DETERMINATION REPORT
RME "DONETSKTEPLOCOMUNENERGO"

DETERMINATION OF THE REHABILITATION OF THE DISTRICT HEATING SYSTEMS IN MAKIIVKA, MARIUPOL, ARTEMIVSK CITIES OF DONETSK REGION

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RME "Donetskteplocomunenergo"	Mr. Vasyl Vorotyntsev

Summary:

Bureau Veritas Certification has made the determination of the "Rehabilitation of the District Heating Systems in Makiivka, Mariupol, Artemivsk Cities of Donetsk Region" project of RME "Donetskteplocomunenergo" located in the Makiivka, Mariupol, Artemivsk Cities of Donetsk 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 Actions 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 Guidance on criteria for baseline setting and monitoring and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

Report No.:	Subject Group:
UKRAINE-DET/0294/2011	JI

Project title:
"Rehabilitation of the District Heating Systems in Makiivka, Mariupol, Artemivsk Cities of Donetsk Region

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Table of Contents ***Page***

1 INTRODUCTION 2
1.1 Objective 3
1.2 Scope 3
1.3 Determination team 3

2 METHODOLOGY 4
2.1 Review of Documents 4
2.2 Follow-up Interviews 5
2.3 Resolution of Clarification and Corrective Action Requests 5

3 PROJECT DESCRIPTION 6

4 DETERMINATION CONCLUSIONS 9
4.1 Project approvals by Parties involved (19-20) 9
4.2 Authorization of project participants by Parties involved (21) 10
4.3 Baseline setting (22-26) 10
4.4 Additionality (27-31) 11
4.5 Project boundary (32-33) 14
4.6 Crediting period (34) 15
4.7 Monitoring plan (35-39) 15
4.8 Leakage (40-41) 21
4.9 Estimation of emission reductions or enhancements of net removals (42-47) 21
4.10 Environmental impacts (48) 22
4.11 Stakeholder consultation (49) 23

5 SUMMARY AND REPORT OF HOW DUE ACCOUNT WAS TAKEN OF COMMENTS RECEIVED PURSUANT TO PARAGRAPH 32 OF THE JI GUIDELINES 23

6 DETERMINATION OPINION 23

7 REFERENCES 25

APPENDIX A: JI PROJECT DETERMINATION PROTOCOL .....

APPENDIX B: VERIFIERS CV'S .....

1 INTRODUCTION

RME "Donetskteplocomunenergo" has commissioned Bureau Veritas Certification to determine its JI project "Rehabilitation of the District Heating Systems in Makiivka, Mariupol, Artemivsk Cities of Donetsk

Region" (hereafter called "the project") at the Makiivka, Mariupol, Artemivsk Cities of Donetsk Region, 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 emissions reductions 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, Climate Change Lead Verifier

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Vitaliy Minyaylo
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This determination report was reviewed by:

Ivan Sokolov

Bureau Veritas Certification, Internal Technical Reviewer

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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 Institute of Engineering Ecology 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, Institute of Engineering Ecology revised the PDD and resubmitted it on 21/07/2011.

The determination findings presented in this report relate to the project as described in the PDD version(s) 04.

2.2 Follow-up Interviews

On 11-12/07/2011 Bureau Veritas Certification performed conducted a visit to the project sites (RME "Donetskteplocomunenergo", ME "Makiivteplomerezha", MCE "Mariupolteplomerezha", "Artemivsk-Energy", Ltd) and interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of RME "Donetskteplocomunenergo", ME "Makiivteplomerezha", MCE "Mariupolteplomerezha", "Artemivsk-Energy", Ltd and Institute of Engineering Ecology were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
RME "Donetskteplo-comunenergo", ME "Makiivteplo-merezha", MCE "Mariupolteplo-merezha", "Artemivsk-Energy", Ltd	➢ Project history ➢ Project approach ➢ Project boundary ➢ Implementation schedule ➢ Organizational structure ➢ Responsibilities and authorities ➢ Training of personnel ➢ Quality management procedures and technology ➢ Rehabilitation/Implementation of equipment (records) ➢ Metering equipment control ➢ Metering record keeping system, database ➢ Technical documentation ➢ Monitoring plan and procedures ➢ Permits and licenses ➢ Local stakeholder's response.
CONSULTANT: Institute of Engineering Ecology	➢ Baseline methodology ➢ Monitoring plan ➢ Additionality proofs ➢ Calculation of emission reduction.

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.

Corrective Action Request (CAR) is issued, where:

(a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;

(b) The JI requirements have not been met;

(c) There is a risk that emission reductions cannot be monitored or calculated.

The determination team may also issue Clarification Request (CL), if information is insufficient or not clear enough to determine whether the applicable JI requirements have been met.

The determination team may also issue Forward Action Request (FAR), informing the project participants of an issue that needs to be reviewed during the verification.

To guarantee the transparency of the verification process, the concerns raised are documented in more detail in the verification 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) and coal, consumption reduction, as well as power consumption reduction, by means of rehabilitation of the district heating system in Cities of Donetsk region, including boiler-houses and distribution network equipment replacement and rehabilitation. The purpose of the project is sustainable development of the Cities of Donetsk region through implementation of energy saving technologies.

Regional Municipal Enterprise (RME) “Donetskteplokomunenergo” is one of the main enterprises in field of production and distribution of the heat energy in Donetsk region. Municipal Enterprise (ME) “Makiivteplomerezha” is the main heat supply organization in Makiivka City. Municipal Commercial Enterprise (MCE) “Mariupolteplomerezha” is the main heat supply organization in Mariupol City. “Artemivsk-Energy”, Ltd. is one of the main heat supply organizations in Artemivsk City. They sell heat energy in forms of heat, hot water and steam, to local consumers, namely households, municipal consumers and state-owned organizations. Heat supply market in the region is stable for years.
The project «Rehabilitation of the District Heating Systems in Makiivka, Mariupol, Artemivsk Cities of Donetsk Region» was initiated in 2006 to rehabilitate district heating systems in Cities of Donetsk Region, including

boiler and distribution network equipment replacement and rehabilitation, and installation of cogeneration units as well as frequency controllers installation, heat exchangers and pumps replacement, transition from the existing central heat points (CHP) to individual heat points (IHP).

Project includes 156 boiler-houses with 505 installed boilers and 662 km in the 2-pipe calculation of heat distributing networks that are managed by ME “Makiivteplomerezha”, MCE “Mariupolteplomerezha” and “Artemivsk-Energy”, Ltd., see Appendix 1.

a) Situation existing prior to the starting date of the project:
The common practice for the district heating enterprises in Ukraine including district heating enterprises that implement the project is to fulfil annual minimal repairing of the DH system to keep it working. Particularly it executes repairing of network’s parts and boilers that might cause accidents.

b) Baseline scenario:
For Baseline scenario, the economically feasible and realistic scenario with very slow rehabilitation activities was chosen. Tariffs for heat do not include the resources for prospective rehabilitation of the district heating system, only the resources for probable necessary repairing after possible accidents. Minimal annual repairing doesn’t lead to drooping of baseline emissions because of degradation of the whole system with efficiency droop at other objects, the overall actual emissions of Supplier would stay on the same level. This scenario is not environmentally favorable for the near future (including first commitment period 2008-2012), since GHGs emissions of Supplier will continue to be kept at the same level or even higher, but economically such scenario is attractive.

c) Project scenario
The project employs the increase of fuel and electricity consumption efficiency to reduce greenhouse gas emissions relative to current practice.
The following activities will ensure fuel saving:
- Replacement of old boilers by the new highly efficient boilers;
- Rehabilitation of boilers with increasing of their efficiency;
- Switching of load from boiler-houses with obsolete equipment to modern equipped boiler houses;
- Switching of boiler-houses from coal to natural gas;
- Burners replacement;
- Installation of heat utilizers;
- Improving of the network organization;
- Application of the pre-insulated pipes;
- Transition from the existing CHSS to IHSS;
- Installation of cogeneration units;
- Replacement of heat exchangers;

- Replacement of pumps;
- Installation of frequency controllers at electric drives of draught-blowing equipment and pumps.

Project provides installation of 174 new highly efficient boilers, modernization of 221 boilers, replacement of burners at 87 boilers, installation of 43 heat utilizers, replacement of 32 heat exchangers, implementation of frequency controllers at electric drives at 45 boiler-houses, replacement of 221 pumps, installation of 11 IHP, rehabilitation of 91.5 km of heat distributing networks, as well as other fuel and energy saving measures.

Project provides also installation of cogeneration units for electricity generation for own needs at 3 boiler-houses – 3 gas engine-generator machines "Caterpillar" (USA) G3520B (1 un.) with capacity 1460 kW, G3520C (1 un.) with capacity 2000 kW, and G3516B (1 un.) with capacity 1165 kW.

After complete project implementation over 48.4 million Nm3 of natural gas, 1350 ton of coal as well as 13370 MWh of power and additionally 37000 MWh due to own production are expected to be saved annually starting from 2013. Such reduction of fuel and power consumption is based on increase of boiler and boiler-houses equipment efficiencies, reduction of heat losses in networks, energy saving measures implementation and cogeneration units installation. The scope of the above project activities may be changed in dependence of financial abilities of the involved enterprises.

Estimated project annual reductions of GHG emissions, mainly CO2, are 156.053 thousand tons per year after project complete implementation comparing to business-as-usual or baseline scenario.

Implementation of the project will provide substantial economic, environmental, and social benefits to the Cities of Donetsk Region. Social impact of the project is positive since after project implementation the heat supply service will be improved and tariffs for heat energy will not be raised to cover construction costs.

Environmental impact of the project is expected to be very positive as emission of the exhaust gases such as CO2, NOx, and CO will be reduced. Also due to better after-implementation service, some part of population will cease to use electric heaters thus additionally reducing electricity consumption, which is related to power plants emissions of CO2, SOx, NOx, CO and particulate matter.

Estimated project risks are limited and minimized. Ukraine has claimed district heating and municipal energy sector as a priority of the national energy-saving development.
The identified areas of concern as to Description of the project, project participants response and BV Certification's conclusion are described in Appendix A Table 2 (refer to CL 01, CAR 01, CL 02, CAR 02, CAR 03).

4 DETERMINATION CONCLUSIONS

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

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 08 Corrective Action Requests, 05 Clarification Requests.

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

4.1 Project approvals by Parties involved (19-20)

The project has already received Letter of Endorsement № 1773/23/7 on the JI project "Rehabilitation of the District Heating Systems in Makiivka, Mariupol, Artemivsk Cities of Donetsk Region" dated 07/07/2011 issued by State Environmental Investment Agency of Ukraine.

Bureau Veritas Certification received this letter from the project participants and does not doubt its authenticity.

As for the time being no written approvals of the project by Parties involved are available. After receiving Determination Report from the Accredited Independent Entity the project documentation will be submitted to the Ukrainian Designated Focal Point (DFP) which is State Environmental Investment Agency of Ukraine, for receiving a Letter of Approval. The written approval by another Parties involved will be obtained later on.

Bureau Veritas Certification will check the letters against paragraphs 19 - 20 of the DVM.

4.2 Authorization of project participants by Parties involved (21)

The official authorization of each legal entity listed as project participant in the PDD by Parties involved will be provided in the written project approvals (refer to 4.1 above).

4.3 Baseline setting (22-26)

The PDD explicitly indicates that using a methodology for baseline setting and monitoring developed in accordance with appendix B of the JI guidelines (hereinafter referred to as JI specific approach) was the selected approach for identifying the baseline.

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:
- The first version of Baseline scenario was a business-as-usual scenario with minimum rehabilitation works balanced by overall degradation of DH system. For this Baseline scenario there are no barriers (no investment barrier since this scenario doesn't require the attraction of additional investments, and no technological barrier since the equipment is operated by existing skilled personnel, and additional re-training is not required), and represent the common practice in Ukraine.
- The second version of Baseline scenario was to make rehabilitation works without JI mechanism. In this case there exist both investment barrier since this scenario requires the attraction of large additional investments, and due to very large payback time and high risks it is not attractive for investments, and as well the technological barrier since operation of the new modern equipment will require additional re-training of personnel. Rehabilitation of heat supply equipment in order to improve its efficiency is not a common practice in Ukraine.
- The third version of Baseline scenario was the shortened project activity, without any of the non-key type of activity, for example elimination of frequency controllers installation, etc., from the project. This makes project economically less attractive, with the longer pay back period.
- Thus, the first version was chosen for Baseline scenario.

(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. In this context, the following key factors that affect a baseline are taken into account:

- The project activities including rehabilitation of boilers, heat distribution networks and installation of cogeneration units will increase energy efficiency of the district heating (DH) systems of the involved Cities of Donetsk region, thus enabling them to produce the same amount of heat energy with less fuel and power consumption. Reduced fuel and power consumption will lead to reduction of GHG emissions.
- In the absence of the proposed project, all equipment, including the old low efficient but still workable for a long life period one, will operate in as-usual mode, and any emission reductions will not occur.
- Ukraine has claimed district heating and municipal energy sector as a priority of the national energy-saving development. This is pointed out in the State Program for Reformation and Development of municipal economy, The Law of Ukraine “On energy saving” and The Law of Ukraine “On changes in The Law of Ukraine “On energy saving”. The law of Ukraine “On heat energy supply” regulates all relations in the heat supply market and stimulates the more rigid energy saving and implementation of energy-efficient technologies.

All explanations, descriptions and analyses pertaining to the baseline in the PDD were found adequate and the baseline is identified appropriately.

4.4 Additionality (27-31)

The most recent version of the “Tool for the demonstration and assessment of additionality” approved by the CDM Executive Board was used. All explanations, descriptions and analyses are made in accordance with the selected tool.

The PDD provides a justification of the applicability of the approach. Due to the fact that there is no approved CDM baseline and monitoring methodology which is applicable to the project type, the Additionality Tool is applied which is considered as a good practice for additionality justification.

Additionality proofs are provided. Three alternative scenarios to the project activity were identified and proven to be in compliance with mandatory legislation and regulations taking into account the enforcement in the region and Ukraine.

Among three standard methods of financial analysis offered by Tool the Developer selected Simple cost analysis. Indeed the Decree of Cabinet of Ministers of Ukraine “On the approval of the calculation of tariffs for

generation, transportation, supply of heat energy and district heating services and hot water supply" issued July 10th 2006 No955 does not contain any incentives for implementation of the energy saving projects at corporate level. The methodology introduced is directly based on the costs. As the result any savings achieved by the municipal operator will not generate any additional profits for the company and will lead to the proportional reduction of the selling tariff imposed by the regulator. Taking into account this fact the use of the simple cost analysis looks reasonable and correct.

Investment barriers

The general situation in District Heating sector in Ukraine may be characterized as quite insufficient. The existing district heating systems suffer from the same, well-known problems as those in other Central and European Countries. Old-fashioned Russian technology, oversized equipment, neglected maintenance and repairs, have resulted in increasing inefficiency. Typically, the overall efficiency of the DH systems (from fuel consumption in boilers to heat supplied to the building entrance) is about 50%. Including the losses within the buildings, it is estimated that only one third of the energy of the fuel is useful heat for the final consumers.

Non cost-covering tariffs can not meet the revenue requirements and subsidy payments are too small to cover all costs and are often delayed. In addition, collection rates are going in line with increasing tariffs. The current regulatory framework and tariff policy makes it difficult to attract private investors to district heating. Yet the main stakeholders, e.g. municipalities and residents, in most cases lack the necessary financing capacity. Yet, the current policy framework does not make district heating attractive for investment, which undermines its sustainability. Barriers to investment and efficiency improvements include (but are not limited to): the current pricing policy; lack of metering; the focus on heat production, not consumption; unclear ownership and management of buildings; and difficult access to financing for interested parties. Moreover, no bank gives credits without the proper guarantees. District heating enterprises that implement the project are communal ownership enterprises, and all theirs main funds belong to territorial population. For this reason the property of enterprises can not be a credit mortgage. Thus, the DH system rehabilitation without additional external investments (grants, subsidy, subvention, etc.) practically isn't possible, and in current situation practically only municipal or state financing might be used for this purposes. But Ukrainian government does not have enough funds for this, and insufficiency and delay of the budget financing of activity in this sector is the main its problem.

Technological barriers

1. Not all proposed technologies are widely approved already. Qualification of operational personal for implementation of the new technologies may be not sufficient to provide project implementation properly and in time.

Most of communal heating enterprisers in Ukraine fulfill annual minimal repairing of the DH system to keep it working. Particularly they execute repairing of network's parts and boilers that might cause accidents. The most economically feasible and realistic scenario without carbon credits sales is a very slow rehabilitation activity, instead of making a major overhaul of the heating system.

Most of proposed technologies are widely used in Ukraine for the similar JI projects. For example boilers replacement, network replacement with pre-insulated pipes, installation of frequency controllers, etc.

2. Efficiency of installed equipment could be lower than was claimed by producers or equipment may have substantial defects.

3. Available amount of natural gas. Last years Ukraine faced with incomplete delivery of natural gas from Russian Federation. Ukrainian Government realized attempts to decrease dependence from Russian natural gas delivery.

Common practice analysis
The common practice for district heating enterprises in Ukraine without JI is only a necessary repair of the old equipment, mainly in emergency cases, and not the renewal. Only with the JI component it is possible to obtain the necessary additional funds for real rehabilitation of the district heating system.

This is confirmed by the present situation that the real comprehensive rehabilitation of the district heating systems in Ukraine is performed only by the enterprises participating in JI projects. There are at least 9 District Heating Rehabilitation Projects with JI mechanism in Ukraine at advansed stages beside this project: for DH systems in Chernihiv region, Donetsk region, AR Crimea, Kharkiv city, Rivne region, Dnipropetrovsk Region, Luhansk city, Zaporizhzhia City, Sevastopol city. But other JI project activities are not to be included in Common practice analysis.

All District Heating Rehabilitation Projects in Ukraine are being implemented only within the framework of the Kyoto Protocol JI mechanism. In the absence of additional financing (such as grants, other non-commercial finance terms, carbon credits, etc) implementation of these projects would be impossible. Application of the JI mechanism is the only incentive to implement such projects.
Based on the available facts, the following conclusions may be made:

- Activities similar to this Project are not widespread in the housing and utilities sector of the Ukraine.

- These activities are not a result of national policy being pursued in respect to promoting the utilization of gas as a fuel in municipal heat supply systems.

Thus, the Project activities do not fall under the category of common practice. This testifies to the additionality of this Project.

Additionality is demonstrated appropriately as a result of the analysis using the approach chosen.

The identified areas of concern as to Additionality, project participants response and BV Certification's conclusion are described in Appendix A Table 2 (refer to CAR 04).

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:

(i) Under the control of the project participants, such as CO_2 emissions from fuel combustion in boilers, CO_2 emissions from fuel combustion in boilers at the boiler houses due to the too large heat losses in the networks, CO_2 emissions from power plant(s) due to electricity production to the grid, that is consumed by boiler houses, Reduced CO_2 emissions from fuel combustion in boilers due to increased efficiency and fuel saving, Additional CO_2 emissions at the boiler houses where the new cogeneration units will be installed due to additional fuel consumption by cogeneration units, Reduced CO_2 emissions from boiler houses due to decreasing of heat losses in the network pipes due to replacement pipes with the pre-insulated ones, implementation of new heat exchangers, transition from the existing CHSS to IHSS, Reduced CO_2 emissions from power plant(s) due to reduction of electricity consumption by boiler houses due to implementation of energy saving measurements and electricity production by new cogeneration units for own needs ;

(ii) Reasonably attributable to the project such as CO_2 emissions from fuel extraction and transportation, CO_2 emissions from

power plant(s) due to power consumption used for heating by customers of cities of Donetsk region. ; and

(iii) Significant, i.e., as a rule of thumb, would by each source account on average per year over the crediting period for more than 1 per cent of the annual average anthropogenic emissions by sources of GHGs, or exceed an amount of 2,000 tonnes of CO_2 equivalent, whichever is lower.

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

4.6 Crediting period (34)

The PDD states 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, and the starting date is 15/03/2006, which is after the beginning of 2000.

The PDD states the expected operational lifetime of the project in years and months, which is 26.25 years and 315 months.

The PDD states the length of the crediting period in years and months, which is 26.25 years or 315 months and its starting date as 01/10/2006, which is on the date the first emission reductions or enhancements of net removals are 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.

4.7 Monitoring plan (35-39)

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

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, such as statistics data; quality control (QC) and quality assurance (QA) procedures; Schemes of monitoring system and data collection for Monitoring Report, Responsibilities for data management the

operational and management structure that will be applied in implementing the monitoring plan.

The monitoring plan specifies the indicators, constants and variables that are reliable (i.e. provide consistent and accurate values), valid (i.e. be 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 such as Natural gas consumption at boiler houses, Coal consumption at boiler houses, Average annual Calorific Value of Natural Gas, Average annual Calorific Value of Coal, Average outside temperature during the heating period, Average inside temperature during the heating period, Number of Customers for hot water supply service, Heated area, Heat transfer factor of buildings, Heated area of buildings (previously existed in the base year) with the renewed (improved) thermal insulation in the reported year, Heated area of newly connected buildings (assumed with the new (improved) thermal insulation) in the reported year, Heat transfer factor of new buildings and buildings with new thermal insulation, Heating period duration, Duration of the hot water supply period, Maximum connected load to a boiler-house required for heating, Connected load to a boiler-house required for hot water supply service, Standard specific discharge of hot water per personal account, Carbon emission factors, Electricity consumption, Fuel consumption by the cogeneration units.

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), but that are not already available at the stage of determination, which are absent.

(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, which are absent.

(iii) Data and parameters that are monitored throughout the crediting period, such as Natural gas consumption at boiler houses, Coal consumption at boiler houses, Average annual Calorific Value of Natural Gas, Average annual Calorific Value of Coal, Average outside temperature during the heating period, Average inside temperature during the heating period, Number of Customers for hot water supply service, Heated area, Heat transfer factor of buildings, Heated area of buildings (previously existed in the base year) with the renewed (improved) thermal insulation in the reported year, Heated area of newly connected buildings (assumed with the new (improved) thermal

insulation) in the reported year, Heat transfer factor of new buildings and buildings with new thermal insulation, Heating period duration, Duration of the hot water supply period, Maximum connected load to a boiler-house required for heating, Connected load to a boiler-house required for hot water supply service, Standard specific discharge of hot water per personal account, Carbon emission factors, Electricity consumption, Fuel consumption by the cogeneration units. .

The monitoring plan describes the methods employed for data monitoring (including its frequency) and recording, such as direct measurement with gas and electricity meters; calculations with different recording frequency such as every day or once per year and electronic or paper recording method.

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.

Baseline emissions

Baseline emissions consist of two types of GHG emissions:
GHG emissions from boilers which are operated by the heat supply systems of the involved cities in Donetsk region;
GHG emissions from current power consumption from the state grid which will be reduced due to implementation of energy saving measures at boiler-houses and installation of cogeneration units for power generation for own needs of boiler-houses.

$E_b = E1_b + E2_b$

where:
$E1_b$ – emissions from heat generation sources operated by the heat supply systems of the involved Cities in Donetsk region, t CO_2e;
$E2_b$ – emissions due to electricity production to the grid, that is consumed by boiler houses and heat supply stations, t CO_2e;

1) Emissions from heat generating sources:
$E1_b = \sum (B_{b(i)}) * NCV_{b(i)} * Cef_i)$,

where:
$B_{b(i)}$ – fuel consumption in the baseline scenario (for each fuel), ths m^3 (t);
$NCV_{b(i)}$ – Net calorific value for each fuel, GJ/ths m^3 (GJ/t);
Cef_i- – Carbon Emission Factors for each fuel, t CO_2/GJ.

2) GHG emissions due to electricity production to the grid, that is consumed by boiler houses and heat supply stations.
$E2_b = P_b * CEF_c$,

where:
P_b – annual power consumption of boiler houses and heat supply stations, MWh;
CEF_c – Carbon Emission factor for projects on reducing electricity consumption, tCO_2e/MWh.

Project emissions

There are three kinds of emissions which are included in the project scenario:

1) GHG emissions from boilers which are operated by the heat supply systems of the involved cities in Donetsk region;
2) GHG emissions from fuel consumption by the new cogeneration units;
3) GHG emissions from the power consumption from the state grid in the reported year.

Project emissions consist of three types of GHG emissions:

$E_r = E1_r + E2_r + E3_r$

Where:
$E1_r$ – emissions from heat generation sources operated by the heat supply systems of the involved cities in Donetsk region, t CO_2e;
$E2_r$ – emissions from fuel consumption by the new cogeneration units, t CO_2e;
$E3_r$ – emissions due to electricity production to the grid, that consumed by boiler houses and heat supply stations, t CO_2e;

Project scenario emissions from boiler-houses are a sum of prognostic fuel amounts to be consumed in any reported year multiplied by corresponding conversion factors. Prognostic – means estimated fuel consumption in the project scenario after rehabilitation of boiler equipment, with subtracted fuel saving due to improving of the network efficiency, reconstruction and liquidation of heat supply stations.

$E1_r = \sum ([B_{r(i)} – V_{(i)} – Q_{(i)}] * NCV_{(i)} * Cef_i)$;

where:
$E1_r$ – project emissions from boiler-houses in any reported year, t CO_2e;
$B_{r(i)}$ – fuel consumption by (i) boiler-house in the project scenario (for each fuel), ths m^3 (t);
$V_{(i)}$ –fuel saving due to rehabilitation of network relative to (i) boiler-house for each fuel, ths m^3 (t);
$Q_{(i)}$ - fuel saving due to rehabilitation of heat supply stations for each fuel (including heat exchangers replacement, transition from CHSS to IHSS) for each fuel, ths m^3 (t);
$NCV_{(i)}$ – Net calorific value for each fuel, GJ/ ths m^3 (GJ/t);
Cef_{i-} – Carbon Emission Factor for each fuel, t CO_2/GJ.

$E2_r = B_g * NCV * Cef$;

where:
B_g – calculated amount of fuel (gas) consumed by the new cogeneration units, ths m^3;

$E3_r = (P_b – P1_r – P2_r – P3_r – P4_r)* CEF_c$

where:
P_b – annual power consumption of boiler houses, MWh;
CEF_c – Carbon Emission factors for projects on reducing electricity consumption, tCO_2e/MWh;
$P1_r$ – calculated power saving due to frequency controllers installation, MWh;
$P2_r$ – calculated power saving due to heat exchangers replacement, MWh;
$P3_r$ - calculated power saving due to replacement of pumps, MWh;
$P4_r$ - power generation by the new cogeneration units, MWh.

Emission reductions are calculated using the equation:

$ERUs = E_b – E_r$.

where:
ERUs – emission reduction units, t CO_2e;
E_r – project emissions, t CO_2e;
E_b – baseline emissions, t CO_2e.

The monitoring plan presents the quality assurance and control procedures for the monitoring process which are described in the section

D.2 and Annex 3 of the PDD. This includes, as appropriate, information on calibration and on how records on data and/or method validity and accuracy are kept.

The monitoring plan clearly identifies the responsibilities and the authority regarding the monitoring activities.
Data collection for fuel consumption is provided in the following way:
1. Natural gas consumption is measured by gas flow meter, installed at a boiler-house. All boiler-houses are equipped with gas flow meters.
2. The majority of boiler-houses are equipped with automatic correctors for temperature and pressure. Gas consumption is registered automatically. Every day operator of a boiler house makes registration of daily gas consumption in the special paper journal “Journal of registration of boiler-house’s operation parameters”.
3. At the boiler-houses that are not equipped with gas volume correctors, operator of a boiler house every 2 hours registers parameters of natural gas (temperature and pressure) in the paper journal “Journal of registration of boiler-house’s operation parameters”. These parameters are used to bring gas consumption to normal conditions.
4. Every day operators report values of gas consumption by phone to Production-Technical Department (PTD) of ME “Makiivteplomerezha”, MCE “Mariupolteplomerezha” and “Artemivsk-Energy”, Ltd., correspondingly, where they are storing and used for payments to gas suppliers.
5. Every month the account centers transfer data to gas suppliers.

Responsibilities for data management are presented in Table An3-5 of PDD.

On the whole, the monitoring report 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 BV Certification’s conclusion are described in Appendix A Table 2 (refer to CAR 05, CL 03, CAR 06, CAR 07).

4.8 Leakage (40-41)

No leakage is expected in proposed project activity.
.

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

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

The PDD provides the ex ante estimates of:

(a) Emissions for the project scenario (within the project boundary), which are 1 200 519 tons of CO_2e for 2006-2007, 2 710 032 tons of CO_2e for 2008-2012 and 10 031 840 tons of CO_2e for 2013-2032;

(b) No leakage is expected.

(c) Emissions for the baseline scenario (within the project boundary), which are 1 259 316 tons of CO_2e for 2006-2007, 3 288 226 tons of CO_2e for 2008-2012 and 13 152 900 tons of CO_2e for 2013-2032.

(d) Emission reductions adjusted by leakage, which are 58 797 tons of CO_2e for 2006-2007, 578 196 tons of CO_2e for 2008-2012 and 3 121 060 tons of CO_2e for 2013-2032.

The estimates referred to above are given:

(a) On a annual basis;

(b) From 01/10/2006 to 31/12/2032, covering the whole crediting period;

(c) On a source-by-source/sink-by-sink basis;

(d) For each GHG gas, which are CO_2

(e) In tonnes of CO_2 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 formulas used for calculating the estimates referred above are the same as those used for project monitoring and described in the section 4.7 above. All formulas are consistent throughout the PDD.

For calculating the estimates referred to above, key factors, e.g. fuel and equipment prices and availability, expected market development, etc. 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 were taken into account, as appropriate.

Data sources used for calculating the estimates referred to above, such as statistic data, actual historical monitored data, IPCC etc. are clearly identified, reliable and transparent.

Emission factors, such as Carbon emission factor for JI projects reducing electricity consumption, Carbon emission factor for coal, Carbon emission factor for natural gas were selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.

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 or enhancements of net removals 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.

4.10 Environmental impacts (48)

The PDD lists and attaches documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party, such as Law of Ukraine # 1264-XII “On environmental protection”, Law of Ukraine # 2707-XII “On atmospheric air protection”, Norms of limit admissible emissions of pollution agents from stationary sources” – adopted by Ministry for Environmental Protection of Ukraine, the Law of Ukraine «On ecological expertise», DBN A.2.2-1-2003, Water Code of Ukraine, GOST 28.74-82 “Hygienic regulations and quality control”, SNiP 4630-92, GOST

17.4.1.02.-83 “Protection of Nature, Soils. Classification of chemical substances for pollution control”, Law on waste products.

The PDD provides conclusion and all references to supporting documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party, if the analysis referred to above indicates that the environmental impacts are considered significant by the project participants or the host Party.

The identified areas of concern as to Environmental impacts, project participants response and BV Certification’s conclusion are described in Appendix A Table 2 (refer to CAR 08, CL 04).

4.11 Stakeholder consultation (49)

As project activity won’t provide negative influence on environment and negative social effect, special public discussion was not hold. The authorities (city councils that are the representatives of the population) of Makiivka, Mariupol and Artemivsk Cities of Donetsk region have expressed the support for the project.

Project “Rehabilitation of the District Heating Systems in Makiivka, Mariupol, Artemivsk Cities of Donetsk Region” was presented at the XX and XXI International Conferences “Problems of Ecology and Exploitation of Energy Objects” (Yalta, 2010 and 2011), where it was comprehensively discussed with representatives of governmental and district heating organizations.

The identified areas of concern as to Stakeholder consultation, project participants response and BV Certification’s conclusion are described in Appendix A Table 2 (refer to CL 05).

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 District Heating Systems in Makiivka, Mariupol, Artemivsk Cities of Donetsk Region” Project in 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 participant/s used the latest tool for demonstration of the additionality. In line with this tool, the PDD provides barrier analysis, investment analysis and 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 two pending issues related to the current determination stage of the project: the issue of the written approval of the project and the authorization of the project participant 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 (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 RME “Donetskteplocomunenergo” and that relate directly to the GHG components of the project.

/1/ PDD “Rehabilitation of the District Heating Systems in Makiivka, Mariupol, Artemivsk Cities of Donetsk Region”, version 02 dated 29/06/2011
/2/ PDD “Rehabilitation of the District Heating Systems in Makiivka, Mariupol, Artemivsk Cities of Donetsk Region”, version 03 dated 21/07/2011
/3/ PDD “Rehabilitation of the District Heating Systems in Makiivka, Mariupol, Artemivsk Cities of Donetsk Region”, version 04 dated 02/08/2011
/4/ Guidelines for Users of the Join Implementation Project Design Document Form, version 04, JISC
/5/ Joint Implementation Project Design Document Form, version 01
/6/ Glossary of JI terms, version 03, JISC.
/7/ Guidance on Criteria for Baseline Setting and Monitoring, version 02, JISC.
/8/ Tool for the demonstration and assessment of additionality, Version 05.2
/9/ JISC “Clarification regarding the public availability of documents under the verification procedure under the Joint Implementation Supervisory Committee.” Version 03
/10/ Joint Implementation Determination and Verification Manual. Version 01
/11/ Letter of Endorsement № 1773/23/7 on the JI project “Rehabilitation of the District Heating Systems in Makiivka, Mariupol, Artemivsk Cities of Donetsk Region” dated 07/07/2011 issued by State Environmental Investment Agency of Ukraine

Category 2 Documents:
Background documents related to the design and/or methodologies employed in the design or other reference documents.

/ 1 / Agreement on development and promotion of the Joint Implementation Project “Rehabilitation of the District Heating Systems of Donetsk Region 2” between the RME “Donetskteplocomunenergo” and the ME “Makiivteplomerezha” (#380 dated 15.03.2006)
/ 2 / Agreement on development and promotion of the Joint Implementation Project “Rehabilitation of the District Heating Systems of Donetsk Region 2” between the RME “Donetskteplocomunenergo” and the CME “Artemivskteplomerezha” (dated 15.03.2006).

/ 3 / Agreement on shared participation in development and promotion of the Joint Implementation Project “Rehabilitation of the District Heating Systems of Donetsk Region” between the RME “Donetskteplocomunenergo” and the MCE “Mariupolteplomerezha” (dated 20.07.2006)
/ 4 / Agreement between the RME “Donetskteplocomunenergo”and the ME “Makiivteplomerezha”, the MCE “Mariupolteplomerezha” and the CME “Artemivskteplomerezha” on joining of efforts of the parties for realization of the Joint Implementation Project ““Rehabilitation of the District Heating Systems in Makiivka, Mariupol, Artemivsk Cities of Donetsk Region” (#55 dated 09.08.2006).
/ 5 / The concession contract between the City Council and Artyomovsk and "Artemivsk-Energy", Ltd., Approved by Decision of City Council of 20/06/2007 № 5/17-359
/ 6 / Appendix № 3 to the concession contract - Investment plan.
/ 7 / Decision of Makiivka city council on approval of the participation of ME “Makiivteplomerezha” in JI project implementation #7/12 dated 27.04.2011
/ 8 / Decision of Mariupol city council on approval of the JI project “Rehabilitation of the District Heating Systems in Makiivka, Mariupol, Artemivsk Cities of Donetsk Region” implementation #6/7-550 dated 19.04.2011
/ 9 / Decision of Artemivsk city council on approval the JI project “Rehabilitation of the District Heating Systems in Makiivka, Mariupol, Artemivsk Cities of Donetsk Region” implementation #6/6-125 dated 27.04.2011
/ 10 / Letter № 15-7996 Statement of categories of electricity dated 15/07/2011
/ 11 / Order number 71 to form a working group for JI project dated 07/07/2011
/ 12 / Statement About the presence on the balance boiler house and boiler equipment dated 16/03/2006
/ 13 / Assessment of the environmental impact of the project "Reconstruction of boiler house number 33 on Yubileynoy, 117
/ 14 / Act of Handover pumping station boiler DN150 dated 18/03/2010
/ 15 / Act of Handover WILO pump with motor dated 18/03/2010
/ 16 / Act of Handover Boilers Riello-17-50 dated 18/03/2010
/ 17 / Act of Handover burner modulation from Riello RS 250/MMZ dated 18/03/2010
/ 18 / Act of Handover of heating system to the TC 52 dated 30/03/2010
/ 19 / The act of putting the equipment into operation on the boiler house № 36 on the Karpinski, 1-10a
/ 20 / Passport of gas meter G 650 LG-K 150-1/30-0,63-1 Ex № 10 539
/ 21 / Photo - gas meter G 650 LG-K150-1/30-0,63-1 Ex № 10 539
/ 22 / Information about verification of the gas meter G 650 LG-K 150-1/30-0,63-1 Ex № 10539 dated 16/03/2010
/ 23 / Passport for electricity meter SL 7000 Smart № 53095274

/ 24 / Photo - electricity meter SL 7000 Smart № 53095274
/ 25 / Passport electricity meter SL 7000 Smart № 53095275
/ 26 / Photo - electricity meter SL 7000 Smart № 53095274
/ 27 / Certificate for verification of knowledge production instructions and safety rules №87 / 4 Vorobkalovoy S.V.
/ 28 / Logbooks of the primary account of the boilerhouses 2008-2011
/ 29 / Passport gas meter RG-K-1000-EX number 1320 with information on the verification in the third quarter of 2010
/ 30 / Photo gas meter RG-K-1000-EX № 1320
/ 31 / Passport gas meter LG-K-200-1000-EX № 5335 with information on the verification in the third quarter of 2010
/ 32 / Photo gas meter LG-K-200-1000-EX № 5335
/ 33 / Passport electricity meter NIK 2303 ARK 1 № 0052849 with information on the verification dated 21/08/2010
/ 34 / Photo electricity meter NIK 2303 ARK 1 № 0052849
/ 35 / Passport ultrasonic gas meter "Kourse - 01» G № 100 052 6274 with information on the verification dated 12/11/2010
/ 36 / Photo electricity meter NIK 2303 ARK 1 № 0052849
/ 37 / Passport electricity meter SL 7000 Smart № 53001802
/ 38 / Photo – electricity meter SL 7000 Smart № 53001802
/ 39 / Act-order number 039325 from 12/03/2009 on the establishment of electricity meters
/ 40 / Passport electricity meter A1140 Alpha number 05011787 with information on the verification dated 22/07/2010
/ 41 / Photo - electricity meter A1140 Alpha № 05011787
/ 42 / Act of checkup number 372354 dated 11/11/2010
/ 43 / Report on Air Protection in 2010 №2TP"vozduh" for 2008-2010 of ME "Makiivteplomerezha"
/ 44 / Report on Air Protection in 2010 №2TP"vozduh" for 2008-2010 of MCE "Mariupolteplomerezha"
/ 45 / Report on Air Protection in 2010 №2TP"vozduh" for 2008-010 of "Artemivsk-Energy", Ltd.
/ 46 / Passport to the gas volume calculator "Universal-02» № 646
/ 47 / Information about the verification of gas volume calculator "Universal-02» № 646 dated 07/06/2011
/ 48 / Photo – gas volume calculator "Universal-02» № 646
/ 49 / Certificate of verification of temperature converter PVT-01-1 № 314 dated 12/05/2011
/ 50 / Photo temperature converter PVT-01-1 № 314
/ 51 / Passport №2 to the pressure sensor MIDA-AP 13P.01 № 01139399 with information on the verification dated 13/05/2011
/ 52 / Photo - pressure sensor MIDA-AP 13P.01 № 01139399
/ 53 / Passport to the gas meter LG-K-80 №8685 with information on the verification dated 01/04/2010
/ 54 / Photo - gas meter LG-K-80 №8685
/ 55 / Certificate of verification automatic gas metering device FLOW-DN-03 № 03/02 dated 17/10/2010

/ 56 / Photo - automatic gas metering device FLOW-DN-03 № 03/02
/ 57 / Passport to the pressure sensor Metran-43DD № 9183 with information on the verification dated 10/06/2011
/ 58 / Photo - pressure sensor Metran-43DD № 9183
/ 59 / Passport to the pressure sensor Metran-43DD № 7187 with information on the verification dated 10/06/2011
/ 60 / Photo - pressure sensor Metran-43DD № 7187
/ 61 / Certificate of verification temperature sensor TSMU-IP-205 from 10/06/2011 № 51
/ 62 / Photo- temperature sensor TSMU-IP-205 № 51
/ 63 / Passport pressure sensor Safir-M 5050 № 07127861 with information on the verification dated 10/06/2011
/ 64 / Photo - pressure sensor Safir-M 5050 № 07127861
/ 65 / Passport to the diaphragm in the boilerhouse on Kazantseva 17 with information on the verification dated 07/06/2011
/ 66 / The checkup protocol № 757 from 15/06/2011 of gas volume corrector V25 № 01006
/ 67 / Passport to the gas counter RG-K-100 №10186 with information on the verification dated 07/06/2010
/ 68 / Photo - gas meter RG-K-100 № 10186
/ 69 / Certificate of verification of gas volume corrector V25 № 01006 dated 15/06/2011
/ 70 / Photo - gas volume corrector V25 № 01006
/ 71 / Protocol № 33 committee meeting to verify the knowledge dated 20/09/2010
/ 72 / Protocol № 34 committee meeting to verify the knowledge dated 21/09/2010
/ 73 / Protocol № 35 committee meeting to verify the knowledge dated 21/09/2010
/ 74 / Protocol № 36 committee meeting to verify the knowledge dated 22/09/2010
/ 75 / Protocol № 37 committee meeting to verify the knowledge dated 22/09/2010
/ 76 / Protocol № 39 committee meeting to verify the knowledge dated 23/09/2010
/ 77 / Protocol № 40 committee meeting to verify the knowledge dated 24/09/2010
/ 78 / Protocol № 41 committee meeting to verify the knowledge dated 29/09/2010
/ 79 / Protocol № 43 committee meeting to verify the knowledge dated 06/10/2010
/ 80 / Protocol № 48 committee meeting to verify the knowledge dated 29/12/2010
/ 81 / License for production of heat energy АБ №345052 valid to 12/06/2012 (RME “Donetskteplokomunenergo”)
/ 82 / License for production of heat energy АБ №345151 valid to 19/09/2012 (ME “Makiivteplomerezha”)
/ 83 / License for production of heat energy АБ №347000 valid to 31/03/2013 (MCE “Mariupolteplomerezha”)
/ 84 / License for production of heat energy АБ №345158 valid to 19/09/2012 (“Artemivsk-Energy”, Ltd.)

Persons interviewed:

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

/1/ Vasyl Vorotyntsev - The General Director of RME “Donetskteplocomunenergo”

/2/ Viktoriya Kucherenko - RME “Donetskteplocomunenergo”, Deputy General director on investments and strategic development

/3/ Kateryna Pahomova - RME “Donetskteplocomunenergo”, the first category engineer of the Prospective development department

/4/ Natalia Ryazantseva - ME “Makiivteplomerezha”, senior engineer of exploitation service

/5/ Tetyana Shabanova - MCE “Mariupolteplomerezha”, head of the Production-Technical Department

/6/ Valanchyus Albertas - Director of “Artemivsk-Energy”, Ltd.

/7/ Lubov Kravtsova - “Artemivsk-Energy”, Ltd., head of the Production-Technical Department

/8/ Popova M.A - Senior Engineer of labor protection department

/9/ Shaporenko L.V. – Boiler house master

/10/ Mynenko A.S. - Boiler house master

/11/ Dmytro Paderno - Institute of Engineering Ecology, Deputy director

/12/ Kateryna Korinchuk - Institute of Engineering Ecology, engineer

DETERMINATION PROTOCOL

" REHABILITATION OF THE DISTRICT HEATING SYSTEMS IN MAKIIVKA, MARIUPOL, ARTEMIVSK CITIES OF DONETSK REGION" REPORT NO. UKRAINE-DET/0294/2011

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?	The title of the project is: " Rehabilitation of the District Heating Systems in Makiivka, Mariupol, Artemivsk Cities of Donetsk Region".	OK	OK
-	Is the sectoral scope to which the project pertains presented?	Sectoral scopes: 01 Energy industries (renewable - / non-renewable sources); 02 Energy distribution; 03 Energy demand.	OK	Ok
-	Is the current version number of the document presented?	The current version number of the document is presented. See section A.1.	OK	OK
-	Is the date when the document was completed presented?	The date of completeness of the current version of the project design document is indicated in the PDD section A.1.	OK	OK
Description of the project				
-	Is the purpose of the project included with a	a) Situation existing prior to the starting date of the project:	CL 01	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	concise, summarizing explanation (max. 1-2 pages) of the: a) Situation existing prior to the starting date of the project; b) Baseline scenario; and c) Project scenario (expected outcome, including a technical description)?	The common practice for the district heating enterprises in Ukraine including district heating enterprises that implement the project is to fulfil annual minimal repairing of the DH system to keep it working. Particularly it executes repairing of network's parts and boilers that might cause accidents. b) Baseline scenario: For Baseline scenario, the economically feasible and realistic scenario with very slow rehabilitation activities was chosen. Tariffs for heat do not include the resources for prospective rehabilitation of the district heating system, only the resources for probable necessary repairing after possible accidents. Minimal annual repairing doesn't lead to drooping of baseline emissions because of degradation of the whole system with efficiency droop at other objects, the overall actual emissions of Supplier would stay on the same level. This scenario is not environmentally favorable for the near future (including first commitment period 2008-2012), since GHGs emissions of Supplier will continue to be kept at the same level or even higher, but economically such scenario is attractive. c) Project scenario The project employs the increase of fuel and electricity consumption efficiency to reduce greenhouse gas emissions relative to current practice. The following activities will ensure fuel saving: -Replacement of old boilers by the new highly efficient boilers; -Rehabilitation of boilers with increasing of their efficiency; -Switching of load from boiler-houses with obsolete equipment to modern equipped boiler houses; -Switching of boiler-houses from coal to natural gas; -Burners replacement; -Installation of heat utilizers;	CAR 01 CL 02 CAR 02	

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		-Improving of the network organization; -Application of the pre-insulated pipes; -Transition from the existing CHSS to IHSS; -Installation of cogeneration units; -Replacement of heat exchangers; -Replacement of pumps; -Installation of frequency controllers at electric drives of draught-blowing equipment and pumps. CL 01. Please provide a detailed description of the dimension Nm^3. CAR 01. Link to the ask-energy.ru on page 10 is not working. CL 02. Please provide licenses are specified in project of district heating enterprises. CAR 02. There are errors in the Ukrainian version of the PDD (ex. Table 1 Dod3 column 2; section G1 second paragraph, before the brackets) .		
-	Is the history of the project (incl. its JI component) briefly summarized?	The history of the project (incl. its JI component) is briefly summarized.	OK	OK
Project participants				
-	Are project participants and Party(ies) involved in the project listed?	Project participant and partie involved are listed in the Table in section A.3. of the PDD.	OK	OK
-	Is the data of the project participants presented in tabular format?	The data of the project participants are presented in due tabular format.	OK	OK
-	Is contact information provided in Annex 1 of the PDD?	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 is indicated as Host Party.	OK	OK
Technical description of the project				
Location of the project				

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
-	Host Party(ies)	Ukraine	OK	OK
-	Region/State/Province etc.	Donetsk region	OK	OK
-	City/Town/Community etc.	Makiyivka, Mariupol, Artemivsk cities	OK	OK
-	Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page)	Makiyivka city (48.06 N 37.94 E) Mariupol city (47.120 N 37.550 E) Artemivsk city (48.61 N 37.99 E)	OK	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 implemented by the project, including all relevant technical data and the implementation schedule described?	PDD Section A.4.2 provides some relevant technical data of main equipment installed and actions to be implemented by the project as well as the project implementation schedule. CAR 03. It is needed to describe in detail the implementation of measures in Schedule of the Project implementation, Table 2.	CAR 03	OK
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)	The project activities including rehabilitation of boilers, heat distribution networks and installation of cogeneration units will increase energy efficiency of the district heating (DH) systems of the involved Cities of Donetsk region, thus enabling them to produce the same amount of heat energy with less fuel and power consumption. Reduced fuel and power consumption will lead to reduction of GHG emissions.	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 tCO2e?	The estimated annual reduction for the chosen credit period is provided in tCO_2e.	OK	OK
-	Are the data from questions above presented in	The data from questions above are presented in tabular	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	tabular format?	format. Refer to Tables in section A.4.3.1.		
Estimated amount of emission reductions over the crediting period				
-	Is the length of the crediting period Indicated?	The length of crediting period is indicated in the PDD section A.4.3.1.	OK	OK
-	Are estimates of total as well as annual and average annual emission reductions in tonnes of CO2 equivalent provided?	Total as well as annual and average annual emission reductions in tonnes of CO_2 equivalent are provided in accordance with the calculated values in the spreadsheet provided to the verifier.	OK	OK
Project approvals by Parties				
19	Have the DFPs of all Parties listed as "Parties involved" in the PDD provided written project approvals?	The project is already approved by local authorities and representative of the Government of Ukraine, namely by the Makiivka and Mariupol city councils, and the State Environmental Investment Agency of Ukraine (responsible authority for the Kyoto Protocol activity in Ukraine). Ukrainian DFP – the State Environmental Investment Agency of Ukraine has issued the Letter of Endorsement for this project (# 1773/23/7 dated 07/07/2011). According to the adopted procedure, the LoAs by Parties involved will be issued after the project determination.	OK	OK
19	Does the PDD identify at least the host Party as a "Party involved"?	Host Party involved is the Ukraine.	OK	OK
19	Has the DFP of the host Party issued a written project approval?	According to the adopted procedure, the LoAs by Parties involved will be issued after the project determination.	OK	OK
20	Are all the written project approvals by Parties involved unconditional?	According to the adopted procedure, the LoAs by Parties involved will be issued after the project determination.	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	Party involved 1: Ukraine (host Party), legal entities are RME "Donetskteplocomunenergo".	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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?	Party involved 2: The Netherlands, legal entity is "E – energy B.V.".		
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 baseline scenario was chosen based on project-specific approach in accordance with paragraph 9(a) of the JISC Guidance on Criteria for Baseline Setting and Monitoring". 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.	OK	OK
JI specific approach only				
23	Does the PDD provide a detailed theoretical description in a complete and transparent manner?	The theoretical description is provided in the PDD.	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	The PDD provides justification that the baseline is established by listing and describing plausible future scenarios on the basis of conservative assumption and selecting the most plausible one.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	choice of approaches, assumptions, methodologies, parameters, date 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?			
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 supplementary developed by the project participants in line with 23 above?	N/A	N/A	N/A
25	If a multi-project emission factor is used, does the PDD provide appropriate justification?	N/A	N/A	N/A
Approved CDM methodology approach only				
26 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	N/A	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)?	N/A	N/A	N/A
26 (b)	Does the PDD provide a description of why the approved CDM methodology is applicable to the project?	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
26 (c)	Are all explanations, descriptions and analyses pertaining to the baseline in the PDD made in accordance with the referenced approved CDM methodology?	N/A	N/A	N/A
26 (d)	Is the baseline identified appropriately as a result?	N/A	N/A	N/A
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 PDD section B.2 includes analysis of project additionality and is intended to demonstrate that the project scenario is not part of the identified baseline scenario and that the project will lead to reductions of GHG emissions in comparison to the baseline. The analysis is performed based on the latest version (version 05.2) of the Tool for the Demonstration and Assessment of Additionality approved by CDM Executive Council and accordingly may be fully applied to Joint Implementation Projects. CAR 04. It is needed changing the link leading to the Decree of Cabinet of Ministers of Ukraine No955 to the right one.	CAR 04	OK
29 (a)	Does the PDD provide a justification of the applicability of the approach with a clear and transparent description?	See section 22 of this table.	OK	OK
29 (b)	Are additionality proofs provided?	The additionality of the project activity is demonstrated and assessed with using the "Tool for the demonstration and	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		assessment of additionality" (Version 5.2). To demonstrate of additionality applied: - Identification of alternatives to the project activity consistent with current laws and regulations - Investment analysis - Barrier analysis - Common practice analysis. The mentioned approach of JI leads to the conclusion that the project activity is additional.		
29 (c)	Is the additionality demonstrated appropriately as a result?	Yes, the additionality demonstrated appropriately as a result	OK	OK
30	If the approach 28 (c) is chosen, are all explanations, descriptions and analyses made in accordance with the selected tool or method?	Yes. See section B.2 of the PDD.	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?	N/A	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?	N/A	N/A	N/A
31 (c)	Are all explanations, descriptions and analyses with regard to additionality made in accordance with the selected methodology?	N/A	N/A	N/A
31 (d)	Are additionality proofs provided?	N/A	N/A	N/A
31 (e)	Is the additionality demonstrated appropriately as a result?	N/A	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	The project's spatial boundaries are defined in the PDD. See section B.3.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	by sources of GHGs that are: (i) Under the control of the project participants? (ii) Reasonably attributable to the project? (iii) Significant?			
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?	See section 32 (a) of this table.	OK	OK
32 (c)	Are the delineation of the project boundary and the gases and sources included appropriately described and justified in the PDD by using a figure or flow chart as appropriate?	The delineation of the project boundary and the gases and sources included described in the PDD by using figure.	OK	OK
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; refer to 32 (a) above. All exclusions made are appropriate as a conservative or logic assumption.	OK	OK
Approved CDM methodology approach only				
33	Is the project boundary defined in accordance with the approved CDM methodology?	N/A	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 PDD states 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, and the starting date is 15/03/2006	OK	OK
34 (a)	Is the starting date after the beginning of 2000?	Refer to 34 (a).	OK	OK
34 (b)	Does the PDD state the expected operational lifetime of the project in years and months?	Operational lifetime is defined as 26.25 years (315 months).	OK	OK
34 (c)	Does the PDD state the length of the crediting period in years and months?	PDD state the length of the crediting period in years and 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?	Yes. The starting date of the crediting period is after the date of the first emission reductions.	OK	OK
34 (d)	Does the PDD state that the crediting period for	Yes. According to the PDD the crediting period for issuance	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	issuance of ERUs starts only after the beginning of 2008 and does not extend beyond the operational lifetime of the project?	of ERUs does not extend beyond 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?	The estimated emission reductions are provided in the table of the PDD section A.4.3.1.	OK	OK
Monitoring plan				
35	Does the PDD explicitly indicate which of the following approaches is used? − JI specific approach − Approved CDM methodology approach	It is explicitly indicated that a JI specific approach is chosen.	OK	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?	The monitoring plan describes: - - data to be monitored: Natural gas consumption at boiler houses, Coal consumption at boiler houses, Average annual Calorific Value of Natural Gas, Average annual Calorific Value of Coal, Average outside temperature during the heating period, Average inside temperature during the heating period, Number of Customers for hot water supply service, Heated area, Heat transfer factor of buildings, Heated area of buildings (previously existed in the base year) with the renewed (improved) thermal insulation in the reported year, Heated area of newly connected buildings (assumed with the new (improved) thermal insulation) in the reported year, Heat transfer factor of new buildings and buildings with new thermal insulation, Heating period duration, Duration of the hot water supply period, Maximum connected load to a boiler-house required for heating, Connected load to a boiler-house required for hot water supply service, Standard specific discharge of hot water per	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		personal account, Carbon emission factor, Electricity consumption, Fuel consumption by the cogeneration units. - the period in which they will be monitored: every day or once per year; - all decisive factors for the control and reporting of project performance: statistics forms; quality control (QC) and quality assurance (QA) procedures; the operational and management structure that will be applied in implementing the monitoring plan.		
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?	The monitoring plan specifies variables used. It provides transparent picture of the emission reductions.	OK	OK
36 (b)	If default values are used: − 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?	Constants used are the default values of the parameters as carbon emission factor of each fuel. The default values originate from recognized sources and are presented in a transparent manner.	OK	OK
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?	The monitoring plan indicates how the values are to be selected and justified.	OK	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	CAR 05. Links 2, 5, 12, 17, 19 are not working CL 03. Please provide the KTM 204 Ukraina 244-94 (link 21).	CAR 05 CL 03	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	provided justified?			
36 (b) (iii)	For all data sources, does the monitoring plan specify the procedures to be followed if expected data are unavailable?	See section D of the PDD.	OK	OK
36 (b) (iv)	Are International System Unit (SI units) used?	SI units are used. Also there are data units used in accordance with the applied JI specific approach.	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?	See section B.1 of the PDD.	OK	OK
36 (b) (v)	Is the use of parameters, coefficients, variables, etc. consistent between the baseline and monitoring plan?	There is consistency between parameters, coefficients, variables, etc. used in baseline and monitoring plan.	OK	OK
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 draws on the list of standard variables contained in appendix B of "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?	See the PDD section D.1. The data and parameters that are monitored throughout the crediting period are clearly indicated in the PDD (section D.1. and Annex 3).	OK	OK
36 (e)	Does the monitoring plan describe the methods employed for data monitoring (including its	In the table of the PDD section D.1.1 the time of monitoring (frequency) and the source of data to be used are indicated	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	frequency) and recording?	for all the monitored parameters and data.		
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?	All algorithms and formulae used for the estimation of baseline and project emissions are indicated and explained in the PDD.	OK	OK
36 (f) (i)	Is the underlying rationale for the algorithms/formulae explained?	The underlying rationale for the algorithms/formulae is explained.	OK	OK
36 (f) (ii)	Are consistent variables, equation formats, subscripts etc. used?	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?	The conservativeness of the algorithms/procedure is indicated in the PDD.	OK	OK
36 (f) (v)	To the extent possible, are methods to quantitatively account for uncertainty in key parameters included?	Uncertainty level of data is indicated in the table of Quality control and quality assurance (QA) procedures undertaken for the data monitored (see section D.2 of the PDD).	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?	There is consistency between the elaboration on the baseline scenario and calculating the baseline emission in the monitoring plan and on spreadsheet.	OK	OK
36 (f) (vii)	Are any parts of the algorithms or formulae that are not self-evident explained?	The formulae used in the PDD are sufficiently described.	OK	OK
36 (f) (vii)	Is it justified that the procedure is consistent with standard technical procedures in the relevant sector?	Relevant national and/or sectoral policies and circumstances are taken into account in the project.	OK	OK
36 (f) (vii)	Are references provided as necessary?	CAR 06. There must be a direct link to regulatory documents for all parameters.	CAR 06	OK
36 (f) (vii)	Are implicit and explicit key assumptions explained in a transparent manner?	All key assumptions are explained in a transparent manner if needed.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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?	See section 36 (f) (v) of this table.	OK	OK
36 (f) (vii)	Is the uncertainty of key parameters described and, where possible, is an uncertainty range at 95% confidence level for key parameters for the calculation of emission reductions or enhancements of net removals provided?	See section 36 (f) (v) of this table.	OK	OK
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?	Relevant national and/or sectoral policies and circumstances are taken into account while developing the monitoring plan for this project.	OK	OK
36 (h)	Does the monitoring plan document statistical techniques, if used for monitoring, and that they are used in a conservative manner?	See section D of the PDD.	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?	Uncertainty level of data is indicated in the table of Quality control and quality assurance (QA) procedures undertaken for the data monitored. Information on calibration procedures were checked during site-visit and found satisfactory. CAR 07. It is needed to add the detailed information about measuring instruments to the PDD.	CAR 07	OK
36 (j)	Does the monitoring plan clearly identify the responsibilities and the authority regarding the monitoring activities?	The General Director of the RME “Donetskteplocomunenergo”, Mr. Vasyl Vorotyntsev, has appointed a responsible person, Ms. Victoriya Kucherenko, Deputy director on investments and strategic development of	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		RME “Donetskteplocomunenergo”, for the implementation and management of the monitoring process for the project. Ms. Kateryna Pahomova, senior engineer of the prospective development department of RME “Donetskteplocomunenergo”, is responsible for data collection, measurements, calibration, data recording and storage. Dr. Dmytro Paderno, Deputy director of the Institute of Engineering Ecology, is responsible for baseline and monitoring JI project specific approach development. Ms. Kateryna Korinchuk, engineer of the Institute of Engineering Ecology, is responsible for data processing.		
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?	Monitoring techniques are in line with current operation routines at the enterprise.	OK	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 and data that are collected from other sources but not including data that are calculated with equations?	Yes. See section D of PDD	OK	OK
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?	Data monitored and required for emission reductions calculation and verification, according to paragraph 37 of the JI guidelines, are to be kept for two years after the last transfer of ERUs for the project. In accordance with this, the General director of RME “Donetskteplocomunenergo” has issued the Order dated 04/07/2011 “On creation of the operation team and period of storage of documents II project”, in which the personnel of the created operation	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		team is established, and keeping of the primary documentation for two years after the last transfer of ERUs for the project is appointed.		
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?	See section D of the PDD.	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?	N/A	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)?	N/A	N/A	N/A
38 (b)	Does the PDD provide a description of why the approved CDM methodology is applicable to the project?	N/A	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?	N/A	N/A	N/A
38 (d)	Is the monitoring plan established appropriately as a result?	N/A	N/A	N/A
Applicable to both JI specific approach and approved CDM methodology approach				
39	If the monitoring plan indicates overlapping monitoring periods during the crediting period: (a) Is the underlying project composed of	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	clearly identifiable components for which emission reductions or enhancements of removals can be calculated independently? (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)? (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? (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?			
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 expected.	OK	OK
40 (b)	Does the PDD provide a procedure for an ex ante estimate of leakage?	See the section 40 (a) of this table.	OK	OK
Approved CDM methodology approach only				
41	Are the leakage and the procedure for its estimation defined in accordance with the approved CDM methodology?	N/A	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?	Assessment of emissions in the baseline scenario and in the project scenario is chosen.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(a) Assessment of emissions or net removals in the baseline scenario and in the project scenario (b) Direct assessment of emission reductions			
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?	PDD provides ex ante estimates of: (a) Emissions for the project scenario (Section E.1); (b) No leakages are expected; (c) Emissions for the baseline scenario (Section E.4); (d) Emission reductions adjusted by leakage (Section E).	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?	N/A	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? (iii) On a source-by-source/sink-by-sink basis? (iv) For each GHG? (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? (b) Are the formula used for calculating the	(a) Estimates in 43 are given on the periodic basis, from the beginning until the end of the crediting period, in tones of CO2 equivalent, on a source-by-source basis, for each GHG. (b) The formulae used in PDD are consistent. (c) Key factors influencing the baseline emissions and the activity level of the project and the project emissions are taken into account, as appropriate. (d) Data sources used for calculating the estimates are clearly identified, reliable and transparent. (e) Default values are taken from identified sources. (f) Estimation in 43 is based on conservative assumptions and the most plausible scenario in a transparent manner. (g) Estimates in 43 are consistent throughout the PDD. The annual average of estimated emission reductions	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	estimates in 43 or 44 consistent throughout the PDD? (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? (d) Are data sources used for calculating the estimates in 43 or 44 clearly identified, reliable and transparent? (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? (f) Is the estimation in 43 or 44 based on conservative assumptions and the most plausible scenarios in a transparent manner? (g) Are the estimates in 43 or 44 consistent throughout the PDD? (h) 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 removals over the crediting period by the total months of the crediting period and multiplying by twelve?	calculated by dividing the total estimated emission reductions 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?	Illustrative ex-ante estimation of emission reduction is made on the excel spreadsheet.	OK	OK
Approved CDM methodology approach only				
47 (a)	Is the estimation of emission reductions or	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	enhancements of net removals made in accordance with the approved CDM methodology?			
47 (b)	Is the estimation of emission reductions or enhancements of net removals presented in the PDD: − 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 CO_2 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 removals over the crediting period by the total months of the crediting period and multiplying by twelve?	N/A	N/A	N/A
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?	Yes. For more detailed information, please, see section F.1 of the PDD.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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?	District heating enterprises that implement the project "Rehabilitation of the District Heating Systems in Makiivka, Mariupol, Artemivsk Cities of Donetsk Region" make the necessary Environmental Impact Assessment for elements of this activity according to Ukrainian legislation. For example, during implementation of the project activity the EIA for reconstruction of boiler-house #33 Uvileyna str.,117 Artemivsk City (#152 in the Project) has been fulfilled. In this EIA the following points are mentioned: impact on vegetative and animal world is not present, the project activity will not lead to changes in use of land, emissions will not exceed the immission limit level, and the project activity in general will not lead to worsening of environment conditions. The summary indicator of air pollution extent is 0.125, that is less than 1.0, which corresponds to allowable pollution level and safe level of danger. All formal EIAs were undertaken in accordance with the applicable legislation and regulations of Ukraine. These include: the Laws of Ukraine "On Protection of Environment", , "On Protection of Atmospheric Air", "On Wastes", as well as in line with effective versions of Water Code, Land Code, Forest Code, and Ukraine's State Code of Civil Practice DBN A.2.2-1-2003 etc. CAR 08. It is needed to add the information about the state environmental forms of statistical reporting for the Section F2. CL 04. Please Provide information about assessing the impact on the environment. If it is applicable add this information to the section F1.	CAR 08 CL 04	OK
Stakeholder consultation				

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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?	As project activity won't provide negative influence on environment and negative social effect, special public discussion was not hold. The authorities (city councils that are the representatives of the population) of Makiivka, Mariupol and Artemivsk Cities of Donetsk region have expressed the support for the project. CL 05. Provide information about the support for the project by city councils of Makiivka, Mariupol and Artemivsk Cities	CL 05	OK
Determination regarding small-scale projects (additional elements for assessment)_Paragraphs 50 - 57_Not applicable				
Determination regarding land use, land-use change and forestry projects _Paragraphs 58 – 64(d)_Not applicable				
Determination regarding programmes of activities_Paragraphs 66 – 73_Not applicable				

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
CL 01. Please provide a detailed description of the dimension Nm3	-	Nm^3 means "Normal m^3", that is m^3 at the normal conditions, i. e. for atmospheric pressure 101325 Pa (1 Atm) and temperature 273.15 K (0 ^{0}C).	Based on the explanation received, CL 01 is closed.
CAR 01. Link to the ask-energy.ru on page 10 is not working.	-	The right link is added in PDD version 03	Due to the amendments made in the PDD, CAR 01 is closed.
CL 02. Please provide licenses are specified in project of district heating enterprises.	-	This is provided in section B2 of the PDD version 03	The response to CL 02 was found satisfactory. CL 02 is closed.
CAR 02. There are errors in the Ukrainian version of the PDD (ex. Table 1 Dod3 column 2; section G1 second paragraph, before the brackets)	-	This is corrected in PDD version 03.	The PDD has been corrected. CAR 02 is closed.
CAR 03. It is needed to describe in detail the implementation of measures in Schedule of the Project implementation, Table 2.	-	The detailed information of measures implementation for each boiler-house is presented in Appendixes 1-7.	Based on the explanation received, CAR 03 is closed.

CAR 04. It is needed changing the link leading to the Decree of Cabinet of Ministers of Ukraine No955 to the right one.	28	This link is changed in PDD version 03.	The PDD has been corrected. CAR 04 is closed.
CAR 05. Links 2, 5, 12, 17, 19 are not working	36 (b) (ii)	All links are working in PDD version 03	The PDD has been corrected. CAR 05 is closed.
CL 03. Please provide the KTM 204 Ukraina 244-94 (link 21).	36 (b) (ii)	In the PDD version 03 web-link to KTM 204 Ukraina 244-94 is provided.	Based on the explanation received, CL 03 is closed.
CAR 06. There must be a direct link to regulatory documents for all parameters.	36 (f) (vii)	This is provided in PDD version 03	Necessary corrections have been made. The issue is closed.
CAR 07. It is needed to add the detailed information about measuring instruments to the PDD.	36 (i)	This is added in PDD version 03.	The PDD has been corrected. CAR 07 is closed.
CAR 08. It is needed to add the information about the state environmental forms of statistical reporting for the Section F2.	48 (b)	This is added in PDD version 03.	Based on the information added to the PDD, CAR 08 is closed.
CL 04. Please Provide information about assessing the impact on the environment. If it is applicable add this information to the section F1.	48 (b)	Information is provided in PDD version 03.	Based on the explanation received, CL 04 is closed.
CL 05. Provide information about the support for the project by city councils of Makiivka, Mariupol and Artemivsk Cities	49	Information on the corresponding Decisions of city councils of Makiivka, Mariupol and Artemivsk Cities are provided in PDD version 03.	Based on the explanation received, CL 05 is closed.

APPENDIX B: VERIFIERS CV's

Oleg Skoblyk, Specialist (Power Management)
Team Leader, Climate Change Lead Verifier
Bureau Veritas Ukraine HSE Department Project Manager.

Oleg Skoblyk has graduated from National Technical University of Ukraine 'Kyiv Polytechnic University" with specialty Power Management. He has successfully completed IRCA registered Lead Auditor Training Course for Environment Management Systems and Quality Management Systems. Oleg Skoblyk has undergone intensive training on Clean Development Mechanism /Joint Implementation and he is involved in the determination/verification of 29 JI projects.

Rostislav Topchiy (chemical and ecological engineering)
Team Member, Climate Change Verifier
Bureau Veritas Ukraine Health, Safety and Environment Project Manager

He is a Lead auditor of Bureau Veritas Certification for Environment Management System, Quality Management System, Occupational Health and Safety Management System. He performed over 180 audits since 2004. He has successfully completed Climate Change Verifier Training Course and he participated as verifier in the verification of 20 JI projects.

Vitaliy Minyaylo (chemical and ecological engineering)
Team Member, Climate Change Verifier
Bureau Veritas Ukraine,
Health, Safety and Environment Department Project Manager
He has successfully completed IRCA registered Lead Auditor Training Course for Environment Management Systems, Quality Management Systems, Occupational Health and Safety Management System. He has successfully completed Climate Change Verifier Training Course and he participated as verifier in the verification of 10 JI projects.

Denis Pishchalov (economics)

Team Member, Bureau Veritas Ukraine Financial Specialist

Master of foreign trade, he has more than five year of experience in foreign trade and procurement. In particular one year as foreign trade manager in the Engineering Corporation (manufacturer and contractor in the municipal sector) and one year in the NIKO publishing house, one year as sales manager in the ITALCOM srl. In addition Denis has spent four years working as procurement specialist in Ukrainian Energy Service Company and two years as chief product manager in the Altset JSC. At the moment Denis is deputy director for finance and economy in the SUD of UTEM JSC.

Ivan G. Sokolov, Dr. Sci. (biology, microbiology)

Internal Technical Reviewer, Climate Change Lead Verifier, Bureau Veritas Certification Holding SAS Local Climate Change Product Manager for Ukraine

Acting CEO Bureau Veritas Black Sea District

He has over 25 years of experience in Research Institute in the field of biochemistry, biotechnology, and microbiology. He is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered), Quality Management System (IRCA registered), Occupational Health and Safety Management System, and Food Safety Management System. He performed over 140 audits since 1999. Also he is Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and Lead Tutor of the IRCA registered ISO 9000 QMS Lead Auditor Training Course. He is Lead Tutor of the Clean Development Mechanism /Joint Implementation Lead Verifier Training Course and he was involved in the determination/verification over 60 JI/CDM projects.

Leonid Yaskin, PhD (thermal engineering)

Team Member, Climate Change Verifier,

Bureau Veritas Certification Rus General Director, Climate Change Local Manager, Lead Auditor, IRCA Lead Tutor, Climate Change Lead Verifier,

He has over 30 years of experience in heat and power R&D, engineering, and management, environmental science and investment analysis of projects. He worked in Krzhizhanovsky Power Engineering Institute, All-Russian Teploelectroproject Institute, JSC Energoperspectiva. He worked for 8 years on behalf of European Commission as a monitor of Technical Assistance Projects. He is a Lead auditor of Bureau Veritas Certification for Quality Management Systems (IRCA registered), Environmental Management System (IRCA registered), Occupational Health and Safety Management System (IRCA registered). He performed over 250 audits since 2002. Also he is a Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and a Lead Tutor of the IRCA registered OHSAS 18001 Lead Auditor Training Course. He is an Assuror of Social Reports. He has undergone intensive training on Clean Development Mechanism /Joint Implementation and was/is involved in the determination of over 50 JI projects.