VERIFICATION REPORT

OJSC "OBLTEPLOKOMUNENERGO"

VERIFICATION OF THE "REHABILITATION OF DISTRICT HEATING SYSTEMS IN DNIPROPETROVSK REGION"

(FOR THE PERIOD 01/01/2009 - 31/12/2009)

REPORT NO. UKRAINE-VER/0221/2011

REVISION NO. 02

BUREAU VERITAS CERTIFICATION

Report No: UKRAINE-ver/0221/2011

VERIFICATION REPORT "REHABILITATION OF DISTRICT HEATING SYSTEMS IN DNIPROPETROVSK REGION"

Date of first issue: 06/04/2011	Organizational unit: Bureau Veritas Certification Holding SAS
Client: OJSC "Oblteplokomunenergo"	Client ref.: Barbarov Yu. A.

Summary:
Bureau Veritas Certification has made the second periodic verification of the "Rehabilitation of District Heating Systems in Dnipropetrovsk Region" project of OJSC "Oblteplokomunenergo" located in Dnipropetrovsk Region, Ukraine, and applying the JI specific approach, on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

The verification scope is defined as a periodic independent review and ex post determination by the Accredited Independent Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the verification process is a list of Clarification, Corrective Actions Requests, Forward Actions Requests (CR, CAR and FAR), presented in Appendix A.

In summary, Bureau Veritas Certification confirms that the project is implemented as planned and described in approved project design documents. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is ready to generate GHG emission reductions. The GHG emission reduction is calculated accurately and without material errors, omissions, or misstatements, and the ERUs issued totalize 55116 tons of CO_2eq for the monitoring period from 01/01/2009 till 31/12/2009.

Our opinion relates to the project's GHG emissions and resulting GHG emission reductions reported and related to the approved project baseline and monitoring, and its associated documents.

Report No.: UKRAINE-ver/0221/2011	Subject Group: JI	
Project title: "Rehabilitation of District Heating Systems in Dnipropetrovsk Region"		
Work carried out by: Igor Kachan - Team Leader, Lead Verifier Oleg Skoblyk – Team Member, Lead Verifier		
Work reviewed by: Ivan Sokolov - Internal Technical Reviewer		
Work approved by: Flavio Gomes - Operational Manager		
Date of this revision: 08/04/2011	Rev. No.: 02	Number of pages: 34

Bureau Veritas Certification Holding SAS

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1 INTRODUCTION

OJSC "Oblteplokomunenergo" has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project «Rehabilitation of District Heating Systems in Dnipropetrovsk Region" (hereafter called "the project") located in Dnipropetrovsk Region, Ukraine.

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

1.1 Objective

Verification is the periodic independent review and ex post determination by the Accredited Independent Entity of the monitored reductions in GHG emissions during defined verification period.

The objective of verification can be divided in Initial Verification and Periodic Verification.

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 verification 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 verification 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 monitoring towards reductions in the GHG emissions.

1.3 Verification Team

The verification team consists of the following personnel:

Igor Kachan
Bureau Veritas Certification, Team Leader, Climate Change Lead Verifier

Oleg Skoblyk

Bureau Veritas Certification, Team Member, Climate Change Lead Verifier

This verification report was reviewed by:
Ivan Sokolov
Bureau Veritas Certification, Internal Technical Reviewer

2 METHODOLOGY

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

In order to ensure transparency, a verification protocol was customized for the project, according to the version 01.1 of the Joint Implementation Determination and Verification Manual, issued by the Joint Implementation Supervisory Committee at its 19 meeting on 04/12/2009. The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from verifying the identified criteria. The verification protocol serves the following purposes:

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

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

2.1 Review of Documents

The Monitoring Report (MR) Monitoring report «Rehabilitation of District Heating Systems in Dnipropetrovsk Region" version 01 dated 12/03/2011 submitted by OJSC "Oblteplokomunenergo" and additional background documents related to the project design and baseline, i.e. country Law,) and/or Guidance on criteria for baseline setting and monitoring, Host party criteria, Kyoto Protocol, Clarifications on Verification Requirements to be Checked by an Accredited Independent Entity were reviewed.

To address Bureau Veritas Certification further corrective action and clarification requests, the project participants revised the MR and resubmitted it on 06/04/2011 as version 02.

The verification findings presented in this report relate to the Monitoring Reports versions 01 and 02 and project as described in the determined PDD.

2.2 Follow-up Interviews

On March 15, 2011 Bureau Veritas Certification performed on-site interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. RME "Dniproteploenergo" and Institute of Engineering Ecology were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
RME "Dniproteploenergo"	• Project implementation status • Organizational structure • Responsibilities and authorities • Personnel training • Installation of equipment • Data logging, archiving and reporting • Internal audits and check-ups • Quality management procedures and technology • Records of equipment installation • Control of metering equipment • Metering record keeping system, database • Cross-check of the information provided in the MR with other sources
Institute of Engineering Ecology	• Monitoring plan • Monitoring report • Deviations from PDD • ERUs calculation model

2.3 Resolution of Clarification, Corrective and Forward Action Requests

The objective of this phase of the verification 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 GHG emission reduction calculation.

If the Verification Team, in assessing the monitoring reports and supporting documents, identifies issues that need to be corrected, clarified or improved with regard to the monitoring requirements, it should raise these issues and inform the project participants of these issues in the form of:

(a) Corrective action request (CAR), requesting the project participants to correct a mistake that is not in accordance with the monitoring plan;

(b) Clarification request (CL), requesting the project participants to provide additional information for the AIE to assess compliance with the monitoring plan;

(c) Forward action request (FAR), informing the project participants of an issue, relating to the monitoring that needs to be reviewed during the next verification period.

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

3 VERIFICATION CONCLUSIONS

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

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

The Clarification, Corrective and Forward Action Requests are stated, where applicable, in the following sections and are further documented in the Verification Protocol in Appendix A. The verification of the Project resulted in 12 Corrective Action Requests, 3 Clarification Requests, and 1 Forward Action Request.

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

3.1 Project approval by Parties involved (90-91)

Written project approvals by Switzerland and Ukraine have been issued by the DFPs of those Parties when submitting the first verification report for publication in accordance with paragraph 38 of the JI guidelines. (They are listed among Category 1 Documents in the Reference section of this report)

The abovementioned written approvals are unconditional.

3.2 Project implementation (92-93)

It was assessed by Bureau Veritas verification team during the site visit that the project has been implemented in accordance with the PDD regarding which the determination has been deemed final.

Implementation of the rehabilitation of boiler-houses and heating systems has been realized according to the project plan. During the monitoring period the following measures were implemented: boiler equipment rehabilitation (replacement and rehabilitation of boilers, burners, etc.), network rehabilitation (replacement and rehabilitation of pipes, heat supply stations, heat exchangers, etc.), installation of heat utilizes, implementation of electricity saving measures (installation of frequency controllers, replacement of pumps, etc.), construction of quarter gas boiler-houses.

In several cases replacement of network pipes with different (from planned before) diameters takes place. At the same time, this has not influenced the original monitoring plan and the project operation.

Outstanding issues related to the Project implementation, project participants` response and BV Certification's conclusion are described in the Appendix A.

3.3 Compliance of the monitoring plan with the monitoring methodology (94-98)

The monitoring occurred in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website.

For calculating the emission reductions key factors, influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project were taken into account.
Key monitoring activities for each subproject are sufficiently described in the MR and no deviations from the monitoring algorithm were detected. The monitoring points, including parameter monitored, monitoring equipment and information concerning its calibration interval are clearly described in the section B of the MR and the supporting Excel file and completely correspond to the ones prospected in the determined PDD.

The monitoring plan specifies the indicators, constants and variables that are reliable, valid, and that provide a transparent picture of the emission reductions to be monitored, such as:

1. Fuel consumption by boiler-houses (natural gas and coal)
2. Heating value of natural gas
3. Average external temperature during heating season
4. Average internal temperature during heating season
5. Quantity of hot water supply consumers
6. Total heating area
7. Average heat-transfer factor of the buildings in base year
8. Heating area of buildings (existed in base year) with improved heat insulation in reporting year
9. Heating area of new buildings connected to the heat supply system in reporting year
10. Heat-transfer factor of the buildings with new thermal insulation
11. Duration of heating period
12. Duration of hot water supply period
13. Maximal connected load for heating services
14. Connected load for hot water supply
15. Standard specific discharge of hot water at personal account
16. CO_2 emission factor
17. Conversion factor for average load within heating period
18. Electric energy consumption by the boiler-houses

Emission factors, including default emission factors, are selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.

Data used for monitoring of the emission reductions are sufficiently described in the Section B.2.1 of the MR (List of fixed default values, variables and attached values) and in Annex 1 (Data), Annex 2 (GHG emission reduction due to reducing of fuel consumption) and Annex 3 (GHG emission reduction due to reducing electricity consumption) to the MR.

The MR contains a complete compilation of the data that are collected for its application, including data that are measured or sampled and data that are collected from other sources (e.g. official statistics, IPCC, commercial and scientific literature etc.).
The calculation of emission reductions is based on conservative assumptions and the most plausible scenarios in a transparent manner.

Outstanding issues related to the Compliance of the monitoring plan with the monitoring methodology, project participants` response and BV Certification's conclusion is described in Appendix A.

3.4 Revision of monitoring plan (99-100)

Not applicable.

3.5 Data management (101)

The data and their sources, provided in the monitoring report, are clearly identified, reliable and transparent. The implementation of data collection procedures is in accordance with the monitoring plan, including the quality control and quality assurance procedures. The function of the monitoring equipment, including its calibration status, is in order. The evidence and records used for the monitoring are maintained in a traceable manner.

The monitoring of the main parameter - natural gas consumption by boiler houses, is carried out by the following scheme:
1. All boiler-houses are equipped with gas flow meters.
2. An operator of a boiler-house registers the instrument readings in the paper journals "Journal of registration of boiler-house's operation parameters" every day.
3. For the boiler-houses that are not equipped with gas volume correctors the following algorithm was used. An operator of a boiler house reads the values of temperature and pressure of the natural gas at the boiler-house gas input every 2 hours. These parameters are used to bring gas consumption to normal conditions.
4. Operators transfer gas consumption data to Production-Technical Department by phone daily. They are stored there and used for gas supply fees.

All monitored data are submitted for verification, and are to be stored during two years after the end of the crediting period, according to the Order #14a dated 04.10.2010 "On formation of the operational team and storage term of documents"

Outstanding issues related to the Data management, PP's response and BV Certification's conclusion is described in Appendix.

3.6 Verification regarding programmes of activities (102-110)

Not applicable

4 VERIFICATION OPINION

Bureau Veritas Certification has performed the second periodic verification of the «Rehabilitation of District Heating Systems in Dnipropetrovsk Region" project in Ukraine. The verification 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 verification consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final verification report and opinion.

The management of OJSC "Oblteplokomunenergo" is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions of the project on the basis set out within the project Monitoring Plan indicated in the final PDD version 03 dated 15/12/2010. The development and maintenance of records and reporting procedures are in accordance with the plan, including the calculation and determination of GHG emission reductions from the project, is the responsibility of the management of the project.

Bureau Veritas Certification verified the Project Monitoring Report version 02 dated 05/04/2011 for the reporting period from 01/01/2009 till 31/12/2009 as indicated below. Bureau Veritas Certification confirms that the project is implemented as planned and described in approved project design. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions.

Bureau Veritas Certification confirms that the GHG emission reduction is calculated without material misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported and related to the approved project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated, we confirm the following statement:

Reporting period: From 01/01/2009 to 31/12/2009

Baseline emissions	: 299965	t CO_2 equivalents.
Project emissions	: 244849	t CO_2 equivalents.
Emission Reductions	: 55116	t CO_2 equivalents.

5 REFERENCES

Category 1 Documents:
Documents provided by OJSC "Oblteplokomunenergo" that relate directly to the GHG components of the project.

/1/ PDD "Rehabilitation of District Heating Systems in Dnipropetrovsk Region" version 03 dated 15/12/2010
/2/ Determination Report UKRAINE-det/0186/2010 dated 22/12/2010
/3/ Monitoring report «Rehabilitation of District Heating Systems in Dnipropetrovsk Region" version 01 dated 12/03/2011
/4/ Monitoring report «Rehabilitation of District Heating Systems in Dnipropetrovsk Region" version 02 dated 05/04/2011
/5/ Supporting Excel file " Annex_2-7_MR3_Dnipr_v01"
/6/ Supporting Excel file " Annex_2-7_MR3_Dnipr_v02"
/7/ Letter of Approval #569/23/7 dated 16.03.2011. issued by State Environmental Investment Agency of Ukraine
/8/ Letter of Approval #J294-0485 dated 24.01.2011. issued by the Federal Office for the Environment

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

/1/ Power of attorney, Dnipropetrovsk, 2010, Regional Municipal Enterprise "Dniproteploenergo" gives the right to OJSC "Oblteplokomunenergo" to provide all necessary actions.
/2/ Decision #1 contracting parties on joint activity # 353/1 from 18.08.2010 about about opening a bank account and identifying the persons who is entitled to sign the preliminary and operations on the account, Dnipropetrovsk
/3/ Material of 16th conference of UN with international participation (July, 06-10 2006, Sevastopol), Kyiv, 2006
/4/ State Department of Intellectual Property, Declaration Patent # 33892 A
/5/ Small size hot-water boiler, КВ-ГМ-58-115СН МВ К-5, Manufactured in Ukraine, Zaporizhzhya
/6/ Contact # 476, Kyiv, 20.06.2002, Institute of industrial ecology and ''Dniproteploenergo''
/7/ Protocol of the agreement about agreed price on scientific-technical materials for request formation on the project CO2 emission reduction due to fuel economy in system

	''Dniproteploenergo'' according to contract # 476 from 20.06.2002
/8/	Planned schedule of operation according to contract # 476 from 20.06.2002. Preparation of initial materials for request formation on the project CO_2 emission reduction due to fuel economy in system ''Dniproteploenergo''
/9/	Protocol of divergences to contract # 476 from 20.06.2002 from Preparation of initial materials for request formation on the project CO2 emission reduction due to fuel economy in system ''Dniproteploenergo''
/10/	Additional agreement to contract # 476 from 20.06.2002 from Preparation of initial materials for request formation on the project CO2 emission reduction due to fuel economy in system ''Dniproteploenergo''
/11/	Corrected planned schedule of operation to Additional agreement # 6 to contract # 476 from 20.06.2002
/12/	Statement of Admission Committee on acceptance of the construction completion, Dnipropetrovsk, 02.10.2006
/13/	Statement of Admission Committee on acceptance of the construction completion, Dnipropetrovsk, 24.10.2006
/14/	Statement of Admission Committee on acceptance of the construction completion, Dnipropetrovsk, 27.10.2006
/15/	Statement of Admission Committee on acceptance of the construction completion, Dnipropetrovsk, 24.11.2007
/16/	Statement of Admission Committee on acceptance of the construction completion, Dnipropetrovsk, 22.11.2007
/17/	Statement of Admission Committee on acceptance of the construction completion, Dnipropetrovsk, 26.11.2007
/18/	Statement of Admission Committee on acceptance of the construction completion, Dnipropetrovsk, 25.11.2008
/19/	Statement of Admission Committee on acceptance of the construction completion, Dnipropetrovsk, 27.11.2008
/20/	Statement of Admission Committee on acceptance of the construction completion, Dnipropetrovsk, 25.11.2008
/21/	Statement of Admission Committee on acceptance of the construction completion, Dnipropetrovsk, 06.10.2009
/22/	Statement of Admission Committee on acceptance of the construction completion, Dnipropetrovsk, 07.10.2009
/23/	Statement of Admission Committee on acceptance of the construction completion, Dnipropetrovsk, 09.10.2009

/24/ Environmental Impact Assessment "Ekopron Yug", 2003

/25/ Note about monthly average air temperature in Dnepropetrovsk and water temperature in Dnipro river during 2001, # 01.06/09 from 31.01.2002, ''Dniproteploenergo''

/26/ Note about monthly average air temperature in Dnepropetrovsk and water temperature in Dnipro river during 2002, # 01.07/59 from 31.01.2003, ''Dniproteploenergo''

/27/ Note about monthly average air temperature in Dnepropetrovsk and water temperature in Dnipro river during 2003, # 02.27/62 from 01.02.2004, ''Dniproteploenergo''

/28/ Consumed gas volume by ''Dniproteploenergo'' during 2002

/29/ Heat load for boiler houses "Dniproteploenergo" during 2002

/30/ Actual values for boiler houses "Dniproteploenergo" during 2002

/31/ Information about length of boiler houses operation on heating and hot water supply during 2002

/32/ Note about converting of bad heat supply

/33/ Energy expense on "Dniproteploenergo" in 2002

Persons interviewed:

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

Donetskmiskteplomerezha

/1/ Derevianko V.I. - general director of RME "Dniproteploenergo"

/2/ Mazurkevich T.P. – chief power engineer

/3/ Derevyanko N.I. – plant-operating engineer

/4/ Derkach L.V. – engineer of production and technical department

/5/ Novgorodova V.I. – engineer of production and technical department

/6/ Severin R.P. - engineer of production and technical department

/7/ Zajchuk S.V. - deputy head of thermal energy accounting and sales department

Institute of Engineering Ecology

/8/ Korniychuk K. – JI consultant

VERIFICATION PROTOCOL

Check list for verification, according to the JOINT IMPLEMENTATION DETERMINATION AND VERIFICATION MANUAL (Version 01)

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Project approvals by Parties involved				
90	Has the DFPs of at least one Party involved, other than the host Party, issued a written project approval when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest?	**CAR01** The information concerning project approval is missing in the MR. Please, add the appropriate information to MR. Please, submit Letters of Approval to AIE. **CL01** A number of report # 145/03 is indicated in the MR (p1, p2). Please, clarify what the number indicated stands for. Please, provide ITL project ID in the MR.	**CAR01** **CL01**	OK OK
91	Are all the written project approvals by Parties involved unconditional?	Conclusion is pending a response to CAR01 above.	Pending	OK
Project implementation				
92	Has the project been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	According to the determined PDD the project envisages installation of 179 new highly efficient boilers, replacement of 208 boilers' burners, installation of 61 heat utilizers, and reconstruction of over 90 km of heat distributing networks. Implementation of boiler houses rehabilitation and	**CAR02** **CAR03**	OK Ok

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		network rehabilitation during the monitoring period was realized according to the project realization plan provided in the PDD. **CAR02** The actual (stated in the MR) and estimated (stated in the PDD) amount of ERUs differs significantly. Please, add a comparison of the values to the MR and provide justification of the difference. **CAR03** The statement in the section A.8 of the MR "There was no verification before" is irrelevant for the MR for 2009. Please, correct.		
93	What is the status of operation of the project during the monitoring period?	Project equipment has been installed with minor deviations from the schedule and is fully operational. The detailed information concerning the project operation and measures implemented are stated in the Table 3. "Implemented energy saving measures" of the MR and the Annex 2 (supporting Excel file).	OK	OK
Compliance with monitoring plan				
94	Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed	The algorithm of monitoring is in line with the monitoring plan included in the determined PDD. No deviations from the registered monitoring plan were observed.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	on the UNFCCC JI website?			
95 (a)	For calculating the emission reductions or enhancements of net removals, were key factors, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project taken into account, as appropriate?	Yes. The key factors, e.g. those listed in 23 (b) (i)-(vii) of the DVM check list, influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project were taken into account for calculating the emission reductions.	OK	OK
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	**CAR04** The Excel files do not contain project title and monitoring period. Please, make corresponding corrections. **CAR05** Please, indicate a recording frequency for the parameter # 10 "Heat transfer factor of new buildings and buildings with new thermal insulation" and an exact value of this parameter for each monitoring year (Annex 1) **CAR06** The emissions and ERUs for 2008 are mistakenly indicated in the Annex 7 of the supporting Excel file "Annex_2-7_MR3_Dnipr_v01". Please, correct. **FAR01** The duration of the heating period in Ukraine	**CAR04** **CAR05** **CAR06** **FAR01** **CL02** **CL03**	OK OK OK OK OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		covers a part of one calendar year and a part of the next year. However, the monitoring period for the Project coincides with the calendar year. Please, provide the starting and final dates of heating period for each monitoring period for each boiler-house and make corresponding corrections in the calculations. **CL02** The average outside temperature during the heating period for the boiler-house Vyborgska str., 28d differs from the other values of temperature for the heating district #10; for the boiler-house Artema str., 24 – from the other values for NME "Nikopolteploenergo" (Annex 2, supporting Excel file) Please, justify this fact. **CL03** Some amounts of ERUs indicated in the section D.3.4 of MR and the Annexes 2, 3 and 7 (supporting Excel file) have negative value. Please, clarify the reason of this.		
95 (c)	Are emission factors, including default emission factors, if used for calculating the emission reductions or enhancements of net removals, selected by carefully balancing	Yes, emission factors selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	accuracy and reasonableness, and appropriately justified of the choice?			
95 (d)	Is the calculation of emission reductions or enhancements of net removals based on conservative assumptions and the most plausible scenarios in a transparent manner?	**CAR07** Please, provide clear reference for the parameter "outside temperature" indicated in the Annex 1 of MR. **CAR08** The values of the outside temperature - 23 and 24 - are used for recalculating factor for average load calculation in the supporting Excel file. At the same time, monitoring plan foresees yearly monitoring of this parameter. Please, provide factor calculations for each monitoring year. **CAR09** The recalculating factor for average load used for "a" parameter calculation should be monitored once a year according to the monitoring plan. However, the recalculating factor for the base year is used for ERUs calculation for each monitoring period. Please, correct/clarify. **CAR10** The calculated parameter **"Corrected** annual gas consumption according to accuracy of measurement equipment" is used for carbon emissions calculation. This contradicts the	**CAR07** **CAR08** **CAR09** **CAR10**	OK OK OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		monitoring approach in the determined PDD. Please, make the calculation algorithm in the MR consistent with the one in the PDD.		
Applicable to JI SSC projects only				
96	Is the relevant threshold to be classified as JI SSC project not exceeded during the monitoring period on an annual average basis? If the threshold is exceeded, is the maximum emission reduction level estimated in the PDD for the JI SSC project or the bundle for the monitoring period determined?	N/A	N/A	N/A
Applicable to bundled JI SSC projects only				
97 (a)	Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE?	N/A	N/A	N/A
97 (b)	If the determination was conducted on the basis of an overall monitoring plan, have the project participants submitted a common monitoring report?	N/A	N/A	N/A
98	If the monitoring is based on a monitoring plan that provides for overlapping monitoring periods, are the monitoring periods per component of	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	the project clearly specified in the monitoring report? Do the monitoring periods not overlap with those for which verifications were already deemed final in the past?			
Revision of monitoring plan				
Applicable only if monitoring plan is revised by project participant				
99 (a)	Did the project participants provide an appropriate justification for the proposed revision?	N/A	N/A	N/A
99 (b)	Does the proposed revision improve the accuracy and/or applicability of information collected compared to the original monitoring plan without changing conformity with the relevant rules and regulations for the establishment of monitoring plans?	N/A	N/A	N/A
Data management				
101 (a)	Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	The implementation of data collection procedures are in accordance with the monitoring plan included in the determined PDD. The verification team confirms effectiveness of existing management and operational systems and found them eligible for reliable project monitoring.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	**CAR11** In the section B.1. the names of the measuring equipment manufacturers must be indicated, but not the city/country as it is stated in the MR version 01. Please, make appropriate corrections.	**CAR11**	OK
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	**CAR12** The FAR01 was issued during the determination process: "Please, provide documented instruction which indicates that the data monitored and required for verification are to be kept for two years after the crediting period as per *JI determination and verification manual, v.01".* Please, clarify in the MR how the FAR01 has been addressed and provide the documented evidence.	**CAR12**	OK
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	In accordance with the registered monitoring plan the main monitored parameter - natural gas consumption at boiler houses - is carried out by the following scheme: - A boiler-house operator registers the instrument readings in the paper journals "Journal of registration of boiler-house's operation parameters" every day (in boiler-houses equipped with gas volume correctors). - A boiler house operator reads the values of temperature and pressure of natural gas every 2	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		hours (in boiler-houses equipped with gas volume correctors). These parameters are used to bring gas consumption to normal conditions. - An operator transfers the values of gas consumption obtained to the production-technical department daily, where they are stored. - Paper reports about the gas consumption are transferred to the gas supplying company monthly and checked. The data flow for the data monitored is indicated in the Figure 5 of the MR.		
Verification regarding programs of activities (additional elements for assessment)				
102	Is any JPA that has not been added to the JI PoA not verified?	N/A	N/A	N/A
103	Is the verification based on the monitoring reports of all JPAs to be verified?	N/A	N/A	N/A
103	Does the verification ensure the accuracy and conservativeness of the emission reductions or enhancements of removals generated by each JPA?	N/A	N/A	N/A
104	Does the monitoring period not overlap with previous monitoring periods?	N/A	N/A	N/A
105	If the AIE learns of an erroneously included JPA, has the AIE informed the	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	JISC of its findings in writing?			
Applicable to sample-based approach only				
106	Does the sampling plan prepared by the AIE: (a) Describe its sample selection, taking into account that: (i) For each verification that uses a sample-based approach, the sample selection shall be sufficiently representative of the JPAs in the JI PoA such extrapolation to all JPAs identified for that verification is reasonable, taking into account differences among the characteristics of JPAs, such as: − The types of JPAs; − The complexity of the applicable technologies and/or measures used; − The geographical location of each JPA; − The amounts of expected emission reductions of the JPAs being verified; − The number of JPAs for which	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	emission reductions are being verified; − The length of monitoring periods of the JPAs being verified; and − The samples selected for prior verifications, if any?			
107	Is the sampling plan ready for publication through the secretariat along with the verification report and supporting documentation?	N/A	N/A	N/A
108	Has the AIE made site inspections of at least the square root of the number of total JPAs, rounded to the upper whole number? If the AIE makes no site inspections or fewer site inspections than the square root of the number of total JPAs, rounded to the upper whole number, then does the AIE provide a reasonable explanation and justification?	N/A	N/A	N/A
109	Is the sampling plan available for submission to the secretariat for the JISC.s ex ante assessment? (Optional)	N/A	N/A	N/A
110	If the AIE learns of a fraudulently included JPA, a fraudulently monitored	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	JPA or an inflated number of emission reductions claimed in a JI PoA, has the AIE informed the JISC of the fraud in writing?			

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Verification team conclusion
CAR01 The information concerning project approval is missing in the MR. Please, add the appropriate information to MR. Please, submit Letters of Approval to AIE.	Item 90	The Letters of Approval for this project are issued by Ukraine (Host party) and Switzerland: Letter of Approval from Ukraine: No. 569/23/7 dated 16.03.2011; Letter of Approval from Switzerland: No. J294-0485 dated 24.01.2011. This information is added to MR #03 version 02. The copies of these Letters of Approval will be provided to AIE	The issue is closed based on appropriate information, corrections and documentation provided.

CAR02 The actual (stated in the MR) and estimated (stated in the PDD) amount of ERUs differs significantly. Please, add a comparison of the values to the MR and provide justification of the difference.	Item 92	As it is described in PDD, the method for prognostic calculations used in PDD and the approach for calculation of actual emission reduction in monitoring plan are principally different. Estimated (stated in the PDD, section D.1.4) amount of emission reductions is based on the prognostic calculations with taking into account the prognostic efficiency of boilers, prognostic estimation of efficiency of some energy saving measures from ones described in PDD that are calculable (not all of them), and without account of any future conditions (which is impossible in principle). The minimum assured result of implementation of the energy saving measures was adopted in PDD, and in cases when it was impossible to express this result in figures – was not taken into account though had to be for sure positive. In contrast to PDD, calculations in a MR are based on actual achieved results of the project implementation with taking into account the actual (both internal and external) conditions for district heating in a reported year (see PDD sections B1, D.1.1 and/or MR section A.5.1). This approach eliminates any possibility of reduction of fuel consumption and correspondingly GHG emission due to incomplete delivery of heat to consumers, is the most appropriate, precise, corresponding to the conservative approach, and the	The project participants' response was reviewed and found to be sufficient. The issue is closed.

		most closely reflects the aims, goals and spirit of Kyoto Protocol. Moreover, the measures that enable to achieve the largest effect are implemented with first-priority, and implementation of the scheduled measures at the majority of objects is accompanied with additional/ associated minor measures that are not predicatively calculable. Thus the results of these two approaches should be different by definition. All calculations in a MR are namely justification of the reality of actually achieved emission reductions in course of implementation energy saving measures in accordance with the PDD.	
CAR03 The statement in the section A.8 of the MR "There was no verification before" is irrelevant for the MR for 2009. Please, correct.	Item 92	This is corrected in MR #03 version 02.	CAR is closed based on due corrections made in the MR.
CAR04 The Excel files do not contain project title and monitoring period. Please, make corresponding corrections.	Item 95 (b)	This is corrected in MR #03 version 02.	CAR is closed based on due corrections made in the MR.

CAR05 Please, indicate a recording frequency for the parameter # 10 "Heat transfer factor of new buildings and buildings with new thermal insulation" and an exact value of this parameter for each monitoring year (Annex 1)	Item 95 (b)	Parameter # 10 "Heat transfer factor of new buildings and buildings with new thermal insulation" is taken as the maximum value specified in the State Buildings Norms B.2.6-31:2006 and is general for all country, namely this valid value (0.36 W/m2*K) is indicated in MR. Thus it is to be checked/recorded once per year and is subject to change upon ratification of any other value in normative documents. This information is added to MR #03 version 02	CAR is closed on the basis of required information provided and corrections made in the MR.
CAR06 The emissions and ERUs for 2008 are mistakenly indicated in the Annex 7 of the supporting Excel file "Annex_2-7_MR3_Dnipr_v01". Please, correct.	Item 95 (b)	This is corrected in MR #03 version 02.	CAR is closed based on due corrections made in the MR.
CAR07 Please, provide clear reference for the parameter "outside temperature" indicated in the Annex 1 of MR	Item 95 (d)	This is provided in MR #03 version 02	CAR is closed based on due corrections made in the MR.

CAR08 The values of the outside temperature - 23 and 24 - are used for recalculating factor for average load calculation in the supporting Excel file. At the same time, monitoring plan foresees yearly monitoring of this parameter. Please, provide factor calculations for each monitoring year.	Item 95 (d)	The values of the outside temperature - 23 and - 24 – are the minimum outside temperatures for a town that were determined on many years historical base and are recommended for project development according to the "KTM 204 Ukraine 244-94", Annex 1. Namely these values from "KTM" are used by district heating organizations for calculation of the maximal connected load for any year. Due to "KTM 204 Ukraine 244-94" is valid normative document without any corrections, these values were not changed during monitoring periods. Monitoring plan foresees yearly monitoring not of this parameter, but of the actual averaged outside temperature during heating period. Values of recalculating factor g (in the base year) are used mainly for calculation of parameter "ab" (Portion of fuel (heat), consumed for heating purposes in the baseline) that is used in further calculations. The Monitoring plan foresees yearly monitoring of parameter g since theoretically the situation is possible when in the base year the hot water supply service was absent at all, and in the reported year this service was provided (see section D, formulae 6 of MR); in this case parameter "ar" should be used, and parameter g should be needed for calculation of parameter "ar".	The project participants' response was reviewed and found to be sufficient. The issue is closed.

		There were no such cases in course of implementation of this project, that is why calculations and values of parameter g for reported years were not provided in MR. This information for each monitoring year is added to MR #02 version 02 (in the supporting Excel files).	
CAR09 The recalculating factor for average load used for "a" parameter calculation should be monitored once a year according to the monitoring plan. However, the recalculating factor for the base year is used for ERUs calculation for each monitoring period. Please, correct/clarify.	Item 95 (d)	According to the monitoring plan in PDD and MR, namely the recalculating factor for the base year should be used for ERUs calculation for each monitoring period, since sharing of the heat/fuel consumed for heating and for hot water supply in any reported year is based on the "a_b" parameter calculated with account of the recalculating factor for the base year. The parameter "a_r" should be used for calculations in a reported year only for the case when in the base year the hot water supply service was absent at all, and in the reported year this service was provided (see section D, formulae 6 of MR). There were no such cases in course of implementation of this project.	The project participants' response was reviewed and found to be sufficient. The issue is closed.

CAR10 The calculated parameter **"Corrected** annual gas consumption according to accuracy of measurement equipment" is used for carbon emissions calculation. This contradicts the monitoring approach in the determined PDD. Please, make the calculation algorithm in the MR consistent with the one in the PDD.	Item 95 (d)	The volume of consumed natural gas was corrected by measurement error according to the conservative approach. Amount of natural gas consumed in the reported year that was used for Project emissions calculations was increased by the level of accuracy of gas flow meters installed at the boiler-houses (see Comment for parameter 1.1, Annex 1). Such way of calculation does not contradict the monitoring approach in the determined PDD, since it does not change the calculation algorithm but only reflects the conservative approach to data processing. Even though such way of calculation leads to understating of amounts of ERUs, it guarantees validity of values of natural gas consumption (which is the main parameter affecting greenhouse gas emissions in this project), even in the case of maximum meter's error in positive for the project direction.	CAR is closed.
CAR11 In the section B.1. the names of the measuring equipment manufacturers must be indicated, but not the city/country as it is stated in the MR version 01. Please, make appropriate corrections.	Item101 (b)	This is corrected in MR #03 version 02	CAR is closed based on due corrections made in the MR.

CAR12 The FAR01 was issued during the determination process: "Please, provide documented instruction which indicates that the data monitored and required for verification are to be kept for two years after the crediting period as per *JI determination and verification manual, v.01".* Please, clarify in the MR how the FAR01 has been addressed and provide the documented evidence.	Item101 (c)	All collected data relevant to monitoring and verification are to be storaged during two years after the end of the crediting period, according to the Order # 14a dated 04.10.2010, on appointment of the responsible person and storage term of documents. This information is added to MR #03 version 02	The issue is closed based on appropriate corrections and documentation provided.
FAR01 The duration of the heating period in Ukraine covers a part of one calendar year and a part of the next year. However, the monitoring period for the Project coincides with the calendar year. Please, provide the starting and final dates of heating period for each monitoring period for each boiler-house and make corresponding corrections in the calculations.	Item 95 (b)	The bondaries of monitoring periods for every monitoring reports for the Project coincide with the calendar year. According to this, all calculations for the Project were done for a calendar year, as it is described in the JI project specific approach for monitoring. The starting and final dates of heating period are considered in calculations by parameter # 11 "Duration of the heating period". Namely this parameter is to be monitored according to the monitoring plan. The recommendation to provide the starting and final dates of heating period for each monitoring period for each boiler-house will be met in the next MR #5.	This issue must be checked during the next verification.

CL01 A number of report # 145/03 is indicated in the MR (p1, p2). Please, clarify what the number indicated stands for. Please, provide ITL project ID in the MR.	Item 90	In the MR, the National Environmental Investment Agency of Ukraine reference Number of the Project is indicated (see Section A.2). ITL project ID will be indicated after its assignment to the project.	The issue is closed.
CL02 The average outside temperature during the heating period for the boiler-house Vyborgska str., 28d differs form the other values of temperature for the heating district #10; for the boiler-house Artema str., 24 – form the the other values for NME "Nikopolteploenergo" (Annex 2, supporting Excel file) Please, justify this fact.	95 (b)	The average outside temperature during the heating period is calculated from the daily outside temperature values taken for every day of heating period (see Monitoring method for parameter 3, Annex 1). Thus the value of the average outside temperature during the heating period depends on duration of the heating period and should be different for different heating periods. The duration of the heating period for the boiler-house Vyborgska str., 28d is different from the other boiler-houses of the heating district #10. The duration of the heating period for the boiler-house Artema str., 24 is different from the other boiler-houses of NME "Nikopolteploenergo". Thus, the average outside temperatures during the heating period for these boiler-houses are different from the others in the same town.	The issue is closed.

CL03 Some amounts of ERUs indicated in the section D.3.4 of MR and the Annexes 2, 3 and 7 (supporting Excel file) have negative value. Please, clarify the reason of this.	95 (b)	The negative values of amounts of ERUs show that actual efficiency of some boiler-houses in reported years, with taking into account the actual external conditions (weather conditions, connected load, etc.) was lower then in base year even despite of implementation of energy saving measures.	The issue is closed.