



DETERMINATION REPORT

PJSC

“OBLTEPLOCOMUNENERGO”

DETERMINATION OF THE REHABILITATION OF THE HEAT AND WATER SUPPLY SYSTEMS IN LUTSK CITY

REPORT NO. UKRAINE-DET/0631/2012

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BUREAU VERITAS CERTIFICATION



DETERMINATION REPORT

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Client: PJSC "Oblteplocmunenergo"	Client ref.: Ivan Lusta

Summary:
Bureau Veritas Certification has made the determination of the "Rehabilitation of the Heat and Water Supply Systems in Lutsk city" project of PJSC "Oblteplocmunenergo" located in Lutsk region, Ukraine on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

The determination scope is defined as an independent and objective review of the project design document, the project's baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final determination report and opinion. The overall determination, from Contract Review to Determination Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the determination process is a list of Clarification and Corrective Action Requests (CL and CAR), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies "Combined tool to identify the baseline scenario and demonstrate additionality" and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

Report No.: UKRAINE-det/0631/2012	Subject Group: JI
Project title: Rehabilitation of the Heat and Water Supply Systems in Lutsk city	
Work carried out by: Oleg Skoblyk : Team Leader, Lead Verifier Volodymyr Kulish : Team Member, Verifier	
Work reviewed by: Ivan Sokolov – Internal Technical Reviewer	
Work approved by: Ivan Sokolov – Operational Manager	
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1 INTRODUCTION

PJSC “Oblteplocomunenergo” has commissioned Bureau Veritas Certification to determine its JI “Rehabilitation of the Heat and Water Supply Systems in Lutsk city” project of PJSC “Oblteplocomunenergo” (hereafter called “the project”) in Lutsk city, Ukraine.

This report summarizes the findings of the determination of the project, performed on the basis of UNFCCC criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

1.1 Objective

The determination serves as project design verification and is a requirement of all projects. The determination is an independent third party assessment 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 determined in order to confirm that the project design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria. Determination is a requirement for all JI projects and 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 Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

1.2 Scope

The determination scope is defined as an independent and objective review of the project design document, the project's baseline study and monitoring plan and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations.

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

1.3 Determination team

The determination team consists of the following personnel:

Oleg Skoblyk

Bureau Veritas Certification Team Leader, Climate Change Lead Verifier

Volodymyr Kulish

Bureau Veritas Certification Team Member, Climate Change Verifier



This determination report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification Internal Technical Reviewer

2 METHODOLOGY

The overall determination, from Contract Review to Determination Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

In order to ensure transparency, a determination protocol was customized for the project, according to the version 01 of the Joint Implementation Determination and Verification Manual, issued by the Joint Implementation Supervisory Committee at its 19 meeting on 04/12/2009. The protocol shows, in a transparent manner, criteria (requirements), means of determination and the results from determining the identified criteria. The determination protocol serves the following purposes:

- It organizes, details and clarifies the requirements a JI project is expected to meet;
- It ensures a transparent determination process where the determiner will document how a particular requirement has been determined and the result of the determination.

The completed determination protocol is enclosed in Appendix A to this report.

2.1 Review of Documents

The Project Design Document (PDD) submitted by PJSC “Oblteplocmunenergo” and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for users of the joint implementation project design document form, Approved CDM methodology and/or Guidance on criteria for baseline setting and monitoring, Kyoto Protocol, Clarifications on Determination Requirements to be Checked by an Accredited Independent Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests, PJSC “Oblteplocmunenergo” revised the PDD and resubmitted it as version 04 dated 21/09/2012.

The determination findings presented in this report relate to the project as described in the PDD versions 01, 02, 03 and 04.



2.2 Follow-up Interviews

On 09/08/2012 Bureau Veritas Certification performed on-site interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of SME “Lutskteplo”, ME “Lutskvodokanal” and PJSC “Oblteplocmunenergo” were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
SME “Lutskteplo”, ME “Lutskvodokanal”	<ul style="list-style-type: none"> ➤ Implementation schedule ➤ Organizational structure ➤ Responsibilities and authorities ➤ Data collection and processing responsibilities and authorities ➤ Equipment installation ➤ Data recording, archiving and reporting system ➤ Rehabilitation/Implementation of equipment (records) ➤ Metering equipment control ➤ Metering record keeping system, database ➤ IT control ➤ Training of personnel ➤ Quality management procedures and technology ➤ Internal audits and checks
PJSC “Oblteplocmunenergo”	<ul style="list-style-type: none"> ➤ Baseline methodology ➤ Applicability of methodology ➤ Monitoring plan ➤ Conformity of PDD to JI requirements

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the determination is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the project design.

If the determination team, in assessing the PDD and supporting documents, identifies issues that need to be corrected, clarified or improved with regard to JI project requirements, it will raise these issues and inform the project participants of these issues in the form of:

(a) Corrective action request (CAR), requesting the project participants to correct a mistake in the published PDD that is not in accordance with the (technical) process used for the project or relevant JI project requirement or that shows any other logical flaw;



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(b) Clarification request (CL), requesting the project participants to provide additional information for the determination team to assess compliance with the JI project requirement in question;

(c) Forward action request (FAR), informing the project participants of an issue, relating to project implementation but not project design, that needs to be reviewed during the first verification of the project.

The determination team will make an objective assessment as to whether the actions taken by the project participants, if any, satisfactorily resolve the issues raised, if any, and should conclude its findings of the determination.

To guarantee the transparency of the determination process, the concerns raised are documented in more detail in the determination protocol in Appendix A.

3 PROJECT DESCRIPTION

Project objective is to reduce greenhouse gas emissions due to fuel, in particular natural gas (which is imported to Ukraine), consumption reduction, as well as power consumption reduction, by means of rehabilitation of the heat and water supply systems in Lutsk city, including boiler-houses, step-up (UPS) and sewage (SPS) pumping stations, and heat and water distribution network equipment replacement, modernization and rehabilitation. The purpose of the project is sustainable development of the Lutsk city through implementation of energy saving technologies.

Project is realized by following heat and water supplying enterprises in Lutsk city:

1. Public Joint Stock Company "Oblteplocmunenergo" (further mentioned as PJSC "Oblteplocmunenergo").
2. State Municipal Enterprise "Lutskteplo" (further mentioned as SME "Lutskteplo");
3. Municipal Enterprise "Lutskvodokanal" (further mentioned as ME "Lutskvodokanal");

PJSC "Oblteplocmunenergo" represents the interests of all participants of project activity as an Applicant and Supplier of GHG emission reduction units.

SME "Lutskteplo" generate and supply heat energy in forms of heat, hot water and steam. Generated heat is totally sold to local consumers, namely householders, municipal consumers and state-owned organizations. ME "Lutskvodokanal" render all complex of centralized

water supply and sewage removal services for Lutsk city. The market for heat and water is stable during years.

Situation at the beginning of the project activity

The common practice for the district heating and water supplying enterprises in Ukraine including enterprises that implement the project is to fulfill annual minimal repairing of the heat and water supply system to keep them working. In fact, mainly repairing of network's parts and boilers which might cause accidents are commonly executed.

Project scenario

The project employs the increase of fuel and energy resources (FER) consumption efficiency to reduce greenhouse gas emissions relative to current practice. The following activities will ensure fuel and energy resources saving:

- liquidation of low efficient boiler-houses with switching load to the high efficient boiler-houses;
- replacement of obsolete boilers with high efficient ones;
- rehabilitation of boilers with replacement and preventive maintenance measures for boilers burners, heated surfaces, etc.:
- optimization of heat load allocation and operational mode of equipment;
- optimization of heat supply network organization and network rehabilitation;
- consecutive switching of heat supply networks to preliminary insulated pipes;
- improvement of hot water supply service;
- optimization of water load allocation;
- replacement of pipes of water supply and sewage networks;
- technical re-equipment of heat supply stations with highly effective heat exchangers;
- implementation of heat recovery equipment;
- installation of frequency controllers at electric drives of pumps, blow fans and smoke exhausters;
- replacement / rehabilitation of pumps;
- improvement of the feeding water quality by optimization of operational mode of water preparation system;
- implementation of control and monitoring systems.

Implementation of the project will provide substantial economic, environmental, and social benefits to the Lutsk city. Social impact of the project is positive since after project implementation the heat and water supply services will be improved.



Baseline scenario

For Baseline scenario, the economically feasible and realistic scenario with very slow rehabilitation activities was chosen. Tariffs for heat and water do not include the resources for prospective rehabilitation of the heat and water supply systems, only the resources for probable necessary repairing after possible accidents. Minimal annual repairing doesn't lead to reduction of baseline emissions, because along with degradation of the whole systems with efficiency droop at other objects, the overall actual emissions of Supplier would stay at approximately the same level. This scenario is not environmentally favorable for the near future, since GHGs emissions of Supplier will continue to be kept at the same level or even higher, but economically such scenario is attractive.

History of the project

The project was initiated in 2005.

- March, 2004 - Institute of Engineering Ecology suggested State Municipal Enterprise "Lutskteplo" and Municipal Enterprise "Lutskvodokanal" to develop Joint Implementation Project on Green House Gas Emission Reduction.
- November, 2004 – Order on creation of the Technical Working Group on the possible participation of the ME "Lutskvodokanal" in Joint Implementation Project in frames of Kyoto protocol and starting of preparation to realization of project since 01/01/2005 was issued (# 224 dated 18/11/2004).
- December, 2004 – Order on creation of the Technical Working Group on the possible participation of the SME "Lutskteplo" in Joint Implementation Project in frames of Kyoto protocol and starting of preparation to realization of project since 01/01/2005 was issued (dated 09/12/2004).
- April, 2012 – Agreement on Joint Activity for realization of the JI project on GHG emission reduction was signed between the OJSC "Oblyteplocomunenergo", SME "Lutskteplo" and ME "Lutskvodokanal" (dated 18/04/2012).

The identified areas of concern as to the project description, project participants response and BVC's conclusion are described in Appendix A (refer to CAR 01-CAR 04, CL 01-CL 03).

4 DETERMINATION CONCLUSIONS

In the following sections, the conclusions of the determination are stated.



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The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are described in the Determination Protocol in Appendix A.

The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Determination Protocol in Appendix A. The determination of the Project resulted in 15 Corrective Action Requests and 9 Clarification Requests.

The number between brackets at the end of each section corresponds to the DVM paragraph

4.1 Project approvals by Parties involved (19-20)

After issuing the Determination Report by AIE, project documentation will be submitted to the State Environmental Investment Agency of Ukraine and DFP of Estonia for receiving the Letter of Approval.

The identified areas of concern as to the project approval by Parties involved, project participants response and BVC's conclusion are described in Appendix A (refer to CAR 05).

The project has not been approved by the parties involved thus CAR 05 is pending. The issue will be closed after the Letter of Approval is issued by the Host Party.

4.2 Authorization of project participants by Parties involved (21)

The official authorization by the Parties Involved will be provided in the written approvals of the project by the relevant parties indicating the designated body.

The identified areas of concern as to the authorization of project participants by Parties involved, project participants' response and BVC's conclusion are described in Appendix A (refer to CAR 05).

The project has not been approved by the parties involved thus CAR 05 is pending. The issue will be closed after the Letter of Approval is issued by the Host Party.

4.3 Baseline setting (22-26)

The PDD explicitly indicates that JI specific approach was the selected approach for identifying the baseline based on approval CDM methodology AM0044.



The main complication for implementation of the JI projects on district heating in Ukraine is the practical absence of direct monitoring devices for heat and heat-carrier expenditure in the municipal boiler-houses. Only such main characteristic as fuel consumption is registered on a regular basis. It makes practically impossible the application of AM0044 methodology, which basic moment is monitoring of the value $EG_{PJ,i,y}$ – the heat energy output of project boiler i in year y , that should be measured every month by flow-meter (the expenditure of heat-carrier) and thermal sensors (temperatures at the input and output of the boiler, etc.). This also concerns the definition of the average historical value of heat power production per year $EG_{BL, his, i}$ (average historic heat energy output from the baseline boiler "i"), etc.

Besides, in section "Scope of Application" it is mentioned, that the scope of application of the Methodology AM0044 is limited only to the increase of boilers' efficiency by means of their replacement or modernization. At the same time this project includes also some others kinds of modernization such as the replacement of burner and network equipment, etc.

In view of above mentioned, the specialists of the European Institute for safety, security, insurance and environmental technics "SVT e.V." (Germany) and of the Institute of Engineering Ecology (Ukraine) have developed the project specific approach, which takes into account all activities involved in and the peculiarities of the JI projects on rehabilitation of the district heating systems in Ukraine.

This project specific approach is based on the permanent measuring of the fuel consumption and on amendment of the baseline for possible changes of parameters in a reported year. The changeable parameters may be the Net Calorific Value of fuels, quality of heating service, weather conditions, number of consumers, etc. Taking into account only equipment efficiency change does not eliminate the possibilities of undersupply of heat to consumers (worsening of heat supply service), and possible weather warming in reported year, change in fuel quality, disconnection of some consumers and other factors could lead to artificial overestimation of emission reductions amount. The developed project specific approach eliminates any possibility to depreciate fuel consumption and correspondingly to underestimate GHG emissions due to underdelivery of heat to consumers.

Thus, in contrast to the methodology AM0044, this project specific approach, developed for "District Heating" projects in Ukrainian conditions and used in JI Projects "District Heating System Rehabilitation of Chernihiv Region", "Rehabilitation of the District Heating System in Kharkiv City", "Rehabilitation of the District Heating System in Donetsk



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Region”, “Rehabilitation of the District Heating System of Crimea”, “Rehabilitation of the District Heating System in Luhansk city”, etc. as well, is the most appropriate, precise, corresponding to the conservative approach, and in the most closely manner reflects the aims, goals and spirit of Kyoto Protocol.

For baseline setting and monitoring associated with water supply system rehabilitation, the elements of approved methodology AM0020 “Baseline methodology for water pumping efficiency improvements” and “Monitoring methodology for water pumping efficiency improvements” (version 02) are also used.

The baseline study will be fulfilled every year of the emission reduction, to correct adjustment factors which have an influence at the baseline.

This project specific approach is presented in Section D the PDD.

The PDD provides a detailed theoretical description in a complete and transparent manner, as well as justification, that the baseline is established:

- (a) By listing and describing the following plausible future scenarios on the basis of conservative assumptions and selecting the most plausible one:
 - a. Continuation of the existing situation
 - b. Implementation of the proposed project activity without the project registration as JI project
 - c. The shortened project activity, without any of the non-key type of activity
- (b) Taking into account relevant national and/or sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector.

Multiproject default emission factor for Ukrainian National Power Grid was established by the National Environmental Investment Agency of Ukraine.

All explanations, descriptions and analyses pertaining to the baseline in the PDD are made in accordance with the referenced approved CDM methodology and the baseline is identified appropriately.

The identified areas of concern as to the baseline setting, project participants’ response and BVC’s conclusion are described in Appendix A (refer to CL 04 - CL 05).



4.4 Additionality (27-31)

Traceable and transparent information that an AIE has already positively determined that a comparable project (to be) implemented under comparable circumstances (same GHG mitigation measure, same country, similar technology, similar scale) would result in a reduction of anthropogenic emissions by sources that is additional to any that would otherwise occur and a justification why this determination is relevant for the project at hand was provided.

Barrier analysis and common practice analysis were chosen for additionality demonstration. All explanations, descriptions and analyses with regard to additionality are made in accordance with the selected tool or approach.

The following additionality proofs were provided:

1. Identifying 3 alternative project scenarios;
2. The identified financial barrier may hinder planned project activity without its registration as JI project
3. Common practice analysis complementing barrier analysis.

Additionality is demonstrated appropriately as a result of the steps mentioned above.

The identified areas of concern as to the additionality, project participants' response and BVC's conclusion are described in Appendix A (refer to CL 04 - CL 05).

4.5 Project boundary (32-33)

The project boundary defined in the PDD encompasses all anthropogenic emissions by sources of greenhouse gases (GHGs) that are:

Reasonably attributable to the project:

- CO₂ emissions that are generated as the result of electricity production for power grid,
- CO₂ emissions from fuel (natural gas) combustion in boilers.

The delineation of the project boundary and the gases and sources included are appropriately described and justified in the PDD.

The AIE determined the project boundary by:

- a) Detailed analysis of corresponding documentation (the list of assessed documents is provided in the Table "Category 2 Documents" below).



b) Interview and observations made during the site visit (the list of persons interviewed is provided in the Table “Persons interviewed” below).

Based on the above assessment, the AIE hereby confirms that the identified boundary and the selected sources and gases are justified for the project activity.

The identified areas of concern as to the project boundary, project participants’ response and BVC’s conclusion are described in Appendix A (refer to CL 07).

4.6 Crediting period (34)

The PDD states the starting date of the project as the date on which real action of the project began, and the starting date is 01/01/2005, which is after the beginning of 2000.

The PDD states the expected operational lifetime of the project in years and months, which is 28 years or 336 months.

The PDD states the length of the crediting period in years and months, which is 25 years or 300 months, and its starting date as 01/01/2008, which is on the date of the first emission reductions generated by the project.

The PDD states that the crediting period for the issuance of ERUs starts only after the beginning of 2008 and does not extend beyond the operational lifetime of the project.

The PDD states that the extension of its crediting period beyond 2012 is subject to the host Party approval, and the estimates of emission reductions or enhancements of net removals are presented separately for those until 2012 and those after 2012 in all relevant sections of the PDD.

The identified areas of concern as to crediting period, project participants’ response and BVC’s conclusion are described in Appendix A (refer to CL 06 – CL 07).

4.7 Monitoring plan (35-39)

The PDD, in its monitoring plan section, explicitly indicates that JI specific approach was selected.



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The monitoring plan describes all relevant factors and key characteristics that will be monitored, and the period in which they will be monitored, in particular also all decisive factors for the control and reporting of project performance.

The monitoring plan specifies the indicators, constants and variables that are reliable (i.e. provide consistent and accurate values), valid (i.e. are clearly connected with the effect to be measured), and that provide a transparent picture of the emission reductions or enhancements of net removals to be monitored.

The monitoring plan draws on the list of standard variables indicated in appendix B of “Guidance on criteria for baseline setting and monitoring” developed by the JISC.

The monitoring plan explicitly and clearly distinguishes:

- (i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination. Not applicable.
- (ii) Data and parameters that are monitored throughout the crediting period, such as fuel (natural gas) consumption.

The monitoring plan describes the methods employed for data monitoring (including its frequency) and recording.

The monitoring plan elaborates all algorithms and formulae used for the estimation/calculation of baseline emissions/removals and project emissions/removals or direct monitoring of emission reductions from the project, leakage, as appropriate:

Project emissions

GHG emissions in the reported year for the project scenario consist of following components:

$$E^r = E_{Hfuel}^r + E_{Hcons}^r + E_{Wfuel}^r + E_{Wheat}^r + E_{Wcons}^r;$$

where:

E_{Hfuel}^r – emissions due to fuel consumption by the heat supply system in the reported year, t CO₂e;

E_{Hcons}^r – emissions due to electricity production that is consumed by the heat supply system in the reported year, t CO₂e.

E_{Wfuel}^r – emissions due to fuel consumption by the water supply system in the reported year, t CO₂e;

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E_{Wheat}^r – emissions due to heat consumption by the water supply system in the reported year, t CO₂e;

E_{Wcons}^r – emissions due to electricity production that is consumed by the water supply system in the reported year, t CO₂e.

GHG emissions due to fuel and electricity consumption by the heat supply system in the reported year for the project scenario are sums taken over all boiler-houses (i) which are included into the project.

For each boiler-house:

$$E_{Hfuel}^r = B_H^r * NCV^r * Cef;$$

where:

B_H^r – fuel (natural gas) consumption by a boiler-house in the reported year, ths. m³;

NCV^r – averaged net calorific value of a fuel (natural gas) in the reported year, GJ/ ths. m³;

Cef – carbon emission factor for a fuel (natural gas), t CO₂/GJ.

$$E_{Hcons}^r = P_H^r * CEF_c;$$

where:

P_H^r – electricity consumption by a boiler-house and heat supply stations related to it in the reported year, MWh;

CEF_c – carbon emission factor for electricity consumption, t CO₂e/MWh.

GHG emissions due to fuel, heat and electricity consumption by the water supply system in the reported year:

$$E_{Wfuel}^r = B_W^r * NCV^r * Cef,$$

where:

B_W^r – fuel (natural gas) consumption by the water supply system in the reported year, ths. m³;

NCV^r – averaged calorific value of a fuel (natural gas) in the reported year, GJ/ ths. m³;

Cef – carbon emission factor for a fuel (natural gas), t CO₂/GJ.

$$E_{Wheat}^r = Q_W^r / \varphi * Cef;$$

where:

Q_W^r – heat energy consumption by the water supply system in the reported year, GJ;

φ – efficiency of heat energy production. Adopted equal to 0.9 (see section B.1 above);

Cef – carbon emission factor for natural gas, t CO₂/GJ.

$$E_{Wcons}^r = P_W^r * CEF_c,$$

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where:

P_{Wf}^r – electricity consumption by the water supply system in the reported year, MWh;

CEF_c – carbon emission factor for electricity consumption, t CO₂e/MWh.

Baseline emissions

GHG emissions in the reported year for the dynamic baseline scenario consist of the following components:

$$E^b = E_{Hfuel}^b + E_{Hcons}^b + E_{Wfuel}^b + E_{Wheat}^b + E_{Wcons}^b;$$

where:

E_{Hfuel}^b – emissions due to fuel consumption by the heat supply system that would be in the base year in terms of the reported year, t CO₂e;

E_{Hcons}^b – emissions due to electricity production that is consumed by the heat supply system that would be in the base year in terms of the reported year, t CO₂e.

E_{Wfuel}^b – emissions due to fuel consumption by the water supply system that would be in the base year in terms of the reported year, t CO₂e;

E_{Wheat}^b – emissions due to heat consumption by the water supply system that would be in the base year in terms of the reported year, t CO₂e;

E_{Wcons}^b – emissions due to electricity production that is consumed by the water supply system that would be in the base year in terms of the reported year, t CO₂e.

GHG emissions due to fuel and electricity consumption by the heat supply systems in the reported year for the dynamic baseline scenario are sums taken over all boiler-houses (i) which are included into the project.

For each boiler-house:

For the case when in the base year the hot water supply service was provided (irrespective of this service duration, $(1-a^b) \neq 0$), the formulae for E_{Hfuel}^b is:

$$E_{Hfuel}^b = NCV^b * Cef * [B_H^b * a^b * K_1 * K_h + B_H^b * (1-a^b) * K_1 * K_w] * (1 + K_d * \tau),$$

where the first term in brackets describes fuel consumption for heating, and the second one – fuel consumption for hot water supply.

For the case when in the base year the hot water supply service was absent at all ($(1-a^b) = 0$), and in the reported year this service was provided (due to improvement of heat supply service quality for population), the formulae for E_1^b is:

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$$E_{Hfuel}^b = NCV^b * Cef * [B_H^b * a^b * K_1 * K_h + B_H^r * (1-a^r) * K_1 * K_{w0}] * (1 + K_d * \tau).$$

where:

B_H^b – fuel (natural gas) consumption by a boiler-house in the base year, ths. m^3 ;

B_H^r – fuel (natural gas) consumption by a boiler-house in the reported year, ths. m^3 ;

NCV^b – averaged net calorific value of a fuel (natural gas) in the base year, GJ/ ths. m^3 ;

Cef – carbon emission factor for a fuel (natural gas), t CO_2 /GJ;

$K_1, K_h = K_2 * K_3 * K_4; K_w = K_5 * K_6 * K_7, K_{w0}$ – adjustment factors;

a^b – portion of fuel (heat), consumed for heating purposes in the base year;

$(1-a^b)$ – portion of fuel (heat), consumed for hot water supply service in the base year;

a^r – portion of fuel (heat), consumed for heating purposes in the reported year;

$(1- a^r)$ – portion of fuel (heat), consumed for hot water supply service purposes in the reported year;

K_d – deterioration factor, $year^{-1}$;

τ – operation term after the base year, years.

$$a^b = L_h^b * g^b * N_h^b / (L_h^b * g^b * N_h^b + L_w^b * N_w^b);$$

where:

L_h^b – maximum connected load to a boiler-house , that is required for heating in the base year, MW;

L_w^b – connected load to a boiler-house , that is required for hot water supply service in the base year, MW;

g^b – recalculation factor for average heat load during heating period in the base year;

N_h^b – heating period duration in the base year, hours;

N_w^b – duration of period of hot water supply service in the base year, hours.

$$a^r = L_h^r * g^r * N_h^r / (L_h^r * g^r * N_h^r + L_w^r * N_w^r)$$

where:

L_h^r – maximum connected load to a boiler-house , that is required for heating in the reported year, MW;

L_w^r – connected load to a boiler-house , that is required for hot water supply service in the reported year, MW;

g^r – recalculation factor for average heat load during heating period in the reported year;

N_h^r – heating period duration in the reported year, hours,

N_w^r – duration of period of hot water supply service in the reported year, hours.

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$$g^{b, r} = (T_{in}^{b, r} - T_{out}^{b, r}) / (T_{in}^{b, r} - T_{out\ min})$$

where:

$T_{in}^{b, r}$ – average inside temperature during the heating period in the base and reported year, respectively, K (or °C);

$T_{out}^{b, r}$ – average outside temperature during the heating period in the base and reported year, respectively, K (or °C);

$T_{out\ min}$ – minimal outside temperature during the heating period, K (or °C).

$$K_1 = NCV^b / NCV^r;$$

where:

K_1 – net calorific value of a fuel change factor;

NCV^b – averaged net calorific value of a fuel (natural gas) in the base year, GJ/ ths. m³;

NCV^r – averaged net calorific value of a fuel (natural gas) in the reported year, GJ/ ths. m³.

$$K_2 = (T_{in}^r - T_{out}^r) / (T_{in}^b - T_{out}^b);$$

where:

K_2 – temperature change factor;

T_{in}^r – average inside temperature during the heating period in the reported year, K (or °C);

T_{in}^b – average inside temperature during the heating period in the base year, K (or °C);

T_{out}^r – average outside temperature during the heating period in the reported year, K (or °C);

T_{out}^b – average outside temperature during the heating period in the reported year, K (or °C)

$$K_3 = [(F_h^r - F_{ht}^r - F_{hn}^r) * k_h^b + (F_{hn}^r + F_{ht}^r) * k_{hn}] / F_h^b * k_h^b;$$

where:

K_3 – heated area and building heat insulation change factor;

F_h^b – heated area in the base year, m²;

F_h^r – heated area in the reported year, m²;

F_{hn}^r – heated area of newly connected buildings (assumed with the new (improved) heat insulation) in the reported year, m²;

F_{ht}^r – heated area of buildings (previously existed in the base year) with the renewed (improved) heat insulation in reported year, m²;

k_h^b – averaged heat transfer factor of heated buildings in the base year, kW/(m²*K);

k_{hn} – heat transfer factor of heated buildings with the new heat insulation, kW/(m²*K).

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$$K_4 = N_h^r / N_h^b;$$

where:

K_4 – heating period duration change factor;

N_h^b – heating period duration in the base year, hours;

N_h^r – heating period duration in the reported year, hours.

$$K_5 = n_w^r / n_w^b;$$

where:

K_5 – number of consumers of hot water supply service change factor;

n_w^b – number of consumers of hot water supply service in the base year;

n_w^r – number of consumers of hot water supply service in the reported year.

$$K_6 = v_w^r / v_w^b;$$

where:

K_6 – standard specific discharge of hot water per personal account change factor;

v_w^r – standard specific discharge of hot water per personal account in the reported year, kWh/h (or heat units);

v_w^b – standard specific discharge of hot water per personal account in the base year, kWh/h (or heat units).

$$K_7 = N_w^r / N_w^b;$$

where:

K_7 – duration of period of hot water supply service change factor;

N_w^r – duration of period of hot water supply service in the reported year, hours;

N_w^b – duration of period of hot water supply service in the base year, hours.

For the case when in the base year the hot water supply service was absent at all, number of consumers, standard specific discharge of hot water per personal account and duration of period of hot water supply service for baseline are assumed equal to these values in the reported year, and then:

$$K_5 = K_6 = K_7 = 1.$$

Thus

$$K_{w0} = 1.$$

$$K_d = 0.005 \text{ year}^{-1}.$$



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As it was described in Section B1, the baseline GHG emissions due to fuel consumption by the heat supply system are determined with taking into account the average deterioration of the main heat generating and distributing equipment. The deterioration factor K_d is adopted at the level of 0.5 % per year ($K_d = 0.005 \text{ year}^{-1}$).

$$E_{H\text{cons}}^b = [P_H^b * a^b * K_h + P_H^b * (1-a^b) * K_w] * CEF_c ,$$

where:

P_H^b – electricity consumption by a boiler-house and heat supply stations related to it in the base year, MWh;

K_h, K_w – adjustment factors;

a^b – portion of fuel (heat), consumed for heating purposes in the base year;

$(1-a^b)$ – portion of fuel (heat), consumed for hot water supply service in the base year;

CEF_c – carbon emission factor for electricity consumption, t CO₂e/MWh.

T

he Specific project approach for JI projects on District Heating systems rehabilitation in Ukrainian conditions was developed for application in different regions of Ukraine. In some regions the consumers receive less than necessary amount of heat, in result of which the temperature inside the buildings is much lower than normative one (18⁰C), and hot water supply is insufficient or absent. Therefore this Specific project approach allows taking into account improving of the heat supply quality for the consumers, and excludes deliberate excess reduction of heat delivery, and, in such a way, of fuel consumption with the purpose of excess increasing of generation of GHG emissions reductions at the project activity.

Delivery of the less than necessary amount of heat and hot water really took place previously in a number of cities and regions in Ukraine (and takes place even now in some cities and regions where situation business-as-usual is continued), and is reflected for example in JI Projects “Rehabilitation of the District Heating System in Donetsk Region”, “Rehabilitation of the District Heating System of Chernihiv Region”, etc.

According to “Rules of rendering of heat and hot water supply service to population” confirmed by the Order of Cabinet of Ministries of Ukraine No. 1497 dated 30.12.1997* (valid till 21.07.2005, but the below recalculation algorithm was valid till 17.02.2010), the heat supply enterprises must make the return payments to population for delivery less than necessary for providing normative heating level amount of heat. The normative inside temperature should be not lower than 18⁰C.

* <http://zakon.rada.gov.ua/cgi-bin/laws/main.cgi?nreg=1497-97-%EF>

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Amount of such return payment is the following:

- 5% from normative payment for every degree from 18 to 12 °C;
- 10% from normative payment for every degree from 12 to 5 °C;
- when inside temperature is lower than 5 °C, the payment is to be returned completely.

Average inside temperature during the heating period is calculated from the sum of returned payments caused by insufficient heating (in case of normative level (18 °C) is not satisfied).

Above 18 °C – is treated as 18 °C (according to the conservative approach) and as meeting the normative.

Below 18 °C – is treated as not meeting the normative, and is calculated as below.

The average inside temperature is calculated by the following algorithm:

If $R = 0$ (according to conservative approach, $R < 0.05$ is assumed for the baseline):

$$T_{in\ b} = 18\ ^\circ\text{C}.$$

If $0.05 < R \leq 0.3$:

$$T_{in\ b} = 18 - (R/0.05)\ [^\circ\text{C}];$$

If $0.3 < R < 1$:

$$T_{in\ b} = 12 - [(R - 0.3)/0.1]\ [^\circ\text{C}]$$

where:

R - portion of returned payment from the amount of normative payment.

Since 17.02.2010, the new “Order for recalculation of payment for rendering the centralized heating, cold and hot water supply services in cases of their non- rendering or non-full rendering, quality decrease” confirmed by the Order of Cabinet of Ministries of Ukraine No. 151 dated 17.02.2010*, is valid, according to which the amount of such return payment is the following:

- 5% from normative payment for every degree from 18 to 12 °C;
- when inside temperature is lower than 12 °C, the payment is to be returned completely.

Thus, the average inside temperature since 17.02.2010 is calculated by the following algorithm:

If $R = 0$ (according to conservative approach, $R < 0.05$ is assumed for the baseline):

* <http://zakon2.rada.gov.ua/laws/show/151-2010-%D0%BF>

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$T_{in\ b} = 18\ ^\circ\text{C}$.

If $0.05 < R \leq 0.3$:

$T_{in\ b} = 18 - (R/0.05)\ [^\circ\text{C}]$;

If $0.3 < R < 1$:

$T_{in\ b} = 12\ ^\circ\text{C}$ is accepted,

Thus if the inside temperature will be $18\ ^\circ\text{C}$ or higher, it will be accepted as $18\ ^\circ\text{C}$ according to conservative approach, and if it will be lower than $18\ ^\circ\text{C}$ it will be calculated from return payments by the methodology presented above.

GHG emissions due to heat and electricity consumption by the water supply system in the reported year for the dynamic baseline scenario:

$$E_{W_{fuel}}^b = B_W^b * NCV^r * Cef * W^r / W^b,$$

where:

B_W^b – fuel (natural gas) consumption by the water supply system in the base year, ths. m^3 ;

NCV^r – averaged net calorific value of a fuel (natural gas) in the reported year, $\text{GJ}/\text{ths. m}^3$;

Cef – carbon emission factor for a fuel (natural gas), $\text{t CO}_2/\text{GJ}$;

W^r - total volume of water supplied to consumers in the reported year, m^3 ;

W^b - total volume of water supplied to consumers in the base year, m^3 .

$$E_{W_{heat}}^b = Q_W^b * Cef * W^r / (\varphi * W^b);$$

where:

Q_W^b – heat energy consumption by the water supply system in the base year, GJ ;

φ – efficiency of heat energy production (adopted equal to 0.9, see section B1 above);

Cef – carbon emission factor for fuel (natural gas), $\text{t CO}_2/\text{GJ}$;

W^r - total volume of water supplied to consumers in the reported year, m^3 ;

W^b - total volume of water supplied to consumers in the base year, m^3 .

$$E_{W_{cons}}^b = P_W^b * CEF_c * W^r / W^b,$$

where:

P_W^b – electricity consumption by the water supply system in the base year, MWh ;

CEF_c – carbon emission factor for electricity consumption, $\text{t CO}_2\text{e}/\text{MWh}$;

W^r - total volume of water supplied to consumers in the reported year, m^3 ;

W^b - total volume of water supplied to consumers in the base year, m^3 .

In all formulae:



[^b] – index related to the base year;
[^r] – index related to the reported year.

Emissions Reduction

Estimated emission reductions for the project activity in a reported year:

$$ERs = \sum [E_{(i)}^b - E_{(i)}^r]$$

where:

$E_{(i)}^b$ - baseline emissions for an (i) boiler-house (water supply system) in a reported year, t CO₂e;

$E_{(i)}^r$ - project emissions for an (i) boiler-house (water supply system) in a reported year, t CO₂e.

The monitoring plan presents the quality assurance and control procedures for the monitoring process. Information on calibration and on how records on data and/or method validity and accuracy are kept and made available on request.

The monitoring plan clearly identifies the responsibilities and the authority regarding the monitoring activities.

On the whole, the monitoring plan reflects good monitoring practices appropriate to the project type.

The monitoring plan provides, in tabular form, a complete compilation of the data that need to be collected for its application, including data that are measured or sampled and data that are collected from other sources (e.g. official statistics, expert judgment, proprietary data, IPCC, commercial and scientific literature etc.) but not including data that are calculated with equations.

The monitoring plan indicates that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project.

The identified areas of concern as to monitoring plan, project participants' response and BVC's conclusion are described in Appendix A (refer to CAR 08 – CAR 14, CL 08 – CL 09).

4.8 Leakage (40-41)

Leakage according the PDD not expected.



4.9 Estimation of emission reductions or enhancements of net removals (42-47)

The PDD indicates assessment of emissions in the baseline scenario and in the project scenario as the approach chosen to estimate the emission reductions generated by the project.

The PDD provides the ex ante estimates of:

- (a) Emissions for the project scenario for the period from 01/01/2008 till 31/12/2032 (within the project boundary), which are:

Year	Emissions due to fuel consumption by the heat supply system in the reported year, t CO ₂ e	Emissions due to electricity production that is consumed by the heat supply system in the reported year, t CO ₂ e	Emissions due to fuel consumption by the water supply system in the reported year, t CO ₂ e	Emissions due to heat production that is consumed by the water supply system in the reported year, t CO ₂ e	Emissions due to electricity production that is consumed by the water supply system in the reported year, t CO ₂ e	Project emissions, t CO ₂ e
	E_{Hfuel}^r	E_{Hcons}^r	E_{Wfuel}^r	E_{Wheat}^r	E_{Wcons}^r	E^r
2008	175 156	35 005	298	129	23 962	234 550
2009	181 765	34 836	370	39	21 761	238 771
2010	191 365	32 971	350	38	21 011	245 735
2011	180 230	32 275	245	18	20 198	232 966
2012	180 230	32 275	245	18	20 198	232 966
Subtotal 2008 - 2012	908 746	167 362	1 508	242	107 130	1 184 988
2013	180 230	32 275	245	18	20 198	232 966
2014	180 230	32 275	245	18	20 198	232 966
2015	180 230	32 275	245	18	20 198	232 966
2016	180 230	32 275	245	18	20 198	232 966
2017	180 230	32 275	245	18	20 198	232 966
2018	180 230	32 275	245	18	20 198	232 966
2019	180 230	32 275	245	18	20 198	232 966
2020	180 230	32 275	245	18	20 198	232 966
2021	180 230	32 275	245	18	20 198	232 966
2022	180 230	32 275	245	18	20 198	232 966
2023	180 230	32 275	245	18	20 198	232 966
2024	180 230	32 275	245	18	20 198	232 966
2025	180 230	32 275	245	18	20 198	232 966
2026	180 230	32 275	245	18	20 198	232 966
2027	180 230	32 275	245	18	20 198	232 966
2028	180 230	32 275	245	18	20 198	232 966
2029	180 230	32 275	245	18	20 198	232 966
2030	180 230	32 275	245	18	20 198	232 966



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2031	180 230	32 275	245	18	20 198	232 966
2032	180 230	32 275	245	18	20 198	232 966
Subtotal 2013 - 2032	3 604 600	645 500	4 900	360	403 960	4 659 320
Total 2008 - 2032	4 513 346	812 862	6 408	602	511 090	5 844 308

(b) Leakage, as applicable, which are 0 tonnes of CO₂e;

Leakages are not envisaged by the project.

(c) Emissions for the baseline scenario for the period from 01/01/2008 till 31/12/2032 (within the project boundary) which are:

Year	Emissions due to fuel consumption by the heat supply system that would be in the base year in terms of the reported year, t CO ₂ e	Emissions due to electricity production that is consumed by the heat supply system that would be in the base year in terms of the reported year, t CO ₂ e	Emissions due to fuel consumption by the water supply system that would be in the base year in terms of the reported year, t CO ₂ e	Emissions due to heat production that is consumed by the water supply system that would be in the base year in terms of the reported year, t CO ₂ e	Emissions due to electricity production that is consumed by the water supply system that would be in the base year in terms of the reported year, t CO ₂ e	Baseline emissions, t CO₂e
	E_{Hfuel}^b	E_{Hcons}^b	E_{Wfuel}^b	E_{Wheat}^b	E_{Wcons}^b	E^b
2008	262 496	45 065	496	331	28 955	337 343
2009	273 363	47 454	445	297	26 305	347 864
2010	282 004	48 481	437	291	25 587	356 800
2011	284 728	49 207	419	280	24 581	359 215
2012	284 728	49 207	419	280	24 581	359 215
Subtotal 2008 - 2012	1 387 319	239 414	2 216	1 479	130 009	1 760 437
2013	284 728	49 207	419	280	24 581	359 215
2014	284 728	49 207	419	280	24 581	359 215
2015	284 728	49 207	419	280	24 581	359 215
2016	284 728	49 207	419	280	24 581	359 215
2017	284 728	49 207	419	280	24 581	359 215
2018	284 728	49 207	419	280	24 581	359 215
2019	284 728	49 207	419	280	24 581	359 215
2020	284 728	49 207	419	280	24 581	359 215
2021	284 728	49 207	419	280	24 581	359 215
2022	284 728	49 207	419	280	24 581	359 215



2023	284 728	49 207	419	280	24 581	359 215
2024	284 728	49 207	419	280	24 581	359 215
2025	284 728	49 207	419	280	24 581	359 215
2026	284 728	49 207	419	280	24 581	359 215
2027	284 728	49 207	419	280	24 581	359 215
2028	284 728	49 207	419	280	24 581	359 215
2029	284 728	49 207	419	280	24 581	359 215
2030	284 728	49 207	419	280	24 581	359 215
2031	284 728	49 207	419	280	24 581	359 215
2032	284 728	49 207	419	280	24 581	359 215
Subtotal 2013 - 2032	5 694 560	984 140	8 380	5 600	491 620	7 184 300
Total 2008 - 2032	7 081 879	1 223 554	10 596	7 079	621 629	8 944 737

(d) Emission reductions adjusted by leakage for the period from 01/01/2008 till 31/12/2032 (based on (a)-(c) above), which are:

Estimated Emissions for the period 01/01/2008 – 31/12/2012

Year	Estimated project emissions (tonnes of CO ₂ equivalent)	Estimated leakage (tonnes of CO ₂ equivalent)	Estimated baseline emissions (tonnes of CO ₂ equivalent)	Estimated emission reductions (tonnes of CO ₂ equivalent)
2008	234 550	0	337 343	102 793
2009	238 771	0	347 864	109 093
2010	245 735	0	356 800	111 065
2011	232 966	0	359 215	126 249
2012	232 966	0	359 215	126 249
Total 2008 – 2012 (tonnes of CO₂ equivalent)	1 184 988	0	1 760 437	575 449

Estimated Emissions for the period 01/01/2013 – 31/12/2032

Year	Estimated project emissions (tonnes of CO ₂ equivalent)	Estimated leakage (tonnes of CO ₂ equivalent)	Estimated baseline emissions (tonnes of CO ₂ equivalent)	Estimated emission reductions (tonnes of CO ₂ equivalent)
2013	232 966	0	359 215	126 249
2014	232 966	0	359 215	126 249
2015	232 966	0	359 215	126 249
2016	232 966	0	359 215	126 249
2017	232 966	0	359 215	126 249



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2018	232 966	0	359 215	126 249
2019	232 966	0	359 215	126 249
2020	232 966	0	359 215	126 249
2021	232 966	0	359 215	126 249
2022	232 966	0	359 215	126 249
2023	232 966	0	359 215	126 249
2024	232 966	0	359 215	126 249
2025	232 966	0	359 215	126 249
2026	232 966	0	359 215	126 249
2027	232 966	0	359 215	126 249
2028	232 966	0	359 215	126 249
2029	232 966	0	359 215	126 249
2030	232 966	0	359 215	126 249
2031	232 966	0	359 215	126 249
2032	232 966	0	359 215	126 249
Total 2013 – 2032 (tonnes of CO₂ equivalent)	4 659 320	0	7 184 300	2 524 980

The estimates referred to above are given:

- (a) On a periodic basis;
- (b) From 01/01/2008 to 31/12/2032, covering the whole crediting period;
- (c) On a source-by-source basis;
- (d) For each GHG gas, which is CO₂;
- (e) In tonnes of CO₂ equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol;

The formula used for calculating the estimates referred above are consistent throughout the PDD.

Data sources used for calculating the estimates referred to above are clearly identified, reliable and transparent.

The estimation referred to above is based on conservative assumptions and the most plausible scenarios in a transparent manner.

The estimates referred to above are consistent throughout the PDD.

The annual average of estimated emission reductions over the crediting period is calculated by dividing the total estimated emission reductions or



enhancements of net removals over the crediting period by the total months of the crediting period, and multiplying by twelve.

No outstanding issues concerning the estimated emission reduction were raised.

4.10 Environmental impacts (48)

All activities under the project do not envisage any negative impacts on the environment, therefore no EIA was specifically developed for this project.

Accordingly, the project also does not have any transboundary impact, as it is implemented in the Lutsk city (Ukraine) and does not include any impact that may occur in another region or another country.

No outstanding issues concerning the environmental impact were raised.

4.11 Stakeholder consultation (49)

Consultations with stakeholders were not carried out because it is unpredictable laws of the host Party.

4.12 Determination regarding small scale projects (50-57)

Not applicable

4.13 Determination regarding land use, land-use change and forestry (LULUCF) projects (58-64)

Not applicable

4.14 Determination regarding programmes of activities (65-73)

Not applicable

5 SUMMARY AND REPORT OF HOW DUE ACCOUNT WAS TAKEN OF COMMENTS RECEIVED PURSUANT TO PARAGRAPH 32 OF THE JI GUIDELINES

No comments, pursuant to paragraph 32 of the JI Guidelines, were received.



6 DETERMINATION OPINION

Bureau Veritas Certification has performed a determination of the “Rehabilitation of the Heat and Water Supply Systems in Lutsk city” project implementation in Lutsk city, Ukraine. The determination was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The determination consisted of the following three phases:

- i) a desk review of the project design and the baseline and monitoring plan;
- ii) follow-up interviews with project stakeholders;
- iii) the resolution of outstanding issues and the issuance of the final determination report and opinion.

Project participants used the latest tool for demonstration of the additionality. In line with this tool, the PDD provides investment analysis, technological and organizational barriers analysis, as well as common practice analysis, to determine that the project activity itself is not the baseline scenario.

Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

The determination revealed one pending issue related to the current determination stage of the project (the issue of the written approval of the project and the authorization of the project participants by the host Party). If the written approval and the authorization by the host Party are awarded, it is our opinion that the project as described in the Project Design Document, Version 04 meets all the relevant UNFCCC requirements for the determination stage and the relevant host Party criteria.

The review of the project design documentation (version 04) and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

The determination is based on the information made available to us and the engagement conditions detailed in this report.



7 REFERENCES

Category 1 Documents:

Documents provided by PJSC “Oblteplocomunenergo” that relate directly to the GHG components of the project.

- /1/ Project Design Document “Rehabilitation of the Heat and Water Supply Systems in Lutsk city” version 03 dated 19/09/2012
- /2/ Emissions reduction calculation Excel spreadsheet “Annex_Lutsk_PDD_v01.xls”
- /3/ Project Design Document “Rehabilitation of the Heat and Water Supply Systems in Lutsk city” version 04 dated 21/09/2012
- /4/ Emissions reduction calculation Excel spreadsheet “Annex_Lutsk_PDD_v02.xls”
- /5/ Letter of Endorsement # 2659/23/7 dated 19/09/2012 of JI project “Rehabilitation of the Heat and Water Supply Systems in Lutsk city”

Category 2 Documents:

Background documents related to the design and/or methodologies employed in the design or other reference documents.

- /1/ Order dated 09/12/2004 on appointment of technical task team in order SME “Lutskteplo” to take part in JI project within Kyoto Protocol mechanisms
- /2/ Agreement # 197 dated 03/09/2007 on technological networks common usage
- /3/ Regime card on water heating boiler type KBc-Гн-0,8, registration # BH-1313, installed at the boiler-house (address: 29 Chernyshevskoho st., Lutsk city)
- /4/ Regime card on water heating boiler type E-1/9, registration # BH-0556, installed at the boiler-house (address: 88 Volodymyrska St., Lutsk city)
- /5/ Regime card on water heating boiler type HICTY-5, registration # BH-0623, installed at the boiler-house (address: 39 Hlushets St., Lutsk city)
- /6/ Regime card on water heating boiler type ДКBP-10/13, registration # BH-1734, installed at the boiler-house (address: 2 Striletska St.; summer mode)
- /7/ License Series AA # 473345/931 from the Unified State Register of Legal Entities and Individual Entrepreneurs
- /8/ Agreement # 528-0172000 dated 14/06/2004 on power supply
- /9/ Agreement # 529-0371000 dated 25/06/2004 on power supply
- /10/ Permit # 23/1 dated 08/06/2011 on wastes allocation in 2012
- /11/ Annex to the Permit # 23/1 dated 08/06/2011. List and amount of permissible wastes allocation for SME “Lutskteplo”
- /12/ Permit # 39/1 dated 01/06/2010 on wastes allocation in 2011



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- /13/ Annex to the Permit # 39/1 dated 01/06/2010. List and amount of permissible wastes allocation for SME "Lutskteplo"
- /14/ Permit # 12 dated 02/06/2009 on wastes allocation in 2010
- /15/ Annex to the Permit # 12 dated 02/06/2010. List and amount of permissible wastes allocation for SME "Lutskteplo"
- /16/ Agreement # 300 dated 01/03/2011 on municipal water supply and sewage disposal to the wastewaters
- /17/ Annex to the Agreement # 300 dated 01/03/2011 on municipal water supply a
- /18/ Agreement on amending the Agreement # 300 dated 20/04/2012 on municipal water supply and sewage disposal to the wastewaters starting 01/03/2011
- /19/ Statement # ЛНА-000933 dated 19/02/2008 on production units disposal (boiler-house address: 50 Lvivska St.)
- /20/ Statement # ЛНА-000932 dated 19/02/2008 on production units disposal (boiler-house address: 50 Lvivska St.)
- /21/ Statement # ЛНА-000931 dated 19/02/2008 on production units disposal (boiler-house address: 50 Lvivska St.)
- /22/ Statement # ЛНА-000930 dated 19/02/2008 on production units disposal (boiler-house address: 50 Lvivska St.)
- /23/ Statement # ЛНА-000766 dated 30/01/2008 on production units disposal (boiler-house address: 1 Voli Ave.)
- /24/ Statement # ЛНА-001138 dated 03/06/2009 on production units disposal (boiler-house address: 1Voli Ave.)
- /25/ Statement # ЛНА-001139 dated 03/06/2009 on production units disposal (boiler-house address: 1 Voli Ave.)
- /26/ Statement # ЛНА-001137 dated 03/06/2009 on production units disposal (boiler-house address: 1 Voli Ave.)
- /27/ Statement # ЛНА-001136 dated 03/06/2009 on production units disposal (boiler-house address: 1 Voli Ave.)
- /28/ Statement # ЛНА-001135 dated 03/06/2009 on production units disposal (boiler-house address: 1 Voli Ave.)
- /29/ Statement # ЛНА-001134 dated 03/06/2009 on production units disposal (boiler-house address: 50 Voli Ave.)
- /30/ Invoice dated 15/11/2002 on production units inner transposition, inventory # 989
- /31/ Invoice dated 15/11/2002 on production units inner transposition, inventory # 992
- /32/ Invoice dated 15/11/2002 on production units inner transposition, inventory # 991
- /33/ Invoice dated 15/11/2002 on production units inner transposition, inventory # 990
- /34/ Invoice # ПМ-0005978 dated 14/06/2004 on production units inner transposition
- /35/ Invoice # ПМ-0005977 dated 14/06/2004 on production units inner transposition
- /36/ Statement # ЛНА-000856 dated 12/09/2007 on production units



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- disposal (boiler-house address: 28 Kryvyi Val St.)
- /37/ Statement # ЛНА-001006 dated 01/07/2008 on production units disposal (boiler-house address: 27 Voli Ave.)
- /38/ Statement # ЛНА-001005 dated 01/07/2008 on production units disposal (boiler-house address: 27 Voli Ave.)
- /39/ Statement # ЛНА-000770 dated 02/03/2007 on production units disposal
- /40/ Statement # ЛНА-001005 dated 01/07/2008 on production units disposal (boiler-house at Boholiuby village)
- /41/ Statement # ЛНА-000481 dated 09/03/2005 on production units disposal (boiler-house at Boholiuby village)
- /42/ Statement # ЛНА-000492 dated 16/03/2005 on production units disposal (boiler-house at Boholiuby village)
- /43/ Statement # ЛНА-000763 dated 06/12/2006 on production units disposal
- /44/ Statement # ЛНА-000764 dated 06/12/2006 on production units disposal
- /45/ Statement # ЛНА-000767 dated 30/01/2007 on production units disposal (boiler-house address: 10 Voli Ave.)
- /46/ Output for JI project "Rehabilitation of the Heat and Water Supply Systems in Lutsk city" monitoring for 2004
- /47/ Output for JI project "Rehabilitation of the Heat and Water Supply Systems in Lutsk city" monitoring for 2008
- /48/ Output for JI project "Rehabilitation of the Heat and Water Supply Systems in Lutsk city" monitoring for 2009
- /49/ Output for JI project "Rehabilitation of the Heat and Water Supply Systems in Lutsk city" monitoring for 2010
- /50/ Project design on heat grid rehabilitation from boiler-house (address: 10 Potapova St.) to boiler-house (address: 1 Volia Ave.) in Lutsk city
- /51/ Project design on heat grid rehabilitation in Lutsk city (45; 45a Vidrozhennia Ave.)
- /52/ Project design on central heat unit (4a Molodi Ave.) rehabilitation with weather control automated system installation in Lutsk city
- /53/ Order # 5 dated 03/01/2012 on designing plans and schedules on health and safety, heat power units technical operation knowledge testing and training of plant workers in 2012
- /54/ Certificate # 775 dated 01/03/2012 on training (Anatolii Rohak)
- /55/ Certificate # 776 dated 01/03/2012 on training (Anatolii Syvran)
- /56/ Certificate # 1181 dated 30/03/2012 on training (Anatolii Medhynskyi)
- /57/ Certificate # 1180 dated 30/03/2012 on training (Yurii Khomyn)
- /58/ Certificate # 1179 dated 30/03/2012 on training (Taras Feofak)
- /59/ Protocol # 25 dated 17/07/2012 on commission session on health and safety, technical operation knowledge testing
- /60/ Protocol # 5 dated 20/01/2012 on commission session on health and safety knowledge testing

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- /61/ Photo-central heat unit # 32
- /62/ Photo-plate heat exchanger type ТОПР-40, registration # Л-0220
- /63/ Photo-circulating pump, registration # К-100-200
- /64/ Photo-elevating pump, registration # WILO-NP-63/200V
- /65/ Photo-elevating pump, registration # WILO-NP-65/200V
- /66/ Photo-circulating pump, registration # LM-65-200/202
- /67/ Photo-circulating pump, registration # К-100-200
- /68/ Photo-plate heat exchanger type ТОПР-40, registration # Л-0201
- /69/ Photo-plate heat exchanger type ТОПР-40, registration # Л-0202
- /70/ Photo-power meter type СР4У-И673М, registration # 013569806
- /71/ Photo-power meter type СР4У-И673М, registration # 052509
- /72/ Certificate # № 5/2-1-179 dated 29/06/2011 on state metrological attestation of water meters calibration unit type AC-15/20, serial # 001/09, issued by the State Scientific and Production Centre for Standardization, Metrology and Certification
- /73/ Photo-water meters calibration unit type AC-15/20, serial # 001/09
- /74/ Logbook on registration of water meters accepted from consumers for the period from 01/01/2011 to 21/06/2011
- /75/ Photo-flow-meter type УВР-011, serial # 880
- /76/ Logbook on pumping station operation, started 23/07/2012
- /77/ Photo-pump # 2
- /78/ Photo-pumping station # 2
- /79/ Photo-power meter type Энергия-9, fabrication # 19127
- /80/ Photo-power meter type Энергия-9, fabrication # 19138
- /81/ Photo-water heating unit type КЕО, fabrication # 212/13
- /82/ Photo-water heating boiler type Богдан-100, registration # 1
- /83/ Photo-water meter type 2G25L, fabrication # 000520
- /84/ Photo-gas meter type Універсал-02, fabrication # 8231
- /85/ Photo-pressure transmitter, fabrication # 08083460
- /86/ License Series AA # 050774 on centralized water supply and sewage removal, issued by the State Committee on Construction, Architecture and Municipal Policy of Ukraine, valid from 22/06/2001 to 22/06/2004
- /87/ License Series АБ # 116016 on centralized water supply and sewage removal, issued by the State Committee on Construction, Architecture and Municipal Policy of Ukraine, valid from 21/06/2004 to 21/06/2007
- /88/ License Series AB # 342869 on centralized water supply and sewage removal, issued by the Ministry of Housing and Communal Services of Ukraine, valid from 21/06/2007 to 21/06/2012
- /89/ License Series АГ # 500071 on centralized water supply and sewage removal, issued by the National Commission on Communal Services Regulation of Ukraine, valid from 22/06/2012 to 21/06/2017
- /90/ Agreement # 5-20/54 dated 21/02/2007 on providing calibration



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- services
- /91/ Agreement # 5-20/128 dated 06/06/2007 on providing calibration services
- /92/ Agreement # 5-20/383/139/1 dated 27/12/2006 on providing calibration services
- /93/ Agreement # 4-5/217/96/1 dated 29/09/2007 on providing calibration services
- /94/ Agreement # 5-20/286/144-2 dated 12/12/2007 on providing calibration services
- /95/ Agreement # 4-5/17/03/3 dated 02/01/2008 on providing calibration services
- /96/ Agreement # 5-20 dated 01/07/2008 on providing calibration services
- /97/ Agreement # 5-20/844/148/1 dated 22/12/2008 on providing calibration services
- /98/ Agreement # 5-20/134 dated 03/04/2009 on providing calibration services
- /99/ Agreement # 5-20/10585 dated 29/10/2009 on providing calibration services
- /100/ Agreement # 5-20/551 dated 24/07/2009 on providing calibration services
- /101/ Agreement # 228/14 dated 30/09/2009 on providing calibration services
- /102/ Agreement # 5-20/47 dated 04/01/2010 on providing calibration services
- /103/ Agreement # 5-20/66 dated 28/01/2010 on providing calibration services
- /104/ Agreement # 5-20/103 dated 23/02/2010 on providing calibration services
- /105/ Agreement # 5-20/239 dated 04/06/2010 on providing calibration services
- /106/ Agreement # 4-5/127 dated 16/08/2010 on providing calibration services
- /107/ Agreement # 1463 dated 02/10/2010 on providing calibration services
- /108/ Agreement # 5-20/10846 dated 28/10/2010 on providing calibration services
- /109/ Agreement # 4-5/200 dated 22/11/2010 on providing calibration services
- /110/ Agreement dated 06/04/2011 on providing calibration services
- /111/ Agreement # 450142 dated 12/07/2011 on providing calibration services
- /112/ Agreement # 450004 dated 11/01/2012 on providing calibration services
- /113/ Agreement # 18 dated 03/02/2012 on providing calibration services
- /114/ Agreement # 68/520261 dated 21/03/2012 on providing



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- calibration services
- /115/ Order # 160^B dated 06/10/2003 on appointing of boiler house operators for heating season 2003-2004
 - /116/ Order # 32^B dated 21/03/2011 on heating season ending 2010-2011
 - /117/ Order # 82^B dated 03/10/2011 on appointing of boiler house operators for heating season 2010-2011
 - /118/ Order # 72^B dated 02/04/2004 on 2003-2004 heating season ending
 - /119/ Order # 188^B dated 05/10/2004 on appointing of boiler house operators for heating season 2004-2005
 - /120/ Order # 32-B dated 12/04/2007 on 2006-2007 heating season ending
 - /121/ Order # 93^B dated 12/10/2007 on appointing of boiler house operators for heating season 2007-2008
 - /122/ Order # 31-B dated 01/04/2008 on 2007-2008 heating season ending
 - /123/ Order # 90^B dated 17/10/2008 on appointing of boiler house operators for heating season 2008-2009
 - /124/ Order # 40^B dated 31/03/2009 on 2008-2009 heating season ending
 - /125/ Order # 88^B dated 19/10/2009 on appointing of boiler house operators for heating season 2009-2010
 - /126/ Order # 42^B dated 01/04/2010 on 2009-2010 heating season ending
 - /127/ Order # 86^B dated 14/10/2010 on appointing of boiler house operators for heating season 2010-2011
 - /128/ Passport on rotor gas meter type G40PPC1/100-0,63-Ex, fabrication # 00579 (last calibration date–06/07/2012)
 - /129/ Passport dated 27/07/2004 on boiler type Рівнетерм 32В, fabrication # 43178
 - /130/ Passport dated 28/07/2004 on boiler type Рівнетерм 32В, fabrication # 54184
 - /131/ Passport on convective heating gas unit type АКОГ-3-1₂-СП, fabrication # 044
 - /132/ Passport dated 06/09/2006 on boiler type Богдан-100, fabrication # 063862
 - /133/ Passport dated 01/10/2005 on boiler type Богдан-100, fabrication # 053047
 - /134/ Passport dated 04/06/2007 on boiler type Богдан-100, fabrication # 074186
 - /135/ List of fuel consuming equipment
 - /136/ Passport dated 08/06/2007 on boiler type Богдан-100, fabrication # 074200
 - /137/ Passport dated 19/06/2007 on heating module type МН 120еко, fabrication # 08069139
 - /138/ Passport dated 30/09/2008 on regulating module type ФРФ80,

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- fabrication # 08093422
- /139/ Passport dated 19/06/2007 on heating module type MH 120eko, fabrication # 08069140
- /140/ Passport dated 10/10/2008 on heating module type MH 120eko, fabrication # 08109863
- /141/ Passport dated 10/10/2008 on heating module type MH 120eko, fabrication # 08109882
- /142/ Passport dated 18/08/2008 on gas meter type GALLUS, fabrication # 0024544
- /143/ Passport dated 15/09/2005 on boiler type Данко-12В, fabrication # A50745
- /144/ Passport dated 10/07/2002 on hot water supply and heating gas unit type АОГВ-30, fabrication # 1088
- /145/ Passport dated 04/11/2011 on boiler type Рівнетерм 32, fabrication # Д7И02
- /146/ Passport on boiler type Універсал-02, fabrication # 8231 (last calibration date–13/03/2012)
- /147/ Passport on boiler type Універсал-02, fabrication # 7923 (last calibration date–12/06/2012)
- /148/ Passport on boiler type Універсал-02, fabrication # 7757 (last calibration date–09/07/2012)
- /149/ Passport on temperature transmitter type ПВТ-01-1-тип1-60-6, fabrication # 8465 (last calibration date–16/06/2012)
- /150/ Passport on temperature transmitter type ПВТ-01-1-тип1-60-6, fabrication # 8582 (last calibration date–12/06/2012)
- /151/ Passport on temperature transmitter type ПВТ-01-1-тип1-60-6, fabrication # 9704 (last calibration date–12/06/2012)
- /152/ Passport on pressure transmitter type PC-28/Ex(-30)/0...250 кПа ABS/PD/M, fabrication # 08083462 (last calibration date–15/06/2012)
- /153/ Passport on pressure transmitter type PC-28/Ex(-30)/0...250 кПа ABS/PD/M, fabrication # 08083481 (last calibration date–12/06/2012)
- /154/ Passport on pressure transmitter type PC-28/Ex(-30)/0...250 кПа ABS/PD/M, fabrication # 08083460 (last calibration date–12/06/2012)
- /155/ Passport on ultrasound flow-meter type УВР-011,2, fabrication # 1703 (last calibration date–05/04/2012)
- /156/ Passport on ultrasound flow-meter type УВР-011,2, fabrication # 2567 (last calibration date–24/10/2011)
- /157/ Passport on ultrasound flow-meter type УВР-011,2, fabrication # 2209 (last calibration date–23/09/2010)
- /158/ Passport on ultrasound flow-meter type УВР-011,2, fabrication # 2478 (last calibration date–19/01/2011)
- /159/ Calibration certificate # 880/08 dated 18/03/2008, valid till 18/03/2010, on ultrasound flow-meter type УВР-011, fabrication # 880, issued by the Kharkiv Regional Scientific and Production



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- Centre for Standardization, Metrology and Certification State Enterprise
- /160/ Calibration certificate # 1009/08 dated 15/09/2008, valid till 15/09/2010, on ultrasound flow-meter type YBP-011A2.2-K, fabrication # 1009, issued by the Kharkiv Regional Scientific and Production Centre for Standardization, Metrology and Certification State Enterprise
- /161/ Calibration certificate # T1009/2010 dated 25/10/2010, valid till 25/10/2012, on ultrasound flow-meter type YBP-011A2.2-K, fabrication # 1009, issued by the Kharkiv Regional Scientific and Production Centre for Standardization, Metrology and Certification State Enterprise
- /162/ Passport on ultrasound flow-meter type YBP-011,2, fabrication # 648 (last calibration date–08/04/2010)
- /163/ Calibration certificate # 880/2010 dated 22/10/2010, valid till 22/10/2012, on ultrasound flow-meter type YBP-011A2.2-K, fabrication # 880, issued by the Kharkiv Regional Scientific and Production Centre for Standardization, Metrology and Certification State Enterprise
- /164/ Calibration certificate # 17-03 dated 05/10/2011, valid till 05/10/2013, on ultrasound flow-meter type YBP-011A2.2-K, fabrication # 17-03, issued by the Kharkiv Regional Scientific and Production Centre for Standardization, Metrology and Certification State Enterprise
- /165/ Calibration certificate # 1009 dated 09/09/2010, valid till 09/09/2012, on ultrasound flow-meter type YBP-011A2.2-K, fabrication # 1009, issued by the Kharkiv Regional Scientific and Production Centre for Standardization, Metrology and Certification State Enterprise
- /166/ Passport on power meter type Энергия-9, fabrication # 19133 (last calibration date–24/02/2005)
- /167/ Passport on power meter type Энергия-9, fabrication # 17333 (last calibration date–29/11/2004)
- /168/ Passport on power meter type Энергия-9, fabrication # 19128 (last calibration date–24/02/2005)
- /169/ Passport on power meter type Энергия-9, fabrication # 17346 (last calibration date–29/11/2004)
- /170/ Passport on power meter type Энергия-9, fabrication # 19082 (last calibration date–24/02/2005)
- /171/ Passport on power meter type Энергия-9, fabrication # 49268 (last calibration date–15/06/2012)
- /172/ Passport on power meter type Энергия-9, fabrication # 19021 (last calibration date–23/02/2005)
- /173/ Passport on power meter type Энергия-9, fabrication # 20928 (last calibration date–14/07/2011)
- /174/ Calibration certificate # 5/2-2-1522 dated 16/12/2010, valid till 16/12/2014, on current transformer type ТПЛ-10У3, fabrication



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- # 369
- /175/ Calibration certificate # 5/2-2-1523 dated 16/12/2010, valid till 16/12/2014, on current transformer type ТПЛ-10У3, fabrication # 86622
 - /176/ Project design on roof boiler-house of ME "Lutskvodokanal" industrial facility located 16, Sichova St., Lutsk city
 - /177/ Project design on Dubny water intake furnace shop located 26, Dubnivska St., Lutsk city
 - /178/ List of measuring equipment in operation to be calibrated in 2009
 - /179/ Data on gas consumption for 2007
 - /180/ Data on gas consumption for 2008
 - /181/ Data on gas consumption for 2009
 - /182/ Data on gas consumption for 2010
 - /183/ Data on gas consumption for 2011
 - /184/ Energy consumption balance sheet for 2007 (active power)
 - /185/ Energy consumption balance sheet for 2008 (active power)
 - /186/ Energy consumption balance sheet for 2009 (active power)
 - /187/ Energy consumption balance sheet for 2010 (active power)
 - /188/ Energy consumption balance sheet for 2011 (active power)
 - /189/ Order # 23^B dated 14/03/2012 on 2011-2012 heating season end
 - /190/ Logbook on registration of chief power engineer department personnel training on health and safety (started 05/01/2009)
 - /191/ Logbook on registration of pumping station personnel training on health and safety (started 17/01/2012)

Persons interviewed:

List persons interviewed during the determination or persons that contributed with other information that is not included in the documents listed above.

- /1/ Kirichuk Alexander - Director of SME "Lutskteplo"
- /2/ Dudchuk Roman - Head of production department of SME "Lutskteplo"
- /3/ Habarchuk Valery - boiler operator of SME "Lutskteplo"
- /4/ Kohosov Leonid - Chief metrological service of SME "Lutskteplo"
- /5/ Matsyuk Polina - Accountant of SME "Lutskteplo"
- /6/ Korchuk Ivan - Director of ME "Lutskvodokanal"
- /7/ Nespay Valodymyr - main power of ME "Lutskvodokanal"
- /8/ Sergey Shpak - Deputy Chief Energy of ME "Lutskvodokanal"
- /9/ Leonid Moroz - senior machinist of ME "Lutskvodokanal"
- /10/ Litvytska Irina - Head of production department of ME "Lutskvodokanal"

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APPENDIX A: DETERMINATION PROTOCOL

Check list for determination, according JOINT IMPLEMENTATION DETERMINATION AND VERIFICATION MANUAL (Version 01)

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
General description of the project				
Title of the project				
-	Is the title of the project presented?	"Rehabilitation of the Heat and Water Supply Systems in Lutsk city"	OK	OK
-	Is the sectoral scope to which the project pertains presented?	Sectoral scope : <ul style="list-style-type: none"> • Energy industries (renewable - / non-renewable sources); • Energy distribution; • Energy demand. 	OK	OK
-	Is the current version number of the document presented?	PDD version 04	OK	OK
-	Is the date when the document was completed presented?	Date of completion: 21/09/2012	OK	OK
Description of the project				
-	Is the purpose of the project included with a concise, summarizing explanation (max. 1-2 pages) of the: <ol style="list-style-type: none"> Situation existing prior to the starting date of the project; Baseline scenario; and Project scenario (expected outcome, including a technical description)? 	<u>Clarification Request (CL) 01:</u> Please provide the documented evidence of the losses in networks after start project. <u>Clarification Request (CL) 02:</u> Please provide the documented evidence of implementation of the programme aimed at energy saving technologies.	CL 01 CL 02	OK
-	Is the history of the project (incl. its JI component) briefly summarized?	<u>Clarification Request (CL) 03:</u> Please provide the documented evidence of the date since the project is considered to be a JI activity.	CL 03	OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Project participants				
-	Are project participants and Party(ies) involved in the project listed?	The list of the parties involved and project participants is provided in the tabular format in Section A3 of the PDD. Parties involved: Ukraine (Host country), Switzerland. <u>Corrective Action Request (CAR) 01:</u> Please update the indicated production activities as per KVED (Classification of economic activities).	CAR 01	OK
-	Is the data of the project participants presented in tabular format?	The data of the project participants is presented in tabular format.	OK	OK
-	Is contact information provided in Annex 1 of the PDD?	The contact information is provided in Annex 1 of the PDD.	OK	OK
-	Is it indicated, if it is the case, if the Party involved is a host Party?	Ukraine, the Party involved, is the host Party.	OK	OK
Technical description of the project				
Location of the project				
-	Host Party(ies)	Ukraine	OK	OK
-	Region/State/Province etc.	The project is implemented in the Volyn region	OK	OK
-	City/Town/Community etc.	Lutsk city	OK	OK
-	Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page)	The project is implemented at the SME "Lutskteplo" and ME "Lutskvodokanal" facilities located in the Lutsk city. For more detailed information please refer to the Section A.4.1.4. of the PDD. <u>Corrective Action Request (CAR) 02:</u> Please indicate geographic coordinates of Lutsk city.	CAR 02	OK
Technologies to be employed, or measures, operations or actions to be implemented by the project				
-	Are the technology(ies) to be employed, or measures, operations or actions to be	The project envisages the implementation of the programme aimed at energy saving technologies, which includes a	CAR 03	OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	implemented by the project, including all relevant technical data and the implementation schedule described?	number of technological and organizational activities – section A.4.2 of the PDD. <u>Corrective Action Request (CAR) 03:</u> Please provide the project implementation schedule.		
Brief explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project, including why the emission reductions would not occur in the absence of the proposed project, taking into account national and/or sectoral policies and circumstances				
-	Is it stated how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page)	Project objective is to reduce greenhouse gas emissions due to fuel, in particular natural gas (which is imported to Ukraine), consumption reduction, as well as power consumption reduction, by means of rehabilitation of the heat and water supply systems in Lutsk city, including boiler-houses, step-up (UPS) and sewage (SPS) pumping stations, and heat and water distribution network equipment replacement, modernization and rehabilitation.	OK	OK
-	Is it provided the estimation of emission reductions over the crediting period?	The estimation of emission reductions over the crediting period is provided.	OK	OK
-	Is it provided the estimated annual reduction for the chosen credit period in tCO ₂ e?	The estimated annual reduction for the chosen credit period is provided in tCO ₂ e.	OK	OK
-	Are the data from questions above presented in tabular format?	Yes, the data is presented in tabular format.	OK	OK
Estimated amount of emission reductions over the crediting period				
-	Is the length of the crediting period Indicated?	Yes, the duration of the crediting period is 25 years (300 months). <u>Corrective Action Request (CAR) 04:</u> Please justify the chosen duration of the crediting period.	CAR 04	OK
-	Are estimates of total as well as annual and average annual emission reductions in tonnes of CO ₂ equivalent provided?	The estimates of total as well as annual and average annual emission reductions in tonnes of CO ₂ equivalent are provided in section A.4.3.1 of the PDD.	OK	OK
Project approvals by Parties				

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
19	Have the DFPs of all Parties listed as "Parties involved" in the PDD provided written project approvals?	<u>Corrective Action Request (CAR) 05:</u> The Letters of Approval from parties involved are absent.	CAR 05	Pending
19	Does the PDD identify at least the host Party as a "Party involved"?	Yes, Ukraine is the host Party.	OK	OK
19	Has the DFP of the host Party issued a written project approval?	Refer to CAR 05 above.	OK	OK
20	Are all the written project approvals by Parties involved unconditional?	Refer to CAR 05 above.	OK	OK
Authorization of project participants by Parties involved				
21	Is each of the legal entities listed as project participants in the PDD authorized by a Party involved, which is also listed in the PDD, through: – A written project approval by a Party involved, explicitly indicating the name of the legal entity? or – Any other form of project participant authorization in writing, explicitly indicating the name of the legal entity?	Refer to CAR 05 above.	OK	OK
Baseline setting				
22	Does the PDD explicitly indicate which of the following approaches is used for identifying the baseline? – JI specific approach – Approved CDM methodology approach	The PDD describes the JI specific approach which is used for setting the baseline. <u>Clarification Request (CL) 04:</u> Please indicate which of the mentioned approaches is used for setting the baseline: - JI specific approach; - approved CDM methodology. <u>Corrective Action Request (CAR) 15:</u> Please provide in the Section B1 theoretical description of the chosen baseline.	CL 04 CAR 15	OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Jl specific approach only				
23	Does the PDD provide a detailed theoretical description in a complete and transparent manner?	Yes, the PDD provides a detailed theoretical description of the project in a complete and transparent manner.	OK	OK
23	Does the PDD provide justification that the baseline is established: (a) By listing and describing plausible future scenarios on the basis of conservative assumptions and selecting the most plausible one? (b) Taking into account relevant national and/or sectoral policies and circumstance? – Are key factors that affect a baseline taken into account? (c) In a transparent manner with regard to the choice of approaches, assumptions, methodologies, parameters, data sources and key factors? (d) Taking into account of uncertainties and using conservative assumptions? (e) In such a way that ERUs cannot be earned for decreases in activity levels outside the project or due to force majeure? (f) By drawing on the list of standard variables contained in appendix B to “Guidance on criteria for baseline setting and monitoring”, as appropriate?	The PDD provides justification that the baseline is established by listing and describing plausible future scenarios on the basis of conservative assumptions and selecting the most plausible one.	OK	OK
24	If selected elements or combinations of approved CDM methodologies or methodological tools for baseline setting are used, are the selected elements or combinations together with the elements	According to the “Guidelines for users of the JI PDD form” version 04, the baseline shall be established on a project-specific basis, or where applicable, project participants may opt to apply approved clean development mechanism (CDM) baseline and monitoring methodologies.	CL 05	OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	supplementary developed by the project participants in line with 23 above?	In course of development of this JI project, in accordance with paragraph 9(a) of the "Guidance on criteria for baseline setting and monitoring", the project specific approach was used, developed in accordance with appendix B "Criteria for baseline setting and monitoring" of the JI guidelines. <u>Clarification Request (CL) 05:</u> Please indicate the valid version of the documents used.		
25	If a multi-project emission factor is used, does the PDD provide appropriate justification?	Carbon dioxide emission factor for projects of power loss reduction in power supply networks of Ukraine, emission factor for natural gas and methane global warming potential were used for calculation of baseline emissions. The usage of the factors was justified.	OK	OK
Approved CDM methodology approach only				
26 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	Not applicable	N/A	N/A
26 (a)	Is the approved CDM methodology the most recent valid version when the PDD is submitted for publication? If not, is the methodology still within the grace period (was the methodology revised to a newer version in the past two months)?	Not applicable	N/A	N/A
26 (b)	Does the PDD provide a description of why the approved CDM methodology is applicable to the project?	Not applicable	N/A	N/A
26 (c)	Are all explanations, descriptions and analyses pertaining to the baseline in the PDD made in accordance with the referenced approved CDM methodology?	Not applicable	N/A	N/A
26 (d)	Is the baseline identified appropriately as a	Not applicable	N/A	N/A

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	result?			
Additionality				
JI specific approach only				
28	Does the PDD indicate which of the following approaches for demonstrating additionality is used? (a) Provision of traceable and transparent information showing the baseline was identified on the basis of conservative assumptions, that the project scenario is not part of the identified baseline scenario and that the project will lead to emission reductions or enhancements of removals; (b) Provision of traceable and transparent information that an AIE has already positively determined that a comparable project (to be) implemented under comparable circumstances has additionality; (c) Application of the most recent version of the "Tool for the demonstration and assessment of additionality. (allowing for a two-month grace period) or any other method for proving additionality approved by the CDM Executive Board".	The Section B.1 of the PDD provides the analysis of the project additionality showing that the project scenario is not part of the identified baseline scenario and that the project will lead to emission reductions. The analysis was performed based on the "Tool for the demonstration and assessment of additionality" (Version 6.0.0) approved by the CDM Executive Board and fully applicable for JI projects.	OK	OK
29 (a)	Does the PDD provide a justification of the applicability of the approach with a clear and transparent description?	The barrier analysis and common practice analysis are used for the demonstration of project activity additionality.	OK	OK
29 (b)	Are additionality proofs provided?	The additionality proofs are provided in the Section B.1 of the PDD.	OK	OK
29 (c)	Is the additionality demonstrated appropriately as a result?	<u>Corrective Action Request (CAR) 06:</u> The PDD does not provide any information on how the registration of the project as JI activity will aid to overcome	CAR 06	OK

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		the identified barriers.		
30	If the approach 28 (c) is chosen, are all explanations, descriptions and analyses made in accordance with the selected tool or method?	All explanations, descriptions and analyses were made in accordance with "Combined tool to identify the baseline scenario and demonstrate additionality"	OK	OK
Approved CDM methodology approach only				
31 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	Not applicable	N/A	N/A
31 (b)	Does the PDD provide a description of why and how the referenced approved CDM methodology is applicable to the project?	Not applicable	N/A	N/A
31 (c)	Are all explanations, descriptions and analyses with regard to additionality made in accordance with the selected methodology?	Not applicable	N/A	N/A
31 (d)	Are additionality proofs provided?	Not applicable	N/A	N/A
31 (e)	Is the additionality demonstrated appropriately as a result?	Not applicable	N/A	N/A
Project boundary (applicable except for JI LULUCF projects)				
JI specific approach only				
32 (a)	Does the project boundary defined in the PDD encompass all anthropogenic emissions by sources of GHGs that are: (i) Under the control of the project participants? (ii) Reasonably attributable to the project? (iii) Significant?	Yes, project boundary is defined according to the all requirements.	OK	OK
32 (b)	Is the project boundary defined on the basis of a case-by-case assessment with regard to the criteria referred to in 32 (a) above?	Yes, the project boundary is defined on the basis of a case-by-case assessment with regard to the criteria referred to in 32 (a) above.	OK	OK
32 (c)	Are the delineation of the project boundary and	Yes, the project boundary is provided in the Figure B-4 and	CAR 07	OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	the gases and sources included appropriately described and justified in the PDD by using a figure or flow chart as appropriate?	B-5 and in tabular format. <u>Corrective Action Request (CAR) 07:</u> Please indicate the # of the mentioned table.		
32 (d)	Are all gases and sources included explicitly stated, and the exclusions of any sources related to the baseline or the project are appropriately justified?	All gases and sources included are explicitly stated, and the exclusions of any sources related to the baseline or the project are appropriately justified.	OK	OK
Approved CDM methodology approach only				
33	Is the project boundary defined in accordance with the approved CDM methodology?	Not applicable	N/A	N/A
Crediting period				
34 (a)	Does the PDD state the starting date of the project as the date on which the implementation or construction or real action of the project will begin or began?	The date 01/01/2005 was accepted as the project's starting date according to the Orders on creation of the Technical Working Group and starting of preparation to realization of Joint Implementation project of the State Municipal Enterprise "Lutskteplo" and Municipal Enterprise "Lutskvodokanal". Refer to CL 03 above.	OK	OK
34 (a)	Is the starting date after the beginning of 2000?	Yes.	OK	OK
34 (b)	Does the PDD state the expected operational lifetime of the project in years and months?	28 years (336 months).	OK	OK
34 (c)	Does the PDD state the length of the crediting period in years and months?	25 years (300 months).	OK	OK
34 (c)	Is the starting date of the crediting period on or after the date of the first emission reductions or enhancements of net removals generated by the project?	The starting date of the crediting period is on the date of the first emission reductions generated by the project.	OK	OK
34 (d)	Does the PDD state that the crediting period for issuance of ERUs starts only after the	<u>Clarification request (CL) 06:</u> Please state that the crediting period for issuance of ERUs	CL 06	OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	beginning of 2008 and does not extend beyond the operational lifetime of the project?	starts only after the beginning of 2008 and does not extend beyond the operational lifetime of the project.		
34 (d)	If the crediting period extends beyond 2012, does the PDD state that the extension is subject to the host Party approval? Are the estimates of emission reductions or enhancements of net removals presented separately for those until 2012 and those after 2012?	<u>Clarification request (CL) 07:</u> Please specify that the extension of the crediting period beyond 2012 is subject to the host Party approval.	CL 07	OK
Monitoring plan				
35	Does the PDD explicitly indicate which of the following approaches is used? – JI specific approach – Approved CDM methodology approach	<u>Clarification request (CL) 08:</u> During the analysis of the PDD it was revealed that the project developer used JI specific approach for setting the monitoring plan, but it is not explicitly indicated. Please clearly describe in the PDD the approach chosen.	CL 08	OK
JI specific approach only				
36 (a)	Does the monitoring plan describe: – All relevant factors and key characteristics that will be monitored? – The period in which they will be monitored? – All decisive factors for the control and reporting of project performance?	Monitoring approach developed for this project conforms to assumptions and methods used in the baseline. Such approach to the monitoring requires control and measurement of the variables and parameters needed for calculation of the baseline and project emissions in a transparent manner. <u>Clarification request (CL) 09:</u> Please provide the calculation algorithm for the parameter P_H^f .	CL 09	OK
36 (b)	Does the monitoring plan specify the indicators, constants and variables used that are reliable, valid and provide transparent picture of the emission reductions or enhancements of net removals to be monitored?	Refer to CL 09 above.	OK	OK
36 (b)	If default values are used:	The used TPL level includes technical and commercial	OK	OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<ul style="list-style-type: none"> – Are accuracy and reasonableness carefully balanced in their selection? – Do the default values originate from recognized sources? – Are the default values supported by statistical analyses providing reasonable confidence levels? – Are the default values presented in a transparent manner? 	consumption and losses. Commercial losses do not influence GHG emissions and are excluded from the calculation.		
36 (b) (i)	For those values that are to be provided by the project participants, does the monitoring plan clearly indicate how the values are to be selected and justified?	Yes. The monitoring plan clearly indicates how the values are to be selected and justified. <u>Corrective Action Request (CAR) 08:</u> Please provide operational and management structure which will be developed by the project operator for monitoring plan implementation.	CAR 08	OK
36 (b) (ii)	For other values, – Does the monitoring plan clearly indicate the precise references from which these values are taken? – Is the conservativeness of the values provided justified?	<u>Corrective Action Request (CAR) 09:</u> Please indicate who is responsible for providing the actual CO ₂ emission factors for projects on power loss reduction in power supply networks of Ukraine.	CAR 09	OK
36 (b) (iii)	For all data sources, does the monitoring plan specify the procedures to be followed if expected data are unavailable?	<u>Corrective Action Request (CAR) 10:</u> Please provide the documented evidence that the data to be monitored and needed for the determination will be stored for two years after last transfer of ERUs by the project.	CAR 10	OK
36 (b) (iv)	Are International System Unit (SI units) used?	Yes.	OK	OK
36 (b) (v)	Does the monitoring plan note any parameters, coefficients, variables, etc. that are used to calculate baseline emissions or net removals but are obtained through monitoring?	Yes, the emission factors for projects on power loss reduction in power supply networks of Ukraine are used in calculations and are obtained through monitoring.	OK	OK
36 (b) (v)	Is the use of parameters, coefficients, variables, etc. consistent between the baseline	Yes, the use of parameters, coefficients, variables, etc. Is consistent between the baseline and monitoring plan.	OK	OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	and monitoring plan?			
36 (c)	Does the monitoring plan draw on the list of standard variables contained in appendix B of "Guidance on criteria for baseline setting and monitoring"?	The monitoring plan is developed in accordance with the "Guidance on criteria for baseline setting and monitoring".	OK	OK
36 (d)	Does the monitoring plan explicitly and clearly distinguish: (i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination? (ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination? (iii) Data and parameters that are monitored throughout the crediting period?	Yes, all the relevant parameters are described (refer to the Section D.1 of the PDD).	OK	OK
36 (e)	Does the monitoring plan describe the methods employed for data monitoring (including its frequency) and recording?	The Table in the Section D.1.1 of the PDD defines the frequency of monitoring and data sources for all parameters and data to be monitored.	OK	OK
36 (f)	Does the monitoring plan elaborate all algorithms and formulae used for the estimation/calculation of baseline emissions/removals and project emissions/removals or direct monitoring of emission reductions from the project, leakage, as appropriate?	The PDD describes all algorithms and formulae used for the calculation of baseline and project emissions. <u>Corrective Action Request (CAR) 11:</u> Please provide the expanded formula of the emissions reduction calculation due to the project activity	CAR 11	OK
36 (f) (i)	Is the underlying rationale for the algorithms/formulae explained?	The underlying rationale for the algorithms/formulae is explained.	OK	OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
36 (f) (ii)	Are consistent variables, equation formats, subscripts etc. used?	Yes, consistent variables, equation formats, subscripts etc. are used.	OK	OK
36 (f) (iii)	Are all equations numbered?	Yes.	OK	OK
36 (f) (iv)	Are all variables, with units indicated defined?	Yes.	OK	OK
36 (f) (v)	Is the conservativeness of the algorithms/procedures justified?	Please refer to CAR 11 above.	OK	OK
36 (f) (v)	To the extent possible, are methods to quantitatively account for uncertainty in key parameters included?	The level of data uncertainty is provided in the quality control and assurance table (refer to the section D.2 of the PDD). Taking into account that almost all data and parameters are based on the statistical data and calibrated measuring equipment recordings of a certain class of accuracy and tested by the official energy resources supplier and state bodies, their level of uncertainty is considered as low.	OK	OK
36 (f) (vi)	Is consistency between the elaboration of the baseline scenario and the procedure for calculating the emissions or net removals of the baseline ensured?	Yes.	OK	OK
36 (f) (vii)	Are any parts of the algorithms or formulae that are not self-evident explained?	Any parts of the algorithms or formulae that are not self-evident are explained.	OK	OK
36 (f) (vii)	Is it justified that the procedure is consistent with standard technical procedures in the relevant sector?	Yes, it is justified that the procedure is consistent with standard technical procedures in the relevant sector.	OK	OK
36 (f) (vii)	Are references provided as necessary?	All the references are provided as necessary.	OK	OK
36 (f) (vii)	Are implicit and explicit key assumptions explained in a transparent manner?	Yes.	OK	OK
36 (f) (vii)	Is it clearly stated which assumptions and procedures have significant uncertainty associated with them, and how such uncertainty is to be addressed?	Used assumptions and procedures do not have any significant uncertainty associated with them.	OK	OK
36 (f) (vii)	Is the uncertainty of key parameters described and, where possible, is an uncertainty range at	Level of uncertainty is indicated as low.	OK	OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	95% confidence level for key parameters for the calculation of emission reductions or enhancements of net removals provided?			
36 (g)	Does the monitoring plan identify a national or international monitoring standard if such standard has to be and/or is applied to certain aspects of the project? Does the monitoring plan provide a reference as to where a detailed description of the standard can be found?	The monitoring plan identifies national and international monitoring standards used for the proposed project. All relevant references are provided. <u>Corrective Action Request (CAR) 12:</u> Please indicate for the parameter Cef the source of data and the page where the values are indicated.	CAR 12	OK
36 (h)	Does the monitoring plan document statistical techniques, if used for monitoring, and that they are used in a conservative manner?	Refer to CAR 12 above.	OK	OK
36 (i)	Does the monitoring plan present the quality assurance and control procedures for the monitoring process, including, as appropriate, information on calibration and on how records on data and/or method validity and accuracy are kept and made available upon request?	<u>Corrective Action Request (CAR) 13:</u> Please indicate quality control and assurance procedures described in the Section D.2 of the PDD.	CAR 13	OK
36 (j)	Does the monitoring plan clearly identify the responsibilities and the authority regarding the monitoring activities?	Yes, the monitoring plan in the Section D.3 of the PDD clearly identifies the responsibilities and authorities regarding the monitoring activities.	OK	OK
36 (k)	Does the monitoring plan, on the whole, reflect good monitoring practices appropriate to the project type? If it is a JI LULUCF project, is the good practice guidance developed by IPCC applied?	<u>Corrective Action Request (CAR) 14:</u> The Section D.1.5 of the PDD requires from the project participants to indicate the information on data collection and archivation concerning environmental impact and to provide references on the relevant regulations of the host country. Please provide all the necessary information.	CAR 14	OK
36 (l)	Does the monitoring plan provide, in tabular form, a complete compilation of the data that need to be collected for its application, including data that are measured or sampled	Yes all the parameters are provided in Sections D.1.1.1 and D.1.1.3 of the PDD.	OK	OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	and data that are collected from other sources but not including data that are calculated with equations?			
36 (m)	Does the monitoring plan indicate that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project?	Refer CAR 12.	OK	OK
37	If selected elements or combinations of approved CDM methodologies or methodological tools are used for establishing the monitoring plan, are the selected elements or combination, together with elements supplementary developed by the project participants in line with 36 above?	No elements or combinations of approved CDM methodologies or methodological tools are used in the monitoring plan.	OK	OK
Approved CDM methodology approach only				
38 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	Not applicable	N/A	N/A
38 (a)	Is the approved CDM methodology the most recent valid version when the PDD is submitted for publication? If not, is the methodology still within the grace period (was the methodology revised to a newer version in the past two months)?	Not applicable	N/A	N/A
38 (b)	Does the PDD provide a description of why the approved CDM methodology is applicable to the project?	Not applicable	N/A	N/A
38 (c)	Are all explanations, descriptions and analyses pertaining to monitoring in the PDD made in accordance with the referenced approved CDM methodology?	Not applicable	N/A	N/A
38 (d)	Is the monitoring plan established appropriately	Not applicable	N/A	N/A

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	as a result?			
Applicable to both JI specific approach and approved CDM methodology approach				
39	<p>If the monitoring plan indicates overlapping monitoring periods during the crediting period:</p> <p>(a) Is the underlying project composed of clearly identifiable components for which emission reductions or enhancements of removals can be calculated independently?</p> <p>(b) Can monitoring be performed independently for each of these components (i.e. the data/parameters monitored for one component are not dependent on/effect data/parameters to be monitored for another component)?</p> <p>(c) Does the monitoring plan ensure that monitoring is performed for all components and that in these cases all the requirements of the JI guidelines and further guidance by the JISC regarding monitoring are met?</p> <p>(d) Does the monitoring plan explicitly provide for overlapping monitoring periods of clearly defined project components, justify its need and state how the conditions mentioned in (a)-(c) are met?</p>	No overlapping of monitoring periods is envisaged during the crediting period.	OK	OK
Leakage				
JI specific approach only				
40 (a)	Does the PDD appropriately describe an assessment of the potential leakage of the project and appropriately explain which sources of leakage are to be calculated and which can be neglected?	No leakages are envisaged by the proposed project activity.	OK	OK
40 (b)	Does the PDD provide a procedure for an ex ante estimate of leakage?	No leakages are envisaged by the proposed project activity.	OK	OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Approved CDM methodology approach only				
41	Are the leakage and the procedure for its estimation defined in accordance with the approved CDM methodology?	Not applicable	N/A	N/A
Estimation of emission reductions or enhancements of net removals				
42	Does the PDD indicate which of the following approaches it chooses? (a) Assessment of emissions or net removals in the baseline scenario and in the project scenario (b) Direct assessment of emission reductions	Emissions baseline scenario and in the project scenario were assessed.	OK	OK
43	If the approach (a) in 42 is chosen, does the PDD provide ex ante estimates of: (a) Emissions or net removals for the project scenario (within the project boundary)? (b) Leakage, as applicable? (c) Emissions or net removals for the baseline scenario (within the project boundary)? (d) Emission reductions or enhancements of net removals adjusted by leakage?	The PDD provides ex ante estimates of the project and baseline scenarios, and also emissions reduction. The estimated results are provided in the Section E of the PDD, and also in the Excel spreadsheets.	OK	OK
44	If the approach (b) in 42 is chosen, does the PDD provide ex ante estimates of: (a) Emission reductions or enhancements of net removals (within the project boundary)? (b) Leakage, as applicable? (c) Emission reductions or enhancements of net removals adjusted by leakage?	Not applicable	N/A	N/A
45	For both approaches in 42 (a) Are the estimates in 43 or 44 given: (i) On a periodic basis? (ii) At least from the beginning until the end of the crediting period?	The estimates are provided on a periodic basis in tones CO ₂ equivalent. The formulas used are consistent throughout the PDD.	OK	OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<p>(iii) On a source-by-source/sink-by-sink basis?</p> <p>(iv) For each GHG?</p> <p>(v) In tones of CO₂ equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol?</p> <p>(b) Are the formula used for calculating the estimates in 43 or 44 consistent throughout the PDD?</p> <p>(c) For calculating estimates in 43 or 44, are key factors influencing the baseline emissions or removals and the activity level of the project and the emissions or net removals as well as risks associated with the project taken into account, as appropriate?</p> <p>(d) Are data sources used for calculating the estimates in 43 or 44 clearly identified, reliable and transparent?</p> <p>(e) Are emission factors (including default emission factors) if used for calculating the estimates in 43 or 44 selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?</p> <p>(f) Is the estimation in 43 or 44 based on conservative assumptions and the most plausible scenarios in a transparent manner?</p> <p>(g) Are the estimates in 43 or 44 consistent throughout the PDD?</p> <p>(h) Is the annual average of estimated emission reductions or enhancements of net removals calculated by dividing the total</p>			

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	estimated emission reductions or enhancements of net removals over the crediting period by the total months of the crediting period and multiplying by twelve?			
46	If the calculation of the baseline emissions or net removals is to be performed ex post, does the PDD include an illustrative ex ante emissions or net removals calculation?	Yes, the PDD includes an illustrative ex ante emissions calculation.	OK	OK
Approved CDM methodology approach only				
47 (a)	Is the estimation of emission reductions or enhancements of net removals made in accordance with the approved CDM methodology?	Not applicable	N/A	N/A
47 (b)	Is the estimation of emission reductions or enhancements of net removals presented in the PDD: <ul style="list-style-type: none"> – On a periodic basis? – At least from the beginning until the end of the crediting period? – On a source-by-source/sink-by-sink basis? – For each GHG? – In tones of CO₂ equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol? – Are the formula used for calculating the estimates consistent throughout the PDD? – Are the estimates consistent throughout the PDD? – Is the annual average of estimated emission reductions or enhancements of net removals calculated by dividing the total estimated emission reductions or enhancements of net 	Not applicable	N/A	N/A

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	removals over the crediting period by the total months of the crediting period and multiplying by twelve?			
Environmental impacts				
48 (a)	Does the PDD list and attach documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party?	The project also does not have any transboundary impact, as it is implemented in the Lutsk city (Ukraine) and does not include any impact that may occur in another region or another country.	OK	OK
48 (b)	If the analysis in 48 (a) indicates that the environmental impacts are considered significant by the project participants or the host Party, does the PDD provide conclusion and all references to supporting documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party?	All activities under the project do not envisage any negative impacts on the environment, therefore no EIA was specifically developed for this project.	OK	OK
Environmental impacts				
49	If stakeholder consultation was undertaken in accordance with the procedure as required by the host Party, does the PDD provide: (a) A list of stakeholders from whom comments on the projects have been received, if any? (b) The nature of the comments? (c) A description on whether and how the comments have been addressed?	The procedures of Ukraine don't require any stakeholder consultation concerning the proposed project. However, the information on TPL reduction was announced by the printed mass media and on the Internet (refer to the Section G of the PDD). No comments on the project have been received from stakeholders.	OK	OK
Determination regarding small-scale projects (additional elements for assessment)				
50	Does the PDD appropriately specify and justify the SSC project type(s) and category(ies) that fall under: (a) One of the types and thresholds of JI SSC	Not applicable	N/A	N/A

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<p>projects as defined in .Provisions for joint implementation small-scale projects.? If the project contains more than one JI SSC project type component, does each component meet the relevant threshold criterion?</p> <p>(b) One of the SSC project categories defined in the most recent version of appendix B of annex II to decision 4/CMP.1, or an additional project category approved by the JISC in accordance with the relevant provision in "Provisions for joint implementation small-scale projects"?</p>			
51	<p>Does the SSC PDD confirms and shows that the proposed JI SSC project is not a debundled component of a large project by explaining that there does not exist a JI (SSC) project with a publicly available determination in accordance with paragraph 34 of the JI guidelines:</p> <p>(a) Which has the same project participants; and</p> <p>(b) Which applies the same technology/measure and pertains to the same project category; and</p> <p>(c) Whose determination has been made publicly available in accordance with paragraph 34 of the JI guidelines within the previous 2 years; and</p> <p>(d) Whose project boundary is within 1 km of the project boundary of the proposed JI SSC project at the closest point?</p>	Not applicable	N/A	N/A
Applicable to bundled JI SSC projects only				
52 (a)	<p>Do all projects in the bundle:</p> <p>(i) Have the same crediting period?</p>	Not applicable	N/A	N/A

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(ii) Comply with the provisions for JI SSC projects defined in "Provisions for joint implementation small-scale projects", in particular the thresholds referred to in 50 (a) above? (iii) Retain their distinctive characteristics (i.e. location, technology/measure etc.)?			
52 (b)	Does the composition of the bundle not change over time?	Not applicable	N/A	N/A
52 (c)	Has the AIE received (from the project participants): (i) Information on the bundle using the form developed by the JISC (F-JI-SSCBUNDLE)? (ii) A written statement signed by all project participants indicating that they agree that their individual projects are part of the bundle and nominating one project participant to represent all project participants in communicating with the JISC? (iii) Indication by the Parties involved that they are aware of the bundle in their project approvals referred to in 19 above?	Not applicable	N/A	N/A
53	If the project participants prepared a single SSC PDD for the bundled JI SSC projects, do(are) all the projects: (a) Pertain to the same JI SSC project category? (b) Apply the same technology or measure? (c) Located in the territory of the same host Party?	Not applicable	N/A	N/A
54	If the project participants prepared separate SSC PDDs for the bundled JI SSC projects, do(are) all the projects:	Not applicable	N/A	N/A

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(a) Have SSC PDDs been prepared for all JI SSC projects in the bundle? (b) Does each SSC PDD contain a single JI SCC project in the bundle?			
55	If the projects in the bundle use the same baseline, does the F-JI-SSC-BUNDLE provide an appropriate justification for the use of the same baseline considering the particular situation of each project in the bundle?	Not applicable	N/A	N/A
56	Does the PDD indicate which of the following approaches is used for establishing a monitoring plan? (a) By preparing a separate monitoring plan for each of the constituent projects; (b) By preparing an overall monitoring plan including a proposal of monitoring of performance of the constituent projects on a sample basis, as appropriate.	Not applicable	N/A	N/A
56 (b)	If the approach 57 (b) above is used, (i) Are all the JI SSC projects located in the territory of the same host Party? (ii) Do all the JI SSC projects pertain to the same project category? (iii) Do all the JI SSC projects apply the same technology or measure? (iv) Does the overall monitoring plan reflect good monitoring practice appropriate to the bundled JI SSC projects and provide for collection and archiving of the data needed to calculate the emission reductions achieved by the bundled projects?	Not applicable	N/A	N/A
Applicable to all JI SSC projects				
57	Is the leakage only within the boundaries of	Not applicable	N/A	N/A

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	non-Annex I Parties considered?			
Determination regarding land use, land-use change and forestry projects (additional/alternative elements for assessment)				
58	Does the PDD appropriately specify how the LULUCF project conforms to: (a) The definitions of LULUCF activities included in paragraph 1 of the annex to decision 16/CMP.1, applying good practice guidance for LULUCF as decided by the CMP, as appropriate? (b) In the case of afforestation, reforestation and/or forest management projects, the definition of "forest" selected by the host Party, which specifies: (i) A single minimum tree crown cover value (between 10 and 30 per cent)? and (ii) A single minimum land area value (between 0.05 and 1 hectare)? and (iii) A single minimum tree height value (between 2 and 5 metres)?	Not applicable	N/A	N/A
JI specific approach only				
59	Baseline setting - in addition to 22-26 above Does the PDD provide an explanation how the baseline chosen: – Takes into account the good practice guidance for LULUCF, developed by the IPCC? – Ensures conformity with the definitions, accounting rules, modalities and guidelines under Article 3, paragraphs 3 and 4, of the Kyoto Protocol?	Not applicable	N/A	N/A
60	Project boundary - alternative to 32-33 (a) Does the project boundary geographically delineate the JI LULUCF project under the control of the project participants?	Not applicable	N/A	N/A

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<p>(a) If the JI LULUCF project contains more than one discrete area of land,</p> <p>(i) Does each discrete area of land have a unique geographical identification?</p> <p>(ii) Is the boundary defined for each discrete area?</p> <p>(ii) Does the boundary not include the areas in between these discrete areas of land?</p> <p>(b) Does the project boundary encompass all anthropogenic emissions by sources and removals by sinks of GHGs which are:</p> <p>(i) Under the control of the project participants;</p> <p>(ii) Reasonably attributable to the project; and</p> <p>(iii) Significant?</p> <p>(c) Does the project boundary account for all changes in the following carbon pools:</p> <ul style="list-style-type: none"> - Above-ground biomass; - Below-ground biomass; - Litter; - Dead wood; and - Soil organic carbon? <p>(c) Does the PDD provide:</p> <p>(i) The information of which carbon pools are selected?</p> <p>(ii) If one or more carbon pools are not selected, transparent and verifiable information that indicates, based on conservative assumptions, that the pool is not a source?</p> <p>(d) Is the project boundary defined on the basis of a case-by-case assessment with regard to the criteria in (b) above?</p>			
61 (a)	Project boundary - alternative to 32-33 (cont.) Are the delineation of the project boundary and	Not applicable	N/A	N/A

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	the gases and sources/sinks included appropriately described and justified in the PDD?			
61 (b)	Project boundary - alternative to 32-33 (cont.) Are all gases and sources/sinks included explicitly stated, and the exclusions of any sources/sinks related to the baseline or the LULUCF project appropriately justified?	Not applicable	N/A	N/A
62	Monitoring plan - in addition to 35-39 Does the PDD provide an appropriate description of the sampling design that will be used for the calculation of the net anthropogenic removals by sinks occurring within the project boundary in the project scenario and, in case the baseline is monitored, in the baseline scenario, including, inter alia, stratification, determination of number of plots and plot distribution etc.?	Not applicable	N/A	N/A
63	Does the PDD take into account only the increased anthropogenic emissions by sources and/or reduced anthropogenic removals by sinks of GHGs outside the project boundary?	Not applicable	N/A	N/A
Approved CDM methodology approach only				
64 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	Not applicable	N/A	N/A
64 (a)	Is the approved CDM methodology the most recent valid version when the PDD is submitted for publication? If not, is the methodology still within the grace period (was the methodology revised to a newer version in the past two months)?	Not applicable	N/A	N/A
64 (b)	Does the PDD provide a description of why the	Not applicable	N/A	N/A

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	approved CDM methodology is applicable to the project?			
64 (c)	Are all explanations, descriptions and analyses made in accordance with the referenced approved CDM methodology?	Not applicable	N/A	N/A
64 (d)	Are the baseline, additionality, project boundary, monitoring plan, estimation of enhancements of net removals and leakage established appropriately as a result?	Not applicable	N/A	N/A
Determination regarding programmes of activities (additional/alternative elements for assessment)				
66	<p>Does the PDD include:</p> <p>(a) A description of the policy or goal that the JI PoA seeks to promote?</p> <p>(b) A geographical boundary for the JI PoA (e.g. municipality, region within a country, country or several countries) within which all JPAs included in the JI PoA will be implemented?</p> <p>(c) A description of the operational and management arrangements established by the coordinating entity for the implementation of the JI PoA, including:</p> <ul style="list-style-type: none"> – The maintenance of records for each JPA? – A system/procedure to avoid double counting (e.g. to avoid including a new JPA that has already been determined)? – Provisions to ensure that persons operating JPAs are aware and have agreed to their activity being added to the JI PoA? <p>(d) A description of each type of JPAs that will be included in the JI PoA, including the technology or measures to be used?</p> <p>(e) The eligibility criteria for inclusion of JPAs to</p>	Not applicable	N/A	N/A

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	the JI PoA for each type of JPA in the JI PoA?			
67	<i>Project approvals by Parties involved - additional to 19-20</i> Are all Parties partly or entirely within the geographical boundary for the JI PoA listed as "Parties involved" and indicated as host Parties in the PDD?	Not applicable	N/A	N/A
68	<i>Authorization of project participants by Parties involved - additional to 21</i> Is the coordinating entity presented in the PDD authorized by all host Parties to coordinate and manage the JI PoA?	Not applicable	N/A	N/A
69	<i>Baseline setting - additional to 22-26</i> Is the baseline established for each type of JPA?	Not applicable	N/A	N/A
70	<i>Additionality - additional to 27-31</i> Does the PDD indicate at which of the following levels that additionality is demonstrated? (a) For the JI PoA (b) For each type of JPA	Not applicable	N/A	N/A
71	<i>Crediting period - additional to 34</i> Is the starting date of the JI PoA after the beginning of 2006 (instead of 2000)?	Not applicable	N/A	N/A
72	<i>Monitoring plan - additional to 35-39</i> Is the monitoring plan established for each technology and/or measure under each type of JPA included in the JI PoA?	Not applicable	N/A	N/A
73	Does the PDD include a table listing at least one real JPA for each type of JPA?	Not applicable	N/A	N/A
73	For each real JPA listed, does the PDD provide the information of: (a) Name and brief summary of the JPA?	Not applicable	N/A	N/A



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(b) The type of JPA? (c) A geographical reference or other means of identification? (d) The name and contact details of the entity/individual responsible for the operation of the JPA? (e) The host Party(ies)? (f) The starting date of the JPA? (g) The length of the crediting period of the JPA? (h) Confirmation that the JPA meets all the eligibility requirements for its type, including a description of how these requirements are met? (i) Confirmation that the JPA has not been determined as a single JI project or determined under a different JI PoA?			

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
<u>Clarification Request (CL) 01:</u> Please provide the documented evidence of the losses in networks after start project.	-	The documented evidence was provided to the determination team. Please refer to supporting documents 01.	The issue is closed.

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<p><u>Clarification Request (CL) 02:</u> Please provide the documented evidence of implementation of the programme aimed at energy saving technologies.</p>	-	The documented evidence of implementation of the programme aimed at energy saving technologies. These reports (for the period 2005-2011) were provided to the determination team.	The issue is closed.
<p><u>Clarification Request (CL) 03:</u> Please provide the documented evidence of the date since the project is considered to be a JI activity.</p>	-	The date 01/01/2005 was accepted as the project's starting date according to the Orders on creation of the Technical Working Group and starting of preparation to realization of Joint Implementation project of the State Municipal Enterprise "Lutskteplo" and Municipal Enterprise "Lutskvodokanal". Please refer to the supporting documents Protokol.pdf	The issue is closed.
<p><u>Clarification Request (CL) 04:</u> Please indicate which of the mentioned approaches is used for setting the baseline: - JI specific approach; - approved CDM methodology.</p>	22	"The methodology used to determine the baseline and the corresponding calculations based on the JI specific approach, according to the Guidelines on criteria for baseline setting and monitoring (version 03), paragraph 9a. This information was added to the PDD version 04 (refer to the Section B.1).	The issue is closed.
<p><u>Clarification Request (CL) 05:</u> Please indicate the valid version of the documents used.</p>	24	Refreshing information was added to the PDD version 04	The issue is closed.
<p><u>Clarification request (CL) 06:</u> Please state that the crediting period for issuance of ERUs starts only after the beginning of 2008 and does not extend beyond the operational lifetime of the project.</p>	34 (d)	"ERUs generation period will start at 01/01/2008 and will not exceed the project operation period." This clarification was added to the PDD version 04	The issue is closed.

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<p><u>Clarification request (CL) 07:</u> Please specify that the extension of the crediting period beyond 2012 is subject to the host Party approval.</p>	34 (d)	<p>The status of emissions reduction or enhancement of net removals generated by the JI projects after ending of the first commitment period within Kyoto Protocol (continuation of the crediting period after 2012) may be defined as per relevant agreements and procedures within the framework of UNFCCC and Host country. This clarification was added to the PDD version 04 (refer to the Section C.3).</p>	The issue is closed.
<p><u>Clarification request (CL) 08:</u> During the analysis of the PDD it was revealed that the project developer used JI specific approach for setting the monitoring plan, but it is not explicitly indicated. Please clearly describe in the PDD the approach chosen.</p>	35	<p>Methodology used to monitor emission reductions for the project based on a JI specific approach, according to the Guidelines on criteria for baseline setting and monitoring (version 03), Article 9a. This clarification was added to the PDD version 04 (refer to the Section D.1).</p>	The issue is closed.
<p><u>Clarification request (CL) 09:</u> Please provide the calculation algorithm for the parameter P_H^r.</p>	36 (a)	<p>Calculation of this parameter was added to the PDD version 04 (refer to the Section D.1.1.4)</p>	The issue is closed.
<p><u>Corrective Action Request (CAR) 01:</u> Please update the indicated production activities as per KVED (Classification of economic activities).</p>	-	<p>Production activities as per KVED were updated. The updated information is added to the PDD version 04 (please refer to the Section A.3).</p>	The issue is closed.
<p>Corrective Action Request (CAR) 02: Please indicate geographic coordinates of Lutsk city.</p>	-	<p>Geographic coordinates of the company's headquarters were indicated. The updated information is added to the PDD version 04 (please refer to the Section A.4.1.4).</p>	The issue is closed.



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<p><u>Corrective Action Request (CAR) 03:</u> Please provide the project implementation schedule.</p>	-	<p>The implementation schedule and quantity and quality parameters of the project were developed within company's investment plans. These investment plans were provided to the determination team during the site visit. The main stages of the project implementation were described in the Section A.4.2.</p>	The issue is closed.
<p><u>Corrective Action Request (CAR) 04:</u> Please justify the chosen duration of the crediting period.</p>	-	<p>The duration of the crediting period 20 years was indicated incorrectly. Correct duration of the crediting period is 25 years (300 months), which corresponds with the project operational lifetime. The updated information is added to the PDD version 04 (please refer to the Section C.3)</p>	The issue is closed.
<p><u>Corrective Action Request (CAR) 05:</u> The Letters of Approval from parties involved are absent.</p>	19	Letters of Approval from Parties involved will be obtained after the successful determination process as per the acting regulations of the Parties.	Pending
<p><u>Corrective Action Request (CAR) 06:</u> The PDD does not provide any information on how the registration of the project as JI activity will aid to overcome the identified barriers.</p>	29 (c)	The updated information is added to the PDD version 04 (please refer to the Section B.1)	The issue is closed.
<p><u>Corrective Action Request (CAR) 07:</u> Please indicate the # of the mentioned table.</p>	32 (c)	<p>The number of the Table was indicated. The updated information is added to the PDD version 04 (please refer to the Section B.3)</p>	The issue is closed.

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<p><u>Corrective Action Request (CAR) 08:</u> Please provide operational and management structure which will be developed by the project operator for monitoring plan implementation.</p>	36 (b) (i)	<p>Flow-chart of the monitoring structure was added.</p> <p>The updated information is added to the PDD version 04 (please refer to the Section D.3)</p>	The issue is closed.
<p><u>Corrective Action Request (CAR) 09:</u> Please indicate who is responsible for providing the actual CO₂ emission factors for projects on power loss reduction in power supply networks of Ukraine.</p>	36 (b) (ii)	<p>Different emission factors data sources were used for emissions reduction calculation. The detailed description of the parameters was added to the Section B.1. For more transparency the same information was added to the Section D.2 of the PDD.</p> <p>The updated information is added to the PDD version 04 (please refer to the Section D.2)</p>	The issue is closed.
<p><u>Corrective Action Request (CAR) 10:</u> Please provide the documented evidence that the data to be monitored and needed for the determination will be stored for two years after last transfer of ERUs by the project.</p>	36 (b) (iii)	<p>Documentary proof of this is the Order of both companies involved. See Супровідний документ _CAR10</p>	The issue is closed.
<p><u>Corrective Action Request (CAR) 11:</u> Please provide the expanded formula of the emissions reduction calculation due to the project activity</p>	36 (f)	<p>Equation was corrected as per the requirement of the CAR.</p> <p>The updated information is added to the PDD version 04 (please refer to the Section D.1.4)</p>	The issue is closed.
<p><u>Corrective Action Request (CAR) 12:</u> Please indicate for the parameter Cef the source of data and the page where the values are indicated.</p>	36 (g)	<p>Data sources were provided.</p> <p>The updated information is added to the PDD version 04 (please refer to the Section B.1)</p>	The issue is closed.



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<p><u>Corrective Action Request (CAR) 13:</u> Please indicate quality control and assurance procedures described in the Section D.2 of the PDD.</p>	36 (i)	<p>Quality control and assurance procedures are described in the PDD.</p> <p>The updated information is added to the PDD version 04 (please refer to the Section D.2)</p>	The issue is closed.
<p><u>Corrective Action Request (CAR) 14:</u> The Section D.1.5 of the PDD requires from the project participants to indicate the information on data collection and archivation concerning environmental impact and to provide references on the relevant regulations of the host country. Please provide all the necessary information.</p>	36 (k)	<p>“Any negative impact on the environment as a result of project implementation is absent. Accordingly, the requirements of the country where the project is implemented cannot be applied”.</p> <p>Please refer to the PDD, version 04 (see Section D.1.5)</p>	The issue is closed.
<p><u>Corrective Action Request (CAR) 15:</u> Please provide in the Section B1 theoretical description of the chosen baseline.</p>		<p>The updated information is added to the PDD version 04 (please refer to the Section B.1)</p>	The issue is closed.