since the gasifier is a challenging technology it cannot be guaranteed that this part of the project will run successfully over the complete crediting period.
- A wastewater drainage system prevents the leakage of leachate from the landfill area into the nearby Imrahor creek.
- Utilisation of LFG not only reduces the emissions from the power generation sector in Turkey, it also reduces Turkey's dependency on imported electricity.
- The landfill is stabilised by covering the waste with soil originating from demolition sites. Otherwise land filled waste is now used for the construction of terraces to cover the landfill and prevent erosion.

According to the requirements of the Gold Standard, the project activity must be assessed against a matrix of sustainable development indicators. The contribution of the proposed activity to the sustainable development of Turkey is based on contribution to local and/or global environmental sustainability, social sustainability, economic & technological development. The detailed results from the sustainable development matrix with a total of +11 indicate conformity with the requirements.

Comment on issue 2:

An important effect of the project is the creation of new job opportunities, both for qualified and unqualified people. The project contributes clearly to an upgrade of employment around the village. Many scavengers are employed within project, having now better (hygiene, social security) working conditions than in the past. Totally approx. 200 persons are employed in the project.

The leachate with high ammonia-nitrogen load would pass to the surrounding soil and the neighboring Imrahor Creek and would have a negative effect on the environment. Contrary to the statement, this nitrogen load can be treated biologically (nitrification/denitrification process) onsite. The project participant decided for a draining system which collects the landfill leachate and transports this to Ankara Water and Sewerage Administration (ASKI) municipal wastewater treatment plant (WWTP).

The enclosed statement of ASKI makes clear, that there is no ammonia-nitrogen removal unit at the waste water treatment plant. Even so the management mentions 30-40% nitrogen removal efficiency, which should be verified. A partial nitrification in the aeration pool and denitrification in the sedimentation tank is likely, but without a proper process control. It is rather a dilution of the leachate by the high flow rates entering the treatment plant. For a reasonable removal of nitrogen load, the process has to be modeled and implemented by:

- Redesigning the existing WWTP of ASKI or
- A nitrogen removal plant to be built and operated onsite MAMAK Landfill

With such steps, the nitrogen discharge criteria would be achieved and an environmentally friendly solution offered. Therefore the score in the Sustainability Development Matrix may be (+1) instead (+2).

3. Environmental Impacts

No Environmental Impact Assessment (EIA) has been performed for the proposed VER project activity, as Mamak LFG Project is exempted from the necessity to conduct an Environmental Impact Assessment. However all the necessary permits have been obtained from related departments/organizations including the Ministry of Environment and Forestry? Also there have been several articles, press releases, statements. Most of the studies/reports were focusing on the leachate problem and the explosion danger of the unmanaged landfill area, which was the most significant and emphasized problem with regards to Mamak Landfill. The latest of these reports was the “Report on Characterization of Mamak Municipality Solid Waste Dump Site Leachate as Surface Seepage and Its Effect on Imrahor Creek”, which was published in 2004. The study proposes the derivation of leachate into the municipal wastewater treatment system of ASKI, Ankara.

The environmental issue was considered also in the Sustainable Indicator Matrix. The Sustainable Indicator Matrix (with a total score of +11) does not contain any negative scores, thus not require an EIA due the Gold Standard.
Further, the preliminary consultation process did not result in any negative comments on significant impacts of the proposed project on the environment. In order to ensure adequate consideration of all relevant impacts, stakeholders have been asked to address the impacts and their significance based on the Social Impacts Checklist of the ‘Gold Standard Voluntary Emission Reductions (VERs) Manual for Project Developers’.

Comment on issue 3:

As already mentioned, the project activity makes considerable contribution to the environmental protection. The project reduces the risk of methane explosion, release of bad odours (hydrogen sulfide), prevention of toxic gases, e.g. hydrogen sulfide. See also comments on issue 2.

4. Stakeholders Comments :

Preliminary Consultation:

As required by the Gold Standard, the preliminary consultation meeting was held on 26 November 2007 at the ITC management building located within the Mamak Landfill Area. The topic, date, place and hour of the public involvement and discussion meeting was announced in the **local newspaper**, **Son Söz**. Furthermore all stakeholders were sent invitations via e-mail. The Imrahor Village Muchtar did not have e-mail access, so he was invited orally by telephone and a written invitation was sent to his address. The copies of the invitation notice in the newspaper and the invitation sent to the muchtar are included in the preliminary consultation meeting report. Eighteen participants, including NGO representatives, academics, local and regional administrators, the Imrahor Village muchtar (village mayor), local people and consultants from OneCarbon, attended the meeting.

At the preliminary consultation, the participants were informed about the project by the representatives of ITC Invest Trading & Consulting AG Turkish Branch and project introduction documents in the local language were distributed to the participants. An introductory presentation of the project was performed by the General Manager Mr. Erdogan Gogen and Ms. Tugba Kırer. In the appendix of the handouts, there was a questionnaire about the effects of the project on environmental, economical and sustainable development. The questionnaire was based on Appendix E of the GS VER project developers manual.

Following the introduction of the project, the opinions and recommendations of the stakeholders were discussed. The minutes of the meeting were signed by the Imrahor Village Muchtar Mr. Irfan Yılmaz, the village headman, who participated as an independent external supervisor. Additionally, the participants signed the attendance list. Both the minutes and the signed attendance list are provided in the preliminary consultation meeting report.

Outcome Preliminary Consultation:

The general outcome of the preliminary consultation meeting was positive. The stakeholders stated that they are in favour of the project and underlined the significant contribution of the project to regions environment and stressed the importance of renewable and clean energy. The issues discussed/brought up by the stakeholders during the preliminary consultation meeting can be summarized as followed:

- The scope of the project and project activities
- Odour problem in the landfill area
- The use of electricity generated by the project
- Employment opportunities created by the proposed project
- The leachate management at the landfill
- Forestation activities
- The transportation of the wastes to the landfill
- Further plans regarding the landfill and the project activities
- Information on recycling centre.

Second Round Consultation:
Between 14.02.2008 and 05.04.2008 a second round consultation process has been undertaken by the project participant. However, due to changes in the Project Design Document, Gold Standard requested the process to be repeated. Therefore, the second round consultation process has been repeated between 03.09.2008 and 03.11.2008. During the second round consultation period, full documentation was made publicly available for two months starting from 03/09/2008 till 03/11/2008. These documents included:

a) Mamak Landfill, Waste Management Project PDD.
b) Preliminary Stakeholders Consultation Report including the non-technical summary of the project activity (in Turkish)
c) Questionnaire with regards to the project activity impact on environmental and sustainable development /Annex E of Gold Standard Manual version 1 (Turkish)
d) Sustainable Development Matrix (in Turkish)

The second round consultation process started with sending out the relevant documents, as listed above to the pre-defined stakeholders via e-mail and website of OneCarbon International BV. The documents were delivered by hand. The documents were sent on 3rd, 4th and 5th of September 2008 via e-mail and the stakeholders were kindly invited to ask questions or provide comments and feedback on the project. The muchtar, who is the official representative of the local community, was visited at the Imrahor Village and the documents including the SD Matrix has been delivered giving information and explanation on the documents invited to provide feedback. Also several hard copies of the documents were handed out to be delivered to the villagers. In general the locals are in favor of the project activity, specifically mentioning the employment opportunities and providing a solution to odour and leachate problems.
The mentioned documents have been made publicly available for download and comment by publishing on the web address http://www.onecarbon.com/index.php web page. The documents were available for download and comment between dates 03/09/2008 and 03/11/2008.To ensure an efficient participation of the stakeholders to the process, they were called by phone by the project owner and encouraged to provide feedback with regards to the documents provided during the second round consultation process.

Outcome Second Round Consultation:
In response to the invitations one stakeholder - Mr. Özgür Sakı on behalf of ÇEVKO (Environmental Protection Foundation) - has provided feedback by filling out the questionnaire on 20.10.2008. In general Mr. Özgür Sakı's feedback was positive. Important highlights of his feedback are summarized in the PDD and annex E GS. With regards to Gölbası private protection area, the project is not located in the mentioned protected area, however it is known that till 2006, Mamak wild landfill area had an adverse effect to Eymir Lake located within the protected area. The unmanaged leachate release had a polluting effect to the

ground and underground water that indirectly had impact to the basin which reaching Eymir Lake. The project has prevented the leakage problem of the solid waste landfill area by preventing the mixing of the leakage into the brook in Imrahor. The leakage water is collected through canals, directed to the ASKI water treatment system, and eliminated in a controlled way.

Evaluation of stakeholder comments:
The general view about the project was positive at the meeting. The participants did not express any negative view about the effects of the project on environmental and social development; on the contrary, they stated that power generation technologies based on waste are supported. One of the problems mentioned at the meeting was the odour problem around the landfill before the Project. The Mamak solid waste landfill, which had been used as an unmanaged landfill since 1980, was covered within the scope of the Project. As a result the odour problem has been greatly managed. Nonetheless, given the daily solid waste input, a certain degree of odour limited within the dump area can still be expected.

Another issue raised was where the generated electricity from the landfill will be used. The project participant stated that the electricity is delivered to the interconnected grid system of Turkey. It was emphasized that, with the project, the share of the power generated from renewable energy sources in Turkey's energy production would increase and the project sets an example. Finally, questions about the future developments regarding the Mamak Solid Waste Landfill Facility were asked. The project participant explained that the solid waste landfill had a capacity large enough to feed an installed capacity of around 40 MW and that feasibility studies, including those for anaerobic digestion and gasification technologies, were being carried out to determine how the landfill could be utilized most efficiently at the highest level. It was additionally stressed that all the necessary efforts were made to rearrange the Mamak Solid Waste Landfill for the best of the capital Ankara.

As no negative comments have been received during the consultation process that will require a change in the project design, no amendments have been made. However, taken into account the major positive impact of the project to the environment and sustainable development of the region, critical indicators have been included to the monitoring plan.

Comment on issue 4:
Both stakeholder consultation processes were announced publicly. The stakeholders contacted included representatives from NGOs:

- Chamber of Environmental Engineers, ÇMO
- Environmental Protection Foundation, ÇEVKO
- Middle East Technical University,
- Ankara University
- WWF Turkey

- Greenpeace Turkey
- REC Turkey
- Inhabitants of the surrounding villages

The issue of stakeholder consultation in pre-investment period is new in the public and the attendance is still rare. Nevertheless the invited stakeholders from NGOs for this project represent a competent profile. Concerning the environmental issues, the Assoc. of Environmental Engineers ÇMO, Environmental Protection Foundation ÇEVKO, Middle East Technical University are competent non-governmental insitutions and capable to evaluate the environmental effects. The issue of climate change and greenhouse gas (GHG) emissions are in the agenda of REC Turkey (WWF Turkey, Regional Environmental Center Turkey, Greenpeace Turkey), they are competent to comment on emission reduction issues. Even so, only representatives from universities, ÇEVKO and the Muchtar with some inhabitants attended the stakeholder meetings. The governmental institutions, e.g. Ankara Municipality, Ministry of Environment and Forestry, Ministry of Energy and natural Resources were presented very strongly.

Thus, a broad range of NGOs was approached and asked to attend the Stakeholder meetings and/or send their comments. Through 2 consultation rounds conducted with regard to the proposed project's impact to environment and sustainable development, it can be concluded that the project is considered as beneficial for the region. The stakeholders specifically emphasized the contribution of the project activity to the solution of the odour problem. A review of the stakeholder consultation reports and attendee lists indicate, that there was significant and active participation from local Community Council members and Village Chief (Muchtar), having detailed knowledge of the views of the villagers.