



DETERMINATION REPORT “RIVNETEPLOENERGO”, LTD

DETERMINATION OF THE DISTRICT HEATING SYSTEM REHABILITATION IN RIVNE REGION

REPORT No. UKRAINE-0047/2009

REVISION No. 02

BUREAU VERITAS CERTIFICATION

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Date of first issue: 26/10/2009	Organisational unit: Bureau Veritas Certification Holding SAS
Client: “Rivneteploenergo”, Ltd	Client ref.: Mr. Stepan Koropetskiy

Summary:
Bureau Veritas Certification has made the determination of the “District Heating System Rehabilitation in Rivne Region” project of “Rivneteploenergo”, Ltd., located in Rivne Region, 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 under track 1.

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 including on-site visit; 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 the baseline and monitoring methodology developed according the Guidance on *Criteria for Baseline Setting and Monitoring* and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

On behalf of the determination team, Flavio Gomes, the Bureau Veritas Certification Holding SAS Global Product Manager for Climate Change, approved the final version of the Determination Report, and it is signed by Ivan Sokolov, the authorized Bureau Veritas Certification Holding SAS Local product manager for Climate Change in Ukraine.

Report No.: UKRAINE-0047/2009	Subject Group: JI
Report title: «District Heating System Rehabilitation in Rivne Region»	
Work carried out by: Nadiya Kaiiun – Climate Change Lead Verifier Oleg Skoblyk – Climate Change Verifier Kateryna Zinevych – Climate Change Verifier	
Work verified by: Ivan Sokolov	
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Indexing terms

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Abbreviations

CAR	Corrective Action Request
CL	Clarification Request
CHP	Combined Heat and Power
CO	Carbon Monoxide
CO ₂	Carbon Dioxide
DH	District Heating
DR	Document Review
EIA	Environmental Impact Assessment
ERU	Emission Reduction Unit
GHG	Green House Gas(es)
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
I	Interview
IE	Independent Entity
IETA	International Emissions Trading Association
MoV	Means of Verification
ME RCC	Municipal Enterprise of Rivne City Council
NG	Natural Gas
PDD	Project Design Document
PP	Project Participant
UNFCCC	United Nations Framework Convention on Climate Change
UES	United Energy System



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1 INTRODUCTION

ME RCC „Teplotransservise” (later replaced by “Rivneteploenergo”, Ltd in this contract) has commissioned Bureau Veritas Certification to determinate the JI project “District Heating System Rehabilitation in Rivne Region”. The PDD of this project was developed by Institute of Engineering Ecology (IEE), Ltd.

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, and Host Country criteria under Track 1.

1.1 Objective

The determination serves as project design verification and is a requirement for all projects. The determination is an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan, 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 to stakeholders assurance of the quality of the project and its intended generation of 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 GHG Project Description

The project main goal is fuel consumption reduction, in particular reduction of natural gas (which is imported to Ukraine), coal and oil consumption, by means of district heating system rehabilitation in Rivne region, including boiler and distribution network equipment replacement and rehabilitation, and installation of combined heat and power production units. Such reduction of fuel consumption will result in decrease of greenhouse gas emissions (CO₂ and N₂O). The purpose of the project is sustainable development of the region through implementation of energy saving technologies.

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Rivne region's district heating (DH) utility (system of heat supply enterprises) supplies and sells heat energy in forms of heat and hot water to local consumers, namely households, municipal consumers and state-owned organizations. It is a natural monopolist of heat production in the region. Heat supply market in the region is stable for years.

The project was initiated in 2002 to rehabilitate Rivne region's district heating system, including boiler and distribution network equipment replacement and rehabilitation, installation of cogeneration units and frequency controllers installation.

The project consists of two parts: rehabilitation of DH system of Rivne city and rehabilitation of DH system of Rivne region. 12 boiler-houses with 78 boilers and 110 km of heat distributing networks are involved in the rehabilitation of Rivne city, and 7 boiler-houses with 19 boilers and 11 km of heat distributing networks are involved in the rehabilitation of Rivne region. The total number of boiler-houses which are involved in the project is 19 with 97 boilers and 121 km heat distribution networks. Beside this project provides installation of cogeneration units at boiler houses Knyazya Volodymyra, 71 (two steam turbines 2,5 MW each). This is the large part of Rivne regional DH system.

The project employs the increase in the fuel consumption efficiency to reduce greenhouse gas emissions relative to current practice. Reduction of fuel consumption is based on the increase of the boiler efficiencies, reduction of heat losses in networks, CHP and the frequency controllers installation. The following activities will ensure fuel saving:

- Replacement of old boilers by new highly efficient boilers;
- Upgrading of boilers' burners;
- Fuel switch from coal and fuel oil to natural gas;
- Improving of the network organization, application of the new insulation and the pre-insulated pipes;
- Installation of CHP;
- Installation of frequency controllers at smoke exhauster and hot water pumps engines.
- Installation of air heaters;
- Partial replacement of fossil fuel by the renewable sources of fuel such as wood and wood chips (expansion of this tendency).

Estimated project annual reductions of GHG emissions, in particular CO₂, are from 12,2 thousand tons to 15,1 thousand tons in 2004 – 2007, from 18,1 thousand tons to 20,5 thousand tons in 2008 – 2009, and over 35 thousand tons per year starting from 2010 comparing baseline scenario.

Implementation of the project will provide substantial economic, environmental, and social benefits to the Rivne region. Social impact of the project is positive since after project implementation 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 an emission of

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the greenhouse and toxic gases such as CO₂, NO_x, and CO will be reduced. Also due to a better after-implementation service, some part of population will cease to use electric heaters thus reducing electricity consumption, which is related to power plants emissions of CO₂, SO_x, NO_x, CO and particulate matter.

The district heating enterprises involved in the project fulfil annual minimal repairing of the DH systems to keep them working. Particularly they execute repairing of network's parts and boilers that might cause accidents. More economically feasible and realistic scenario without carbon credits sales is a baseline scenario with very slow reconstruction activities than to make a major overhaul of the heating system. Tariffs for heat do not include the resources for prospective reconstruction 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 would stay on the same level. This scenario is less environmentally favorable for the near future (including first commitment period 2008-2012), since GHGs emissions will continue to be kept at the same level or even higher, but economically such scenario is more attractive.

Estimated project risks are limited and minimized. Ukraine has claimed district heating and municipal energy sector as a priority for the national energy-saving development.

1.4 Determination Team

The determination team consists of the following personnel:

Nadiya Kaiiun
Bureau Veritas Certification Climate Change Lead Verifier

Oleg Skoblyk
Bureau Veritas Certification Climate Change Verifier

Kateryna Zinevych
Bureau Veritas Certification Climate Change Verifier

Ivan Sokolov
Bureau Veritas Certification, Internal Technical Reviewer

2. METHODOLOGY

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

In order to ensure transparency, a determination protocol was customized for the project, according to the Determination and Verification Manual (IETA/PCF). The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from validating the identified criteria. The determination protocol serves the following purposes:



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It organizes, details and clarifies the requirements JI project is expected to meet;

It ensures a transparent determination process where the determinator will document how a particular requirement has been validated and the result of the determination.

The determination protocol consists of five tables. The different columns in these tables are described in Figure 1.

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



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Determination Protocol Table 1: Mandatory Requirements				
Requirement	Reference	Conclusion		Cross reference
The requirements the project must meet.	Gives reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided (OK), a Corrective Action Request (CAR) or a Clarification Request (CL) of risk or non-compliance with stated requirements. The CAR's and CL's are numbered and presented to the client in the Determination Report.		Used to refer to the relevant protocol questions in Tables 2, 3 and 4 to show how the specific requirement is determined. This is to ensure a transparent determination process.
Determination Protocol Table 2: Requirements checklist				
Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organized in several sections. Each section is then further subdivided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or section is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) due to non-compliance with the checklist question. (See below). Clarification Request (CL) is used when the determination team has identified a need for further clarification.
Determination Protocol Table 3: Baseline and Monitoring Methodologies				
Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The various requirements of baseline and monitoring methodologies should be met. The checklist is organized in several sections. Each section is then further subdivided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or section is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) due to non-compliance with the checklist question. (See below). Clarification Request (CL) is used when the determination team has identified a need for further clarification.

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Determination Protocol Table 4: Legal requirements				
Checklist Question	Reference	Means of verification (MoV)	Comment	Draft and/or Final Conclusion
The national legal requirements the project must meet.	Gives reference to documents where the answer to the checklist question or section is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (OK), or a Corrective Action Request (CAR) due to non-compliance with the checklist question. (See below). Clarification Request (CL) is used when the determination team has identified a need for further clarification.
Determination Protocol Table 5: Resolution of Corrective Action and Clarification Requests				
Report clarifications and corrective action requests	Ref. to checklist question in tables 1/2/3/4	Summary of project owner response	Determination conclusion	
If the conclusions from the Determination are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	Reference to the checklist question number in Tables 2, 3 and 4 where the Corrective Action Request or Clarification Request is explained.	The responses given by the Client or other project participants during the communications with the determination team should be summarized in this section.	This section should summarize the determination team's responses and final conclusions. The conclusions should also be included in Tables 2, 3 and 4, under "Final Conclusion".	

Figure 1 Determination protocol tables

2.1 Review of Documents

The Project Design Document (PDD) version 05 submitted by the Project participants and additional background documents related to the project design and baseline, i.e. country Laws, Guidelines for Completing the Project Design Document (JI-PDD), methodology, Kyoto Protocol, Clarifications on Determination Requirements to be Checked by an Independent Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests, the project participants revised the PDD and resubmitted it as version 07 dated 14/10/09.

Municipal enterprise "Teplotransservice" of Rivne city council, which was one of the Project participants (Supplier), has transferred the set of his rights to be Supplier and beneficiary for this JI Project to "Rivneteploenergo", Ltd. (Agreement #1193/TC from November 25, 2009 "On Authority Transfer").

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Also, the company “E – Energy B.V.”, which was one of the Project participants (Purchaser), was replaced at this position by Deutsche Bank AG.

These changes led to the change of the PDD version to 08 dated 30th of November, 2009, and change of the revision of this Verification report.

The determination findings presented in this report relate to the project as described in the PDD version 06, dated 28/08/09, and responses in revised PDD version 07 dated 14/10/09 and version 08 dated 30/11/09.

2.2 Follow-up Interviews

On 03/08/2009 Bureau Veritas Certification in course of the on-site visit performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of ME RCC “Teplotranssservice”, “Rivneteploenergo”, Ltd and Institute of Engineering Ecology, Ltd were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
ME RCC “Teplotranssservice”, “Rivneteploenergo”, Ltd	<ul style="list-style-type: none"> ➤ 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. ➤ Local stakeholder’s response.
Institute of Engineering Ecology (IEE), Ltd	<ul style="list-style-type: none"> ➤ Baseline methodology. ➤ Monitoring plan. ➤ Monitoring report. ➤ Deviations from PDD.

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.

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

3 DETERMINATION FINDINGS

In the following sections, the findings of the determination are stated. The determination findings for each determination subject are presented as follows:

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- 1) The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Determination Protocol in Appendix A.
- 2) Where Bureau Veritas Certification had identified issues that needed clarification or that represented a risk to the fulfillment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. 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 7 Corrective Action Requests and 10 Clarification Requests.
- 3) The conclusions for determination subject are presented.

3.1 Project Design

Bureau Veritas Certification recognizes that this Project is helping the host country fulfill its goals of promoting sustainable development. The project is expected to be in line with the host-country specific JI requirements.

The Project Scenario is considered additional in comparison to the baseline scenario, and therefore eligible to receive Emissions Reductions Units (ERUs) under the JI, based on an analysis, presented in the PDD, of investment, technological and other barriers, and prevailing practice.

The project design is sound and the geographical and temporal (4 years till 2008, 5 years till 2012 and 11 years till 2023) boundaries of the project are clearly defined.

Below, a transcription of the outstanding issues related to project design.

Corrective Action Request (CAR1):

There is no information about sponsor Party.

PP's response: The Deutsche Bank AG (Germany) is a purchaser of this project. See A3 of PDD Version 08.

Conclusion: PDD version 08 was checked. Issue is closed.

Corrective Action Request (CAR2):

There is no evidence of written project approvals by the Parties involved

PP's response: After finishing of project determination report, the PDD and Determination Report will be presented to National Environmental Investments Agency of Ukraine for receiving of the Letter of Approval. The Letter of Approval from the investor's country (Germany) will be provided after approval of project by Ukraine.

[National Environmental Investment Agency of Ukraine](#)

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Conclusion: Will be closed after report finalizing.

Corrective Action Request 3 (CAR3):

Please, provide the project's operational lifetime in years and months
PP's response: The operational lifetime of the main equipment is 20 years (240 months).
Conclusion: PDD version 07 was checked. Issue is closed.

Corrective Action Request 4 (CAR4):

Please, provide the length of the crediting period in years and months.
PP's response: The length of the crediting period is 20 years (240 months). See C.3.
Conclusion: PDD version 07 was checked. Issue is closed.

Clarification Request 1 (CL1):

See Annex 1 of the PDD.
Please, clarify why second table of the Annex1 is empty?
PP's response: The Deutsche Bank AG is a purchaser of this project. The necessary information was added to the PDD version 08.
Conclusion: PDD version 08 was checked. Issue is closed.

Clarification Request 2 (CL2):

Please, clarify if the project technology is likely to be substituted by other or more efficient technologies within the project period.
PP's response: It is not likely that the project technology will be substituted by a more efficient technology in the next 20 - 30 years.
It is ensured that there is absolutely no risk that this technology will be substituted by another technology within 5 years (first commitment period).
Conclusion: Issue is closed.

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Clarification Request 3 (CL3):

Please, clarify if the project requires extensive initial training and maintenance efforts in order to work as presumed during the project period.

PP's response: As far as the main activity of the district heating enterprises involved will not change in course of the JI project implementation, the special technical trainings for personnel are not necessary. The technical personnel of the enterprise has sufficient knowledge and experience for implementation of the project activity and maintenance of the usual equipment.

In cases of the new (never used at this enterprise before) equipment installation, the company - producer of this equipment should provide trainings for personnel.

The district heating enterprises involved provide personnel retraining according to protection of labour norms. The enterprises have the Labour protection department, which is responsible for raising the level of personnel skills and trainings.

The special training was hold by the IEE on the data collection according to Monitoring plan for this project, and the special group that consisted of representatives of ME RCC "Teplotransservise", ME RCC "Komunenergiya" and Institute of Engineering Ecology was organized. Evidencies of training are presented additionally.

Conclusion: CL3 is closed.

Clarification Request 4 (CL4):

Please, clarify if the project makes provisions for meeting training and maintenance needs

PP's response: Costs of special training on the data collection for Monitoring reports for this project are included to the total price of PDD development.

As far as the main activity of the district heating enterprises involved will not change in course of the JI project implementation, the special maintenances are not necessary

Conclusion: CL4 is closed.

3.2 Baseline and Additionality

The "District Heating System Rehabilitation in Rivne Region" uses the the baseline and monitoring methodology developed according the Guidance on *Criteria for Baseline Setting and Monitoring* and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

Project participants used own-developed methodology that is partly similar to approved methodology AM0044. But the AM0044 was not used because it is not applicable to the project "District Heating System Rehabilitation of Rivne Region".

The main cause why the methodology AM0044 can not be used is impossibility of measurement of the thermal energy output, because of thermal energy meters absence on the majority of boiler houses included in the project. Institute of Engineering Ecology invented another methodology, that takes into account all measures involved in the project and it's peculiarities. The methodology is presented in the PDD (monitoring plan). It was already determined by Bureau Veritas for JI Project for Chernihiv Region

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and similar JI Projects for Donetsk region, Crimea and Kharkiv city.

For Ukraine is common that monitoring devices for heat and heat-carrier expenditure in the municipal boiler-houses are absent. Only the fuel consumption is registered on a regular basis.

This also concerns the definition of the average historical value of heat power generation per year $EG_{BL, his, i}$ (average historic thermal energy output from the baseline boiler "i") that can be only calculated using the fuel consumption data.

Besides, in section "Scope of Application" it is mentioned, that the scope of application of the Methodology AM0044 is limited only to the increase of boilers' efficiency by means of their replacement or modernization, and it does not apply to the fuel type switch. At the same time the project includes also such kind of modernization as well as some others such as the replacement of burner equipment, etc.

The developed methodology is based on the permanent monitoring of fuel consumption and of the account of various other factors, such as connection or disconnection of the consumers, change of fuel heating value, due to change, ratio of the heat consumption for heating and for hot water supply, etc.

The developed methodology has two important advantages in comparison with the methodology AM0044 (at least for Ukrainian conditions):

It takes into account the quality of heat supply (heating and hot water supply). Almost annually for the various reasons (receiving of less amount and high price of the fuel, in particular natural gas which is nearly 95 % of fuel type used in Ukraine for the needs of the municipal heat supply), the consumers receive less than necessary amount of heat, in the result of which the temperature inside the buildings is much lower than normative one, and hot water supply is insufficient or absent. As the purpose of JI projects, including the current project, is the GHG (CO₂) emission reduction under the conditions of not worsening in any circumstances of the social conditions for population, the issue of approaching of the heat supply quality to the normative one is extremely important. Therefore, the amount of the fuel consumption for the after project implementation period is calculated for the conditions of providing the normative parameters of heat supply and at least partially of hot water supply, and in accordance with the monitoring plan, the implementation of continuous control (monitoring) of its quality (measurement of internal temperature in the specific buildings as well as registration of residents' complaints for the poor-quality heat supply) is foreseen. This increases the control for the qualitative heat supply for the consumers and excludes deliberate reduction of heat consumption, and, in such a way, of fuel consumption with the purpose of increasing of generation of GHG emissions reduction units (ERUs) at the project verification.

Definition of the fuel consumption in base year (baseline) in view of the fact that in Ukraine at the majority of the municipal heat supply enterprises the natural gas is used as a fuel, which consumption is measured constantly by the counters with the high measurement accuracy, seems to be more exact, than definition of the fuel consumption with use of heat power, boiler efficiency and heat value of the fuel. This especially concerns the efficiency, which changes greatly depending on load of boilers,

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which also changes essentially, and often not automatically but manually, in the heat supply systems within a day and within a year. Averaging of such values without having of the heat account system is fraught with serious discrepancies. Definition of the fuel consumption in the presence of counters requires only data collection and implementation of arithmetic actions.

Approved Consolidated Methodology ACM0009 “Consolidated baseline methodology for fuel switching from coal or petroleum fuel to natural gas” proposes the dependences for baseline and reporting year emissions quantity definition (see pages 4 and 5), that contain determination of Energy efficiency $\epsilon_{\text{project},i,y}$ and $\epsilon_{\text{baseline},i}$ for equipment. In the chapter “Baseline emissions” on the page 6 there is an explanation that: Efficiencies for the project activity ($\epsilon_{\text{project},i,y}$) should be measured monthly throughout the crediting period, and annual averages should be used for emission calculations. Efficiencies for the baseline scenario ($\epsilon_{\text{baseline},i}$) should be measured monthly during 6 months before project implementation, and the 6 months average should be used for emission calculations. These requirements are confirmed in the PDD by tables for monitoring on the pages 13-15.

However, as it was mentioned before in this PDD, the majority of boiler-houses in Ukraine are not equipped with devices for heat-carrier expenditure measurement or heat meters. There is only one parameter that is regularly and with high precision measured in the boiler houses – fuel consumption.

For this reason, the project specific methodology was developed, that is based on the permanent measuring of the fuel consumption and amendments for possible parameters changes in baseline in comparison with reporting year. The variable parameters may be the changes in lower heating value of fuels, quality of heating service, weather changes, etc. Taking into account only equipment efficiency does not eliminate the possibilities of undersupply of heat to customers (deterioration of heat supply service), and possible weather warming in reported year, change in fuel quality, disconnection of some consumers, and other factors, and could lead to artificial overestimation of ERUs amount.

In addition, the position in ACM0009 to take (due to conservatism principle) the baseline efficiency of equipment equal to 100 % is unacceptable in “District Heating” type projects, because not only fuel switch but also increasing of the equipment (boilers) efficiency the measure in these projects. Accepting of such calculated baseline would lead to essential underestimation of results of implemented measures.

As it was already mentioned before, the majority of the heat supply enterprises and heat customers in Ukraine are not equipped with heat meters or devices for heat-carrier output (hot water for heating and hot water service) determination. Just for this reason, the methodology was developed that is based on the permanent measuring of the fuel consumption and corrections for possible changes of parameters in reporting year comparing to the baseline. The changeable parameters may be the lower heating value of fuels, quality of heating service (providing of normative temperature value inside

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apartments), weather features, number of customers, etc. As it was mentioned before, this approach eliminates any possibility of reduction of fuel consumption and correspondingly GHG emission due to incomplete delivery of heat to consumers.

In view of the above mentioned, in contrast to the methodologies AM0044 and ACM0009, our Methodology, developed for “District Heating” projects in Ukrainian conditions and used in JI Projects “Rehabilitation of the District Heating System in Donetsk Region”, “Rehabilitation of the District Heating System in Chernihiv Region”, “Rehabilitation of the District Heating System in Crimea”, “Rehabilitation of the District Heating System in Kharkiv city”, is the most appropriate, precise, corresponding to the principle of conservatism, and the most closely reflects the aims, goals and spirit of Kyoto Protocol.

The baseline study is planned to every year of the emission reduction purchasing, to correct adjustment factors which have an influence at the baseline. See paragraph D.1 of the PDD.

There were three alternatives of Baseline scenario that were discussed in the PDD.

The first alternative was a business-as-usual scenario with minimum reconstruction 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 alternative was to make reconstruction 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 alternative 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 alternative was chosen for Baseline scenario.

The district heating enterprises involved in the project fulfil annual minimal repairing of the DH systems to keep them 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 baseline scenario with very slow reconstruction activity, making a major overhaul of the heating system is not economically attractive and is not required according to valid regulations. Old boilers could remain in operation for the whole period when they pass the regular tests, with minimal repairing if necessary, without lifetime limitation; and at least during the crediting period. Switching of load from boiler-houses with obsolete equipment to modern equipped requires building of the new parts of network that is the most expensive measure. Minimal annual repairing doesn't lead to drooping of baseline

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emissions because of degradation of the whole system with efficiency droop at other objects, the overall actual emissions of Supplier would stay on the approximately same level. This scenario is less 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 more attractive.

The following aspects give the ability to use chosen methodology:

- The proposed project makes the process of heat and power energy generation more effective;
- The proposed project replaces the power energy generated within United Energy System (UES).

The possible alternative baseline scenarios are the following:

(a) The first alternative is business-as-usual scenario with minimum reconstruction works, approximately balanced by overall degradation of the DH system.

It should be noted that there is no local legislation regarding the time of boilers replacement and maximum lifetime permitted for boilers. It is common practice to exploit boilers which was installed in 70 th. and even 50-60 th. and earlier in Ukraine, if they pass the technical examination pass by the authorized body ("Derzhnagliadohoronpratsi").

(b) The second alternative is to make reconstruction works without JI mechanism.

(c) The third alternative is the shortened project activity, without any of the non-key type of activity, for example elimination of frequency controllers installation, etc., from the project.

The baseline options considered do not include those options that:

- do not comply with legal and regulatory requirements; or
- depend on key resources such as fuels, materials or technology that are not available at the project site.

The identified barriers would not prevent the implementation of at least one of the alternatives – the business-as-usual scenario.

3.3 Monitoring Plan

The Project uses the the baseline and monitoring methodology developed according to the Guidance on *Criteria for Baseline Setting and Monitoring* and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria. Refer to section 3.2 above.

Corrective Action Request 5 (CAR5):

Information on the collection and archiving of information on the environmental impacts of the project is not provided.

PP's response: State department ecological safety in Rivne region issued to MHE

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“Komunenegiya” Permission #560074 from 13.07.2000 “For emissions of pollution agents to atmospheric air from stationary sources”. Ministry for Environmental Protection of Ukraine issued to ME RCC „Teplotransservise” Permission #5610100000-51 from 01.10.2007 “For emissions of pollution agents to atmospheric air from stationary sources”. Term of validity of this Permission is 5 years. See Appendix 6 Licences to PDD version 07.

Conclusion: Supporting documents and PDD version 07 were checked. Issue is closed.

Corrective Action Request 6 (CAR6):

Quality control (QC) and quality assurance (QA) procedures undertaken for wood chips consumption data are not provided.

PP’s response: The information about quality control and quality assurance procedures was added to section D.2 of the PDD version 07 and it is performed in the Annex 3 Monitoring Plan sections 4.1.4 and A 4.2.4.

Conclusion: PDD version 07 was checked. Issue is closed.

Clarification Request 5 (CL5):

Please provide journal of wood chips consumption registration.

PP’s response: Wood chips was used as a fuel only in Dubrovitsa town at one boiler-house, included in this project – str. Golshanskiy, DNZ №4 – in the base year 2002. Wood chips consumption registration at ME “Teploservis” of Dubrovitsa Regional Council was realized by the consignment note from Lvivska railway and Acts of writing-off fuels. See example of railway consignment note.

Conclusion: Issue is closed.

Clarification Request 6 (CL6):

Please provide quality certificate from Wood chips supplier's or independent chemical lab analysis report on Average annual Heating Value of Wood chips and journal of wood chips Heating Value registration.

PP’s response: Lower Heating Value of the wood chips (10 MJ/Nm³) was took as a wood chips from timber cutting from the table of wood chips characteristics on the site <http://www.energосys.info/biotoplivo/>.

Wood chips were used at the coal fired boilers as the reserve fuel. Using wood chips decreased anyway low efficiency (71%) of these boilers. There was no quality certificate from Wood chips supplier's or independent chemical lab analysis report on Average annual Heating Value of Wood chips because payments with Wood chips supplier “ODEK” Ltd were made without taking into account Heating Value.

Conclusion: Issue is closed.

Clarification Request 7 (CL7):

Please specify, Lower Heating Value of the wood chips and how it determined.

PP’s response: Lower Heating Value of the wood chips (10 MJ/Nm³) was took as a wood chips from timber cutting from the table of wood chips characteristics from the site <http://www.energосys.info/biotoplivo/>

Conclusion: Issue is closed.

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Clarification Request 8 (CL8):

Please, provide reference to the relevant host Party regulation(s).

PP's response:

Law of Ukraine "On environmental protection".

Law of Ukraine "On atmospheric air protection".

Actual rules on emissions limitation: "Norms of limit admissible emissions of pollution agents from stationary sources" – adopted by Ministry for Environmental Protection of Ukraine 27.06.2006, #309 issued Ministry of and registered in Ministry of Justice of Ukraine 01.09.2006, #912/12786.

Conclusion: Issue is closed.

3.4 Calculation of GHG Emissions

The baseline emissions are calculated by the following formula:

$$E_i^b = E_{1i}^b + E_{gen\ i}^b + E_{cons\ i}^b;$$

where:

E_i^b – baseline emissions, t CO₂

E_{1i}^b – CO₂ emissions due to fuel consumption for heating and hot water supply service for an i boiler-house in the base year, t CO₂e;

$E_{gen\ i}^b$ – CO₂ emissions due to electric power generation associated to the project for an i boiler-house in the base year, t CO₂e;

$E_{cons\ i}^b$ – CO₂ emissions due to electric power consumption for an i boiler-house in the base year, t CO₂e.

For the case when in the base year the hot water supply service was provided (independent of this service duration, $(1-a_b) \neq 0$), the formulae for E_1^b is:

$$E_1^b = LHV_b * Cef_b * [B_b * a_b * K_1 * K_h + B_b * (1-a_b) * K_1 * K_w],$$

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

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

$$E_1^b = LHV_b * Cef_b * [B_b * a_b * K_1 * K_h + B_r * (1-a_r) * K_1 * K_{w0}].$$

where:

LHV_b – Average annual lower heating value in the base year, MJ/m³ (MJ/kg);

Cef – carbon emission factor, KtCO₂/TJ;

B_b – amount of fuel consumed by a boiler-house in the base year, ths m³ or tons;

K₁, K_h = K₂ * K₃ * K₄; K_w = K₅ * K₆ * K₇ – adjustment factors;

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

(1-a_b) – portion of fuel (heat), consumed for hot water supply services in the base year;

a_r – portion of fuel (heat), consumed for heating purposes in the reported year.

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

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where:

L_h^b – maximum connected load required for heating in the base year, MW;
 L_w^b – connected load required for hot water supply service in the base year, MW;
 g – recalculating factor for average load during heating period (usually 0,5-0,8);
 N_h^b – duration of heating period in the base year, hours
 N_w^b – duration of hot water supply service in the base year, hours

$$a_r = L_h^r \cdot q \cdot N_h^r / (L_h^r \cdot g \cdot N_h^r + L_w^r \cdot N_w^r)$$

where:

L_h^r – maximum connected load required for heating in the reported year, MW;
 L_w^r – connected load required for hot water supply service in the reported year, MW;
 g – recalculating factor for average load during heating period (usually 0,5-0,8);
 N_h^r – duration of heating period in the reported year, hours,
 N_w^r – duration of hot water supply service in the reported year, hours.

$$K_1 = LHV_b / LHV_r;$$

where:

LHV_b – Average annual lower heating value in the base year, MJ/m³ (MJ/kg);
 LHV_r – Average annual lower heating value in the reported year, MJ/m³ (MJ/kg)

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

where:

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

$$K_3 = [(F_{hr} - F_{htr} - F_{hnr}) \cdot k_{hb} + (F_{hnr} + F_{htr}) \cdot k_{hn}] / F_{hb} \cdot k_{hb};$$

where:

F_{hb} – heating area in the base year, m²;
 F_{hr} – heating area in the reported year, m²;
 F_{hnr} – heating area of new buildings connected to DH system (assumed with the new (improved) thermal insulation) in the reported year, m²;
 F_{htr} – heating area of buildings (previously existed in the base year) in reported year with the renewed (improved) thermal insulation, m²;
 k_{hb} – average heat transfer factor of heated buildings in the base year, W/m²*K;
 k_{hn} – heat transfer factor of heated buildings with the new thermal insulation (new buildings or old ones with improved thermal insulation), W/m²*K.

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$$K_4 = N_{hr} / N_{hb};$$

where:

N_{hb} – duration of heating period in the base year, hours

N_{hr} – duration of heating period in the reported year, hours

$$K_5 = n_{wr} / n_{wb};$$

where:

N_{wb} – number of customers in the base year;

N_{wr} – number of customers in the reported year

$$K_6 = v_{wr} / v_{wb};$$

where:

v_{wr} – standard specific discharge of hot water per personal account in the reported year, (in heat units, kWh/h);

v_{wb} – standard specific discharge of hot water per personal account in the base year, (in heat units, kWh/h).

$$K_7 = N_{wr} / N_{wb};$$

where:

N_{wr} – duration of hot water supply service in the reported year, hours.

N_{wb} – duration of hot water supply service in the base year, hours.

$$E_{gen}^b = W_b * CEF_g + Q_b * f_b / 1000 * LHV_r * Cef;$$

where:

W_b – scheduled electric power production by the all new CHP units, MWh;

CEF_g – Carbon Emission factor for electricity generation in Ukraine, tCO₂e/MWh;

Q_b – scheduled heat energy production by the all new CHP units, MWh;

f_b – specific natural gas consumption by the boiler-house, where CHP units are scheduled to be installed, m³/MW;

LHV_r – Average annual lower heating value in reported year, MJ/m³ (MJ/kg)

Cef – carbon emission factor, KtCO₂/TJ;

$$E_{cons}^b = P_b * CEF_c;$$

where:

P_b – electric power consumption by the boiler-houses where energy saving measures are scheduled to be implemented, MWh;

CEF_c – Carbon Emission factors for reducing electricity consumption in Ukraine, tCO₂e/MWh;

[_b] index – related to the base year;

[_r] index – related to the reporting year.

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The Methodology for “District Heating” projects in Ukrainian conditions was developed for application in different Regions of Ukraine. In some Regions the consumers receive less than necessary amount of heat, in result of which the temperature inside the buildings is much lower than normative one (18 °C), and hot water supply is insufficient or absent. Therefore this Methodology allows to take into account improving of the heat supply quality for the consumers and excludes deliberate reduction of heat delivery, and, in such a way, of fuel consumption with the purpose of increasing of generation of GHG emissions reduction units (ERUs) at the project activity.

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

According to “Rules of rendering of heat and hot water supply service to population” № 1497 from 30.12.1997, the heat supply enterprises must make the return payments to population for delivery less than necessary for providing normative heating level amount of heat. The normative inside temperature should be not lower than 18 °C.

Amount of such return payment is the following:

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

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

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

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

The average inside temperature is calculated by formulae:

If $R = 0$ (according to conservatism principle for the baseline assume $R < 0.05$):

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

If $0.05 < R \leq 0.3 \text{ NP}$:

$$T_{in b} = 18 - (R/5) \text{ }^{\circ}\text{C}$$

If $0.3 \text{ NP} < R < \text{NP}$:

$$T_{in b} = 12 - [(R - 0.3 \text{ NP})/10] \text{ }^{\circ}\text{C}$$

where:

R - % of return payment from NP;

NP – amount of normative payment.

Thus if the inside temperature will be 18 °C or higher it will be accepted as 18 °C according to conservatism principle, if it will be lower than 18 °C it will be calculated from return payments by the methodology presented before.

With reference to this methodology, project does not lead to any leakage.

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The estimated annual average of approximately 13600 tCO₂e over the crediting period of emission reduction represents a reasonable estimation using the assumptions given by the project.

Clarification Request 9 (CL9):

Please clarify if conservative assumptions are used to calculate project GHG emissions
PP's response: In the PDD calculations the minimal guaranteed effects from all energy saving measures were taken into account, according to the principle of conservatism.

Also emissions reduction from implemented measures was calculated only for the next years after energy saving measures implementation. In fact result in the form of emissions reduction is achieved right away after energy saving measures implementation in the year of reconstruction, especially if it was done at the beginning of the year.

Conclusion: Issue is closed.

Clarification Request 10 (CL10):

Please clarify, why do you think that the possible leakage is less than 1% of the total direct emissions.

PP's response: Leakages may result from fuel extraction and transportation, Due to reduction of fuel consumption, the possible leakages will reduce too. This leakage has not been taken into account for simplification and to be conservative. Other leakage was not identified.

Conclusion: Issue is closed.

3.5 Environmental Impacts

According to the Ukrainian rules, the design documentation for the new building, reconstruction and technical re-equipment of industrial and civil objects must include the environmental impact assessment (see the State Building Norms of Ukraine A.2.2-1-2003).

The district heating enterprises involved in the project have all the necessary permissions including Environmental Impact Assessments in required cases for their activity on heating system rehabilitation according to Ukrainian legislation.

Overall, the project "District Heating System Rehabilitation in Rivne Region" will have a positive effect on environment. Following points will give detailed information on environmental benefits.

1. Project implementation will allow to save specific natural gas consumption. Natural gas and coal are a non-renewable resources and its economy is important.
2. Project implementation will reduce CO₂ emissions in Rivne region by over 35 thousand tons per year starting from 2010 due to increased boilers efficiencies, achieved through installation of up-to-date boiler equipment, particularly new boilers, CHP units, heat exchangers, reconstruction and liquidation of Central Heating Points, and installation of pre-insulated networks pipes instead of existing regular networks pipes.

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3. Due to fuel economy and new environmentally friendlier technologies of fuel combustion, project implementation will reduce emissions of SO_x, NO_x, CO and particulate matter (co-products of combustion).

4. It is expected that due to a better District Heating (DH) service Rivne region population will reduce electricity consumption from electric heaters thus reducing power plants emissions of CO₂, SO_x, NO_x, CO and particulate matter.

Impact on the water medium

The project possesses impact on the water medium. Impact on water resources is will be the same as in baseline scenario. The existing technology of heat energy production exploited at the objects of «Rivneteploenergo», Ltd foresees discharging of waste water to the sewage network with obligatory chemical control in accordance to Water Code of Ukraine, GOST 28.74-82 "Hygienic regulations and quality control", SNiP 4630-92 on determining maximum concentration limits for internal water bodies. Discharge of wastewater to the open water bodies will not take place.

Project implementation will have positive environmental effect. It will allow to decrease the water consumption and as a result – to decrease the amount of waste water.

Effects on the air emissions

The project implementation will have positive effect on air emissions:

- Reduction of NO_x, SO_x, CO and particulate matter (PM) due to application of cleaner technologies at boiler houses;
- Reduction of electricity consumption results in lower emissions of the same air pollutants;
- Heat stress on the atmosphere (due to lower temperatures of flue gases);
- Lower emissions per unit of fuel at the same load on boiler house.

Effects on land use

There is no impact on the land.

Relevant regulation in the sphere of land use is presented by the Land Code of Ukraine. National technological practice/standard: GOST 17.4.1.02.-83 "Protection of Nature, Soils. Classification of chemical substances for pollution control".

Effects on biodiversity

There is no impact on biodiversity.

Waste generation, treatment and disposal

During the project implementation the generation of waste will occur after disassembling of obsolete equipment, burners, pipes, etc. Also there will occur some construction waste due to destruction of boiler settling, boiler house foundations etc.

Positive effect on the environment is recycling of old equipment is a positive effect by the definition.

Corrective Action Request 7 (CAR7):

Transboundary effects are not considered (no effect can be deduced only).

Please, explain why the project has no transboundary impact.

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PP's response: Emissions are localised not far from the project sites.

Conclusion: PDD version 07 was checked. Issue is closed.

3.6 Comments by Local Stakeholders

As project activity won't provide negative influence on environment and negative social effect, special public discussion was not hold. The authorities of Rivne city have expressed the support for the project.

Project "Rehabilitation of the District Heating System in Rivne region" was presented at the XVII (Yalta, June 5-9, 2007) and XVIII (Yalta, June 10-14, 2008) International Conferences "Problems of Ecology and Exploitation of Energy Objects", where it was comprehensively discussed with representatives of governmental and district heating organizations.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

According to the modalities for the Determination of JI projects, the AIE shall make publicly available the project design document and receive, within 30 days, comments from Parties, stakeholders and UNFCCC accredited non-governmental organizations and make them publicly available.

Bureau Veritas Certification published the project documents on the website (<http://www.bureauveritas.com/>) on 09/09/2009 and invited comments within 09/10/2009 by Parties, stakeholders and non-governmental organizations.

There are no comments from stakeholders.

5 DETERMINATION OPINION

Bureau Veritas Certification has performed a determination of the «District Heating System Rehabilitation in Rivne Region». 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 on-site interviews with project stakeholders; iii) the resolution of outstanding issues and the issuance of the final determination report and opinion.

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

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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 review of the project design documentation (08) 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.

6 REFERENCES

Category 1 Documents:

Documents provided by the district heating enterprises involved in the project and the Institute of Engineering Ecology that related directly to the GHG components of the project.

- 1 PDD "District Heating System Rehabilitation in Rivne Region" Version 05, dated 21/04/2009.
- 2 PDD "District Heating System Rehabilitation in Rivne Region" Version 06, dated 28/08/2009.
- 3 PDD "District Heating System Rehabilitation in Rivne Region" Version 07, dated 14/10/2009.
- 4 PDD "District Heating System Rehabilitation in Rivne Region" Version 08, dated 30/11/2009.
- 5 Guidelines for Users of the Joint Implementation Project Design Document Form / Version 03, JISC.
- 6 Glossary of JI terms/ Version 01, JISC.
- 7 Guidance on criteria for baseline setting and monitoring. Version 01. JISC.
- 8 Tool for the demonstration and assessment of additionality. Version 05.2. EB 39, Annex 10.
- 9 JISC "Clarification regarding the public availability of documents under the verification procedure under the Joint Implementation Supervisory Committee." Version 02.
- 10 2006 IPCC Guidelines for National Greenhouse Inventories, v.2, Energy.
- 11 Operational Guidelines for Project Design Documents of Joint Implementation Projects. Volume 1. General Guidelines. Version 2.3. Ministry of Economic Affairs of the Netherlands. May 2004.
- 12 The World Resources Institute (WRI) and World Business Council for Sustainable Development. 2001. Calculating CO2 emissions from mobile sources - Guide to calculation worksheets. Washington, DC: World Resources Institute.
- 13 Letter of Endorsement # 10384/20/2-7 dated 18/10/04 issued by the Ministry of Environmental Protection of Ukraine.

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Category 2 Documents:

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

- /1/. Abbreviate from certificate from 05.04.1988. Chemical analysis.
- /2/. Abbreviate from the attestation protocol #3/215.
- /3/. Abbreviate from the verification protocol G 1600 ЛГ-K-200-1/30-1,6-1Ex. Ser. #3203 from 1996.
- /4/. Abbreviate from the verification protocol G 1600 ЛГ-K-200-1/30-1,6-1Ex. Ser. #3203 from 2006.
- /5/. Abbreviate from the verification protocol G 1600 ЛГ-K-200-1/30-1,6-1Ex. Ser. #5776 from 2006.
- /6/. Accreditation certificate #34/1 of Metrological Service (LLC "Rudmag") dated from 07.03.2006. Valid to 15.06.2009.
- /7/. Accreditation certificate #35 of Metrological Service (LLC "Rudmag") dated from 15.06.2004. Valid to 15.06.2009.
- /8/. Additional working plan of (current) reconstruction of the boiler shops facilities and equipment and CHP (ЦТП) production stations of ME RCC "Teplotransservis" in Rivne 2009.
- /9/. Agenda of reviews of vehicles, machinery, equipments of higher risk to further safe operation term after current operation deadline dated 16.11.2004.
- /10/. Agenda of reviews of vehicles, machinery, equipments of higher risk to further safe operation term after current operation deadline. Approved by Gosnadzorohrantruda of Ukraine #258 dated 16/11/2004.
- /11/. Agreement #374 of electricity usage dated 16/11/2001. Valid to 31/12/2002.
- /12/. Annex to conformity certificate Series ADD #03854.
- /13/. Capital work to repair period 2009-2010 of the ME RCC "Teplotransservis".
- /14/. Certificate #18.
- /15/. Certificate of acceptance of the gas meter G 1600 ЛГ-K-200-1/30-1,6-1Ex. Serial # 5776. Verification date 07/08/2006.
- /16/. Certificate of the acceptance of ЛГ-K-200-1600-16-01-Ex. Serial number 3203. Verification date 22/06/2006.
- /17/. Certificate of the attestation #28 of the Meteorological Service (LLC "Rudmag") dated 15/06/2009, valid to 15/06/2014.
- /18/. Certificate of the attestation #29 of the Meteorological Service (LLC "Rudmag") dated 15/06/2009, valid to 15/06/2014.
- /19/. Certificate of the state meteorological attestation #3/215 dated 12/05/2008.
- /20/. Certification #16
- /21/. Certification of boiler production quality. Boiler serial #1433. Boiler was re-regitrated 01/02/1999. Steam boiler ДКБП 10/13 oct 3619-76 зав. №1433.
- /22/. Certification of boiler production quality. Boiler serial #1435.
- /23/. Certification of boiler production quality. Production remission #18 dated 19/11/1993.
- /24/. Certification of boiler production quality. Serial #1011 dated September 1965.
- /25/. Certification of boiler production quality. Serial #1101 dated June 1966.

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- /26/. Certification of boiler production quality. Serial #1146 dated July 1966.
- /27/. Certification of boiler production quality. Serial #22705. Boiler was re-registered on 21/12/1998.
- /28/. Certification of boiler production quality. Serial #268, it was produced on December 1965.
- /29/. Certification of the boiler installation quality.
- /30/. Certification of the steam boiler installation quality.
- /31/. Conformity certificate Series AA #05703. Steel heating boiler. Period of validity from 27/04/2007 to 26/04/2009.
- /32/. Contract #2047 on the supply and use of electricity. Valid to 30.04.2004.
- /33/. Contract #2047 on the supply of electricity from 01.07.2005.
- /34/. Contract #374.010 on the supply and use of electricity. Valid to 31.12.2003.
- /35/. Contract #374.010 on the supply of electricity. Valid to 31.12.2007.
- /36/. Contract #521 from 05.07.2004.
- /37/. Data on the duration of the heating period and the average outside air temperature for the calendar years.
- /38/. Data on the duration of the heating period and the average outside air temperature.
- /39/. Decision of the Rivne Regional Council dated 01/08/2006.
- /40/. Decision #381 of the Rivne Regional Council (Fourth convocation) of the reorganization of the separate communal heat power enterprise dated 17/06/2004.
- /41/. Decision #616 of the Rivne Regional Council (Fourth convocation) of communal enterprises "Teplotransservis" of the Rivne Regional Council, "Teplokomunservis" of the Rivne Regional Council dated 09/08/2005.
- /42/. Diagram of the boiler shop technological pipelines with boilers Vitomax 200M24 on the Kyivska 6-A Street.
- /43/. Direction #360 of the head of Regional State Administration of the commission for the complete property complexes transfer of КП "Teplotransservis" of the Rivne Regional Council and КТП "Komunenergia" dated 15/08/2006. Annex to the direction #360 of the head of oblderzhadministratsii dated 15/08/2006.
- /44/. Directive on the outcome of the enterprise in the winter 2009-2010 and targets to prepare for heating season 2009-2010 pp.from 30.04.2009 #231.
- /45/. Expert opinion on the results of expert examination #25321716-09-25-0024-07 from 07.08.2007.
- /46/. Gas meter G 1600. ЛГ-K-200-1/30-1,6-1-Ex.
- /47/. Gas meter G 650. ЛГ-K-150-1/30-1,6-1-Ex.
- /48/. Information letter on availability and characteristics of the feeders from 06.06.2001.
- /49/. Information letter on availability of chemical purification and feedres for water heating boiler "Viessmann Vitomax 200 M241".
- /50/. Information letter on the water line project from 06.06.2001.
- /51/. Information on the actual average temperature of external air for the last years in Rivne.
- /52/. Information on the connected loading of hot water supply at the boiler shops on 01.09.2004.

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- /53/. Information on the number of consumers (people) who were using hot water supply and standards for gas consumption in the absence of hot water supply during the summer 2002.
- /54/. Information on the number of consumers (people) who were using hot water supply and standards for gas consumption in the absence of hot water supply during the summer 2003.
- /55/. Information on the number of consumers (people) who were using hot water supply during the year 2002.
- /56/. Information on the number of consumers (people) who were using hot water supply during the year 2003.
- /57/. Information on the results of the survey. Certified by SOC "Expert Technical Centre in Rivne". Valid to 07.08.2011.
- /58/. Information on the results of the survey. Certified by the Expert Technical Centre of State Labor Inspection in Rivne.
- /59/. Instruction on fire safety measures in the buildings of the boiler shop ГРУ #2
- /60/. KVG-65 #1. P-#389.
- /61/. KVG-65 #2. P-#390.
- /62/. KVG-65 #3. P-#550.
- /63/. Letter #193 to the director E.A. Kezle of the "Viessmann GmbH" company dated 20/04/2003.
- /64/. Letter #41 to the director E.A. Kezle of OJSC "Viessmann" dated 13/03/2006.
- /65/. Licence of construction quality dated 11/07/2001.
- /66/. Licence of construction quality dated 25/10/2007.
- /67/. Licence Series OB #000572 of State Committee for Nuclear Regulation in Ukraine
- /68/. Licence Series AB #119652 of Ministry of Construction, Architecture and Housing of Ukraine. Construction activity. Term of validity: from 04.08.2006 to 04.08.2011.
- /69/. Licence Series AB #147952 on heat energy production at central heating and power plants and at the plants using non-conventional and renewable sources of energy. Term of validity: from 21.09.2006 to 20.09.2009.
- /70/. Licence Series AB #345053 of Ministry of Housing from 18.06.2007.
- /71/. Licence Series AB #345069 of Ministry of Housing from 18.06.2007.
- /72/. Licence Series AB #372622 State Inspector General's Department for Highway Transportation (Golovavtotransinspekciia) from 29.08.2007.
- /73/. Licence Series АБ #9220972 on the electricity supply according to the uncontrolled rate. Term of validity: from 24.09.2003 to 23.09.2011.
- /74/. Licence Series ПС #1221 on right to conduct entrepreneurial business of electricity supply according to the uncontrolled rate. Validity period of the licence: from 24.09.2003 to 23.09.2006.
- /75/. List of general works connected with enterprise preparation to work at the heating season 2009-2010.
- /76/. List of works proceeding of construction activity to the license AB #119652, issued by the Ministry of Construction, Architecture and Housing and Communal Services of Ukraine dated 04/08/2006. Directive #32-П (invalid without the license).

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- /77/. Logbook for the boiler shop with the boilers of ДКВР type. The boiler #5.
- /78/. Logbook of boilers operation #7 Б-25-15 from 02.01.2007 to 01.03.2007.
- /79/. Logbook of boilers operation #7 Б-25-15 from 03.11.2006.
- /80/. Logbook of boilers operation Б-25-15 from 08.02.2007 to 31.03.2008.
- /81/. Logbook of changes.
- /82/. Logbook of gas metering (December-January 2008)
- /83/. Logbook of gas metering from 01.02.2009.
- /84/. Logbook of gas metering from 01.11.2002 to 01.02.2003.
- /85/. Logbook of gas metering from 15.10.2007.
- /86/. Logbook of the boiler supervisor.
- /87/. Logbook of work of the boiler shop equipment from July 2004 to November 2004/
- /88/. Logbook. Heating season 2009-2010. КТП PMP "Komunenergija"
- /89/. Logbook. Repairing period 2009-2010. КТП PMP "Teplotransservis"
- /90/. Logbook. Water heating boiler ПТВМ-30м st.#3. Reg. #R1095
- /91/. Methods of calculating the heat load for heating residential and public buildings.
- /92/. Number of actual electricity consumption by the boiler shops for 2002-2008.
- /93/. Number of persons of each boiler shop who were provided with hot water for 2002-2008.
- /94/. Number of rooms of each boiler shop which were provided with hot water for 2005-2008.
- /95/. OE-VPT-0,68/100. Ser. #27405 dated from 10-2007.
- /96/. Organizational and technical measures which will be implemented in order to save fuel and energy resources at heating objects КТП PMP "Teplotransservis" and КТП PMP "Komuneregija" in 2009.
- /97/. Parameter chart #3 of the boiler E-2,5-0,9.
- /98/. Parameter chart of the boiler work ДКВР 10/13 #4.
- /99/. Parameter chart of the boiler work ДКВР 10/13 #6.
- /100/. Parameter chart of the test results of the boiler #1 reg.#E-657 dated 05/02/2008.
- /101/. Parameter chart of the test results of the boiler #2 reg.#E-655 dated 05/02/2008.
- /102/. Parameter chart of the test results of the boiler #3 reg.#E-655 dated 05/02/2008.
- /103/. Passport of boiler reg. #P-1850
- /104/. Passport of boiler reg. #P-436
- /105/. Passport of boiler reg. #P-437
- /106/. Passport of boiler reg. #P-439
- /107/. Passport of boiler. Reg. #E-655. Vitomax 200 M 241. Serial #187007094.
- /108/. Passport of boiler. Reg. #E-656. Vitomax 200 M 241. Serial #187007093.
- /109/. Passport of boiler. Reg. #E-657. Vitomax 200 M 241. Serial #187007092.
- /110/. Passport of heated boiler reg. #P-1095 inv. #8690
- /111/. Passport of steam boiler #6. Reg. #1091.
- /112/. Passport of steam boiler #P-1090.
- /113/. Passport of steam boiler E-2,5-0,9ГМ ГОСТ3619-82 reg. #P-1708.

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- /114/. Passport of steam boiler. Belgorod boiler plant.
- /115/. Passport of steam boiler. Dorogobuzh boiler plant.
- /116/. Passport of steam boiler. Reg. #7092.
- /117/. Passport. Hot water boiler TBГM-30. P-1094.
- /118/. Passport. Hot water boiler. Reg. #P-1094.
- /119/. Passport. Multichannel detector of analog signals MPC-8-30200-IP20, serial #1829. Released date 01.2008.
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- /121/. Permission #157 ПП 98 territorial administration of State Labor Inspection in Rivnenska region from 30.12.1998.
- /122/. Permission #560074 for emissions of pollutants in the atmosphere by stationary sources from 13.07.2000.
- /123/. Permission #561010000-51 for emissions of pollutants in the atmosphere by stationary sources from 01.10.2007.
- /124/. Permission dated from 26.01.2009 for start-up operations. Valid to 04.06.2009.
- /125/. Permission for start-up operations from 30.05.2008.
- /126/. Permission for the commissioning of the boiler from 18.07.1973.
- /127/. Permission for the continuation of high-risk work #283.06.46-45.33.1 with the annex to the permission. Term of validity: from 30.06.2006 to 29.06.2011.
- /128/. Permission for the continuation of high-risk work #2853.05.30-74.30.0 with the annex to the permission. Term of validity: from 24.11.2005 to 24.11.2010.
- /129/. Permission for the continuation of the boiler work from 16.10.1979.
- /130/. Permission to start of facility operation #1924.06.30-28.30.0 with the annex to the permission. Term of validity: from 03.08.2006 to 03.08.2009.
- /131/. Permission to start of facility operation #3389.07.30-28.30.0 with the annex to the permission. Term of validity: from 28.11.2007 to 28.11.2010.
- /132/. Photo - Boiler #1 type ДКВР 10/13 reg. #P-438 inv. №400/705
- /133/. Photo - Boiler #2 type Е-4-14ГМ
- /134/. Photo - Boiler #4 type ДКВР 10/13
- /135/. Photo - Boiler #5 type ДКВР 10/13
- /136/. Photo - Boiler #6 type ДКВР 10/13
- /137/. Photo - Boiler #6. Register #P-1091.
- /138/. Photo - Boiler #7. Register #P-1090.
- /139/. Photo - Boiler #7. Register #P-1092.
- /140/. Photo - Boiler Е-2,5-0,9ГМ
- /141/. Photo - Boiler ИИСТУ-5 #1 inventory #2720
- /142/. Photo - Boiler ИИСТУ-5 #2 inventory #2719
- /143/. Photo - Boiler ИИСТУ-5 #3 inventory #2718
- /144/. Photo - Boiler ИИСТУ-5 #4
- /145/. Photo - Boiler ИИСТУ-5 #6 inventory #1769
- /146/. Photo - Boiler ИИСТУ-5 #7
- /147/. Photo - Boiler ИИСТУ-5 #8 inventory #1768
- /148/. Photo - Boiler ИИСТУ-5 #9
- /149/. Photo - Fueling pump К-20/30 #2
- /150/. Photo - Gas meter G 1600 ЛГ-К-200-1/30-1,6-1-Ex

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- /151/. Photo - Gas meter ЛГ-80-180-18-04
- /152/. Photo - Heater of water network ПДС-4-200 №1
- /153/. Photo - Heater of water network ПДС-4-200 №2
- /154/. Photo - Heater of water network ПДС-4-200 №3
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- /156/. Photo - Network pump #1 К-290/30
- /157/. Photo - Network pump #2 Д 320/70
- /158/. Photo - Network pump #2 К-290/30
- /159/. Photo - Pump of water network #4 GRUNDFOS TP 100-700/2/ Released year 2007.
- /160/. Photo - Regime pump #1 Д 320/70.
- /161/. Photo - Steam turbine #1. Type P 2,5-15/3 м
- /162/. Photo - Steam turbine #2. Type P 2,5-15/3 м
- /163/. Photo - Transducer of pressure difference Санфир-22М-ДД Model 2440
- /164/. Photo - Turbogenerator. Type Т-8,5-293. Ser. # 57873.
- /165/. Photo - VLT. HVAC Drive.
- /166/. Photo - Water pump ЦНСГ 38/44
- /167/. Photo - КТП PMP "Komunenergia". Boiler shop.
- /168/. Photo- Differential manometer ДМ-3583М ТУ25-02031698-78
- /169/. Planned substitution of heating networks emergency areas from isolated pipes in the polyurethane wrapper by КТП PMP "Teplotransservis" production stations in 2009, Rivne.
- /170/. Planned substitution of heating networks emergency areas from isolated pipes in the polyurethane wrapper by КТП PMP "Komunenergia" production stations in 2009, Rivne.
- /171/. Primary substitution of the heat networks from isolated pipes in the polyurethane wrapper by КТП PMP "Teplotransservis" production stations in 2009, Rivne.
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- /173/. Producer warranties. Verification date 28.07.2008.
- /174/. Program of the steam boiler expert examination, type Б25/15 ГМ. Serial #1101; reg. # 3-1091 dated 03/07/2007.
- /175/. Protocol #2 of metering of relative ovality, the control scope in accordance to "Regulation of technical diagnostics of power equipments of Ministry of Industrial Policy of Ukraine enterprises".
- /176/. Protocol #3 of the magnet powder control results. Licence 9309.
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- /179/. protocol #8 of wall thickness measuring.
- /180/. Protocol on agreement of agreed price to the scientific and technical products "preparation of output information for the application creation to CO2 emission reduction JI project due to creation of the mini-CHP based on the heating boiler shop" in accordance to the contract #521 dated 05/07/2004.
- /181/. Registration #31 of the boiler dated 28/11/1968.

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- /182/. Registration. Boiler register #9226. Boiler re-registration 19/12/2005.
- /183/. Registration. Heating water boiler Vitomax 200 M 241. Serial #187007092. Register #E-657 dated 30/10/2007.
- /184/. Registration. Heating water boiler Vitomax 200 M 241. Serial #187007093. Register #E-656 dated 30/10/2007.
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- /193/. Report on the start-up test of three water heating boilers Vitomax 200 M241 of the company Viessmann with power of 9,3 MW installed at the boiler shop at 6a Kyivska street in Rivne from 05.02.2008.
- /194/. Resolution #630 on approval of rules of providing central heating services, hot and cold water supply and drainage system, and model contract of providing central heating services, hot and cold water supply and drainage system dated 21/07/2005.
- /195/. Schedule of certification of buildings, structures (chimneys) 2009.
- /196/. Schedule of hot water supply by the boiler shops for 2002-2008.
- /197/. Schedule of hydraulic tests of heating networks КП PMP "Komunenergia" during repairing period 2009-2010.
- /198/. Schedule of hydraulic tests of heating networks КП PMP "Transservis" during repairing period 2009-2010.
- /199/. Schedule of repairing roofs of boiler rooms.
- /200/. Scheme of boiler heating networks on Soborna Street 225-K.
- /201/. Scheme of gas equipment к/а Vitomax 200 M 241 #2 boiler on Kyivska Street 6-A.
- /202/. Scheme of the boilers expert examination (technical diagnostics), pipelines that installed at the boiler shops of КП "Teplotransservia" and КП "Komunenergia" and technical certifying by experts in 2009.
- /203/. Scheme of the staff evacuation from the first floor of the boiler shop in case of the fire dated 02/04/2004.
- /204/. Scheme of gas bleeding ГРУ #1 boiler on Kuivska Street 6-A.
- /205/. Specification dated 03/02/2003.
- /206/. Specification dated 26/02/2003.

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- /209/. State statistical observation. Report on the heat energy supply for the year 2004 from 17.01.2005.
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- /215/. State statistical observation. Report on the results of the use of fuel, heat and electricity for January-December 2002 from 10.01.2003.
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- /217/. Statement #1of visual inspection and geometric measurements of collector elements, water circulators, pipes of heating surfaces. Certificate #8131/
- /218/. Statement dated from 01.03.2003. SOC "Dubrovytsiakomunenergiiia"
- /219/. Statement of analysis of operation, design and repair documentation and expert examination of metal steam boiler metal ser. #1101, reg. #1091, st. #6 installed at the boiler shop on Pr. Volodymyr street in Rivne dated from 06.08.2007.
- /220/. Statement of boiler testing on steam density and adjustment of relief valves dated from 03.11.1993.
- /221/. Statement of fettling of automatics of boiler safety and signalling at the boiler shop on 6A Kyivska street dated from 26.10.2008.
- /222/. Statement of fettling of automatics of steam boiler safety 525/15 ГМ #7 at the boiler shop on 75 Pr. Volodymyr street dated from 03.01.2008.
- /223/. Statement of fettling of automatics of water heating boiler safety ТБГМ-30 #1 at the boiler shop on 75 Pr. Volodymyr street dated from 15.10.2007.
- /224/. Statement of hydraulic testing of the boiler dated rom 06.08.2007.
- /225/. Statement of reiparement and fettling of automatics of boiler safety and signalling at the boiler КТП PMP "Komunenergiiia" dated from 02.09.2008.
- /226/. Statement of SOC "Dubrovytsiakomunenergiiia" dated from 01.03.2002
- /227/. Statement of working order of the boiler dated from 06.06.2001.
- /228/. Statement of working order of the boiler dated from 25.10.2007.
- /229/. Statute #38/01 of utility enterprise "Teplotransservis" of Rivne city council dated 26/01/2007.
- /230/. Steam boiler ДКБР 10/13 oct. 3619-76 зав. №1135.
- /231/. Table. Amount of actual electricity and heat energy production in 2002-2008

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- and actual gas spending in 2008 on boiler shops.
- /232/. Table. Amount of actual electricity consumption on boiler shops in 2002-2008.
 - /233/. Table. Heating areas in 2002-2008.
 - /234/. Table. Indicators of energy consumption of КП PMP "Teplotransservis".
 - /235/. Table. Indicators of energy consumption of КТП PMP "Komunenergia".
 - /236/. Technical passport of the gas-fired burner. AB #200726907.
 - /237/. Technical passport P-436
 - /238/. Technical passport P-437. Steam boiler F-10-14 (ДКВР 10/13) serial #22705.
 - /239/. Technical passport P-439
 - /240/. Technical report #25321716-09-25-0024-07 of the expert examination (technical diagnostics).
 - /241/. The amendment to the statute of the public enterprises "Teplotransservis" of the administrative board of Rivne #614/01 from 27.11.2008.
 - /242/. Thermaks. Type PTA-42, ser. #12. Production year 2008.
 - /243/. Turbine gas meter. ЛГ-K-Ex G 1600 ЛГ-K-200-1/30-1,6-1. Passport Ф62. 784. 008 ПС
 - /244/. Verification data. Verification date 24.07.08. Quality service.
 - /245/. VITOMAX 200. Low pressure hot water boiler. Type M241 008. Production number 187007092.
 - /246/. VITOMAX 200. Low pressure hot water boiler. Type M241 008. Production number 187007093.
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 - /248/. Waybill #15 from 31.05.2002. TC "Komunenergiiia"
 - /249/. Waybill #18 from 20.02.2002. SOC "Dubrovyciiakomunenergiiia"
 - /250/. Waybill #35328268 from 04.02.2005. TC "Komunenergiiia"
 - /251/. Waybill #35328268 from 04.02.2005. TC "Komunenergiiia"
 - /252/. Waybill #35637614. TC "Komunenergiiia"
 - /253/. Waybill #67 from 31.05.2002. SOC "Dubrovyciiakomunenergiiia"
 - /254/. Waybill for shipment #189 from 20.02.2003. TC "Komunenergiiia"
 - /255/. Work plan of the capital (current) repair of premises and boiler shop equipments, and ЦТП production stations of КП PMP "Teplotransservis" in 2009, Rivne.
 - /256/. Work plan of the capital (current) repair of premises and boiler shop equipments, and ЦТП production stations of КТП PMP "Komunenergia" in 2009, Rivne.
 - /257/. Work scheme of the preparation of heating facilities by КТП PMP "Komunenergia" production stations to work in autumn-winter 2009-2010, Rivne.
 - /258/. Work scheme of the preparation of КП PMP "Teplotransservis" heating facilities to work in autumn-winter 2009-2010.
 - /259/. MPC-8 Multichannel analog signals recorder. Technical description and operating manual. Passport. 2006.

Persons interviewed:

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

- /1/ Serhij Paladiychuk - chairman of the Rivne representative office of civil society development Fund
- /2/ Mykola Tarasyuk - chairman of standing committee on municipal economy, ecology, transport and connection questions; chief ZHKP «Western»
- /3/ Deputy of Rivne city advice Ivan Turko - national deputy; a representative of Ukrainian national party in Rivne
- /4/ Dubrovin A.V. - chief of changing
- /5/ Vorobey O.A. - operator
- /6/ Goloyug G.O. - operator
- /7/ Veremchuk U.D. - chief of area #2
- /8/ Zhavoronkov V.U. - chief engineer of area #2
- /9/ Kursik O.A. - watchman
- /10/ Kapac L.L. - operator
- /11/ Semenchuk N.O. - operator
- /12/ Semenov A.L. - chief of area #1
- /13/ Torubko V.T. - chief engineer of area #1
- /14/ Dib'yak V.E. - chief of area #9
- /15/ Yuschuk O.V. - chief engineer of area #9
- /16/ Timoschuk M.O. – watchman
- /17/ Zakharov V.I. – chief area #3
- /18/ Kravchuk V.P. – engineer of area #3
- /19/ Parchuk G.M. – operator of boiler room
- /20/ Lukashova M.V. – watchman
- /21/ Endrushak V.V. – chief of boiler room
- /22/ Pereverzev S.V. – engineer
- /23/ Sasko L.F. – watchman
- /24/ Kolodiy S.A. – chief of area #8
- /25/ Nevinniy V.V. - chief engineer of area #8
- /26/ Voycovich N.A. - operator

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APPENDIX A: DETERMINATION PROTOCOL

BUREAU VERITAS CERTIFICATION HOLDING SAS

Report No: UKRAINE/0047/2009 rev. 01

 DETERMINATION REPORT - "DISTRICT HEATING SYSTEM REHABILITATION IN RIVNE REGION"

JI PROJECT DETERMINATION PROTOCOL

Table 1 Mandatory Requirements for Joint Implementation (JI) Projects

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
1. The project shall have the approval of the Parties involved	Kyoto Protocol Article 6.1 (a)	See CAR2. After finishing of project determination report, the PDD and Determination Report will be presented to National Environmental Investments Agency of Ukraine for receiving of the Letter of Approval. The Letter of Approval from the country - investor will be provided after	Table 2, Section A.5



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REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
		<p>approval of project by Ukraine.</p> <p>National Environmental Investment Agency of Ukraine</p> <p>35, Urytskogo str. 03035 Kiev Ukraine Email: info.neia@gmail.com</p> <p>Mr. Igor Lupaltsov Head Phone: +380 44 594 9111 Fax: +380 44 594 9115 Email: lupaltsov@ukr.net</p> <p>Federal Environment Agency; German Emissions Trading Authority Bismarckplatz 1 14193 Berlin Germany</p> <p>Mr. Sebastian Honicke Phone: +49 30 89 03 50 50 Email:</p>	



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REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
		German. dna.dfp@uba.de	
2. Emission reductions, or an enhancement of removal by sinks, shall be additional to any that would otherwise occur	Kyoto Protocol Article 6.1 (b)	OK	Table 2, Section B
3. The sponsor Party shall not acquire emission reduction units if it is not in compliance with its obligations under Articles 5 & 7	Kyoto Protocol Article 6.1 (c)	CAR1: There is no information about sponsor Party.	
4. The acquisition of emission reduction units shall be supplemental to domestic actions for the purpose of meeting commitments under Article 3	Kyoto Protocol Article 6.1 (d)	OK	
5. Parties participating in JI shall designate national focal points for approving JI projects and have in place national guidelines and procedures for the approval of JI projects	Marrakech Accords, JI Modalities, §20	National Environmental Investment Agency of Ukraine	
6. The host Party shall be a Party to the Kyoto Protocol	Marrakech Accords, JI Modalities, §21(a)/24	The Ukraine is a Party (Annex I Party) to the Kyoto Protocol and has ratified the Kyoto Protocol at April 12th, 2004.	
7. The host Party's assigned amount shall have been calculated and recorded in accordance with the modalities for the accounting of assigned amounts	Marrakech Accords, JI Modalities, §21(b)/24	This issue cannot be answered finally as it is out of the influence of the project participants. In the Initial Report submitted by Ukraine on 29. Dec. 2006	



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REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
		the AAUs are quantified with: 925 362 174.39 (x 5) tCO ₂ -e. (compare http://unfccc.int/national_reports/initial_reports_under_the_kyoto_protocol/items/3765.php)	
8. The host Party shall have in place a national registry in accordance with Article 7, paragraph 4	Marrakech Accords, JI Modalities, §21(d)/24	The designed system of the national registry has been outlined in the Initial Report (see link above). This issue is out of the influence of the project owner. The National Registry is not a direct requirement for project registration.	
9. Project participants shall submit to the independent entity a project design document that contains all information needed for the determination	Marrakech Accords, JI Modalities, §31	OK	
10. The project design document shall be made publicly available and Parties, stakeholders and UNFCCC accredited observers shall be invited to, within 30 days, provide comments	Marrakech Accords, JI Modalities, §32	09/09/09-09/10/09 at the Bureau Veritas website: www.bureauveritas.com.ua	
11. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, in accordance with procedures as determined by the host Party	Marrakech Accords, JI Modalities,	The district heating enterprises involved in the project have all the	Table 2, Section F



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REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host Party shall be carried out	§33(d)	necessary permissions including Environmental Impact Assessments in required cases for their activity on heating system rehabilitation according to Ukrainian legislation.	
12. The baseline for a JI project shall be the scenario that reasonably represents the GHG emissions or removal by sources that would occur in absence of the proposed project	Marrakech Accords, JI Modalities, Appendix B	OK	Table 2, Section B
13. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances	Marrakech Accords, JI Modalities, Appendix B	OK	Table 2, Section B
14. The baseline methodology shall exclude to earn CERs for decreases in activity levels outside the project activity or due to force majeure	Marrakech Accords, JI Modalities, Appendix B	OK	Table 2, Section B
15. The project shall have an appropriate monitoring plan	Marrakech Accords, JI Modalities, §33(c)	OK	Table 2, Section D
16. A project participant may be: (a) A Party involved in the JI project; or (b) A legal entity authorized by a Party involved to participate in the JI project.	JISC "Modalities of communication of Project Participants with	See CAR2. Conclusion is pending until Letters of Approval authorizing the project	Table 2, Section A

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REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
	the JISC" Version 01, Clause A.3	participants by Parties involved will be issued.	

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A. General Description of the project					
A.1 Title of the project					
A.1.1. Is the title of the project activity presented?	1,2,3,4	DR	"District Heating System Rehabilitation in Rivne Region"	OK	OK
A.1.2. Is the current version number of the document presented?	1,2,3,4	DR	Current version is indicated in the PDD	OK	OK
A.1.3. Is the date when the document was completed presented?	1,2,3,4	DR	Dated August 28, 2009	OK	OK
A.2. Description of the project					
A.2.1. Is the purpose of the project activity included?	1,2,3,4	DR	See section A.2 of the PDD. The project consists of two parts: rehabilitation of DH system of Rivne city and rehabilitation of DH system of Rivne region. 12 boiler-houses with 78 boilers and 110 km of heat distributing networks are involved in the rehabilitation of Rivne city and 7 boiler-	OK	OK



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			houses with 19 boilers and 11 km of heat distributing networks are involved in the rehabilitation of Rivne region. The total number of boiler-houses which are involved in the project is 19 with 97 boilers and 121 km heat distribution networks. Beside this project provides installation of cogeneration units at boiler houses Knyazya Volodymyra, 71 (two steam-turbines 2,5 MW each). This is the large part of Rivne regional DH system.		
A.2.2. Is it explained how the proposed project activity reduces greenhouse gas emissions?	1,2,3,4	DR	See section A.2 of the PDD. The project main goal is fuel consumption reduction, in particular reduction of natural gas (which is imported to Ukraine), coal and oil consumption, by means of district heating system rehabilitation in Rivne region, including boiler and distribution network equipment replacement and rehabilitation, and installation of combined heat and power production plants. Such reduction of fuel consumption will result in decrease of greenhouse gas emissions (CO ₂ and N ₂ O). The purpose of the project is sustainable development of the region through implementation of energy saving technologies.	OK	OK
A.3. Project participants					



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A.3.1. Are project participants and Party(ies) involved in the project listed?	1,2,3,4	DR	See section A.3 of the PDD Ukraine (Host Party): «Rivneteploenergo», Ltd is a Supplier of this project. ; Institute of Engineering Ecology, Ltd Deutsche Bank AG (Germany) is a purchaser of this project. See A3 and A5 of PDD Version 08.	OK	OK
A.3.2. Are project participants authorized by a Party involved?	1,2,3,4,5	DR	See section A.5.1 (CAR2) below	-	-
A.3.3. The data of the project participants are presented in tabular format?	1,2,3,4	DR	See section A.3 of the PDD	OK	OK
A.3.4. Is contact information provided in annex 1 of the PDD?	1,2,3,4	DR	See Annex 1 of the PDD. Please, clarify why second table of the Annex1 is empty?	CL1	
A.3.5. Is it indicated, if it is the case, if the Party involved is a host Party?	1,2,3,4	DR	Ukraine (Host Party)	OK	OK
A.4. Technical description of the project					
A.4.1. Location of the project activity					
A.4.1.1. Host Party(ies)	1,2,3,4	DR	Ukraine	OK	OK
A.4.1.2. Region/State/Province etc.	1,2,3	DR	Rivne Region. See section A.4.1.2 of the	OK	OK



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
	,4		PDD		
A.4.1.3. City/Town/Community etc.	1,2,3 ,4	DR	Rivne city and towns of the Rivne region.. See section A.4.1.2 of the PDD	OK	OK
A.4.1.4. Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page)	1,2,3 ,4	DR	See section A.4.1.4 of the PDD	OK	OK
A.4.2. Technology(ies) to be employed, or measures, operations or actions to be implemented by the project					
A.4.2.1. Does the project design engineering reflect current good practices?	1,2,3	DR	See section A.4.2 of the PDD	OK	OK
A.4.2.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	1,2,3	DR	See section A.4.2 of the PDD	OK	OK
A.4.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1,2,3	DR	Please, clarify if the project technology is likely to be substituted by other or more efficient technologies within the project period.	CL2	
A.4.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?	1,2,3	DR	Please, clarify if the project requires extensive initial training and maintenance efforts in order to work as presumed during the project period.	CL3	
A.4.2.5. Does the project make provisions for meeting training and maintenance needs?	1,2,3	DR	Please, clarify if the project makes provisions for meeting training and maintenance needs.	CL4	



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A.4.3. 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					
A.4.3.1. Is it stated how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page)	1,2,3 ,4,5, 6	DR	See section A.2.2 of the PDD	OK	OK
A.4.3.2. Is it provided the estimation of emission reductions over the crediting period?	1,2,3 ,4	DR	Total estimated amount of emissions reduction for which ERUs will be received (t CO ₂ -eq.) during 2008 – 2012 is about: 216735,3 tCO ₂ eq.“	OK	OK
A.4.3.3. Is it provided the estimated annual reduction for the chosen credit period in tCO ₂ e?	1,2,3 ,4	DR	The estimated annual reduction for the chosen credit period is about: 47269,1 tCO ₂ e	OK	OK
A.4.3.4. Are the data from questions A.4.3.2 to A.4.3.4 above presented in tabular format?	1,2,3 ,4	DR	See section A.4.3.1 of the PDD.	OK	OK
A.5. Project approval by the Parties involved					
A.5.1. Are written project approvals by the Parties involved attached?	1,2,3 ,4	DR	There is no evidence of written project approvals by the Parties involved. Pending until LoAs by Parties involved will be issued.	CAR2	-
B. Baseline					
B.1. Description and justification of the baseline chosen					



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
B.1.1. Is the chosen baseline described?	1,2,3 ,4,6	DR	Jl specific methodology	OK	OK
B.1.2. Is it justified the choice of the applicable baseline for the project category?	1,2,3 ,4,6	DR	See section B.1 of the PDD.	OK	OK
B.1.3. Is it described how the methodology is applied in the context of the project?	1,2,3 ,4,5, 6	DR	See section B.1 of the PDD.	OK	OK
B.1.4. Are the basic assumptions of the baseline methodology in the context of the project activity presented (See Annex 2)?	1,2,3 ,4,5, 6	DR	See section B.1 of the PDD.	OK	OK
B.1.5. Is all literature and sources clearly referenced?	1,2,3 ,4	DR	See section B.1 of the PDD	OK	OK
B.2. Description of how the anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the JI project					
B.2.1. Is the proposed project activity additional?	1,2,3 ,4,6, 7	DR	See section B.2 of the PDD.	OK	OK
B.2.2. Is the baseline scenario described?	1,2,3 ,4	DR	See sections B.1 and B.2 of the PDD. The Baseline scenario is a business-as-usual scenario with minimum reconstruction works balanced by overall degradation of DH system.	OK	OK
B.2.3. Is the project scenario described?	1,2,3 ,4	DR	See section B.2 of the PDD. The anthropogenic emissions of GHG will	OK	OK



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			be reduced due to complex modernization of heat generating and distributing equipment with application of the technologies proposed in the project activities and described above, which include replacement of old obsolete boilers by new ones with higher efficiency, replacement of obsolete coal-fired boilers by the modern gas-fired ones, frequency controllers installation, reconstruction and liquidation of CHP (Central Heating Points), installation of cogeneration units, renovation of degraded heat distribution networks with using of the pre-insulated pipes.		
B.2.4. Is an analysis showing why the emissions in the baseline scenario would likely exceed the emissions in the project scenario included?	1,2,3 ,4,5	DR	See section A.2.2 above and section B.2 of the PDD	OK	OK
B.2.5. Is it demonstrated that the project activity itself is not a likely baseline scenario?	1,2,3 ,4,6	DR	See section B.2 of the PDD.	OK	OK
B.2.6. Are national policies and circumstances relevant to the baseline of the proposed project activity summarized?	1,2,3 ,4	DR	See section B.2 of the PDD. It should be noted that there is no local legislation regarding the time of boilers replacement and maximum lifetime permitted for boilers. It is common practice to exploit boilers which was installed in 70 th. and even 50-60 th. and earlier in Ukraine, if they pass the technical examination pass by the authorized body	OK	OK



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			("Derzhnagliadohoronpratsi").		
B.3. Description of how the definition of the project boundary is applied to the project activity					
B.3.1. Are the project's spatial (geographical) boundaries clearly defined?	1,2,3,4	DR	See section B.3 of the PDD	OK	OK
B.4. Further baseline information, including the date of baseline setting and the name(s) of the person(s)/entity(ies) setting the baseline					
B.4.1. Is the date of the baseline setting presented (in DD/MM/YYYY)?	1,2,3,4	DR	20/09/2004	OK	OK
B.4.2. Is the contact information provided?	1,2,3,4	DR	The baseline is determined by the Institute of Engineering Ecology (IEE), project developer and project partner, and ME RCC "Teplotransservice", project supplier. See annex 1 of the PDD	OK	OK
B.4.3. Is the person/entity also a project participant listed in Annex 1 of PDD?	1,2,3,4	DR	See annex 1 of the PDD	OK	OK
C. Duration of the small-scale project and crediting period					
C.1. Starting date of the project					
C.1.1. Is the project's starting date clearly defined?	1,2,3,4,5	DR	15/03/2003	OK	OK
C.2. Expected operational lifetime of the project					
C.2.1. Is the project's operational lifetime clearly defined in years and months?	1,2,3,4	DR	Please, provide the project's operational lifetime in years and months.	CAR3	



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
C.3. Length of the crediting period					
C.3.1. Is the length of the crediting period specified in years and months?	1,2,3,4	DR	Please, provide the length of the crediting period in years and months.	CAR4	
D. Monitoring Plan					
D.1. Description of monitoring plan chosen					
D.1.1. Is the monitoring plan defined?	1,2,3,4,6	DR	Refer to section D.1.1 of PDD	OK	OK
D.1.2. Option 1 – Monitoring of the emissions in the project scenario and the baseline scenario.	1,2,3,4,6	DR	Refer to section D.1.1 of PDD	OK	OK
D.1.3. Data to be collected in order to monitor emissions from the project, and how these data will be archived.	1,2,3,4,6	DR	Refer to section D.1.1.1 of PDD Please provide journal of wood chips consumption registration. Please provide quality certificate from Wood chips supplier's or independent chemical lab analysis report on Average annual Heating Value of Wood chips and journal of wood chips Heating Value registration.	CL5 CL6	
D.1.4. Description of the formulae used to estimate project emissions (for each gas, source etc.; emissions in units of CO2 equivalent).	1,2,3,4	DR	Refer to section D.1.1.2 of PDD	OK	OK
D.1.5. Relevant data necessary for determining the baseline of anthropogenic emissions of greenhouse gases by sources within the project boundary, and	1,2,3,4	DR	Refer to section D.1.1.3 of PDD. Please specify, Lower Heating Value of the wood chips and how it determined.	CL7	



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
how such data will be collected and archived.					
D.1.6. Description of the formulae used to estimate baseline emissions (for each gas, source etc,; emissions in units of CO2 equivalent).	1,2,3 ,4,9, 11	DR	Refer to section D.1.1.4 of PDD	OK	OK
D.1.7. Option 2 – Direct monitoring of emissions reductions from the project (values should be consistent with those in section E)	1,2,3 ,4	DR	Refer to section D.1.2 of PDD.	OK	OK
D.1.8. Data to be collected in order to monitor emission reductions from the project, and how these data will be archived.	1,2,3 ,4	DR	Refer to section D.1.2.1 of PDD. N/A	OK	OK
D.1.9. Description of the formulae used to calculate emission reductions from the project (for each gas, source etc,; emissions/emission reductions in units of CO2 equivalent).	1,2,3 ,4	DR	Refer to section D.1.2.2 of PDD.	OK	OK
D.1.10. If applicable, please describe the data and information that will be collected in order to monitor leakage effects of the project.	1,2,3 ,4,6	DR	Refer to section D.1.3.1 of PDD. N/A	OK	OK
D.1.11. Description of the formulae used to estimate leakage (for each gas, source etc,; emissions in units of CO2 equivalent).	1,2,3 ,4	DR	Refer to section D.1.3.2 of PDD. Leakage is not expected.	OK	OK
D.1.12. Description of the formulae used to estimate emission reductions for the project (for each gas, source etc,; emissions in units of CO2 equivalent).	1,2,3 ,4	DR	Refer to section D.1.4 of PDD	OK	OK
D.1.13. Is information on the collection and archiving of information on the environmental impacts of the project provided?	1,2,3 ,4	DR, I	Refer to section D.1.5 of PDD. Information on the collection and archiving of information on the environmental impacts of the project is not provided.	CAR5	



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.1.14. Is reference to the relevant host Party regulation(s) provided?	1,2,3,4	DR, I	Please, provide reference to the relevant host Party regulation(s)	CL8	
D.1.15. If not applicable, is it stated so?	1,2,3,4	DR, I	Reference to section D.1.14 (CL) above	-	-
D.2. Qualitative control (QC) and quality assurance (QA) procedures undertaken for data monitored					
D.2.1. Are there quality control and quality assurance procedures to be used in the monitoring of the measured data established?	1,2,3,4	DR	See section D.2 of the PDD. Quality control (QC) and quality assurance (QA) procedures undertaken for wood chips consumption data are not provided.	CAR6	
D.3. Please describe of the operational and management structure that the project operator will apply in implementing the monitoring plan					
D.3.1. Is it described briefly the operational and management structure that the project participants(s) will implement in order to monitor emission reduction and any leakage effects generated by the project activity	1,2,3,4	DR	See section D.3 of the PDD	OK	OK
D.4. Name of person(s)/entity(ies) establishing the monitoring plan					
D.4.1. Is the contact information provided?	1,2,3,4	DR	See section D.4 of the PDD where all contact information is provided.	OK	OK
D.4.2. Is the person/entity also a project participant listed in Annex 1 of PDD?	1,2,3,4	DR	See Annex 1 of the PDD	OK	OK



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
E. Estimation of greenhouse gases emission reductions					
E.1. Estimated project emissions					
E.1.1. Are described the formulae used to estimate anthropogenic emissions by source of GHGs due the project?	1,2,3 ,4,9	DR	See sections D.1.1.2, E.1 of the PDD and Appendix 1-2, 4.	OK	OK
E.1.2. Is there a description of calculation of GHG project emissions in accordance with the formula specified in for the applicable project category?	1,2,3 ,4,9	DR	See sections D.1.1.2, E.1 of the PDD and Appendix 1-2, 4.	OK	OK
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?	1,2,3 ,4	DR	Please clarify if conservative assumptions are used to calculate project GHG emissions.	CL9	
E.2. Estimated leakage					
E.2.1. Are described the formulae used to estimate leakage due to the project activity where required?	1,2,3 ,4,6	DR	Please clarify, why you think that the possible leakage is less than 1% of the total direct emissions.	CL10	
E.2.2. Is there a description of calculation of leakage in accordance with the formula specified in for the applicable project category?	1,2,3 ,4	DR	Refer to E.2.1 (CL) above.	-	-
E.2.3. Have conservative assumptions been used to calculate leakage?	1,2,3 ,4,6	DR	Refer to E.2.1 (CL) above.	-	-
E.3. The sum of E.1 and E.2.					
E.3.1. Does the sum of E.1 and E.2 represent the project activity emissions?	1,2,3 ,4	DR	See sections E.3 of the PDD. Refer to E.2.1 (CL) above.	-	
E.4. Estimated baseline emissions					



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
E.4.1. Are described the formulae used to estimate the anthropogenic emissions by source of GHGs in the baseline using the baseline methodology for the applicable project category?	1,2,3 ,4	DR	Refer to sections E.4 and B of the PDD. See Appendix 4.	OK	OK
E.4.2. Is there a description of calculation of GHG baseline emissions in accordance with the formula specified in for the applicable project category?	1,2,3 ,4,10	DR	Refer to sections E.4 and B of the PDD. See Appendix 4.	OK	OK
E.4.3. Have conservative assumptions been used to calculate baseline GHG emissions?	1,2,3 ,4	DR	See section B of the PDD.	OK	OK
E.5. Difference between E.4. and E.3. representing the emission reductions of the project					
E.5.1. Does the difference between E.4. and E.3. represent the emission reductions due to the project during a given period?	1,2,3 ,4	DR	Refer to E.5 of the PDD.	OK	OK
E.6. Table providing values obtained when applying formulae above					
E.6.1. Is there a table providing values of total CO ₂ abated?	1,2,3 ,4	DR	Table presented in section E.6 of the PDD	OK	OK
F. Environmental Impacts					
F.1. Documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party					
F.1.1. Has an analysis of the environmental impacts of the project been sufficiently described?	1,2,3 ,4	DR, I	Section F.1 of PDD gives sufficient environment impact analysis description.	OK	OK



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is and EIA approved?	1,2,3 ,4	DR, I	Refer to F.2 of the PDD.	OK	OK
F.1.3. Are the requirements of the National Focal Point being met?	1,2,3 ,4	DR, I	The National Focal Point issued Letter of Endorsement.	OK	OK
F.1.4. Will the project create any adverse environmental effects?	1,2,3 ,4	DR, I	Adverse environmental effects are not expected.	OK	OK
F.1.5. Are transboundary environmental considered in the analysis?	1,2,3 ,4	DR, I	Transboundary effects are not considered (no effect can be deduced only). Please, explain why the project has no transboundary impact.	CAR7	
F.1.6. Have identified environmental impacts been addressed in the project design?	1,2,3 ,4	DR, I	See section F.2 of the PDD. Adverse environmental effects are not expected.	OK	OK
G. Stakeholders' comments					
G.1.Information on stakeholders' comments on the project, as appropriate					
G.1.1. Is there a list of stakeholders from whom comments on the project have been received?	1,2,3 ,4,8	DR	See section G.1 of PDD	OK	OK
G.1.2. The nature of comments is provided?	1,2,3 ,4	DR	See section G.1 of PDD	OK	OK
G.1.3. Has due account been taken of any stakeholder comments received?	1,2,3 ,4	DR	See section G.1 of PDD	OK	OK

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Table 3 Baseline and Monitoring Methodologies: Own format

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1. Baseline Methodology					
1. 1. General					
1.1.1. Does the baseline cover emissions from all gases, sectors and source categories listed in Annex A, and anthropogenic removals by sinks, within the project boundary?	1,2,3	DR I	Section B.3 of the PDD establishes project boundaries. Only CO2 emissions are taken into account by the project.	OK	OK
1.1.2. Is baseline established on a project-specific basis and/or using a multi-project emission factor?	1,2,3	DR I	A multi-project emission factor is used for baseline establishing.	OK	OK
1.1.3 Is baseline established in a transparent manner with regard to the choice of approaches, assumptions, methodologies, parameters, data sources and key factors?	1,2,3	DR I	See section B of the PDD and Appendix 1-4.	OK	OK
1.1.4 Is baseline established 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?	1,2,3	DR	See sections B of the PDD. Applicable local laws and regulations are taken into account. Economic situation in the project sector is taken into account (Sections B.1. and B.2. of the PDD)	OK	OK
1.1.5 Is baseline established in such a way that ERUs cannot be earned for decreases in activity levels outside the project activity or due to <i>force majeure</i> ?	1,2,3	DR I	See sections B of the PDD. Baseline does not envisage earning ERUs for activity level decrease outside the project or due to	OK	OK



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			<i>force majeure.</i>		
1.1.6 Is baseline established taking account of uncertainties and using conservative assumptions?	1,2,3	DR I	See items E.1.3 (CL) above	-	-
1.2. Additionality					
1.2.1. Was the additionality of the project activity demonstrated and assessed?	1,2,3	DR	See section B.2.1 above	-	-
2. Monitoring Methodology					
2.1. Monitoring plan					
2.1.1. Is a monitoring plan included?	1,2,3	DR I	Yes, monitoring plan is included.	OK	OK
2.1.2. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimating or measuring anthropogenic emissions by sources and/or anthropogenic removals by sinks of greenhouse gases occurring within the project boundary during the crediting period?	1,2,3	DR I	Refer to section D.1.1.1 and Annex 3 of PDD	OK	OK
2.1.3. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining the baseline of anthropogenic emissions by sources and/or anthropogenic removals by sinks of greenhouse gases within the project boundary during the crediting period?	1,2,3	DR I	Refer to section D.1.1.3 and Annex 3 of PDD	OK	OK
2.1.4. Does the monitoring plan provide for the identification of all potential sources of, and the collection and archiving of data on increased anthropogenic emissions by sources and/or reduced anthropogenic removals by sinks of greenhouse gases outside the	1,2,3	DR	See item E.2.1 (CL) above.	-	-



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
project boundary that are significant and reasonably attributable to the project during the crediting period?					
2.1.5. Does the project boundary encompass all anthropogenic emissions by sources and/or removals by sinks of greenhouse gases under the control of the project participants that are significant and reasonably attributable to the JI project?	1,2,3	DR	Significant anthropogenic emissions by sources and/or removals by sinks of greenhouse gases under the control of the project participants are not envisaged by the project. Validated onsite.	OK	OK
2.1.6. Does the monitoring plan provide for the collection and archiving of information on environmental impacts, in accordance with procedures as required by the host Party, where applicable?	1,2,3	DR	No adverse environmental impacts are foreseen. Validated onsite.	OK	OK
2.1.7. Does the monitoring plan provide for quality assurance and control procedures for the monitoring process?	1,2,3	DR	See section D.2 table 12 of the PDD	OK	OK
2.1.8. Does the monitoring plan provide for procedures for the periodic calculation of the reductions of anthropogenic emissions by sources and/or enhancements of anthropogenic removals by sinks by the proposed JI project, and for leakage effects, if any?	1,2,3	DR I	See section D.2 and Annex 3 of the PDD. The monitoring plan provides formulae for the periodic calculation of the reductions of anthropogenic emissions. Leakage is not applicable. See item E.2.1 (CL) above.	-	-
2.1.9. Does the monitoring plan provide for documentation of all steps involved in the calculations?	1,2,3	DR I	The monitoring plan provide for documentation of all steps involved in the calculations. See section D and Annex 3 of the PDD.	OK	OK



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
2.2. Quality Control (QC) and Quality Assurance (QA) Procedures					
2.2.1. Did all measurements use calibrated measurement equipment that is regularly checked for its functioning?	1,2,3	DR 	Control of the measuring equipment is implemented and followed, that was validated onsite. See item D.2.1 (CAR) above.	-	-
2.2.2 Is frequency of monitoring the parameters defined?	1,2,3	DR 	Frequency of monitoring the parameters is defined.	OK	OK

Table 4 Legal requirements

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1. Legal requirements					
1.1. Is the project activity environmentally licensed by the competent authority?	1,2,3	DR, 	The district heating enterprises involved in the project have all the necessary permissions including Environmental Impact Assessments in required cases for their activity on heating system rehabilitation according to Ukrainian legislation. Was validated onsite. All supported	OK	OK



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CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			documents was listed in Determination Report.		
1.2. Are there conditions of the environmental permit? In case of yes, are they already being met?	1,2,3	DR, I	EIA has been provided for the project activity according to the Ukrainian legislation. The conditions of Permit #560074 on air pollutants emissions by stationary sources dated 13.07.2007 and Permit #5610100000-51 on air pollutants emissions by stationary sources dated 01.10.2007 are being met. Was validated onsite. All supported documents were listed in Determination Report.	OK	OK
1.3. Is the project in line with relevant legislation and plans in the host country?	1,2,3	DR, I	See items 1.1 and 1.2 above	OK	OK

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Table 5 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
<p><u>Corrective Action Request 1 (CAR1):</u> There is no information about sponsor Party.</p>	Table 1, checklist question 3	The Deutsche Bank AG (Germany) is a purchaser of this project. See A3 of PDD Version 08.	PDD version 08 was checked. Issue is closed.
<p><u>Corrective Action Request 2 (CAR2):</u> There is no evidence of written project approvals by the Parties involved</p>	Table 2, checklist question A.5.1	<p>Additional information on approval by Parties was added to Section A.5.</p> <p>See Letter of Endorsement of Ministry of Environmental Protection (# 10384/20/2-7 dated 18.10.2004). LoAs by Parties involved will be issued after the project determination</p> <p>After finishing of project determination report, the PDD and Determination Report will be presented to National Environmental Investments Agency of Ukraine for receiving of the Letter of Approval. The Letter of Approval from the country - investor will be provided after approval of project by Ukraine.</p>	This CAR will be closed after report finalizing
<p><u>Corrective Action Request 3 (CAR3):</u> Please, provide the project's operational lifetime in years and months</p>	Table 2, checklist question	The operational lifetime of the main equipment is 20 years (240 months).	PDD version 07 was checked. Issue is closed.

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Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
	C.2.1		
<p><u>Corrective Action Request 4 (CAR4):</u> Please, provide the length of the crediting period in years and months</p>	Table 2, checklist question C.3.1	The length of the crediting period is 20 years (240 months). PDD was amended.	PDD version 07 was checked. Issue is closed.
<p><u>Corrective Action Request 5 (CAR5):</u> Information on the collection and archiving of information on the environmental impacts of the project is not provided.</p>	Table 2, checklist question D.1.13	State department on ecological safety in Rivne region issued to MHE "Kommunenegiya" Permission #560074 dated 13.07.2000 "For emissions of pollution agents to atmospheric air from stationary sources". Ministry of Environmental Protection of Ukraine issued to ME RCC „Teplotransserve" Permission #5610100000-51 dated 01.10.2007 "For emissions of pollution agents to atmospheric air from stationary sources". Term of validity of this Permission is 5 years. See Appendix 6 Licences to PDD version 07.	Supporting documents and PDD version 07 were checked. Issue is closed.
<p><u>Corrective Action Request 6 (CAR6):</u> Quality control (QC) and quality assurance (QA) procedures undertaken for wood chips consumption data are not provided.</p>	Table 2, checklist question D.2.1	The information about quality control and quality assurance procedures was added to section D.2 of the PDD version 07 and it is performed in the Annex 3 Monitoring Plan	Supporting documents and PDD version 07 were checked. Supporting documents are listed in Determination Report.

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Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
		sections 4.1.4 and A 4.2.4.	Issue is closed.
<p><u>Corrective Action Request 7 (CAR7):</u> Transboundary effects are not considered (no effect can be deduced only). Please, explain why the project has no transboundary impact.</p>	Table 2, checklist question F.1.5	Emissions are localised not far from the project sites.	PDD version 07 was checked. Issue is closed.
<p><u>Clarification Request 1 (CL1):</u> Please, clarify why second table of the Annex1 is empty?</p>	Table 2, checklist question A.3.4	The Deutsche Bank AG (Germany) is a purchaser of this project. The necessary information was added to the PDD version 08.	PDD version 08 was checked. Issue is closed.
<p><u>Clarification Request 2 (CL2):</u> Please, clarify if the project technology is likely to be substituted by other or more efficient technologies within the project period.</p>	Table 2, checklist question A.4.2.3	It is not likely that the project technology will be substituted by a more efficient technology in the next 20 - 30 years. As for JI projects currently only a project period of 5 years (first commitment period from 2008 to 2012) it is ensured that there is absolutely no risk that this technology will be substituted by another technology in this time.	Issue is closed.
<p><u>Clarification Request 3 (CL3):</u> Please, clarify if the project requires extensive initial training and maintenance efforts in order to work as presumed during the project period.</p>	Table 2, checklist question A.4.2.4	As far as the main activity of the district heating enterprises involved in the project will not change in course of the JI project implementation, the special technical trainings for personnel are not necessary.	Issue is closed

DETERMINATION REPORT

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
		<p>The technical personnel of the enterprise has sufficient knowledge and experience for implementation of the project activity and maintenance of the usual equipment.</p> <p>In cases of the new (never used at this enterprise before at the enterprise), equipment installation, the company - producer of this equipment should provide trainings for personnel.</p> <p>The district heating enterprises involved in the project provide personnel retraining according to protection of labour norms. The enterprises have the Labour protection departments that are responsible for raising the level of personnel skills and trainings.</p> <p>The special training was hold by the IEE on the data collection according to Monitoring plan for this project, and the special group that consisted of representatives of ME RCC "Teplotransserve", ME RCC "Komunenergiya" and Institute of Engineering Ecology was organized.</p>	
<p>Clarification Request 4 (CL4): Please, clarify if the project makes provisions</p>	Table 2, checklist question	Costs of special training on the data collection for Monitoring reports for this project are included to the total price of PDD	Issue is closed.



DETERMINATION REPORT

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
for meeting training and maintenance needs.	A.4.2.5	development. As far as the main activity of the district heating enterprises involved in the project will not change in course of the JI project implementation, the special maintenances are not necessary.	
<p>Clarification Request 5 (CL5): Please provide journal of wood chips consumption registration.</p>	Table 2, checklist question D.1.3	Wood chips was used as a fuel only in Dubrovitsa town at one boiler-house, included in this project – str. Golshanskiy, DNZ №4 – in the base year 2002. Wood chips consumption registration at ME “Teploservis” of Dubrovitsa Regional Council was realized by the consignment note from Lvivska railway and Acts of writing-off fuels. See example of railway consignment note.	Railway consignment notes are checked and are listed in Determination Report. Issue is closed.
<p>Clarification Request 6 (CL6): Please provide quality certificate from Wood chips supplier's or independent chemical lab analysis report on Average annual Heating Value of Wood chips and journal of wood chips Heating Value registration.</p>	Table 2, checklist question D.1.3	Lower Heating Value of the wood chips (10 MJ/Nm ³) was took as a wood chips from timber cutting from the table of wood chips characteristics on the site http://www.energосys.info/biotoplivo/ . Wood chips were used at the coal fired boilers as the reserve fuel. Using wood chips decreased anyway low efficiency (71%) of these boilers. There was no quality certificate from Wood chips supplier's or independent	Issue is closed.

DETERMINATION REPORT

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
		chemical lab analysis report on Average annual Heating Value of Wood chips because payments with Wood chips supplier "ODEK" Ltd were made without taking into account Heating Value.	
Clarification Request 7 (CL7): Please specify, Lower Heating Value of the wood chips and how it determined.	Table 2, checklist question D.1.5	Lower Heating Value of the wood chips (10 MJ/Nm ³) was took as a wood chips from timber cutting from the table of wood chips characteristics from the site http://www.energosys.info/biotoplivo/	Issue is closed.
Clarification Request 8 (CL8): Please, provide reference to the relevant host Party regulation(s)	Table 2, checklist question D.1.14	Law of Ukraine "On environmental protection". Law of Ukraine "On atmospheric air protection". Actual rules on emissions limitation: "Norms of limit admissible emissions of pollution agents from stationary sources" – adopted by Ministry for Environmental Protection of Ukraine 27.06.2006, #309 issued Ministry of and registered in Ministry of Justice of Ukraine 01.09.2006, #912/12786.	Issue is closed
Clarification Request 9 (CL9): Please clarify if conservative assumptions are	Table 2, checklist question	In the PDD calculations the minimal guaranteed effects from all energy saving measures were taken into account, according	Issue is closed.



DETERMINATION REPORT

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
used to calculate project GHG emissions	E.1.3	to the principle of conservatism. Also emissions reduction from implemented measures was calculated only for the next years after energy saving measures implementation. In fact result in the form of emissions reduction is achieved right away after energy saving measures implementation in the year of reconstruction, especially if it was done at the beginning of the year.	
<p>Clarification Request 10 (CL10): Please clarify, why you think that the possible leakage is less than 1% of the total direct emissions.</p>	Table 2, checklist question E.2.1	Leakages may result from fuel extraction, and transportation, Due to reduction of fuel consumption possible leakages will reduce too. This leakage has not been taken into account for simplification and to be conservative. Other leakage was not identified.	Issue is closed.



Appendix B: Verifiers CV's

Nadiya Kaiiun, M. Sci. (environmental science)

Team Leader Climate Change Verifier

Bureau Veritas Ukraine HSE Department project manager.

She has graduated from National University of Kyiv-Mohyla Academy with the engineer Degree in Environmental Science. She is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered). She performed over 15 audits since 2008. She has undergone intensive training on Clean Development Mechanism /Joint Implementation and she is involved in the validation of 6 JI projects.

Oleg Skoblyk, Specialist (Energy Management)

Climate Change Verifier

Bureau Veritas Ukraine HSE Department project manager.

He has graduated from National Technical University of Ukraine 'Kyiv Polytechnic University' with specialty Energy Management. He is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered). He performed over 10 audits since 2008. He has undergone intensive training on Clean Development Mechanism /Joint Implementation and he is involved in the validation of 3 JI projects.

Kateryna Zinevych, M. Sci. (environmental science)

Climate Change Verifier

Bureau Veritas Ukraine HSE Department project manager.

She has graduated from National University of Kyiv-Mohyla Academy with the engineer Degree in Environmental Science. She is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered). She performed 6 audits since March of 2009. She has undergone intensive training on Clean Development Mechanism /Joint Implementation and she is involved in the validation of 3 JI projects.

The determination report was reviewed by:

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

Bureau Veritas Certification Internal reviewer

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 130 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 has undergone intensive training on Clean Development Mechanism /Joint Implementation and he is involved in the validation of 3 JI projects.