VERIFICATION REPORT
GLOBAL CARBON B.V.

VERIFICATION OF THE
IMPROVEMENT OF THE ENERGY EFFICIENCY AT ENERGOMASHSPETSSTAL (EMSS), KRAMATORSK, UKRAINE

ELEVENTH PERIODIC FOR THE FOURTH QUARTER OF 2011
(01/10/2011-31/12/2011)

REPORT NO. UKRAINE-VER/0470/2012
REVISION NO. 02

BUREAU VERITAS CERTIFICATION

Date of first issue:	Organizational unit:
13/04/2012	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
Global Carbon B.V.	Lennard de Klerk

Summary:

Bureau Veritas Certification has made the 11th periodic verification of the "Improvement of the Energy efficiency at Energomashspetsstal (EMSS), Kramatorsk, Ukraine", JI Registration Reference Number 0104, project of Global Carbon B.V. located in Kramatorsk, 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 Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases: i) desk review of the monitoring report against 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 Corrective Actions Requests (CAR) and Clarification Request (CL) presented in Appendix A.

In summary, Bureau Veritas Certification confirms that the project is implemented as per determined changes. 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. The GHG emission reduction is calculated without material misstatements, and the ERUs issued totalize 81 164 tonnes of CO_2 eq. for the monitoring period from 01/10/2011 to 31/12/2011.

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.:	Subject Group:	
UKRAINE-ver/0470/2012	JI	
Project title: "Improvement of the Energy efficiency at Energomashspetsstal (EMSS), Kramatorsk, Ukraine"		
Work carried out by: Team Leader : Kateryna Zinevych Team Member : Andrey Rodionov Team Member : Vladimir Kulish		
Work reviewed by: Ivan Sokolov - Internal Technical Reviewer Vera Skitina - Technical Specialist		
Work approved by: Ivan Sokolov – Climate Change Operational Manager		
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1 INTRODUCTION

Global Carbon B.V. has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project "Improvement of the Energy efficiency at Energomashspetsstal (EMSS), Kramatorsk, Ukraine" (hereafter called “the project”) at Kramatorsk, Ukraine, UNFCCC JI Reference Number 0104.

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 monitoring report, 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:

Kateryna Zinevych Bureau Veritas Certification	Team Leader, Climate Change Verifier
Andrey Rodionov Bureau Veritas Certification	Team member, Technical Specialist
Vladimir Kulish Bureau Veritas Certification	Team member, Climate Change Verifier

This verification report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification, Internal technical reviewer

Vera Skitina
Bureau Veritas Certification Technical Specialist

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 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) submitted by Global Carbon B.V. and additional background documents related to the project design and baseline, i.e. country Law, Project Design Document (PDD), 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.

The verification findings presented in this report relate to the Monitoring Report version(s) 1.0 dated 14 of February 2012, Monitoring Report version(s) 2.0 dated 12 of April 2012 and project as described in the determined PDD.

2.2 Follow-up Interviews

On 28/03/2012 Bureau Veritas Certification performed (on-site) interviews with project stakeholders to confirm selected information and to resolve

issues identified in the document review. Representatives of EMSS and Global Carbon B.V. were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Energomashspetsstal (EMSS)	Organizational structure. Responsibilities and authorities. Training of personnel. Quality management procedures and technology. Implementation of equipment (records). Metering equipment control. Metering record keeping system, database.
Consultant: Global Carbon B.V.	Baseline methodology. Monitoring plan. Monitoring report. Deviations from PDD.

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 report 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 and Corrective 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 1 Corrective Action Requests and 7 Clarification request.

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

3.1 Remaining issues and FARs from previous verifications

No FARs were raised during previous verification.

3.2 Project approval by Parties involved (90-91)

The project has been approved by the Host Party (Ukraine) DFP at the determination stage.

Written project approval by the Netherlands has been issued by the DFP of that Party when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest (see References).

The abovementioned written approval is unconditional.

No outstanding issues were raised.

3.3 Project implementation (92-93)

The project activity consists of the energy efficiency measures at the premises of EMSS by the implementation of four subprojects:

Subproject 1. Reconstruction of thermal and heating furnaces – there are thermal and heating furnaces in operation in different shops at the premises of EMSS. The main goal of this subproject is the reduction of the natural gas (NG) consumption for these furnaces by commissioning of new automated NG burners (this enables to maintain the required temperature inside of the furnace) and by implementation of new thermal insulation for the walls, front doors and roofs of the furnaces.

Subproject 2. Installation of a new vacuum system – installation of a new vacuum system for the vacuumed steel production. The old vacuum system used heat and electricity. The reconstructed vacuum system uses only electricity.

Subproject 3. Installation of an arc ladle furnace – installation of a new arc ladle furnace for the steel production. This means that the part of the process of the steel preparation will be undertaken in the ladle, from which the steel will be cast into the forms. As a result there is reduction of the electricity consumption.

Subproject 4. Modernization of press equipment – replacement of an old pump system, serving the 15000 tonne press, with a new more effective pump system. There are 24 old pumps (with 500 kW installed capacity each), which will be replaced by 11 new pumps (with 800 kW installed capacity each).

Project implementation schedule has faced some delays caused by the global financial crisis. The proposed JI project consists of four interventions to the production cycle. Equipment for the proposed interventions was installed and commissioned in the following order:

- SP1: From 01 January 2008 to 31 December 2011 – 18 furnaces were commissioned (besides 6 furnaces commissioned in 2007);
- SP2: 28.02.2008;
- SP3: 01.04.2007;
- SP4: 26.08.2008.

Therefore the starting date of the project is April 2007.

Project was operational for the whole monitoring period, which is 01/10/2011-31/12/2011.

The project improved efficiency of use of natural gas, electricity and heat at the enterprise and thus leaded to decrease of harmful emissions. This project by reducing GHG emissions contributes towards a better environment and hence works towards social well-being for all. Project implementation will lead to improvement of ecological climate of the region, increase of payments to the budgets of all levels for social needs, prevention of reduction of working places and better working conditions at EMSS.

The identified areas of concern as to project implementation, project participants response and B.V. Certification's conclusion are described in Appendix A to this report.

No outstanding issues were raised.

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

The monitoring occurred in accordance with the monitoring plan previously revised and determined in "Determination of the Monitoring Plan revision 1.1 of the project "Improvement of the Energy efficiency at Energomashspetsstal (EMSS), Kramatorsk, Ukraine" of 31/12/2009.

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, as appropriate.

Data sources used for calculating emission reductions are clearly identified, reliable and transparent.

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

The calculation of emission reductions or enhancements of net removals is based on conservative assumptions and the most plausible scenarios in a transparent manner.

The identified areas of concern as to the compliance of the monitoring plan with the monitoring methodology, project participants responses and Bureau Veritas Certification's conclusions are described in Appendix A to this report (refer to CL 01 and CL 07).

3.5 Revision of monitoring plan/Determination of the changes from the determined PDD (99-100)

The monitoring approach in the Monitoring Plan of the PDD version 3.9 requires monitoring and measurement of variables and parameters necessary to quantify the baseline emissions and project emissions in a conservative and transparent way.

For improvement of transparency and accuracy indexes in the Tenth Monitoring Report version 2.0 dated 20th of December 2011 in names of variables were changed or added by using common approach in section B and in section D:

- in Equation 1 and Equation 6

  Index ***l*** determines number of subproject (from SP1 to SP4). Index ***i*** determines one month in monitoring period. Index ***y*** determines the

whole monitoring period. The amount of months in the monitoring period can vary from 1 to ***n***.

- in Equation 2 and Equation 7

  Index ***y*** determines whole monitoring period. Amount of months in the monitoring period can vary from 1 to ***n***. Index ***k*** determines number of reconstructed furnace.

This changes have no influence on calculations and amount of emission reductions, previous revisions are still presented below for the bigger transparency.

Revision of the monitoring plan

The monitoring approach in the Monitoring Plan of the PDD version 3.9[1] requires monitoring and measurement of variables and parameters necessary to quantify the baseline emissions and project emissions in a conservative and transparent way. The same approach is applied in the revised Monitoring Plan revision 1.1 dated 31/12/2009[2] developed for the monitoring period that is not one year.

The parameters that are determined to quantify the baseline and project emissions are presented in the Monitoring Report version 1.5 dated 31/12/2009[3].

It should be mentioned that until 01.10.2011 all furnaces have been equipped with meter-loggers “Ergomera-126” so the procedure for monitoring natural gas (NG) consumption was simplified in Forge Press Shop (FPS) and Thermal Shop (TS) for Subproject 1. Natural gas consumption, pressure and temperature meters of every furnace were changed by meter-logger “Ergomera-126” which registered, displayed, saved in memory and transmit to the control and monitoring computer system log of natural gas consumption of furnaces at temperature 20 ˚C and pressure 101.325 kPa.

And also until 01.10.2011 all project equipment which consumed electricity includes in the control and monitoring computer system which automatically adjusts data from the meters by appointed correction factors. Corrected values of electricity consumption are transferred to the report and use for the monitoring JI project. Therefore for transparency monitoring report table of transformers was excluded from the report,

[1] http://ji.unfccc.int/UserManagement/FileStorage/0EV8XPG6L59ZO7RW3UQT1CNIBDY4FM
[2] http://ji.unfccc.int/UserManagement/FileStorage/83Y40GEFMWDOBP79QRCT2LNS1JK6HV
[3] http://ji.unfccc.int/UserManagement/FileStorage/KSFAOBEZ8X9W1RG3IHC4L2N5Q0YMD6

since transformers are not measuring instruments of electricity consumption.

The list of monitoring equipment, which is used in all the sub-projects is present in the Monitoring Report version 2.0 dated 12/04/2012 Tables 2-4. All the monitoring equipment is checked and calibrated according to the calibration plans.

According to the determined Monitoring Plan revision 1.1 project and baseline emissions and emission reductions are calculated on the annual basis for every subproject. In order to make monitoring process for the several months possible formulas for the calculations have been updated. Updates with comparison to the determined monitoring plan are presented in the Monitoring Report version 2.0 dated 12/04/2012.

Calculation of project variables EL_{VD}, electricity consumed by the new vacuum system (VD), and $EL_{EAF50\ \#1}$, electricity consumption by EAF50 #1 is performed automatically with transformation coefficients embedded in the program.

Determination of the changes from the determined PDD

The project participants provided an appropriate justification for the proposed changes from the determined PDD, which is inclusion of one more furnace into the project which was not in the list of reconstructed project in the determined PDD version 3.9. The change during the project implementation constitutes modifying the order of furnaces reconstruction resulting in inclusion of furnaces not mentioned in the determined PDD into the energy efficiency program and postponing reconstruction of those furnaces from the list which have not been modernized yet. In the determined PDD ver.3.9 there are 26 furnaces that were supposed to be commissioned according to Subproject 1. Due to a severe recession and the worsening of the steel market the reconstruction of the furnaces was delayed. As of June 2010 only 21 of them were reconstructed. Also during the course of reconstruction the order of furnaces modernization was changed to meet the Enterprise's need to have efficient furnaces of a specific size available in order to serve the orders for EMSS products. Finally, in 2010 it was decided to channel the investment to reconstruction of the furnaces which were not originally included in the determined PDD while postponing the reconstruction of some of the furnaces that were listed in the determined PDD. The changes from the determined PDD do not lead to the change of project location, emissions source, the baseline scenario, changes correspond to a JI specific approach, according to which project has been determined.

The proposed change during the project implementation does not require any principal changes to procedures and calculation formulae used for

baseline setting and monitoring for the project, therefore it is consistent with the JI specific approach applied in the determined PDD.

Changes that have been implemented do not affect conservativeness of the approach to the emission reductions calculations and procedures of the data collection and archiving.

AIE determined[4] that the proposed revisions improve the accuracy and 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.

No outstanding issues were raised.

3.6 Data management (101)

Subproject 1. Reconstruction of thermal and heating furnaces

Reconstructed furnaces have the natural gas consumption meters with pressure and temperature meters. Information from consumption meters, pressure and temperature meters are transmitting through meter-loggers to the control and monitoring computer system.

All information about technological process is saved continuously. The archiving period for the log files is at least one year. Information that corresponds to the natural gas consumption in the monitoring period has been burned on CDs. These CDs are stored two years after last transaction Emission Reduction Units (ERUs) by the project.

Every half-finished product that processes through the furnaces has own unique certificate. This certificate reflects all operations performed on the product and the weight on the exit of every workshop. So, the weight of half-finished products that proceed through each furnace could be easily monitored. Information from the certificates is saved in the log books in order to simplify the monitoring process.

A report including natural gas consumption and weight of half finished products is generating on a monthly basis. The report is signing by Head of Energy Saving Department, Head of corresponding workshop and approved by Chief Engineer.

The natural gas meters are used in furnaces' control process. That is why any deviation/failure of the meters would be recognized immediately by disturbance of the heating process and reported to the workshop's head.

[4] http://ji.unfccc.int/UserManagement/FileStorage/8W3LOEAND01U4K29GM7JP5CZH6IXBV

As a result of disturbance furnace should be shut down for the checking procedure.

Subproject 2. Installation of a new vacuum system

Electricity that is consumed during the vacuum process is metered using dedicated meters for this system. Information from meters is passed to the control and monitoring computer system. The computer system records information about every vacuumization session, including melt passport (date and number), weight of steel and electricity consumption. The archiving period for the log files is at least one year. Information that corresponds to the electricity consumption in the monitoring period has been recorded on CDs. These CDs are stored two years after the last transfer of Emission Reduction Units (ERUs) by the project.

The steel to the vacuum degasser (VD) coming either from ladle furnace (LF) or from the electric arc furnace (EAF) in special ladle. Each ladle with liquid steel has unique melt certificate.

Subproject 3. Installation of an arc ladle furnace

Ladle furnace (LF) is a comprehensive solution for high quality steel melting installed at the Steel Making Shop (SMS). The main electricity consumers of the Steel Making Shop are powered by the following scheme.

Close Distribution Unit (CDU) #1, 2 are electricity powering points for the EAFs (EAF50 #1, EAF100 #3, EAF100 #5) and LF. CDUs are powered by Transformer (T1) and Autotransformers (AT1 and AT2). EAFs and LF could be powered from any of the Transformers or Autotransformers. Commercial electricity meters are installed on each of the Transformers and Autotransformer.

The data from electricity meters concerning electricity consumption is transmitted to the control and monitoring computer system continuously. The computer system records information about each melt process, including melt certificate. This certificate includes information about the date and number of melt, furnace where steel was melted, amount of electricity consumed during melting and weight of steel. The archiving period for the log files is at least one year. All melt certificates for the monitoring period have been recorded on CDs. These CDs are stored for two years after the last transfer of Emission Reduction Units (ERUs) by the project.

Subproject 4. Modernization of press equipment

Serving motors of the press pump station are powered from the 6kV line. Substation 110/6 kV has two transformers. Each transformer has a commercial electricity meter. There are some addition consumers on the 6kV line. All data concerning electricity consumption is transmitted to the control and monitoring computer system. The press has a special registry log book, where working time of press is logged, among other data.

In the revised monitoring plan the formulae for calculation of variables are adjusted for the period 1 month instead of period of 1 year that was in the initial monitoring plan determined in the PDD. This allowed to calculate figures for the fourth quarter of 2011.

The reporting procedures reflect the revised monitoring plan completely. It is confirmed that the monitoring report does comply with the monitoring methodology described in the PDD and Monitoring Plan revision 1.1.

All parameters were determined as prescribed. The complete data is stored electronically and documented. The necessary procedures have been defined in internal procedures.

The audit team confirms that emission reduction calculations have been performed according to the Monitoring Plan.

According to the Article 10 paragraph 1 of the Ukrainian Law “On Metrology and Metrological Activity” measurement results can be used in case if appropriate characteristics of errors and uncertainty are known. Characteristics of errors are presented in the passports of the equipment. The level of uncertainty is considered as low which is why it can be neglected in the calculations.

The calibration and testing equipment used in the monitoring process is carried out by the organizations that the respective agreements are concluded with:

- GC “Donetsk Scientific-Production Center of Standardization Metrology and Certification”,
- National Science Center "Institute of Metrology"
- GC “Ukrmetrteststandart”
- GC “Kharkiv Regional Scientific Production Center of Standardization, Metrology and Certification”
- PC “MIKA”
- OJSC “Donetskoblgas”
- SPE “Ukrgasgeoavtomatika”

The repair, testing and calibration of the project equipment are carried out by specially trained plant personnel.

Some of the monitoring parameters that are used in the calculation of the baseline and project emissions are measured directly with the use of special equipment while others are estimated with the use of appropriate coefficients.

Concerning verification the calculation of emission reductions is based on internal data. The origin of those data was explicitly checked. Further on, entering and processing of those data in the monitoring workbook Excel sheet was checked, in which algorithms to compute the annual value of the emission reductions are predefined. All equations and algorithms used in the different workbook sheets were checked. Inspection of calibration and maintenance records for key equipment was performed for all relevant meters.
Necessary procedures have been defined in internal procedures and additional internal documents relevant for the determination of the various parameters on daily basis.

The general management of the monitoring team is implemented by the Deputy Chief Engineer of the EMSS through supervising and coordinating activities of his subordinates, such as the head of Energy Saving Department, the head of Steel Making Shop, Press-Forging Shop and Thermal Shop. On-site day-to-day (operational) management is implemented by the heads of corresponding shops. The technological process data is logged into the PCs continuously. The PCs at reconstructed furnaces, LF, VD, etc., have not only monitoring but control functions as well. Keeping the PCs in a working condition is a responsibility of the Department of the automated control systems.

All data necessary for the CO_2 emission reductions calculation is collected in the Energy Saving Department. The head of the Energy Saving Department is making calculations on a monthly basis. The general supervision of the monitoring system is executed by the Deputy Chief Engineer.

For this monitoring period the names of the personnel involved is as follows:

- Deputy Chief Engineer: A. Masyuk
- Head of Energy Saving Department: V. Timoshenko
- Head of the Steel Making Shop: A. Gorkusha
- Head of the Press-Forging Shop: N. Bondar
- Head of the Thermal Shop: V. Stankov

All contracts for the equipment supplying include chapter describing personnel training. Training is provided by the equipment producers.

CO_2 emission reductions calculations are performed on the monthly basis by the head of the Energy Saving Department. All energy sources flows (such as electricity and natural gas) are logged on the server in the Energy Saving Department. Hence the head of Department checks the correctness of measurements by the indirect calculations.

The concept of materiality was verified and confirmed by the low level of uncertainty for measuring key parameters and further calculation of emission reductions that is stipulated by:

- applying the approved methodology and tools to it,
- manufacturer's passports and certificates for the project equipment,
- parameters defined for the materials and resources by their suppliers,
- accreditation certificates of the laboratories and metrological organizations involved in the project.

The identified areas of concern as to data management, project participants response and BV Certification's conclusion are described in Appendix A Table 2 (refer to CAR 01 and CL 02 – CL 07).

3.7 Verification regarding programs of activities (102-110)

Not applicable.

4 VERIFICATION OPINION

Bureau Veritas Certification has performed 11 periodic verification of the "Improvement of the Energy efficiency at Energomashspetsstal (EMSS), Kramatorsk, Ukraine" Project in Ukraine, which applies JI specific approach. 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 monitoring report against 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 Global Carbon B.V. 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 as per determined changes. The development and maintenance of records and reporting procedures in accordance with that 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 2.0 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented as per determined changes. 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.

ERUs obtained during the current monitoring period (81 164 tCO_2 eq) are higher in comparison to the ones indicated in the determined PDD (59 551 tCO_2 eq) for the same period. In the determined PDD all calculations were made taking into account the load factor of equipment equal to 80%. Also project emission calculations in PDD were made taking into account the assumed specific natural gas (NG) consumption equal to 55% from Baseline specific NG consumption. Actual specific NG consumption according to MR (ver. 2.0) variation is about 9-35% from Baseline specific NG consumption. Real monitored NG consumption in project scenario is lower than in PDD and it leads to increasing of ERUs amount. The PDD envisaged 21 furnaces to be put into operation with the project implementation. However, later 3 furnaces were added to the Project scope in accordance with the Sixth Periodic JI Monitoring Report, version 3.0 dated 17/12/2010, Annex 1 and Eighth Periodic JI Monitoring Report, version 3.0 dated 01/06/2011, Annex 1. Now 24 furnaces are put into operation and 21 of them according to the PDD. As a result, all the above listed measures caused the increase of the amount of ERUs for the Project described in the MR (ver. 2.0), as compared to the PDD.

Bureau Veritas Certification can confirm that the GHG emission reduction is calculated without material misstatements. 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. Based on the information we have seen and evaluated, we confirm the following statement:

Reporting period: From 01/10/2011 to 31/12/2011

Baseline emissions	:	110 016	tonnes of CO_2 eq.
Project emissions	:	28 852	tonnes of CO_2 eq.
Emission Reductions	:	81 164	tonnes of CO_2 eq.

5 REFERENCES

Category 1 Documents:
Documents provided by Global Carbon B.V. that relate directly to the GHG components of the project.

/1/ Monitoring Report for the period from 01/10/2011 till 31/12/2011 version 1.0 dated 14 of February 2012

/2/ Calculation of Emission Reductions – excel file "20120214_MR011_EMSS_1.0_en.xls", Version 01 of 14/02/2012

/3/ Monitoring Report for the period from 01/10/2011 till 31/12/2011 version 2.0 dated 12 of April 2012

/4/ Calculation of Emission Reductions – excel file "20120507_MR011_EMSS_2.0_en.xls", Version 02 of 07/05/2012

/5/ Verification Report by Bureau Veritas Certification Holding SAS dated 16th of November 2009

/6/ Verification Report by Bureau Veritas Certification Holding SAS dated 31st of December 2009

/7/ Verification Report by Bureau Veritas Certification Holding SAS dated 30th of March 2010

/8/ Verification Report by Bureau Veritas Certification Holding SAS dated 29th of June 2010

/9/ Verification Report by Bureau Veritas Certification Holding SAS dated 27th of September 2010

/10/ Verification Report by Bureau Veritas Certification Holding SAS dated 28th of January 2011

/11/ Verification Report by Bureau Veritas Certification Holding SAS dated 11th of April 2011

/12/ Verification Report by Bureau Veritas Certification Holding SAS dated 03rd of June 2011

/13/ Verification Report by Bureau Veritas Certification Holding SAS dated 26th August 2011

/14/ Verification Report by Bureau Veritas Certification Holding SAS dated 14th February 2012

/15/ Project Design Document, version 3.9 dated 31st of August 2008

/16/ Letter of Approval of National Ecological Investment Agency of Ukraine, #48/23/7 from 23/01/2009

/17/ Approval of Voluntary participation in a Joint Implementation project of Ministry of Economical Affairs in Netherlands #2009JI01, dated 3rd of March 2009

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

/1/ Information note # 27/89 dated 18/01/2012 on fuel consumption by Kramatorskteploenergo LLC in the 4th quarter 2011
/2/ Letter # 04-28/9 dated 04/01/2012 on providing the gas net calorific value data, issued by the Kramatorsk Administration on Gas Supply and Gasification
/3/ Passport-logbook dated 25/11/2008 on meter type Ergomera-126, fabrication # 770 (FPS)
/4/ Passport dated 23/12/2010 on meter type Ergomera-126, fabrication # 770 (FPS)
/5/ Passport-logbook dated 30/08/2007 on meter type Ergomera-126, fabrication # 635 (heating furnace #07 FPS)
/6/ Passport dated 22/08/2011 on meter type Ergomera-126, fabrication # 635 (heating furnace #07 FPS)
/7/ Passport-logbook dated 28/01/2010 on meter type Ergomera-126, fabrication # 866 (heating furnaces #08, 09, 10 thermal furnace #18, 19, 20 FPS)
/8/ Passport dated 20/09/2011 on meter type Ergomera-126, fabrication # 866 (heating furnaces #08, 09, 10 thermal furnace #18, 19, 20 FPS)
/9/ Photo–meter type Ergomera-126, fabrication # 836 (furnace # 35, FPS-1)
/10/ Passport dated 25/08/2011 on meter type Ergomera-126, fabrication # 836, inventory # 20821
/11/ Photo–meter type Ergomera-126, fabrication # 839 (thermal furnaces #01, 02, 09, 10 TS)
/12/ Passport dated 20/10/2011 on meter type Ergomera-126, fabrication # 839 (thermal furnaces #01, 02, 09, 10 TS)
/13/ Passport-logbook dated 13/08/2009 on meter type Ergomera-126, fabrication # 838 (thermal furnace #04, TS)
/14/ Photo–meter type Ergomera-126, fabrication # 838 (thermal furnace #04, TS)
/15/ Passport dated 10/08/2011 on meter type Ergomera-126, fabrication # 838 (thermal furnace #04, TS)
/16/ Passport dated 20/10/2011 on meter type Ergomera-126, fabrication # 838 (thermal furnace #04, TS)
/17/ Passport-logbook dated 28/01/2010 on meter type Ergomera-126, fabrication # 867 (thermal furnaces #30, 31, 32 heating furnaces #33, 34 FPS)
/18/ Passport dated 20/09/2011 on meter type Ergomera-126, fabrication # 867
/19/ Passport-logbook dated 23/04/2009 on meter type Ergomera-126, fabrication # 800 (thermal furnace #37 FPS)
/20/ Photo–meter type Ergomera-126, fabrication # 800 (thermal furnace #37 FPS)
/21/ Passport dated 07/04/2011 on meter type Ergomera-126, fabrication # 800
/22/ Passport-logbook dated 13/08/2009 on meter type Ergomera-126,

fabrication # 834 (thermal furnace #38 FPS)

/23/ Photo–meter type Ergomera-126, fabrication # 834 (thermal furnace #38 FPS)

/24/ Passport dated 25/08/2011 on meter type Ergomera-126, fabrication # 834 (thermal furnace #38 FPS)

/25/ Passport-logbook dated 19/07/2007 on meter type Ergomera-126, fabrication # 633 (TS)

/26/ Passport dated 04/08/2011 on meter type Ergomera-126, fabrication # 633 (TS)

/27/ Photo–AFL Weight of steel proceeded through the VD and LF, fabrication # 222

/28/ EAF-ALF report for November 2011

/29/ Report on work of HAC-15000т.c. for November 2011

/30/ Report on vacuum vessel for November 2011

/31/ Report on shops operation at PJSC “EMSS” for October 2011 on greenhouses gases reduction

/32/ Report on operation of heating shop furnaces for October 2011

/33/ Report on operation of thermal shop furnaces for October 2011

/34/ Report on work of HAC-15000т.c. for October 2011

/35/ Report on operation of thermal shop furnace #1 for October 2011

/36/ Report on operation of thermal shop furnace #2 for October 2011

/37/ Report on operation of thermal shop furnace #4 for October 2011

/38/ Report on operation of thermal shop furnace #9 for October 2011

/39/ Report on operation of thermal shop furnace #10 for October 2011

/40/ Report on operation of thermal shop furnace #17 for October 2011

/41/ Report on operation of thermal shop furnace #18 for October 2011

/42/ Report on operation of thermal shop furnace #16 for October 2011

/43/ EAF-ALF report for October 2011

/44/ Report on vacuum vessel for October 2011

/45/ Instruction # 34 dated 19/01/2009 on GHG emissions monitoring

/46/ Agreement # 11/05-292 dated 16/12/2011 on industrial gas meters calibration services

/47/ Agreement # 36/297 dated 12/03/2012 on gas transducers calibration services

/48/ Agreement # 36/1861 dated 27/12/2011 on vortex flow-meters calibration services

/49/ Agreement # 36/1862 dated 27/12/2011 on flow-meters calibration services

/50/ Additional agreement to the Agreement # 057949 dated 27/12/2011 on measuring equipment calibration services

/51/ Agreement # 29/230 dated 20/12/2010 on providing metrological services

/52/ Passport dated 04/08/2011 on meter type Ergomera-126, fabrication # 633

/53/ Passport dated 23/12/2010 on meter type Ergomera-126, fabrication # 770

/54/ Passport dated 20/12/2011 on meter type Ergomera-126, fabrication

839
/55/ Passport dated 10/08/2011 on meter type Ergomera-126, fabrication # 838
/56/ Passport dated 18/08/2011 on meter type Ergomera-126, fabrication # 837
/57/ Passport dated 20/09/2011 on meter type Ergomera-126, fabrication # 866
/58/ Passport dated 20/09/2011 on meter type Ergomera-126, fabrication # 867
/59/ Passport dated 25/08/2011 on meter type Ergomera-126, fabrication # 836
/60/ Passport dated 07/04/2011 on meter type Ergomera-126, fabrication # 800
/61/ Passport dated 25/08/2011 on meter type Ergomera-126, fabrication # 834
/62/ Passport dated 08/08/2011 on meter type Ergomera-126, fabrication # 864
/63/ Instruction # 723 dated 30/09/2011 on natural gas registration
/64/ Photo–thermal furnace # 1 gas pipeline scheme
/65/ Photo–meter type Ergomera-126, fabrication # 839
/66/ Photo–meter type Ergomera-126, fabrication # 838
/67/ Logbook on gas consumption by furnaces ## 1, 2, 4, 9, 10, 17, 18 in TS
/68/ Photo–gas flow-meter, fabrication # 13345
/69/ Photo–gas flow-meter, fabrication # 13346
/70/ Photo–meter type Ergomera-126, fabrication # 633
/71/ Photo–meter type Ergomera-126, fabrication # 866
/72/ Photo–meter type Ergomera-126, fabrication # 800
/73/ Photo–meter type Ergomera-126, fabrication # 834
/74/ Photo–meter type Ergomera-126, fabrication # 867
/75/ Logbook of energy consumption by vacuum system
/76/ Logbook of energy consumption by electrical steel plant
/77/ Logbook of gas consumption by upgraded thermal furnaces
/78/ Photo–meter type Ergomera-126, fabrication # 836
/79/ Photo–gas flow-meter, fabrication # 13398
/80/ Photo–meter type Ergomera-126, fabrication # 770

Persons interviewed:

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

/1/	Timoshenko V.	- Head of the energy saving department
/2/	Obanin O.	- Head of metrology supply bureau and document metrology examination of major metrologist department
/3/	Smirnov S.	- Chief metrologist

/4/	Polyachenko V.	- Head of the personnel training centre
/5/	Masyuk O.	- Deputy Chief Engineer
/6/	Bozhko V.	- Leading engineer of technical department on steel melting production
/7/	Garkusha O	- Head of the Steel Making workshop
/8/	Bondar M.	- Head of the Forge Press workshop
/9/	Timofeev Y.	- Engineer of forging press shop #1
/10/	Zubkov A.	- Chief Engineer
/11/	Chubar O.	- Head of the environmental safety department
/12/	Romanenko S.	- Head of the automation department
/13/	Antipov V.	- Deputy Head of Company Representation in South-East Ukraine, Global Carbon B.V.
/14/	Belskaya N.	- JI Consultant, Global Carbon B.V.

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?	The project has been approved by both NFPs. The Letters of Approval were presented to the verification team. Letters of Approval by both Parties were submitted to the secretariat on the final determination stage.	OK	OK
91	Are all the written project approvals by Parties involved unconditional?	Yes, all the written project approvals by Parties involved are unconditional.	OK	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?	The project is implemented according to the PDD, with respect to which the determination was considered final, and included in the list presented at the UNFCCC JI unit.	OK	OK
93	What is the status of operation of the project during the monitoring period?	Project has been operational for the whole monitoring period: - starting date: 01/10/2011 at 00:00 - closing period: 31/12/2011 at 24:00.	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 on the UNFCCC JI website?	There are few deviations to the monitoring plan included in the determined PDD. Detailed descriptions of the deviations are given in the Monitoring Report 002 that has been finally verified. Revised monitoring plan has been submitted to the AIE during verification, which received a positive determination.	OK	OK
95 (a)	For calculating the emission reductions or enhancements of net removals, were key factors, e.g. those listed in 23 (b) (i)-(vii) above,	Yes, for calculating the emission reductions, key factors, e.g. those listed in 23 (b) (i)-(vii) above, influencing the baseline emissions and the activity level of the project and the	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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?	emissions or removals as well as risks associated with the project were taken into account, as appropriate.		
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	Yes, data sources used for calculating emission reductions are clearly identified, reliable and transparent.	OK	OK
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 accuracy and reasonableness, and appropriately justified of the choice?	Yes, emission factors, including default emission factors used for calculating the emission reductions or enhancements of net removals, are selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.	OK	OK
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?	Yes, the calculation of emission reductions or enhancements of net removals are based on conservative assumptions and the most plausible scenarios in a transparent manner. *CL 01* Please explain the increase in the amount of emission reductions obtained in comparison with determined PDD. *CL 07* Please justify the materiality of the obtained reductions.	CL 01 CL 07	OK
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

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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 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?	N/a	N/a	N/a
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?	Yes, project participants provided an appropriate justification for the proposed revision, which was fully described in the Determination of Monitoring Plan Report. The monitoring of baseline and project emissions and calculation of emission reductions will be performed using the same approaches and formulae as in the determined monitoring plan.	OK	OK
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?	Yes, the proposed revision improves the accuracy and 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, which was already verified.	OK	OK
Data management				

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
101 (a)	Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	Yes, implementation of data collection procedures is in accordance with the monitoring plan, including the quality control and quality assurance procedures. *CL 05* Please add the tables 10 and 11 column with the overall data.	CL 05	OK
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	Yes, the functions of monitoring equipment, including calibration status, are serviceable and in order. CAR 01 Please specify the serial number for Ergomera-126 for ID of meters NG 01, NG 02, NG 03, NG 04. *CL 06.* Please update the list of third parties involved.	CAR 01 CL 06	OK
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	Yes, the evidence and records used for the monitoring are maintained in a traceable manner. *CL 02* Please explain the level of error for the weights serial number 222. *CL 04* Please correct the class of electricity consumers throughout the Monitoring Report. *CL 07* Please justify the materiality of the obtained reductions	CL 02 CL 04 CL 07	OK
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	Yes, the data collection and management system for the project is in accordance with the monitoring plan. *CL 03* Please explain why the data are used for emission factors from the IPCC, and not from the NIR Ukraine.	CL 03	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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 JISC of its findings in writing?	N/a	N/a	N/a
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;	N/a	N/a	N/a

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

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist	Summary of project participant response	Verification team conclusion

	question in table 1		
CAR 01 Please specify the serial number for Ergomera-126 for ID of meters NG 01, NG 02, NG 03, NG 04	101 (b)	Serial number of Ergomera-126 for ID of meters NG 01, NG 02, NG 09, NG 10 is 839. Relevant changes have been made in Table 3 of the MR. Please find revised Monitoring report, version 2.0.	Issue is closed.
CL 01 Please explain the increase in the amount of emission reductions obtained in comparison with determined PDD.	95 (d)	In the determined PDD all calculations were made taking into account the load factor of equipment equal to 80%. Also in "ER calculation and Cash Flow Analysis"* project emission calculations were made taking into account the assumed Project specific NG consumption equal to 55% from Baseline specific NG consumption. Real Project specific NG consumption variation is about 9-35% from Baseline specific NG consumption. So real monitored NG consumption in project scenario is lower than in PDD and it leads to additional ERUs. In addition, there is no description in PDD of 3 furnaces put into operation according to Sixth Periodic JI Monitoring Report, version 3.0 dated 17/12/2010, Annex 1 and Eighth Periodic JI Monitoring Report, version 3.0 dated 01/06/2011, Annex 1. So now 24 furnaces put into operation and 21 of them	Issue is closed.

*http://ji.unfccc.int/UserManagement/FileStorage/VNIM9YQP8105W3D26EX4KSRL7TFUCO

		according to PDD. Thus ERs obtained during the current monitoring period (81164 tCO_2eq) are higher in comparison to the ones indicated in the determined PDD (59551 tCO_2eq). Please see attached file CL01_EMSS.xlsx	
CL 02 Please explain the level of error for the weights serial number #222	101 (c)	According to the Passports of weight #222 Limits of accuracy equal to ±0.5% of the maximum limit of weighing. The maximum limit of weighing equals to 200 tonnes. That is why nominal level of accuracy is equal to 1000 kg. Real level of accuracy is lower than nominal. Please see attached Passport of weight and Act of weight calibration. Please note, that this inaccuracy doesn't influence the amount of ERs significantly and isn't material.	Issue is closed.
CL 03 Please explain why the data are used for emission factors from the IPCC, and not from the NIR Ukraine.	101 (d)	IPCC default value for Emission factor of the natural gas burning process and Emission factor for local (anthracite) coal burning was determined in the PDD. Emission factor of the Ukrainian grid for reducing project was changed and this change has also been determined in the Eighth Periodic JI Monitoring Report, version 3.0 dated 01/06/2011. The electricity grid emission factor has been recommended for the use in calculations of the emission reductions in JI	Issue is closed.

		projects by the DFP of Ukraine*. The annual National Inventory Reports are containing detailed descriptive and numerical information on greenhouse-gas emissions levels and trends. Its primary purpose is to satisfy the reporting requirements to the Annex I Parties of the Kyoto Protocol. Therefore, the primary purpose of these reports is not in direct connection with the JI projects or methodologies and approaches used in such projects. The project participants, carefully balancing accuracy and reasonableness, do not foresee such change of emission factors as the revision of the monitoring plan that will materially improve the accuracy of the monitoring plan compared to the original or improve the applicability of the information collected. Therefore, the project participants are using the monitoring plan in its current version as it has been determined and this determination has been deemed final by the JISC.	
CL 04 Please correct the class of electricity consumers throughout the Monitoring Report	101 (c)	The class electricity consumer is 1st. Relevant changes have been made in description of variable in the MR. Value of emission factor of the Ukrainian grid for	Issue is closed.

* Order of National Environment Investment Agency #75 from 12.05.2011 http://www.neia.gov.ua/nature/doccatalog/document?id=127498

		reducing project isn't changed. This misprint didn't influence to the amount of ERs. Please find revised Monitoring report, version 2.0.	
CL 05 Please add the tables 10 and 11 column with the overall data	101 (a)	Total data have been added in Tables 10 and 11 of the MR. Please find revised Monitoring report, version 2.0.	Issue is closed.
CL 06 Please update the list of third parties involved	101 (b)	All Third Party have been added in Section C.2 of the MR. Please find revised Monitoring report, version 2.0.	Issue is closed.
CL 07 Please justify the materiality of the obtained reductions	95 (d)	Acceptable limits of accuracy of the measuring equipment, to which the correction of further calculation is not applied, are regulated and meet the requirements of «Standard for applying the concept of materiality in verifications» (version 01) approved by the Joint Implementation Supervisory Committee as of 16/06/2010, according to which level of deviations (uncertainty) in JI projects with 100 000 t/year of emission reductions, cannot exceed materiality threshold of 2 %. Assessment of project emission reductions calculations taking into account the limits of accuracy of the measuring equipment showed that the value of the tCO2e emission reductions achieved with regard to	Issue is closed.

		the actual amount does not exceed 2 % both upwards and downwards, therefore while calculating the emission reductions the principle of accuracy and completeness is assured.	

VERIFICATION REPORT
GLOBAL CARBON B.V.

VERIFICATION OF THE
IMPROVEMENT OF THE ENERGY EFFICIENCY AT ENERGOMASHSPETSSTAL (EMSS), KRAMATORSK, UKRAINE

ELEVENTH PERIODIC FOR THE FOURTH QUARTER OF 2011
(01/10/2011-31/12/2011)

REPORT NO. UKRAINE-VER/0470/2012
REVISION NO. 02

BUREAU VERITAS CERTIFICATION

Date of first issue:	Organizational unit:
13/04/2012	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
Global Carbon B.V.	Lennard de Klerk

Summary:

Bureau Veritas Certification has made the 11th periodic verification of the "Improvement of the Energy efficiency at Energomashspetsstal (EMSS), Kramatorsk, Ukraine", JI Registration Reference Number 0104, project of Global Carbon B.V. located in Kramatorsk, 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 Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases: i) desk review of the monitoring report against 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 Corrective Actions Requests (CAR) and Clarification Request (CL) presented in Appendix A.

In summary, Bureau Veritas Certification confirms that the project is implemented as per determined changes. 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. The GHG emission reduction is calculated without material misstatements, and the ERUs issued totalize 81 164 tonnes of CO_2 eq. for the monitoring period from 01/10/2011 to 31/12/2011.

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.:	Subject Group:	
UKRAINE-ver/0470/2012	JI	
Project title: "Improvement of the Energy efficiency at Energomashspetsstal (EMSS), Kramatorsk, Ukraine"		
Work carried out by: Team Leader : Kateryna Zinevych Team Member : Andrey Rodionov Team Member : Vladimir Kulish		
Work reviewed by: Ivan Sokolov - Internal Technical Reviewer Vera Skitina - Technical Specialist		
Work approved by: Ivan Sokolov – Climate Change Operational Manager		
Date of this revision: 10/05/2012	Rev. No.: 02	Number of pages: 33

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1 INTRODUCTION

Global Carbon B.V. has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project "Improvement of the Energy efficiency at Energomashspetsstal (EMSS), Kramatorsk, Ukraine" (hereafter called “the project”) at Kramatorsk, Ukraine, UNFCCC JI Reference Number 0104.

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 monitoring report, 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:

Kateryna Zinevych Bureau Veritas Certification	Team Leader, Climate Change Verifier
Andrey Rodionov Bureau Veritas Certification	Team member, Technical Specialist
Vladimir Kulish Bureau Veritas Certification	Team member, Climate Change Verifier

This verification report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification, Internal technical reviewer

Vera Skitina
Bureau Veritas Certification Technical Specialist

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 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) submitted by Global Carbon B.V. and additional background documents related to the project design and baseline, i.e. country Law, Project Design Document (PDD), 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.

The verification findings presented in this report relate to the Monitoring Report version(s) 1.0 dated 14 of February 2012, Monitoring Report version(s) 2.0 dated 12 of April 2012 and project as described in the determined PDD.

2.2 Follow-up Interviews

On 28/03/2012 Bureau Veritas Certification performed (on-site) interviews with project stakeholders to confirm selected information and to resolve

issues identified in the document review. Representatives of EMSS and Global Carbon B.V. were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
Energomashspetsstal (EMSS)	Organizational structure. Responsibilities and authorities. Training of personnel. Quality management procedures and technology. Implementation of equipment (records). Metering equipment control. Metering record keeping system, database.
Consultant: Global Carbon B.V.	Baseline methodology. Monitoring plan. Monitoring report. Deviations from PDD.

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 report 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 and Corrective 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 1 Corrective Action Requests and 7 Clarification request.

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

3.1 Remaining issues and FARs from previous verifications

No FARs were raised during previous verification.

3.2 Project approval by Parties involved (90-91)

The project has been approved by the Host Party (Ukraine) DFP at the determination stage.

Written project approval by the Netherlands has been issued by the DFP of that Party when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest (see References).

The abovementioned written approval is unconditional.

No outstanding issues were raised.

3.3 Project implementation (92-93)

The project activity consists of the energy efficiency measures at the premises of EMSS by the implementation of four subprojects:

Subproject 1. Reconstruction of thermal and heating furnaces – there are thermal and heating furnaces in operation in different shops at the premises of EMSS. The main goal of this subproject is the reduction of the natural gas (NG) consumption for these furnaces by commissioning of new automated NG burners (this enables to maintain the required temperature inside of the furnace) and by implementation of new thermal insulation for the walls, front doors and roofs of the furnaces.

Subproject 2. Installation of a new vacuum system – installation of a new vacuum system for the vacuumed steel production. The old vacuum system used heat and electricity. The reconstructed vacuum system uses only electricity.

Subproject 3. Installation of an arc ladle furnace – installation of a new arc ladle furnace for the steel production. This means that the part of the process of the steel preparation will be undertaken in the ladle, from which the steel will be cast into the forms. As a result there is reduction of the electricity consumption.

Subproject 4. Modernization of press equipment – replacement of an old pump system, serving the 15000 tonne press, with a new more effective pump system. There are 24 old pumps (with 500 kW installed capacity each), which will be replaced by 11 new pumps (with 800 kW installed capacity each).

Project implementation schedule has faced some delays caused by the global financial crisis. The proposed JI project consists of four interventions to the production cycle. Equipment for the proposed interventions was installed and commissioned in the following order:

- SP1: From 01 January 2008 to 31 December 2011 – 18 furnaces were commissioned (besides 6 furnaces commissioned in 2007);
- SP2: 28.02.2008;
- SP3: 01.04.2007;
- SP4: 26.08.2008.

Therefore the starting date of the project is April 2007.

Project was operational for the whole monitoring period, which is 01/10/2011-31/12/2011.

The project improved efficiency of use of natural gas, electricity and heat at the enterprise and thus leaded to decrease of harmful emissions. This project by reducing GHG emissions contributes towards a better environment and hence works towards social well-being for all. Project implementation will lead to improvement of ecological climate of the region, increase of payments to the budgets of all levels for social needs, prevention of reduction of working places and better working conditions at EMSS.

The identified areas of concern as to project implementation, project participants response and B.V. Certification's conclusion are described in Appendix A to this report.

No outstanding issues were raised.

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

The monitoring occurred in accordance with the monitoring plan previously revised and determined in "Determination of the Monitoring Plan revision 1.1 of the project "Improvement of the Energy efficiency at Energomashspetsstal (EMSS), Kramatorsk, Ukraine" of 31/12/2009.

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, as appropriate.

Data sources used for calculating emission reductions are clearly identified, reliable and transparent.

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

The calculation of emission reductions or enhancements of net removals is based on conservative assumptions and the most plausible scenarios in a transparent manner.

The identified areas of concern as to the compliance of the monitoring plan with the monitoring methodology, project participants responses and Bureau Veritas Certification's conclusions are described in Appendix A to this report (refer to CL 01 and CL 07).

3.5 Revision of monitoring plan/Determination of the changes from the determined PDD (99-100)

The monitoring approach in the Monitoring Plan of the PDD version 3.9 requires monitoring and measurement of variables and parameters necessary to quantify the baseline emissions and project emissions in a conservative and transparent way.

For improvement of transparency and accuracy indexes in the Tenth Monitoring Report version 2.0 dated 20th of December 2011 in names of variables were changed or added by using common approach in section B and in section D:

- in Equation 1 and Equation 6

  Index ***l*** determines number of subproject (from SP1 to SP4). Index ***i*** determines one month in monitoring period. Index ***y*** determines the

whole monitoring period. The amount of months in the monitoring period can vary from 1 to ***n***.

- in Equation 2 and Equation 7

  Index ***y*** determines whole monitoring period. Amount of months in the monitoring period can vary from 1 to ***n***. Index ***k*** determines number of reconstructed furnace.

This changes have no influence on calculations and amount of emission reductions, previous revisions are still presented below for the bigger transparency.

Revision of the monitoring plan

The monitoring approach in the Monitoring Plan of the PDD version 3.9[1] requires monitoring and measurement of variables and parameters necessary to quantify the baseline emissions and project emissions in a conservative and transparent way. The same approach is applied in the revised Monitoring Plan revision 1.1 dated 31/12/2009[2] developed for the monitoring period that is not one year.

The parameters that are determined to quantify the baseline and project emissions are presented in the Monitoring Report version 1.5 dated 31/12/2009[3].

It should be mentioned that until 01.10.2011 all furnaces have been equipped with meter-loggers “Ergomera-126” so the procedure for monitoring natural gas (NG) consumption was simplified in Forge Press Shop (FPS) and Thermal Shop (TS) for Subproject 1. Natural gas consumption, pressure and temperature meters of every furnace were changed by meter-logger “Ergomera-126” which registered, displayed, saved in memory and transmit to the control and monitoring computer system log of natural gas consumption of furnaces at temperature 20 ˚C and pressure 101.325 kPa.

And also until 01.10.2011 all project equipment which consumed electricity includes in the control and monitoring computer system which automatically adjusts data from the meters by appointed correction factors. Corrected values of electricity consumption are transferred to the report and use for the monitoring JI project. Therefore for transparency monitoring report table of transformers was excluded from the report,

[1] http://ji.unfccc.int/UserManagement/FileStorage/0EV8XPG6L59ZO7RW3UQT1CNIBDY4FM
[2] http://ji.unfccc.int/UserManagement/FileStorage/83Y40GEFMWDOBP79QRCT2LNS1JK6HV
[3] http://ji.unfccc.int/UserManagement/FileStorage/KSFAOBEZ8X9W1RG3IHC4L2N5Q0YMD6

since transformers are not measuring instruments of electricity consumption.

The list of monitoring equipment, which is used in all the sub-projects is present in the Monitoring Report version 2.0 dated 12/04/2012 Tables 2-4. All the monitoring equipment is checked and calibrated according to the calibration plans.

According to the determined Monitoring Plan revision 1.1 project and baseline emissions and emission reductions are calculated on the annual basis for every subproject. In order to make monitoring process for the several months possible formulas for the calculations have been updated. Updates with comparison to the determined monitoring plan are presented in the Monitoring Report version 2.0 dated 12/04/2012.

Calculation of project variables EL_{VD}, electricity consumed by the new vacuum system (VD), and $EL_{EAF50\ \#1}$, electricity consumption by EAF50 #1 is performed automatically with transformation coefficients embedded in the program.

Determination of the changes from the determined PDD

The project participants provided an appropriate justification for the proposed changes from the determined PDD, which is inclusion of one more furnace into the project which was not in the list of reconstructed project in the determined PDD version 3.9. The change during the project implementation constitutes modifying the order of furnaces reconstruction resulting in inclusion of furnaces not mentioned in the determined PDD into the energy efficiency program and postponing reconstruction of those furnaces from the list which have not been modernized yet. In the determined PDD ver.3.9 there are 26 furnaces that were supposed to be commissioned according to Subproject 1. Due to a severe recession and the worsening of the steel market the reconstruction of the furnaces was delayed. As of June 2010 only 21 of them were reconstructed. Also during the course of reconstruction the order of furnaces modernization was changed to meet the Enterprise's need to have efficient furnaces of a specific size available in order to serve the orders for EMSS products. Finally, in 2010 it was decided to channel the investment to reconstruction of the furnaces which were not originally included in the determined PDD while postponing the reconstruction of some of the furnaces that were listed in the determined PDD. The changes from the determined PDD do not lead to the change of project location, emissions source, the baseline scenario, changes correspond to a JI specific approach, according to which project has been determined.

The proposed change during the project implementation does not require any principal changes to procedures and calculation formulae used for

baseline setting and monitoring for the project, therefore it is consistent with the JI specific approach applied in the determined PDD.

Changes that have been implemented do not affect conservativeness of the approach to the emission reductions calculations and procedures of the data collection and archiving.

AIE determined[4] that the proposed revisions improve the accuracy and 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.

No outstanding issues were raised.

3.6 Data management (101)

Subproject 1. Reconstruction of thermal and heating furnaces

Reconstructed furnaces have the natural gas consumption meters with pressure and temperature meters. Information from consumption meters, pressure and temperature meters are transmitting through meter-loggers to the control and monitoring computer system.

All information about technological process is saved continuously. The archiving period for the log files is at least one year. Information that corresponds to the natural gas consumption in the monitoring period has been burned on CDs. These CDs are stored two years after last transaction Emission Reduction Units (ERUs) by the project.

Every half-finished product that processes through the furnaces has own unique certificate. This certificate reflects all operations performed on the product and the weight on the exit of every workshop. So, the weight of half-finished products that proceed through each furnace could be easily monitored. Information from the certificates is saved in the log books in order to simplify the monitoring process.

A report including natural gas consumption and weight of half finished products is generating on a monthly basis. The report is signing by Head of Energy Saving Department, Head of corresponding workshop and approved by Chief Engineer.

The natural gas meters are used in furnaces' control process. That is why any deviation/failure of the meters would be recognized immediately by disturbance of the heating process and reported to the workshop's head.

[4] http://ji.unfccc.int/UserManagement/FileStorage/8W3LOEAND01U4K29GM7JP5CZH6IXBV

As a result of disturbance furnace should be shut down for the checking procedure.

Subproject 2. Installation of a new vacuum system

Electricity that is consumed during the vacuum process is metered using dedicated meters for this system. Information from meters is passed to the control and monitoring computer system. The computer system records information about every vacuumization session, including melt passport (date and number), weight of steel and electricity consumption. The archiving period for the log files is at least one year. Information that corresponds to the electricity consumption in the monitoring period has been recorded on CDs. These CDs are stored two years after the last transfer of Emission Reduction Units (ERUs) by the project.

The steel to the vacuum degasser (VD) coming either from ladle furnace (LF) or from the electric arc furnace (EAF) in special ladle. Each ladle with liquid steel has unique melt certificate.

Subproject 3. Installation of an arc ladle furnace

Ladle furnace (LF) is a comprehensive solution for high quality steel melting installed at the Steel Making Shop (SMS). The main electricity consumers of the Steel Making Shop are powered by the following scheme.

Close Distribution Unit (CDU) #1, 2 are electricity powering points for the EAFs (EAF50 #1, EAF100 #3, EAF100 #5) and LF. CDUs are powered by Transformer (T1) and Autotransformers (AT1 and AT2). EAFs and LF could be powered from any of the Transformers or Autotransformers. Commercial electricity meters are installed on each of the Transformers and Autotransformer.

The data from electricity meters concerning electricity consumption is transmitted to the control and monitoring computer system continuously. The computer system records information about each melt process, including melt certificate. This certificate includes information about the date and number of melt, furnace where steel was melted, amount of electricity consumed during melting and weight of steel. The archiving period for the log files is at least one year. All melt certificates for the monitoring period have been recorded on CDs. These CDs are stored for two years after the last transfer of Emission Reduction Units (ERUs) by the project.

Subproject 4. Modernization of press equipment

Serving motors of the press pump station are powered from the 6kV line. Substation 110/6 kV has two transformers. Each transformer has a commercial electricity meter. There are some addition consumers on the 6kV line. All data concerning electricity consumption is transmitted to the control and monitoring computer system. The press has a special registry log book, where working time of press is logged, among other data.

In the revised monitoring plan the formulae for calculation of variables are adjusted for the period 1 month instead of period of 1 year that was in the initial monitoring plan determined in the PDD. This allowed to calculate figures for the fourth quarter of 2011.

The reporting procedures reflect the revised monitoring plan completely. It is confirmed that the monitoring report does comply with the monitoring methodology described in the PDD and Monitoring Plan revision 1.1.

All parameters were determined as prescribed. The complete data is stored electronically and documented. The necessary procedures have been defined in internal procedures.

The audit team confirms that emission reduction calculations have been performed according to the Monitoring Plan.

According to the Article 10 paragraph 1 of the Ukrainian Law “On Metrology and Metrological Activity” measurement results can be used in case if appropriate characteristics of errors and uncertainty are known. Characteristics of errors are presented in the passports of the equipment. The level of uncertainty is considered as low which is why it can be neglected in the calculations.

The calibration and testing equipment used in the monitoring process is carried out by the organizations that the respective agreements are concluded with:

- GC “Donetsk Scientific-Production Center of Standardization Metrology and Certification”,
- National Science Center "Institute of Metrology"
- GC “Ukrmetrteststandart”
- GC “Kharkiv Regional Scientific Production Center of Standardization, Metrology and Certification”
- PC “MIKA”
- OJSC “Donetskoblgas”
- SPE “Ukrgasgeoavtomatika”

The repair, testing and calibration of the project equipment are carried out by specially trained plant personnel.

Some of the monitoring parameters that are used in the calculation of the baseline and project emissions are measured directly with the use of special equipment while others are estimated with the use of appropriate coefficients.

Concerning verification the calculation of emission reductions is based on internal data. The origin of those data was explicitly checked. Further on, entering and processing of those data in the monitoring workbook Excel sheet was checked, in which algorithms to compute the annual value of the emission reductions are predefined. All equations and algorithms used in the different workbook sheets were checked. Inspection of calibration and maintenance records for key equipment was performed for all relevant meters.
Necessary procedures have been defined in internal procedures and additional internal documents relevant for the determination of the various parameters on daily basis.

The general management of the monitoring team is implemented by the Deputy Chief Engineer of the EMSS through supervising and coordinating activities of his subordinates, such as the head of Energy Saving Department, the head of Steel Making Shop, Press-Forging Shop and Thermal Shop. On-site day-to-day (operational) management is implemented by the heads of corresponding shops. The technological process data is logged into the PCs continuously. The PCs at reconstructed furnaces, LF, VD, etc., have not only monitoring but control functions as well. Keeping the PCs in a working condition is a responsibility of the Department of the automated control systems.

All data necessary for the CO_2 emission reductions calculation is collected in the Energy Saving Department. The head of the Energy Saving Department is making calculations on a monthly basis. The general supervision of the monitoring system is executed by the Deputy Chief Engineer.

For this monitoring period the names of the personnel involved is as follows:

- Deputy Chief Engineer: A. Masyuk
- Head of Energy Saving Department: V. Timoshenko
- Head of the Steel Making Shop: A. Gorkusha
- Head of the Press-Forging Shop: N. Bondar
- Head of the Thermal Shop: V. Stankov

All contracts for the equipment supplying include chapter describing personnel training. Training is provided by the equipment producers.

CO_2 emission reductions calculations are performed on the monthly basis by the head of the Energy Saving Department. All energy sources flows (such as electricity and natural gas) are logged on the server in the Energy Saving Department. Hence the head of Department checks the correctness of measurements by the indirect calculations.

The concept of materiality was verified and confirmed by the low level of uncertainty for measuring key parameters and further calculation of emission reductions that is stipulated by:

- applying the approved methodology and tools to it,
- manufacturer's passports and certificates for the project equipment,
- parameters defined for the materials and resources by their suppliers,
- accreditation certificates of the laboratories and metrological organizations involved in the project.

The identified areas of concern as to data management, project participants response and BV Certification's conclusion are described in Appendix A Table 2 (refer to CAR 01 and CL 02 – CL 07).

3.7 Verification regarding programs of activities (102-110)

Not applicable.

4 VERIFICATION OPINION

Bureau Veritas Certification has performed 11 periodic verification of the "Improvement of the Energy efficiency at Energomashspetsstal (EMSS), Kramatorsk, Ukraine" Project in Ukraine, which applies JI specific approach. 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 monitoring report against 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 Global Carbon B.V. 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 as per determined changes. The development and maintenance of records and reporting procedures in accordance with that 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 2.0 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented as per determined changes. 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.

ERUs obtained during the current monitoring period (81 164 tCO_2 eq) are higher in comparison to the ones indicated in the determined PDD (59 551 tCO_2 eq) for the same period. In the determined PDD all calculations were made taking into account the load factor of equipment equal to 80%. Also project emission calculations in PDD were made taking into account the assumed specific natural gas (NG) consumption equal to 55% from Baseline specific NG consumption. Actual specific NG consumption according to MR (ver. 2.0) variation is about 9-35% from Baseline specific NG consumption. Real monitored NG consumption in project scenario is lower than in PDD and it leads to increasing of ERUs amount. The PDD envisaged 21 furnaces to be put into operation with the project implementation. However, later 3 furnaces were added to the Project scope in accordance with the Sixth Periodic JI Monitoring Report, version 3.0 dated 17/12/2010, Annex 1 and Eighth Periodic JI Monitoring Report, version 3.0 dated 01/06/2011, Annex 1. Now 24 furnaces are put into operation and 21 of them according to the PDD. As a result, all the above listed measures caused the increase of the amount of ERUs for the Project described in the MR (ver. 2.0), as compared to the PDD.

Bureau Veritas Certification can confirm that the GHG emission reduction is calculated without material misstatements. 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. Based on the information we have seen and evaluated, we confirm the following statement:

Reporting period: From 01/10/2011 to 31/12/2011

Baseline emissions	:	110 016	tonnes of CO_2 eq.
Project emissions	:	28 852	tonnes of CO_2 eq.
Emission Reductions	:	81 164	tonnes of CO_2 eq.

5 REFERENCES

Category 1 Documents:
Documents provided by Global Carbon B.V. that relate directly to the GHG components of the project.

/1/ Monitoring Report for the period from 01/10/2011 till 31/12/2011 version 1.0 dated 14 of February 2012

/2/ Calculation of Emission Reductions – excel file "20120214_MR011_EMSS_1.0_en.xls", Version 01 of 14/02/2012

/3/ Monitoring Report for the period from 01/10/2011 till 31/12/2011 version 2.0 dated 12 of April 2012

/4/ Calculation of Emission Reductions – excel file "20120507_MR011_EMSS_2.0_en.xls", Version 02 of 07/05/2012

/5/ Verification Report by Bureau Veritas Certification Holding SAS dated 16th of November 2009

/6/ Verification Report by Bureau Veritas Certification Holding SAS dated 31st of December 2009

/7/ Verification Report by Bureau Veritas Certification Holding SAS dated 30th of March 2010

/8/ Verification Report by Bureau Veritas Certification Holding SAS dated 29th of June 2010

/9/ Verification Report by Bureau Veritas Certification Holding SAS dated 27th of September 2010

/10/ Verification Report by Bureau Veritas Certification Holding SAS dated 28th of January 2011

/11/ Verification Report by Bureau Veritas Certification Holding SAS dated 11th of April 2011

/12/ Verification Report by Bureau Veritas Certification Holding SAS dated 03rd of June 2011

/13/ Verification Report by Bureau Veritas Certification Holding SAS dated 26th August 2011

/14/ Verification Report by Bureau Veritas Certification Holding SAS dated 14th February 2012

/15/ Project Design Document, version 3.9 dated 31st of August 2008

/16/ Letter of Approval of National Ecological Investment Agency of Ukraine, #48/23/7 from 23/01/2009

/17/ Approval of Voluntary participation in a Joint Implementation project of Ministry of Economical Affairs in Netherlands #2009JI01, dated 3rd of March 2009

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

/1/ Information note # 27/89 dated 18/01/2012 on fuel consumption by Kramatorskteploenergo LLC in the 4th quarter 2011
/2/ Letter # 04-28/9 dated 04/01/2012 on providing the gas net calorific value data, issued by the Kramatorsk Administration on Gas Supply and Gasification
/3/ Passport-logbook dated 25/11/2008 on meter type Ergomera-126, fabrication # 770 (FPS)
/4/ Passport dated 23/12/2010 on meter type Ergomera-126, fabrication # 770 (FPS)
/5/ Passport-logbook dated 30/08/2007 on meter type Ergomera-126, fabrication # 635 (heating furnace #07 FPS)
/6/ Passport dated 22/08/2011 on meter type Ergomera-126, fabrication # 635 (heating furnace #07 FPS)
/7/ Passport-logbook dated 28/01/2010 on meter type Ergomera-126, fabrication # 866 (heating furnaces #08, 09, 10 thermal furnace #18, 19, 20 FPS)
/8/ Passport dated 20/09/2011 on meter type Ergomera-126, fabrication # 866 (heating furnaces #08, 09, 10 thermal furnace #18, 19, 20 FPS)
/9/ Photo–meter type Ergomera-126, fabrication # 836 (furnace # 35, FPS-1)
/10/ Passport dated 25/08/2011 on meter type Ergomera-126, fabrication # 836, inventory # 20821
/11/ Photo–meter type Ergomera-126, fabrication # 839 (thermal furnaces #01, 02, 09, 10 TS)
/12/ Passport dated 20/10/2011 on meter type Ergomera-126, fabrication # 839 (thermal furnaces #01, 02, 09, 10 TS)
/13/ Passport-logbook dated 13/08/2009 on meter type Ergomera-126, fabrication # 838 (thermal furnace #04, TS)
/14/ Photo–meter type Ergomera-126, fabrication # 838 (thermal furnace #04, TS)
/15/ Passport dated 10/08/2011 on meter type Ergomera-126, fabrication # 838 (thermal furnace #04, TS)
/16/ Passport dated 20/10/2011 on meter type Ergomera-126, fabrication # 838 (thermal furnace #04, TS)
/17/ Passport-logbook dated 28/01/2010 on meter type Ergomera-126, fabrication # 867 (thermal furnaces #30, 31, 32 heating furnaces #33, 34 FPS)
/18/ Passport dated 20/09/2011 on meter type Ergomera-126, fabrication # 867
/19/ Passport-logbook dated 23/04/2009 on meter type Ergomera-126, fabrication # 800 (thermal furnace #37 FPS)
/20/ Photo–meter type Ergomera-126, fabrication # 800 (thermal furnace #37 FPS)
/21/ Passport dated 07/04/2011 on meter type Ergomera-126, fabrication # 800
/22/ Passport-logbook dated 13/08/2009 on meter type Ergomera-126,

fabrication # 834 (thermal furnace #38 FPS)

/23/ Photo–meter type Ergomera-126, fabrication # 834 (thermal furnace #38 FPS)

/24/ Passport dated 25/08/2011 on meter type Ergomera-126, fabrication # 834 (thermal furnace #38 FPS)

/25/ Passport-logbook dated 19/07/2007 on meter type Ergomera-126, fabrication # 633 (TS)

/26/ Passport dated 04/08/2011 on meter type Ergomera-126, fabrication # 633 (TS)

/27/ Photo–AFL Weight of steel proceeded through the VD and LF, fabrication # 222

/28/ EAF-ALF report for November 2011

/29/ Report on work of HAC-15000т.c. for November 2011

/30/ Report on vacuum vessel for November 2011

/31/ Report on shops operation at PJSC “EMSS” for October 2011 on greenhouses gases reduction

/32/ Report on operation of heating shop furnaces for October 2011

/33/ Report on operation of thermal shop furnaces for October 2011

/34/ Report on work of HAC-15000т.c. for October 2011

/35/ Report on operation of thermal shop furnace #1 for October 2011

/36/ Report on operation of thermal shop furnace #2 for October 2011

/37/ Report on operation of thermal shop furnace #4 for October 2011

/38/ Report on operation of thermal shop furnace #9 for October 2011

/39/ Report on operation of thermal shop furnace #10 for October 2011

/40/ Report on operation of thermal shop furnace #17 for October 2011

/41/ Report on operation of thermal shop furnace #18 for October 2011

/42/ Report on operation of thermal shop furnace #16 for October 2011

/43/ EAF-ALF report for October 2011

/44/ Report on vacuum vessel for October 2011

/45/ Instruction # 34 dated 19/01/2009 on GHG emissions monitoring

/46/ Agreement # 11/05-292 dated 16/12/2011 on industrial gas meters calibration services

/47/ Agreement # 36/297 dated 12/03/2012 on gas transducers calibration services

/48/ Agreement # 36/1861 dated 27/12/2011 on vortex flow-meters calibration services

/49/ Agreement # 36/1862 dated 27/12/2011 on flow-meters calibration services

/50/ Additional agreement to the Agreement # 057949 dated 27/12/2011 on measuring equipment calibration services

/51/ Agreement # 29/230 dated 20/12/2010 on providing metrological services

/52/ Passport dated 04/08/2011 on meter type Ergomera-126, fabrication # 633

/53/ Passport dated 23/12/2010 on meter type Ergomera-126, fabrication # 770

/54/ Passport dated 20/12/2011 on meter type Ergomera-126, fabrication

839
/55/ Passport dated 10/08/2011 on meter type Ergomera-126, fabrication # 838
/56/ Passport dated 18/08/2011 on meter type Ergomera-126, fabrication # 837
/57/ Passport dated 20/09/2011 on meter type Ergomera-126, fabrication # 866
/58/ Passport dated 20/09/2011 on meter type Ergomera-126, fabrication # 867
/59/ Passport dated 25/08/2011 on meter type Ergomera-126, fabrication # 836
/60/ Passport dated 07/04/2011 on meter type Ergomera-126, fabrication # 800
/61/ Passport dated 25/08/2011 on meter type Ergomera-126, fabrication # 834
/62/ Passport dated 08/08/2011 on meter type Ergomera-126, fabrication # 864
/63/ Instruction # 723 dated 30/09/2011 on natural gas registration
/64/ Photo–thermal furnace # 1 gas pipeline scheme
/65/ Photo–meter type Ergomera-126, fabrication # 839
/66/ Photo–meter type Ergomera-126, fabrication # 838
/67/ Logbook on gas consumption by furnaces ## 1, 2, 4, 9, 10, 17, 18 in TS
/68/ Photo–gas flow-meter, fabrication # 13345
/69/ Photo–gas flow-meter, fabrication # 13346
/70/ Photo–meter type Ergomera-126, fabrication # 633
/71/ Photo–meter type Ergomera-126, fabrication # 866
/72/ Photo–meter type Ergomera-126, fabrication # 800
/73/ Photo–meter type Ergomera-126, fabrication # 834
/74/ Photo–meter type Ergomera-126, fabrication # 867
/75/ Logbook of energy consumption by vacuum system
/76/ Logbook of energy consumption by electrical steel plant
/77/ Logbook of gas consumption by upgraded thermal furnaces
/78/ Photo–meter type Ergomera-126, fabrication # 836
/79/ Photo–gas flow-meter, fabrication # 13398
/80/ Photo–meter type Ergomera-126, fabrication # 770

Persons interviewed:

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

/1/	Timoshenko V.	- Head of the energy saving department
/2/	Obanin O.	- Head of metrology supply bureau and document metrology examination of major metrologist department
/3/	Smirnov S.	- Chief metrologist

/4/	Polyachenko V.	- Head of the personnel training centre
/5/	Masyuk O.	- Deputy Chief Engineer
/6/	Bozhko V.	- Leading engineer of technical department on steel melting production
/7/	Garkusha O	- Head of the Steel Making workshop
/8/	Bondar M.	- Head of the Forge Press workshop
/9/	Timofeev Y.	- Engineer of forging press shop #1
/10/	Zubkov A.	- Chief Engineer
/11/	Chubar O.	- Head of the environmental safety department
/12/	Romanenko S.	- Head of the automation department
/13/	Antipov V.	- Deputy Head of Company Representation in South-East Ukraine, Global Carbon B.V.
/14/	Belskaya N.	- JI Consultant, Global Carbon B.V.

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?	The project has been approved by both NFPs. The Letters of Approval were presented to the verification team. Letters of Approval by both Parties were submitted to the secretariat on the final determination stage.	OK	OK
91	Are all the written project approvals by Parties involved unconditional?	Yes, all the written project approvals by Parties involved are unconditional.	OK	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?	The project is implemented according to the PDD, with respect to which the determination was considered final, and included in the list presented at the UNFCCC JI unit.	OK	OK
93	What is the status of operation of the project during the monitoring period?	Project has been operational for the whole monitoring period: - starting date: 01/10/2011 at 00:00 - closing period: 31/12/2011 at 24:00.	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 on the UNFCCC JI website?	There are few deviations to the monitoring plan included in the determined PDD. Detailed descriptions of the deviations are given in the Monitoring Report 002 that has been finally verified. Revised monitoring plan has been submitted to the AIE during verification, which received a positive determination.	OK	OK
95 (a)	For calculating the emission reductions or enhancements of net removals, were key factors, e.g. those listed in 23 (b) (i)-(vii) above,	Yes, for calculating the emission reductions, key factors, e.g. those listed in 23 (b) (i)-(vii) above, influencing the baseline emissions and the activity level of the project and the	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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?	emissions or removals as well as risks associated with the project were taken into account, as appropriate.		
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	Yes, data sources used for calculating emission reductions are clearly identified, reliable and transparent.	OK	OK
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 accuracy and reasonableness, and appropriately justified of the choice?	Yes, emission factors, including default emission factors used for calculating the emission reductions or enhancements of net removals, are selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.	OK	OK
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?	Yes, the calculation of emission reductions or enhancements of net removals are based on conservative assumptions and the most plausible scenarios in a transparent manner. *CL 01* Please explain the increase in the amount of emission reductions obtained in comparison with determined PDD. *CL 07* Please justify the materiality of the obtained reductions.	CL 01 CL 07	OK
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

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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 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?	N/a	N/a	N/a
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?	Yes, project participants provided an appropriate justification for the proposed revision, which was fully described in the Determination of Monitoring Plan Report. The monitoring of baseline and project emissions and calculation of emission reductions will be performed using the same approaches and formulae as in the determined monitoring plan.	OK	OK
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?	Yes, the proposed revision improves the accuracy and 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, which was already verified.	OK	OK
Data management				

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
101 (a)	Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	Yes, implementation of data collection procedures is in accordance with the monitoring plan, including the quality control and quality assurance procedures. *CL 05* Please add the tables 10 and 11 column with the overall data.	CL 05	OK
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	Yes, the functions of monitoring equipment, including calibration status, are serviceable and in order. CAR 01 Please specify the serial number for Ergomera-126 for ID of meters NG 01, NG 02, NG 03, NG 04. *CL 06.* Please update the list of third parties involved.	CAR 01 CL 06	OK
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	Yes, the evidence and records used for the monitoring are maintained in a traceable manner. *CL 02* Please explain the level of error for the weights serial number 222. *CL 04* Please correct the class of electricity consumers throughout the Monitoring Report. *CL 07* Please justify the materiality of the obtained reductions	CL 02 CL 04 CL 07	OK
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	Yes, the data collection and management system for the project is in accordance with the monitoring plan. *CL 03* Please explain why the data are used for emission factors from the IPCC, and not from the NIR Ukraine.	CL 03	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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 JISC of its findings in writing?	N/a	N/a	N/a
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;	N/a	N/a	N/a

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

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist	Summary of project participant response	Verification team conclusion

	question in table 1		
CAR 01 Please specify the serial number for Ergomera-126 for ID of meters NG 01, NG 02, NG 03, NG 04	101 (b)	Serial number of Ergomera-126 for ID of meters NG 01, NG 02, NG 09, NG 10 is 839. Relevant changes have been made in Table 3 of the MR. Please find revised Monitoring report, version 2.0.	Issue is closed.
CL 01 Please explain the increase in the amount of emission reductions obtained in comparison with determined PDD.	95 (d)	In the determined PDD all calculations were made taking into account the load factor of equipment equal to 80%. Also in "ER calculation and Cash Flow Analysis"* project emission calculations were made taking into account the assumed Project specific NG consumption equal to 55% from Baseline specific NG consumption. Real Project specific NG consumption variation is about 9-35% from Baseline specific NG consumption. So real monitored NG consumption in project scenario is lower than in PDD and it leads to additional ERUs. In addition, there is no description in PDD of 3 furnaces put into operation according to Sixth Periodic JI Monitoring Report, version 3.0 dated 17/12/2010, Annex 1 and Eighth Periodic JI Monitoring Report, version 3.0 dated 01/06/2011, Annex 1. So now 24 furnaces put into operation and 21 of them	Issue is closed.

*http://ji.unfccc.int/UserManagement/FileStorage/VNIM9YQP8105W3D26EX4KSRL7TFUCO

		according to PDD. Thus ERs obtained during the current monitoring period (81164 tCO_2eq) are higher in comparison to the ones indicated in the determined PDD (59551 tCO_2eq). Please see attached file CL01_EMSS.xlsx	
CL 02 Please explain the level of error for the weights serial number #222	101 (c)	According to the Passports of weight #222 Limits of accuracy equal to ±0.5% of the maximum limit of weighing. The maximum limit of weighing equals to 200 tonnes. That is why nominal level of accuracy is equal to 1000 kg. Real level of accuracy is lower than nominal. Please see attached Passport of weight and Act of weight calibration. Please note, that this inaccuracy doesn't influence the amount of ERs significantly and isn't material.	Issue is closed.
CL 03 Please explain why the data are used for emission factors from the IPCC, and not from the NIR Ukraine.	101 (d)	IPCC default value for Emission factor of the natural gas burning process and Emission factor for local (anthracite) coal burning was determined in the PDD. Emission factor of the Ukrainian grid for reducing project was changed and this change has also been determined in the Eighth Periodic JI Monitoring Report, version 3.0 dated 01/06/2011. The electricity grid emission factor has been recommended for the use in calculations of the emission reductions in JI	Issue is closed.

		projects by the DFP of Ukraine*. The annual National Inventory Reports are containing detailed descriptive and numerical information on greenhouse-gas emissions levels and trends. Its primary purpose is to satisfy the reporting requirements to the Annex I Parties of the Kyoto Protocol. Therefore, the primary purpose of these reports is not in direct connection with the JI projects or methodologies and approaches used in such projects. The project participants, carefully balancing accuracy and reasonableness, do not foresee such change of emission factors as the revision of the monitoring plan that will materially improve the accuracy of the monitoring plan compared to the original or improve the applicability of the information collected. Therefore, the project participants are using the monitoring plan in its current version as it has been determined and this determination has been deemed final by the JISC.	
CL 04 Please correct the class of electricity consumers throughout the Monitoring Report	101 (c)	The class electricity consumer is 1st. Relevant changes have been made in description of variable in the MR. Value of emission factor of the Ukrainian grid for	Issue is closed.

* Order of National Environment Investment Agency #75 from 12.05.2011 http://www.neia.gov.ua/nature/doccatalog/document?id=127498

		reducing project isn't changed. This misprint didn't influence to the amount of ERs. Please find revised Monitoring report, version 2.0.	
CL 05 Please add the tables 10 and 11 column with the overall data	101 (a)	Total data have been added in Tables 10 and 11 of the MR. Please find revised Monitoring report, version 2.0.	Issue is closed.
CL 06 Please update the list of third parties involved	101 (b)	All Third Party have been added in Section C.2 of the MR. Please find revised Monitoring report, version 2.0.	Issue is closed.
CL 07 Please justify the materiality of the obtained reductions	95 (d)	Acceptable limits of accuracy of the measuring equipment, to which the correction of further calculation is not applied, are regulated and meet the requirements of «Standard for applying the concept of materiality in verifications» (version 01) approved by the Joint Implementation Supervisory Committee as of 16/06/2010, according to which level of deviations (uncertainty) in JI projects with 100 000 t/year of emission reductions, cannot exceed materiality threshold of 2 %. Assessment of project emission reductions calculations taking into account the limits of accuracy of the measuring equipment showed that the value of the tCO2e emission reductions achieved with regard to	Issue is closed.

		the actual amount does not exceed 2 % both upwards and downwards, therefore while calculating the emission reductions the principle of accuracy and completeness is assured.	