JI DETERMINATION REPORT

CARBON CAPITAL MARKETS LTD

METHANE CAPTURE AND DESTRUCTION AT THE SOLID WASTE LANDFILL IN THE CITY OF LVIV, UKRAINE

Report No: 8000369894 – 09/37

Date: 06.10.2011

TÜV NORD CERT GmbH
JI/CDM Certification Program
Langemarckstraße, 20
45141 Essen, Germany
Phone: +49-201-825-3335
Fax: +49-201-825-3290
www.tuev-nord.de
www.global-warming.de

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Final Approval by: Mr. Rainer Winter	Organisational unit: TÜV NORD JI/CDM Certification Program
Client: Carbon Capital Markets Limited	Client ref.: Mr. Reuben Maltby
Summary:	☒ positive determination opinion ☐ negative determination opinion

Carbon Capital Markets Limited has commissioned the TÜV NORD JI/CDM Certification Program (CP) to carry out a determination PDD of the project: "Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine" with regard to the relevant requirements of the UNFCCC for JI project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria refer to the Kyoto Protocol Article 6 criteria and the Guidelines for the implementation of Article 6 of the Kyoto Protocol as agreed in the Marrakech Accords.

In the course of the determination PDD (Version 4 dated 19.07.2011) 11 Corrective Action Requests (CARs) and 4 Clarification Requests (CLs) were raised and successfully closed. In particular the Host Country Approval dated 20.04.2011 and the Letter of Approval from the Investor Country dated 07.06.2011 has been provided and the CAR A3 was closed.

The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders and NGOs have provided TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfilment of the stated criteria. The conclusions can be summarised as follows:

- The project is in line with all relevant host country criteria (Ukraine) and all relevant UNFCCC requirements for JI.
- The project additionality is sufficiently justified in the PDD.
- The monitoring plan is transparent and adequate.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 434,533 tCO2e are most likely to be achieved within the crediting period between 2009 and 2012. Also the emission reductions of 654,848 tCO2e to be achieved in the time period between 2013 and 2018 have been estimated in an appropriate and conservative manner.

The conclusions of this report show that the project, as it was described in the project documentation, is in line with all criteria applicable for the determination PDD.

Report No.: 8000369894 – 09/37	Subject Group: Climate Protection	
Report title: Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine		
Work carried out by: Mr. Evgeni Sud (Team leader) Mr. Martin Saalmann (Team member)		
Final technical review by: Mr. Rainer Winter	Local technical review by	
Date of this revision: 06.10.2011	Rev. No.: 1	Number of pages: 123

Indexing terms

Kyoto Protocol JI Determination PDD

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Abbreviations

BAU	Business as usual
CA	Corrective Action / Clarification Action
CAR	Corrective Action Request
CDM	Clean Development Mechanism
ERU	Emission Reduction Unit
CO2	Carbon dioxide
CO2e	Carbon dioxide equivalent
CP	Certification Program
CR	Clarification Request
DNA	Designated National Authority
FAR	Forward Action Request
EB	CDM Executive Board
EIA	Environmental Impact Assessment
GHG	Greenhouse gas(es)
IPCC	Intergovernmental Panel on Climate Change
IPP	Independent Power Producer
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
kW	Kilowatt
kWh	Kilowatt hour
m	Meter
m3	Cubic meter
MW	Megawatt
MWh	Megawatt hour
NCV	Net Calorific Value of Fuel
ODA	Official Development Assistance
PDD	Project Design Document
Th	Thousand
QC/QA	Quality control/Quality assurance
UNFCCC	United Nations Framework Convention on Climate Change

Table of Contents Page

1 OBJECTIVE / SCOPE

Carbon Capital Markets Limited has commissioned TÜV NORD JI/CDM Certification Program (CP) to make a determination of the project

"METHANE CAPTURE AND DESTRUCTION AT THE SOLID WASTE LANDFILL IN THE CITY OF LVIV, UKRAINE"

with regard to the relevant requirements for JI project activities.

The determination serves as a design verification and is a requirement for all client projects. The purpose of a determination is to have an independent third party assess of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are validated in order to confirm that the project design as documented is sound and reasonable and meets the stated requirements and identified criteria. Determination is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reduction units (ERUs).

UNFCCC criteria refer to the Kyoto Protocol Article 6 criteria and the Guidelines for the implementation of Article 6 of the Kyoto Protocol as agreed in the Marrakech Accords.

2 GHG PROJECT DESCRIPTION

2.1 Project Characteristics

Essential data of the project is presented in the following Table 2-1.

Table 2-1: Project Characteristics

Item	Data		
Project title	"Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine"		
Project size	☒ Large Scale ☐ Small Scale		
JI Procedure	☒ Track 2 ☐ Track 1		
Project Scope *(according to UNFCCC sectoral scope numbers for CDM)*	☐	1	Energy Industries (renewable- /non-renewable sources)
	☐	2	Energy distribution
	☐	3	Energy demand
	☐	4	Manufacturing industries
	☐	5	Chemical industry
	☐	6	Construction
	☐	7	Transport
	☐	8	Mining/Mineral production
	☐	9	Metal production
	☐	10	Fugitive emissions from fuels (solid, oil and gas)

	☐	11	Fugitive emissions from production and consumption of halocarbons and hexafluoride
	☐	12	Solvents use
	☒	13	Waste handling and disposal
	☐	14	Afforestation and Reforestation
	☐	15	Agriculture
Applied Methodology	*ACM0001: Consolidated baseline and monitoring methodology for landfill gas project activities --- Version 11*		
Crediting period	2009-2012		
Start of crediting period[1]	01.04.2009		

2.2 Involved Parties and Project Participants

The following parties to the Kyoto Protocol and project participants are involved in this project activity (Table 2-2).

Table 2-2: Project Parties and project participants

Characteristic	Party	Project Participant
Host party	Ukraine	Gafsa LLC
Other involved party/ies	United Kingdom	Carbon Capital Markets Ltd

2.3 Project Location

The details of the project location are given in table 2-3:

Table 2-3: Project Location

No.	Project Location
Host Country	Ukraine
Region:	Lviv
Project location address	Lviv City, Zhovkivskiy region, Grybovychi village

2.4 Technical Project Description

The project involves the construction and operation of the landfill gas (LFG) collection and flaring system on the landfill located in Lviv City, Zhovkivskiy region, Grybovychi village.

As per the PDD, the following main steps will be carried out within the project activity:

- Drilling works, etc.

[1] As per the published PDD (version 1)

- Installation of gas collection system (including installation of wells and pipes)
- Installation of pumping equipment (including compressor installation)
- Landfill gas monitoring and control equipment (including installation of metering equipment, e.g. gas flow meter, gas analyzer, pressure and temperature meters)
- Installation of flaring equipment

The flaring equipment to be installed is of the enclosed type. The number of wells and the scope of the collection system will be determined based on the results of soil boring and gas pumping tests.

In addition, an LFG fired generator will be installed to cover own needs of the flaring and collection equipment.

3 METHODOLOGY AND DETERMINATION PDD SEQUENCE

3.1 Determination PDD Steps

The determination of the project consisted of the following steps:

- Contract review
- Appointment of team members and technical reviewers
- Publication of the project design document (PDD)
- A desk review of the PDD[/PDD/] submitted by the client and additional supporting documents
- Determination planning,
- On-Site assessment,
- Background investigation and follow-up interviews with personnel of the project developer and its contractors,
- Draft determination reporting
- Resolution of corrective actions (if any)
- Final determination reporting
- Technical review
- Final approval of the determination.

The sequence of the determination is given in the table 3.1 below:

Table 3.1: Determination PDD sequence

Topic	Time
Assignment of determination	10.02.2009
Submission of PDD for global stakeholder commenting process	02.03.2009
Draft reporting finalised	18.04.2009
Technical review on draft reporting finalised	19.04.2009
(Draft) Final reporting	21.10.2009
Technical review on final reporting finalised	21.10.2009
Final Determination report (subject to the pending approvals of the Countries involved)	03.02.2011
Final Determination report (based on the provided approvals of the Countries involved)	26.07.2011

3.2 Contract review

To assure that

- the project falls within the scopes for which accreditation is held,
- the necessary competences to carry out the determination can be provided,
- impartiality issues are clear and in line with the JI accreditation requirements

a contract review was carried out before the contract was signed.

3.3 Appointment of team members and technical reviewers

On the basis of a competence analysis and individual availabilities a determination team, consistent of one team leader and 1 additional team member, were appointed. Furthermore also the personnel for the technical review and the final approval were determined.

The list of involved personnel, the tasks assigned and the qualification status are summarized in the table 3-2 below.

	Name	Company	Function [1]	Qualification Status [2]	Scheme competence [3]	Technical competence [4]	Verification competence [5]	Host country Competence	On-site visit
☒ Mr. ☐ Ms.	Evgeni Sud	TN Cert GmbH	TL	LA	☒	13.1	☒	☒	☒
☒ Mr. ☐ Ms.	Martin Saalmann	TN Cert GmbH	TM	SA	☒	-	☒	☐	☐
☐ Mr. ☐ Ms.					☐		☐	☐	☐
☒ Mr. ☐ Ms.	Rainer Winter	TN Cert GmbH	TR[B], FA[3]	SA	☒	13.1	☒	☐	-

1) TL: Team Leader; TM: Team Member, TR: Technical review; OT: Observer-Team, OR: Observer-TR; FA: Final approval
2) GHG Auditor Status: A: Assessor; LA: Lead Assessor; SA: Senior Assessor; T: Trainee; TE: Technical Expert
3) GHG auditor status (at least Assessor)
4) As per S01-MU03 or S01-VA070-A2 (such as 1.1, 1.2, …)
5) In case of verification projects

A) Team Member: GHG auditor (at least Assessor status), Technical Expert (incl. Host Country Expert or Verification Expert), not ETE
B) No team member

3.4 Consideration of Public Stakeholder Comments

Acc. To the modalities and procedures the draft PDD, as received from the project participants, has been made publicly available on the dedicated UNFCCC JI website prior to the determination activity commenced. Stakeholders have been invited to comment on the PDD within the 30 days public commenting period.

Stakeholder comments were received and were taken into account during the determination process. The comments and the discussion of the same are documented in annex 5 of this report.

3.5 Determination PDD Protocol

In order to ensure consideration of all relevant assessment criteria, a determination protocol is used. The protocol shows, in a transparent manner, criteria and requirements, means of determination and the results from pre-determination the identified criteria. The determination protocol reflects the generic JI requirements each JI project has to meet as well as project specific issues as applicable. The determination protocol serves the following purposes:

- It organises, details and clarifies the requirements that a JI project is expected to meet;
- It ensures a transparent determination PDD process where the independent entity will document how a particular requirement has been validated and the result of the determination.

The determination protocol as described in Figure 1.

Determination Protocol Table A-1: Requirement checklist				
Checklist Item	***Determination PDD Team Comment***	***Reference***	***Draft Conclusion***	***Final Conclusion***
The checklist items in Table A-1 are linked to the various requirements the project should meet. The checklist is organised in various sections. Each section is then further sub-divided as per the requirements of the topic and the individual project activity.	*The section is used to elaborate and discuss the checklist item in detail. It includes the assessment of the determination team and how the assessment was carried out.*	*Gives reference to the information source on which the assessment is based on*	*Assessment based on evidence provided if the criterion is fulfilled (OK), or a CAR, CL or FAR (see below) is raised. The assessment refers to the draft determination stage.*	*In case a corrective action or a clarification the final assessment at the final determination stage is given.*

Figure 1: Determination protocol tables

The completed determination protocol is enclosed in Annex 1 to this report.

3.6 Review of Documents

The published PDD (version 1) and supporting background documents related to the project design and baseline were reviewed.

Furthermore, the determination team used additional documentation by third parties like host party legislation, technical reports referring to the project design or to the basic conditions and technical data.

3.7 Follow-up Interviews

The determination team has carried out interviews in order to assess the information included in the project documentation and to gain additional information regarding the compliance of the project with the relevant criteria applicable for JI.

During determination the determination team has performed interviews to confirm selected information and to resolve issues identified in the document review. The main topics of the interviews are summarized in table 3-3.

Table 3-3: Interviewed persons and interview topics

Interviewed Persons / Entities	Interview topics
Project proponent representatives Project consultant	- Chronological description of the project activity with documents of key steps of the implementation. - Current status of plant design - Technical details of the project realization, project feasibility, designing, operational life time, monitoring of the project - Host Government Approval - Approval procedures and status - Monitoring and measurement equipment and system. - Financial aspects - Crediting period - Project activity starting date - ERU allocation / ownership - Baseline study assumptions - Additionality - Monitoring - Analysis of local stakeholder consultation - Roles & responsibilities of the project participants w.r.t. project management, monitoring and reporting - National Legislation - Editorial issues of the PDD

A comprehensive list of all interviewed persons is part of section 7 'References'.

3.8 Project comparison

The determination team has compared the proposed JI project activity with similar projects or technology that have similar or comparable characteristics and with similar projects in the host country in order to achieve additional information esp. Regarding:

- Project technology
- Additionality issues
- Methodological iisses
- Reasons for reviews, requests for reviews and rejections within the JI registration process.

3.9 Resolution of Clarification and Corrective Action Requests

3.9.1 Definition

A **Corrective Action Request (CAR)** will be established where:

- mistakes have been made in assumptions, application of the methodology or the project documentation which will have a direct influence on the project results.
- the requirements deemed relevant for determination PDD of the project with certain characteristics have not been met or
- there is a risk that the project would not be registered by the UNFCCC JISC or that emission reductions would not be able to be verified during determination ERU.

A **Clarification Request (CL)** will be issued where information is insufficient, unclear or not transparent enough to establish whether a requirement is met.

A **Forward Action Request (FAR)** will be issued when certain issues related to project implementation should be reviewed during the first determination of ERU.

3.9.2 Draft Determination PDD

After reviewing all relevant documents and taken all other relevant information into account, the determination team issues all findings in the course of a draft determination report and hands this report over to the project proponent in order to respond on the issues raised and to revise the project documentation accordingly.

3.9.3 Final Determination PDD

The final determination starts after issuance of the proposed corrective action (CA) of the CARs CLs and FARs by the project proponent. The project proponent has to reply on those and the requests are "closed out" by the determination team in case the response is assessed as sufficient. In case of raised FARs the project proponent

has to respond on this, identifying the necessary actions to ensure that the topics raised in this finding are likely to be resolved at the latest during the first determination ERU. The determination team has to assess whether the proposed action is adequate or not.

In case the findings from CARs and CLs cannot be resolved by the project proponent or the proposed action related to the FARs raised cannot be assessed as adequate, no positive determination opinion can be issued by the determination team.

The CAR(s) / CL(s) / FAR(s) are documented in chapter 4.

3.10 Technical review

Before submission of the final determination report a technical review of the whole determination procedure is carried out. The technical reviewer is a competent GHG auditor being appointed for the scope this project falls under. The technical reviewer is not considered to be part of the determination team and thus not involved in the decision making process up to the technical review.

As a result of the technical review process the determination opinion and the topic specific assessments as prepared by the determination team leader may be confirmed or revised. Furthermore reporting improvements might be achieved.

3.11 Final approval

After successful technical review of the final report an overall (esp. Procedural) assessment of the complete determination will be carried out by a senior assessor located in the accredited premises of TÜV NORD.

Only after this step the request for registration can be started (in case of a positive determination opinion).

4 DETERMINATION FINDINGS

In the following table the findings from the desk review of the published PDD, visits, interviews and supporting documents are summarised**:**

Table 4-1: Summary of CARs, CLs and FARs issued

Determination topic [1)]	No. Of CAR	No. Of CL	No. Of FAR
General description of project activity (A) - Project boundaries - Participation requirements - Technology to be employed - Contribution to sustainable development	2	2	-
Project baseline (B) - Baseline Methodology - Baseline scenario determination - Additionality determination - Calculation of GHG emission reductions Project emissions Baseline emissions - Leakage	3	-	-
Duration of the Project / Crediting Period (C)	1	-	-
Monitoring Methodology (D) - Monitoring of Project emissions Baseline emissions Leakage Sustainable development indicators / environmental impacts Project management planning	5	-	-
Estimation of greenhouse gas emission reductions (E)	-	-	
Environmental impacts (F)	-	1	-
Stakeholder Comments (G)	-	1	-
SUM	**11**	**4**	**-**

1) The letters in brackets refer to the determination protocol

The following tables include all raised CARs, CLs and FARs. For an in depth evaluation of all determination items it should be referred to the determination protocols (see Annex 1).

The findings of determination process are summarized in the tables below.

Finding	**A1**		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	1. The following information is not provided in the section A.2 of the PDD: a) Situation existing prior to the starting date of the project; b) Baseline scenario; and c) Project scenario (expected outcome, including a technical description). d) The history of the project (incl. Its JI component).		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	1) a & b. "Situation prior to starting date" and "baseline scenario" are the same (i.e., LFG emitted to the atmosphere). Description inserted into to Section A.2 pg. 1 and 2. 1 c. Description of project scenario inserted into Section A.2 pg. 2. 1 d. Description of project history and JI component is inserted into Section A.2 pg. 2.		
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	The required information has been included in the section A.2 of the PDD. a) & d) Situation existing prior to the project based on the observations made during the on-site assessment. The history of the project incl. Its JI component could be confirmed within the interviews carried our within the on-site visit. b) Baseline scenario was described in the section A.2 of the PDD. For assessment of the baseline scenario please refer to the Annex 1 section B.3 and Annex 2 of this report. c) Project scenario has been duly described. Please refer to the section A.3 of the Annex 1 of this report.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding	A2		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Further clarification is required with regard to the technical specification of the planned gas generator.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	1) Electrical capacity inserted into Section A.4.2 Pg 7 2. Explanation inserted into Section A.4.2 Pg 7		
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	The installation of two gas generators with the **electrical capacity** (60 kW) is planned in order to cover own needs. It was reasonably demonstrated that the envisioned capacity will be sufficient to cover the own needs of the project activity.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding	A3		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Letter of Approval from all parties involved are pending.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	Letter of Approval from all parties involved have been provided.		
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	The PP has provided the Host Country Approval from Ukraine as well as the Letter of Approval from United Kingdom. Please refeer to the assessment in the section A.2. of the Annex 1.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☐ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding	**A4**		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Please clarify why the names of the Project Participants indicated in the (published) PDD version 01 deviate from that indicated in the (final) PDD version 04. Please provide corresponding statements if a project participant wishes to withdraw his participation.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	Due to the active regulations on the host-country (Ukraine) project approval procedure, currently, only the project participant that can be identified as the "object owner" and can provide a previously issued and valid Letter of Endorsement can receive Letter of Approval. Given the fact that only Gafsa LLC was issued the valid Letter of Endorsement on 12/09/2006 and keeps a direct and valid contract with Lviv Municipality, thus only Gafsa LLC can be identified as the valid project participant and receive the host-country approval in the form of the Letter of Approval. Unfortunately, the amendments to the host-country (Ukraine) project approval procedure, which could allow addition of other project participants with Ukrainian registration, has not been finalized yet. This has required some project (only) management restructuring and removal of Zbyranka LR (Zbyranka Landfill Recovery LLC) from the list of project participants, registered in the host-country (Ukraine). Withdrawal of Zbyranka LR (Zbyranka Landfill Recovery LLC) as project participants was voluntary and approved by other project participants.		

Finding	A4
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	Zbyranka Landfill Recovery LLC is one of the PPs indicated in the published PDD. During the determination process Zbyranka Landfill Recovery LLC has declared voluntary withdrawal from the considered JI project activity. A corresponding statement/PPW/ has been provided. According to the "Procedures for the withdrawal of project participants after final determination under the verification procedure under the Joint Implementation Supervisory Committee as per the JISC 09 Annex 3: *"If, after final determination in accordance with paragraph 35 of the JI guidelines, project participants want to withdraw from a JI project, this information shall be submitted to the secretariat in accordance with the relevant modalities of communication, via email (ji-info@unfccc.int or secretariat@unfccc.int) or fax (+49 228 815 1999), together with corresponding statements of the project participants that wish to withdraw".* Such information has not been submitted to the secretariat because the voluntary withdrawal has been declared during the determination process, i.e. before the final determination in accordance with paragraph 35 of the JI guidelines.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	B1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	1. Please explain in B.1 why the selected methodology is applicable. 2. Please also address the applicability in the Tools the methodology draws upon.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	1) Explanation about applicability of ACM0001 inserted into Section B.1 pg. 10. 2. Explanation about applicability of the Tools inserted into Section B.1 pg. 10.		
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	Yes, the justification of the applicability have been duly elaborated and included in the PDD. Please refer to the assessment give in the section B of the annex 1. All relevant Tools have been indicated in the PDD.		

Finding	B1
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	B2		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Please explain in a detailed manner why the continuation of the current practice is in line with the Ukrainian laws and regulations. In particular 1. Please list the laws/policies, regulations that regulate the landfills. 2. Please clearly indicate what is exactly required, i.e. ventilation only or ventilation + flaring or ventilation + flaring and utilization for energy generation? (Please indicate where (page?) this requirement can be found in the corresponding laws and regulations) 3. Please describe the current practice (or the non-compliance) on Ukrainian landfills. Please refer to reliable sources (Studies, scientific literature, etc.)		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	More information on policies and current practice was inserted into Section B.1 pg. 12. Regarding DBN V.2.4.-2-2005, it is recommended the LFG from closed landfills should be reduced to a minimum. However, it is only applicable to closed landfills and the recommendation is not implemented in Ukraine due to lack of funding. Moreover, Lviv is not a closed landfill as it is still in operation.		
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	1) The laws/policies, regulations that are relevant for landfills projects have been appropriately listed in the PDD. As per the PDD there are no binding requirements for utilization of the landfill gas. The determination team has reviewed the relevant laws and regulations and the appropriateness of the analysis has been checked. 2. The required information has been provided in complete and transparent manner. For further details please refer to the Annex 2 Assessment of Baseline identification. 3. The current practice has been appropriately included in the PDD and substantiated by official and well-reputed data sources. The referred data sources have been proved and the information provides could be verified. A detailed assessment of the baseline identification is given in the Annex 2 of this report.		

Finding	B2
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	B3		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Please provide an investment analysis for the alternative 1. Please justify and support by evidences the values applied within the investment analysis. In particular for: 1. Engines 2. Civil works 3. Opex and Admin 4. Taxes 5. Power Price 6. Lifetime Please justify and support by evidences the value for Benchmark/Discount rate.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	References have been provided for all the values/assumptions. Please refer to the right of the values/assumptions. Lifetime: The life time of the project is 15 years, which is consistent with the period of agreement on the operation signed between the project developer and the municipality. Reference year: Year 2008. The investment agreement between the project developers was signed in July of 2008 (also used as the starting date of the JI project). Info on the benchmark was inserted into Section B.1 pg. 13.		

Finding	B3
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	The applied values have been justified and supported by evidences. All relevant evidences have been provided and the applied values could be verified. Please refer to the annex 3 of this report. The assumed technical lifetime of 15 years has been assessed as plausible. It is in line with the average lifetime of comparable equipment in similar registered CDM landfill projects. It is also in line with agreement between PP and the municipality. Therefore it deemed to be duly elaborated. The local commercial lending rates have been used for benchmark elaboration. This is in accordance with the CDM Guidance on the Assessment of Investment Analysis (EB41 – Annex 45). The statistics on lending rates for the banks in Ukraine have been provided. It could be verified that value is consistent with the date of the management decision (2008) and has been selected in a conservative manner.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	C1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Please define the starting date in accordance with JI Guidelines.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	Refer to Section C.1 pg. 20.		
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	The defined project starting date is in line with the date of the investment agreement/PSD/ between project participants for the development of the considered project activity and Lviv landfill. The investment agreement/PSD/ has been provided and the date could be verified. The starting date has been defined as the earliest date on which the implementation or construction or real action of the project began. Hence it is in line with JI glossary of terms and has been appropriately included in the PDD.		

Finding	C1
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	D1		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Please specify the monitoring procedures for LFG_{total}, LFG_{Flare}, $LFG_{electricity}$ including the information regarding the accuracy class and the calibration procedures.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	All information about the three flow meters was inserted into Annex 3 Table A3.1 pg. 58. The following info has been included in the table: • Number of meter • Location of meter • Variables measured • Issue about the NTP (temp and pressure adjusted) • Archive procedure • Frequency of data records • Accuracy • Calibration procedure		
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	The required information has been included in the PDD and supported by technical specification of the monitoring equipment. Provided technical specification has been reviewed and the information provided in the PDD could be verified. Please refer to the detailed assessment of the monitoring plan in the section B.6 of the annex 1.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding	D2		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Please specify the monitoring procedures for methane fraction in LFG and methane component in the flue gas including the information regarding accuracy class and calibration of the **gas analyzers.**		

Finding	D2
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	All information about the fixed gas analyzer was inserted into Annex 3 Table A3.1 pg. 59.
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	The required information has been included in the PDD and supported by technical specification of the monitoring equipment. Provided technical specification has been reviewed and the information provided in the PDD could be verified. Please refer to the detailed assessment of the monitoring plan in the section B.6 of the annex 1.
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements

Finding	D3		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	How particular steps of the Tool to determine PE_{flare} will be carried out?		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	Refer to Section D1.2.2. pg. 31 about the approach for determination of **PE_{flare}**. Step 1 and Step 4 are elaborated (details on FVRG, and TMRG). The fixed gas analyzer and flue gas analyzer are used to determinate the concentration of CH4 before and after the flare. All information about the fixed gas analyzer and flue gas analyzer was inserted into Annex 3 Table A3.1 pg. 59.		
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	The PDD indicates that particular steps of the Tool to determine project emissions from flaring gases containing methane will be applied to determine PE_{Flare}. All required parameters as per the Tool$^{/T\text{-}PE/}$ have been included in the monitoring plan and the information about the monitoring equipment has been provided. In addition the PDD provides an explanation how the provisions of this Tool$^{/T\text{-}PE/}$ will be implemented in the context of the project activity. Determination team is of the opinion that provisions for monitoring of PE_{Flare} are in line with methodology and referred Tool$^{/T\text{-}PE/}$.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding	D4		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Please specify how the **Temperature** of the exhaust gases ($\mathbf{T_{Flare.}}$) will be monitored?		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	All information about the temperature transmitter was inserted into Annex 3 Table A3.1 pg. 60.		
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	The PDD provides information about the thermocouples which will be used to determine T_{Flare} including the information about the accuracy class and the calibration procedures. Provided information could be verified based on the technical specification of the monitoring equipment/T-PA/.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding	D5		
Classification	☒ CAR	☐ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Please include a more detailed description on the monitoring of project emissions due to the electricity consumption.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	The approach for monitoring the emissions from diesel consumption is explained in Section D1.2.2. pg. 33 to 34.		
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	The emissions from the electricity consumption are based on the provisions of the "Tool to calculate baseline, project and/or leakage emissions from electricity consumption" (Version 01). By doing this the emissions due to electricity consumption will be determined by multiplying the amount of diesel used by genset (mainly for the start-up purposes) with the emission factor of the diesel fuel. Emission factor takes as 73,000kg/TJ is in line with IPCCC default CO_2 emission factor for combustion. A conservative value has been taken. Taking this into account the procedure for determination of $PE_{EC,y}$ has been assessed as appropriate.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding	F1		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Please include more detailed information on the Environmental impact assessment and provide evidences.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	Please refer to the section F of the PDD and provided documents.		
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	Detailed information on the Environmental impact assessment has been included and corresponding evidences have been provided. Please refer to the section D of the Annex of this report.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

Finding	G1		
Classification	☐ CAR	☒ CL	☐ FAR
Description of finding *Describe the finding in unambiguous style; address the context (e.g. section)*	Please include more detailed information on the Stakeholder consultation process and provide evidences.		
Corrective Action #1 *This section shall be filled by the PP. It shall address the corrective action taken in details.*	Please refer to the section G of the PDD and provided documents.		
AIE Assessment #1 *The assessment shall encompass all open issues in annex A-1. In case of non-closure, additional corrective action and AIE assessments (#2, #3, etc.) shall be added.*	Detailed information on the Stakeholder consultation process has been included and corresponding evidences have been provided. Please refer to the section E of the Annex of this report.		
Conclusion *Tick the appropriate checkbox*	☐ To be checked during the first periodic determination ERU ☒ Appropriate action was taken ☒ Project documentation was corrected correspondingly ☐ Additional action should be taken ☒ The project complies with the requirements		

5 DETERMINATION ASSESSMENT SUMMARY

5.1 General Description of the Project Activity

5.1.1 Participation

LOA

A positive determination opinion as confirmed by an Independent Entity is a prerequisite for the Host Country Approval that can be issued on request by the Designated Focal Point of the Ukraine – National Environmental Investment Agency of Ukraine.

Project Participants

Parties involved are Ukraine acting as a Host Party and United Kingdom. Legal Project Participant of the Host Country is Gafsa LLC. The Ukrainian company **Zbyranka Landfill Recovery LLC** that was indicated in the published PDD has voluntary withdrawn its participation. Legal Project Participant of United Kingdom is Carbon Capital Market Ltd.

5.1.2 PDD editorial Aspects

Project Design Document Form Version 01 – in effect as of 15 June 2006 – has been used. This is the latest version of the PDD form. Guidelines for users of the JI PDD form Version 03 (JISC 13) have been used for completing the PDD. According to the JISC 13th meeting, these Guidelines should be taken into account for all PDDs to be published from 1 January 2009.

5.1.3 Technology to be employed

Within the project activity landfill gas (LFG) will be collected and flared. A part of LFG will be utilized for power generation for the own needs of the collection and flaring equipment

The PDD contains a list of the applied equipment including the technical specification of the technology for collection and flaring of LPG. Technology to be employed has been described in a detailed and appropriate manner. The technical specification of the collection and flaring equipment has been provided including all relevant technical data/TS-PA//TS-PA1//TS-PA2/.

The description of the project activity is considered to be accurate, complete, presented in a detailed manner and in line with provided evidences and results of the on-site inspection.

5.1.4 Small Scale Projects

Not applicable

5.2 Project Baseline, Additionality and Monitoring Plan

5.2.1 Application of the Methodology

ACM0001 Consolidated baseline and monitoring methodology for landfill gas project activities Version 11 has been applied. This is in line with Host Country (Ukraine) criteria for JI projects/H-1//H-2//H-3//H-/4.

The published PDD has been elaborated in accordance with the ACM0001 Version 9. As under CDM Version 9 is not more valid project participant has updated the PDD by applying the valid version (Version 11) of the methodology.

5.2.2 Project Boundary

All equipment used within the project activity has been indicated in the PDD including the information about its purpose and the technical specification. Project boundary is clearly described in words and a visualisation of the physical project boundary as well as the summary of all significant GHG gases has been included in the PDD.

Based on the provided evidences and results of the on site inspection a sufficient confidence has been gained that description in the PDD reflects the project technical design.

5.2.3 Baseline Identification

The description of baseline identification in the PDD is transparent and verifiable. The procedure to arrive to the baseline is in line with the applied methodology/Meth/ and referred Tool for demonstration and assessment of additionality (Additionality Tool). All plausible alternatives have been identified. Only alternatives were excluded which were assessed to be not plausible. Within the financial analysis it could be demonstrated that the identified most plausible alternative (i.e. baseline scenario) is financially more attractive than the project scenario and other considered alternatives.

Alternatives

The PDD contains a complete list of all realistic alternatives to the project scenario. Project activity not undertaken as a JI project activity, the continuation of the current practice as well as LFG collection and utilization for electricity generation purposes have been identified as plausible and realistic alternatives.

Investment analysis

Investment analysis shows that the LFG collection and utilization for electricity generation purposes is not financially viable. Furthermore it has been correctly concluded that the disposal of the waste at the landfill without capture of landfill gas (current situation) is an economically more attractive scenario because it does not cause any costs/expenses (in opposite to the project activity).

5.2.4 Calculation of GHG Emission Reductions

The calculation has been done as per applied methodology/Meth/. All data not to be monitored have been assessed as correct. The values for the monitoring parameters assumed within the calculation are plausible. The calculation of the emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 434,533 tCO2e are most likely to be achieved within the crediting period between 2009 and 2012. Also the emission reductions of 654,848 tCO2e to be achieved in the time period between 2013 and 2018 have been estimated in an appropriate and conservative manner. The indicated emission reductions are consistent with the calculation carried in the excel spreadsheet.

5.2.5 Additionality Determination

Consideration of JI in decision making (if project start before determination PDD)

The starting date reported is as per JI glossary of terms. The Management decision to go ahead with the project development was made in June 2008 based on the results of the feasibility study (Pump test report).

Based on provided evidences it could be concluded that JI was considered at the time of the decision making. In this context it is important to mention that there are no financial or economic benefits other than benefits from ERUs. For this reason the consideration of JI has been assessed as serious.

Application of methodology / methodological tools

The additionality has been justified in accordance with the requirements derived from the applied approved CDM methodology (ACM001 Version 11) and the applied methodological tool (Tool for demonstration and assessment of additionality) referred to therein.

Alternatives

please refer to 5.2.3

Investment analysis

Please refer to 5.2.3

Barrier analysis

The justification of the baseline and of the additionality is based on the results of the investment analysis.

Common practice analysis

The common practice analysis provided in the PDD is accurate. The information and data sources used are appropriately references and could be proved in the course of determination.

A sufficient confidence could be gained that the proposed project type (i.e. technology and/or practice) has not diffused in the relevant sector and geographical area and the time the project started.

Summary

In the course of the determination it be concluded that the baseline scenario has been appropriately elaborated and the additionality has been appropriately justified. All conclusions could be supported by the evidences.

5.2.6 Monitoring Methodology

The methodology (ACM0001 Version 11) has been applied for the project activity. This is in line with Host Country (Ukraine) criteria for JI projects[/H-1//H-2//H-3//H-/4].

5.2.7 Monitoring Plan

The monitoring plan covers all monitoring parameters and provisions given in the applied monitoring methodology ACM0001 Version 11 and referred tools[/T-EC//T-PE/]. The monitoring plan can be implemented and are all monitoring arrangements are feasible within the project design.

5.2.8 Project Management Planning

The project management planning is appropriate for the purpose of the projects monitoring.

5.2.9 Crediting Period

The choice of the crediting period between 2009 and 2012 is appropriate. Also the crediting period starting date is appropriate.

Project participant has indicated that provided the second commitment period will be established under Kyoto Protocol, and further to recent Ukrainian government recognition, emission reductions for the period between 2013 and 2018 will be applied. The crediting period will not exceed the project operational lifetime. This is in line with Glossary of Joint Implementation Terms (Version 2).

5.2.10 Environmental Impacts

The project documentation contains an analysis of environmental impacts. An EIA is required from host country. EIA was carried out in accordance with the requirement of host country.

5.2.11 Comments by Local Stakeholders

All relevant local stakeholders have been invited to comment on the project. Only positive comments were received.

6 DETERMINATION OPINION

Carbon Capital Markets Limited has commissioned the TÜV NORD JI/CDM Certification Program (CP) to carry out a determination PDD of the project: "Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine" with regard to the relevant requirements of the UNFCCC for JI project activities, as well as criteria for consistent project operations, monitoring and reporting. UNFCCC criteria refer to the Kyoto Protocol Article 6 criteria and the Guidelines for the implementation of Article 6 of the Kyoto Protocol as agreed in the Marrakech Accords.

In the course of the determination PDD (Version 4 dated 19.07.2011) 11 Corrective Action Requests (CARs) and 4 Clarification Requests (CLs) were raised and successfully closed. In particular the Host Country Approval dated 20.04.2011 and the Letter of Approval from the Investor Country dated 07.06.2011 has been provided and the CAR A3 was closed.

The review of the project design documentation and additional documents related to baseline and monitoring methodology; the subsequent background investigation, follow-up interviews and review of comments by parties, stakeholders and NGOs have provided TÜV NORD JI/CDM CP with sufficient evidence to validate the fulfilment of the stated criteria. The conclusions can be summarised as follows:

- The project is in line with all relevant host country criteria (Ukraine) and all relevant UNFCCC requirements for JI.
- The project additionality is sufficiently justified in the PDD.
- The monitoring plan is transparent and adequate.
- The calculation of the project emission reductions is carried out in a transparent and conservative manner, so that the calculated emission reductions of 434,533 tCO2e are most likely to be achieved within the crediting period between 2009 and 2012. Also the emission reductions of 654,848 tCO2e to be achieved in the time period between 2013 and 2018 have been estimated in an appropriate and conservative manner.

The conclusions of this report show that the project, as it was described in the project documentation, is in line with all criteria applicable for the determination PDD..

Essen, 06.10.2011

Mr. Evgeni Sud
Determination Team Leader
TÜV NORD JI/CDM CP

Essen, 06.10.2011

Mr. Rainer Winter
Final Approval Person
TÜV NORD JI/CDM CP

7 REFERENCES

Table 7-1: Documents provided by the project participant

Reference	Document
/**EIA-1**/	Conclusion No. 264 – 54101 for the construction project June 27, 2008, State Establishment, "Lviv Regional Sanitary- Epidemiologic Station" Ministry of Health Care of Ukraine
/**EIA-2**/	Expert Conclusion 04/06/2008 No. 13/1/3632 Department of supervisory and preventory activities issues at the main administration of the ministry of emergencies of Ukraine in Lviv Region
/**EIA-3**/	For No. 8.749K/04 as of 14/05/2008 CONCLUSION of state ecological examination for the contractor design "Technical restoration and active degassing of Lviv city ground of solid domestic waste"
/**EIA-4**/	Expert Evidence on the labour protection issues. Examination of contractor design No. 75.08.12.3.3-B Contractor design "Technical restoration and active degassing of Lviv city ground of solid domestic waste"
/**EIA-5**/	Complex Conclusion of state examination Nr. 8,749K on the contractor design "Technical restoration and active degassing of Lviv city ground of solid domestic waste" August 06, 2008
/**HCA**/	Host Country Approval (Ukraine) for the project activity "Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine" dated 20.04.2011
/**LoA**/	Host Country Approval (United Kingdom) for the project activity "Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine" dated 07.06.2011
/**IC-1**/	Current EPC with Gafsa for collection system and flare
/**IC-2**/	In Andrade & Canellas report (2009)
/**IC-3**/	PwC Ukraine. 2009. Online Business Guide. Taxation of Corporation.
/**IC-B**/	The local commercial lending rates as per the information provided by National bank of Ukraine.
/**PDD-1**/	Project Design Document Version 1 (published version) "Methane Capture and Destruction at the solid waste landfill in the city of Lviv,

Reference	Document
	Ukraine.
/**PDD**/	Project Design Document Version 4 dated 19.07.2011 "Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine"
/**PPW**/	Statement on voluntary withdrawal from the JI project issued by Zbyranka Landfill Recovery LLC dated 28.01.2011
/**PSD**/	Investment agreement between project participants for the development of the considered project activity and Lviv landfill.
/**FS**/	Feasibility study "Technical restoration and active degassing of Lviv city ground of solid domestic waste"
/**ER**/	Emission reduction calculation (excel file)
/**EIA**/	Environmental Impact assessment (EIA)
/**SC-1**/	Proof for the stakeholder consultation process of LLC "Gafsa" in Velyki Grybovychy on June 22, 2008.
/**SC-2**/	Summary on the Protocol of the Stakeholders Meeting In the Lviv Region Administration, June 25, 2008
/**SC-3**/	MEMORANDUM OF UNDERSTANDING About JI Project Implementation signed on April 23, 2008 between Lviv Regional Administration, and Project Investors.
/**SC-4**/	Newspaper Article including the information about the Lviv SW Project Environmental Effect
/**TS-PA**/	Technical specification of the extraction and flaring station Hofstetter Umwelttechnik AG.
/**TS-PA1**/	Report On Results of the Lviv SW Landfill Pump-Testing Developer Key Specialist, LLC "Gafsa" Igor Tsukornik Lviv – Stryy – 2008
/**TS-PA2**/	The engineering, procurement and construction (EPC) Contract for the provision of landfill remediation services and installation of biogas capture and flaring equipment.
/**XLS**/	Investment analysis within the Excel calculation spreadsheet

Table 7-2: Background investigation and assessment documents

Reference	Document
/**B-1**/	Turning a Liability into an Asset: the Importance of Policy in Fostering Landfill Gas Use Worldwide, IEA January 2009
/**B-2**/	Report on implementation of the landfill directive in the 15 member states of the European Union, European Commission, October 2005
/**B-3**/	National Communication of Ukraine
/**B-4**/	Ukrainian's report on the demonstrable progress under the Kyoto Protocol, Kiiv 2006
/**B-5**/	Joint Implementation Handbook for Ukrainian companies, German Energy-Agency (Deutsche Energie-Agentur GmbH (dena) 2007
/**B-6**/	Cabinet of Ministers of Ukraine. Decree of 4 March 2004 No. 265 "On confirming the Programme of municipal solid waste disposal".
/**B-7**/	Status and prospects of biogas energy use in Ukraine, Institute of Engineering Thermophysics, Scientific centre "Biomass"
/**B-8**/	The costs for supplying renewable energy a report by Enviros Consulting Ltd, 2005 prepared for Ministerial Correspondence Unit Department for Business, Innovation & Skills, London.
/**DBN**/	National Construction Standard DBN V.2.4-2-2005 Basics of Sites Design
/**DBN-1**/	List of regulations referred in Annex B of DBN V.2.4-2-2005
/**JI-G**/	GUIDELINES FOR USERS OF THE JOINT IMPLEMENTATION PROJECT DESIGN DOCUMENT FORM Version 04 (JISC 18)
/**H-1**/	Order Nr. 718, dated 10 August 2008. On Approval of the Procedure of Drafting, Review, Approval and Implementation of Projects Aimed at Reduction of Anthropogenic Emissions of Greenhouse Gases.
/**H-2**/	Order Nr. 341, dated 17.07.2006 On approval of the Requirements to the documents in which the volumes of anthropogenic emissions and absorption of greenhouse gases are substantiated for the receiving of the Letter of Endorsement by the owner of the emissions source, where the implementation of the joint introduction project is intended to be.

Reference	Document
/**H-3**	Order Nr. 342, dated 17.07.2006 On approval of requirements to preparation of the joint implementation projects.
/**H-4**/	Decree Nr. 206, dated February 22, 2006 Cabinet of Ministers of Ukraine, "On Approval of the Procedure of Drafting, Review, Approval and Implementation of Projects Aimed at Reduction of Anthropogenic Emissions of Greenhouse Gases"
/**H-5**/	Order Nr. 33, dated June 25, 2008 National Environmental Investment Agency of Ukraine, "On approval of Requirements to preparation of the joint implementation projects"
/**GJI**/	Guidelines for the implementation of Article 6 of the Kyoto Protocol as per 9/CMP.1
/**IPCC-GP**/	IPCC Good Practice Guidance & Uncertainty Management in National Greenhouse Gas Inventories, 2000
/**IPPC-RM**/	Revised 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Reference Manual
/**KP**/	Kyoto Protocol (1997)
/**Meth-09**/	ACM0001 Consolidated baseline and monitoring methodology for landfill gas project activities: Version 9.1
/**Meth**/	ACM0001 Consolidated baseline and monitoring methodology for landfill gas project activities: Version 11
/**T-EC**/	"Tool to calculate baseline, project and/or leakage emissions from electricity consumption" (Version 01)
/**T-ME**/	"Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site" version 05
/**T-PE**/	"Tool to determine project emissions from flaring gases containing methane" version 01 EB 28, Annex 13
/**MA**/	Decision 3/CMP. 1 (Marrakesh – Accords & Annex to decision (17/CP.7))
/**TA**/	Tool for the demonstration and assessment of additionality (Ver. 4 – Ver. 5.2).

Reference	Document
/**DVM**/	Validation and Verification Manual (Version 1, JISC 19 Annex 4)

Table 7-3: Websites used

Reference	Link	Organisation
/**dfp**/	http://www.neia.gov.ua/nature/control/uk/index	National Environmental Investment Agency of Ukraine
/**epa**/	http://www.epa.gov/ttn/chief/ap42/ch02/index.html	U.S. Environmental Protection Agency AP 42, Fifth Edition, Volume I Chapter 2: Solid Waste Disposal
/**cd4cdm**/	www.cd4cdm.org	UNEP Riso Centre
/**wem**/	http://www.er.energy.gov.ua/doc.php?c=5&wid=d43a33f5784b136572036d75927cfea7	Electricity sale tariffs the wholesale market of Ukraine as provided by the Wholesale Electricity Market (WEM) Statistics, Ukraine
/**unfccc**/	http://cdm.unfccc.int	UNFCCC

Table 7-4: List of interviewed persons

Reference	MoI[1]		Name	Organisation / Function
/**IM01**/	V	☒ Mr. ☐ Ms	Serhiy M. Porovskyy	Director "ZBYRANKA LANDFILL RECOVERY" LLC
/**IM01**/	V	☒ Mr. ☐ Ms	Jaroslav A. Kuhar	Director „Gafsa" LLC
/**IM01**/	V	☒ Mr. ☐ Ms	Igor E. Kovalchuk	Technical Director „Gafsa" LLC
/**IM01**/	V	☒ Mr. ☐ Ms	Igor G. Tsukornik	Main technical expert "Gafsa" LLC
/**IM01**/	V	☐ Mr. ☒ Ms	Natalia P. Kovalchuk	Main financial expert "Gafsa" LLC

1) Means of Interview: (**T**elephone, **E**-Mail, **V**isit)

ANNEX

A1: Determination Protocol

A2: Assessment of Baseline Identification

A3: Assessment of Financial Parameters

A4: Assessment of Barrier analysis

A5: Outcome of the GSCP

A6: JI Methodology Determination Checklist

A7: Statement on voluntary withdrawal

ANNEX 1: DETERMINATION PROTOCOL

Table A-1: Requirements Checklist

Checklist Item (incl. guidance for the determination team)	**Determination Team Comments** (Means and results of assessment)	**Ref.**	**Draft Concl.**	**Final Concl.**
A. General Description of Project Activity				
A.1. Participation Requirements *Referring to Part A and Annex 1 of the PDD as well as the JI glossary with respect to terms Party, Letter of Approval, Authorization and Project Participant.*				
A.1.1. Which Parties and project Participants are participating in the project?	The Parties involved are Ukraine acting as a Host Party and United Kingdom (Other Party). Legal Project Participant of the Host Country is Gafsa Ltd. Legal Project Participant of United Kingdom is Carbon Capital Market Ltd.	PDD /LoE/	OK	OK
A.1.2. Have the involved Parties provided a valid and complete letter of approval and have all private / public project participants been authorized by an involved Party? At this stage of the project at least the Host country approval is required.	*Description:* The Letter of Approval of the Host Country/HCA/ (Ukraine) and the Letter of Approval of the Investor Country (United Kingdom)/LoA/ have been issued in 2011 by the corresponding DFPs. *Means of determination:* Host Country Approval (Ukraine) could be verified based on	PDD /LoA/ /HCA/	CAR A3	OK

Checklist Item (incl. guidance for the determination team)	**Determination Team Comments** (Means and results of assessment)	**Ref.**	**Draft Concl.**	**Final Concl.**
	the written approval of the Host Country for the JI project activity: *"Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine"* issued by the National Environmental Investment Agency of Ukraine on 20.04.2011[/HCA/]. The Approval of the Investor Country (United Kingdom) involved in the project activity could be verified based on the written approval of voluntary participation from UK focal point in the project activity: *"Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine"* issued by the Department of Energy & Climate Change UK on 07.06.2011[/LoA/]. As evident from the both approvals[/HCA//LOA/] all private project participants have been authorized by the involved Parties. *Conclusion:* The requirement is fulfilled.			
A.2. Approval *The written approval of the parties involved is a mandatory requirement*				
A.2.1. Has the project provided written approvals of all parties involved? *Indicate whether a letter of approval has been received, with a clear reference to the supporting documentation.* *Indicate whether this letter was provided to the AIE by the project participants or directly by the DNA*	Yes, as evident from the provided approvals[/HCA//LoA/] they both refer to the considered project activity. Both approvals[/HCA//LoA/] were provided to the determination team by the PP.	/HCA/ /LoA/	CAR A3	OK

Checklist Item (incl. guidance for the determination team)	**Determination Team Comments** (Means and results of assessment)	**Ref.**	**Draft Concl.**	**Final Concl.**
A.2.2. Are the approvals issued from orgainsations listed as DNAs on the UNFCCC JI website? *Indicate the means of determination employed to assess the authenticity*	The determination team confirms that both approvals have been issued by the Designated Focal Points which are listed as the DFPs on the official UNFCCC website[2].	/HCA/ /LoA/	CAR A3	OK
A.2.3. Do the written approvals confim that the corresponding party is a Party to the Kyoto Protocol?	As evident from the provided approvals/HCA//LoA/ they confirm that the corresponding party it is a Party to the Kyoto Protocol.	/HCA/ /LoA/	CAR A3	OK
A.2.4. Do the written approvals refer to the precise project title in the PDD submitted for registration?	Both approvals/HCA//LoA/ refer to the precise project title, which is the title of the considered project activity.	/HCA/ /LoA/	CAR A3	OK
A.2.5. Is the information regarding the project participants listed in section A3 and in Annex 1 of the PDD internally consistent to each other?	Yes, the information regarding the PP provided in the section A.3. of the PDD is consistent with the Annex 1 of the PDD.	/HCA/ /LoA/	CAR A3 CAR A4	OK
A.2.6. Are all project participants listed in the PDD approved at least by one Party involved? *Indicate whether the participation of the project participant(s) has been approved by a Party to the Kyoto Protocol.* *Describe the means of determination employed to draw this conclusion.*	Yes, all project participants listed in the PDD are approved at least by one Party involved. This is evident from the provided approvals/HCA//LoA/. Please refer to the comment under A.1.2.	/HCA/ /LoA/	CAR A3	OK

[2] http://ji.unfccc.int/JI_Parties/PartiesList.html#United Kingdom of Great Britain and Northern Ireland

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
A.2.7. Are any other project participants approved but not listed in the PDD?	No. This is evident from the approvals/HCA//LoA/.	/HCA/ /LoA/	CAR A3	OK
A.3. PDD editorial aspects *The PDD used as a basis for determination PDD shall be prepared in accordance with the latest template and guidance from the JI Supervisory Committee available on the UNFCCC website.*				
A.3.1. Has the latest version of the PDD form been applied?	Yes, the Project Design Document Form Version 01 – in effect as of 15 June 2006 – has been used. This is the latest version of the PDD form.	PDD	OK	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
A.3.2. Has the PDD been duly filled in accordance with the latest guidance(s)?	Guidelines for users of the JI PDD form Version 04 (JISC 18) have been used for completing the PDD. According to the JISC 18th meeting, these Guidelines should be taken into account for all PDDs to be published from 1 January 2009. Hence the PDD is in line with the latest guidance. Nevertheless CAR A1 has been raised in this context and successfully closed.	PDD /JI-G/	CAR A1	OK
A.4. Technology to be employed *Validation of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The AIE should ensure that environmentally safe and sound technology and know-how is used.*				
A.4.1. Does the PDD contain a clear, accurate and complete project description? *The PDD shall contain a clear description of the project activity which provides the reader with a clear understanding of the precise nature of the project activity and the technical*	Within the project activity the landfill gas (LFG) will be collected and flared. A part of LFG will be utilized for power generation for the own needs of the collection and flaring equipment.	PDD /TS-PA/ /TS-PA1/	CL A2	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
aspects of its implementation. *Pl. consider esp.* chapters *A.2, A.4.2 and A.4.3 (in case of LSC PDD) for assessment.* *Describe the process undertaken to validate the accuracy and completeness of the project description.* *Contain the AIE's opinion on the accuracy and completeness of the project description.*	The PDD contains a list of the applied equipment including the technical specification of the technology for **collection and flaring of LFG.** Technology to be employed has been described in a detailed and appropriate manner. The technical specification of the **collection and flaring** equipment has been provided including all relevant technical data/TS-PA//TS-PA1//TS-PA2/. The determination team is of the opinion that the main steps of the technological process of **collection and flaring** have been appropriately identified and described in the corresponding sections. The process of **collection and flaring** reflects good current practices of LFG utilization/B-1//B-2/. For this reason the description of the project activity is considered to be accurate, complete and presented in a detailed manner. It is in line with provided evidences.	/TS-PA2/ /B-1/ /B-2/		
A.4.2. Is this description in accordance with the real situation or (in case of greenfield projects) is it most likely that the project will be implemented acc to the project description	During the on-site visit the determination team has inspected the project site. The installation of the collection equipment and the construction works of the flaring equipment were observed. A sufficient confidence has been gained that project will be implemented in accordance with the information provided in the PDD. The description of the technology as provided in the chapters A.2, A.4.2 and A.4.3. is in line with provided evidences and the observed physical implementation of the project activity. The accuracy and the completeness of the project description	PDD /TS-PA/ /TS-PA1/ /TS-PA2/ /B-1/ /B-2/	OK	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	have been assessed as appropriate..			
A.4.3. In case the project involves alteration of the existing installation or process, is a clear description available regarding the differences between the project and the pre-project situation? *Describe the steps taken to validate this issue.*	Within the project activity LFG from the landfill will be collected and flared. In the pre-project situation was released into atmosphere. The collecting and flaring technology of the project activity is clearly and accurately provided in the PDD. In the course of the determination, the determination team has reviewed the technical specification of the applied technology. It could be verified that the technology including the capacity figures as indicated in the PDD is in line with provided evidences. During the on-site visit the construction works have been observed.	PDD /TS-PA/ /TS-PA1/ /TS-PA2/ /B-1/ /B-2/	OK	OK
A.4.4. Does the project design engineering reflect current good practices? *Consider the equipment specifications, literature (e.g. EU BREF papers) and professional experiences. Describe the process undertaken to assess the engineering.*	Yes. The project activity involves the installation of the LFG collection and flaring technology. The project activity intends to incorporate the latest/state-of-the-art technology required for an efficient and effective collection and flaring of LFG. A detailed study of specific circumstances of the landfill has been carried out. The study has investigated the potential of the LFG, the most efficient flaring equipment as well as the most effective configuration and the number of the wells. The technical specification of the equipment to be employed within the project activity has been crosschecked against the quality standard applied by manufacturer of the considered equipment. Furthermore, information as provided by reputed external sources has been examined regarding the best practices of LFG utilization.	PDD /TS-PA/ /TS-PA1/ /TS-PA2/ /B-1/ /B-2/ /B-3/ /B-4/	OK	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	According to the technical specification and information provided by the manufacturer, latest/state-of-the-art flaring technology has been installed within the project activity. This information has been provided in the Annex 4 of the PDD. The LFG collection equipment also represents the latest/state-of-the-art technology. Further confidence that the entire design of the project activity is appropriate and reflects good current practice has been gained through examination of technological options and opportunities as provided by the IEA and European commission/B-1//B-2/.			
A.4.5. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country? *Describe the process undertaken to assess the state of the art technology.*	The technical specification of the equipment to be employed within the project activity has been reviewed in particular with regard to quality standard applied by a manufacturer of the considered equipment. A sufficient confidence has been gained that the project activity intends to incorporate the latest/state-of-the-art collection and flaring equipment. The project activity is expected to meet international standards for environmental quality and safety. The project activity will reduce GHG gases as compared to the baseline scenario.	PDD /TS-PA/ /TS-PA1/ /TS-PA2/ /B-1/ /B-2/ /B-3/ /B-4/	OK	OK
A.4.6. Does the project make provisions for meeting training and maintenance needs? *Describe the process undertaken to assess the maintenance and training needs.*	As per the PDD, training and maintenance procedures related to this technology will be provided before the project activity will become operational. This issue has been discussed during the site visit. The training and maintenance	PDD /TS-PA/ /TS-PA1/	OK	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	needs are continuously monitored by the project owner. It has been checked that the procedures for training and maintenance are in place and the corresponding evidences have been provided. Consequently, an adequate confidence has been gained proving that sufficient efforts have been made for this sake.	/TS-PA2/		
A.5. Small scale project activity *It is assessed whether the project qualifies as small-scale JI project activity*				
A.5.1. Does the project qualify as a small scale CDM project activity as defined in decision 4 / CMP.1 annex II? *Describe the steps taken to validate this issue.*	Not applicable, because the project activity is a large scale project.			OK
A.5.2. Does the project apply one of the approved small scale categories and any methodology and tool referred therein? *Describe the steps taken to validate this issue. Check, if applicable the expiry dates of the applied methodology*.	Not applicable, because the project activity is a large scale project.			OK
A.5.3. Is the small scale project activity not a debundled component of a larger project activity? *Describe the steps taken to validate this issue. PI refer to the Compendium of guidance on debundling (EB 36, Annex 27).*	Not applicable, because the project activity is a large scale project.			OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
B. Project Baseline, Additionality and Monitoring Plan				
B.1. Application of the Methodology				
B.1.1. What kind of methodology has been used? .	Name: ACM0001 Consolidated baseline and monitoring methodology for landfill gas project activities. Version: 11 Type: ☒ CDM Approved Methodology –latest version ☐ CDM Approved Methodology –older version ☐ Combination of Approved Methodology ☐ Project specific Methodology The published PDD has been elaborated in accordance with the ACM001 Version 9. As under CDM Version 9 is not more valid project participant has updated the PDD by applying the valid version (Version 11) of the methodology. This update to a valid version has been assessed as appropriate.	PDD, I /Meth/ /Meth-09/	OK	OK
B.1.2. Has the methodology assessment form (S01-	☐ Yes	PDD, I	OK	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
VA 30 – A3) been used?	☒ N/A (only in case of latest version of approved CDM methodology)	/Meth/		
B.1.3. Is the discussion and selection of the baseline methodology transparent? Can the applied methodology be assessed as appropriate?	☒ Yes ☐ No Comment: Yes, the applied methodology is the most suitable methodology for considered project type.	PDD, I /Meth/	OK	OK
B.1.4. Is the chosen methodology applied correctly?	A project specific methodology has been developed for the considered project activity. **CAR B1** have been raised and successfully closed.	PDD, I	CAR B1	OK
B.1.5. Does the baseline methodology specify data sources and assumptions?	Yes. For determination of specific GHG emissions the methodology requires to apply specific tools. The relevant data sources and assumptions as defined within the referred tools have been appropriately used and justified. For details please refer to the assessment of particular parameters in the monitoring section.	PDD, I /Meth/	OK	OK
B.1.6. Does the baseline methodology sufficiently describe the underlying rationale for the algorithm/formulae used to determine baseline emissions (e.g. marginal vs. average, etc.)	An approved CDM methodology has been used to justify the baseline scenario. The baseline methodology sufficiently describes the algorithm/formulae used to determine baseline emissions. The procedure to determine baseline emissions has been described in the PDD.	PDD, I /Meth/	OK	OK
B.1.7. Does the baseline methodology specify types of variables used (e.g. fuels used, fuel	Yes. For the determination of specific GHG emissions the methodology requires to apply specific tools.	PDD, I	OK	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
consumption rates, etc)?	Particular data sources and assumptions as defined within the referred tools have been appropriately used and justified. For details please refer to the assessment of particular parameters in the monitoring section.	/Meth/		
B.1.8. Does the baseline methodology specify the spatial level of data (local, regional, national)?	Yes, the methodology requires the application of local, regional and national data as required for justification of the baseline scenario and demonstration of the additionality.	PDD, I /Meth/	OK	OK
B.1.9. Is the applied CDM methodology identical with the version available on the UNFCCC website? (Valid only projects where CDM Approved Methodology has been used) *Describe the steps taken to validate this issue.*	Yes.	PDD, I /Meth/	OK	OK
B.1.10. Are all applicability criteria in the methodology, the applied tools or any other methodology component referred to therein fulfilled? *Describe for <u>each</u> applicability criterion listed in the selected approved methodology the steps taken to assess the information contained in the PDD.*	*Description:* The PDD provides a justification of the applicability criteria as stated in the methodology. *Means of determination:* PDD and the methodology have been checked. *Conclusion:* Please refer to the detailed assessment of the fulfilment of the applicability criteria below: **<u>Applicability conditions:</u>** **Applied methodology ACM0001:** As indicated in the ACM001/Meth/ this methodology is applicable to landfill gas capture project activities, where the	PDD, I /Meth/ /CPM/ /GBM/ /GCP/ /GJI/ /TA/	CAR B1	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	baseline scenario is the partial or total atmospheric release of the gas and the project activities include situations such as: a) The captured gas is flared, and/or b) The captured gas is used to produce energy (e.g. electricity/thermal energy) and/or c) The captured gas is used to supply consumers through natural gas distribution network. Since the LFG will be captured and flared, condition a) is met and the methodology is applicable to the project. **Tool to determine methane emissions avoided from disposal of waste at a solid waste disposal site.** The tool is applicable in cases where the solid waste disposal site where the waste would be dumped can be clearly identified. This could be evidenced based in the detailed report of dumped waste. This was observed during the on-site assessment and confirmed within the interviews with representatives of the local administration. **Tool to calculate baseline, project and/or leakage emissions from electricity consumption** Scenario A: Electricity consumption from the grid or Scenario B: Electricity consumption from (an) off-grid fossil fuel fired captive power plant(s) or			

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	Scenario C: Electricity consumption from the grid and (a) fossil fuel fired captive power plant(s). Since the project activity includes electricity consumption from the grid, scenario A reflects the project activity. The requirement is fulfilled. **Tool to determine project emissions from flaring gases containing methane** This tool is applicable under the following conditions: • The residual gas stream to be flared contains no other combustible gases than methane, carbon monoxide and hydrogen; • The residual gas stream to be flared shall be obtained from decomposition of organic material (through landfills, Since the LFG contains only the mentioned gases and is generated from decomposition of the organic fraction of waste, the tool is applicable.			
B.1.11. Is the project in accordance to every other stipulation or requirement mentioned in all sections of the methodology? *Describe the steps taken to check whether the proposed project activity meets all the other possible stipulations and /or limitations mentioned in all sections of the approved*	Yes, please refer to B.1.5. and B.1.11	PDD, I	OK	OK

Checklist Item (incl. guidance for the determination team)	**Determination Team Comments** (Means and results of assessment)	**Ref.**	**Draft Concl.**	**Final Concl.**
methodology selected.				
B.2. Project Boundaries *Project Boundaries are the limits and borders defining the GHG emission reduction project*				
B.2.1. Are the project’s spatial boundaries (geographical) clearly defined? *Provide information on how the determination of the geographical boundary has been performed either based on reviewed documented evidence or by describing what was observed/viewed during a site visit.*	The spatial extent of the project boundary includes the project site, and all the energy generation equipment connected. The CH_4 emissions due to the decomposition of waste at the landfill site have been appropriately identified as the main baseline emissions. The CO_2 emissions due to the on-site electricity consumption have been appropriately identified as the main project emission source. All equipment used within the project activity has been indicated in the PDD including the information about its purpose and the technical specification. Furthermore the project boundary is clearly described in words and a visualisation of the physical project boundary as well as the table defining all significant GHG gases has been included in the PDD. As already indicated the determination team came to a conclusion that the technological process required for LPG collection and flaring has been completely elaborated and reflects good current practices/B-1//B-2/. For this reason it could be concluded that spatial extent of the project boundary has been appropriately identified	PDD, I, /TS-PA/ /TS-PA1/ /TS-PA2/ /B-1/ /B-2/ /Meth/	OK	OK

Checklist Item (incl. guidance for the determination team)	**Determination Team Comments** (Means and results of assessment)	**Ref.**	**Draft Concl.**	**Final Concl.**
B.2.2. Are all sources and GHGs included in the project boundary as required in the applied methodology? *Provide information on how the determination of the GHGs and sources has been performed either based on reviewed documented evidence or by describing what was observed/viewed during a site visit.*	The determination team has reviewed the equipment and facilities required for the LPG collection and flaring. Based on this it could be verified that all anthropogenic emissions by sources under the control of the project participants, which are significant and reasonably attributable to the JI project have been appropriately included in the project boundary.	PDD, I, /TS-PA/ /TS-PA1/ /TS-PA2/ /B-1/ /B-2/ /Meth/	OK	OK
B.2.3. In case the methodology allows to choose whether a source and/or gas is to be included, is the choice sufficiently explained and justified? *Confirm if the justification provided by the PPs is reasonable, based on assessment of supporting documented evidence provided by the PPs or by onsite observations.*	All missions included in the project boundary represent the main GHG emission sources. The exclusion of negligible emission sources is in line with methodology provisions.	PDD, I /Meth/	OK	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
B.3. Baseline Identification *The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario has been followed in a complete and transparent manner.*				
B.3.1. What possible baseline scenarios have been considered? *Fill in all alternatives in table A-2.*	1. Disposal of the waste at the landfill with electricity generation using landfill gas captured from the landfill site. 2. Disposal of the waste at the landfill with flaring of gas captured from the landfill as a non-JI project. 3. Disposal of the waste at the landfill without capture of landfill gas (current situation). 4. Disposal of the waste at the landfill with heat generation using landfill gas captured from the landfill site.	PDD, I	OK	OK
B.3.2. Is the list of alternatives complete? *Describe how it was validated that all alternatives are plausible and no plausible alternative is excluded from the consideration*	☒ All plausible alternative scenarios listed in the approved methodology have been considered. In the course of document review and site visit, it has been validated that no other alternatives which supply comparable outputs and / or services are to be taken into consideration. Thus no plausible scenario has been omitted.	PDD, I /Meth/	OK	OK

Checklist Item (incl. guidance for the determination team)	**Determination Team Comments** (Means and results of assessment)	**Ref.**	**Draft Concl.**	**Final Concl.**
	☐ The following alternative scenarios/options have been omitted. Corresponding CAR(s)/CL(s) has /have been issued. In order to validate that the list of alternatives is complete the determination team has investigated all possible alternatives for LFG collection flaring/utilization. Furthermore the methodology requirements have been investigated in this context.			
B.3.3. What has been identified as the baseline scenario? *Describe the chosen BL scenario*	Disposal of the waste at the landfill without capture of landfill gas (current situation).	PDD, I	OK	OK
B.3.4. Has the baseline scenario been determined according to the methodology? *Describe how it is validated that the identification of the most plausible baseline scenario is carried out in accordance with the applied methodology and applied methodological tools. Please refer to table A-2.*	For details of the assessment regarding the evaluation of the baseline scenario please refer to annex 2. ☐ The determination has been carried out as per the applied methodology. ☒ The following CARs / CLs have been identified with respect to the selection of the baseline scenario: CAR B2 and B3 were raised in this context and successfully closed.	PDD, I /Meth/ /H-1/ /H-2/ /H-3/ /H-4/	CAR B2 CAR B3	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	In order to identify the baseline scenario the PP has analyzed financial and economic attractiveness of the identified plausible scenarios. This has been done by using the procedure as indicated in the Additionality Tool. In particular, an internal rate of return (Project IRR) of the alternative 1 has been calculated and compared with commercial lending rates. It was demonstrated that the IRR (1.39%) of the project activity is significantly below the benchmark (16.4%). Thus it was correctly concluded that the considered alternative cannot be considered as financial viable. Taking this into account determination team has agreed with the exclusion of the alternative 1. Afterwards within a simple cost analysis the continuation of the current practice (alternative 3) has been compared with the project activity (alternative 2). As the continuation of the current practice does not cause any costs/expenses it has been correctly assumed that this alternative is more financial attractive as the project activity itself (alternative 2) that requires initial investments and operating expenses. For this reason it has been duly concluded that disposal of the waste at the landfill without capture of landfill gas (current situation) is the most plausible scenario.			

Checklist Item (incl. guidance for the determination team)	**Determination Team Comments** (Means and results of assessment)	**Ref.**	**Draft Concl.**	**Final Concl.**
	All the steps of the applied methodology for baseline determination have been appropriately carried out. For details regarding how the appropriateness of the particular steps please refer to annex 2 Assessment of Baseline Identification and annex 3 Assessment of Financial Parameters.			
B.3.5. Has any plausible alternative scenario been excluded? *Describe how it is validated that no plausible alternative scenario has been excluded.*	For details of the assessment regarding the evaluation of the baseline scenario pl. refer to annex 2. ☒ No plausible baseline scenario has been excluded. ☐ The following plausible baseline scenarios have been excluded though no adequate justification has been provided for elimination. The following CARs / CLs have been issued: CAR B2 and B3 were raised in this context and successfully closed.	PDD, I	CAR B2 CAR B3	OK
B.3.6. Has the baseline scenario been determined using conservative assumptions where possible? *Describe whether the choice of the identified baseline*	☐ The baseline scenario has been determined using conservative assumptions where possible. Please refer to comments in annex 2 and sections B.3.2 to B.3.5 above.	PDD, I	CAR B1 and CAR	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
scenario is reasonable by validating the key assumptions, calculations and rationales used in the PDD. Describe whether these are conservatively interpreted in the PDD.	☒ The following CARs / CLs have been issued because assumptions used in the baseline determination have been assessed to be not conservative CAR B2 and B3 were raised in this context and successfully closed. Conservative assumptions have been used within the investment analysis of the alternative 1. For details please refer to annex 3 Assessment of Financial Parameters Furthermore a detailed analysis of the relevant laws and regulations has been carried out. An investigation of the current practice has supported the justification of the baseline.		B3	
B.3.7. Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations? *Describe whether the PP has shown that all relevant policies and circumstances have been identified and correctly considered in the PDD in accordance with the guidance by the Board. Pl. consider the guidance EB 22 annex 3 (regarding E+ and E- policies).*	Yes, the corresponding laws and regulation have been reviewed by the determination team. Furthermore a background investigation on legal aspects regarding collection and utilization of LFG has been carried out. It could be verified that national and/or sectoral policies, macro-economic trends and political aspirations have been appropriately taken into account by project participant. For details please refer annex 2 – Assessment of baseline	PDD, I /B-1/ /B-2/ /B-3/ /B-4/ /B-5/ /B-6/	OK	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	identification.	/B-7/ /B-8/ /DBN/ /DBN-1/		
B.3.8. Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced? *Describe whether the documents and sources referred to in the PDD are correctly quoted and clearly referenced.*	Yes. Within the baseline determination project participant has referenced to different sources of information. These sources represent both publicly available information and company internal information. Publicly available information (e.g. websites in internet) has been checked and the information provided in the referenced sources could be verified. All relevant documented evidences have been provided and it could be verified that the information provided in the PDD is in line with provided documentation.	PDD /XLS/ /IC-1/ /IC-2/ /IC-3/ /EPC/ /B-8/ /wem/ /B-3/ /B-4/ /DBN/ /DBN-1/ /B-6/	OK	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
B.4. Additionality Determination *The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline scenario.*				
B.4.1. Methodology				
B.4.1.1. Did the additionality justification follow the requirements of the applied methodology and/or methodological tools? *Describe how it is validated that additionality justification is carried out in accordance with the applied methodology and/or applied methodological tools.*	The Justification of the additionality as been carried out based on the methodology requirements and the provisions of the Additionality Tool. This is is required by the methodology. In particular it has been demonstrated that project activity itself is not a baseline scenario. Afterwards a common practice analysis in accordance with the additionality tool has been carried out. In doing so, it could be demonstrated that the project type (collection and flaring/utilization of LFG) has not diffused in the relevant sector and region (Ukraine). By doing this PP has provided an analysis of any other activities that are operational and that are similar to the proposed project activity. Some similar activities have been observed and similar activities have been identified. However the essential difference is that the considered similar activities have been supported by grants. Taking this into account the determination team concluded that though similar activities are observed, the essential distinctions between the project activity and similar activities could be reasonably explained and hence the project activity	PDD, I /B-3/ /B-4/ /B-8/	CL B3	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	is additional. The conclusion could be further supported by the information provided in Second National Communication of Ukraine Kiiv 2006 and Ukrainian's report on the demonstrable progress under the Kyoto Protocol, Kiiv 2006/B-3//B-4/. Also other publicly available data sources/B-7/ support the conclusion that there is a number of technological, economic, legislative and organization barriers for development of LFG collection and flaring/utilization technologies in Ukraine.			
B.4.2. Consideration of JI before project start				
B.4.2.1. Is the project starting date reported in accordance with the Guidelines for completing JI PDD?	Yes, the defined project starting date is in line with the date of the investment agreement/PSD/ between project participants for the development of the considered project activity and Lviv landfill. The investment agreement/PSD/ has been provided and the date could be verified. The starting date has been defined as the earliest date on which the implementation or construction or real action of the project began. Hence it is in line with JI glossary of terms and has been appropriately included in the PDD.	PDD, I, /PSD/	CAR C1	OK
B.4.2.2. In case the project start date is before commencing of determination, was the incentive from the JI seriously considered and are details given in the PDD? *Describe whether the evidence to support such consideration is adequately and transparently described in the PDD.*	The investment agreement clearly indicates the project activity should be developed as Joint Implementation project. Besides, the benefit from the ERUs generation is the only income out of the considered project activity. Hence it could be clearly verified that incentive from the JI were seriously considered.	PDD, I, /PSD/	CAR C1	OK

Checklist Item (incl. guidance for the determination team)	**Determination Team Comments** (Means and results of assessment)	**Ref.**	**Draft Concl.**	**Final Concl.**
B.4.2.3. How and when was the decision to proceed with the project taken? *Describe the steps taken to validate the starting date.*	The management decision to go ahead with the project development was made in June 2008 based on the results of the feasibility study (Pump test report). Based on provided evidences it could be concluded that JI was considered at the time of the decision making. In this context it is important to mention that there are no financial or economic benefits other than benefits from ERUs. For this reason the consideration of JI has been assessed as serious.	PDD, I, /PSD/	OK	OK
B.4.2.4. Is the project start date consistent with the available evidences? *Describe the evidence assessed regarding the prior consideration of the JI (if necessary). Describe whether the evidence to support such consideration is adequately and transparently described in the PDD.*	Yes, the determination team has reviewed provided evidences and the consistence of the project starting date could be proved. The project start date is consistent with the investment agreement/PSD/ between project participants for the development of the considered project activity and Lviv landfill.	PDD, I, /PSD/	OK	OK
B.4.2.5. Was the decision to proceed with the project taken by a person which has the authority to do so? *Describe the steps taken to validate this issue.*	Yes, investment agreement/PSD/ between project participants for the development of the considered project activity and Lviv landfill has been signed by authorized persons. The provided evidences have been checked and the corresponding approvals of the authorized persons could be verified.	PDD, I, /PSD/	OK	OK
B.4.2.6. How was the JI involved in the decision making process? *Describe the steps taken to validate this issue.*	The benefit from the ERUs generation is the only income out of the considered project activity. Hence it could be concluded that without JI the project would be not financial viable for the project participant.	PDD, I, /PSD/	OK	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
B.4.2.7. Can the JI involvement in the decision assessed as serious? *Describe whether or not the project would have been undertaken without the incentive of the JI.*	Yes, please refer to the comments above.	PDD, I, /PSD/	OK	OK
B.4.3. Identification of alternatives Step 1 (in case of SSC projects pl. skip steps 1 and 2)				
B.4.3.1. Have all realistic alternatives been identified to the project? *Describe whether the list of alternatives is complete. Describe how it is validated that the alternatives are realistic.*	1. Disposal of the waste at the landfill with electricity generation using landfill gas captured from the landfill site. 2. Disposal of the waste at the landfill with flaring of gas captured from the landfill as a non-JI project. 3. Disposal of the waste at the landfill without capture of landfill gas (current situation). In order to validate that the list of alternatives is complete the determination team has investigated all possible alternatives for LFG collection flaring/utilization. Furthermore the methodology requirements have been investigated in this context.	PDD, I, /Meth/	OK	OK
B.4.3.2. Contains the list of alternatives at least the status-quo situation and the project not undertaken as a JI project? *Describe the steps taken to validate this issue.*	Yes, this is as per the PDD.	PDD, I,	OK	OK
B.4.3.3. Do all identified alternatives comply with	Yes, for details please refer to Table A2 regarding this issue.	PDD, I,	CAR	OK

Checklist Item (incl. guidance for the determination team)	**Determination Team Comments** (Means and results of assessment)	**Ref.**	**Draft Concl.**	**Final Concl.**
applicable regulation? *Describe the steps taken to validate this issue. Refer to the regulations.*		/B-3/ /B-4/ /DBN/ /DBN-1/ /B-6/	B2	
B.4.4. Investment analysis Step 2 *In case the investment analysis as per step 2 is chosen to justify the additionality Annex 2 ”Assessment of Financial Parameters” has to be used to provide additonal details of the the calculation parameters..*				
B.4.4.1. Is an appropriate analysis method chosen for the project (simple cost analysis, investment comparison analysis or benchmark analysis)? *Describe why the selected analysis method is appropriate under consideration of potential revenues and costs, potential project alternatives and potential available benchmark values.*	The justification of the additionality has been carried out based on the methodology requirements and the provisions of the Additionality Tool. In particular it has been demonstrated that the project activity itself is not a baseline scenario. Based on the results of the investment analysis it could be demonstrated that the continuation of the current practice (release of LFG into atmosphere is the baseline scenario). For details please refer to B.3.4 and Annex 2 of this report. In accordance with the requirements of the Additionality tool a common practice analysis has been carried out. It could be demonstrated that the project type (collection and	PDD, I, /XLS/ /IC-1/ /IC-2/ /IC-3/ /EPC/ /B-8/ /wem/ /B-3/ /B-4/ /DBN/	CAR B2 CAR B3	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	flaring/utilization of LFG) has not diffused in the relevant sector and region (Ukraine). By doing this the PP has provided an analysis of other activities that are operational and that are similar to the proposed project activity. Similar activities have been observed and have been identified. However essential distinctions between the project activity and similar activities could be reasonably explained. The essential difference is that the considered similar activities have been supported by grants. The determination team concluded that the additionality of the project activity has been justified in accordance with Additionality Tool.	/DBN-1/ /B-6/		
B.4.4.2. Is a clear, viewable and unprotected Excel spreadsheet available for the investment calculation? *Describe the steps taken to validate this issue.*	Yes, the excel spreadsheet available for the investment calculation is a clear, viewable and unprotected. The calculation has been reproduced by the determination team and the main results could be confirmed.	PDD, I, /XLS/	OK	OK
B.4.4.3. Does the period chosen for the investment analysis reflect the technical lifetime of the project activity or in case a shorter period is chosen, is the fair value of the project activity’s assets at the end of the investment analysis period (as a cash inflow) included? *Describe how the technical lifetime / period chosen for*	The assumed project lifetime reflects the technical lifetime of the equipment. The assumed value is common technical lifetime of comparable equipment assumed within various comparable (ACM0001) CDM project activities.	PDD, I, /TS-PA/ /TS-PA1/ /TS-PA2/	7.1.1 C AR B3	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
calculating financial parameter(s) is reviewed and which documents were utilised in the course of review. Describe furthermore the approach used to check the inclusion of a potential fair value.				
B.4.4.4. Is the fair value calculated in accordance with local accounting regulations (where available) or international best practice? *State the accounting regulations applied for calculating the fair value and describe why these are applicable under the project specific circumstances. Describe potential mismatches between regulations and the approach applied for calculating the fair value.*	The fair value has been calculated based on the assumption of a 25-year technical life time for the engines. This assumption has been assessed as conservative because an average lifetime of the equipment is 15 years but after 10-15 years a major overhaul of the main equipment components is required.	PDD, I, /TS-PA/ /TS-PA1/ /TS-PA2/	CAR B3	OK
B.4.4.5. Is the book value as well as the expectation of the potential profit or loss included in the fair value calculation?	The period chosen for the investment analysis reflects the complete technical lifetime so that the fair value consideration was conservative.	PDD, I, /XLS/	OK	OK
B.4.4.6. Are depreciation and other non-cash related items added back to net profits for the purpose to calculate the financial indicator?	Yes, determination team has reviewed the excel spreadsheet and reproduced the results through own calculations. The appropriateness of the depreciation could be confirmed.	PDD, I, /XLS/	OK	OK
B.4.4.7. Is taxation excluded in the investment analysis or is the benchmark intended for post tax comparisons?	Both the financial indicator and the benchmark have been determined on a post tax basis. Therefore the consistency is ensured.	PDD, I, /XLS/	CAR B3	OK
B.4.4.8. Were the input values used in the investment analysis valid and applicable at the time of the investment decision?	Yes, the input values are as per the contracts with technology suppliers, project developers and information provided by publicly available well-reputed data sources.	PDD, I, /XLS/	CAR B3	OK

Checklist Item (incl. guidance for the determination team)		Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
		It could be proved that input values used in the investment analysis valid are applicable at the time of the investment (management) decision (2008).			
B.4.4.9.	In case of project IRR: Are the costs of financing expenditures (loan repayments and interests) excluded from the calculation of project IRR?	Yes, the costs of financing expenditures are excluded from the calculation of project IRR.	PDD, I, /XLS/	CAR B3	OK
B.4.4.10.	In case of equity IRR: Is the part of the investment costs, which is financed by equity considered as net cash outflow and is the part financed by debt excluded in net cash outflow?	N/A	PDD, I,	OK	OK
B.4.4.11.	Is the type of benchmark chosen appropriate for the type of IRR calculated (e.g. local commercial lending rates or weighted average costs of capital for project IRR; required/expected returns on equity for equity IRR)?	Yes. The local commercial lending rates have been used as a benchmark. This is in accordance with the CDM Guidance on the Assessment of Investment Analysis (EB41 - Annex 45). The applied benchmark - commercial lending rate - is appropriate as it reflects the minimum required rate of return to cover the costs of an investment. It has been also assessed as conservative for the purpose of the applied analysis. The statistics on lending rates for the banks in Ukraine have been provided. It could be verified that the chosen value has been selected in a conservative manner. The provided information corresponds to the date of the investment (management) 2008.	PDD, I, /XLS/ /IC-B/	CAR B3	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
B.4.4.12. Is the benchmark value suitable for the project activity?	The applied benchmark commercial lending rate is appropriate as it reflects the minimum required rate of return to cover the costs of an investment. It has been also assessed as conservative for the purpose of the applied analysis.	PDD, I, /XLS/ /IC-B/	CAR B3	OK
B.4.4.13. Is it ensured that the project cannot be developed by other developers than the PP?	Yes, the project could be developed by other PP. However it could be justified that the project activity itself is less attractive as compared to other plausible alternatives.	PDD, I, /XLS/ /IC-B/	CAR B3	OK
B.4.4.14. Was the benchmark consistently used in the past for similar projects with similar risks?	Yes, please refer to B.4.4.11 and Annex 3.	PDD, I, /XLS/ /IC-B/	CAR B3	OK
B.4.5. **Barrier analysis Step 3 or SSC additionality assessment**				
B.4.5.1. Are there any barriers given which have a clear and definable impact on the profitability of the project?	Barrier analysis was not carried out. This justification of additionality and identification of the baseline scenario has been based on the results of the investment analysis.	PDD, I	OK	OK
B.4.5.2. How is it justified and evidenced that the barriers given in the PDD are real?	Please refer to B.4.5.1.	PDD, I	OK	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
B.4.5.3. How is it justified that one or a set of real barriers prevent(s) the implementation of the project activity?	Please refer to B.4.5.1.	PDD, I	OK	OK
B.4.6. Common practice analysis Step 4 (in case of SSC projects skip this step)				
B.4.6.1. Is the defined region for the common practice analysis appropriate for the technology/industry type?	Yes, Ukraine has been identified as region for the common practice analysis. The determination team is of the opinion that the project participant has appropriately identified the region and provided the necessary information in the PDD.	PDD, I, /B-3/ /B-4/ /DBN/ /DBN-1/ /B-6/	OK	OK
B.4.6.2. To what extent similar projects have been undertaken in the relevant region?	Project participant has provided a detailed analysis of LFG collection and flaring/utilization in Ukraine. in doing so, information about other activities that are operational and that are similar to the proposed project activity has been included in the PDD. Similar activities have been observed and identified. However essential distinctions between the project activity and similar activities could be reasonably explained. The essential difference is that the considered similar activities have been supported by grants. The referenced data sources have been checked and assessed as appropriate. It could be verified that the LFG utilization projects like the LFG collection and flaring in	PDD, I, /B-3/ /B-4/ /DBN/ /DBN-1/ /B-6/	OK	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	Lugansk has been supported by grants. Taking into account it was appropriately demonstrated the considered project activity has not diffused in the relevant sector and region. The conclusion could be further supported by the information provided in Second National Communication of Ukraine Kiiv 2006 and Ukrainian’s report on the demonstrable progress under the Kyoto Protocol, Kiiv 2006/B-3//B-4/. Also other publicly available data sources/B-7/ support the conclusion that there is a number of technological, economic, legislative and organization barriers for development of LFG collection and flaring/utilization technologies in Ukraine. Please refer to the background investigation carried out in the context of the alternative 1 and presented in annex 2 of this report. Taking this into account the determination team concluded that though similar activities are observed, the essential distinctions between the project activity and similar activities have been reasonably be explained.			
B.4.6.3. In case similar projects are identified, are there any key differences between the proposed project and existing or ongoing projects and what kind of differences are observed?	Please refer to the comment above.	PDD, I, /B-3/ /B-4/ /DBN/ /DBN-1/ /B-6/	OK	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
B.5. Ex-Ante Calculation of GHG Emission Reductions *It is assessed whether the ex-ante calculations of project emissions, baseline emissions, leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified. Furthermore calculation of emission reductions shall be assessed.*				
B.5.1. Are the equations applied correctly according to the applied approved methodology? *Describe clearly the steps taken to assess whether The methodology has been applied correctly to calculate project emissions, baseline emissions, leakage and emission reductions.*	☒ The equations applied for calculation are correctly applied according to the approved methodology. ☐ The following mistakes have been identified in this context: The calculation of the estimated emission reductions has been carried out in the section E of the PDD. The calculations follow the calculation algorithm developed in the monitoring plan. The monitoring plan has been developed based on the provisions of the methodology. Please refer to the assessment given in the section B.6 of this annex. The determination team has reproduced the calculation by applying the formulae for project, baseline and leakage emissions as described in the PDD. The expected amount of the emission reductions as stated in the PDD could be reproduced.	PDD, I /TS-PA1/ /T-ME/	OK	OK

Checklist Item (incl. guidance for the determination team)	**Determination Team Comments** (Means and results of assessment)	**Ref.**	**Draft Concl.**	**Final Concl.**
B.5.2. In case the methodology allows for different methodological choices, are the equations applied properly justified and have they been used reflecting the other methodological choices (i.e. baseline identification)? *Describe whether proper justification has been provided (based on the choice of the baseline scenario, context of the project activity and other evidence provided) and whether the correct equations have been used reflecting the relevant methodological choices.*	The applied methodology and the Tool/T-ME/ requires the determination of certain parameters and correction factors in accordance with the specific circumstances of the project activity. All such parameters and correction factors have been appropriately determined and duly justified. The applied values are in line with the documented evidences. Please also refer to B.5.4.	PDD, I /TS-PA1/ /T-ME/	OK	OK
B.5.3. Have conservative assumptions been used when calculating the project emissions? *Describe clearly the steps taken to assess whether all the assumptions and data used by the PP are listed in the PDD including references and sources and are conservatively interpreted in the PDD.*	The emissions due to the dumping waste at a solid waste disposal site (the main baseline emission source) have been appropriately estimated by applying “Tool to determine methane emissions avoided from dumping waste at a solid waste disposal site” (Tool/T-ME/). The calculation has been checked and the results have been reproduced by the determination team. All parameters required by the Tool/T-ME/ have been appropriately justified in the PDD. All parameters and factors have been elaborated in a conservative manner and in accordance with provisions of the Tool/T-ME/. **In particular:** • the **waste amounts** have been taken from the study	PDD, I /TS-PA1/ /T-ME/	OK	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	of the Lviv landfill[/TS-PA1/] carried out in 2008. The waste amounts for the time period 1970 till 2014 are based on the historical data of the landfill. The assumed waste volumes are in line with provided evidences[/TS-PA1/]. The waste amounts from 2008 onwards were estimated based on the historical figures recorded in the recent years. • The appropriateness of the **methane correction factor (MCF)** taken as 1.0 could be verified based on the observations made within the on-site assessment. In particular it has been observed that there is a controlled placement of waste (i.e. waste is directed to specific deposition areas) and there is a levelling of waste. Therefore the assumed MCF was assessed as appropriate. • The **fractions of degradable organic carbon (DOC_j)** are duly elaborated based on the Tool[/t-ME/] provisions and are in line with results of the landfill study[/TS-PA1/]. • **Collection efficiency of 70%** has been assessed as conservative. According to US EPA's AP-42 guidelines[/epa/] collection efficiencies typically range from 60 to 85 percent. Most commonly an average of 75 percent is assumed in similar calculations. The pump test concludes that the LFG flow is expected to be higher than the flow predicated by the theoretical Excel LFG model. The same was confirmed within the interviews with the experts, who have carried out the			

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	study. Therefore, the collection efficiency taken as 70% for estimation purposes has been assessed as appropriate.			
B.5.4. Are all data and parameters which remain fixed throughout the crediting period correct, applicable to the project and will lead to a conservative estimation of emission reductions? *Describe clearly the steps taken to assess whether the values used for the fixed parameters are considered reasonable, correct and applicable in the context of the project activity. Check esp. chapter 6.2 of the PDD.*	The net calorific value of diesel fuel was taken as 42.7 TJ/thousand tonnes. This is in line with the IPCC value. The CO_2 emission factor for diesel fuel was taken as 73 TCO_2/TJ. This value is also in line with IPCCC value.	PDD, I /T-ME/ /TS-PA1/	OK	OK
B.5.5. Are all ex-ante calculation values for monitoring parameters reasonable? *Describe clearly the steps taken to assess whether the values used for the monitoring parameters are considered reasonable, applicable and conservative in the context of the project activity*	☒ All “Values of data to be applied for the purpose of calculating expected emissions reductions” are considered to be reasonable, applicable and conservative. ☐ The following mistakes have been identified in this context: For details please refer to the comment under B.5.3.	PDD, I /T-ME/ /TS-PA1/	OK	OK
B.5.6. Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change.	Yes, the project will lead to a real reduction of GHG emissions through collecting and flaring LFG that would be otherwise released into atmosphere. The developed	PDD, I	OK	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
Describe the steps taken to validate this issue.	monitoring plan provides a clear and transparent procedure to measure/calculate the emission reductions. As already indicated the PP was able to sufficiently demonstrate that the baseline scenario would not occur in the absence of the project activity. For this reason, the determination team agrees that the project activity will lead to the long-term benefits related to the mitigation of climate change. For further details please refer to the assessment undertaken in this section.			
B.6. Monitoring of Emission Reductions *It is assessed whether the monitoring plan is appropriate for the project activity and in line with the applied methodology.*				
B.6.1. Are all monitoring parameters required by the applied methodology contained in the monitoring plan? *Assess whether all applicable parameters listed in the methodology are included in the monitoring plan.* *Pl. check further whether the selection of parameters not to be monitored (section B.6.2) is appropriate and in line with the applied methodology.* *In case of different approaches can be chosen acc. to the methodology assess whether the selection of parameters is justified and correct.*	The monitoring plan has been developed in accordance with the provisions of the methodology. In particular, **AF=0 and $MD_{BL, y}$= 0** adjustment factor AF=0 and $MD_{BL, y}$ (the amount of methane that would have been destroyed/combusted in the absence of the project) have been taken as nill. This is because there are no regulatory and/or contractual requirements for LFG collection and flaring/utilization in Ukraine. It was appropriately demonstrated the considered project activity has not diffused in the relevant sector and region. Please refer to assessment given in annex 2.	PDD, I /B-3/ /B-4/ /DBN/ /DBN-1/ /B-6/ /T-PE/ /T-EC/	CAR D1 CAR D2 CAR D5	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	AF – Adjustment factor applied within the determination of MD_{BL} has been taken as zero. This is correct because it is in line with the baseline elaboration. **$MD_{flared,y}$** = Quantity of methane destroyed by flaring and **$MD_{electricity,y}$** = Quantity of methane destroyed by generation of electricity have been duly included in the monitoring plan because a small amount of LFG will be utilized in the generator for electricity generation. **D_{CH4} = Methane density** will be determined as per the Tool$^{/T-PE/}$ in cases where the LFG volume cannot be directly taken from flow meter readings. The indicated methane density within the calculation of LFG_{Flare} taken as 0.0007168 tCH_4/m^3CH_4 at standard temperature and pressure (0 degree Celsius and 1,013 bar) is in line with methodology. The following parameters have been duly included in the monitoring plan: **$LFG_{total,}$** -Total amount of LFG captured, **$LFG_{flare,y}$ - Quantity of LFG** fed to the flare, **$LFG_{electricity}$** - Quantity of landfill gas fed into electricity generator including the required temperature measurements. **W_{CH4} - Methane fraction** of the landfill gas (m^3CH_4/m^3 LFG) has been duly included in accordance with methodology requirements.			

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	The volumetric **flow rate of the exhaust gases** as well as the **concentration of methane** in the exhaust gases will be determined in accordance with the Tool/T-PE/. Based on the monitored parameters the project emissions will be determined as methane flow rate multiplied with flare efficiency. This is in line with provisions of the Tool/T-PE/. **Continuous monitoring as per ACM0001 version 11** It is important to note that the monitoring plan provides for **continuous** measurement of the **quantity and quality of LFG** flared, which the essential requirement of the actual version of the ACM0001/Meth/. The monitoring frequency is continuous – i.e. average value in a time interval not greater than an hour will be used. This corresponds to the provisions of the monitoring plan. **Project emissions from flaring of the residual gas** Project emissions from flaring of the residual gas will be calculated as per the “Tool to determine project emissions from flaring gases containing methane”/T-PE/. This in line with the methodology/Meth/. In this context the flare efficiency is an important parameter. The methodology allows two options for calculation of the			

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	flare efficiency. As per the monitoring plan the Option 2 (continuous monitoring) will be used as a main approach. The option 1 (using default values) will be used as a back up approach for cases where the option 1 approach is not possible. This complies with the requirements of the methodology/Meth/. **Project emissions from electricity consumption** The emissions from consumption of electricity ($PE_{EC,y}$) are based on the provisions of the Tool to calculate baseline, project and/or leakage emissions from electricity consumption" (Version 01). In particular, the emissions due to the electricity consumption will be determined by multiplying the amount of diesel used by genset (mainly for the start-up purposes) with the emission factor of the diesel fuel. Emission factor takes as 73,000kg/TJ is in line with IPCCC default CO2 emission factor for combustion. A conservative value has been taken. Taking this into account the procedure for determination of $PE_{EC,y}$ has been assessed as appropriate.			
B.6.2. Are the means of monitoring of all parameters contained in the monitoring plan in accordance with the requirements of the applied methodology? *Assess whether the provided information for all parameters w.r.t.*	The main **baseline emissions** are the emissions of landfill, which would be released into atmosphere. **$LFG_{total,}$** -Total amount of LFG captured. **$LFG_{flare,y}$ - Quantity of LFG** fed to the flare.	PDD, I /TS-PA/	CL D1	OK

Checklist Item (incl. guidance for the determination team)	**Determination Team Comments** (Means and results of assessment)	**Ref.**	**Draft Concl.**	**Final Concl.**
a) *Label (name of the data / parameter)* b) *data unit* c) *description* d) *source of data* e) *measurement equipment / method / procedure* f) *monitoring frequency* g) *QA/QC procedures* *are appropriately described and in compliance with the requirements of the methodology*	**$LFG_{electricity}$** - Quantity of landfill gas fed into electricity generator. ***name of the data / parameter*** is appropriate **a)** ***Data unit*** – m^3 is also appropriate. **b)** ***Description*** – the description clearly specifies the amount of LFG to be monitored. **c)** ***Source of data*** – flow meter is appropriate measurement equipment for this parameter. **d) M*easurement equipment / method / procedure*** According to the specification of the monitoring equipment the LFG_{total} amount will be measured by turbine type flow meter supplied by Elster or RMG based on the temperature and pressure measurements/TS-PA/. For measurements of LFG_{total}, LFG_{Flare}, $LFG_{electricity}$ three temperature transmitters will be installed at the corresponding flow meters. The volume of LFGtotal will be automatically adjusted to the normal conditions/TS-PA/. As per the specification of the monitoring equipment/TS-PA/ the accuracy of LFG measurements will be max +/- 1.0%. The calibration procedures have been elaborated in accordance with calibration requirements as per the technical specification/TS-PA/. Site manager and project participant will be responsible for carrying out regularly calibration.			

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	e) *Monitoring frequency*. Data will be measured continuously. The average value in a time interval not greater than an hour will be used in the calculations of emission reductions. This is in line with the methodology. ***f) QA/QC Procedures*** The recorded figures will be reviewed on a weekly basis by the project investor and developer. By doing this the monitoring figures will undergo plausibility and accuracy checks. Sufficient confidence could be gained that the monitoring plan follows the four-eye principle and specifies double-check procedures for quality control.			
B.6.3. Are the means of monitoring of all parameters contained in the monitoring plan in accordance with the requirements of the applied methodology? *Assess whether the provided information for all parameters w.r.t.* *a) Label (name of the data / parameter)* *b) data unit* c) *description* d) *source of data* e) *measurement equipment / method / procedure*	**w_{CH4} - Methane fraction** of the landfill gas (m^3CH_4/m^3 LFG) **a) *Name of the data / parameter*** is clearly specified in the PDD. **b) *Data unit*** – m^3CH_4/m^3 LFG for w_{CH4} is in line with methodology and referred Tools. **c) *Description*** – the description is clear and accurate. **d) *source of data* –** gas analyser is an appropriate measurement equipment for the chemical composition of gases. ***e) measurement equipment / method / procedure***	PDD, I, /TS-PA/	CAR D2	OK

Checklist Item (incl. guidance for the determination team)	**Determination Team Comments** (Means and results of assessment)	**Ref.**	**Draft Concl.**	**Final Concl.**
f) *monitoring frequency* g) *QA/QC procedures* B.6.4. *are appropriately described and in compliance with the requirements of the methodology..*	The measurements of the methane fraction in the LFG collected and avoided from release into the atmosphere will be carried out by the fixed gas analyser. The analysis will be done on the dry basis. As per the specification of the monitoring equipment/TS-PA/ the accuracy of the measurements will be +/- 1.0%. The calibration procedures as indicated in the PDD have been elaborated in accordance with calibration requirements as per the technical specification/TS-PA/. Site manager and project participant will be responsible for carrying out the regular calibration. ***f) monitoring frequency*** Data will be measured continuously. The average value in a time interval not greater than an hour will be used in the calculations of emission reductions. This is in line with the methodology. ***g) QA/QC procedures*** The recorded figures will be reviewed on a weekly basis by the project investor and developer. By doing this the monitoring figures will undergo plausibility and accuracy checks. Sufficient confidence could be gained that the monitoring plan follows the four-eye principle and specifies double-check procedures for quality control.			
B.6.5. Are the means of monitoring of all parameters contained in the monitoring plan in accordance	**Chemical composition of flue gas** of the flare in particular: • Volumetric fraction of O2 in the exhaust gas of the	PDD, I /TS-PA/	CAR D2	OK

Checklist Item (incl. guidance for the determination team)	**Determination Team Comments** (Means and results of assessment)	**Ref.**	**Draft Concl.**	**Final Concl.**
with the requirements of the applied methodology? *Assess whether the provided information for all parameters w.r.t.* *a) Label (name of the data / parameter)* *b) data unit* c) *description* d) *source of data* e) *measurement equipment / method / procedure* f) *monitoring frequency* g) *QA/QC procedures* *are appropriately described and in compliance with the requirements of the methodology..*	flare. • Volumetric fraction of methane in the exhaust gas of the flare at normal conditions. These parameters will be recorded and applied in ERU calculation only if Option 2 (continuous monitoring) is used to determine flaring efficiency. **a)** ***name of the data / parameter*** is clearly specified in the PDD. **b)** ***Data unit*** – % Vol is in line with methodology and referred Tools **c)** ***Description*** – the description is clear and accurate. **d)** ***source of data –*** flue gas analyser is an appropriate measurement equipment for the chemical composition of gases. ***e) measurement equipment / method / procedure*** The measurements of the methane fraction in the flue gases will be carried out by the flue gas analyser. The measurement point will be the upper section of the flare. The analysis will be done on the dry basis. As per the specification of the monitoring equipment/TS-PA/ the accuracy of LFG content measurements will be +/- 1.0%. The indicated calibration is in accordance with calibration requirements as per the technical specification/TS-PA/. Site manager and project participant will be responsible for carrying out regularly calibration.			

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
	f) monitoring frequency Data will be measured continuously. Data will be recorded by the site manager and weekly reports about the project performance will be carried out and submitted to project investor and developer for QA/QC purpose. ***g) QA/QC procedures*** The recorded figures will be reviewed on a weekly basis by the project investor and developer. By doing this the monitoring figures will undergo plausibility and accuracy checks. Sufficient confidence could be gained that the monitoring plan follows the four-eye principle and specifies double-check procedures for quality control.			
B.6.6. Are the means of monitoring of all parameters contained in the monitoring plan in accordance with the requirements of the applied methodology? *Assess whether the provided information for all parameters w.r.t.* *h) Label (name of the data / parameter)* *i) data unit* j) *description* k) *source of data* l) *measurement equipment / method / procedure* m) *monitoring frequency*	**Temperature of the exhaust gases T_{Flare}.** **a)** ***Name of the data / parameter*** The parameter is clearly specified in the PDD. **b)** ***Data unit*** – C° is in line with methodology and referred Tool[T-PE/]. **c)** ***Description*** – The description is clear and accurate. **d)** ***Source of data –*** Thermocouples are appropriate measurement equipment for the temperature of the exhaust gases. ***e) Measurement equipment / method / procedure*** The temperature of the exhaust gases will be measured by thermocouples. The accuracy and calibration procedures as	PDD, I /TS-PA/	CAR D4	OK

Checklist Item (incl. guidance for the determination team)	**Determination Team Comments** (Means and results of assessment)	**Ref.**	**Draft Concl.**	**Final Concl.**
n) *QA/QC procedures* *are appropriately described and in compliance with the requirements of the methodology..*	indicated in the PDD are in line with provided specification of the monitoring equipment/TS-PA/. Site manager and project participant will be responsible for carrying out regularl calibration. ***f) monitoring frequency*** Data will be measured continuously. Data will be recorded by the site manager and weekly reports about the project performance will be carried out and submitted to project investor and developer for QA/QC purpose. ***h) QA/QC procedures*** The recorded figures will be reviewed on a weekly basis by the project investor and developer. By doing this the monitoring figures will undergo plausibility and accuracy checks. Sufficient confidence could be gained that the monitoring plan follows the four-eye principle and specifies double-check procedures for quality control.			
B.6.7. Is it likely that the monitoring arrangements described in the PDD can properly be implemented in the context of the project activity? *Assess whether the described monitoring arrangements are sufficient and realistic to enable a thorough monitoring. Pl. consider also special monitoring conditions, e.g. downtimes of monitoring equipment etc.*	Yes, the provided technical specification of the flaring equipment/TS-PA/ contains a detailed information about the envisioned monitoring equipment to be installed. Project developer has a sufficient knowledge in handling this type of projects. Furthermore project developer is involved in similar JI project activity that has been successfully registered under Track 2.	PDD, I	OK	OK
B.6.8. Are the QA/QC procedures appropriate sufficient to ensure the emission reductions	Yes, this issue has been discussed during the on-site visit and later in the course of determination.	PDD	OK	OK

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
achieved from the project activit can be reported ex-post and verified? *Please consider the description given in section B.7.2. Describe which QA/QC provisions are considered. Address Quality Management System provisions, calibration and maintenance of equipment. Address further any review procedures.*	Project participant has elaborated procedures for data management and processing within the particular stages of the monitoring. The double check procedures have been introduced to ensure accuracy and quality of the monitoring. The responsibilities and different tasks within the monitoring are clearly defined and clearly allocated to the monitoring team members. A sufficient confidence has been gained that QA/QC procedures are appropriate and sufficient to ensure the accurate determination of emission reductions achieved from the project activity.			
B.6.9. Are procedures identified for data management? *Check whether appropriate provisions are considered for data management including responsibilities, what records to keep, storage area of records and how to process performance documentation* *Check further the data archiving provisions for the project activity and ensure that provisions are made to archive data for the whole crediting period + 2 years.*	Yes, this issue has been discussed during the on-site visit and later in the course of determination. Please refer to the comments in this section.	PDD	CAR D1	OK
C. Duration of the Project/ Crediting Period *It is assessed whether the temporary boundaries of the project are clearly defined.*				

Checklist Item (incl. guidance for the determination team)	**Determination Team Comments** (Means and results of assessment)	**Ref.**	**Draft Concl.**	**Final Concl.**
C.1. Is the project's starting date clearly defined and evidenced? *Check whether the starting date is correct. Apply the definition of the project starting date as per the "Glossary of JI terms".*	The defined project starting date is in line with the date of the investment agreement/PSD/ between project participants and Lviv landfill. The investment agreement/PSD/ has been provided and the date could be verified. The starting date has been defined as the earliest date on which the implementation or construction or real action of the project began. Hence, it is in line with JI glossary of terms and has been appropriately included in the PDD.	PDD /PSD/	CAR C1	OK
C.2. Is the project's operational lifetime clearly defined and evidenced? *Check whether the project lifetime is correctly defined. Consider the guidance on the assessment of investment analysis (annex to the addionality tool).* *Check in case of phased implementation this has been reflected throughout the whole PDD incl. the financial assessment, if applicable.*	The lifetime of the project is in line with agreement with the municipality and hence has been duly elaborated. Furthermore taking into account the average lifetime of comparable equipment within registered CDM project the assumed technical lifetime of 15 years has been assessed as plausible.	PDD /TS/ /FS/	CAR B3	OK
C.3. Is the start of the crediting period clearly defined and reasonable? *Check whether the envisaged starting date of the crediting period is realistic, taking into consideration the times needed for determination and registration.*	The start of crediting period is in line with the time when the project becomes operational (in 2009). This is in line with JI Guidelines.	PDD	OK	OK
D. Environmental Impacts *Documentation on the analysis of the environmental*				

Checklist Item (incl. guidance for the determination team)	Determination Team Comments (Means and results of assessment)	Ref.	Draft Concl.	Final Concl.
impacts will be assessed, and if deemed significant, an EIA should be provided to the AIE.				
D.1.1. Are there any Host Party requirements for an Environmental Impact Assessment (EIA)? *Check the host party regulations, regarding EIA.*	Yes, according to the relevant Ukrainian regulation an Environmental Impact Assessment (EIA) has to be carried out.	PDD /FS/	CL F1	OK
D.1.2. In case an Environmental Impact Assessment (EIA) is requested by the host party, has it been carried out and if applcable duly approved? *Check the EIA and its approval, if applicable.*	Yes, Environmental Impact Assessment (EIA) has been prepared as a part of the feasibility study/FS/. Within the EIA a detailed assessment on soil resources, air, vegetation, animal world, etc. has been carried out. Within the different stages of the implementation project activity has undergone examination by the responsible authorities and has received the required approvals/EIA-1//EIA-2//EIA-3//EIA-4//EIA-5/. The final approval has been provided by the Expert conclusion of the Ministry of regional development and construction of Ukraine/EIA-5/. This Expert opinion confirms that the project complies with relevant norms and standards. All documents have been provided and appropriate approval in accordance with host country regulations could be verified.	PDD /FS/ /EIA-1/ /EIA-2/ /EIA-3/ /EIA-4/ /EIA-5/	CL F1	OK
D.1.3. Has an analysis of the environmental impacts of the project activity been sufficiently described and in line with the host party environmental legislation? *Check the PDD (section D). Check whether the project will create any adverse environmental effects.* *Check the relevant national environmental legislation.*	Yes the analysis of the environmental impacts of the project activity has been sufficiently described and is in line with the host party environmental legislation.	PDD /FS/ /EIA-1/ /EIA-2/ /EIA-3/	CL F1	OK

Checklist Item (incl. guidance for the determination team)	**Determination Team Comments** (Means and results of assessment)	**Ref.**	**Draft Concl.**	**Final Concl.**
		/EIA-4/ /EIA-5/		
D.1.4. Are transboundary environmental impacts considered in the analysis? *Check the documents and local official sources / expertise regarding transboundary environmental impacts.*	Yes, please refer to the comment above.	PDD /FS/ /EIA-1/ /EIA-2/ /EIA-3/ /EIA-4/ /EIA-5/	CL F1	OK
E. Stakeholder Comments *The AIE should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.*				
E.1. Have relevant local stakeholders been invited to consultation prior to the publication of the PDD? *Check by means of document review and interviews with local stakeholders if and when a local stakeholder consultation process has been carried out.*	Yes, different meetings with stakeholders and representatives of the local administration have been carried out. In addition the information about the construction and the commissioning of the project activity was published in the local newspaper. The stakeholder consultation process has been appropriately evidenced/SC-1/SC-2//SC-3//SC-4/. A sufficient confidence has been	PDD, I /SC-1/ /SC-2/ /SC-3/ /SC-4/	CL G1	OK

Checklist Item (incl. guidance for the determination team)	**Determination Team Comments** (Means and results of assessment)	**Ref.**	**Draft Concl.**	**Final Concl.**
	obtained that comments by local stakeholders that can reasonably be considered relevant for the proposed JI project activity, have been invited and The summary of the comments received as provided in the PDD is complete.			
E.2. Can the local stakeholder consultation process be assessed as adequate? *Describe what assessment steps have been undertaken to assess the adequacy of the stakeholder consultation process. Give a final opinion on the adequacy.* *Please consider the following requirements in this context:* *(a) Comments by local stakeholders that can reasonably be considered relevant for the proposed JI project activity, have been invited;* *(b) The summary of the comments received as provided in the PDD is complete;* *I The project participants have taken due account of any comments received and have described this process in the PDD.*	Yes, please refer to the comment above.	PDD, I /SC-1/ /SC-2/ /SC-3/ /SC-4/	CL G1	OK
E.3.				

ANNEX 2: ASSESSMENT OF BASELINE IDENTIFICATION

Table A-2: Assessment of Baseline Identification

☐	Baseline is not identified
☒	Assessment of baseline see below

Baseline Alternatives identified	Inline with the Methodology?	Eliminated	Reasons for elimination / non-elimination from list of alternatives	Evidence used	AIE Assessment	
					Appropriateness of elimination	Assessment of determination team (results and means of assessment)
Disposal of the waste at the landfill with **electricity generation** using landfill gas captured from the landfill site.	☒	☒	***Step 1 Identification of alternatives to the project activity consistent with current laws and regulations*** This alternative has been identified as a plausible baseline scenario. **Step 2 Barrier analysis** This alternative has been excluded based on the results of the investment analysis.	PDD /XLS/ /IC-1/ /IC-2/ /IC-3/ /EPC/ /B-8/ /wem/	☒	***Step 1 Identification of alternatives to the project activity consistent with current laws and regulations*** Within the Step1 this alternative has been identified as a plausible baseline scenario in line with requirements of the methodology. Furthermore, the alternative is in line with current **laws and regulations**. Determination team has reviewed the landfill related current laws and regulations of Ukraine and it could be concluded that this alternative is not prohibited by any law or regulation **Step 2 Barrier analysis** This alternative has been excluded based on the results of the investment analysis.

			Step 3 – Investment analysis. Within the Investment analysis it was demonstrates that this is alternative is not financial viable.			**Step 3 – Investment analysis.** Investment analysis has been carried out. An internal rate of return (Project IRR) of this alternative has been calculated and compared with commercial lending rates. It was demonstrated that the IRR of the project activity is significantly below the benchmark. For this reason the considered alternative cannot be considered as financial attractive. Taking this into account determination team has agreed with the exclusion of the alternative. The applied method of investment analysis is appropriate. The calculation of the IRR has been reproduced by the determination team and the computed IRR could be proved. The input parameters have been duly elaborated and referenced. The input parameters were assessed as appropriate. For details please refer to the Annex 3 (Assessment of financial parameters). The applied benchmark commercial lending rate is appropriate as it reflects the minimum required rate of return to cover the costs of an investment. It has been also assessed as conservative for the purpose of the applied analysis. In order to gain further confidence that this alternative is not a plausible scenario the determination team has investigated the laws, which regulate the feed-in tariffs from renewable sources. In particular, the determination team has analyzed the law *“On Amendments to the Law of Ukraine ‘On Electrical Power Engineering’ to Stimulate Use of Alternative Sources of Energy” (the Green tariff Law)*[/B-5/], which went into effect in 2009. This is law regulates fee-

in tariffs from renewable sources. However it does not specify feed-in tariffs from LFG based power generation.

The same is supported the letter provided by the local administration confirming the lack of regulatory basis for the green feed-in tariffs from the LFG based electricity projects.

The lack of an appropriate regulation of the feed-in tariffs was also addressed by the PP within the interviews carried out during the on-site assessment.

The same could be supported by means of the review of the information about the LFG based projects in Ukraine as provided by third-party independent and reliable date sources. Please note that some of the reviewed sources are dated 2009 and 2010, which is after the data of the management decision 2008. Although these sources were mot available at the time of the management decision, they support the conclusion that there is no appropriate regulatory basis for such projects in Ukraine.

Data source	Main information
The Ukrainian Law 'On feed-in tariff' **25.09.2009** /B-8/	Ukraine has introduced **the law 'On feed-in tariff'**/B-8/ as of September 25, 2008. The law guarantees grid access for renewable energy producers: small hydro up to 10 MW, wind, biomass, photovoltaic and geothermal). But there are no references and regulations on the electricity generation from the landfill gas.
“**Investment Plan for the**	In particular, the absence of the LFG based commercial power generation

						Clean Technology Fund" the State Environmental Investment Agency of Ukraine" 01.2010[B-7]	projects in Ukraine can be concluded based on the information provided by the **"Investment Plan for the Clean Technology Fund"** issued by **the State Environmental Investment Agency of Ukraine"** [B-7] in January 2010, which states that: *"Ukraine is facing a critical, breakthrough moment for the renewable energy sector: while the regulatory framework ("green" tariffs) has been set up, it remains completely untested as not a single commercial size project has been completed…"*. In addition, paragraph 46 states that the difficulty in access to the grid is a further important barrier to the project implementation. It is also explained that the potential project developers face a risk of "being the first to market with an untested framework".
						The Study of The Ukrainian Institute of Economic Research and Political Consultation under the project	Furthermore, according to **the Study of The Ukrainian Institute of Economic Research and Political Consultation**[B-9] "*the electricity generated from renewable sources can be sold to the power supply companies or to the end-consumers on existing "feed-in tariffs". However, there are some statutory restrictions*

						”German-Ukrainian agriculture dialog” with the support of Federal Ministry of Food, Agriculture and Consumer Protection of Germany[B-9/] “Biogas and “feed-in” tariffs in Ukraine. Is investing profitable?”	*for the Ukrainian power supply companies that are connecting with buying the electricity at the price, higher that wholesale tariffs. There are no mechanisms that could compensate high expenses from acquisition the electricity on “feed-in” tariffs for the power supply companies and therefore prevent the price disproportion. There are also no incentives for the end-consumers to pay more for the electricity on “feed-in” tariffs, unless their own ecological considerations.* “ Therefore, it can be concluded that the existing regulations on energy supply in Ukraine are not coordinated with the “feed-in” tariffs, which reduce their effectiveness.
						Second National Communication of Ukraine Kiiv 2006 and Ukrainian’s report on the demonstrable progress under the Kyoto Protocol, Kiiv 2006	In this context the determination team reviewed the Second National Communication of Ukraine and Ukrainian’s report on the demonstrable progress under the Kyoto Protocol, Kiiv 2006[B-3//B-4/] as well as the information provided in other JI projects Based on these data sources it could be concluded that there are no commercial LFG based projects. The realized projects were either financially supported by the EU

						(Lugansk) or they were developed within the JI process (Alushta, Yalta). Taking the above mentioned into account a sufficient confidence has been gained that LFG based electricity generation faces lack of the regulatory basis and significant risks. Therefore it was duly excluded from further considerationo.
Project activity Disposal of the waste at the landfill with flaring of gas captured from the landfill as a non-JI project.	☒	☒	**Step 1 Identification of alternatives to the project activity consistent with current laws and regulations** Within the Step 1 this alternative has identified as a **plausible** scenario because it is the project activity and is not prohibited by any national laws and regulations. **Step 2 Barrier analysis** Barrier analysis was not carried out. This alternative has been excluded based on the results of the investment analysis. **Step 3 Investment analysis**	PDD /B-3/ /B-4/ /DBN/ /DBN-1/ /B-6/	☒	**Step1: Identification of alternatives to the project activity consistent with current laws and regulations** Within the Step1 this alternative has been appropriately identified as a **plausible baseline** scenario because it represents the project activity itself it could be proved that this alternative is not prohibited by any national laws and regulations. **Step 2 Barrier analysis** Barrier analysis was not carried out. This alternative has been excluded based on the results of the investment analysis. **Step 3 Investment analysis** In the context of investment analysis the essential

			As this alternative generates only costs and expenses. It is less attractive as compared to the continuation of the current practice where no costs/expenses are required. **Step 4 Common practice analysis** Within the common practice analysis it was demonstrated the considered project activity has not diffused in the relevant sector and region.			rationale is that the collection and flaring of LFG does not result in any economic and financial benefits. Hence without ERU benefits this alternative generates only costs. This alternative has been compared with the alternative 3 – continuation of the current practice. Within the alternative 3 the LFG would continue release into atmosphere and no measures for collection and utilization would be implemented. Continuation of current practice does not require any costs and/or expenses. Considering this it was appropriately concluded that alternative 2 – alternative with higher costs – would be less financial attractive as compared to the continuation of the current practice (i.e. alternative without any costs). **Step 4 Common practice analysis** Within the common practice analysis it was appropriately demonstrated the considered project activity has not diffused in the relevant sector and region. The referenced data sources have been proved and assessed as appropriate. It could be proved that LFG utilization projects like the LFG collection and flaring in Lugansk has been supported by grants. The conclusion could be further supported by the information provided in Second National Communication of Ukraine Kiiv 2006 and Ukrainian’s report on the demonstrable progress under the Kyoto Protocol, Kiiv 2006[/B-3//B-4/]. Also other publicly available data sources[/B-7/] support the conclusion that there is a number of technological, economic, legislative and organization barriers for development of LFG collection and

						flaring/utilization technologies in Ukraine. Taking this into account the determination team concluded that though similar activities are observed, the essential distinctions between the project activity and similar activities have been reasonably be explained.
The **continuation of the current situation**: no landfill gas extraction and flaring	☒	☐	**Step 1 Identification of alternatives to the project activity consistent with current laws and regulations** Within the Step1 this alternative has identified as a **plausible** scenario because it represents the current practice and is not prohibited by any national laws and regulations.	/PDD/ /B-3/ /B-4/ /DBN/ /DBN-1/ /B-6/	☐	**Step 1 Identification of alternatives to the project activity consistent with current laws and regulations** Within the Step1 this alternative has been appropriately identified as a plausible scenario because the alternative represents the pre-project situation. **Sub-step 1b) Compliance with current laws and regulations** The relevant laws and regulation including the relevant passages have been referred in the PDD. It was concluded that there are no binding requirements for utilization of the landfill gas. The determination team has reviewed the relevant laws and regulations/DBN//DBN-1//B-6/ and the appropriateness of the conclusion has been verified. In particular determination team has analyzed the National Construction Standard DBN V.2.4-2-2005 Basics of Sites Design/DBN//DBN-1/. This regulation was introduced in 2005 and contains requirements regarding the LFG collection and flaring/utilisation. It could be verified that according to this regulation the utilization of the LFG is recommended for new landfill sites. At the same time the Lviv landfill is in operation since 1970s so that it is not affected by this recommendation. Furthermore, it should be noted that this regulation has only a recommendatory nature. There are no binding

						requirements i.e. the utilization of the LFG in the National Construction Standard DBN V.2.4-2-2005 Basics of Sites Design[/DBN/] is only recommended. The determination team has also reviewed other laws, regulations and guidelines, which might be relevant with regards to the continuation of the current practice: • law on the protection of the environment (June 1991) • ukrainian law “On Municipal Waste” (March 5, 1998) • ukrainian law “On Protection of Ambient Air” (June 21, 2001) It could be verified that the above mentioned sources contain regulations regarding the different environmental aspects but do not specify binding requirements for LFG capture and utilization at the existing landfills. The lack of collection and flaring/utilizing technologies on the Ukrainian landfills can be further supported by the information provided in Second National Communication of Ukraine Kiiv 2006 and Ukrainian’s report on the demonstrable progress under the Kyoto Protocol, Kiiv 2006[/B-3//B-4/]. According to this data source the lack of collection and flaring/utilizing is widely observed in Ukraine. Taking this into account the determination team accepted that continuation of the pre-project situation is in line with current laws and regulation and is widespread in the country. Please refer to the results of the background investigation given below under scenario (iii) - LFG based electricity generation.

			Step 2 Barrier analysis Barrier analysis was not carried out. This alternative has been excluded based on the results of the investment analysis. **Step 3 – Investment analysis.** Investment analysis clearly demonstrates that this is the most financial attractive scenario			**Step 2 Barrier analysis** Barrier analysis was not carried out. . However, it is evident that there no significant barriers, which would prevent this alternative. **Step 3 – Investment analysis.** As the continuation of the current practice does not cause any costs/expenses it is reasonable to assume that this alternative is more financial attractive as compared to alternative 2, which requires financial resources like the initial investments, operating expenses, etc. For this reason it has been correctly concluded that the disposal of the waste at the landfill without capture of landfill gas (current situation) is the most plausible scenario.
Disposal of the waste at the landfill with **heat generation** using landfill gas captured from the landfill site.	☒	☒	*Not probable because though this alternative is in compliance with the mandatory regulatory requirements; however, the main barrier is that there is no existing heat system or infrastructure for delivering the heat in the neighbourhood.*	PDD	☒	**Step 1** Within the Step1 this alternative has been identified as a plausible baseline scenario in line with requirements of the methodology Furthermore the alternative is in line with current **laws and regulations**. Determination team has reviewed the landfill related current laws and regulations of Ukraine and it could be concluded that this alternative is not prohibited by any law or regulation During the on-site assessment it was observed that the landfill is located in remote sites and there are no

						potential heat consumers in the vicinity of the landfill. There is no existing heat transportation system or infrastructure for delivering the heat in the neighbourhood. Furthermore, the amount and the quality of the LFG may fluctuate. This is an important implementation risk especially for projects that have to ensure a stable heat supply. In light of this a sufficient confidence has been gained the LFG based heat generation and supply cannot be considered as a plausible scenario. The transportation of the LFG to another location and utilization for energy purposes (e.g. heat generation) would face similar risks. Therefore it cannot be considered as a plausible scenario.

ANNEX 3: ASSESSMENT OF FINANCIAL PARAMETERS

Table A-3: Assessment of Financial Parameters

☐	No financial parameters are used for additionality justification
☒	Assessment of all financial parameters see below

Parameter	Value applied	Unit	Source of Information (please indicate document and page)	Reference	AIE ASSESSMENT		
					Correctness of value applied	Appropriateness of information source	Comment
Investment costs of GTUs	7,283,237	US $.	Feasibility study	/IC-1/ /IC-2/ /B-8/	☒	☒	in the context of the total investment costs the following assumptions have been made: 1. Collection System: wells, technical reports, site capping 3,233,237 US $. The assumed value is in line with Current EPC with Gafsa for collection system and flare/IC-1/. Generation Plant Cost per MW including implementation (1,350,000 US $) have been elaborated based on the contract for a comparable unit installed within another CDM project activity implemented by the project participant/IC-2/. Price per Engine of 1MW (750,000 US $), Auxiliary (300,000 US $) Civil Works (300,000 US $) have been assumed based on the real costs as per the contract. The contract has been checked. It could be verified that assumptions have been made in a conservative manner. The costs could be further supported by the information provided

							by the third-party, independent publicly available data sources[/B-8/]. Hence the total construction costs taken as 7,283,237 US$ have been assessed as appropriate.
Electrical capacity of a genset	1	MW	PDD /XLS/	/PDD/ /TS-PA1/ /TS-PA2/	☒	☒	The capacity has been elaborated based on the test and investigations carried out in the context of the project implementation[/TS-PA1//TS-PA2/]. The applied figure is in line with the provided evidences.
Net Generation efficiency	37.1	%	Investment analysis within the Excel calculation spreadsheet	/XLS/ /B-8/	☒	☒	The net generation efficiency taken as 37.1% has been assessed as appropriate. The applied value could be further supported by the information provided by other reputed and publicly available data sources[/B-8/].
Base Electricity Price	51	US$/MW	Wholesale Electricity Market (WEM) Statistics, Ukraine	/wem/	☒	☒	The applied figures have been estimated based on the Electricity sale tariffs on the wholesale market of Ukraine as provided by the Wholesale Electricity Market (WEM) Statistics, Ukraine[/wem/]. The referenced data source has been checked and the value could be confirmed. The applying of the wholesale tariffs has been assessed as appropriate and in line with the regulation of the electricity market in Ukraine. In this context it is important to note that there is lack of an appropriate and functioning regulatory basis, which regulates access to the grid for independent power producers. This is significant barrier for project, which involve

							power generation and supply to grid (wholesale market). Therefore commercial power generation from renewable sources and supply to the grid are usually prevented from the implementation. Please refer to the assessment of the alternative 1 in the annex 2.
Energy Content of LFG	18.15	Mj/m^3	Investment analysis within the Excel calculation spreadsheet	/XLS/ /TS-PA1/ /ipcc/	☒	☒	The value has been determined based on the Higher Heating Value for methane (36.31 kJ/m3) and methane content (50%). The applied values are in line with results of the study of the Lviv SW Landfill/TS-PA1/ and with default IPCC values.
Taxes	25	%	PwC Ukraine. 2009. Online Business Guide. Taxation of Corporation	/IC-3/	☒	☒	The applied value is correct and in line with provided evidences.
Lifetime	25	Years	Investment analysis within the Excel calculation spreadsheet	/XLS/ /TS-PA1/	☒	☒	The assumed project lifetime reflects the technical lifetime of the equipment. This assumption has been assessed as conservative because an average lifetime of the equipment is 15 years but after 10-15 years a major overhaul of the main equipment components is required. The assumed value is common technical lifetime of comparable equipment assumed within various comparable (ACM001) CDM project activities.
Fair value	900,000	US $	Investment analysis within the Excel calculation spreadsheet	/XLS/ /TS-PA1/	☒	☒	The fair value has been calculated based on the assumption of a 25-year technical life time for the engines. Taking into account an average lifetime of 15 years and the necessity to overhaul equipment after 10-15 years the assumption has been assessed as conservative.

Benchmark	18	%	Commercial lending rates in Ukraine	/IC-B/	☒	☒	The local commercial lending rates have been used as a benchmark. This is in accordance with the CDM Guidance on the Assessment of Investment Analysis (EB41 - Annex 45). The applied benchmark commercial lending rate is appropriate as it reflects the minimum required rate of return to cover the costs of an investment. It has been also assessed as conservative for the purpose of the applied analysis. The statistics on lending rates for the banks in Ukraine have been provided and it could be proved that the chosen vale has been selected in a conservative manner. The provided information corresponds to the project starting date 2008.

ANNEX 4: ASSESSMENT OF BARRIER ANALYSIS

Table A-4: Assessment of Barrier Analysis

☒	No barrier parameters are used for additionality justification
☐	Assessment of barriers see below

Kind of Barrier (invest, tech, other)	Description of Barrier	Evidence used	Assessment of determination team	
			Appropriateness of information source	Explanation of final result
			☒	

Project participant has based the elaboration of the baseline and additionality ion the Investment analysis.

ANNEX 5: OUTCOME OF THE GSCP

Table A-5: Outcome of the Global Stakeholder Consultation Process

☐	No comments were received during the global stakeholder consultation period
☒	Comments were received during the global stakeholder consultation period. The comments (in unedited form) and the consideration/response of the determination team are presented below:

Comment No.:	Comment by:	Inserted on:	Subject	Comment *)	Response Project participant/determination team *)	Conclusion (incl. CARs CLs or FARs)
1a.	Maryana Bulgakova senior lawyer, climate change program coordinator maryanab@uoregon.edu International NGO "Environment-People-Law" www.epl.org.ua epac.mail.lviv.ua tel/fax +38-032-2-257682 mailing address: Ukraine, Lviv, 79000, P.O. Box 316	01.04. 2009	EIA	The EIA of the project according to the order of the Ministry should describe the impact of the projected activity on the environment on the territory of the object location and surrounding areas (paragraph 4.8 of the Order of the Ministry). In fact there is no description of the project impact on surrounding areas by the landfill. If we look at the EIA section presented to the JI Supervisory committee we can not find there the actual description of the impact of the projected	**Response project participant:** In compliance with the Order No. 342 of the Ministry of Environmental Protection of Ukraine ("On approval of requirements to preparation of the Joint Implementation projects"), the environmental impacts for the LFG project at Lviv were assessed according to the regulation (DBN A.2.2-1- 2203) approved by the order of the State Building Committee. The conclusion was that no impacts were considered negative. This process required four individual approvals as required by DBN A.2.2-1-2203 to be obtained and submitted to the Lviv State Building Committee who then issued the final approval on August 6 of 2008. The construction of the project commenced after all the required approvals were received. The four individual approvals and final approval were: • Approval No. 264-54101 as of 27/06/2008 by Lviv Regional Sanitary Epidemiologic Station.	Clarification request CL F1 has been raised in this context and successfully closed

				activity on the environment (all elements of the environment that are stated in the further mentioned state building norms DBN A.2.2-1-2003) and on the surrounding areas. The elements of the EIA according to the DBN A.2.2-1-2003 are the following (paragraph 2.1): - reasons for EIA; - physically-geographical specification of the region and object territory; - general characteristic of the object; - impact of the projected activity on the environment; - assessment of the impacts of the projected activity on social environment; - assessment of the impacts of the projected activity on technocratic environment;	Ministry of Health Care of Ukraine /EIA-1/. • Approval No. 13/1/3632 as of 04/06/2008 by Department of Supervisory and Preventory Activities Issues at the Main Administration of the Ministry of Emergencies of Ukraine in Lviv Region (GU MNS of Ukraine in Lviv Region). State Fire Control of Ukraine /EIA-2/. • Approval No. 11-11752 as of 02/07/2008 by State Environmental Protection Administration in Lviv Region. Ministry of Environmental Protection Ukraine: State ecological examination for the contractor design “Technical restoration and active degassing of Lviv city ground of solid domestic waste” /EIA-3/. • Approval No. 75.08.12.3.3-B as of 16/05/2008 by AC “Center for certification and control of the construction quality of the oil and gas objects”. Lviv Branch of “Zakhidnaftogazservice” (LF “Zakhidnaftogazservis”). State Committee for Industrial Safety, Labour Protection in the Industry and Mining Supervision (Derzhgirpromnaglyad): “Expert Evidence of the Labour Protection Issues” /EIA-4/. • Final Approval No. 8.749K as of 06/08/2008 by Lviv State Building Committee. Ministry of Regional Development And Construction of Ukraine /EIA-5/. A comprehensive technical report “Technical restoration and active degassing of Lviv city ground of solid domestic waste” was prepared as a technical design document for the project and for evaluation by the five government agencies. The report includes a detailed section (Section 8)	

				- complex measures to provide normative condition of the environment and its safety; - assessment of the impacts during the actual construction; - Application on environmental effects of the activity. During environmental impact assessment the following elements should be considered (Paragraph 2.7) (they are not considered in the commented document): - climate and microclimate; - air conditions; - geological conditions; - water conditions; - soils; - Plants and animals, conservation objects.	on the “assessment of impact on the environment” that covers the geological, atmospheric, water aspects as well as the soil and flora of the project site and the surrounding area. The issues of fire, health and safety were discussed in Section 10 of the report. The preparation of the technical report takes into account the application regulations and standards and stakeholder meetings held throughout 2008. The process did not end in 2006 when the LoE was received. The EIA process continued in the subsequent years until the final approval was received in Aug 2008. The report was reviewed by the five government agencies. Consequently, the project was accepted by the government agencies and the title of the report is included in each of the 5 approvals. The construction of the project commenced after all the required approvals were received. **Response Determination team** The environmental impacts were assessed in the feasibility study “Technical restoration and active degassing of Lviv city ground of solid domestic waste”/FS/. It could be verified that the main results are presented in the section F of the PDD. The determination team confirms that the project will not result in significant environmental impacts. Furthermore, the project has undergone an approval process. The project activity has been reviewed by several official organisations (ministries) and received the relevant approval	

					from all of them. These approvals are: • Conclusion No. 264 – 54101 for the construction project June 27, 2008, State Establishment, “Lviv Regional Sanitary-Epidemiologic Station” Ministry of Health Care of Ukraine • Expert Conclusion 04/06/2008 No. 13/1/3632 Department of supervisory and preventory activities issues at the main administration of the ministry of emergencies of Ukraine in Lviv Region • For No. 8.749K/04 as of 14/05/2008 CONCLUSION of state ecological examination for the contractor design “Technical restoration and active degassing of Lviv city ground of solid domestic waste” • Expert Evidence on the labour protection issues. Examination of contractor design No. 75.08.12.3.3-B Contractor design “Technical restoration and active degassing of Lviv city ground of solid domestic waste” • Complex Conclusion of state examination Nr. 8,749K on the contractor design “Technical restoration and active degassing of Lviv city ground of solid domestic waste” August 06, 2008 The determination team confirms that the project has received all approvals /EIA-1//EIA-2//EIA-3//EIA-4//EIA-5/ required to start the operation. Determination team has reviewed provided	

					approvals/EIA-1//EIA-2//EIA-3//EIA-4//EIA-5/ issued by the corresponding official organisations. It could be verified that the project complies with national laws and regulations.	
1b.	Maryana Bulgakova, senior lawyer, climate change program coordinator maryanab@uoregon.edu International NGO “Environment-People-Law” www.epl.org.ua epac.mail.lviv.ua tel/fax +38-032-2-257682 mailing address: Ukraine, Lviv, 79000, P.O. Box 316	01.04.2009	EIA	According to the section F “Environmental impacts” of the commented document – the letter of endorsement of the JI project was issued by the Ministry of environmental protection on 12/09/06 which was two and a half years ago. Since then the situation, many factors might have changed as a result many conditions are not being considered at present when the project is actually to be implemented.	**Response Validation team** The Letter of Endorsement (LoE) was indeed issued in September 2006. However a Letter of Endorsement (LoE) represents a legally non-binding statement that the Host Country generally supports the respective project. In other words, it only indicates that the DFP has come to the conclusion that a later approval of the project is very likely. In order to apply for Host Country Approval the PP has to elaborate the project design document in a detailed manner and undergo a determination by an independent entity. With regards to the raised comment it should be noted that the baseline and additionality justification is based on the key factors relevant at the time of the management decision. The management decision was in 2008, i.e. 2 years after LoE. As evident from the assessment given in this report all relevant laws and regulations, financial assumptions and further key factors are consistent with the date of the management decision. Furthermore, it should be noted that the final approval has been issued in 2008. The final approval/EIA-5/ and other approvals/EIA-1//EIA-2//EIA-3//EIA-4/ obtained in the process of approving the project	Clarification request CL F1 has been raised in this context and successfully closed

					activity by the corresponding official organisations (ministries) have been provided and verified. According to the provided approvals the project design as per the feasibility study[FS] has been approved by the corresponding official organisation.	
1c	Maryana Bulgakova, senior lawyer, climate change program coordinator maryanab@uoregon.edu International NGO “Environment-People-Law” www.epl.org.ua epac.mail.lviv.ua tel/fax +38-032-2-257682 mailing address: Ukraine, Lviv, 79000, P.O. Box 316	01.04.2009	EIA	The realization of the project should not lead to the degradation of the environment on the territory of the project and surrounding areas (paragraph 4.8 of the Order of the Ministry of environmental protection from July, 17, 2006 # 342 “On approving of requirements for preparing of joint implementation projects”). - In the project design it says that there will be “some increase in noise”, but no quantitative characteristics are being given in this section. - There is a paragraph in section F.2 that stipulates, that “the project does not lead to significant negative	**Response Project Participant**: Information about the level of sound from the equipment is included in the technical report (page 33). The level of sound is low and was assessed by the State Committee for Industrial Safety Labour Protection, who is responsible for evaluation of this issue. The Committee did not raise any issue about the level of sound. Detailed descriptions of other issues including positive and negative impacts are included in the technical report. Since there is no significant negative impact, the project was approved by all five government agencies. **Response Determination team** The obtained approvals confirm that the project activity including the environmental impacts complies with host country requirements. For further details please refer to the comments above.	Clarification request CL F1 has been raised in this context and successfully closed

				environmental impact”. That means that there will be some negative impact which is not described at all.		
1d	Maryana Bulgakova, senior lawyer, climate change program coordinator maryanab@uoregon.edu International NGO “Environment-People-Law” www.epl.org.ua epac.mail.lviv.ua tel/fax +38-032-2-257682 mailing address: Ukraine, Lviv, 79000, P.O. Box 316	01.04.2009	Stakeholder consultation	Section G “Stakeholders comments” includes very general information and does not provide the information which should be in this section according to the paragraph 4.10 of the Order of the Ministry of environmental protection from July, 17, 2006 # 342 (as it is, there should be a description of the ways of comments gathering, public involvement into the process, there should be enough time for the public to prepare comments – and all these issues should be addressed in this section, there is no resume of the comments provided by the members of the public, the contact details of the public involved in the process should be given, there should be a report on the reaction on the received comments,	**Response Project Participant:** A Memorandum of Understanding was signed in 2008 between the representatives from the Lviv Regional Administration, Lviv City Council, Lviv Regional Council and the project investors (i.e., Gafsa, Carbon Capital Markets, and C6). Stakeholder meetings with representatives from the Grybovychy local community were organized in April and June of 2008. An approval, containing signatures of members of the local community (84 members) was signed following the stakeholders meeting in The Velyki Grybovychy Local Council in April of 2008. The approval states that the local community would support the project providing it obtained all necessary state approvals and then overall approval by the State Building Commission/UKRDERJBUDEXPERTISA (this condition was subsequently met). This approval was also signed and sealed by the head of the Gribovichy Village, I.Pitel' in June of 2008. **Response determination team:** Different meetings with stakeholders and representatives of the local administration have been carried out. In addition the information on the construction and the commissioning of the project activity was published in the local newspaper. This	Clarification request CL G1 has been raised in this context and successfully closed

				explanation which comments were taken into consideration and which rejected and why).	could be verified based on • Proof for the stakeholder consultation process of LLC “Gafsa” in Velyki Grybovychy on June 22, 2008. • Summary on the Protocol of the Stakeholders Meeting In the Lviv Region Administration, June 25, 2008 • MEMORANDUM OF UNDERSTANDING About JI Project Implementation signed on April 23, 2008 between Lviv Regional Administration, and Project Investors. • Newspaper Article including the information about the Lviv SW Project Environmental Effect The stakeholder consultation process has been appropriately evidenced[/SC-1/SC-2//SC-3//SC-4/]. A sufficient confidence has been obtained that comments by local stakeholders that can reasonably be considered relevant for the proposed JI project activity, have been invited and The summary of the comments received as provided in the PDD is complete.	

2	Dmytro Skrylnikov Attorney, Head of NGO “Bureau of Environmental Investigation“(BEI) Bureau of Environmental	06.04.2009	Agreement with Lvov Municipality	REMARK to the Section A.2. As far as we were informed LLC Gafsa “project developer” signed the agreement with the Lvov Municipality for a 15 year period.	**Response Project Participant.** The agreement signed between LLC Gafsa and the Lviv municipality is valid for a 15-year period. A correction was made to the PDD.	A corresponing correction has been included in the final version of

	Investigation (BEI 9/6 O.Basarab str., Lviv, Ukraine, 79017 tel. 380(32)2439632 e-mail: DSkrylnikov@mail.lviv.ua				**Response determination team** Agreement has been provided and the 15-year period could be verified. A corresponding correction has been included in the PDD.	the PDD.
2	Dmytro Skrylnikov Attorney, Head of NGO “Bureau of Environmental Investigation“(BEI) Bureau of Environmental Investigation (BEI 9/6 O.Basarab str., Lviv, Ukraine, 79017 tel. 380(32)2439632 e-mail: DSkrylnikov@mail.lviv.ua	06.04. 2009	Baseline / Additionality	We would strongly support the use of the landfill gas instead of gas flaring and idea with electricity generation using landfill gas captured from the landfill site (Alternative 1). We recommend reviewing and reconsidering the Project choice made in favor of the gas flaring and propose to make additional analysis for the Alternative 1, especially in light of the most recent Governmental policy documents and regulations. The costs for Alternative 1 are also seem to be exaggerated -Table 1 (civil works, etc) and might need to be checked. Ukraine is not “overcapacitied for production of electricity”. Moreover, more than 40 % of electricity is generated by thermal power plants using the fossil fuel that cause emission of CO2.	**Response Project Participant** Renewable Energy Policies In response to the comments by Bureau of Environmental Investigation (BEI) about the renewable energy policies, it should be noted that the policies listed by the BEI are practically State (Cabinet of Ministers) orders or recommendations to other state institutions (National Electricity Regulatory Commission (NERC) and assigned Ministries) to undertake a study, develop a program, or draft a report on the alternative energy use. Additionally, taking into account the ruling by the CDM Executive Board in EB22, they would be considered E-policies that do not need to be taken into account when developing a baseline scenario due to the date of implementation. Until there is a practically enforced Law or National program that clearly describes the mechanism or framework to implement the orders (e.g., tariff for generation of renewable power), it is not possible and reasonable to consider the policies in the evaluation of the potential returns on the project. Specifically: 1. Regulation of the Cabinet of Ministers of Ukraine #126,	CAR B2 and CAR B3 have been issued in the context of the baseline and additionality justification. Both CARs could be successfully closed.

				The following major power generation companies exist in Ukraine at present: • 5 thermal power generation companies – Centrenergo, Donbasenergo, Dniproenergo, Skhidenergo and Zahidenergo comprising 14 powerful thermal power plants with total installed capacity of 27.3 GW; • 4 nuclear power plants with total installed capacity of 13.8 GW united in the State Enterprise Energoatom; • 2 hydro power generation companies - Ukrhydroenergo and Dniester HPSP comprising cascades of hydro power plants at Dnieper and Dniester rivers with total installed capacity of 4.6 GW. Besides there is a number of combined heat & power plants (CHPs). Some of them are being operated by local power distribution companies and other institutions while others became separate enterprises. In addition, small electricity producers (small hydro and wind power plants) operate in Ukraine, but their share of total electricity production is insignificant. As of 2009, total installed capacity amounts to some 52.2 GW with	19/02/2009 sets recommendations on some general actions by the NERC and/or local municipalities to promote or create incentives at local level including use of alternative energy sources. It does not set a clear framework, terms, or obligations that will guarantee a defined level of state compensation for the electricity producer. 2. Regulation of the Cabinet of Ministers of Ukraine On the measures on use of alternative sources of energy. # 102-r does not set a mechanism on provision of either financial support or guaranteed free-of-tax conditions. The regulation orders to the assigned Ministries to study the mentioned set of points and report to the Cabinet of Ministers. As pointed out by BEI, there are also two other relevant regulations: 3. Regulation of the Cabinet of Ministers of Ukraine On the issues of production and use of biogas.#217–r 4. Regulation of the Cabinet of Ministers of Ukraine On approval of the Concept of the State scientific-technical program on development of production and use of biological types of fuel. #276–r These latter two, similarly to the former two aforementioned regulations, are initiatives to create plausible conditions for use of alternative energy sources and are in the ‘program drafting mode’ – where implementation mechanisms have not yet been defined and enforced. These initiatives could be considered for investment analysis only after the legal framework is developed and practically applied. It should be noted that the green tariff law has not been finalized. It was amended on 10 June 2009 to resolve its controversy with the Law on Electricity Production. The amendment is open for public input till July 10, 2009. After that, it has to pass the President's and Parliament's approval (probably 2 to 3 months). Until the green tariff law is amended,	

				around 66% being installed in thermal power plants, 26% in nuclear power plans and 9% in hydro power plants. Nuclear plants account for the largest share in electricity generation with 47% of the total electricity production of around 192 TWh in 2008 produced in nuclear power plants and 47% in thermal power plants and CHPs with the remaining 6% produced by hydro and renewable energy sources. Ukrainian regulations and policy supporting the use of alternative energy sources. Recently the Government of Ukraine adopted the number of regulations and orders promoting and supporting alternative energy sources and use of biogas as an alternative energy source, including the regulations on special conditions on attachment to the electric networks electricity facilities that produce electricity using alternative sources. Regulation of the Cabinet of Ministers of Ukraine #126, 19/02/2009. Document link in Ukrainian http://zakon1.rada.gov.ua/cgi-bin/laws/main.cgi?nreg=126-2009-%EF) Regulation of the Cabinet of Ministers of Ukraine On the measures on use of alternative sources of energy. # 102-r , 04/02/2009. Document link in	approved, and enforced in pratice, it will be difficult to argue on the financial feasibility of use of the LFG as an alternative energy source. In addition, those renewable energy policies or recommendations did not exist at the time of the investment decision, made on July 15 of 2008, by the project developers. If the same principle from the CDM ruling is taken, recent, environmentally-biased rulings or policies should not be considered as part of the baseline. According to the clarifications on the consideration of national and/or sectoral policies (EB22 Annex 3), national and/or sectoral policies or regulations (E- policies1) that have been implemented since the adoption by the COP of the CDM M&P (decision 17/CP.7, 11 November 2001) need not be taken into account in developing a baseline scenario. Considering that the relevant renewable energy policies are still under development, they could not be considered by the project developer as adoptable policies in the investment analysis. The decision by the project developer not to consider them as policies in the baseline scenario is also consistent with the EB22 Annex 3 guidelines. Utilization of LFG for Power Generation The utilization of LFG for power Generation is in compliance with the mandatory regulatory requirements; however, the main barrier is of financial nature since the revenues from power sales do not outweigh the high investment (i.e., the project’s financial return is significantly below market expectations), thus not capable to attract investors. Also, on top of the capital expenditures necessary to the project activity, some additional capital would be required to establish a connection from the landfill site to the national electricity grid. The financial barrier, demonstrated in Step 2 of the PDD,	

				Ukrainian: http://zakon1.rada.gov.ua/cgi-bin/laws/main.cgi?nreg=102-2009-%F0. This regulation considers the issues of financial support for projects related to use of alternative sources of energy (including use of loans from the EC and EBRD). It also prescribe to the relevant authorities to draft and present the new law to release the activities related to use of alternative energy and alternative fuel from taxes for 10 years. Regulation of the Cabinet of Ministers of Ukraine On the issues of production and use of biogas. #217–r 12/02/2009 Document link in Ukrainian: http://zakon1.rada.gov.ua/cgi-bin/laws/main.cgi?nreg=217-2009-%F0. Regulation of the Cabinet of Ministers of Ukraine On approval of the Concept of the State scientific-technical program on development of production and use of biological types of fuel. #276–r 12/02/2009 Document link in Ukrainian: http://zakon1.rada.gov.ua/cgi-bin/laws/main.cgi?nreg=276-2009-	combined with the specific circumstances of the Lviv Landfill and the policy and regulatory environment in Ukraine renders this alternative not probable. Please refer to the updated PDD and the detailed investment analysis for more information. Assessment of Surplus Energy from the LFG Project ***Power Consumption capacity by 1 Duty Blower Installed at Hofgas Ready 2000 Considering consistent operation - 30 kW/hr.*** ***Maximum Power Consumption capacity by 1 Duty Blower Installed at Hofgas Ready 2000 Required for the system start-up -90 kW/hr.*** ***Power Consumption capacity by monitoring equipment Installed at Hofgas Ready 2000 (PLC, UPS, illumination, etc.) - no more than 0.5 kW/hr.*** ***Total Power generation required for the Lviv LFG flaring system 30.5 – 90.5 kW/hr.*** The selection of installation of 2 gas piston generators with power generation capacity of 60 kW/hr each was approved at the project design stage. The selection of 2 gas piston generators (1 duty and 1 standby/or for maximum power consumption) instead of installation of 1 gas piston generator (with power generation capacity greater than 90.5 kW/hr) allows system operation in case 1 generator is under repair or not functioning for whatever reason. The values for power consumption capacity provided above are drawn from Duty Blower of Hofgas Ready 2000 and are a design value. In practice, the power consumption of the Duty Blower is approximately 40 kW/hr.	

				%F0 Several others regulations on support of use of alternative energy sources have been adopted recently. According to the Project description Sec. B.1 (page 10). “The specific circumstances of the Lviv Landfill combined with the policy and regulatory environment in Ukraine renders this alternative not probable, but with the nearby off takers and grid accessibility, the alternative is possible”. The current policy and regulatory environment in Ukraine is going towards the state support and assistance in the use of biogas (including the gas from landfills) as the source of energy and the regulatory framework is promptly and significantly progressing in this direction. It could be also noted that the Zbyranka landfill uses and needs the energy itself and can use generated energy for different facilities (e.g. the Station for collection of infiltrates, etc.). We believe that the effective use of landfill gas captured from the landfill site will provide more benefits to the local area and to the Project and only in this case the Project can be	Considering proper operational conditions and real consumption capacity by the Lviv LFG flaring system, the gas generators can generate a surplus of electricity of about 19.5 kW/hr. If necessary and feasible, this electricity surplus can be used on the needs of the landfill infrastructure (e.g., leachate treatment station). It should be noted that the potential surplus power can only be considered if the costs of the necessary infrastructure (e.g., transmission line, transformer) are borne by the municipality and there are currently no indications that this will be enabled. The leachate station is also not currently in operation. <u>Remark to Section A.2</u> The agreement signed between LLC Gafsa and the Lviv municipality is valid for a 15-year period. A correction was made to the PDD. **Issue about the “Overcapacities for Production of Electricity”** The information presented in the PDD related to the overcapacities for production of electricity may cause confusion. The information is consider unnecessary by the project developer and has been deleted from the PDD. **Response determination team:** Elaboration of the Baseline and justification of the additionality is in line with the laws and regulations valid in 2008 – at time when the decision to go ahead with project has been made by project investors. Thus it has been concluded that identification of the baseline is in line with JI Guidelines. Please refer to annex 2 of this report. An investment analysis for utilization of LFG for electricity generation purpose has been duly carried out based on the	

				considered as the best landfill management practice.	laws and regulation valid in 2008. This is appropriate. An internal rate of return (Project IRR) of this alternative has been calculated and compared with commercial lending rates. It was demonstrated that the IRR of the project activity is significantly below the benchmark. For this reason the considered alternative cannot be considered as financial attractive. Taking this into account determination team has agreed with the exclusion of the alternative. All input parameters and assumptions made within the investment analysis could be duly justified and has been assessed as appropriate. Please refer to annex 3 of this report. The analysis of the capacities has been correctly excluded from the PDD due to minor relevance for the baseline justification.	

*) In case clarifications have been requested by the determination team corresponding rows shall be added

ANNEX 6: JI METHODOLOGY DETERMINATION CHECKLIST

☒	An approved CDM or country specific methodology was applied.
☐	An non approved methodology was applied.

ACM0001 Consolidated baseline and monitoring methodology for landfill gas project activities Version 10 has been applied. Requests for registration based on this version can be submitted until 10 Feb 10 23:59 GMT.

The published PDD has been elaborated in accordance with the ACM001 Version 9. As under CDM Version 9 is not more valid project participant has updated the PDD by applying the valid version (Version 11) of the methodology.

This update to a valid version has been assessed as appropriate

ANNEX 7: STATEMENT ON VOLUNTARY WITHDRAWAL

ZBYRANKA LANDFILL RECOVERY LLC

Company Registration Number: 36351668
Registered office:
Melnykova 12, Kyiv 04050 Ukraine

ТОВ «ЗБИРАНКА ЛЕНДФІЛ РІКАВЕРІ»

ЄДРПОУ: 36351668
Юридична адреса:
Мельникова 12, Київ 04050, Україна

UNFCCC – Climate Change Secretariat
Joint Implementation Supervisory Committee

January 28, 2011

STATEMENT ON VOLUNTARY WITHDRAWAL FROM JI PROJECT
REFERENCE NUMBER 0172
“METHANE CAPTURE AND DESTRUCTION AT THE SOLID WASTE LANDFILL IN THE CITY OF LVIV, UKRAINE”

Dear Madam, Sir,

This statement confirms that Limited Liability Company “Zbyranka Landfill Recovery” (Ukraine) requests to be completely withdrawn from the JI Project Reference Number 0172 “Methane Capture and Destruction at the Solid Waste Landfill in the City of Lviv, Ukraine”.

Should you have any question, please do not hesitate to contact me with the contact information indicated below.

Yours Sincerely,

Serhiy M. Porovskyy
Director “Zbyranka Landfill Recovery” LLC

Phone/Fax +380 44 425 44 70