CLEAN DEVELOPMENT MECHANISM
PROJECT DESIGN DOCUMENT FORM (CDM-PDD)
Version 03 - in effect as of: 28 July 2006

CONTENTS

Annexes

SECTION A. General description of project activity

A.1 Title of the project activity:

Evron Landfill Gas to Renewable Electricity Project

Version 1, 30th August 2007

A.2. Description of the project activity:

Evron Landfill Project (hereafter, "**The Project**") developed by Kibbutz Evron which operates the Evron landfill (hereafter referred to as the "**Project Developer**") the project is located in Kibbutz Evron near the city of Naharia in the state of Israel, hereafter referred to as the ("**Host Country**").

The project involves high efficiency landfill gas extraction and collection system, the collected landfill gas is used for electricity generation and any access gas that is not used for power generation will be flared.

Until the late years of the 90's the host country's regulations with respect to the treatment and landfilling of municipal waste was nearly none existent. This resulted in the host country's landfills being unsafe and an environmental hazard both to groundwater, nearby population concentrations and employees of the landfills.

Although it was opened on 1971 the Evron Landfill was redesigned and became one of the first landfills in the host country to be designed as a modern regional landfill under the new regulations regarding municipal solid waste that where done by the ministry of environment.

The landfill began receiving waste in 1971 and is supposed to receive MSW until 2014 with an extension option.

The project is divided into several steps, step one started in 2002 when a landfill gas extraction and collection system was installed in a small part of one of the three

landfilling cells of the Evron landfill. A gas engine and a high temperature flare where also installed.
The next step of the project (have yet to commence) involves the installation of landfill extraction and collection system in the rest of the landfill. The added landfill gas will also be used for electricity generation and access gas will be flared.
The implementation of the project will result in the stop of the uncontrolled release of landfill gas. Instead the landfill gas that's collected is combusted inside gas engine that is located in the Evron landfill. This engine will produces clean electricity that will be sold to the grid. Odours resulting from H_2S released are also minimized as a result of this project. After the closure of the Evron landfill site a clay sand cover will cap the landfill allowing for a possible increase in the landfill's gas collection efficiency,

As mentioned the Evron landfill is an old site that underwent an upgrade to meet the new regulation of the ministry of environmental protection, it is the first landfill in the host country to employ the use of landfill gas for electricity generation and became a demonstration site for this technology for other landfills in the host country.

The project will result in positive social and environmental benefits:

- The high efficiency landfill gas collection system reduces the risks of onsite landfill gas fires and explosions. The odour associated with landfills are also reduced both of these affects contribute to the safety of the landfill and its employees.
- The project became a demonstration site for modern landfill gas management and for the implementation, of advanced clean power generation technologies. This is most important for the host country since it has few natural resources and the host country's power grid is based mostly on imported coal and other heavy fuels with very little use of any kind of renewable power sources.

- The project will encourage the transfer of clean technologies and waste management techniques to the host country, since all of the equipment is not common in the host country and will be imported from abroad.
- The project will provide job opportunities both for the construction stages and later on for day to day operation and maintenance. These job opportunities will involve training in new and sophisticated equipment.
- The host country's ministry of environmental protection considers the waste sector and the energy sectors as the key sectors in reducing GHG emissions. The project activity which is in both of the mentioned sectors is inline with the host country's goals and priorities regarding GHG emissions.

A.3. Project participants:

Name of Party involved ((host) indicates a host Party)	Private and/or public entity(ies) project participants (as applicable)	Kindly indicate if the Party. involved wishes to be considered as project participant (Yes/No)
Israel (host)	Private entity: Kibbutz Evron	No
	Private entity: ClimaTrade L.T.D	No

Further contact information of project participants is provided in Annex 1

A.4. Technical description of the project activity:

A.4.1. Location of the project activity:

A.4.1.1. Host Party(ies):

Israel (the “**Host Country**”)

A.4.1.2. Region/State/Province etc.:

Ma'tte Asher

A.4.1.3. City/Town/Community etc:

Kibbutz Evron

A.4.1.4. Detail of physical location, including information allowing the unique identification of this project activity (maximum one page):

The coordinates of the center of the landfill are: X/Y 209,699/766,001

(Source: http://www.mfa.gov.il/MFA/Facts+About+Israel/Israel+in+Maps/Modern+Israel+-within+boundaries+and+cease-fire+li.htm)

Distances from close settlements:

Naharia	1 Km
Mizra'a	1 Km
Netiv Hashayara	1 Km
Kibbutz Regba	1.9 Km
Shvey Zion	3 Km

An aerial photo of Evron Landfill.

A.4.2. Category(ies) of project activity:

Sectoral Category 13, Waste Handling and Disposal also Sectoral Category 1, Energy industries (renewable - / non-renewable sources)

A.4.3. Technology to be employed by the project activity:

Landfill gas collection system:

In order to collect the landfill gas vertical wells are being used. The wells are drilled into the landfill and the landfill gas is sucked up into the collection system using a blower The landfill gas is delivered from the collection system to the power generation unit, any access of gas is exhausted to the flare system.

The power generation unit will generate between 1-3.5 MWh of electricity depending on the amounts of available gas and its quality, any access of unusable gas will be flared. It is possible that the amounts of gas will exceed the projection model and will allow the production of even more electricity; even in this case the system will still be connected with the same monitoring equipment allowing accurate verification. Additional CERs would be claimed as monitored.

The project monitoring system will monitor the gas flow, temperature pressure and methane concentrations from the landfill in order to determine the exact amounts of gas destroyed from the landfill.

The monitoring plan will measure all the parameters continuously as required.

A.4.4 Estimated amount of emission reductions over the chosen crediting period:

Table of emission reductions (average per year)

Years	Annual estimation of emission reductions in tones CO2e
2008	97,095
2009	103,383
2010	109,363
2011	115,052
2012	120,464
2013	125,611
2014	130,508
Total estimated reductions (tonnes of CO_2e)	801,477
Total number of crediting years	7
Annual average over the crediting period of estimated reductions (tonnes of CO_2e)	114,497

A.4.5. Public funding of the project activity:

The project will not receive any public funding from Parties included in Annex I of the UNFCCC

SECTION B. Application of a baseline and monitoring methodology

B.1. Title and reference of the approved baseline and monitoring methodology applied to the project activity:

This project uses both the approved consolidated methodologies:

1. ACM0001 Version 6 “Consolidated baseline methodology for landfill gas project activities”.

2. Renewable electricity generation for a grid AMS-I.D Version 12.

B.2 Justification of the choice of the methodology and why it is applicable to the project activity:

Given the fact that the project is a landfill project activity, this methodology is considered the most appropriate for this project. The project meets all the applicability criteria as set out in the methodology. ACM0001 is applicable to the following situations in regards to LFG activities where:

a) The captured gas is flared; or

c) The captured gas is used to produce energy (e.g. electricity/thermal energy), and emission reductions are claimed for displacing or avoiding energy generation from other sources. The capacity of electricity generated is less than 15MW, and/or thermal energy displaced is less than 54 TJ (15GWh), small-scale methodologies can be used for this reason the methodology Renewable electricity generation for a grid AMS-I.D is applicable.

B.3. Description of the sources and gases included in the project boundary

According to the consolidated methodology for the baseline determination, the project boundary is the site of the project activity where the gas will be captured and destroyed/used.

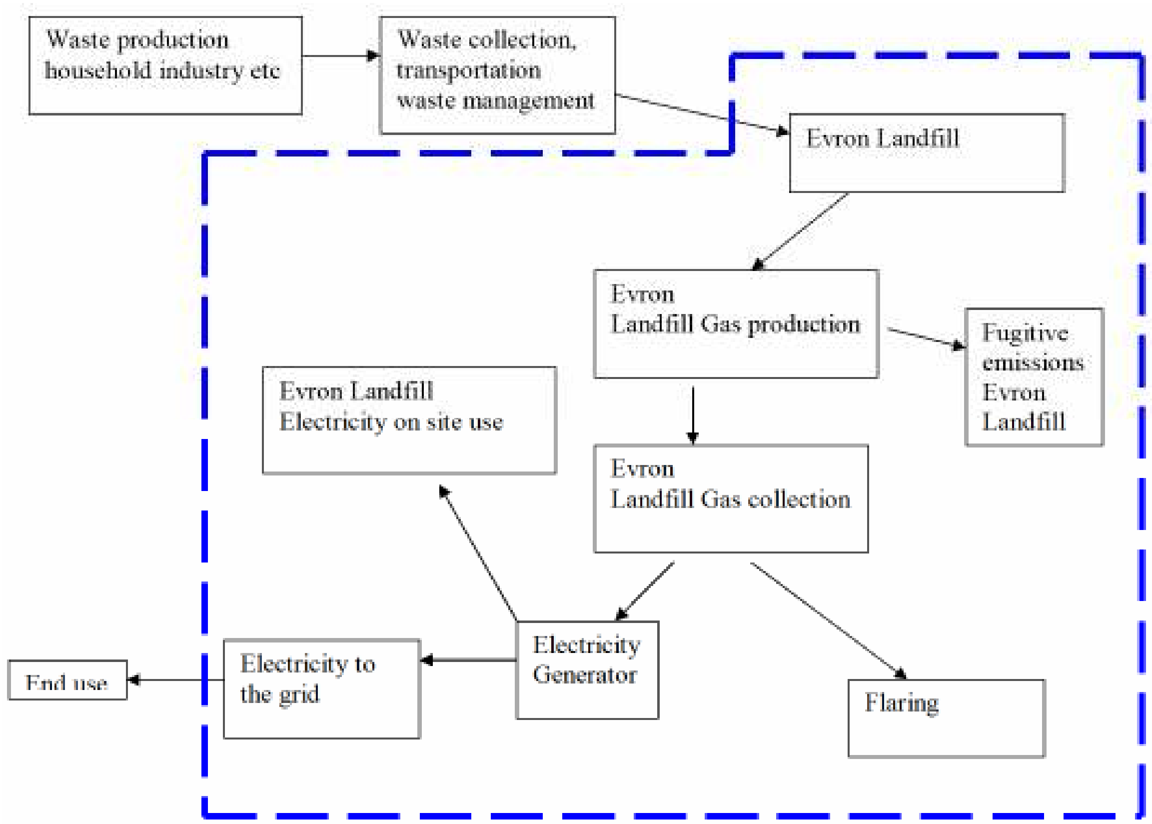
In addition according to AMS-I.D the project boundary encompasses the physical, geographical site of the renewable generation source.

	Source	Gas	Included?	**Justification/Explanation**
Baseline	LFG venting and partial flaring	CO_2	No	is not considered because it is part of the natural carbon cycle
		CH_4	Yes	Included as main component of LFG
		N_2O	No	Not applicable
Project Activity	Active LFG capture and flaring	CO_2	Yes	Only CO_2 emission derived from Electricity generated by the grid will be included.
		CH_4	Yes	Included as main component of LFG
		N_2O	No	Not applicable
	LFG combustion for power generation	CO_2	No	is not considered because it is part of the natural carbon cycle
		CH_4	Yes	Included as main component of LFG
		N_2O	No	Not applicable

CH_4 combustion and electricity displaced from national grid are considered in the project boundary as a project reduction.

The CO_2 emissions generated by the process of combusting CH_4 by the flare and/or electricity generators are emissions from an organic source, due to this fact these CO_2 emissions are not considered as project emissions.

The net quantity of electricity fed to the grid would be measured and the average national grid emissions factor would be used in order to determine the actual amounts of CO_2 displaced.



B.4. **Description of how the baseline scenario is identified and description of the identified baseline scenario:**

Step 1: identification of alternative scenarios:

Alternative 1; LFG1: the landfill operator could invest in a high efficiency landfill gas capture and flare system, high end power generation equipment along with highly accurate monitoring system and supply power to the national grid not as a CDM project.

Alternative 2 LFG 2: Atmospheric release of the landfill gas or partial capture of landfill gas and destruction to comply with regulations or contractual requirements, or to address safety and odour concerns.

Both alternatives are viable under the host country's regulations. There is no law in the host country that requires the landfill operator to treat the landfill gas generated. The landfill's operating permit requires that landfill gas will be treated in some cases. However this requirement that the gas will be treated, applies only if the methane concentrations in the landfill surface site exceed 4.75%. The main reason for this requirement is for safety concerns regarding lowering the risk for fires and explosion on the landfill site, a common phenomenon in the old landfills in the host country. Under these regulations the landfill operator could have continued the current “business as usual” practice, maintaining low methane concentrations on the landfill surface using an adequate passive venting system and minimal flaring only when needed.
Based on regional experience with other landfills (available to the DOE) without the project only low amounts of landfill gas would have been treated. A conservative estimate to the amount of landfill gas that would have been treated without the project activity is less than 5%. Therefore a conservative AF of 5% is set for the project. Detailed information is available to the DOE.

According to ACM 0001 version 6 "If energy is exported to a grid and/or to a nearby industry, or used on-site realistic and credible alternatives should also be separately determined for the Power generation in the absence of the project activity":

Alternative for the power generated by the project, option P6: The power that will be generated by the project will be sold to the grid. The most reasonable alternative to the supply of power that will be generated by the project is option P6 a grid connected existing fossil fuel power plant. The project energy production is sold to the grid and will displace, to some extent, the fossil fuel used to produce conventional electricity. In the absence of the project the grid will continue to generate power as usual and there will be no change in the consumption of fossil fuels.

STEP 2: Identify the fuel for the baseline choice of energy source taking into account the national and/or sectoral policies as applicable:

The alternative for the electricity that will be generated by the project is the host country's grid. The baseline's fuel is the host country's electricity production's fuel mix (CEF is shown in IEC report of 2005 detailed calculation of CEF is presented in annex 3 of this document). Most of the power in the host country is generated using fossil fuels, mainly coal. All of the fuels that are used are not found in the host country and are imported from various countries. There are no fuel supply constraints in the host country and fuel is available as needed.

STEP 3:

Sub step 3a: Investment Analysis according to Step 2 of the tool for determining additionality:

Sub step 3a1: Investment Analysis for the landfill gas treatment according to Step 2 of the tool for determining additionally:

Sub-step 3a1a: Determine appropriate analysis method:

According to the tool for determining additionally if the CDM project activity generates no financial or economic benefits other than CDM related income, then simple cost analysis is to be applied.

The landfill gas capture and flaring system doesn't produce any revenues therefore a simple cost analysis is applied.
Documentation regarding costs of the development and installation of landfill gas capture and flaring was made available to the DOE during validation.

Sub step 3a2: Investment Analysis for power generation according to Step 2 of the tool for determining additionally:

Sub-step 3a2a: Determine appropriate analysis method:

According to the methodology for determination of additionally, if the project generate additional revenues other than CERs than option I simple cost analysis is not applicable. For the electricity production part of the project it is expected to generate revenues from electricity sales and therefore option I will not be used. Also According to the methodology for determination of additionally if the alternatives to the proposed project do not pose an investment of comparable scale to the project, then Option III must be used. In this case, the most likely alternative to the project doesn't involve an investment of comparable scale to the project, therefore a benchmark analysis will be applied.

Sub-step 3a2b: Option III - Apply benchmark analysis:

In order to determine the likelihood of the development of this project, as opposed to the continuation of current activities the IRR of the project is compared to a benchmark of the interest rates available to a local investor, i.e. those provided by local banks or by sovereign government bonds, which are 4.75% and 5.6%, respectively. The benchmark rate of return on construction projects or similar risks involved projects is commonly set at 12%.

Sub-step 3a2c: Calculation and comparison of financial indicators

The Table below shows the financial analysis for the project activity. As shown, for alternative LFG 1 the IRR (without Carbon) is negative while it's lower than the interest rates provided by local banks or government bonds in the Host Country it is naturally unattractive for investment.

Table: Financial indicators for the proposed project without carbon and with the effects of CERs. The calculations for the NPV uses a 12% discount rate. The electricity prices are assumed to be 0.06$c/KWh, these current prices, are not expected to change substantially.

	Without carbon LFG 1	With carbon proposed project
NPV (net present value) US $	-2,730,859	1,036,641
IRR	Negative	10%
Discount Rate	12%	12%

Summary of results of project analysis. Details made available to the DOE.

Sub-step 3a2d: Sensitivity analysis

According to the methodology for determination of additionally the investment analysis must include a sensitivity analysis that shows whether the conclusion regarding the financial attractiveness is robust to reasonable variations in the critical assumptions.

Therefore a sensitivity analysis was performed; the following parameters have been altered:
Project revenues have been increased (by changing the price of electricity sold to the grid); Reduction in project capital (CAPEX) and running costs (Operational and Maintenance costs).

These parameters were chosen because of the fact that they are the most likely to change over time.
The financial sensitivity analyses was conducted by altering each of said parameters by 15 %, and assessing the impact of the change on the project IRR

As shown in the table below, the project IRR remains lower than its alternative even in the case where these parameters were changed to favor the project

	% change	Project IRR	Project NPV
Expected scenario	0	Negative	-2,730,859
Increase in project revenues	15%	-2%	-1,595,016
Decrease in project costs	15%	Negative	-3,119,458

Note: NPV uses 12% discount rate.

Sub step 3b: Barrier Analysis according to: Step 3. Of the tool for determining additionally:
Sub step 3b1: Barrier Analysis for the landfill gas treatment according to Step 3 of the tool for determining additionally:

Evron landfill is divided to three main cells. The first step of the project included only cell A of the landfill. Step 1 of the project was a first of its kind in the host country.

The system was built in order to collect gas for electricity generation from waste first time in the host country.

The prediction for such system was around 2.5 MWH from cell A only. The purpose of the project was to produce renewable energy project while combating climate change, this system and the consequences of the project was presented at a nation wide convention of MSW landfill operators and official from the municipalities across the country. The project was mentioned also by the national press as well.

The summery of that day including presentation of the project to the ministry of Environment was made available to the DOE.

Sub step 3b1: Barrier Analysis for the power generation according to Step 3 of the tool for determining additionally

Sub-step 3a: Barriers that would prevent the implementation of the proposed project activity:

Despite the fact that the investment analysis clearly shows that the project is additional, it is important to review the barrier analysis because the project activity is a **first of its kind project** in the host country. Although landfill gas to electricity projects have been developed in the world, the technology is less known in the host country and was not used until the project activity began. The Evron landfill began receiving waste in 1971 and it's the first of the old landfills in the host country to install a landfill gas collection system, it is the first to utilise landfill gas to produce electricity and it served as a test case and demonstration site for other landfill operators. The technology for the project activity is all imported to the host country as well as the equipment for the project activity including the gas engine, the high temperature flare and monitoring systems. The project developer personal had to receive training on operating and maintaining of the equipment of the project. All of these facts strengthen the investment analysis as described in step 2 since the risk involved in the project, as being a first in its kind made it more difficult and with high risk in terms of funding.

The Evron landfill operator has tried to use landfill gas to produce electricity in a step 1 of the project. The first step consisted of a landfill gas capture system that was built on a small part of the landfill, the operator also invested and connected a 1 MWH engine to the system. The feasibility study for the project was conducted by Golder Engineering and it was predicted that there is enough landfill gas available to produce 2.5 MWH of electricity. When the first step was implemented only 0.5-0.8 MWH of electricity was produced this high uncertainty causes difficulties in the implementation of such projects, making them unattractive for investment.

Sub-step 3b: Identified Barriers would not prevent the implementation of at least one alternative:

The landfill operator could have continued the current “business as usual” practice, alternative LFG 2, maintaining low methane concentrations on the landfill surface using an adequate passive venting system and minimum flaring, not undertaking the project activity.

Step 4 Determine the baseline scenario:

As shown is sub step 2a and sub step 2b option LFG 1 is excluded from the baseline due to the investment analysis and barrier analysis. As shown in sub step 2b without the electricity generation part option LFG 1 is also excluded as it is clearly shown in the investment analysis.

Option LFG 2 is the current business as usual scenario and is part of the baseline as shown in sub step 3b, as mentioned some capture and flaring of landfill gas would occur under this option, however this amount is very low and therefore a conservative AF is used and it is set to 5%.

As mentioned the alternative for the electricity generated by the project is alternative P6 an existing grid connected fossil fuel power plant.

Therefore the baseline scenario for the project is LFG 2 and P6, The atmospheric release of landfill gas or landfill gas is minimally captured and subsequently flared. The electricity is obtained from an existing fossil fuel power plant connected to the grid, therefore the methodology is applicable.

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):

The determination of project scenario additionality is done using the CDM consolidated tool for demonstration and assessment of additionality Version 3, which follows the following steps:

Step 1. Identification of alternatives to the project activity consistent with current laws and regulations

Sub-step Ia. Define alternatives to the project activity:

Alternative 1 LFG1: the landfill operator could invest in a high efficiency landfill gas capture and flare system, high end power generation equipment along with highly accurate monitoring system and supply power to the national grid without CDM.

Alternative 2 LFG 2: Atmospheric release of the landfill gas or partial capture of landfill gas and destruction to comply with regulations or contractual requirements, or to address safety and odour concerns.

The permit of the Evron landfill requires that landfill gas concentrations on the landfill surface will not exceed 4.75%. The permit does not specify the volume or percentage of landfill gas to be captured or flared. The permit only states that flaring is needed if the methane concentrations on the landfill surface site exceed 4.75%. The main reason for this requirement is safety concerns regarding lowering the risk for fires and explosion on the landfill site, a common phenomenon in the old landfills, in order to keep methane concentrations under the said concentration, the landfill operator could have continued the current “business as usual” practice maintaining low methane concentrations on the landfill surface using an adequate passive venting system and minimal flaring when needed.

Alternative 3: the proposed project

Sub-step Ib. Enforcement of applicable laws and regulations:

As mentioned, there is no law in host country regarding landfill gas. Only the landfill operating permit address the subject of landfill gas therefore the Evron landfill operating permit have been taken into account in determining the baseline scenario. The permit obligation requires that landfill gas generated by the landfill will be treated. The permit does not mandate the volume or percentage of landfill gas to be captured or flared. The main reason for this requirement is safety concerns regarding lowering the risk for fires and explosion on the landfill site, a common phenomenon in the old landfills in the host country. The operating permit only states that flaring is needed if the methane concentrations in the landfill surface exceed 4.75%. Under these conditions the landfill operator could have continued the current "business as usual" practice maintaining low methane concentrations on the landfill surface using an adequate passive venting system and minimal flaring.

Therefore, all the above said alternatives comply with the laws and regulatory requirements in the host country since all of them will result in maintaining low concentration of landfill gas on the landfill surface. It has been shown that the business as usual scenario which is identified as alternative LFG2 will result in a destruction of only small amounts of landfill gas. Based on regional experience with other landfills (available to the DOE) without the project only low amounts of landfill gas would have been treated.
Therefore an AF is used a conservative estimate of 5% is used.

Step 2. Investment Analysis

Sub-step 2a: Determine appropriate analysis method:

According to the tool for determination of additionally, if the project generate additional revenues other than CERs than option I simple cost analysis is not applicable. In this case the project is expected to generate revenues from electricity sales and therefore option I will not be used. Also According to the methodology for determination of additionally if the alternatives to the proposed project do not pose an investment of comparable scale to the project, then Option III must be used. In this case, the most likely alternative to the project doesn't involve an investment of comparable scale to the project, therefore a benchmark analysis will be applied.

Sub-step 2b: Option III - Apply benchmark analysis:

In order to determine the likelihood of the development of this project, as opposed to the continuation of current activities the IRR of the project is compared to a benchmark of the interest rates available to a local investor, i.e. those provided by local banks or by sovereign government bonds, which are 4.75% and 5.6%, respectively. The benchmark rate of return on construction projects or similar risks involved projects is commonly set at 12%.

Sub-step 2c: Calculation and comparison of financial indicators

The Table below shows the financial analysis for the project activity. As shown, the project IRR (without Carbon) is negative while it is lower than the interest rates provided by local banks or government bonds in the Host Country it is naturally unattractive for investment.

Table: Financial indicators for the proposed project without carbon and with the effects of CERs. The calculations for the NPV uses a 12% discount rate. The electricity prices are assumed to be 0.06$c/KWh, these current prices, are not expected to change substantially.

	Without carbon	With carbon
NPV (net present value) US $	-2,730,859	1,036,641
IRR	Negative	10%
Discount Rate	12%	12%

Summary of results of project analysis. Details made available to the DOE.

Sub-step 2d: Sensitivity analysis

According to the methodology for determination of additionally the investment analysis must include a sensitivity analysis that shows whether the conclusion regarding the financial attractiveness is robust to reasonable variations in the critical assumptions.

Therefore a sensitivity analysis was performed, the following parameters have been altered:
Project revenues have been increased (by changing the price of electricity sold to the grid); Reduction in project capital (CAPEX) and running costs (Operational and Maintenance costs).

These parameters were chosen because of the fact that they are the most likely to change over time.
The financial sensitivity analyses was conducted by altering each of said parameters by 15 %, and assessing the impact of the change on the project IRR

As shown in the table below, the project IRR remains lower than its alternative even in the case where these parameters were changed to favor the project

	% change	Project IRR	Project NPV
Expected scenario	0	Negative	-2,730,859
Increase in project revenues	15%	-2%	-1,595,016
Decrease in project costs	15%	Negative	-3,119,458

Note: NPV uses 12% discount rate.

Step 3. Barrier Analysis

Sub-step 3a: Barriers that would prevent the implementation of the proposed project activity:

Despite the fact that the investment analysis clearly shows that the project is additional, it is important to review the barrier analysis because the project activity is a **first of its kind project** in the host country. Although landfill gas to electricity projects have been developed in the world, the technology is less known in the host country and was not used until the project activity began. The Evron landfill began receiving waste in 1971 and it's the first of the old landfills in the host country to implement a landfill gas collection system, it is the first to utilise landfill gas to produce electricity and it served as a test case and demonstration site for other landfill operators. The technology for the project activity is all imported to the host country as well as the equipment for the project activity including the gas engine, the high temperature flare and monitoring systems. The project developer personal had to receive training on operating and maintaining of the equipment of the project. All of these facts strengthen the investment analysis as described in step 2 since the risk involved in the project, as being a first in its kind made it more difficult in terms of funding and implementation.

Additionally the technology used to predict the amounts of landfill gas have been known to be inaccurate, this makes landfill gas projects riskier since it is uncertain that the amounts of landfill gas will be sufficient in quantity and quality to sustain the project. This risk is less substantial if the project is registered under the CDM, this is due to the fact that even if gas amounts are lower the revenue stream from the CER's decreases the damage to the investor and mitigates the technological risk.

Sub-step 3b: Identified Barriers would not prevent the implementation of at least one alternative:

The landfill operator could have continued the current "business as usual" practice alternative 2 LFG 2 maintaining low methane concentrations on the landfill surface using an adequate passive venting system and minimal flaring, not undertaking the project activity.

Step 4. Common Practice Analysis

Sub-step 4a: Analyze other activities similar to the proposed project activity:
There has been limited development of landfill gas projects in the Host country. As said in the above section B.3, there are no regulations regarding the flaring of landfill gas some of the newer landfills have contractual obligation but no standard or demand for a specific amount of landfill gas is specified in those requirements. Thus it is common practice for landfill operators to flare small amounts of gas if any at all and maintain the methane concentrations at low levels.

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Step 5. Impact of CDM registration

As in the financial analysis shown in Step 2 and step 3 above, the project is economically unattractive for investors and therefore unlikely to be implemented without the additional financial support of the CDM. If the developers were able to sell emission reduction credits from the Project at an assumed price of US $ 5.00 per ton of CO_2e, the additional revenue that will be generated by carbon sales would make the Project attractive enough for the investors. (see Table in Step 2c above). As a result of registration the landfill operator will enhance capture and flaring capability and will modernize their systems. The Ministry of the Environmental protection considers the CDM to be an effective economic-environmental tool for promoting projects, that help combat climate change and global warming, and mark the tremendous effect it has produced on environmental industry in the host country, the Ministry of the Environmental protection considers the Waste Management and Energy Sectors as worth emphasizing. These two sectors are part of the Evron landfill project.

B.6. Emission reductions:
B.6.1. Explanation of methodological choices:

Project emissions are set to zero this is done since the electricity that will be used on site is from a renewable source. The electricity used by the project will not be sold to the grid and therefore will not be credited. Thus emissions from equipment operation (pumps flares etc.) will be zero. In cases of failure in onsite electricity production electricity will be bought from the grid. The electricity sold to the grid or bought from it is monitored. The amount of electricity bought would be reduced from the total amount produced and no reduction would be claimed on it.
Since renewable energy would be used on site the only factor to be considered is AF (Adjustment Factor).
Emissions from the landfill itself that are not captured are project emissions which are considered as leakage.
Leakage is not taken into consideration according to the ACM0001.
According to the "Tool to determine project emissions from flaring gases containing methane" flare efficiency should be measured (continuous measure preferably) flaring efficiency is set as a default to 90% in closed flares. The project will make use of a closed flare that has the burning capacity of 400 cubic meters per hour.
The formulas which are defined in ACM0001 Ver 6 and will be used to calculate project emissions and reductions. (elaborated in B.6.3).

B.6.2. Data and parameters that are available at validation:

(Copy this table for each data and parameter)

Data / Parameter:	**GWP_{CH4}**

Data unit:	tCO2e/tCH4
Description:	Global Warming Potential for CH4
Source of data used:	IPCC
Value applied:	21
Justification of the choice of data or description of measurement methods and procedures actually applied :	21 for the first commitment period. Shall be updated according to any future COP/MOP decisions
Any comment:	

Data / Parameter:	**AF**
Data unit:	%
Description:	Adjustment Factor
Source of data used:	Regional landfills measurmenets
Value applied:	5%
Justification of the choice of data or description of measurement methods and procedures actually applied :	By the measurements taken (available to the validator), the value is conservative.
Any comment:	Detailed measurements (confidential) and justification are available to the DOE.

Data / Parameter:	**EF**
Data unit:	tCO2/MWh
Description:	CO2 emission factor of the grid
Source of data used:	Israel Electric company publications
Value applied:	0.801
Justification of the choice of data or description of measurement methods and procedures actually applied :	Based on calculated factor as required in AMS-I.D
Any comment:	Calculations available to the DOE.

B.6.3 Ex-ante calculation of emission reductions:

The main formulas, as described in section B.6.2 is:

The following formulas are defined in ACM0001 Version 6 and will be used to calculate project emissions and reductions.

1. $ER_y = (MD_{project,y} - MD_{reg,y}) * GWP_{CH4} + EL_{LFG,y} * CEF_{elecy,BL,y} - EL_{PR,y} * CEF_{elec,y,PR,y} + ET_{LFG,y} * CEF_{ther,BL,y} - ET_{PR,y} * EF_{fuel,PR,y}$
2. $MD_{reg,y} = MD_{project,y} * AF$
3. $MD_{project,y} = MD_{flared,y} + MD_{electricity,y} + MD_{thermal,y}$
4. $MD_{flared,y} = (LFG_{flared,y} * W_{CH4,y} * D_{CH4}) - (PE_{flare,y} / GWP_{CH4})$
5. $MD_{electricity,y} = LFG_{electricity,y} * W_{CH4,y} * D_{CH4}$
6. $CEF_{elecy,BL,y} = \frac{EF_{fuel,BL}}{\varepsilon_{gen,BL} * NCV_{fuel,BL}} * 3.6$
7. $CEF_{therm,BL,y} = \frac{EF_{fuel,BL}}{\varepsilon_{Boiler,BL} * NCV_{fuel,BL}} * 3.6$
8. $CEF_{elecy,PR,y} = \frac{EF_{fuel,PR}}{\varepsilon_{gen,PR} * NCV_{fuel,PR}} * 3.6$

Where:

ER_y	is emissions reduction, in tonnes of CO_2 equivalents (tCO_2e).
$MD_{project,y}$	the amount of methane that would have been destroyed/combusted during the year ,y in tonnes of methane (t_{CH4})

$MD_{reg,y}$	the amount of methane that would have been destroyed/combusted during the year in the absence of the project, in tonnes of methane (t_{CH4})
GWP_{CH4}	Global Warming Potential value for methane for the first commitment period is 21 tCO_2e/t_{CH4}
$EL_{LFG,y}$	net quantity of electricity produced using LFG, exported which in the absence of the project activity would have been produced by power plants connected to the grid or by an on-site/off-site fossil fuel based captive power generation, during year y, in megawatt hours (MWh).
$CEF_{elecy,BL,y}$	CO_2 emissions intensity of the baseline source of electricity displaced, in tCO_2e/MWh. This is estimated as per equation (6) above.
$ET_{LFG,y}$	the quantity of thermal energy produced utilizing the landfill gas, which in the absence of the project activity would have been produced from onsite/offsite fossil fuel fired boiler, during the year y in TJ.
$CEF_{ther,BL,y}$	CO_2 emissions intensity of the fuel used by boiler to generate thermal energy which is displaced by LFG based thermal energy generation, in tCO_2e/TJ. This is estimated as per equation (7) above.
$EL_{PR,y}$	is the amount of electricity generated in an on-site fossil fuel fired power plant or imported from the grid as a result of the project activity, measured using an electricity meter (MWh).
$CEF_{elec,y,PR,y}$	is the carbon emissions factor for electricity generation in the project activity (tCO_2/MWh). This is estimated as per equation (8) avove.
$ET_{PR,y}$	is the fossil fuel consumption on site during project activity in year y (tonne).

$EF_{fuel,,PR,y}$	CO_2 emissions factor of the fossil fuel used by boiler to generate thermal energy in the project activity during year y.
$MD_{flared,y}$	: Quantity of methane destroyed by flaring by the project in year "y" (t_{CH4})
$MD_{electricity,y}$	: Quantity of methane destroyed by use for electricity generation by the project in year “y” (t_{CH4})
$MD_{thermal,y}$	: is the quantity of methane destroyed for the generation of thermal energy by the project in year “y” (t_{CH4}).
$LFG_{flared,y}$	: the quantity of landfill gas flared by project during year y (m^3)
$LFG_{electricity,y}$	: the quantity of methane destroyed by generation of electricity (m^3)
$LFG_{flared,y}$	: the quantity of landfill gas fed into the boiler during year y (m^3)
$PE_{flare,y}$	is the project emissions from flaring of the residual gas stream in year y (tCO2e) determined following the procedure described in the “Tool to determine project emissions from flaring gases containing Methane”
$EF_{fuel,BL}$	is the emission factor of baseline fossil fuel used, as identified in the baseline scenario identification procedure, expressed in tCO2/mass of volume unit.
$NCV_{fuel,BL}$	Net calorific value of fuel, as identified through the baseline identification procedure,in GJ per unit of volume or mass
$\varepsilon_{gen,BL}$	is the efficiency of baseline power generation plant..
ε_{boiler}	the energy efficiency of the boiler used in the absence of the project activity to generate the thermal energy
$NCV_{fuel,BL}$	Net calorific value of fuel, as identified through the baseline identification procedure,used in the boiler to generate the thermal energy in the absence of the project activity in TJ per unit of volume or mass.
$EF_{fuel,BL}$	Emission factor of the fuel, as identified through the baseline identification procedure, used in the boiler to generate the thermal energy in the absence of the project activity in tCO2 / unit of volume or mass of the fuel.
$EF_{fuel,PR}$	is the emission factor of fossil fuel used in captive power plant expressed in tCO2/unit volume or mass unit

$NCV_{fuel,PR}$	is the net caloric value of the fossil fuel (TJ/ per unit volume of mass unit)
$\varepsilon_{gen,PR}$	is the efficiency of captive power generation plant.
3.6	equivalent of GJ energy in a MWh of electricity.
AF	: Adjustment Factor (%).
$W_{CH4,y}$	: is the average methane fraction of the landfill gas as measured during the year and expressed as a fraction (in $m^3\ _{CH4}$ / $m^3\ _{LFG}$).
D_{CH4}	: is the methane density expressed in tonnes of methane per cubic meter of methane (not applicable to this project)(t_{CH4}/m^3_{CH4})

B.6.4 Summary of the ex-ante estimation of emission reductions:

The Project will supply its own electricity needs using some of the renewable electricity produced by the project for its needs. Meters will be installed in order to measure the amount of electricity used by the project activities and the amount of electricity sold to the grid. Only the electricity that will actually be sold to the grid (not for site operation) will be counted as emission reduction and will be credited.

The flare's efficiency is set to 90% (default for closed flared that will be used in the project, as presented in "Tool to determine project emissions from flaring gases containing methane").

The power generation engine is highly efficient (over 99%) in the destruction of the Methane that is fed into it (the engine to be used is manufactured by a leading manufacturer).

Taking into account the efficiency of the flare and engine it is projected that the maximum project emissions are estimated at around 15,750 CO_2e this value takes into account no power generation at all, and that all the landfill gas is combusted in the closed flare (calculation available to the DOE) actual emissions will be monitored.

The Table below shows the emissions that would have taken place in the baseline scenario, using the equations described in section B.6.3 above.

To calculate the amounts of anthropogenic gas in the baseline scenario and the expected emission reductions, the average production of methane from the project in the next 7 years was used.

For the electricity reductions calculations an energy ratio of 0.009418233 (m^3_{CH4}/MWh) was used.

The generators efficiency was set at 35%.

All the methane generated is destroyed either by the generators or flare.

The calculation of the emission reductions due to the project's electricity production is done using the average of the expected electricity production.

The actual amounts of gas used for electricity generation and the amounts of landfill gas that are redirected to the flare would be measured and determined ex ante along with the flare efficiency.

Emissions without project (Baseline emissions)	One year	First registration period. (2008-2014)
Methane LFG (ton CH_4/yr)	5,516	38,613
CO_2 equivalent of CH_4	115,840	810,880
adjustment factor	5%	5%
GWP_{CH4} (t_{CO2}/t_{CH4})	21	21
Baseline emissions	110,048	770,336

	Per year (average)	7 years
Average ($MD_{project,y}$ - $MD_{reg,v}$) * GWP_{CH4} (t_{CO2e})	110,048	770,336
$ER_{y,electricity}$ (t_{CO2e}) $=EL_{y,average}$ $*CEF_{electricity,y}$	20,203	141,421
Maximum average PE (t_{CO2e})	15,750	110,280

(resulting from 90% flare efficiency when all LFG is directed to the flare)		
Total Emissions Reduction generated by the project activity (ER_{Tot}, t_{CO2e}/year)	114,500	801,506

Year	Estimation of project activity emission reductions from electricity production (tonnes of CO_2e)	Estimation of emission reductions from flaring (tonnes of CO_2e)	Estimation of leakage (tonnes of CO_2e)	Estimation of total emission reductions (tonnes of CO_2e)
2008	17,133	79,963	0	97,095
2009	18,242	85,141	0	103,383
2010	19,297	90,066	0	109,363
2011	20,301	94,751	0	115,052
2012	21,256	99,208	0	120,464
2013	22,164	103,447	0	125,611
2014	23,028	107,480	0	130,508
Total	141,421	660,056	0	801,477

The actual amounts of gas used for electricity generation and the amounts of landfill gas that are redirected to the flare would be measured and determined ex ante along with the flare efficiency.

B.7 Application of the monitoring methodology and description of the monitoring plan:

B.7.1 Data and parameters monitored:

The data monitored is presented in the following table:

Data / Parameter:	**1. $LFG_{total,y}$**
Data unit:	m^3
Description:	Total amount of landfill gas captured.
Source of data to be used:	Measured by a flow meter.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	Details of assumptions, calculations and resulting data are presented in Annex 3 and in section B.6.3 and B.6.4.
Description of measurement methods and procedures to be applied:	Measured by a flow meter continuously. Data to be aggregated monthly and yearly.
QA/QC procedures to be applied:	Data with low level of uncertainty. Flow meter should be subject to a regular maintenance and testing regime to ensure accuracy
Any comment:	During the crediting period and two years after

Data / Parameter:	**2. $LFG_{flare,y}$**
Data unit:	m^3
Description:	Amount of landfill gas flared in the flare
Source of data to be used:	Measured by a flow meter
Value of data applied for the purpose of calculating expected emission reductions in section B.5	Details of assumptions, calculations and resulting data are presented in Annex 3 and in section B.6.3 and B.6.4.
Description of measurement methods and procedures to be applied:	Measured by a flow meter continuously. Data to be aggregated monthly and yearly.
QA/QC procedures to be applied:	Data with low level of uncertainty. Flow meter should be subject to a regular maintenance and testing regime to ensure accuracy
Any comment:	During the crediting period and two years after

Data / Parameter:	**3.$LFG_{electricity,y}$**
Data unit:	m^3

Description:	Amount of landfill gas combusted in power plant
Source of data to be used:	Measured by a flow meter
Value of data applied for the purpose of calculating expected emission reductions in section B.5	Details of assumptions, calculations and resulting data are presented in Annex 3 and in section B.6.3 and B.6.4
Description of measurement methods and procedures to be applied:	Measured by a flow meter continuously. Data to be aggregated monthly and yearly.
QA/QC procedures to be applied:	Data with low level of uncertainty. Flow meter should be subject to a regular maintenance and testing regime to ensure accuracy
Any comment:	During the crediting period and two years after

Data / Parameter:	**4. $LFG_{thermal,y}$**
Data unit:	m3
Description:	Amount of LFG fed in the boiler
Source of data to be used:	Measured by a flow meter
Value of data applied for the purpose of calculating expected emission reductions in section B.5	The LFG is not aim to be combusted in a boiler.
Description of measurement methods and procedures to be applied:	Measured by a flow meter continuously. Data to be aggregated monthly and yearly.
QA/QC procedures to be applied:	Data with low level of uncertainty. Flow meter should be subject to a regular maintenance and testing regime to ensure accuracy
Any comment:	During the crediting period and two years after

Data / Parameter:	**5. $PE_{flare,y}$**
Data unit:	tCO_2e
Description:	Project emissions from flaring of the residual gas stream in year y.
Source of data to be used:	On-site measurements / calculations.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	Maximum 10% of CH_4 in gas stream. (to be measured or calculated)

Description of measurement methods and procedures to be applied:	The parameters used for determining the project emissions from flaring of the residual gas stream in year y (PEflare,y) will be monitored as per the "Tool to determine project emissions from flaring gases containing methane". The parameters used for the determination of PEflare,y are $LFG_{flare,y}$, $w_{CH4,y}$, $fv_{i,h}$, fv_{CH4},FG,H and tO_2,H.
QA/QC procedures to be applied:	Regular maintenance will ensure optimal operation of the flare. Analysers will be calibrated annually according to manufacturer's recommendations.
Any comment:	During the crediting period and two years after

Data / Parameter:	**6. w_{CH4}**
Data unit:	m^3CH_4 / m^3LFG
Description:	Methane fraction in the landfill gas.
Source of data to be used:	Measured by a gas analyser.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	50%
Description of measurement methods and procedures to be applied:	Measured continuously the analyzer will also measure temperature and pressure. Data to be aggregated monthly and yearly.
QA/QC procedures to be applied:	Analysers will be calibrated annually according to manufacturer's recommendations.
Any comment:	During the crediting period and two years after

Data / Parameter:	**7. T**
Data unit:	ºC (Celsius degrees)
Description:	Temperature of the landfill gas.
Source of data to be used:	Measured.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	0 (At STP conditions).
Description of measurement methods and procedures to be applied:	Measured continuously the analyzer will also measure temperature and pressure. Data to be aggregated monthly and yearly.
QA/QC procedures to be applied:	Data with low level of uncertainty. Flow meter should be subject to a regular

	maintenance and testing regime to ensure accuracy
Any comment:	During the crediting period and two years after

Data / Parameter:	**8. P**
Data unit:	Pa (Pascal)
Description:	Pressure of the landfill gas.
Source of data to be used:	Measured
Value of data applied for the purpose of calculating expected emission reductions in section B.5	101,325 (1 atm at STP conditions).
Description of measurement methods and procedures to be applied:	Measured continuously the analyzer will also measure temperature and pressure. Data to be aggregated monthly and yearly.
QA/QC procedures to be applied:	Data with low level of uncertainty. Flow meter should be subject to a regular maintenance and testing regime to ensure accuracy
Any comment:	During the crediting period and two years after

Data / Parameter:	**9.** EL_{LFG}
Data unit:	MWh
Description:	Net quantity of electricity produced using landfill gas, which in the absence of the project activity would have been produced by power plants connected to the grid or by an on-site/off-site fossil fuel based captive power generation.
Source of data to be used:	Measured by electricity meter.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	Details of assumptions, calculations and resulting data are presented in section B.6.3 and B.6.4.
Description of measurement methods and procedures to be applied:	Required to estimate the emission reductions from electricity generation from LFG, if credits are claimed. Records will be kept during the crediting period and two years after.
QA/QC procedures to be applied:	Data with low level of uncertainty. Flow meter should be subject to a regular maintenance and testing regime to ensure accuracy
Any comment:	During the crediting period and two years after

Data / Parameter:	**10.** EL_{PR}
Data unit:	MWh
Description:	Amount of electricity generated in an on-site fossil fuel fired power

	plant or imported from the grid as a result of the project activity (principally for blowers used in landfill gas extraction.
Source of data to be used:	Measured by an electricity meter.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	Details of assumptions, calculations and resulting data are presented in section B.6.3 and B.6.4.
Description of measurement methods and procedures to be applied:	Required to estimate the emission reductions from electricity generation from LFG, if credits are claimed. Records will be kept during the crediting period and two years after.
QA/QC procedures to be applied:	Data with low level of uncertainty. Flow meter should be subject to a regular maintenance and testing regime to ensure accuracy
Any comment:	During the crediting period and two years after

Data / Parameter:	**11.ET_{LFG}**
Data unit:	TJ
Description:	Total amount of thermal energy generated using LFG
Source of data to be used:	The LFG is not aim to be combusted in a boiler
Value of data applied for the purpose of calculating expected emission reductions in section B.5	
Description of measurement methods and procedures to be applied:	
QA/QC procedures to be applied:	
Any comment:	

Data / Parameter:	**12. ET_{PR}**
Data unit:	TJ
Description:	Fossil fuel consumption on-site during project activity.
Source of data to be used:	Measured. The quantity of fossil fuel used to meet the energy requirements in the project activity. No use of fossil fuel is anticipated.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	
Description of	

measurement methods and procedures to be applied:	
QA/QC procedures to be applied:	
Any comment:	During the crediting period and two years after

Data / Parameter:	**13. $CEF_{elec,BL,y}$**
Data unit:	tCO_2e / MWh
Description:	CO_2 emissions intensity of the electricity required for the project activity
Source of data to be used:	IEC report 2005
Value of data applied for the purpose of calculating expected emission reductions in section B.5	0.837
Description of measurement methods and procedures to be applied:	emission factor shall be estimated as described AMS I.D.
QA/QC procedures to be applied:	Data with low level of uncertainty. Flow meter should be subject to a regular maintenance and testing regime to ensure accuracy
Any comment:	During the crediting period and two years after

Data / Parameter:	**19. $CEF_{elec,PR,y}$**
Data unit:	tCO_2e / MWh
Description:	CO_2 emissions intensity of the electricity displaced
Source of data to be used:	IEC report 2005
Value of data applied for the purpose of calculating expected emission reductions in section B.5	0.837
Description of measurement methods and procedures to be applied:	emission factor shall be estimated as described AMS I.D.
QA/QC procedures to be applied:	Data with low level of uncertainty. Flow meter should be subject to a regular maintenance and testing regime to ensure accuracy
Any comment:	During the crediting period and two years after

Data / Parameter:	**21. $EF_{ther,PR,y}$**
Data unit:	tCO_2e/mass or volume
Description:	CO_2 emissions factor of the fossil fuel used by thermal plant to generate energy in the project activity.
Source of data to be used:	IPCC data tables or other reliable source.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	Not used in ex-ante estimations, since no such fuel is expected to be used.
Description of measurement methods and procedures to be applied:	
QA/QC procedures to be applied:	
Any comment:	Fossil fuel that would have been used in the project captive power plant

Data / Parameter:	**25. Regulatory requirements relating to landfill gas projects**
Data unit:	
Description:	AF, for methane destruction in the baseline scenario)
Source of data to be used:	National legislation and mandatory regulations.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	AF=5%
Description of measurement methods and procedures to be applied:	
QA/QC procedures to be applied:	Legal documents.
Any comment:	The information, though recorded annually, is used for changes in the adjustment factor (AF) or directly MDreg, y at renewal of the crediting period.

Data / Parameter:	**26. Operation of the energy plant**
Data unit:	Hours
Description:	

Source of data to be used:	
Value of data applied for the purpose of calculating expected emission reductions in section B.5	8760
Description of measurement methods and procedures to be applied:	Records will be kept during the crediting period and two years after.
QA/QC procedures to be applied:	Data with low level of uncertainty. Flow meter should be subject to a regular maintenance and testing regime to ensure accuracy
Any comment:	During the crediting period and two years after

Data / Parameter:	$FV_{RG,h}$
Data unit:	m^3/h
Description:	Volumetric flow rate of the residual gas in dry basis at normal conditions in the hour h.
Source of data to be used:	On-site measurements.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	Not used in ex-ante estimates.
Description of measurement methods and procedures to be applied:	Measured at least one per hour and electronically using a flow meter, and will be kept during the crediting period and two years after.
QA/QC procedures to be applied:	Data with low level of uncertainty. Flow meter should be subject to a regular maintenance and testing regime to ensure accuracy
Any comment:	The same basis (dry or wet) is considered for this measurement when the residual gas temperature exceeds 60 ºC.

Data / Parameter:	$fv_{i,h}$
Data unit:	
Description:	Volumetric fraction of component i in the residual gas in the hour h.
Source of data to be used:	On-site measurements using a continuous gas analyzer (if decided not to apply default value.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	Not used in ex-ante estimates.

Description of measurement methods and procedures to be applied:	Measured by a analyzer continuously. Data to be aggregated monthly and yearly.
QA/QC procedures to be applied:	Data with low level of uncertainty. Flow meter should be subject to a regular maintenance and testing regime to ensure accuracy
Any comment:	The same basis (dry or wet) is considered for this measurement when the residual gas temperature exceeds 60 ºC.

Data / Parameter:	T_{flare}
Data unit:	ºC
Description:	Temperature in the exhaust gas of the flare.
Source of data to be used:	On-site measurements.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	Not used in ex-ante estimates.
Description of measurement methods and procedures to be applied:	Continuous measurement of the temperature of the exhaust gas stream in the flare by a thermocouple. A temperature above 500 ºC indicates that a significant amount of gases are still being burnt and that the flare is operating.
QA/QC procedures to be applied:	Thermocouples will be calibrated every year.
Any comment:	An excessively high temperature at the sampling point (above 700 ºC) may be an indication that the flare is not being adequately operated or that its capacity is not adequate to the actual flow.

Data / Parameter:	$\eta_{flare,h}$
Data unit:	
Description:	Flare efficiency in hour h
Source of data to be used:	Values specified in Methane Flaring Tool.
Value of data applied for the purpose of calculating expected emission reductions in section B.5	0.9
Description of measurement methods and procedures to be applied:	Calculated as specified in Methane Flaring Tool as follows: • 0%, if the temperature in the exhaust gas of the flare (Tflare) is below 500°C for more than 20 minutes during the hour h. • 50%, if the temperature in the exhaust gas of the flare (Tflare) is above 500°C for more than 40 minutes during the hour h, but the manufacturer's specifications on proper operation of the

	flare are not met at any point in time during the hour h. • 90%, if the temperature in the exhaust gas of the flare (Tflare) is above 500°C for more than 40 minutes during the hour h and the manufacturer's specifications on proper operation of the flare are met continuously during the hour h.
QA/QC procedures to be applied:	
Any comment:	

$MD_{total,y}$ which is the total quantity of methane generated and $LFG_{total,y}$ the total quantity of landfill gas generated will be monitored as a result.

B.7.2 Description of the monitoring plan:

The monitoring plan will include the parameters needed according to the manufacturer's instructions along with the described above at section B 7.1
All continuously measured parameters (LFG flow, CH4 concentration, flare temperature, flare operating hours, engine operating hours, engine electrical output), will be recorded electronically via a data logger, which will have the capacity to aggregate and print the collected data at the frequencies as specified above.

Data monitoring

The data regarding gas flow, temperature, pressure will be measured/collected at the engine system. The collected data will be archived every month.
The data regarding gas that will be delivered to the flare will be measured every two weeks using a portable meter.

Data management

The data from the control station will be analyzed and estimated for the verification of this project. Technical support will be provided by the manufacturer or its representatives if necessary.

Instrument Calibration and maintenance

All of the monitoring equipment will undergo periodic maintenance according to the manufactures instructions. The metering equipment including the portable meter will be calibrated and adjusted according to the manufacturer instructions and repaired in case of a problem.

The monitoring process and management will be executed by Evron landfill executives.

B.8 Date of completion of the application of the baseline study and monitoring methodology and the name of the responsible person(s)/entity(ies)

The baseline study was conducted in January 2007. The entities determining the baseline and participating in the project are ClimaTrade Ltd., listed in Annex 1 of this document.

SECTION C. Duration of the project activity / crediting period

C.1 Duration of the project activity:

C.1.1. Starting date of the project activity:

01/01/08

C.1.2. Expected operational lifetime of the project activity:

21 years

C.2 Choice of the crediting period and related information:

C.2.1. Renewable crediting period

C.2.1.1. Starting date of the first crediting period:

08/01/08

C.2.1.2. Length of the first crediting period:

7 years

C.2.2. Fixed crediting period:

C.2.2.1. Starting date:

Skipped

C.2.2.2. Length:

Skipped

SECTION D. Environmental impacts

D.1. Documentation on the analysis of the environmental impacts, including transboundary impacts:

The project will result the reduction of GHG emissions from the Evron landfill, it will result in the reduction of the environmental effects of the landfill gas. Along with the fact that the landfill gas is a GHG and therefore is a factor in the cause of global warming its effects are also hazardous, both directly and indirectly. The direct danger is in the exposure of employees to the gas itself and the indirect danger is in the risk of the landfill gas causing fires and explosions in the landfill and its surroundings.

The project activity will result in better management of landfill gas and will provide better safety for the landfill operation and its employees.

The project contributes in the education of better modern waste management systems and promotes the implementation of renewable energy projects in the host country since it served as a demonstration project.

Currently the host country power grid is based mainly on coal and other heavy fossil fuels that are imported from over seas since, the host country has little natural resources.

Despite this situation, there is very limited awareness and use of renewable energy sources in the host country. The technology used in the project is not commonly found and was first introduced in the host country by the project activity. The development of the project results in technology transfer and training of local personnel of its installation and use, which helps in its implementation in other sites in the host country and promotes better waste management.

The project contributes for sustainable development in the host country both in helping promoting renewable energy projects and in landfill management.

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:

Not applicable.

SECTION E. Stakeholders' comments

E.1. Brief description how comments by local stakeholders have been invited and compiled:

The stakeholder meeting took place on 25.12.06 The invitation to the meeting was published in a local newspaper. A personal invitation was sent to representatives of the ministry of environmental protection and to environmental active NGOs.

The stakeholder meeting included:

- A Presentation regarding the problem of global warming its cause and its effects.
- The Kyoto protocol, and its aim to combat climate change.
- review regarding common practice and its dangers,
- The purposed project, and its technical aspects and its role in contributing to combating climate change.

After the presentation the floor was open for comments and questions regarding the project activity and the Kyoto protocol.

E.2. Summary of the comments received:

To date, no negative comments have been received.

E.3. Report on how due account was taken of any comments received:

Not applicable, given that no negative comments were received.

Annex 1

CONTACT INFORMATION ON PARTICIPANTS IN THE PROJECT ACTIVITY

Organization:	Kibbutz Evron
Street/P.O.Box:	
Building:	
City:	Kibbutz Evron
State/Region:	Middle east
Postfix/ZIP:	
Country:	Israel
Telephone:	+972-4-985-7071
FAX:	
E-Mail:	Nahman@bermad.com
URL:	
Represented by:	
Title:	Mr.
Salutation:	
Last Name:	Segev
Middle Name:	
First Name:	Nahman
Department:	
Mobile:	
Direct FAX:	
Direct tel:	+972-4-985-7071
Personal E-Mail:	

Organization:	ClimaTrade L.T.D
Street/P.O.Box:	
Building:	
City:	
State/Region:	Middle East
Postfix/ZIP:	
Country:	Israel
Telephone:	
FAX:	
E-Mail:	Menashe.Z@ClimaTrade.com
URL:	
Represented by:	
Title:	Mr.
Salutation:	
Last Name:	Zelicha
Middle Name:	
First Name:	Menashe
Department:	
Mobile:	
Direct FAX:	
Direct tel:	+972-542-054-064
Personal E-Mail:	

Annex 2

INFORMATION REGARDING PUBLIC FUNDING

This project will not receive any public funding.

Annex 3

BASELINE INFORMATION

Name of landfill	Evron Landfill
Main assumptions:	
Started operation	1971
Finish operation	2014
Waste in place (tonnes) [projected]	8,000,000

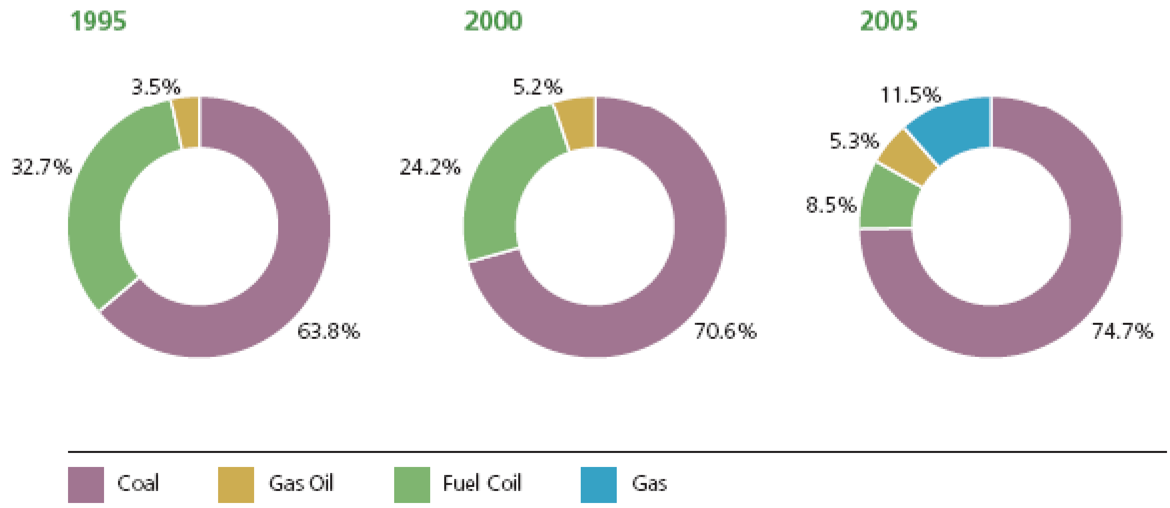
L_0 value[1]	80 m^3/Mg
k values[1]	0.05
Assumed LFG methane content[1]	50%
Flare efficiency[2]	90%
Emissions factor[3] ton CO_2/MWh	0.809
CH_4 density at 15ºC, 101 kPa (Kg/m^3)	0.678
CO_2 density at 15ºC, 101 kPa (Kg/m^3)	1.866

Sources :1) User's Manual Mexico Landfill Gas Model published by the USEPA

2) default as presented in the "Tool to determine project emissions from flaring gases containing methane"

3) National Electricity Authority for Israel (Annual Report 2003),

Conventional Energy Production



Type of primary fuel consumed by power plants in thousand tons

Power Plant	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Haifa	547	448	439	421	494	488	441	402	431	369	344
Reading	612	579	539	592	646	571	477	371	448	407	392
Eshkol	1,141	996	1,035	1,173	1,195	1,257	1,047	888	882	309	116
Orot Rabin (Fuel Oil)	40	-	-	-	-	-	-	-	-	-	-
Private Producers	-	-	-	9	24	29	19	24	21	22	22
Fuel Oil, Total	2,340	2,023	2,013	2,195	2,359	2,345	1,984	1,685	1,782	1,108	873
Orot Rabin	3,864	5,332	6,316	6,758	6,996	6,944	6,684	6,611	6,814	6,815	6,857
Rutenberg	2,703	2,476	2,324	2,526	2,267	3,363	4,882	5,591	5,796	5,902	5,837
Coal, Total	6,567	7,808	8,640	9,284	9,263	10,307	11,566	12,202	12,610	12,717	12,694
Gas (Eshkol C & D)	-	-	-	-	-	-	-	-	-	823	1,127
Jet Engines, Total	37	10	6	13	6	7	5	15	6	3	14
Heavy Duty, Total	292	120	113	212	457	379	149	307	114	88	257
Combined Cycle, Total	-	-	-	-	-	181	81	82	293	234	316
Gas Oil, Total	329	130	119	225	463	567	235	404	413	325	587

(The Israel Electric Corporation Ltd. / Statistical Report 2005)

The above data had been used to calculate the grid emission factor, according to the IPCC 1996 reference manual:

TJ/Kiloton: Tables 1-2, 1-3

Emission Factor per products: Table 1-1

Energy per product: Table 1-1

Oxidation factor per product: Table 1-6

Kiloton	TJ/tonne	Energy TJ	EF TC/TJ		Oxidation Factor	Tonne Carbon	CO_2 Emissions
Fuel Oil	873	42.54	37137.42	20	0.99	735320.92	2,696,177
Coal	12694	26.63	338041.2	25.8	0.98	8547034.2	31,339,125
Oil combined cycle	587	43.33	25434.71	20.2	0.99	508643.33	1,865,026
Natural gas	1127	47.31	53318.37	17.2	0.995	912490.58	3,345,799
Total							**39,246,126**

פליטת מזהמי אוויר משריפת דלק בתחנות-הכוח של חברת החשמל

גרם לקילוואט-שעה מיוצר

2005	2004	2003	2002	2001	2000	1999	סוג הדלק
							גפרית דו-חמצנית (SO2)
0.02	0.04	-	-	-	-	-	גז טבעי
2.4	2.7	3.6	3.8	4.2	5.3	5.6	מזוט
2.6	2.9	3.1	3.0	3.3	3.9	4.3	פחם
0.8	0.8	0.8	0.8	0.8	0.8	-	סולר במחזור משולב
1.2	1.2	1.2	1.2	1.3	1.2	1.3	סולר בטורבינות גז
2.2	2.6	3.1	3.0	3.4	4.1	4.5	סה"כ
							תחמוצות חנקן (NOx)
0.6	0.6	-	-	-	-	-	גז טבעי
1.4	1.3	1.4	2.0	2.4	2.5	2.8	מזוט
2.4	2.3	2.5	2.5	3.1	3.3	3.7	פחם
0.8	0.9	1.0	1.0	0.9	0.9	-	סולר במחזור משולב
3.2	3.0	3.1	3.0	3.2	3.0	3.9	סולר בטורבינות גז
2.0	2.0	2.3	2.4	2.9	3.0	3.5	סה"כ
							חלקיקים (PM)
0.01	0.01	-	-	-	-	-	גז טבעי
0.17	0.18	0.18	0.20	0.24	0.26	0.37	מזוט
0.08	0.09	0.09	0.09	0.12	0.14	0.15	פחם
0.09	0.09	0.09	0.08	0.04	0.05	-	סולר במחזור משולב
0.15	0.17	0.16	0.13	0.08	0.07	0.08	סולר בטורבינות גז
0.08	0.09	0.10	0.11	0.14	0.16	0.20	סה"כ
							דו-תחמוצת הפחמן (CO2)
521	534	-	-	-	-	-	גז טבעי
750	741	737	739	743	741	747	מזוט
863	857	865	857	866	871	855	פחם
610	620	617	649	652	651	-	סולר במחזור משולב
954	975	970	944	1,004	960	1,012	סולר בטורבינות גז
805	811	837	836	841	835	829	סה"כ

The above table reviews the g CO_2 emitted by source in the generation of 1 kWh from the year 1999 (the right hand Column) to 2005 (on the left). The bottom line is the total in 2005 it was 805 g CO_2 per kWh.

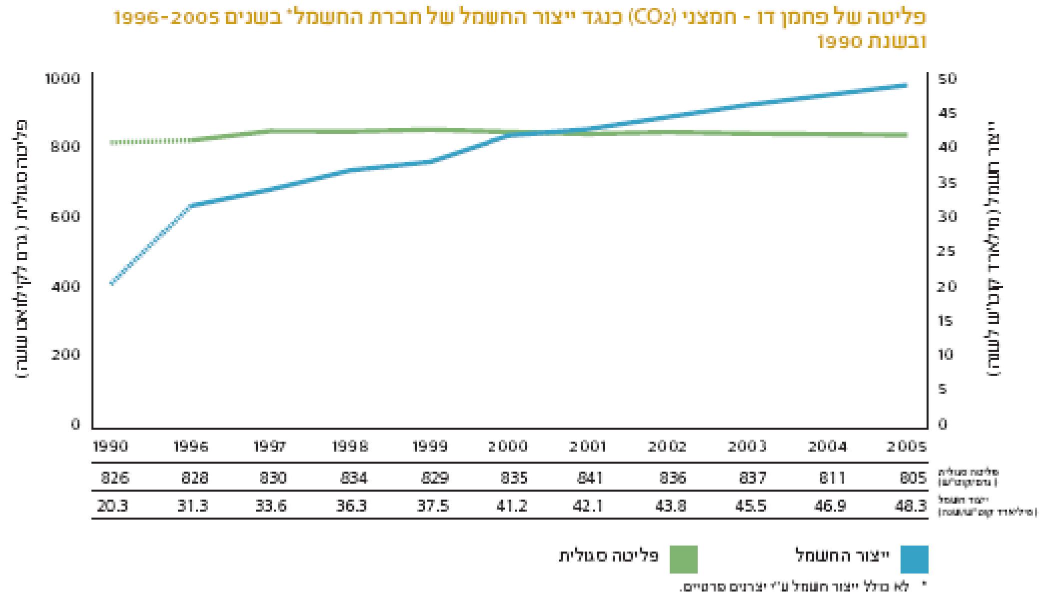
Host Country's renewable energy production capacity

Company	Location	Power MW	Technology	Yearly hours operation	Total millions kwh per year	Tons CO2 per year
Metzad Atarot Ltd	Kefar Hanasi	2.5	Hydro	8000		0
Water company Hatzbani	Gesher Senir	2.2	Hydro	8000		0
Afiki Maim 50	Beit Shean	0.2	Hydro	8000		0
Afiki Maim 200	Beit Shean	0.35	Hydro	8000		0
Afiki Maim revaya 4	Beit Shean	0.35	Hydro	2000	SUM 44.8	0
Golan winds	Tel Katif	0.225	Wind	2000		0
Mei Golan Wind power	Ramat Hagolan	6	Wind	8000	SUM 12.45	0
Arrow Ecology	Hiria	1.03	Biogas	8000		0
Green electricity Ltd	Dudaim	2.128	Biogas	8000	SUM 25.26	0
SUM		82.5				

Source: Ministry of National infrastructures of Israel

Biogas runs all year therefore 8000 operational hours per year have been used.

- Golan Heights wind farm an adjustment factor of 25% have been applied due to the availability of the wind resource, therefore 2000 operational hours per year have been taken into account.
- Hydro power is used all year long therefore 8,000 operational hours per year have been used.
- Emission of Biogas/landfill gas with about 50% CH_4 is calculated with 0.825 tCO_2/MWh



(The Israel Electric Corporation Ltd. / Statistical Report 2005)

The above graph demonstrates in the blue line the growth in the power production in the host country and the green line shows the carbon intensity of the electricity production.

Total Energy production in the host country in 2005 :

Electricity generated from Fossil fuels (KWh)	48,379 * 106
Electricity generated from renewable energy (KWh)	82.5 * 106
Total	48,461.5 * 106
Total Emission from Energy production in the host country in 2005 (Tons/CO_2)	39,246,126
Host country grid intensity (CO_2/KWh):	809.841

Annex 4

MONITORING INFORMATION

Monitoring would be carried as required in ACM0001 Version 6

A gas analyzer will be installed to monitor the following parameters:

- The amount of landfill gas captured (in m³, using a continuous flow meter), where the total quantity ($LFG_{total,y}$) is measured.
- The fraction of methane in the landfill gas ($w_{CH4,y}$) on a wet basis
- Temperature (T) and pressure (P) of the landfill gas.

All data would be logged and stored by electronic means.

The project developer will consider the installation of a continuous analyzer in order to to reduce uncertainty and increase reliability of the measures.

The supplier's QA/QC procedure for the calibration of the analyzer would be followed.

- A continuous flow meter will be installed to measure the gas reaching the electricity generator.
- A continuous flow meter would be installed to measure the gas reaching the flare.
- The project will not use any thermal energy therefore this parameter will not be monitored.

If the project developer decides to utilize the heat he will start monitor as required or submit a new CDM project.

Flow meters are to be calibrated as defined in the manufacturers data supplied.

The amount of electricity that is required to operate the landfill gas project, including the pumping equipment for the collection system, would be monitored. Since the developer is going to use its own produced electricity the emissions from project activities would be zero.

In the baseline scenario some landfill gas is captured to meet the regulation for safety reasons. Electricity consumption in the baseline scenario would be monitored as well.

As required in the methodology the quantity of electricity imported, in the baseline and the project situation, to meet the requirements of the project activity should be measured. The amount of electricity required for the operation of the project (power for blower and evaporator if needed) would be counted and deducted from the electricity generated only the electricity exported to end users other than the project operation would be credited.

The parameters used for determining the project emissions from flaring of the residual gas stream in year y ($PE_{flare,y}$) are to be monitored as per the "Tool to determine project emissions from flaring gases containing Methane".

Since the project will make use of a closed flare, at project start $PE_{flare,y}$ is set to 90% the default value for closed flares. The project developer may opt to install a gas analyzer to evaluate flare efficiency in the future.

Relevant regulations for LFG project activities will be monitored and updated at renewal of each credit period. Changes to regulation such as mandatory gas amounts to be destroyed will be converted to the amount of methane that would have been destroyed/combusted during the year in the absence of the project activity ($MD_{reg,y}$).

Leakage from the landfill itself as defined in the methodology is not considered and will not be monitored.