

CDM VALIDATION REPORT

**RENEWAL OF THE CREDITING PERIOD
OF THE PROJECT ACTIVITY:**

**DURBAN LANDFILL-GAS-TO-ELECTRICITY
PROJECT – MARIANNHILL AND LA MERCY
LANDFILLS**

AENOR REFERENCE: 2013/018/CDM/28

VERSION: 02

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannhill and La Mercy Landfills"

Validation Report:	AENOR Reference n°:	Version of this report:	Date:	
	2013/018/CDM/28	02	31/01/2014	
PDD:	Title:	GSC publication date:	Comments received:	
	Durban Landfill-Gas-to-Electricity Project – Mariannhill and La Mercy landfills.	-	<input type="checkbox"/> Yes* <input checked="" type="checkbox"/> No	
Parties involved:	Host Party:	Other involved Parties:		
	South Africa	Netherlands, Finland, Germany, Japan, Norway, United Kingdom of Great Britain and Northern Ireland, France, Sweden.		
Project Participant(s):	In host Party:	In other involved Parties:		
	Durban Solid Waste (DSW). eThekweni Municipality	<p>Netherlands: Netherlands' Ministry of Infrastructure and the Environment (IenM); Electrabel S.A.; Netherlands' Ministry of Economic Affairs, Agriculture and Innovation (EL&I); International Bank for Reconstruction and Development (IBRD) as Trustee of the Prototype Carbon Fund (PCF);</p> <p>Finland: Government of Finland - Ministry of Foreign Affairs of Finland; Fortum Corporation; International Bank for Reconstruction and Development (IBRD) as Trustee of the Prototype Carbon Fund (PCF);</p> <p>Germany: RWE Power AG;</p> <p>Japan: Chubu Electric Power Co. Inc; The Chugoku Electric Power Co. Inc; Kyushu Electric Power Co. Inc.; Mitsubishi Corporation; Tohoku Electric Power Co. Inc.; The Tokyo Electric Power Co. Inc.; Shikoku Electric Power Co. Inc; Japan International Cooperation Agency (JICA); Mitsui & Co. Ltd.;</p> <p>Norway: Government of Norway – Ministry of Foreign Affairs; Norsk Hydro ASA; Statoil ASA;</p> <p>United Kingdom of Great Britain and Northern Island: Deutsche Bank AG; BP Alternative Energy International Ltd;</p> <p>France: GDF SUEZ;</p> <p>Sweden: Government of Sweden - Swedish Energy Agency;</p> <p>International Bank for Reconstruction and Development (IBRD) as Trustee of the Prototype Carbon Fund (PCF)</p>		
Size of the project activity:	<input type="checkbox"/> Small scale <input checked="" type="checkbox"/> Large scale			
Applied methodology/ies:	Title:	Code:	N° version	Scope:
	"Flaring or use of landfill gas"	ACM0001	15.0.0	13
Applied tools:	Title:	Version:		
	"Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period"	03.0.1		

* The comments are detailed in Section 4 of this Validation Report

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	Title:	Version:	
	"Emissions from solid waste disposal sites"	06.0.1	
	Title:	Version:	
	"Project emissions from flaring"	02.0.0	
	Title:	Version:	
	"Tool to calculate baseline, project and/or leakage emissions from electricity consumption"	1	
	Title:	Version:	
	Standardized baseline "Grid emission factor for the Southern African power pool"	01	
	Title:	Version:	
	"Tool to determine the mass flow of a greenhouse gas in a gaseous stream"	02.0.0	
Emission reductions (ER):		PDD sent for notification of renewal the crediting period:	Final PDD:
<input checked="" type="checkbox"/> Annual average of the ER (tCO₂e)		63,091	63,887
<input type="checkbox"/> Total ER (tCO₂e)			
Previous versions of this document:		Version:	Date:
		1	16/12/2013
		2	
		3	
		4	
Report prepared by:	Climate Change Unit. AENOR		

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Abbreviations

AENOR	Spanish Association for Standardisation and Certification
ACM0001 version 15.0.0	"Flaring or use of landfill gas"
CAR	Corrective action request
CDM	Clean development mechanism
CER	Certified emission reductions
CL	Clarification
CMP	Conference of the Parties serving as the Meeting of the Parties to the Kyoto Protocol
CO ₂	Carbon dioxide
DNA	Designated National Authority
DOE	Designated Operational Entity
ER	Emissions reduction
FAR	Forward action request
GHG	Greenhouse gases
IBRD	International Bank for Reconstruction and Development
IPCC	Intergovernmental Panel on Climate Change
MoC	Modalities of communication
MP	Monitoring Plan
MR	Monitoring Report
PDD	Project design document
PP	Project participant
tCO _{2eq}	Carbon dioxide equivalent tonnes
UNFCCC	United Nations Framework Convention for Climate Change
VVS	Validation and Verification Standard version 05.0

Table 1: Abbreviations

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1 INTRODUCTION

This validation concerns a project implemented by Durban Solid Waste (DSW), in South Africa to reduce emissions of CO₂ by generating renewable energy coming from the methane generated by the decay of organic waste from the Mariannhill and La Mercy Landfills in Durban. The objectives of the validation exercise are to confirm that the original baseline is still valid and has been updated taking into account the new applicable data, the project meets the necessary CDM criteria, the project follows the latest version of the approved methodology ACM0001, and that the proposals presented in the PDD will lead to a realistic determination of the emissions reductions.

1.1 Objective

The International Bank for Reconstruction and Development (IBRD) as trustee of the Prototype Carbon Fund (PCF) has commissioned AENOR to perform a validation of the renewal of the crediting period of the project **"Durban Landfill-Gas-to-Electricity Project – Mariannhill and La Mercy Landfills"**. The purpose of a revalidation is to have an independent third party assessment of the project in order to request the renewal of the project's crediting period. This validation opinion summarizes the findings of the revalidation of the project, performed on the basis of UNFCCC criteria for the CDM, as well as criteria given to provide for consistent operation, monitoring and reporting. UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the CDM modalities and procedures and the subsequent decisions by the CDM Executive Board, in particular the CDM Project Cycle Procedure version 05.0, the CDM Project Standard version 05.0 and the tool "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" version 03.0.1.

"Durban Landfill-Gas-to-Electricity Project – Mariannhill and La Mercy Landfills" was registered with reference number 0545 on 15/12/2006 as a CDM project with a renewable 7 years crediting period. The project's first crediting period was from 15/12/2006 to 14/12/2013. The second crediting period corresponds to the period from 15/12/2013 to 14/12/2020.

1.2 Scope

The scope of the validation is to assess all the aspects described in the CDM Project Standard version 05.0 related to the purpose of renewal of the crediting period project relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.

The following documents were reviewed as part of the scope of the activity:

- PDDs including baseline study and monitoring plan. /1//2/
- Approved Methodology: ACM0001 (Version. 15.0.0)/3/

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- CDM Project Cycle Procedure version 05.0. /4/
- CDM Project Standard version 05.0. /5/
- Tool "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" version 03.0.1"./6/
- Tool "Emissions from solid waste disposal sites" version 06.0.1 /7/
- Tool "Project emissions from flaring" version 2.0.0. /8/
- Tool to calculate baseline, project and/or leakage emissions from electricity consumption version 1. /9/
- Standardized baseline "Grid emission factor for the Southern African power pool" version 01.0 /10/
- Tool to determine the mass flow of a greenhouse gas in a gaseous stream. version 02.0.0 /11/
- CDM Validation and Verification Standard (Version 05.0) /12/

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. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. AENOR, based on the Specific Instruction for Validation, Verification and Certification of Clean Development Mechanism (CDM) Project Activities (IE/DTC/039), and the Validation and Verification Standard, has used a risk-based approach in the validation, focusing on the identification of significant risks for project implementation and the generation of CERs.

The validation is not meant to provide any consultancy services to the Client. However, stated requests for clarifications and/or corrective actions may provide input for improvement of the PDD.

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2 METHODOLOGY

The revalidation assessment aims at being a risk-based approach and is based on the methodology developed in the Validation and Verification Standard, an initiative of designated and applicant entities, which aims to harmonize the approach and quality of all such assessments.

The validation of the renewal of the crediting period began in June 2013 and was concluded in January 2014. The revalidation was performed in the manner of an audit, where, a desk review of the PDD was undertaken against the latest version of the approved methodology and CDM and other relevant criteria applying to the project.

In order to ensure transparency, a validation protocol was customized for the project, according to Specific Instruction (IE/DTC/039). The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria.

The sequence of the validation is given in the table below:

Topic	Date
Notification by the PPs of their intention to request a renewal of crediting period of the registered CDM project activity by submitting an updated PDD	11/06/2013
Validation Protocol - Version 01.	12/07/2013
Final Validation Report	31/01/2014

Table 2: Sequence of the main validation activities

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2.1 Appointment of team members and technical reviewers

The list of involved personnel and the qualification status are summarized in the table below:

Name	Qualification	
	Position in the team	Technical areas
Alfonso Medrano Gutiérrez	Chief Validator	13.1
Pablo Taboada Utrera	Validator	13.1
José Luis Fuentes Pérez	Technical Reviewer	13.1

Table 3: List of the personnel involved.

Technical areas (TA) mentioned above correspond to the following:

TA code	Technical area
TA 1.1	Thermal energy generation from fossil fuels and biomass including thermal electricity from solar (COMPLEX);
TA 1.2	Energy generation from renewable energy sources.
TA 2.1	Electricity distribution;
TA 2.2	Heat distribution
TA 3.1	Energy demand
TA 4. 1	Cement sector (COMPLEX);
TA 4.2	Aluminum (COMPLEX);
TA 4.3	Iron and steel (COMPLEX);
TA 4.4	Refinery (COMPLEX)
TA 5.1	Chemical process industries (COMPLEX).
TA 6.1	Construction.
TA 7.1	Transport.
TA 8.1	Mining and mineral processes, excluding those included in TA 8.2 below;
TA 8.2	Oil and gas industry, coal mine methane recovery and use (COMPLEX).
TA 9.1	Metal production.
TA 10.1	Mining and mineral processes, excluding those included in TA 10.2 below;

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TA 10.2	Oil and gas industry, coal mine methane recovery and use (COMPLEX).
TA 11.1	Chemical process industries (COMPLEX);
TA 11.2	GHG capture and destruction.
TA 12.1	Chemical process industries (COMPLEX).
TA 13.1	Waste handling and disposal;
TA 13.2	Animal waste management.
TA 14.1	Forestry
TA 15.1	Agriculture
TA 15.2	Animal waste management.

Table 4: List of Technical Areas

2.2 Document review

The project design document submitted by the PP was reviewed against the approved methodology and against CDM and other relevant criteria. Additional background documents related to the project design and baseline were also requested. These documents were also reviewed.

To address the corrective actions and clarification requests that arose from the desk review, the PP revised the project design document several times before developing and submitting a final version.

The final validation findings are presented in this report related to the project as described in the project design document version 03.

The reviewed documents used during the entire validation process are detailed in the Chapter 6 of this report.

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2.3 Follow-up actions

Interviewed organization Person/Position	Interview topics
Project Participant INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT (IBRD) AS TRUSTEE OF THE PROTOTYPE CARBON FUND Patricia Marcos Huidobro. Carbon Finance Specialist.	✓ Updating Methodology issues. ✓ Baseline determination: waste management, waste reception, gas generation, electricity production, OM and BM, efficiencies, most recent data... ✓ Updating monitoring plan

Table 5. Interview topics

2.4 Findings

As an outcome of the validation process, the team can raise different types of findings according to the CDM Validation and Verification Standard

A Clarification Request (CL) is raised if information is insufficient or not clear enough to determine whether the applicable CDM requirements have been met.

Where a non-conformance arises the validation team shall raise a Corrective Action Request (CAR). A CAR is issued, where:

- The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
- The CDM requirements have not been met;
- There is a risk that emission reductions cannot be monitored or calculated.

Failure to address a CL may result in a CAR. Information or clarifications provided as a result of a CL may also lead to a CAR.

A Forward Action Request (FAR) is raised during validation to highlight issues related to project implementation that require review during the first verification of the project activity. FARs shall not relate to the CDM requirements for registration.

The project participants were requested to address all validation findings and finally provided the validation team with sufficient evidence to determine that the applicable CDM requirements have been

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met. The project participant modified the initial PDD to resolve the validation team concerns and resubmitted a final version of the PDD. AENOR has prepared this report based on the final PDD.

All the validation findings are summarized in section 3 below and documented in more detail in section 6 and in the validation protocol included in Annex 1.

2.5 Internal Quality Control

Following the completion of the assessment process by the validation team, all documentation undergoes an internal quality control through a technical review before submission to the CDM-EB. The Technical reviewer is a qualified member of AENOR, independent from the team that carried out the validation of the project activity. The technical reviewer or the team appointed for the technical review are qualified in the technical area(s) and sectoral scope(s) of the project activity.

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3 VALIDATION FINDINGS

3.1 Approval and Participation

In accordance with paragraph 247 of the CDM Project Cycle Procedure version 05.0, for the purpose of renewal of the crediting period no new Letters of Approval are required, and all the documents provided at the moment of requesting registration and during the first crediting period are still valid.

AENOR team has verified by consulting the UNFCCC website that all Project Participants obtained the corresponding Letter of Approval and the Authorization of all the parties involved.

3.2 Project Design Document

The PDD of "Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills" has been prepared in accordance with latest template (version 04.1) and the Guidelines for completing the CDM-PDD (version 01.0).

The initial version of the PDD for the renewal of the crediting period of the project /1/ was sent by the PPs, according to paragraph 244 of the CDM Project Cycle Procedure, to the UNFCCC Secretariat within the notification of the intention to request the renewal of crediting period of the project activity on 11/06/2013. The UNFCCC Secretariat acknowledged that notification on 12/06/2013.

Due to the clarifications and corrective actions requested during the validation process, the Project Participant has made a final version of the PDD /2/ dated on 28/01/2014, which includes all issues raised to the PP either corrected or clarified.

The latest version of the PDD is in compliance with relevant forms and guidance stated by the CDM documentation.

3.3 Project description

Since the current validation process is for the renewal of the crediting period of a project already registered, the assessment did not focus on the project design. The project activity is already implemented and it is generating CERs.

Regarding project description, it is important to mention that La Mercy site, due to the operational difficulties in extracting the landfill gas, the project activity did not continue extracting gas and was decommissioned in June 2009. A Notification of Changes (NoC) to the PDD was submitted and approved by CDM EB on its 65th meeting on 25/11/2011. Therefore, the project for the second and third crediting periods will focus on the gas extraction at the Mariannahill landfill.

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3.4 Baseline methodology

The project was originally registered based on the methodology AM0010 "Landfill gas capture and electricity generation projects where landfill gas capture is not mandated by law" – Version 01 which was withdrawn after the registration of the project activity, and it was replaced by the methodology ACM0001 "Flaring or use of Landfill Gas".

In this case, according to paragraph 230 of the CDM Project Standard version 05.0 if a baseline and monitoring methodology applied in the original CDM-PDD was withdrawn after the registration of the CDM project activity and replaced by a consolidated methodology, the latest approved version of the respective consolidated methodology shall be used.

AENOR confirms that the latest version, at the time of requesting the renewal of the crediting period, of the methodology ACM0001, version 15.0.0 as well as the applicable tools stated in it, have been correctly applied to the project activity.

The applicability of the methodology was re-assessed based on the knowledge of the characteristics and operation of the project since its registration. ACM0001-"Flaring or use of Landfill Gas". - Version 15.0.0" is applicable to landfill gas capture project activities which:

- (a) Install a new LFG capture system in a new or existing SWDS, where no LFG capture system was installed prior to the implementation of the project activity

AENOR confirms that the project meets this criterion because it has been verified that the landfill gas capture was not mandated by law prior to the implementation of the project activity neither at the time of the renewal of the crediting period under the new regulation and also because the project activity, implied by the installation of a new LFG capture system in the existing SWDS.

- (b) Make an investment into an existing LFG capture system to increase the recovery rate or change the use of the captured LFG, provided that:
 - (i) The captured LFG was vented or flared and not used prior to the implementation of the project activity; and
 - (ii) In the case of an existing active LFG capture system for which the amount of LFG cannot be collected separately from the project system after the implementation of the project activity and its efficiency is not impacted on by the project system: historical data on the amount of LFG capture and flared is available.

AENOR confirms that the project meets criteria (i) and (ii) because the LFG was only vented at Mariannhill site and not flared, neither used prior to the implementation of the project activity and the project activity will capture the LFG to be flared or used; and the LFG capture system in place at the Mariannhill site with only six wells was a passive system so there was not an existing active LFG capture system in place.

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- (c) Flare the LFG and/or use the captured LFG in any (combination) of the following ways:
- (i) Generating electricity;
 - (ii) Generating heat in a boiler, air heater or kiln (brick firing only) or glass melting furnace; and/or
 - (iii) Supplying the LFG to consumers through a natural gas distribution network.
 - (iv) Supplying compressed/liquefied LFG to consumers using trucks

AENOR confirms that the project meets criteria (i), because the project activity at Mariannhill generates electricity; the project will not use the captured LFG to generate heat in a boiler, air heater nor kiln; and the project activity will not supply the LFG to consumers through a natural gas distribution network or compressed/liquefied LFG to consumers using trucks either.

- (d) Do not reduce the amount of organic waste that would be recycled in the absence of the project activity.

AENOR confirms that the waste entering to the landfill is not managed through recycling; it is landfilled as it arrives to the landfill. The project will not have any effect on the waste entering to the landfill. The project activity at Mariannhill will not reduce the amount of organic waste that would have been recycled in the absence of the project activity.

In conclusion, AENOR confirms that the project applies the criteria stated in the methodology ACM0001 version 15.0.0 and also the criteria stated in the applied tools included in it.

3.5 Project boundary

The project boundary remains the same as the one described for the first crediting period and it is in accordance with the applied methodology: *"the site where the LFG is captured and where the LFG is flared or used (in this case flared, and used by the power plant)"*.

All the emission sources and GHGs related included and excluded from the project boundary are clearly identified and described in a complete manner in the latest version of the PDD. It also includes a flow diagram of the project boundary presenting the equipment, systems and flows of mass and energy. In particular, it is indicated in the diagram the emission sources and GHGs included in the project boundary and the data and parameters to be monitored taking into account the project boundary as per methodology ACM0001 "Flaring or use of landfill gas" (version 15.0.0),

The validation team states that the identified boundary and the selected sources and gases are correctly justified by the project proponent in the PDD, and they are in accordance with the methodology ACM0001 version 15.0.0.

3.6 Validity of the original baseline and its update at the renewal of the crediting period

3.6.1 Assessment of the validity of the current baseline for the next crediting period

The validity of the current baseline has been assessed using the following sub-steps in accordance with the tool:

- Step 1.1 – Assess compliance of the current baseline with relevant mandatory national and/or sectoral policies.

At the time when the project activity was registered, on 15/12/2006, the "Minimum Requirements for Waste Disposal by Landfill" (3rd Edition, 2005)/13/ legislation issued by the South African Department of Water Affairs & Forestry (DWAF) was applicable. That legislation required all landfill operators to monitor CO₂ and CH₄ concentrations at the surface, although it did not specify the landfill gas capture to be installed. Therefore, the legislation applicable at the submission for validation of the project activity did not require landfills to collect nor utilize the gas generated hence it was not mandated by regulations.

At the time of the renewal of the crediting period, the new waste management legal regime in South Africa is delimited by the National Environmental Management: Waste Act No. 59 of 2008 (NEM:WA) /14/, which was assented on 06/03/2009 as a regulation (NEM: WA Regulations).

AENOR has verified through the evidence provided /13//14//15/ that the new legal regime in South Africa (NEM: WA) does not introduce into South African legislation the requirement for landfill gas to be captured and flared. Therefore, the project participant is still not required to capture and flare LFG at the start of the second crediting period by any mandatory law.

AENOR confirms that the current baseline complies with all relevant mandatory national and/or sectorial policies which have come into effect after the submission of the project activity for validation and are applicable at the time of requesting renewal of the crediting period.

- Step 1.2 - Assess the impact of circumstances.

Since the registration of the project activity landfill gas management in South Africa continues to be limited to passive venting of gas, as stated in the report "Minimum Requirements for Waste Disposal by landfill" published in 2005 by the Department of Water Affairs and Forestry /13/. As it is indicated by the report, the prevailing practice in South Africa is either to vent LFG to ensure that the concentration of methane in any particular area of the landfill remains below hazardous levels, or not to install any kind of management and capturing system.

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The Department of Minerals and Energy of South Africa conducted a detailed study for assessment of potential landfill gas capture and utilization sites in the country as part of their Capacity Building in Energy efficiency and renewable energy initiative.

AENOR has validated through the study “Landfill Gas Resources for Power Generation in South Africa” /16/ that only 20 landfill sites, located in metropolitan or municipal areas, of the 453 identified in the study landfill sites have the potential to be a power generation project.

AENOR has validated also, through and assessment of the South African CDM Projects Portfolio dated on February 2013 /17/, that those landfill sites that had been identified as having the potential to generate energy and are being developed under the CDM. Therefore, the market conditions for landfill gas collection and use outside of the CDM, continue to be the same as when the project was first presented for validation. Furthermore, as it has been explained above, there have not been any updates that have come into effect after the submission of the project activity for validation with respect of the requirement to capture and flare LFG at the time of renewal the crediting period by any mandatory law, then the conditions used to determine the baseline emissions in the previous crediting period are still valid.

AENOR confirms that the market conditions, as well as the prevailing practice and the availability of alternative technologies to generate energy, continue to be the same as those that applied for the first crediting period. Therefore, there is no impact of existing circumstances, at the time of the requesting the renewal of the crediting period, on the current baseline emissions.

- Step 1.3 - Assess whether the continuation of the use of current baseline equipment(s) or an investment is the most likely scenario for the crediting period for which renewal is requested.

According to the tool “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” version 03.0.1” this sub-step is applicable only if the baseline scenario identified at the time of validation of the project activity was the continuation of use of the current equipment(s) without any investment and, the projects proponents or third party (or parties) would undertake an investment later due, for example, to the end of the technical lifetime of the equipment(s) before the end of the crediting period or the availability of a new technology.

AENOR has validated that this step is not applicable to this project activity because that was not the baseline scenario identified for this project activity. There was no running equipment at the time and no investment was to be undertaken later on.

- Step 1.4 – Assessment of the validity of the data and parameters

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As it has been explained in section 3.4 of this report, the project was originally registered based on the methodology AM0010 "Landfill gas capture and electricity generation projects where landfill gas capture is not mandated by law" – Version 01 which was withdrawn after the registration of the project activity, and it was replaced by the methodology ACM0001 "Flaring or use of Landfill Gas". Due to the new criteria stated in the new methodology applied, some parameters used in ex-ante estimation of ERs are not valid anymore because the calculation method has changed. Therefore, AENOR confirms that the current baseline needs to be updated for the subsequent crediting period.

3.6.2 Update the current baseline and the data and parameters

- Step 2.1 – Update the current baseline

The baseline emissions for the second crediting period have been updated, without reassessing the baseline scenario, based on the approved version of the methodology ACM0001, version 15.0.0. This update was applied in the context of the sectoral policies and circumstances that are applicable at the time of requesting for renewal of the crediting period.

- Step 2.2 – Update the data and parameters

As it has been explained above in step 1.4 and in section 3.4, the methodology used at the time of the project registration was replaced by the latest version of ACM0001 at the start of the renewal process, so there are some parameters determined in the beginning of the first crediting period that they are not valid anymore, and some new parameters have to be monitored according to the new methodology applied.

AENOR confirms that all the parameters included in the latest version of the PDD and involved in the ERs calculations have been properly updated in accordance with the applied methodology ACM0001 version 15.0.0. For more details, please see section 3.10 of this report.

3.7 Additionality

According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology. AENOR confirms that in the updated PDD, section dedicated to Additionality remains the same as in the PDD registered for the first crediting period.

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3.8 Algorithms and/or formulae used to determine emission reductions

According to the methodology ACM0001 version 15.0.0, the current baseline has been updated for the second crediting period using the following tools:

- Tool “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” version 03.0.1”.
- Tool “Emissions from solid waste disposal sites” version 06.0.1
- Tool “Project emissions from flaring” version 2.0.0.
- “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” version 1
- Standardized baseline “Grid emission factor for the Southern African power pool” version 01.0
- “Tool to determine the mass flow of a greenhouse gas in a gaseous stream” version 02.0.0

AENOR confirms that all the formulae and algorithms used to determine the ERs have been applied according to the methodology ACM0001 version 15.0.0, and the tools cited above. Other inputs used for the emission reduction projection, as well as default values available in the methodology applied were verified to be correct.

AENOR has validated that all the data and parameters used for the ex ante calculation have been provided by truthful and appropriate sources. Data included in the latest version of the PDD and its annexed spreadsheet have been verified against the evidence provided to the DOE team and are deemed correct. The assessment of all data and parameters involved in the ERs determination is carried out in sections 3.10.1 and 3.10.2 of this report.

Baseline Emissions

The PDD clearly states all the equations used in calculating baseline emissions. According to the applied methodology, the Baseline Emissions are calculated according to the following formula:

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

Where:

- | | | |
|---------------|---|---|
| BE_y | = | Baseline emissions in year y (t CO ₂ e/yr) |
| $BE_{CH_4,y}$ | = | Baseline emissions of methane from the SWDS in year y (t CO ₂ e/yr) |
| $BE_{EC,y}$ | = | Baseline emissions associated with electricity generation in year y (t CO ₂ /yr) |
| $BE_{HG,y}$ | = | Baseline emissions associated with heat generation in year y (t CO ₂ /yr) |
| $BE_{NG,y}$ | = | Baseline emissions associated with natural gas use in year y (t CO ₂ /yr) |

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AENOR has validated that the project will not generate heat and will not use LFG in natural gas distribution either, then the baseline emissions associated with those uses are correctly considered to be zero. ($BE_{HG,y} = 0$; $BE_{NG,y} = 0$). Therefore, in this project, the formula to calculate Baseline Emissions is simplified as follows:

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

Baseline emissions of methane ($BE_{CH_4,y}$) from the SWDS are correctly determined based on the amount of methane that is captured under the project activity and the amount that would be captured and destroyed in the baseline (such as due to regulations) according to the formula:

$$BE_{CH_4,y} = (1 - OX_{top_layer}) \times (F_{CH_4,PJ,y} - F_{CH_4,BL,y}) \times GWP_{CH_4}$$

Where:

$BE_{CH_4,y}$	=	Baseline emissions of LFG from the SWDS in year y (t CO ₂ e/yr)
OX_{top_layer}	=	Fraction of methane in the LFG that would be oxidized in the top layer of the SWDS in the baseline (dimensionless)
$F_{CH_4,PJ,y}$	=	Amount of methane in the LFG which is flared and/or used in the project activity in year y (t CH ₄ /yr)
$F_{CH_4,BL,y}$	=	Amount of methane in the LFG that would be flared in the baseline in year y (t CH ₄ /yr)
GWP_{CH_4}	=	Global warming potential of CH ₄ (t CO ₂ e/t CH ₄)

Ex-post Determination of $F_{CH_4,PJ,y}$

AENOR has validated that according to the applied methodology, $F_{CH_4,PJ,y}$ will be determined ex post as the sum of the quantities of methane flared and used in power plant(s), boiler(s), air heater(s), glass melting furnace(s), kiln(s) and natural gas distribution network, as follows:

$$F_{CH_4,PJ,y} = F_{CH_4,flared,y} + F_{CH_4,EL,y} + F_{CH_4,HG,y} + F_{CH_4,NG,y}$$

Where:

$F_{CH_4,PJ,y}$	=	Amount of methane in the LFG which is flared and/or used in the project activity in year y (t CH ₄ /yr)
$F_{CH_4,flared,y}$	=	Amount of methane in the LFG which is destroyed by flaring in year y (t CH ₄ /yr)
$F_{CH_4,EL,y}$	=	Amount of methane in the LFG which is used for electricity generation in year y (t CH ₄ /yr)
$F_{CH_4,HG,y}$	=	Amount of methane in the LFG which is used for heat generation in year y (t CH ₄ /yr)
$F_{CH_4,NG,y}$	=	Amount of methane in the LFG which is sent to the natural gas distribution network in year y (t CH ₄ /yr)

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As it has been explained above, since the project activity includes neither heat generation nor use of landfill gas as natural gas, the equation above has been simplified to:

$$F_{CH_4,PJ,y} = F_{CH_4,flared,y} + F_{CH_4,EL,y}$$

Calculation of both paramters, $F_{CH_4,flared,y}$ and $F_{CH_4,EL,y}$ is clearly and correctly determined in the PDD according to the formulae stated in the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream” version 2.0.0.

Regarding the determination of the Flare Efficiency, taking into account that the equipment installed is an enclosed flare, a default value for flare efficiency will be used to calculate the amount of methane destroyed by flaring ex post as per Option A of “Project emissions from flaring” version 02.0.0. AENOR has validated the flare height installed in the project activity is between 10 and two times the diameter of the enclosure. Therefore according to the tool “Project emissions from flaring” version 02.0.0 and taking into account that the project is using a low height flare, the flare efficiency will be adjusted, as a conservative approach, by subtracting 0.1 from the default value of 90% for the efficiency of the flare. Therefore, a value of 80% will be used for the project activity. AENOR confirms that this assumption is conservative and appropriate according to the requirements of the applied tool.

Ex ante estimation of $F_{CH_4,PJ,y}$

AENOR has validated that according to the applied methodology, $F_{CH_4,PJ,y}$ has been determined ex ante in the PDD to estimate the baseline emission of methane from the SWDS in order to calculate the emission reductions of the project activity. It is determined as follows:

$$F_{CH_4,PJ,y} = \eta_{PJ} \times BE_{CH_4,SWDS,y} / GWP_{CH_4}$$

Where:

- $F_{CH_4,PJ,y}$ = Amount of methane in the LFG which is flared and/or used in the project activity in year y (t CH₄/yr)
- $BE_{CH_4,SWDS,y}$ = Amount of methane in the LFG that is generated from the SWDS in the baseline scenario in year y (t CO₂e/yr)
- η_{PJ} = Efficiency of the LFG capture system that will be installed in the project activity
- GWP_{CH_4} = Global warming potential of CH₄ (t CO₂e/t CH₄)

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AENOR confirms that $BE_{CH_4,SWDS,y}$ is determined in the PDD using the methodological tool “Emissions from solid waste disposal sites” version 06.0.1 according to the formula:

$$BE_{CH_4,SWDS,y} = \varphi * (1-f) * GWP_{CH_4} * (1-OX) * 16/12 * F * DOC_f * MCF * \sum_x \sum_j W_{j,x} * DOC_j * e^{-kj*(y-x)} * (1 - e^{-kj})$$

Where:

$BE_{CH_4,SWDS,y}$ =	Methane emissions avoided during the year y from preventing waste disposal at the solid waste disposal site (SWDS) during the period from the start of the second crediting period to the end of the year y (tCO ₂ e).
φ =	Model correction factor to account for model uncertainties.
f =	Fraction of methane captured at the SWDS and flared, combusted or used in another manner.
GWP_{CH_4} =	Global Warming Potential (GWP) of methane, valid for the relevant commitment period.
OX =	Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste).
F =	Fraction of methane in the SWDS gas (volume fraction).
DOC_f =	Fraction of degradable organic carbon (DOC) that can decompose.
MCF =	Methane correction factor.
$W_{j,x}$ =	Amount of organic waste type j disposed in the SWDS in the year x (tons)
DOC_j =	Fraction of degradable organic carbon (by weight) in the waste type j.
kj =	Decay rate for the waste type j.
j =	Waste type category (index).
x =	Year during the crediting period: x runs from the first year of the second crediting period (x = 1) to the year y for which avoided emissions are calculated (x = y).
y =	Year for which methane emissions are calculated.

Regarding the amount of organic waste type disposed in the SWDS, AENOR has validated through the evidence [23]/[26] that only one type of waste is disposed in the landfill site (in this case municipal solid waste) and therefore the assumption $W_{j,x} = W_x$ and $W_{j,i} = W_i$ is deemed appropriate and a waste sampling is not required. AENOR confirms that Application A of the Methodological Tool “Emissions from solid waste disposal sites.” (Version 06.0.1) has been correctly selected since the administration of the landfill had the specific information on historic information on amounts, composition and origin of the waste in SWDS administration documents. AENOR confirms that the use of such data as the more reliable data is an appropriate and conservative assumption for the ex ante ERs calculation.

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All the values of the parameters within this formula have been assessed by AENOR and are described in section 3.10 of this report. AENOR confirms that conservative assumptions have been used in this calculation.

Determination of $F_{CH_4,BL,y}$

AENOR has validated that for this project activity Case 1: *No requirement to destroy methane exists and no existing LFG capture system.* (Table 2. Methodology ACM0001 version 15.0.0).

No requirement to destroy methane exists and LFG capture active systems are not applicable to the project because at the time of the renewal of the crediting period, the new waste management legal regime in South Africa is delimited by the National Environmental Management: Waste Act No. 59 of 2008 (NEM:WA)/14/, that does not introduce into South African legislation the requirement for landfill gas to be captured and flared. Therefore, the project participant is not required to capture and flare LFG at the start of the second crediting period by any mandatory law.

Once evidence /14/ and /15/ have been assessed by AENOR, it is confirmed that, according to the applied methodology, the amount of methane that would have been captured and destroyed by flaring in the baseline ($F_{CH_4,BL,y}$) due to regulatory or contractual requirements is 0.

AENOR confirms that the assumption $F_{CH_4,BL,y} = 0$, is correctly applied for the project activity.

Baseline emissions associated with electricity generation in year y ($BE_{EC,y}$) have been calculated using the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” version 01 according to the formula:

$$BE_{EC,y} = \sum_k EC_{BL,k,y} \times EF_{EL,k,y} \times (1 + TDL_{k,y})$$

Where:

$BE_{EC,y}$ =	Baseline emissions from electricity consumption in year y (tCO ₂ /yr)
$EC_{BL,k,y}$ =	Quantity of electricity that would be consumed by the baseline electricity consumption source k in year y (MWh/yr)
$EF_{EL,k,y}$ =	Emission factor for electricity generation for source k in year y (tCO ₂ /MWh).
$TDL_{k,y}$ =	Average technical transmission and distribution losses for providing electricity to source k in year y

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The electricity sources k in the tool correspond to the sources of electricity generated identified in the selection of the most plausible baseline scenario; and $EC_{BL,k,y}$ in the tool is equivalent to the net amount of electricity generated using LFG in year y ($EG_{PJ,y}$).

AENOR has validated that the estimate of this project is based on the engines capacity and the expected hours of operation. AENOR has verified through evidence [19]/[20]/[21] that the amount of energy in the ex ante calculation is appropriate and conservative.

AENOR has also validated that an ex-ante emission factor ($EF_{EL,k,y}$, also referred to in the PDD as Carbon Emission Factor – $CEF_{electricity,y}$) of 0.9488 tCO₂/MWh has been correctly selected as per the standardized baseline “Grid emission factor for the Southern Africa power pool”, version 01.0.

The average technical transmission and distribution losses in the grid $TDL_{k,y}$ have been obtained from the official source Eskom, South African energy utility. The updated TDL values are published annually in Eskom’s website. AENOR confirms that for the ex-ante calculation of the emission reduction a value of 8.65% has been used, according to the latest data available at the time for renewal of the crediting period (Eskom Report for 2012). [18]. This value is considered appropriate and it is selected according to the instructions stated in the applied tool.

Project Emissions

According to the methodology, project emissions are determined by the following:

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

Where:

$PE_{EC,y}$ = Emissions from consumption of electricity in the project case.

$PE_{FC,j,y}$ = Emissions from consumption of fossil fuels due to the project activity, for purpose other than electricity generation, in year y (t CO₂/yr)

$PE_{DT,y}$ = Emissions from the distribution of compressed/liquefied LFG using trucks, in year y (tCO₂/yr)

Project emissions from electricity consumption ($PE_{EC,y}$) have been correctly calculated following the “*Tool to calculate baseline, project and/or leakage emissions from electricity consumption*”, version 01. according to the formula:

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

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Data of electricity consumption ($ECP_{j,y}$) will be measured continuously using an electricity meter during the second crediting period, but for the ex ante calculation the most conservative annual value from the records of electricity consumption of the landfill between 2006 and 2012 has been applied. The value included, 253 MWh/year has been crosschecked against the evidence " $ECP_{j,y_FirstCreditingPeriod.xls}$ " [28], the electricity invoices emitted by EtheKwini Municipality [24] and also with the verification reports of the previous verifications processes already approved by the EB.

AENOR confirms that the emission factor for the electricity grid used in the calculation ($EFEL_y = 0.9488$ tCO₂/MWh) has been correctly selected as per the standardized baseline "Grid emission factor for the Southern Africa power pool", version 01.0.

The average technical transmission and distribution losses in the grid $TDL_{k,y}$ have been obtained from the official source Eskom, South African energy utility. The updated TDL values are published annually in Eskom's website. AENOR confirms that for the ex-ante calculation of the emission reduction a value of 8.65% has been used, according to the latest data available at the time for renewal of the crediting period (Eskom Report for 2012)[18]. This value is considered appropriate and it is selected according to the instructions stated in the applied tool.

Project emissions from fossil fuel combustion ($PE_{FC,j,y}$) have been determined to be zero according to the information stated in the PDD. AENOR has validated through the assessment of the previous verifications reports approved by the EB that no fossil fuel has been consumed during the first crediting period. Furthermore it is not expected to be used during the second crediting period, therefore AENOR confirms that the assumption of $PE_{FC,j,y} = 0$ is appropriate and realistic according to the project implementation.

Project emissions from the distribution of compressed/liquefied LFG using trucks ($PE_{DT,y}$) have been determined to be zero according to the information stated in the PDD. AENOR has validated that the project activity at Mariannhill will not supply compressed/liquefied LFG to consumers using trucks so $PE_{DT,y}$ is not applicable to the project activity, therefore AENOR confirms that the assumption of $PE_{FC,j,y} = 0$ is appropriate and realistic according to the project implementation.

Leakage

Regarding Leakage, according to ACM0001 Version 15.0.0, no leakage effects need to be accounted under this methodology, which has been correctly stated in the PDD.

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Emission Reductions

Emission reductions are calculated as follows:

$$ER_y = BE_y - PE_y$$

Where:

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

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

PE_y = Project emissions in year y (tCO₂/yr)

In summary, AENOR has validated that all the data and parameters used for the ex ante calculation have been provided by truthful and appropriate sources. Data included in the latest version of the PDD and its annexed spreadsheet has been validated against the evidence provided to the DOE team that are deemed as appropriate. The assessment of all data and parameters involved in the ERs determination is carried out in sections 3.10.1 and 3.10.2 of this report.

AENOR confirms that all the formulae and algorithms used to determine the ERs have been applied according to the methodology ACM0001 version 15.0.0, and the tools cited above. Other inputs used for the emission reduction projection, as well as default values available in the methodology applied were validated to be correct.

3.9 Calculation of GHG Emissions

The methodology for calculating emission reductions is transparently documented and it complies with existing good practice. The calculation methods applied to the determination of emission reductions are explained in detail in the latest version of the PDD and they follow the procedures laid down in the approved methodology ACM0001 (version 15.0.0).

The PDD clearly documents how each equation is applied and the actual calculations are clearly presented in the annexed spreadsheet. The selection of parameters and GHG calculations is complete and transparent. The accuracy of the calculations has been verified. The emissions estimated can be replicated using the data and parameter values provided in the PDD and supporting files submitted for revalidation. Data sources have been validated by AENOR.

AENOR confirms that the estimated amount of emission reductions for the second crediting period is 447,207 tCO₂e (63,887 tCO₂e/year). This estimation is in accordance with the documentation submitted and it has been validated by the validation team.

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3.10 Monitoring Plan

As it has been explained above in step 1.4 and in section 3.4, the methodology used at the time of the project registration was replaced by the latest version of ACM0001, so there are some parameters determined in the beginning of the first crediting period that they are not valid anymore, and some new parameters have to be monitored according to the new methodology applied. The project applies the approved monitoring methodology ACM0001 (version 15.0.0) – "Flaring or use of landfill gas". The original monitoring plan was updated based on ACM0001 latest requirements.

Parameters and data available at the time of validation of the renewal of the crediting period were cross-checked with official sources and it was found consistent with the applied methodology and associated tools. Authority and responsibilities are well defined and Quality Assurance and Quality Control procedures are managed in order to reduce the uncertainties of the emissions reduction monitored.

Provisions of calibration frequencies of all the equipment involved in the monitoring are included in the PDD and are deemed as appropriate by the DOE team because they are defined according to the specifications stated in the applied methodologies and tools.

The project monitoring plan is in compliance with the monitoring methodology (version 15.0.0) – "Flaring or use of landfill gas".

It is AENOR's opinion, that the project participants are able to implement the monitoring plan.

3.10.1 Parameters determined ex-ante

Parameter	Value applied	Validation remarks
OX_{top_layer} Fraction of methane that would be oxidized in the top layer of the SWDS in the baseline	0.1	Dimensionless. Default value based on the applied methodology ACM0001 version 15.0.0. Consistent with how oxidation is accounted for in the methodological tool "Emissions from solid waste disposal sites" version 06.0.1.
GWP_{CH₄} : Global warming potential of methane.	25 tCO ₂ e/tCH ₄	Default value based on IPCC Guidelines. Table 2.14 of the Fourth Assessment Report of the IPCC. As per the "Standard for application of the global warming potential to Clean Development Mechanism project activities and programmes of activities for the second commitment period of the Kyoto Protocol" version 01.0.

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Parameter	Value applied	Validation remarks
D_{CH₄} : Methane density.	0.0007168 tCH ₄ /m ³ CH ₄	Default value as per the tool "Project emissions from flaring" version 02.0.0
φ Model correction factor to account for model uncertainties.	0.75	Dimensionless. Default value as per table 3 of the tool "Emissions from solid waste disposal sites." version 06.0.1. AENOR has validated that Application A of the tool is followed in the ex ante calculation and therefore 0.75 is the correct value to be applied according to the tool.
F Fraction of methane in the SWDS gas (volume fraction)	0.5	Default value as per the IPCC 2006 Guidelines for National Greenhouse Gas Inventories. AENOR has validated that this value is correctly applied according to the tool "Emissions from solid waste disposal sites." version 06.0.1.
f : Fraction of methane captured at the SWDS and flared, combusted or used in another manner	0	AENOR has validated that all the methane generated was directly vented to the atmosphere prior to the project activity. Upon the implementation of the project activity, methane captured will be used to generate electricity or it will be flared. AENOR has validated that this value is correctly applied according to the tool "Emissions from solid waste disposal sites." version 06.0.1.
η_{py} Efficiency of the degassing system which will be installed in the project activity, in year y	50%	Default value based on the applied methodology ACM0001 version 15.0.0.
OX Oxidation factor (reflecting the amount of methane from SWDS that is oxidized in the soil or other material covering the waste)	0.1	AENOR has validated that this value is correctly applied because is a default value according to the tool "Emissions from solid waste disposal sites." version 06.0.1.
MCF Methane correction factor.	1	Default value as per the IPCC 2006 Guidelines for National Greenhouse Gas Inventories. AENOR has validated that this value is correctly applied according to the tool "Emissions from solid waste disposal sites." version 06.0.1 due to the fact that Mariannhill is an anaerobic managed solid waste disposal site.
DOC_i Fraction of degradable organic carbon (by weight) in the waste type j.	See PDD	Default values as per the IPCC 2006 Guidelines for National Greenhouse Gas Inventories. AENOR has validated that this value is correctly applied according to table 4 the tool "Emissions from solid waste disposal sites." version 06.0.1.
DOC_f Fraction of degradable organic carbon (DOC) that can decompose	0.5	Default value as per the IPCC 2006 Guidelines for National Greenhouse Gas Inventories. AENOR has validated that this value is correctly applied according to the tool "Emissions from solid waste disposal sites." version 06.0.1.

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Parameter	Value applied	Validation remarks
K_j Decay rate for the waste type <i>j</i> .	See PDD	<p>Default values as per the IPCC 2006 Guidelines for National Greenhouse Gas Inventories. AENOR has validated that this value is correctly applied according to table 5 the tool "Emissions from solid waste disposal sites." version 06.0.1.</p> <p>AENOR has validated through the World Meteorological Organization [25] that the Mariannhill Landfill, located in Durban (South Africa), has a mean annual temperature (MAT) of 20.8°C and mean annual precipitation (MAP) of 1009 mm. Data on potential evapotranspiration (PET) is 4. Therefore, the site is based in a Tropical/Temperate climatic conditions (MAT>20C) and wet precipitations (MAP>1000 mm). According to those data AENOR confirms that the selection of data for Wet material is appropriate.</p> <p>AENOR has validated also the waste composition included in the PDD through the evidence "MH Waste up to Sep 2012"/[23].</p>
EF_{EL,y} (CEF_{electricity,y}) CO ₂ emissions intensity of the electricity displaced	0.9488 tCO ₂ /MWh	AENOR has validated that this value has been correctly selected as per the standardized baseline "Grid emission factor for the Southern Africa power pool", version 01.0.
η_{flare,m} Flare Efficiency in the minute <i>m</i>	0.8%	AENOR has validated the flare height installed in the project activity is less than 10 times the diameter. Therefore according to the tool "Project emissions from flaring" version 02.0.0 and taking into account that the project is using a low height flare, the flare efficiency will be adjusted, as a conservative approach, by subtracting 0.1 from the default value of 90% for the efficiency of the flare. Therefore, a value of 80% will be used for the project activity. AENOR confirms that this assumption is conservative and appropriate according to the requirements of the applied tool.
R_u Universal ideal gases constant	8.314 Pa.m ³ /kmol.k	Universal ideal gases constant. AENOR has validated that this value is correctly applied according to the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 02.0.0.
MM_i Molecular mass of greenhouse gas <i>i</i> (Methane)	16.04 kg/kmol	AENOR has validated that this value is correctly applied according to the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 02.0.0.
P_n Total pressure at normal conditions	101,325 Pa	AENOR has validated that this value is correctly applied according to the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 02.0.0.

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Parameter	Value applied	Validation remarks
T_n Temperature at normal conditions	273.15 K	AENOR has validated that this value is correctly applied according to the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream” version 02.0.0.

Therefore, according to the Tool “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” version 03.0.1”, all the parameters have been correctly updated and the current baseline complies with all relevant mandatory national and sectorial policies which have come into effect after the submission of the project activity for validation and are applicable at this moment, the time of requesting renewal of crediting period.

3.10.2 Parameters monitored ex-post

Parameter	Monitoring frequency	Validation Remarks
V_{LFG,total,y,db} Volumetric flow of total landfill gas which is sent to flare and used for electricity generation in year y on a dry basis	Continuously	This parameter will be monitored as per Option A of the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”, version 2.0.0. No separate monitoring of temperature and pressure is necessary since flow meters that automatically express LFG volumes in normalized cubic meters will be used. AENOR confirms that appropriate and conservative values of this parameter have been used in the ex ante calculation of ERs. Estimation has been carried out using truthful data on the amount and waste composition and also on the landfill remaining capacity for the second crediting period.
V_{LFG,sent flare,y,db} Volumetric flow of landfill gas which is sent to flare in year y on a dry basis	Continuously	This parameter will be monitored as per Option A of the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream”, version 2.0.0. No separate monitoring of temperature and pressure is necessary since flow meters that automatically express LFG volumes in normalized cubic meters will be used. AENOR confirms that appropriate and conservative values of this parameter have been used in the ex ante calculation of ERs. Estimation has been carried out using truthful data on the amount and waste composition and also on the landfill remaining capacity for the second crediting period.

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Parameter	Monitoring frequency	Validation Remarks
$V_{LFG,EL,y,db}$ Volumetric flow of landfill gas which is used for electricity generation in year y on a dry basis	Continuously	<p>This parameter will be monitored as per Option A of the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream", version 2.0.0. No separate monitoring of temperature and pressure is necessary since flow meters that automatically express LFG volumes in normalized cubic meters will be used.</p> <p>AENOR confirms that appropriate and conservative values of this parameter have been used in the ex ante calculation of ERs. Estimation has been carried out using truthful data on the amount and waste composition and also on the landfill remaining capacity for the second crediting period.</p>
$V_{LFG,total,y,wb}$ Volumetric flow of total landfill gas which is sent to flare and used for electricity generation in year y on a wet basis	Continuously	<p>This parameter will be monitored as per Option B of the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream", version 2.0.0. No separate monitoring of temperature and pressure is necessary since flow meters that automatically express LFG volumes in normalized cubic meters will be used.</p> <p>AENOR confirms that for the ex ante ERs calculation values in wet basis have not been used. The ex ante calculation has been carried out considering dry basis values.</p>
$V_{LFG,sent,flare,y,wb}$ Volumetric flow of landfill gas which is sent to flare in year y on a wet basis	Continuously	<p>This parameter will be monitored as per Option B of the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream", version 2.0.0. No separate monitoring of temperature and pressure is necessary since flow meters that automatically express LFG volumes in normalized cubic meters will be used.</p> <p>AENOR confirms that for the ex ante ERs calculation values in wet basis have not been used. The ex ante calculation has been carried out considering dry basis values.</p>
$V_{LFG,EL,y,wb}$ Volumetric flow of landfill gas which is used for electricity generation in year y on a wet basis	Continuously	<p>This parameter will be monitored as per Option B of the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream", version 2.0.0. No separate monitoring of temperature and pressure is necessary since flow meters that automatically express LFG volumes in normalized cubic meters will be used.</p> <p>AENOR confirms that for the ex ante ERs calculation values in wet basis have not been used. The ex ante calculation has been carried out considering dry basis values.</p>

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Parameter	Monitoring frequency	Validation Remarks
T_t Temperature of the gaseous stream in time interval t	Continuously	<p>This parameter will be monitored as per the last version of the "Tool to determine the mass flow of a GHG in a gaseous stream" (Version 02.0.0), Option 2 (Simplified calculation without measurement of the moisture content) to determine the absolute humidity by assuming the gaseous stream is dry or saturated depending on which is the conservative situation.</p> <p>The applicability condition related to the gaseous stream flow temperature being below 60°C is adopted and therefore, this parameter must be monitored continuously to assure the applicability condition is met.</p> <p>For ex-ante determination, gaseous stream flow temperature being below 60°C has been also adopted. AENOR considers that this assumption is appropriate.</p>
P_t Pressure of the gaseous stream in time interval t	Continuously	<p>This parameter will be monitored as per the last version of the "Tool to determine the mass flow of a GHG in a gaseous stream" (Version 02.0.0), Option 2 (Simplified calculation without measurement of the moisture content) to determine the absolute humidity by assuming the gaseous stream is dry or saturated depending on which is the conservative situation.</p> <p>The applicability condition related to the gaseous stream flow temperature being below 60°C is adopted and therefore, this parameter must be monitored continuously to assure the applicability condition is met.</p> <p>For ex-ante determination, gaseous stream flow temperature being below 60°C has been also adopted and the value of P_t has been considered as the P_{H₂O,Sat}. AENOR considers that this assumption is appropriate.</p>
V_{CH₄,t,db} Volumetric fraction of CH ₄ in a time interval t on a dry basis	Continuously	<p>This parameter will be monitored, using using certified equipment, as per Options A and B of the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream", version 2.0.0.</p> <p>AENOR has validated for this project that for the purpose of ex-ante calculations a default value of 50% has been correctly selected, according to the last on-site measurements available. AENOR validated the latest verification process approved by the EB [27] for this project, and found that a value of 50% was used based on the latest on-site measurements available.</p>

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannhill and La Mercy Landfills"

Parameter	Monitoring frequency	Validation Remarks
EG_{Pj,y} : Amount of electricity generated using LFG	Continuously	<p>This parameter refers only to the electricity generated by the project and delivered to the grid. It will be measured continuously using an electricity meter during the second crediting period.</p> <p>AENOR has validated that the ex ante value for this parameter at the time of renewal 8,213 MWh/year. It has been validated through the evidence [20]/[24]. AENOR confirms that data used is real, conservative and appropriate.</p>
EC_{Pj,y} : Quantity of electricity consumed by the project activity during the year y	Continuously	<p>This parameter refers only to the electricity consumed from the grid by the project activity. Data of electricity consumption ($EC_{Pj,y}$) will be measured continuously using an electricity meter during the second crediting period, but for the ex ante calculation the value used has been taken from the records of electricity consumption of the landfill in 2011.</p> <p>The value included, 253 MWh/year has been crosschecked against the evidence "<i>ECPj,y FirstCreditingPeriod.xls</i>" [28], the electricity invoices emitted by Ethekweni Municipality [24] and also with the verification reports of the previous verifications processes already approved by the EB.</p>
Op_{engine,h} : Operation of the engine that consumes the LFG	Hourly	<p>AENOR has validated that this parameter will be monitored hourly as per the procedures stated in the applied methodology.</p> <p>For the ex ante calculation, AENOR has validated through the GE Electric recommendations that the conservative operational hours for the engine have been indicated to be 7,500 hours per year; as it is shown in the evidence file with name "<i>MHill engine operations plan</i>".pdf. [21]</p>
Op_{flare,h} : Operation of the flare that consumes the LFG	Hourly	<p>AENOR has validated that this parameter will be monitored hourly as per the procedures stated in the applied methodology.</p> <p>For the ex ante calculation, AENOR has validated through Envitech Projects, who has been in charge of the operation of the flaring system throughout the first crediting period recommendations, that the conservative operational hours for the engine have been indicated to be 8,488 hours per year; as it is shown in the evidence file with name <i>EP029-2013-L001 DSW - Mariannhill LFG O&M - 2013-09-26.pdf</i>. [22]</p>

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannhill and La Mercy Landfills"

Parameter	Monitoring frequency	Validation Remarks
Flame_m Flame detection of flare in the minute m	Once per minute	AENOR has validated that this parameter will be monitored once per minute as per the procedures stated in the applied methodology and tools. For the ex ante calculation, AENOR has validated through Envitech Projects, who has been in charge of the operation of the flaring system throughout the first crediting period recommendations, that the conservative operational hours for the engine have been indicated to be 8,488 hours per year; as it is shown in the evidence file with name <i>EPO29-2013-L001 DSW - Mariannhill LFG O&M - 2013-09-26.pdf</i> . [22]
T_{EG,m} Temperature in the exhaust gas of the enclosed flare in minute m	Once per minute	AENOR has validated that this parameter will be monitored once per minute as per the procedures stated in the applied methodology and tools. It will be measured by appropriate temperature measurement equipment (i.e thermocouple). Measurements outside the operational temperature specified by the manufacturer may indicate that the flare is not functioning correctly and may require maintenance.
TDL_y Average technical transmission and distribution losses in the grid in year y for the voltage level at which electricity is obtained from the grid at the project site.	Annually	The average technical transmission and distribution losses in the grid TDL _{ky} have been obtained from the official source Eskom, South African energy utility. The updated TDL values are published annually in Eskom's website. AENOR confirms that for the ex-ante calculation of the emission reduction a value of 8.65% has been used, according to the latest data available at the time for renewal of the crediting period (Eskom Report for 2012). [18]. This value is considered appropriate and it is selected according to the instructions stated in the applied tool. In the absence of data from the relevant year, most recent figures should be used, but not older than 5 years.
Management of SWDS.	Annually	AENOR has validated that this parameter will be monitored annually as per the procedures stated in the applied methodology. Any change in the management of the landfill will be justified by referring to technical or regulatory specifications. Also, it will be documented and filed by the landfill operator.

Apart from the information stated in the table above, it is important to mention that provisions of calibration frequencies of all the equipment involved in the monitoring are included in the PDD and are deemed as appropriate by the DOE team because they are defined according to the specifications stated in the applied methodologies and tools.

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannhill and La Mercy Landfills"

3.11 Comments by Local Stakeholders

In accordance with the "CDM Project Cycle Procedure version 05.0", carrying out a local stakeholder consultation is not necessary for the renewal of the crediting period.

3.12 Environmental Impacts

According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology. Therefore, in the updated PDD, section dedicated to the Environmental Impacts derived from the project remains the same as in the PDD registered for the first crediting period.

In any case, AENOR has validated that the project activity is still complying with the environmental legislation in South Africa as it was crosschecked against the relevant regulation in the scope.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

In accordance with the "CDM Project Cycle Procedure version 05.0", carrying out a consultation to parties and NGOs is not necessary for the renewal of the crediting period.

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills"

5 VALIDATION OPINION

AENOR has performed the validation of the renewal of the crediting period of the project **"Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills"**. The revalidation was performed on the basis of UNFCCC criteria and host country criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation, and the subsequent follow-up interviews have provided to AENOR enough evidence to determine the fulfillment of stated criteria. In AENOR's opinion, the project meets the UNFCCC requirements for the renewal of the crediting period. Hence, AENOR recommends the renewal of the crediting period of the project activity.

AENOR can confirm that the project is implemented and maintained as designed and in accordance with the applied methodology ACM0001 "Flaring or use of landfill gas" version 15.0.0.

The estimated amount of emission reductions for the second crediting period 15/12/2013 to 14/12/2020 is **447,207 tCO₂e** (63,887 tCO₂e/year). in accordance with the documentation submitted and validated by the validation team.

In AENOR's opinion, the project correctly applies and meets the relevant UNFCCC requirements for the CDM and the relevant host country criteria.

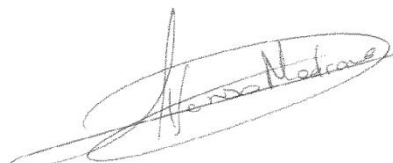
The validation has been performed using a risk based approach, as described above. The only purpose of this report is its use during the registration process as part of the CDM project cycle. Hence, AENOR cannot be held liable by any party for decisions made or not made based on the validation opinion, which goes beyond the purpose.

31/01/2014



Luis Robles Olmos
Authorized person

31/01/2014



Alfonso Medrano Gutiérrez
Validation Team Leader

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills"

6 CORRECTIVE ACTION REQUESTS, CLARIFICATIONS AND FORWARD ACTION REQUESTS

TITLE	"Durban Landfill-gas-to-electricity project Mariannahill and La Mercy Landfills"		
FINDING	Nº 1		
Classification	CAR <input checked="" type="checkbox"/>	CL <input type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	There are inconsistencies between information on Project Participants stated in section A.4 and in Appendix 1 of the PDD.		
PP RESPONSE #1 <i>It shall address the corrective action taken in details</i>	This section shall be filled by the PP.		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	Appendix 1 of the PDD has been updated, and it is now in line with Section A.4 of the PDD.		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	See the latest version of the PDD.		
PP RESPONSE #2 <i>Corrective action</i>	This section shall be filled by the PP.		
<i>Evidence proposed</i>			
DOE Assessment #2	The PDD has been updated and inconsistencies have been solved.		
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills"

TITLE	"Durban Landfill-gas-to-electricity project Mariannahill and La Mercy Landfills"		
FINDING	Nº 2		
Classification	CAR <input checked="" type="checkbox"/>	CL <input type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	<p>The PDD has been prepared using the latest template approved by the EB (F-CDM-PDD version 04.1) however there are some sections that do not follow the instructions stated in the "Guidelines for Completing the Project Design Document Form version 01.0":</p> <ul style="list-style-type: none"> - Section B.1 does not refer to the UNFCCC CDM website for the exact reference of approved baseline and monitoring methodologies and tools. - Section B.5 shall include the information on the demonstration of additionality as it was originally described in the PDD. (Introduction about renewal is perfectly right, but the rest shall be exactly described as in the original PDD) - The format of the dates included in tables of sections B.6.3 and B.6.4 is not homogeneous and does not comply with the UNFCCC format (DD/MM/YYYY). - Section D and Section E include a reference to the "Procedures for renewal of the crediting period of a registered CDM project activity" (Annex 11, EB46) which is obsolete and has been replaced by the CDM Project Cycle Procedure and the CDM Project Standard. 		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	<ul style="list-style-type: none"> - A link to the UNFCCC website, referring to the methodology and tools, has been incorporated to Section B.1 of the updated PDD. - Section B.5 of the PDD has been updated and it now includes an explanation on the demonstration of additionality as per the registered PDD. - Sections B.6.3 and B.6.4 have been updated and all dates are shown in format DD/MM/YY. - Sections D and E has been updated accordingly, and they now refer to the "Clean Development Mechanism Project Standard", version 05.0. 		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	See the latest version of the PDD.		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	<p>The PDD has been correctly updated. However a new version of the CDM Project Standard has been approved in the EB74 meeting. Please, update all the references to the version of this document included in the PDD to the last version approved. Please delete a reference to a PoA in page 28 when explaining "Determining the amounts of waste types j disposed in the SWDS (Wj,x or Wj,i)."</p>		
PP RESPONSE #2	<i>This section shall be filled by the PP.</i>		

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannhill and La Mercy Landfills"

<p><i>Corrective action</i></p>	<p>The reference to PoA has been deleted from the PDD attached to this submission.</p> <p>Also, the PDD has been updated and it now refers to the latest approved version (i.e. version 05.0) of the Clean Development Mechanism Project Standard.</p>	
<p><i>Evidence proposed</i></p>		
<p>DOE Assessment #2</p>	<p>The latest version of the PDD is correctly updated following the instructions stated in the "Guidelines for Completing the Project Design Document Form version 01.0"</p>	
<p>Conclusion <i>Tick the appropriate checkbox</i></p>	<p>CAR/CI CLOSED <input checked="" type="checkbox"/></p>	<p>To be checked during the first periodic verification <input type="checkbox"/></p>

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills"

TITLE	"Durban Landfill-gas-to-electricity project Mariannahill and La Mercy Landfills"		
FINDING	Nº 3		
Classification	CAR <input checked="" type="checkbox"/>	CL <input type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Fixed parameters derived from the application of the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream" version 02.0.0 have not been included in section B.6.2 of the PDD. Evidence supporting those data shall be provided to the DOE team if necessary.		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	Fixed parameters as per the "Tool to determine the mass flow of a greenhouse gas in a gaseous stream", which are applicable to this project activity have been incorporated to the latest version of the PDD.		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	See the latest version of the PDD.		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	Parameters have been correctly included in the latest version of the PDD. The PP assumes, based on the experience of the first crediting period that no fossil fuel will be consumed during the second crediting period. According to this assumption no project emissions from fossil fuel combustion shall be calculated and therefore parameters used in that calculation shall not be included in the PDD.		
PP RESPONSE #2	<i>This section shall be filled by the PP.</i>		
<i>Corrective action</i>			
<i>Evidence proposed</i>			
DOE Assessment #2			
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills"

TITLE	"Durban Landfill-gas-to-electricity project Mariannahill and La Mercy Landfills"		
FINDING	Nº 4		
Classification	CAR <input checked="" type="checkbox"/>	CL <input type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Fixed parameters derived from the application of the "Tool to calculate project or leakage CO2 emissions from fossil fuel combustion version 02" have not been included in section B.6.2 of the PDD. Evidence supporting those data shall be provided to the DOE team if necessary.		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	Fossil fuel consumption has not been used during the first crediting period, nor is expected to be used during the second crediting period, this is why it has been left out. Thus the "Tool to calculate project or leakage CO2 emission from fossil fuel combustion" has not been applied.		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>			
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	The PP assumes, based on the experience of the first crediting period that no fossil fuel will be consumed during the second crediting period. According to this assumption no project emissions from fossil fuel combustion shall be calculated and therefore parameters used in that calculation shall not be included in the PDD.		
PP RESPONSE #2	<i>This section shall be filled by the PP.</i>		
<i>Corrective action</i>			
<i>Evidence proposed</i>			
DOE Assessment #2			
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannhill and La Mercy Landfills"

TITLE	"Durban Landfill-gas-to-electricity project Mariannhill and La Mercy Landfills"		
FINDING	Nº 5		
Classification	CAR <input checked="" type="checkbox"/>	CL <input type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Parameter TDL _y has been incorrectly considered as a parameter fixed ex ante. According to the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" version 01, this parameter shall be monitored annually. Furthermore, value applied for this parameter in the ex ante calculation shall be updated to the most recent value available at the time of renewal of the crediting period.		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	Parameter TDL _y has been moved to parameters monitored, as per the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" version 01. The value has been updated to the one reported on the Eskom Report for 2012, of 8.65%, available at http://www.pads.ezeepage.co.za/i/69721 on page 10, and a snapshot of this page is being provided as reference.		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	See the latest version of the PDD and TDL_Eskom_2012 report.jpg		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	Parameter TDL is considered as a parameter to be monitored in the latest version of the PDD and the value used for the ex ante calculation is the most recent one.		
PP RESPONSE #2	<i>This section shall be filled by the PP.</i>		
<i>Corrective action</i>			
<i>Evidence proposed</i>			
DOE Assessment #2			
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills"

TITLE	"Durban Landfill-gas-to-electricity project Mariannahill and La Mercy Landfills"		
FINDING	Nº 6		
Classification	CAR <input checked="" type="checkbox"/>	CL <input type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	There is an inconsistency between value applied for parameter MCF (1) and the explanation given in the PDD about the choice of that value.		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	The inconsistency has been corrected, and the explanation given in the PDD is now in line with the value applied.		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	See the latest version of the PDD.		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	The PDD has been updated including the correct explanation for the value applied for parameter MCF.		
PP RESPONSE #2	<i>This section shall be filled by the PP.</i>		
<i>Corrective action</i>			
<i>Evidence proposed</i>			
DOE Assessment #2			
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills"

TITLE	"Durban Landfill-gas-to-electricity project Mariannahill and La Mercy Landfills"		
FINDING	Nº 7		
Classification	CAR <input checked="" type="checkbox"/>	CL <input type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Explanation given in the PDD regarding the Baseline Emissions associated with electricity generation ($BE_{EC,y}$) is not complete. Justification on the Emission Factor selected (option ex-ante or ex-post, source of data), and TDL (value applied and source of data) shall be included in the corresponding section of the PDD.		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	Further explanation on the emission factor selected and TDL parameter has been provided in the PDD. Please see Section B.6.1, Step B "Baseline emissions associated with electricity generation".		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	See the latest version of the PDD.		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	The PDD has been updated including a justification on the Emissions Factor selected and also about the data sources used.		
PP RESPONSE #2	<i>This section shall be filled by the PP.</i>		
<i>Corrective action</i>			
<i>Evidence proposed</i>			
DOE Assessment #2			
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannhill and La Mercy Landfills"

TITLE	"Durban Landfill-gas-to-electricity project Mariannhill and La Mercy Landfills"		
FINDING	Nº 8		
Classification	CAR <input checked="" type="checkbox"/>	CL <input type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Explanation given in the PDD regarding the Project Emissions associated with electricity generation ($PE_{EC,y}$) is not complete. Justification on the Emission Factor selected (option ex-ante or ex-post, source of data), and TDL (value applied and source of data) shall be included in the corresponding section of the PDD. Further information on how $EC_{PJ,i,y}$ (Electricity consumption) is monitored shall be included in the PDD.		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	Further explanation on the emission factor selected, TDL and $EC_{PJ,i,y}$ parameter has been provided in the PDD. Also, $EC_{PJ,i,y}$ has been included among the parameters to be monitored. It should be noted that most of the electricity consumed by the project activity is renewable energy, which has been generated from the biogas.		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	See the latest version of the PDD.		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	The PDD has been updated including a justification on the Emissions Factor selected and also about the data sources used. Procedures used to monitor parameter $EC_{PJ,i,y}$ are correctly explained in the latest version of the PDD. However the value applied for parameter $EC_{PJ,i,y}$ in the ex ante calculation is not stated in the corresponding table for this parameter in the Monitoring Plan. Please include it.		
PP RESPONSE #2	<i>This section shall be filled by the PP.</i>		
<i>Corrective action</i>	The $EC_{PJ,i,y}$ value used for ex-ante calculations has been included in the PDD, and it is in line with the value used in the ER calculation spreadsheet. This value has been calculated based on data available from previous verifications.		
<i>Evidence proposed</i>			
DOE Assessment #2	The latest version of the PDD includes a correct explanation on Project Emissions associated with electricity generation ($PE_{EC,y}$). Values included are supported by truthful evidence.		
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills"

TITLE	"Durban Landfill-gas-to-electricity project Mariannahill and La Mercy Landfills"		
FINDING	Nº 9		
Classification	CAR <input checked="" type="checkbox"/>	CL <input type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	The list of parameters is not complete according to the applied methodology and tools. Some parameters, explained as methodological options selected in other sections of the PDD, have not been included.		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	<p>The following parameters have been added to the list of monitored parameters:</p> <ul style="list-style-type: none"> - Management of SWDS - $TDL_{i,y}$ - $EC_{p,i,y}$ <p>As mentioned in CAR4 above, fossil fuel consumption has not been used during the first crediting period, nor is expected to be used during the second crediting period, this is why it has been left out. Therefore parameters to monitor fossil fuel combustion have not been included, and this has been clarified in the PDD.</p> <p>As for parameter $v_{CH_4,t,wb}$ given that we are only applying Option A or B of the tool, this parameter is not required to be monitored, and has thus not been included.</p>		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	See the latest version of the PDD.		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	This list of parameters in the latest version of the PDD is considered complete with regard to the requirements of the applied methodology and tools. All the parameters are clearly described in the monitoring plan.		
PP RESPONSE #2	<i>This section shall be filled by the PP.</i>		
<i>Corrective action</i>			
<i>Evidence proposed</i>			
DOE Assessment #2			
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannhill and La Mercy Landfills"

TITLE	"Durban Landfill-gas-to-electricity project Mariannhill and La Mercy Landfills"		
FINDING	Nº 10		
Classification	CAR <input checked="" type="checkbox"/>	CL <input type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Net amount of electricity generated using LFG will be calculated from the balance of electricity produced subtracting the electricity imported. According to that, parameters EGy and EC _{P1,y} should have been included in the monitoring plan and they have not. Calibration frequencies for the electricity meters installed shall be clearly stated in the PDD.		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	Parameters EGy and EC _{P1,y} have been included in the PDD. The monitoring system installed in site will be updated due to the upgrade from methodology AM0010 to ACM0001.		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	See latest version of the PDD.		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	Parameters and calibration frequencies have been included in the latest version of the PDD.		
PP RESPONSE #2	<i>This section shall be filled by the PP.</i>		
<i>Corrective action</i>			
<i>Evidence proposed</i>			
DOE Assessment #2			
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills"

TITLE	"Durban Landfill-gas-to-electricity project Mariannahill and La Mercy Landfills"		
FINDING	Nº 11		
Classification	CAR <input checked="" type="checkbox"/>	CL <input type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Provisions regarding calibration frequencies of all the equipment involved in the project shall be included in the monitoring plan.		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	Equipment will be calibrated as per manufacturer's specifications. The monitoring system installed in site will be updated due to the upgrade from methodology AM0010 to ACM0001. Given that some equipment will be changed, it is not possible to provide specific details on frequency calibrations at this stage.		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	See PDD Version 2, 01/08/2013		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	Provisions regarding calibration frequencies have been including in the PDD.		
PP RESPONSE #2	<i>This section shall be filled by the PP.</i>		
<i>Corrective action</i>			
<i>Evidence proposed</i>			
DOE Assessment #2			
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills"

TITLE	"Durban Landfill-gas-to-electricity project Mariannahill and La Mercy Landfills"		
FINDING	Nº 1		
Classification	CAR <input type="checkbox"/>	CL <input checked="" type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Evidence "SA Landfills Legal Requirements April 2013" shall be provided to the DOE Team.		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	Evidence named "SA Landfills Legal Requirements April 2013" has been provided to the DOE.		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>			
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	Evidence has been provided and this criterion is properly demonstrated.		
PP RESPONSE #2	<i>This section shall be filled by the PP.</i>		
<i>Corrective action</i>			
<i>Evidence proposed</i>			
DOE Assessment #2			
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannhill and La Mercy Landfills"

TITLE	"Durban Landfill-gas-to-electricity project Mariannhill and La Mercy Landfills"		
FINDING	Nº 2		
Classification	CAR <input type="checkbox"/>	CL <input checked="" type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	Evidence supporting all the input values used in the ERs calculation and provided by the project developer (Waste inputs, Waste composition, Working times, electricity consumptions, equipment details...) shall be provided to the DOE team.		
PP RESPONSE #1 <i>It shall address the corrective action taken in details</i>	<i>This section shall be filled by the PP.</i>		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	Evidence supporting waste inputs, waste composition and electricity consumption has been provided to the DOE. "MH Waste up to Sep 2012.xlsx." "130403_Mariannhill_remaining tonnages.xlsx"		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	Evidence demonstrating other assumptions provided by the Project Developer, such as: Net quantity of electricity generated using LFG, Capacity of generators, efficiency of generators, operational hours of the engines consuming LFG, operational hours of the flare etc... shall be also provided to the DOE team. Please, clarify data used for the estimation of waste inputs for years 2013 -2020 stated in the evidence "130403_Mariannhill_remaining tonnages.xlsx"		
PP RESPONSE #2	<i>This section shall be filled by the PP.</i>		
<i>Corrective action</i>	Capacity of generators and efficiency of generator: See evidence provided to the DOE named: "Technical Description Engine.pdf" Net quantity of electricity generated using LFG: the data used is the annual electricity consumed by the project activity from the grid (MWh) for the most recent validated period of the project activity. For further information please see document provided to the DOE named: "Ex-ante estimation ECPJ,y.xlsx" Operational hours of the engines consuming LFG and operational hours of the flare: these parameters were not required by the previous methodology used by the project activity, and thus it was not monitored during the 1st crediting period. As this information is not available, for the ex-ante calculations a conservative value has been selected. The actual operational hours will be used for the estimation of the ERs during the 2nd crediting period. ESTIMATION OF WASTE DISPOSAL AT MARIANNHILL Figures for waste disposal at Mariannhill have been estimated based on the following assumptions: 1. Disposal 6 days a week, 52 weeks of the year 2. Remaining capacity of the landfill as of February 2013: 1,775,000		

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"Durban Landfill-Gas-to-Electricity Project – Mariannhill and La Mercy Landfills"

	<p>m3, according to estimations made by the landfill operator.</p> <p>3. Disposal rate 2013= 675 tpd (210,600 tons per year). This figure is similar to the actual disposal rate for calendar year 2011 (i.e. 210,110 tons). For further reference, please see excel sheet named "MH Waste up to Sep 2012.xls", already provided to AENOR, but attached to this submission in order for you to have it handy.</p> <p>4. Daily disposal rate from 2014-2020: 825 tpd. The increase in the disposal rate from 210,110 tons in 2013 to 257,400 tons in 2014 onwards is due to the expected closure in late 2013 of landfill Bisasar Road (which is located in the proximity of Mariannhill landfill). Mariannhill landfill is expected to receive part of the waste currently being disposed at Bisasar.</p> <p>5. Expected completion date of Mariannhill landfill of February 2020. Thus, for calendar year 2020 we have: 825 tpd *6 days/week *4 weeks of January 2013 = approximately 20,000 ton</p>
Evidence proposed	<p>"Ex-ante estimation ECPj,y.xlsx"</p> <p>"Technical Description Engine.pdf"</p>
DOE Assessment #2	<p>Values included in the ERs for parameters "Capacity of generators" and "efficiency of generators" are not consistent with data stated in the evidence provided.</p> <p>Net quantity of electricity generated using LFG is a different parameter from the annual electricity consumed by the project activity from the grid. According to the PDD, the Net quantity of electricity generated using LFG ($EL_{LFG,y}$) is calculated from the balance of electricity produced (EG_y) subtracting the electricity imported (Ely), both measured by electricity meter. Evidence provided, "Ex-ante estimation $EC_{pj,y}.xlsx$" does not support the value of 8,000 MWh included in the PDD for this parameter. According to the formula of the PDD, you should estimate a value for parameter EG_y as you have done with parameter EC_{pj} and then calculate the ex ante estimated value for EL_{LFG}.</p> <p>Furthermore, parameters Ely and EC_{pj}, actually are the same parameter "Electricity from the grid consumed by the project".</p> <p>Evidence supporting the conservative values used for the operational hours shall be provided to the DOE team. Please clarify that the values used are conservative.</p>
PP RESPONSE #3	<p>Values for "capacity of generator" and "efficiency of generator" have been updated, and it is now consistent with the evidence previously provided "Technical Description Engine.pdf".</p> <p>As for the values of the electricity generated and consumed by the projects, we realize there was a confusion of the different terms that has now been corrected. As you correctly point out, Ely was the same as $EC_{pj,y}$, which in order to be consistent with the tool, the first one has now been deleted, and the box for parameter $EL_{LFG,y}$ updated accordingly. On the updated PDD the parameter $EC_{pj,y}$ is now always making reference to electricity consumption from the grid by the project activity, used for calculation of project emissions. On the attached spreadsheet with name name "Ex-ante estimation ECPj,y.xlsx" we have tried to clarify this with the correct names on the different values presented for the last verified period, and we have calculated the annual value of electricity consumption from the grid on cell AA8.</p> <p>For the calculation of the net quantity of electricity generated using</p>

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"Durban Landfill-Gas-to-Electricity Project – Mariannhill and La Mercy Landfills"

	<p>LFG we have not used the same approach as for electricity consumption because during the second crediting period the project developer is expecting the engines to work closer to their potential, hence the estimate is based on the engines capacity and the expected hours of operation (as presented in the evidence explained below).</p> <p>After carefully reviewing the monitoring system installed by the project activity, we found out that there is no consumption of renewable energy by the project. All the energy consumed by the project activity is taken from the national grid. Thus, parameter "EC_{renewable}" has been removed from the PDD and the ER spreadsheet.</p> <p>For further clarification, please note that there are two energy meters installed on site:</p> <ul style="list-style-type: none"> • One energy meter is installed inside the landfill to continuously measure the electricity exported to the grid as well as the electricity imported from the grid in case of shutdowns. • A second energy meter is installed outside the landfill to continuously measure the electricity consumed by the project activity for lighting and other activities. <p>In order to be consistent with version 15 of the methodology ACM0001, parameter "EL_{LFG,y}" has been replaced by "EG_{Pj,y}" – Amount of electricity generating using landfill gas. The ex-ante value of "EG_{Pj,y}" has been calculated from the potential renewable electricity produced.</p> <p>As for the conservativeness of the operational hours, to make sure these were conservative, the PE got in touch with the equipment supplier and operator, and updated the ER spreadsheet, and PDD accordingly and are both being submitted with this response (version 3, 161013). For the engine, as per the GE Electric recommendations of the maintenance schedule the conservative operational hours have been indicated to be 7,500 hours per year; please refer to evidence file with name <i>MHill engine operations plan.pdf</i>. For the operational hours of the flaring system, Envitech Projects, who has been in charge of the operation of the flaring system throughout the first crediting period has indicated that taking into account the expected maintenance schedule of the system, potential failures and unscheduled maintenance, a conservative estimate for its operational hours is 8,488 hours per year; please refer to evidence file with name <i>EP029-2013-L001 DSW - Mariannhill LFG O&M - 2013-09-26.pdf</i>.</p>	
DOE Assessment #3	Evidence has been provided and all the inputs used in the ERs are deemed as appropriate and conservative.	
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>

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"Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills"

TITLE	"Durban Landfill-gas-to-electricity project Mariannahill and La Mercy Landfills"		
FINDING	Nº 3		
Classification	CAR <input type="checkbox"/>	CL <input checked="" type="checkbox"/>	FAR <input type="checkbox"/>
Description of finding <i>Describe the finding in unambiguous style; address the context (e.g. section)</i>	It shall be justified with evidence the assumption of 50% as the value for the parameter $V_{CH_4,t,db}$ in the ex ante calculation.		
PP RESPONSE #1	<i>This section shall be filled by the PP.</i>		
<i>It shall address the corrective action taken in details</i>	For the purpose of ex-ante calculations a default value of 50% has been selected, according to the last on-site measurements available. For further reference please refer to the issued Monitoring Reports of the project activity.		
<i>It shall provide and indentified the evidences proposed (if applicable)</i>	See spreadsheet named: "ER - 4th MR-25March2013.xlsx",		
DOE Assessment #1 <i>The assessment shall encompass all open issues. In case of non-closure additional corrective action and DOE assessments (#2, #3, etc.) shall be added</i>	The assumption of 50% for the parameter $V_{CH_4,t,db}$ used in the ex ante calculation has been properly justified with evidence based in the last monitoring period verified. This assumption is deemed as conservative and appropriate.		
PP RESPONSE #2	<i>This section shall be filled by the PP.</i>		
<i>Corrective action</i>			
<i>Evidence proposed</i>			
DOE Assessment #2			
Conclusion <i>Tick the appropriate checkbox</i>	CAR/CL CLOSED <input checked="" type="checkbox"/>	To be checked during the first periodic verification <input type="checkbox"/>	

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannhill and La Mercy Landfills"

7 REFERENCES

Reference	Document Name	Author/Competent Authority
1	PDD version 1	Project Proponent
2	PDD version 3	Project Proponent
3	Approved Methodology: ACM0001 (Version. 15.0.0)	CDM - EXECUTIVE BOARD
4	CDM Project Cycle Procedure version 05.0	CDM - EXECUTIVE BOARD
5	CDM Project Standard version 05.0.	CDM - EXECUTIVE BOARD
6	Tool "Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period" version 03.0.1".	CDM - EXECUTIVE BOARD
7	Tool "Emissions from solid waste disposal sites" version 06.0.1	CDM - EXECUTIVE BOARD
8	Tool "Project emissions from flaring" version 2.0.0.	CDM - EXECUTIVE BOARD
9	Tool to calculate baseline, project and/or leakage emissions from electricity consumption. Version 1	CDM - EXECUTIVE BOARD
10	Standardized baseline "Grid emission factor for the Southern African power pool". Version 01.0	CDM - EXECUTIVE BOARD
11	Tool to determine the mass flow of a greenhouse gas in a gaseous stream. Version 02.0.0	CDM - EXECUTIVE BOARD
12	CDM Validation and Verification Standard. Version 05.0.	CDM - EXECUTIVE BOARD
13	Minimum Requirements for Waste Disposal by Landfill (3rd Edition, 2005)	Department of Water Affairs and Forestry Republic of South Africa
14	National Environmental Management: Waste Act No. 59 of 2008 (NEM:WA)	Government Gazette. Republic of South Africa
15	SA Landfills Legal Requirements April 2013	ENS Africa's largest law firm
16	Landfill Gas Resources for Power Generation in South Africa	Department of Minerals and Energy Pretoria
17	South African CDM Projects Portfolio dated on February 2013	DNA of South Africa
18	Eskom Report for 2012 (http://www.pads.eezeepage.co.za/j/69721/)	Eskom, South African energy utility
19	Technical Description Engine.pdf	GE Jenbacher
20	"Ex-ante estimation EC _{pj,y} .xlsx"	Project Proponent

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"Durban Landfill-Gas-to-Electricity Project – Mariannhill and La Mercy Landfills"

Reference	Document Name	Author/Competent Authority
21	MHill engine operations plan.pdf.	Peter's Plant Hire
22	EP029-2013-L001 DSW - Mariannhill LFG O&M - 2013-09-26.pdf.	Envitech Projects
23	Mariannhill Waste up to Sep 2012	Project Proponent
24	Electricity Invoices	Ethekwini Municipality
25	Durban Climatological information is based on monthly averages for the 30-year period 1961-1990. (http://www.worldweather.org/035/c00137.htm)	World Meteorological Organization
26	130403_Mariannhill_remaining tonnages	Project Proponent
27	"ER - 4th MR-25March2013.xlsx",	UNFCCC website
28	ECP],y_FirstCreditingPeriod.xlsx	Project Proponent
29	ER_Calculation_Durban_V1_130610.xlsx	Project Proponent
30	ER_Calculation_Durban_V2_051213.xlsx	Project Proponent

ANNEX 1: CDM VALIDATION PROTOCOL

VALIDATION PROTOCOL

PROJECT:

“Durban Landfill-gas-to-electricity project – Mariannhill and La
Mercy Landfills.”

PROJECT PARTICIPANT:

INTERNATIONAL BANK FOR RECONSTRUCTION AND
DEVELOPMENT (IBRD) AS TRUSTEE OF THE PROTOTYPE CARBON
FUND (PCF)

Validation Type	
<input checked="" type="checkbox"/> Validation of a Project Activity	
Validation Team: Alfonso MEDRANO GUTIERREZ Pablo TABOADA UTRERA	
Version of this Validation Protocol: 03	Date: 31/01/2014

VALIDATION REPORT

“Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills”

CHECKLIST TOPIC / QUESTION	MoV/Ref *	COMMENTS	Draft Conclusion	Final Conclusion
A. GENERAL DESCRIPTION OF PROJECT ACTIVITY				
A.1. Approval				
A.1.1 Have all the Parties involved in the project activity provided a written Letter of Approval of the project activity? Are they valid for the project activity?	DR	N/A. According to paragraph 247 of the CDM Project Cycle Procedure version 05.0, for the purpose of renewal of the crediting period it is not necessary to obtain a new letter of approval from Parties involved.	N/A	N/A
A.1.2 Do the Letters of Approval confirm that: <ul style="list-style-type: none"> The Party is a Party to the Kyoto Protocol The participation is voluntary The CDM project activity contributes to the sustainable development (host Party) The title of the project activity is precise and coincides with the title included in the PDD 	DR	N/A. According to paragraph 247 of the CDM Project Cycle Procedure version 05.0, for the purpose of renewal of the crediting period it is not necessary to obtain a new letter of approval from Parties involved.	N/A	N/A
A.1.3 Has the Letter of Approval been obtained from the project participants or directly from the DNA? In case that it has been obtained from the project participant, how has its authenticity been assessed?	DR	N/A. According to paragraph 247 of the CDM Project Cycle Procedure version 05.0, for the purpose of renewal of the crediting period it is not necessary to obtain a new letter of approval from Parties involved.	N/A	N/A
A.1.4. If LoA contains either additional specification or conditions of the project activity, then has the request for registration been based on the documents specified in the LoA?	DR	N/A. According to paragraph 247 of the CDM Project Cycle Procedure version 05.0, for the purpose of renewal of the crediting period it is not necessary to obtain a new letter of approval from Parties involved.	N/A	N/A
A.1.5. If the LoA references a specific version of the Validation Report or PDD and this version cannot be	DR	N/A. According to paragraph 247 of the CDM Project Cycle Procedure version 05.0, for the purpose of renewal of the	N/A	N/A

VALIDATION REPORT

“Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills”

submitted, then has either of the following been submitted? a) a statement indicating final LoA has not been received, or b) an updated Validation Report/ PDD		crediting period it is not necessary to obtain a new letter of approval from Parties involved.		
A.2. Authorization of Project participants				
A.2.1. Is the form required for the indication of project participants correctly applied in the PDD?	DR	Yes, the form required for the indication of project participants is correctly applied in the PDD.	OK	OK
A.2.2. Has each project participant been authorized in a letter of approval by at least one Party involved?	DR	Yes, each project participant has been authorized in a letter of approval by at least one Party involved.	OK	OK
A.2.3. Is all information on participants / Parties provided in consistency with details provided by further chapters of the PDD (in particular Appendix 1)?	DR	CAR1: There are inconsistencies between information on Project Participants stated in section A.4 and in Appendix 1 of the PDD. The PDD has been updated and inconsistencies have been solved. All the information on participants / Parties provided in the PDD is consistent. CAR1 is closed.	CAR1	OK
A.2.4. Are any other project participants approved but not listed in the PDD?	DR	No, all the PPs approved are listed in the PDD.	OK	OK
A. 3. Modalities of communication				
A.3.1. Has the corporate and personal identity of all project participants and focal points included in the MoC statement been validated? Have the signatures and employment status been checked? This has been validated through: (a) Directly checking evidence for corporate, personal	DR	N/A	N/A	N/A

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“Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills”

identity and other relevant documentation; (b) Notarized documentation; or (c) Written confirmation from the project participant or the coordinating/managing entity that submits to it the MoC statement that all corporate and personal details, including specimen signatures, are valid and accurate. In this case, the official who signed the written confirmation (if a different person than the signatory in the MoC) is duly authorized to do so.				
A.3.2. Has the MoC statement been received from the PP with whom the DOE has a contractual relationship?	DR	N/A	N/A	N/A
A.3.3. In the case of a CDM PoA, has the MoC statement been received from the coordinating/managing entity?	DR	N/A	N/A	N/A
A.3.4 Has the MoC statement been correctly completed and duly authorized? (a) The latest version of the form “Modalities of Communication statement” (F CDM MOC) has been used; (b) The information required as per the F-CDM-MOC, including its annex 1, is correctly completed; (c) The project participant’s authorized signatories signing the F-CDM-MOC correspond to the project participant’s authorized signatories included in F-CDM-MOC, annex 1.	DR	N/A	N/A	N/A
A.4. Project Design Document				
A.4.1. Does the used project title clearly enable to identify the unique CDM project activity? Is it consistent in all section of the PDD and in all documents?	DR	Yes, the used project title identifies clearly the unique CDM project activity	OK	OK

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“Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills”

A.4.2. Is there any indication concerning the version number and the date of the version?	DR	Yes there is an indication of the date and the version number of the PDD.	OK	OK
A.4.3. Is this consistent with the time line of the project's history?	DR	Yes, it is in line with the time line of the project's history	OK	OK
A.4.4. Is the PDD prepared in accordance with the latest template and requirements from the CDM Executive Board?	DR	<p>CAR2: The PDD has been prepared using the latest template approved by the EB (F-CDM-PDD version 04.1) however there are some sections that do not follow the instructions stated in the “Guidelines for Completing the Project Design Document Form version 01.0”:</p> <ul style="list-style-type: none"> - Section B.1 does not refer to the UNFCCC CDM website for the exact reference of approved baseline and monitoring methodologies and tools. - Section B.5 shall include the information on the demonstration of additionality as it was originally described in the PDD. (Introduction about renewal is perfectly right, but the rest shall be exactly described as in the original PDD) - The format of the dates included in tables of sections B.6.3 and B.6.4 is not homogeneous and does not comply with the UNFCCC format (DD/MM/YYYY). - Section D and Section E include a reference to the “Procedures for renewal of the crediting period of a registered CDM project activity” (Annex 11, EB46) which is obsolete and has been replaced by the CDM Project Cycle Procedure and the CDM Project Standard. <p>The latest version of the PDD is correctly updated following the instructions stated in the “Guidelines for Completing the Project Design Document Form version 01.0”</p> <p>CAR2 is closed.</p>	CAR2	OK

VALIDATION REPORT

“Durban Landfill-Gas-to-Electricity Project – Mariannhill and La Mercy Landfills”

A.4.5. Has the PDD been published for Global Stakeholder Consultation (GSC) in UNFCCC website?	DR	N/A. According to the CDM Project Cycle Procedure version 05.0, for the purpose of renewal of the crediting period it is not necessary to publish the PDD for Global Stakeholder Consultation (GSC) in UNFCCC website.	N/A	N/A
A.4.6. Have there been any comments during the GSC process?	DR	N/A. According to the CDM Project Cycle Procedure version 05.0, for the purpose of renewal of the crediting period it is not necessary to publish the PDD for Global Stakeholder Consultation (GSC) in UNFCCC website.	N/A	N/A
A.4.7. Have they been correctly addressed by the validation team?	DR	N/A. According to the CDM Project Cycle Procedure version 05.0, for the purpose of renewal of the crediting period it is not necessary to publish the PDD for Global Stakeholder Consultation (GSC) in UNFCCC website.	N/A	N/A
A.5. Description of the project activity The PDD (section A.1) shall contain a clear description of the project activity that provides the reader with a clear understanding of the precise nature of the project activity.				
A.5.1. Is the description delivering a transparent overview of the project activities? Does the description of the proposed CDM project activity as contained in the PDD sufficiently cover all relevant elements? Is it accurate and does it provide the reader with a clear understanding of the nature of the proposed CDM project activity?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.5.2. What proofs are available for demonstrating that the project description is in compliance with the actual situation or planning?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A

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“Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills”

A.5.3. Is the information provided by these proofs consistent with the information provided by the PDD?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.5.4. Has the validation team conducted a physical site inspection to confirm the description of the PDD? If not, justify.	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.5.5. If the proposed CDM project activity involves the alteration of an existing installation or process, does the project description clearly state the differences resulting from the project activity compared to the pre-project situation?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.5.6. In the case of greenfield project activity, is the project design described sufficiently by means of specifications, drawings and manuals?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.5.7. Does the PDD explain how the proposed project activity reduces greenhouse gas emissions (i.e. what type of technology is being employed, what measures are undertaken as part of the project activity, etc)?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A

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“Durban Landfill-Gas-to-Electricity Project – Mariannhill and La Mercy Landfills”

A.6. Technical description of the project activity

The PDD (section A.2 and A.3) shall contain a clear description of the project activity that provides the reader a clear understanding of the technical aspects of its implementation.

A.6.1. Location of the project activity

A.6.1.1. Does the information provided on the location of the project activity allow for a clear identification of the site(s)? Are the latitude and longitude on the site indicated (decimal points)?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.6.1.2. How is it ensured and/or demonstrated that the project proponents can implement the project at this site (ownership, licenses, contracts etc.)?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A

A.6.2. Category of the project activity

A.6.2.1. Does the project qualify as a small scale CDM project activity as defined in paragraph 6 (c) of decision 3/CMP.1 on the modalities and procedures for the CDM?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.6.2.2. To which category(ies) does the project activity belong to? Is this category correctly identified and indicated?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring	N/A	N/A

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		methodology.		
A.6.2.3. Does proposed project activity confirm to one of the project categories defined for small scale CDM project activities?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.6.2.4. In the case of a small scale project activity, is it justified that it is not a debundled component of a larger project activity?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.6.2.5. In case of small scale project activities, is the estimate of emissions reductions increasing during the crediting period? In affirmative case, have project participants demonstrated in the CDM-SSC-PDD that the project activity characteristics are defined in a way that precludes project activities to go beyond the limits for SSC Project activities (as stipulated in paragraph 3 of the General Guidelines to SSC CDM methodologies)?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
<i>A.6.3. Technology to be employed by the project activity</i>				
A.6.3.1. Does the description of the technology to be applied provide sufficient and transparent input/information to evaluate its impact on the greenhouse gas balance? And, is the explanation how the project will reduce greenhouse gas emission transparent and suitable?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A

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A.6.3.2. Does the project require extensive initial training and maintenance efforts in order to be carried out as scheduled during the project period? If so, does the project make provisions for meeting training and maintenance needs?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.6.3.3. Is a schedule available for the implementation of the project and are there any risks for delays? Is the schedule consistent with the starting date of the crediting period?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
<i>A.6.4. Estimated amount of emission reductions over the chosen crediting period</i>				
A.6.4.1. Is the form required for the indication of projected emission reductions correctly applied?	DR	Yes, the form required for the indication of projected emission reductions is correctly applied.	CAR2	OK
A.6.4.2. Are the figures provided consistent with other data presented in the PDD?	DR	Yes, the figures provided are consistent with other data presented in the PDD.	CAR2	OK
<i>A.6.5. Public funding of the project activity</i>				
A.6.5.1. In case of public funding from Annex I Parties, is it confirmed that such funding does not result in a diversion of official development assistance?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
A.6.5.2. Is all information provided consistent with the details given in remaining chapters of the PDD (in particular annex 2)?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the	N/A	N/A

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		monitoring plan using an approved baseline and monitoring methodology.		
B. BASELINE AND MONITORING METHODOLOGY				
B.1. Title and reference of the approved baseline and monitoring methodology				
B.1.1. Are reference number, version number, and title of the approved baseline and monitoring methodology clearly indicated?	DR	<p>According to the CDM Project Cycle Procedure version 05.0 if a baseline and monitoring methodology applied in the original CDM-PDD was withdrawn after the registration of the CDM project activity and replaced by a consolidated methodology, the latest approved version of the respective consolidated methodology shall be used.</p> <p>The methodology used for the project activity registration, AM0010 version 1, was withdrawn and replaced by a consolidated methodology ACM0001 after the registration of the project activity.</p> <p>The updating related to baseline, estimated emission reductions and monitoring plan has been carried out according to the applied methodology ACM0001, version 15.0.0</p>	OK	OK
B.1.2. Is the applied version the most recent one and / or is this version still applicable?	DR	The applied methodology ACM0001 "Flaring or use of Landfill Gas" Version 15.0.0 is the most recent one.	OK	OK
B.1.3. Does the PDD refer to the corresponding tools with their latest approved versions?	DR	<p>The PDD refer to the corresponding tools:</p> <ul style="list-style-type: none"> - "Emissions from solid waste disposal sites" (version 06.0.1) - "Project emissions from flaring"(version 02.0.0) - "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" (version 1) - Standardized baseline "Grid emission factor for the Southern African power pool", (version 01.0) 	OK	OK

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		<ul style="list-style-type: none"> - “Tool to determine the mass flow of a greenhouse gas in a gaseous stream” (version 02.0.0) - “Assessment of the validity of the original/current baseline and update of the baseline at the renewal of the crediting period” (Version 03.0.1) 		
B.1.4. Have any sources of greenhouse gas emissions been identified by the DOE ,within the project boundary following project implementation, which are expected to contribute more than 1% of the overall expected average annual emissions reductions, and which are not addressed by the applied methodology?	DR	No, they are not identified.	OK	OK
B.2. Applicability of the selected methodology to the project activity				
B.2.1. Are the chosen tools considered applicable in accordance with the design of the project and the provisions of the applied methodology?	DR	Yes, the chosen tools are considered applicable in accordance with the design of the project and the provisions of the applied methodology.	OK	OK
B.2.2. Is the choice of the methodology correctly justified by the PDD and is the project in conformance with all applicability criteria of the applied methodology and tools?	DR	Yes, the choice of the methodology is correctly justified by the PDD and the project is in conformance with all applicability criteria of the applied methodology and tools	OK	OK
B.2.3 Has been applied the specific guidance provided by the CDM Executive Board in respect to the approved methodology?	DR	Yes, it has been applied.	OK	OK
B.2.4. Is the evidence provided to the validation team enough to prove that all applicability criteria are completely met?	DR	Yes, evidence has been provided	OK	OK
B.2.5. In the case of project activities consisting in different sites or implementation phases, are all	DR	N/A	N/A	N/A

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applicability criteria met for all the sites and phases?						
Fill in the required amount of sub checklists for applicability criteria as given by the methodology applied and comment at least every line answered with “No”						
B.2.6. Criterion 1 - Install a new LFG capture system in a new or existing SWDS	DR		Applicability checklist	Yes/No	CL1	OK
			Criterion discussed in the PDD?	Yes		
			Evidence provided?	Yes		
			Compliance verified?	Yes		
			CL1: Evidence “SA Landfills Legal Requirements April 2013” shall be provided to the DOE Team. Evidence has been provided and this criterion is properly demonstrated. CL1 is closed.			
B.2.7. Criterion 2 - Make an investment into an existing LFG capture system to increase the recovery rate or change the use of the captured LFG, provided that: • The captured LFG was vented or flared and not used prior to the implementation of the project activity; and • In the case of an existing active LFG capture system for which the amount of LFG cannot be collected separately from the project system after the implementation of the project activity and its efficiency is not impacted on by the project system: historical data on the amount of LFG capture and flared is available.	DR		Applicability checklist	Yes/No	OK	OK
			Criterion discussed in the PDD?	Yes		
			Evidence provided?	Yes		
			Compliance verified?	Yes		

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<p>B.2.8. Criterion 3 - Flare the LFG and/or use the captured LFG in any (combination) of the following ways:</p> <ul style="list-style-type: none">Generating electricity;Generating heat in a boiler, air heater or kiln (brick firing only) or glass melting furnace; and/orSupplying the LFG to consumers through a natural gas distribution network.Supplying compressed/liquefied LFG to consumers using trucks	DR	<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>Evidence provided?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table> <p>The project activity at Mariannhill generates electricity but it does not generate heat. The project will not supply LFG to consumers through a natural gas distribution system and compressed/liquefied LFG to consumers using trucks either.</p>	Applicability checklist	Yes/No	Criterion discussed in the PDD?	Yes	Evidence provided?	Yes	Compliance verified?	Yes	OK	OK
Applicability checklist	Yes/No											
Criterion discussed in the PDD?	Yes											
Evidence provided?	Yes											
Compliance verified?	Yes											
<p>B.2.9. Criterion 4 – The project does not reduce the amount of organic waste that would be recycled in the absence of the project activity.</p>	DR	<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>Evidence provided?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table>	Applicability checklist	Yes/No	Criterion discussed in the PDD?	Yes	Evidence provided?	Yes	Compliance verified?	Yes	OK	OK
Applicability checklist	Yes/No											
Criterion discussed in the PDD?	Yes											
Evidence provided?	Yes											
Compliance verified?	Yes											
<p>B.2.10. Criterion 5 - ACM0001 "Flaring or use of landfill gas" (version 15.0.0) is only applicable if the application of the procedure to identify the baseline scenario confirms that the most plausible baseline scenario is:</p> <ul style="list-style-type: none">Release of LFG from the SWDS; andIn the case that the LFG is used in the project activity for generating electricity and/or generating heat in a boiler, air heater, glass melting furnace or kiln;For electricity generation: that electricity would be generated in the grid or in captive fossil fuel fired power plants; and/or	DR	<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>Evidence provided?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table>	Applicability checklist	Yes/No	Criterion discussed in the PDD?	Yes	Evidence provided?	Yes	Compliance verified?	Yes	OK	OK
Applicability checklist	Yes/No											
Criterion discussed in the PDD?	Yes											
Evidence provided?	Yes											
Compliance verified?	Yes											

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<ul style="list-style-type: none">For heat generation: that heat would be generated using fossil fuels in equipment located within the project boundary.												
<p>B.2.11. Criterion 6 - Finally, methodology ACM0001 "Flaring or use of landfill gas"(version 15.0.0) is not applied to this project activity:</p> <ul style="list-style-type: none">In combination with other approved methodologies. The purpose of the CDM project activity is not to implement energy efficiency measures at the kiln. Since condition (a) is not applicable to the project activity, ACM0001 "Flaring or use of landfill gas"(version 15.0.0) is applicable for the project activity.If there is a change of the management of the SWDS in order to increase methane generation compared to the situation prior to the implementation of the project activity. Since condition (b) is not applicable to the project activity, ACM0001 "Flaring or use of landfill gas"(version 15.0.0) is applicable for the project activity.	DR	<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>Evidence provided?</td><td>Yes</td></tr><tr><td>Compliance verified?</td><td>Yes</td></tr></table>	Applicability checklist	Yes/No	Criterion discussed in the PDD?	Yes	Evidence provided?	Yes	Compliance verified?	Yes	OK	OK
Applicability checklist	Yes/No											
Criterion discussed in the PDD?	Yes											
Evidence provided?	Yes											
Compliance verified?	Yes											
<p>B.2.12. Was there a request for clarification, revision or deviation made for the adopted methodology in relation to the proposed project activity?</p> <p>If so, were the correct procedures provided by the CDM EB followed?</p>	DR	No there was not.	OK	OK								
B.3. Description of the Project Boundary												
B.3.1 Are all the sources and gases included in the project boundary of the project activity (baseline scenario, project scenario and leakage) in accordance	DR	Yes, sources of gases are included in the project boundary of the project activity (baseline scenario, project scenario and leakage)	OK	OK								

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with the applied methodology?		in accordance with the applied methodology		
B.3.2. Are the inclusion or exclusion of the sources of gases correctly justified?	DR	Yes they are.	OK	OK
B.3.3. Do the spatial and technological boundaries as verified on-site comply with the discussion provided by the PDD?	DR	Yes they do.	OK	OK
B.3.4. In case of grid connected electricity projects, is the relevant grid correctly identified in accordance with EB guidance and the underlying methodology?	DR	Yes, the grid is correctly identified in accordance with EB guidance and the underlying methodology	OK	OK
B.4. Description of the baseline scenario identification				
B.4.1. Is the baseline scenario clearly described?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.4.2. Have there been other alternative scenarios considered? Is it justified the selected scenario as the most likely one?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.4.3. Does the PDD follow the steps to determine the baseline scenario required by the methodology?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A

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B.4.4. Has the baseline scenario been determined using conservative assumptions where possible?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.4.5. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies? (<i>Note: refer Annex 3 EB 22</i>). Are they listed in the PDD?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.4.6 If alternatives are excluded: a.- Is sufficient evidence/ justification provided to support every exclusion of alternatives? Is it reasonable? b.- Is it shown that at least one credible and feasible alternative does not face a barrier? Is this reasonable?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.4.7 Is the baseline scenario determination compatible with the available data and is all literature and sources clearly referenced?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
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):				
B.5.1 Is the start date defined in accordance with the “Glossary of CDM terms”? What evidence is provided to verify that this was the official start date? Is this considered reliable and reasonable?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the	N/A	N/A

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		monitoring plan using an approved baseline and monitoring methodology.		
B.5.2 Is it a new project activity (start date on or after August 2008) or an existing project?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
<p>B.5.3 For a new project which does not require a new methodology and has not published its PDD for stakeholder comments prior to the start date, then:</p> <p>a. Have the project proponents informed the DNA and/or UNFCCC secretariat in writing? How has this notification been verified? (i.e. confirmation from the DNA or UNFCCC)</p> <p>b. Was the notification made within 6 months of the project activity start date?</p> <p>c. Does the letter/ notification indicate the precise geographic location and provide a brief description of the proposed project?</p> <p>d. Have the project proponents informed the DNA and/or UNFCCC secretariat of the progress of the project activity every subsequent two years after the initial notification?</p>	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
<p>B.5.4 For an existing project which has a start date prior to the publication of the PDD for global stakeholder comments, has the project proponent provided the following:</p> <p>a. Evidence of awareness of the CDM prior to the project activity start date and that the benefits of the CDM were a decisive factor in the decision to proceed with the</p>	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A

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project? (e.g. Board minutes, notes etc) Is this sufficient? b. Reliable evidence that demonstrates real actions were taken to secure CDM status in parallel with the project’s implementation? (e.g. contracts with consultants for CDM/PDD/methodology services, ERPAs, correspondence with CER buyers, DOEs, DNAs or the UNFCCC). Is this sufficient?				
B.5.5. Is the project additionality assessed according to the applicable methodology? Detail the Tool used to demonstrate the Additionality of the project activity.	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.6. In the case of a small scale project activity, is the additionality justified according to the applicable CDM requirements specific for small scale project activities?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.7 Have realistic and credible alternatives been identified providing comparable outputs or services?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.8. Is the project activity without CDM included in these alternatives?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A

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B.5.9. Is a discussion provided for all identified alternatives concerning the compliance with applicable laws and regulations?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.10. In case of using a FSR as a basis of the decision, is this analysis made in accordance with the EB Guidance?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.11. In case the PDD argues that specific laws are not enforced in the country or region: Is evidence available concerning that statement?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.12. In case of applying step 2 / investment analysis of the additionality tool: Is the analysis method identified appropriately?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.13. In case of Option I (simple cost analysis): Is it demonstrated that the activity produces no economic benefits other than CDM income? a. Are the assumptions for all alternatives compared consistent (including discount rates if applicable)?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A

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B.5.14. 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)? a. Are the assumptions for all alternatives compared consistent (including discount rates if applicable)?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.15. In case of Option III (benchmark analysis): Is the most suitable financial indicator clearly identified (IRR, NPV, cost benefit ratio, or (levelized) unit cost)? a. If an IRR indicator is used, is the choice of benchmark appropriate to the type of IRR calculated? b. Is the choice of benchmark or discount rate justified with supporting evidence for its appropriateness?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.16 If risk premiums are applied in the development of the benchmark, are they reasonable and justified?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.17 Do the project participants justify the period of assessment in the context of the underlying project activity?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.18 Regarding the assessment: a. Complete the following time periods (years): - Period of assessment:	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring	N/A	N/A

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<p>- Crediting period:</p> <p>-Technical lifetime of the project activity:</p> <p>b. Are these periods consistent with paragraph 3 of the “Guidelines on the assessment of investment analysis (version 05)”.</p> <p>c. Is the period of assessment appropriate?</p>		methodology.		
B.5.19 Is any residual value of the project activity assets included in the analysis? Are residual value calculations reasonable and justified and consistent with local accounting rules or international best practice?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.20 Are depreciation and other non-cash items related to the project activity deducted from net profits used for calculating the financial indicator (e.g. IRR, NPV)?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.21 Is the treatment of taxation consistent with the chosen benchmark? (i.e. taxation should only be treated as an expense in the IRR/NPV calculation if the chosen benchmark is intended for post-tax calculations?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
<p>B.5.22 Recommended project: If the implementation of the project ceased and then recommended due to consideration of the CDM, then:</p> <p>a. Are input values valid and applicable at the time of making the decision to recommence the project?</p>	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A

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<p>b. Are capital costs incurred prior to the revised project activity start date input as the recoverable value of the assets (limited to the potential reuse/ resale of tangible assets)?</p> <p>c. How has the fair market value of the capital expenditures been calculated and validated? (e.g. by chartered specialists). Is this fair market value reasonable and justified?</p> <p>d.- Is the book value as well as the expectation of the potential profit or loss included in the fair value calculation?</p>				
<p>B.5.23 Has the project participant supplied unprotected and traceable spreadsheet versions of all investment analysis?</p>	DR	<p>N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.</p>	N/A	N/A
<p>B.5.24 From the investment analysis provided, is it possible to reproduce the results?</p>	DR	<p>N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.</p>	N/A	N/A
<p>B.5.25 Costs of financing expenditures (i.e. loan repayments and interest) should only be included in the cashflow as costs if an equity IRR is used, not if a project IRR is used.</p> <p>Are interest payments taken into account in the calculation of tax, if the benchmark is for after-tax comparison?</p>	DR	<p>N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.</p>	N/A	N/A

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B.5.26 If an Equity IRR has been used, is the debt portion of the investment cost included as a cash outflow? (i.e. as well as interest costs and principle repayments – double counting)	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.27 Sensitivity analysis: a. Are all variable and critical costs and revenues in the analysis included in the sensitivity analysis? b. Is the assessed range of variations reasonable in light of the reliability of the estimated input values and the likely range? c. Is the sensitivity analysis possible to reproduce?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.28 Are input values used in all the investment analysis valid and applicable at the time of the investment decision taken by the project participant? Is the time of investment decision appropriately justified by evidences?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.29 Does the PDD present the investment analysis in a transparent manner and provide all the relevant assumptions (preferably in the CDM-PDD form, or in separate appendices to the CDM-PDD)?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.30 Have the listed input values been consistently applied in all calculations?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring	N/A	N/A

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		methodology.		
B.5.31 Are all references made in the investment analysis correctly referenced/ sourced? Have these sources been verified?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.32 Have financial calculations been verified by: assessing all parameters and assumptions against the available evidence and expertise; crosschecking the parameters against 3rd party or publicly available sources; reviewing feasibility reports, public announcements and annual financial reports; assessing the correctness of computations and the sensitivity analysis?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.33 Have values from a feasibility study report (FSR) approved by national authorities been used? If so: a. Has the FSR been the basis of the decision to proceed with the investment in the project? How has this been verified? b. Are the values used in the PDD and associated annexes valid and consistent with the FSR? c. At the time of the investment decision, are the input values from the FSR valid and applicable (based on specific local and sectoral expertise and knowledge)?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.34. In case of applying step 3 (barrier analysis) of the additionality tool: Is a complete list of barriers developed that prevent the different alternatives to occur?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring	N/A	N/A

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		methodology.		
B.5.35. Do any such identified barriers have a clear and direct impact on the financial returns of the project activity? (these are not barriers and should be assessed in the investment analysis)	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.36 Are the identified barriers real and substantiated by independent sources of data such as relevant national legislation, surveys of local conditions and national or international statistics?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.37. Is it clearly explained how approval of the project in the CDM would enable the proposed project activity to surmount the barrier? Is the rationale reasonable and justified with evidence?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.38. Does the review of relevant background information on the nature of the company(ies) and entitiy(ies) involved in the financing and implementation of the project sufficiently justify that the barriers related to the lack of access to capital, technologies and skilled labour are real?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.39 Has common practice analysis been undertaken? Mention the tool or guidelines applied for this analysis.	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring	N/A	N/A

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		methodology.		
<p>B.5.40 Is the geographical and temporal scope of the common practice analysis appropriate for the assessment related to the project activity's technology or industry type?</p> <p>Which is the relevant geographical area assessed for the common practice analysis?</p>	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
<p>B.5.41 Have all similar projects regarding the same technology and industrial sector been included in the common practice analysis? Which are these projects? What sources of information have been used to assess the existence of similar projects? (official sources, local and industry expertise).</p> <p>If some projects have been excluded as non comparable or not similar, is the exclusion reasonable and justified?</p>	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
<p>B.5.42 Have similar and operational projects other than CDM project activities been undertaken in the region?</p>	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
<p>B.5.43 Are these widely observed and commonly carried out?</p> <p>If so:</p> <p>a. How have the essential distinctions with the proposed CDM project activity been assessed?</p> <p>b. Are such distinctions justified with sufficient evidence?</p>	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A

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c. If inaccessibility of data is the reason why some projects have not been included in the analysis, is justification of this claim provided?				
B.5.44 Overall, is the proposed CDM project activity considered common practice?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.5.45. Is it demonstrated/justified that the project activity is not a likely baseline scenario?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
B.6. Emissions reductions				
<i>B.6.1. Explanation of methodological choices</i>				
B.6.1.1. Is it explained how the procedures provided in the methodology are applied by the proposed project activity?	DR	Yes, it is explained how the procedures provided in the methodology are applied by the proposed project activity.	OK	OK
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?	DR	Yes, every selection of options is justified.	OK	OK
B.6.1.3. Are the formulae required for the determination of emissions reductions correctly presented and used? (Open excel, traceability of data, etc)	DR	Yes, formulae are correctly presented and used.	OK	OK

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B.6.1.4 Are all the data and assumptions listed in the PDD? Are they appropriate and do calculations result in a conservative estimate of emission reductions?	DR	Yes, all data and assumptions listed in the PDD are appropriate and conservative.	OK	OK
<i>B.6.2. Data and parameters that are available at validation</i>				
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? Is all the information required for each parameter included?	DR	<p>CAR3: Fixed parameters derived from the application of the “Tool to determine the mass flow of a greenhouse gas in a gaseous stream” version 02.0.0 have not been included in section B.6.2 of the PDD. Evidence supporting those data shall be provided to the DOE team if necessary.</p> <p>Parameters have been correctly included in the latest version of the PDD.</p> <p>CAR3 is closed.</p> <p>CAR4: Fixed parameters derived from the application of the “Tool to calculate project or leakage CO2 emissions from fossil fuel combustion version 02” have not been included in section B.6.2 of the PDD. Evidence supporting those data shall be provided to the DOE team if necessary.</p> <p>The PP assumes, based on the experience of the first crediting period that no fossil fuel will be consumed during the second crediting period. According to this assumption no project emissions from fossil fuel combustion shall be calculated and therefore parameters used in that calculation shall not be included in the PDD.</p> <p>CAR4 is closed.</p> <p>CAR5: Parameter TDL,y has been incorrectly considered as a parameter fixed ex ante. According to the “Tool to calculate baseline, project and/or leakage emissions from electricity consumption” version 01, this parameter shall be monitored</p>	CAR3, CAR4, CAR5	OK

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		<p>annually. Furthermore, value applied for this parameter in the ex ante calculation shall be updated to the most recent value available at the time of renewal of the crediting period.</p> <p>Parameter TDL is considered as a parameter to be monitored in the latest version of the PDD and the value used for the ex ante calculation is the most recent one.</p> <p>CAR5 is closed.</p>		
B.6.2.2. Are all the data derived from official data sources or replicable records and have they been correctly quoted?	DR	Yes, all data are derived from official data sources or replicable records and have been correctly quoted.	OK	OK
<p>B.6.2.3. For each parameter:</p> <p>a. Title in line with Methodology?</p> <p>b. Data unit correctly expressed?</p> <p>c. Appropriate description?</p> <p>d. Source clearly referenced? (and appropriate?)</p> <p>e. Correct value provided?</p> <p>f. Has this value been verified?</p> <p>g. Choice of data correctly justified?</p> <p>h. Measurement method correctly described?</p> <p>i. Purpose of data indicated?</p>	DR	<p>CAR6: There is an inconsistency between value applied for parameter MCF (1) and the explanation given in the PDD about the choice of that value.</p> <p>The PDD has been updated including the correct explanation for the value applied for parameter MCF.</p> <p>CAR6 is closed.</p> <p>All the parameters available at the time of validation are correctly stated in the PDD.</p>	CAR6	OK
B.6.2.4. Will the data and parameters result in a conservative estimate of emissions reductions?	DR	Yes, data and parameters will result in a conservative estimate of emissions reductions	OK	OK

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B.6.3 Calculation of GHG Emission Reductions – Baseline Emissions

It is assessed whether the baseline emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.

B.6.3.1 Are the calculations documented according to the approved methodology and in a complete and transparent manner?	DR	<p>CAR7: Explanation given in the PDD regarding the Baseline Emissions associated with electricity generation ($BE_{EC,y}$) is not complete. Justification on the Emission Factor selected(option ex-ante or ex-post, source of data), and TDL (value applied and source of data) shall be included in the corresponding section of the PDD.</p> <p>The PDD has been updated including a justification on the Emissions Factor selected and also about the data sources used.</p> <p>CAR7 is closed.</p> <p>CL2: Evidence supporting all the input values used in the ERs calculation and provided by the project developer (Waste inputs, Waste composition, Working times, electricity consumptions, equipment details...) shall be provided to the DOE team.</p> <p>The latest version of the PDD has been correctly updated. The evidence missing has been also provided and deemed as appropriate. The ERs spreadsheet has been also assessed in order to verify that the new data provided are correctly included in the calculation, and no inconsistencies have been found.</p> <p>CL2 is closed.</p>	CAR7, CL2	OK
B.6.3.2. Have conservative assumptions been used when calculating the baseline emissions?	DR	Yes, conservative assumptions have been used in the calculation.	CL2, CAR5	OK
B.6.3.3 Are uncertainties in the baseline emission estimates properly addressed?	DR	No uncertainties are detected.	CL2, CAR4, CAR6	OK
B.6.3.4. Is additional background information on baseline data provided in Appendix 4 of the PDD? Is this information consistent with data presented by	DR	Yes information is included in Appendix 4 and it is consistent with other sections of the PDD.	OK	OK

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other sections of the PDD?				
B.6.4 Calculation of GHG Emission Reductions – Project Emissions <i>It is assessed whether the project emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>				
B.6.4.1 Are the calculations documented according to the approved methodology and in a complete and transparent manner?	DR	<p>CAR8: Explanation given in the PDD regarding the Project Emissions associated with electricity generation ($PE_{EC,y}$) is not complete. Justification on the Emission Factor selected (option ex-ante or ex-post, source of data), and TDL (value applied and source of data) shall be included in the corresponding section of the PDD. Further information on how $EC_{Pl,i,y}$ (Electricity consumption) is monitored shall be included in the PDD.</p> <p>The latest version of the PDD includes a correct explanation on Project Emissions associated with electricity generation ($PE_{EC,y}$). Values included are supported by truthful evidence.</p> <p>CAR8 is solved.</p> <p>Yes, calculations are documented according to the approved methodology and tools in a complete and transparent manner.</p>	CAR8	OK
B.6.4.2. Have conservative assumptions been used when calculating the project emissions?	DR	Yes, conservative assumptions have been used when calculating project emissions.	CAR4, CAR8	OK
B.6.4.3 Are uncertainties in the project emission estimates properly addressed?	DR	Yes, uncertainties in the project emission estimates are properly addressed	CAR4, CAR8	OK
B.6.5. Calculation of GHG Emission Reductions – Leakage <i>It is assessed whether leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.</i>				
B.6.5.1 Are the leakage calculations documented according to the approved methodology and in a	DR	N/A. No leakage effects are accounted for under this methodology.	N/A	N/A

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complete and transparent manner?				
B.6.5.2. Have conservative assumptions been used when calculating the leakage emissions?	DR	N/A. No leakage effects are accounted for under this methodology.	N/A	N/A
B.6.5.3. Are uncertainties in the leakage emission estimates properly addressed?	DR	N/A. No leakage effects are accounted for under this methodology.	N/A	N/A
<i>B.6.6. Ex-ante calculation of emission reductions</i>				
B.6.6.1. Are the GHG calculations documented in a complete and transparent manner? Are all the calculations correct?	DR	Yes, GHG calculations are documented in a complete and transparent manner. Calculations are correct.	CL2, CAR3-CAR8	OK
B.6.6.2. Is the data provided in this section consistent with data as presented in other chapters of the PDD?	DR	Yes, all data are consistent.	CL2, CAR3-CAR8	OK
<i>B.6.7. Summary of the ex-ante estimation of emission reductions</i>				
B.6.7.1. Will the project result in fewer GHG emissions than the baseline scenario?	DR	Yes, the project will result in fewer GHG emissions than the baseline scenario.	OK	OK
B.6.7.2. Are the emissions reductions projected in line with the envisioned time schedule for the project' implementation and the indicated crediting period?	DR	Yes, emissions reductions projected are in line with the envisioned time schedule for the project' implementation and the indicated crediting period.	OK	OK
B.7. Application of the monitoring methodology and description of the monitoring plan				
<i>B.7.1. Description of the monitoring plan</i>				
B.7.1.1 Is the monitoring plan documented according to the approved methodology and relevant tools and in a	DR	Yes, the monitoring plan is documented according to the approved methodology and relevant tools and in a complete	OK	OK

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complete and transparent manner?		and transparent manner		
B.7.1.2. Does the monitoring methodology provide a consistent approach in the context of all parameters to be monitored and further information provided in the PDD?	DR	Yes, the monitoring methodology provides a consistent approach in the context of all parameters to be monitored.	OK	OK
B.7.1.3. Does the monitoring plan provide a clear description of the organization structure involved in monitoring activities and their responsibilities?	DR	Yes, the monitoring plan provides a clear description of the organization structure involved in monitoring activities and their responsibilities	OK	OK
B.7.1.4. If applicable: Does appendix 5 provide useful information enabling a better understanding of the envisioned monitoring provisions?	DR	All the information about the monitoring plan is included in section B.7.	OK	OK
B.7.1.5. Is the registration, monitoring, measurement and reporting procedure defined?	DR	Yes, the registration, monitoring, measurement and reporting procedure is defined.	OK	OK
<i>B.7.2 Compliance of the monitoring plan with the approved methodology</i>				
B.7.2.1 Is the list of parameters considered to be complete with regard to the requirements of the applied methodology? Are all of them clearly described in the monitoring plan and in accordance with the methodology and tools?	DR	<p>CAR9: The list of parameters is not complete according to the applied methodology and tools. Some parameters, explained as methodological options selected in other sections of the PDD, have not been included.</p> <p>This list of parameters in the latest version of the PDD is considered complete with regard to the requirements of the applied methodology and tools. All the parameters are clearly described in the monitoring plan.</p> <p>CAR9 is solved.</p>	CAR9	OK
B.7.2.2. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary during the crediting	DR	Yes, the monitoring plan provides for the collection and archiving of all relevant data necessary for estimation or measuring the emission reductions within the project boundary	OK	OK

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period?		during the crediting period		
<p>B.7.2.3. Parameter V_{LFG,total,y,db}</p> <p>a. Title in line with methodology?</p> <p>b. Data unit correctly expressed?</p> <p>c. Parameter appropriately described?</p> <p>d. Source clearly referenced?</p> <p>e. Correct value provided for the purpose of PDD estimations?</p> <p>f. Has this value been verified?</p> <p>g. Measurement methods correctly described and in line with the methodology/tools?</p> <p>h. Correct reference to standards (i.e. for calibration and maintenance)?</p> <p>i. Indication of accuracy provided?</p> <p>j. QA/QC procedures appropriate and described?</p> <p>k. Purpose of data indicated?</p>	DR	<p>a. OK</p> <p>b. OK</p> <p>c. OK</p> <p>d. OK</p> <p>e. OK</p> <p>f. OK</p> <p>g. OK</p> <p>h. OK</p> <p>i. OK</p> <p>j. OK</p> <p>k. OK</p>	OK	OK
<p>B.7.2.4. Parameter V_{LFG,sent_flare,y,db}</p> <p>a. Title in line with methodology?</p>	DR	<p>a. OK</p> <p>b. OK</p>	OK	OK

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b. Data unit correctly expressed? c. Parameter appropriately described? d. Source clearly referenced? e. Correct value provided for the purpose of PDD estimations? f. Has this value been verified? g. Measurement methods correctly described and in line with the methodology/tools? h. Correct reference to standards (i.e. for calibration and maintenance)? i. Indication of accuracy provided? j. QA/QC procedures appropriate and described? k. Purpose of data indicated?		c. OK d. OK e. OK f. OK g. OK h. OK i. OK j. OK k. OK		
B.7.2.5. Parameter V_{LFG,EL,y,db} a. Title in line with methodology? b. Data unit correctly expressed? c. Parameter appropriately described? d. Source clearly referenced?	DR	a. OK b. OK c. OK d. OK e. OK	OK	OK

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<p>e. Correct value provided for the purpose of PDD estimations?</p> <p>f. Has this value been verified?</p> <p>g. Measurement methods correctly described and in line with the methodology/tools?</p> <p>h. Correct reference to standards (i.e. for calibration and maintenance)?</p> <p>i. Indication of accuracy provided?</p> <p>j. QA/QC procedures appropriate and described?</p> <p>k. Purpose of data indicated?</p>		<p>f. OK</p> <p>g. OK</p> <p>h. OK</p> <p>i. OK</p> <p>j. OK</p> <p>k. OK</p>		
<p>B.7.2.6. Parameter V_{LFG,total,y,wb}</p> <p>a. Title in line with methodology?</p> <p>b. Data unit correctly expressed?</p> <p>c. Parameter appropriately described?</p> <p>d. Source clearly referenced?</p> <p>e. Correct value provided for the purpose of PDD estimations?</p> <p>f. Has this value been verified?</p> <p>g. Measurement methods correctly described and in line</p>	DR	<p>a. OK</p> <p>b. OK</p> <p>c. OK</p> <p>d. OK</p> <p>e. OK</p> <p>f. OK</p> <p>g. OK</p> <p>h. OK</p>	OK	OK

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<p>with the methodology/tools?</p> <p>h. Correct reference to standards (i.e. for calibration and maintenance)?</p> <p>i. Indication of accuracy provided?</p> <p>j. QA/QC procedures appropriate and described?</p> <p>k. Purpose of data indicated?</p>		<p>i. OK</p> <p>j. OK</p> <p>k. OK</p>		
<p>B.7.2.7. Parameter V_{LFG, EL,y,wb}</p> <p>a. Title in line with methodology?</p> <p>b. Data unit correctly expressed?</p> <p>c. Parameter appropriately described?</p> <p>d. Source clearly referenced?</p> <p>e. Correct value provided for the purpose of PDD estimations?</p> <p>f. Has this value been verified?</p> <p>g. Measurement methods correctly described and in line with the methodology/tools?</p> <p>h. Correct reference to standards (i.e. for calibration and maintenance)?</p>	DR	<p>a. OK</p> <p>b. OK</p> <p>c. OK</p> <p>d. OK</p> <p>e. OK</p> <p>f. OK</p> <p>g. OK</p> <p>h. OK</p> <p>i. OK</p> <p>j. OK</p> <p>k. OK</p>	OK	OK

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i. Indication of accuracy provided?				
j. QA/QC procedures appropriate and described?				
k. Purpose of data indicated?				
<p>B.7.2.8. Parameter V_{LFG, sent_flare,y,wb}</p> <p>a. Title in line with methodology?</p> <p>b. Data unit correctly expressed?</p> <p>c. Parameter appropriately described?</p> <p>d. Source clearly referenced?</p> <p>e. Correct value provided for the purpose of PDD estimations?</p> <p>f. Has this value been verified?</p> <p>g. Measurement methods correctly described and in line with the methodology/tools?</p> <p>h. Correct reference to standards (i.e. for calibration and maintenance)?</p> <p>i. Indication of accuracy provided?</p> <p>j. QA/QC procedures appropriate and described?</p> <p>k. Purpose of data indicated?</p>	DR	<p>a. OK</p> <p>b. OK</p> <p>c. OK</p> <p>d. OK</p> <p>e. OK</p> <p>f. OK</p> <p>g. OK</p> <p>h. OK</p> <p>i. OK</p> <p>j. OK</p> <p>k. OK</p>	OK	OK

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<p>B.7.2.9. Parameter T_i</p> <p>a. Title in line with methodology?</p> <p>b. Data unit correctly expressed?</p> <p>c. Parameter appropriately described?</p> <p>d. Source clearly referenced?</p> <p>e. Correct value provided for the purpose of PDD estimations?</p> <p>f. Has this value been verified?</p> <p>g. Measurement methods correctly described and in line with the methodology/tools?</p> <p>h. Correct reference to standards (i.e. for calibration and maintenance)?</p> <p>i. Indication of accuracy provided?</p> <p>j. QA/QC procedures appropriate and described?</p> <p>k. Purpose of data indicated?</p>	DR	<p>a. OK</p> <p>b. OK</p> <p>c. OK</p> <p>d. OK</p> <p>e. OK</p> <p>f. OK</p> <p>g. OK</p> <p>h. OK</p> <p>i. OK</p> <p>j. OK</p> <p>k. OK</p>	OK	OK
<p>B.7.2.10. Parameter P_i</p> <p>a. Title in line with methodology?</p> <p>b. Data unit correctly expressed?</p>	DR	<p>a. OK</p> <p>b. OK</p> <p>c. OK</p>	OK	OK

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c. Parameter appropriately described? d. Source clearly referenced? e. Correct value provided for the purpose of PDD estimations? f. Has this value been verified? g. Measurement methods correctly described and in line with the methodology/tools? h. Correct reference to standards (i.e. for calibration and maintenance)? i. Indication of accuracy provided? j. QA/QC procedures appropriate and described? k. Purpose of data indicated?		d. OK e. OK f. OK g. OK h. OK i. OK j. OK k. OK		
B.7.2.10. Parameter V_{CH4,t,db} a. Title in line with methodology? b. Data unit correctly expressed? c. Parameter appropriately described? d. Source clearly referenced? e. Correct value provided for the purpose of PDD	DR	a. OK b. OK c. OK d. OK e. OK f. CL3: It shall be justified with evidence the assumption of 50% as the value for the parameter VCH4,t,db in the ex ante	CL3	OK

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<p>estimations?</p> <p>f. Has this value been verified?</p> <p>g. Measurement methods correctly described and in line with the methodology/tools?</p> <p>h. Correct reference to standards (i.e. for calibration and maintenance)?</p> <p>i. Indication of accuracy provided?</p> <p>j. QA/QC procedures appropriate and described?</p> <p>k. Purpose of data indicated?</p>		<p>calculation.</p> <p>The assumption of 50% for the parameter $VCH_{4,t,db}$ used in the ex ante calculation has been properly justified with evidence based in the last monitoring period verified. This assumption is deemed as conservative and appropriate.</p> <p>CL3 is solved.</p> <p>g. OK</p> <p>h. OK</p> <p>i. OK</p> <p>j. OK</p> <p>k. OK</p>		
<p>B.7.2.11. Parameter EL_{LFG,y}</p> <p>a. Title in line with methodology?</p> <p>b. Data unit correctly expressed?</p> <p>c. Parameter appropriately described?</p> <p>d. Source clearly referenced?</p> <p>e. Correct value provided for the purpose of PDD estimations?</p> <p>f. Has this value been verified?</p> <p>g. Measurement methods correctly described and in line</p>	DR	<p>a. OK</p> <p>b. OK</p> <p>c. OK</p> <p>d. OK</p> <p>e. OK</p> <p>f. OK</p> <p>g. CAR10: Net amount of electricity generated using LFG will be calculated from the balance of electricity produced subtracting the electricity imported. According to that, parameters EG_y and EC_{p,y} should have been included in the monitoring plan and they have not. Calibration frequencies for the electricity meters</p>	CL2, CAR10	OK

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<p>with the methodology/tools?</p> <p>h. Correct reference to standards (i.e. for calibration and maintenance)?</p> <p>i. Indication of accuracy provided?</p> <p>j. QA/QC procedures appropriate and described?</p> <p>k. Purpose of data indicated?</p>		<p>installed shall be clearly stated in the PDD.</p> <p>Parameters and calibration frequencies have been included in the latest version of the PDD.</p> <p>CAR10 is closed.</p> <p>h. OK</p> <p>i. OK</p> <p>j. OK</p> <p>k. OK</p>		
<p>B.7.2.12. Parameter EC_{p1,y}</p> <p>a. Title in line with methodology?</p> <p>b. Data unit correctly expressed?</p> <p>c. Parameter appropriately described?</p> <p>d. Source clearly referenced?</p> <p>e. Correct value provided for the purpose of PDD estimations?</p> <p>f. Has this value been verified?</p> <p>g. Measurement methods correctly described and in line with the methodology/tools?</p> <p>h. Correct reference to standards (i.e. for calibration and</p>	DR	<p>a. OK</p> <p>b. OK</p> <p>c. OK</p> <p>d. OK</p> <p>e. OK</p> <p>f. OK</p> <p>g. OK</p> <p>h. OK</p> <p>i. OK</p> <p>j. OK</p> <p>k. OK</p>	CAR10	OK

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<p>maintenance)?</p> <p>i. Indication of accuracy provided?</p> <p>j. QA/QC procedures appropriate and described?</p> <p>k. Purpose of data indicated?</p>				
<p>B.7.2.13. Parameter Op_{engine,h}</p> <p>a. Title in line with methodology?</p> <p>b. Data unit correctly expressed?</p> <p>c. Parameter appropriately described?</p> <p>d. Source clearly referenced?</p> <p>e. Correct value provided for the purpose of PDD estimations?</p> <p>f. Has this value been verified?</p> <p>g. Measurement methods correctly described and in line with the methodology/tools?</p> <p>h. Correct reference to standards (i.e. for calibration and maintenance)?</p> <p>i. Indication of accuracy provided?</p> <p>j. QA/QC procedures appropriate and described?</p>	DR	<p>a. OK</p> <p>b. OK</p> <p>c. OK</p> <p>d. OK</p> <p>e. OK</p> <p>f. OK</p> <p>g. OK</p> <p>h. OK</p> <p>i. OK</p> <p>j. OK</p> <p>k. OK</p>	CL2	OK

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k. Purpose of data indicated?				
B.7.2.14. Parameter Op_{flare,h} a. Title in line with methodology? b. Data unit correctly expressed? c. Parameter appropriately described? d. Source clearly referenced? e. Correct value provided for the purpose of PDD estimations? f. Has this value been verified? g. Measurement methods correctly described and in line with the methodology/tools? h. Correct reference to standards (i.e. for calibration and maintenance)? i. Indication of accuracy provided? j. QA/QC procedures appropriate and described? k. Purpose of data indicated?	DR	a. OK b. OK c. OK d. OK e. OK f. OK g. OK h. OK i. OK j. OK k. OK	CL2	OK
B.7.2.15. Parameter Flame_m a. Title in line with methodology?	DR	a. OK b. OK	CL2	OK

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b. Data unit correctly expressed? c. Parameter appropriately described? d. Source clearly referenced? e. Correct value provided for the purpose of PDD estimations? f. Has this value been verified? g. Measurement methods correctly described and in line with the methodology/tools? h. Correct reference to standards (i.e. for calibration and maintenance)? i. Indication of accuracy provided? j. QA/QC procedures appropriate and described? k. Purpose of data indicated?		c. OK d. OK e. OK f. OK g. OK h. OK i. OK j. OK k. OK		
B.7.2.16. Parameter TDL_y a. Title in line with methodology? b. Data unit correctly expressed? c. Parameter appropriately described? d. Source clearly referenced?	DR	a. OK b. OK c. OK d. OK e. OK	CAR5	OK

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<p>e. Correct value provided for the purpose of PDD estimations?</p> <p>f. Has this value been verified?</p> <p>g. Measurement methods correctly described and in line with the methodology/tools?</p> <p>h. Correct reference to standards (i.e. for calibration and maintenance)?</p> <p>i. Indication of accuracy provided?</p> <p>j. QA/QC procedures appropriate and described?</p> <p>k. Purpose of data indicated?</p>		<p>f. OK</p> <p>g. OK</p> <p>h. OK</p> <p>i. OK</p> <p>j. OK</p> <p>k. OK</p>		
<p>B.7.2.17. Parameter T_{EG,m}</p> <p>a. Title in line with methodology?</p> <p>b. Data unit correctly expressed?</p> <p>c. Parameter appropriately described?</p> <p>d. Source clearly referenced?</p> <p>e. Correct value provided for the purpose of PDD estimations?</p> <p>f. Has this value been verified?</p> <p>g. Measurement methods correctly described and in line</p>	DR	<p>a. OK</p> <p>b. OK</p> <p>c. OK</p> <p>d. OK</p> <p>e. OK</p> <p>f. OK</p> <p>g. OK</p> <p>h. OK</p>	OK	OK

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<p>with the methodology/tools?</p> <p>h. Correct reference to standards (i.e. for calibration and maintenance)?</p> <p>i. Indication of accuracy provided?</p> <p>j. QA/QC procedures appropriate and described?</p> <p>k. Purpose of data indicated?</p>		<p>i. OK</p> <p>j. OK</p> <p>k. OK</p>		
<p>B.7.2.18. Parameter Management of SWDS</p> <p>a. Title in line with methodology?</p> <p>b. Data unit correctly expressed?</p> <p>c. Parameter appropriately described?</p> <p>d. Source clearly referenced?</p> <p>e. Correct value provided for the purpose of PDD estimations?</p> <p>f. Has this value been verified?</p> <p>g. Measurement methods correctly described and in line with the methodology/tools?</p> <p>h. Correct reference to standards (i.e. for calibration and maintenance)?</p>	DR	<p>a. OK</p> <p>b. OK</p> <p>c. OK</p> <p>d. OK</p> <p>e. OK</p> <p>f. OK</p> <p>g. OK</p> <p>h. OK</p> <p>i. OK</p> <p>j. OK</p> <p>k. OK</p>	CAR9	OK

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i. Indication of accuracy provided?				
j. QA/QC procedures appropriate and described?				
k. Purpose of data indicated?				
<i>B.7.3 Implementation of the Monitoring Plan</i>				
B.7.3.1 Do the means of monitoring of each of the parameters included in the plan comply with the requirements of the methodology?	DR	Yes, monitoring of each of the parameters included in the plan comply with the requirements of the methodology.	CL2, CAR8, CAR9, CAR10	OK
B.7.3.2. Is the measurement equipment described and deemed appropriate?	DR	Yes, it is appropriate.	CL2, CAR8, CAR9, CAR10	OK
B.7.3.3. Are procedures identified for maintenance of monitoring equipment and installations? Are provisions regarding the calibration intervals included in the monitoring plan?	DR	CAR11: Provisions regarding calibration frequencies of all the equipment involved in the project shall be included in the monitoring plan. Provisions regarding calibration frequencies have been included in the PDD. CAR11 is solved.	CAR11	OK
B.7.3.4. Is the measurement accuracy addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements or lack of data?	DR	Measurement accuracy is addressed and deemed appropriate.	CL2, CAR8, CAR9, CAR10	OK
B.7.3.5. Is the monitoring Plan sufficient to ensure the verification of a proper implementation of the monitoring plan?	DR	Yes, the monitoring Plan is sufficient to ensure the verification of a proper implementation of the monitoring plan.	CL2, CAR8, CAR9, CAR10	OK

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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?	DR	Yes, project's starting date and operational lifetime is clearly defined and reasonable	OK	OK
C.2. Choice of the crediting period and related information				
C.2.1. Is the assumed crediting period clearly defined and reasonable (renewable crediting period of max 7 years with potential for 2 renewals or fixed crediting period of max. 10 years)? And, is the starting date of the crediting period corrected considered?	DR	Yes, the assumed crediting period is clearly defined and reasonable. The starting date of the second crediting period is correctly considered (15/12/2013).	OK	OK
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 in the PDD?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
D.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if so, has an EIA been approved?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring	N/A	N/A

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		methodology.		
D.1.3. Will the project create any adverse environmental effects? Has any environmental impact identified as significant?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
D.1.4. Are transboundary environmental impacts identified in the analysis?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
D.1.5. Does the project comply with any other environmental legislation in the host country?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
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 sufficiently addressed in the PDD?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
E. STAKEHOLDERS' COMMENTS				

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E.1. Brief description how comments by local stakeholders have been invited and compiled				
E.1.1. Have relevant local stakeholders been consulted prior to the publication of the PDD? Is the exact date of the consultation process included in the PDD?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
E.1.2. Have appropriate media been used to invite comments by local stakeholders?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
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?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
E.1.4. Is the undertaken stakeholder process that was carried out described in a complete and transparent manner?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
E.2. Summary of the comments received				
E.2.1. Is a summary of the stakeholder comments received provided?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD	N/A	N/A

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		relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.		
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?	DR	N/A. According to paragraph 230 the CDM Project Standard version 05.0, for the purpose of renewal of the crediting period project participants shall update those sections of the PDD relating to the baseline, estimated emissions reductions and the monitoring plan using an approved baseline and monitoring methodology.	N/A	N/A
E.4. Sampling				
E.4.1. Has sampling been applied as part of the validation activities? Explain where it has been applied.	DR	Sampling is not applicable to this project activity	N/A	N/A
E.4.2. Has the standard for sampling currently in force been applied?	DR	Sampling is not applicable to this project activity	N/A	N/A

*MoV/Ref: Means of Validation and references of background documents.

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ANNEX 2: CERTIFICATES OF QUALIFICATION

CERTIFICATE OF QUALIFICATION

Subject: Validation and Technical Review Team for "Durban Landfill-Gas-to-Electricity Project – Mariannhill and La Mercy Landfills".

Madrid, 16th December 2013

Hereby I confirm the following records of qualification, according with AENOR internal instruction "Validation, Verification and Certification of Clean Development Mechanism (CDM) project activities" IE-DTC-039, and in relation with the validation process of the above mentioned project activity:

Name: **Alfonso Medrano Gutiérrez**

CDM Chief Validator: Yes

CDM Validator: Yes


CDM Chief Verifier: N/A

CDM Verifier: N/A

External Technical Expert: No

Technical areas related with the project activity:

T.A 13.1 Waste handling and disposal



José Luis TEJERA OLIVER
CDM Operational Director

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"Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills"

CERTIFICATE OF QUALIFICATION

Subject: Validation and Technical Review Team for "Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills".

Madrid, 16th December 2013

Hereby I confirm the following records of qualification, according with AENOR internal instruction "Validation, Verification and Certification of Clean Development Mechanism (CDM) project activities" IE-DTC-039, and in relation with the validation process of the above mentioned project activity:

Name: **Pablo Taboada Utrera**

CDM Chief Validator: Yes

CDM Validator: Yes

CDM Chief Verifier: N/A

CDM Verifier: N/A

External Technical Expert: No

Technical areas related with the project activity:

T.A 13.1 Waste handling and disposal



José Luis TEJERA OLIVER
CDM Operational Director

VALIDATION REPORT

"Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills"

CERTIFICATE OF QUALIFICATION

Subject: Validation and Technical Review Team for "Durban Landfill-Gas-to-Electricity Project – Mariannahill and La Mercy Landfills".

Madrid, 16th December 2013

Hereby I confirm the following records of qualification, according with AENOR internal instruction "Validation, Verification and Certification of Clean Development Mechanism (CDM) project activities" IE-DTC-039, and in relation with the validation process of the above mentioned project activity:

Name: **José Luis Fuentes Pérez**

CDM Chief Validator: Yes

CDM Validator: Yes

CDM Chief Verifier: N/A

CDM Verifier: N/A

External Technical Expert: No

Technical areas related with the project activity:

T.A 13.1 Waste handling and disposal



José Luis TEJERA OLIVER
CDM Operational Director