DETERMINATION REPORT
GLOBAL CARBON BV

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

REPORT NO. UKRAINE 0003/2007

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BUREAU VERITAS CERTIFICATION

DETERMINATION REPORT

Date of first issue:	Organisational unit:
16/09/2008	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
Global Carbon BV	Mr. Lennard de Klerk

Summary:
Bureau Veritas Certification has made the determination of the Improvement of the Energy Efficiency at Energomashspetsstal (EMSS), Kramatorsk - Ukraine on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee. The project is submitted under Track 2 procedure.

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

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

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the Guidance on Criteria for Baseline Setting and Monitoring and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria, pending the approval from involved parties.

Report No.:	Subject Group:
UKRAINE/0003/2007	JI

Report title:
Improvement of the energy efficiency at Energomashspetsstal (EMSS), Kramatorsk, Ukraine

Work carried out by:
Flavio Gomes – Lead Verifier
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Indexing terms

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Abbreviations

CAR	Corrective Action Request
CL	Clarification Request
CO	Carbon Monoxide
CO_2	Carbon Dioxide
DR	Document Review
EIA	Environmental Impact Assessment
EMSS	Energomashspetsstal
ERU	Emission Reduction Unit
GHG	Green House Gas(es)
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
I	Interview
IE	Independent Entity
IETA	International Emissions Trading Association
MoV	Means of Verification
NG	Natural Gas
NGO	Non Government Organization
NO_2	Nitrous Dioxide
PCF	Prototype Carbon Fund
PDD	Project Design Document
PP	Project Participant
SP	Sub Project
UNFCCC	United Nations Framework Convention for Climate Change

DETERMINATION REPORT

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1 INTRODUCTION

EMSS, JSC has commissioned Bureau Veritas Certification to determinate its JI project Improvement of the Energy Efficiency at Energomashspetsstal (EMSS), Kramatorsk-Ukraine (hereafter called “the project”).

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

1.1 Objective

The determination serves as project design verification and is a requirement of all projects. The determination is an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan, and the project’s compliance with relevant UNFCCC and host country criteria are determined in order to confirm that the project design, as documented, is sound and reasonable, and meet the stated requirements and identified criteria. Determination is a requirement for all JI projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reduction units (ERUs).

UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

1.2 Scope

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

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

1.3 GHG Project Description

The envisaged JI project takes place as the production facilities of Energomashspetsstal (EMSS). The main scope of activity of EMSS is the production of special casting and forged steel forms for energy and transport machine building, power engineering, metallurgical, mining, cement and other industries in Ukraine and abroad (Russia, France, Belgium, Denmark).

The machine-building production sector is a highly energy intensive industry. Ukraine has inherited from the Soviet Union large machine-building production sector. The majority of the machine-building plants in Ukraine were constructed in the middle of 20th century, but no major energy efficiency projects or refurbishment works were

implemented in the machine-building sector of Ukraine during the past 15 years.

In the machine-building sector in Ukraine there is no policy in place which requires companies to reduce the CO_2 emissions.

The machine-building sector in Ukraine is facing significant competition from China, Russia and other countries. China has recently built several machine-building plants which will lower export opportunities for Ukrainian plants. Therefore Ukrainian machine-building companies need continuously to increase there competitiveness and market share in order to survive. The meagre investment climate creates additional burden for Ukrainian companies to attract capital and optimize their processes. Additionally, the increasing price for natural gas in Ukraine decreases profitability of production of steel and steel details for machine-building in the sector.

EMSS produces and sells special casting and forged steel forms for energy and transport machine building, power engineering, metallurgical, mining, cement and other industries in Ukraine and abroad. With the planned modernization at the plant, EMSS aims to increase energy efficiency of its production and quality of steel forms to expand export.

The project activity consists of the improvement of the energy efficiency at the premise of EMSS by the implementation of seven subprojects:

Subproject 1. Reconstruction of thermal and heating furnaces – there are 35 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 on 26 of 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. The first seven furnaces (from the total 35) will be reconstructed to the end of 2007 and the other nineteen furnaces will be reconstructed from January 2008 to September 2009.

Subproject 2. Installation of a new vacuum system – Installation of a new vacuum system for the vacuumed steel production. The amount of vacuumed steel is equal to the amount of total steel produced. The existing vacuum system uses heat (1.16 MWh/t steel) and electricity (28 Wh/t steel). The new vacuum system will use only electricity (1.92 kWh/t steel).

Subproject 3. Installation of an arc ladle furnace – New arc ladle furnace will be installed for the steel production. This means that the part of the process of the steel preparation will be done in the ladle from which the steel will be cast into the forms. As a result there will be reduction of the electricity consumption (from 1.03 MWh/t electro steel to 0.713 MWh/t electro steel).

Subproject 4. Modernization of press equipment – Replacing the old pump system, serving the 15,000 ton press, with a new one, more effective pump system. The number

of old pumps is 24 (with 500 kW installed capacity each), and the number of new pumps will be 11 (with 800 kW installed capacity each).

With the implementation of described energy efficiency measures, EMSS will be able to reduce direct and indirect CO_2 emissions at the production of steel and steel details. These emissions reductions can be sold as ERUs on the international emission reduction market.

1.4 Determination Team

The determination team consists of the following personnel:

Flavio Gomes Bureau Veritas Certification	Climate Change Lead Verifier
Ivan Sokolov Bureau Veritas Certification	Climate Change Verifier
Denis Pishchalov	Financial specialist
Ashok Mammen Bureau Veritas Certification	Internal Technocal Reviewer

2. METHODOLOGY

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

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

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

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

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

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

Determination Protocol Table 1: Mandatory Requirements			
Requirement	**Reference**	**Conclusion**	**Cross reference**
The requirements the project must meet.	Gives reference to the legislation or agreement where the requirement is found.	This is either acceptable based on evidence provided (**OK**), a **Corrective Action Request (CAR)** or a **Clarification Request (CL)** of risk or non-compliance with stated requirements. The CAR's and CL's are numbered and presented to the client in the Determination Report.	Used to refer to the relevant protocol questions in Tables 2, 3 and 4 to show how the specific requirement is determined. This is to ensure a transparent determination process.

Determination Protocol Table 2: Requirements checklist				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The various requirements in Table 1 are linked to checklist questions the project should meet. The checklist is organized in several sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CL)** is used when the determination team has identified a need for further clarification.
Determination Protocol Table 3: Baseline and Monitoring Methodologies				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The various requirements of baseline and monitoring methodologies should be met. The checklist is organized in several sections. Each section is then further sub-divided. The lowest level constitutes a checklist question.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CL)** is used when the determination team has identified a need for further clarification.

Determination Protocol Table 4: Legal requirements				
Checklist Question	**Reference**	**Means of verification (MoV)**	**Comment**	**Draft and/or Final Conclusion**
The national legal requirements the project must meet.	Gives reference to documents where the answer to the checklist question or item is found.	Explains how conformance with the checklist question is investigated. Examples of means of verification are document review (DR) or interview (I). N/A means not applicable.	The section is used to elaborate and discuss the checklist question and/or the conformance to the question. It is further used to explain the conclusions reached.	This is either acceptable based on evidence provided (**OK**), or a **Corrective Action Request (CAR)** due to non-compliance with the checklist question. (See below). **Clarification Request (CL)** is used when the determination team has identified a need for further clarification.

Determination Protocol Table 5: Resolution of Corrective Action and Clarification Requests			
Report clarifications and corrective action requests	**Ref. to checklist question in tables 2/3/4**	**Summary of project owner response**	**Determination conclusion**
If the conclusions from the Determination are either a Corrective Action Request or a Clarification Request, these should be listed in this section.	Reference to the checklist question number in Tables 2, 3 and 4 where the Corrective Action Request or Clarification Request is explained.	The responses given by the Client or other project participants during the communications with the determination team should be summarized in this section.	This section should summarize the determination team's responses and final conclusions. The conclusions should also be included in Tables 2, 3 and 4, under "Final Conclusion".

Figure 1 Determination protocol tables

2.1 Review of Documents

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

To address Bureau Veritas Certification corrective action and clarification requests, Global Carbon BV revised the PDD and resubmitted it on 12/06/08.

Global Carbon BV revised the PDD on 13/04/09 in respect of use of emission reductions generated after the crediting period, and Monitoring Plan refinement, and on 31/08/09 in respect of the letter of approval issuance.

The determination findings presented in this report relate to the project as described in the PDD version 3.9.

2.2 Follow-up Interviews

On 22/11/2007 Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Global Carbon BV and EMSS were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Another meeting happened on 25/01/2008 to discuss emission monitoring approach and additionality of the EMSS project.

Table 1 Interview topics

Interviewed organization	Interview topics
EMSS, JSC	➢ additionality of the project, ➢ emission factor of the project, ➢ EIA and its approval, ➢ Project design, ➢ Consulting process for stakeholder's comments , ➢ Approval status by the host country, ➢ Applicability of methodology, ➢ Monitoring Plan, ➢ QA issues, ➢ Baseline calculations.

2.3 Resolution of Clarification and Corrective Action Requests

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

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

3 DETERMINATION FINDINGS

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

1) The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Determination Protocol in Appendix A.

2) Where Bureau Veritas Certification had identified issues that needed clarification or that represented a risk to the fulfillment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Determination Protocol in Appendix A. The determination of the Project resulted in 11 Corrective Action Requests and 11 Clarification Requests.

3) The conclusions for determination subject are presented.

3.1 Project Design

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

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

The project design is sound and the geographical and temporal (5 years) boundaries of the project are clearly defined.

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

Corrective Action Request CAR1. For Subprojects 2, 5, 7 is not clear the following:
1. Reconstruction of thermal and heating furnaces:

- New impulse burners
- New thermal insulation
- New automated system to control furnaces,
  Not clear if it is novel,
- New vacuum system, description contains a repeated sentence before and after table A.4.2.3
- New slag making technology, no consideration for CO_2 emissions during CaO production at supplier.
  Not clear if it is novel,
- Replacing the old centralized heating system by a new one multiple small heating systems for the working places, which will use natural gas and biomass like energy sources. New technology for Ukraine, but commonly used in the Western countries.
  Not clear if it is novel for Ukraine.

PP's response: corrected. Please, see supporting documents SD24-SD30.
Conclusion: 1. SP 2 was removed from PDD. Still no documental evidences about novelty of New impulse burners, New thermal insulation, New automated system to control furnaces. (reference or anything else) PDD section A.4.2. was corrected. Supporting documents were analysed, list of documents is attached. 2. One sentence was deleted. 3. SP concerning CaO was removed from PDD. 4. This SP was removed from PDD. IUS: closed.

Corrective Action Request 2 (CAR2):
A Letter of Endorsement for the proposed project was issued in April 2007.There is no evidence of written project approvals by the Parties involved.

PP's response: The Letter of approval from Ukrainian government will be received after positive determination of the project.
Conclusion: Will be closed after report finalizing.

Clarification Request 1 (CL1):
With the planned modernization at the plant, EMSS wants to increase its production level and quality of steel forms to expand export. The project activity consists of the improvement of the energy efficiency at the premise of EMSS by the implementation of seven subprojects
Not clearly specified the purpose of the project.
PP's response: Clarified. Please refer to paragraph 5 of the section A.2. "With the planned modernization at the plant, EMSS aims to increase energy efficiency of its production and quality of steel forms to expand export."
Conclusion: PDD versio 3.3 was checked and this CL was closed.

Clarification Request 2 (CL2):
The way of greenhouse gas emissions reductions is explained for every subproject, but not very clear. Subroject 4 does not consider how purchased CaO is produced because of possible CO2 emission at this stage
PP's response: Explained. Please refer to the section A.4.3. Subproject on CaO is dropped.
Conclusion: Subproject was removed from PDD. PDD versio 3.3 was checked and this CL was closed.

Clarification Request 3 (CL3):
Ukraine (Host party) - Open Joint Stock Company "Energomashspetsstal" (EMSS)
Netherlands - Global Carbon BV. Please clarify who the project developer is.
PP's response: Clarified. Please refer to the section A.3. "Global Carbon BV is developer of this JI project and buyer of emission reductions."
Conclusion: PDD versio 3.3 was checked and this CL was closed.

Clarification Request 4 (CL4):
Please, clarify how the project designation reflects the current practice.
PP's response: Clarified. Please, see supporting documents SD22-SD30, SD33, SD34.
Conclusion: Supporting documents were analysed and this CL was closed.

Clarification Request 5 (CL5):
Please, clarify if the project technology is likely to be substituted by other or more efficient technologies within the project period.
PP's response: Clarified. Please, see supporting document SD8.
Conclusion: Supporting documents were analysed and this CL was closed.

Clarification Request 6 (CL6):
Please, clarify if the project requires extensive initial training and maintenance efforts in order to work as presumed during the project period.

PP's response: Clarified. Please refer to the last paragraph of the section A.4.2.
"For mastering of project technologies by employees of EMSS, suppliers of equipment will train the staff of EMSS how to use the supplied equipment in practice and will support EMSS in use of the equipment during trial period (according to agreed contracts)."
Conclusion: PDD versio 3.3 was checked and this CL was closed.

Clarification Request 7 (CL7):
Please, clarify if there are provisions made for meeting training and maintenance needs.
PP's response: Clarified. Please refer to the last paragraph of the section A.4.2.
Conclusion: Appendix 5 to the Contract No 22/125-05 Conditions of personnel training on EMSS was presented and this CL was closed.

3.2 Baseline and Additionality

The "Guidance on criteria for baseline setting and monitoring", issued by the Joint Implementation Supervisory Committee allows using approved methodologies of the CDM. At the moment of writing this PDD, there was no approved methodology with the CDM that would apply to the Improvement of the energy efficiency at Energomashspetsstal (EMSS), Kramatorsk – Ukraine.

For baseline setting, all CDM methodologies require the identification of alternative scenarios, a compliance check with mandatory laws and regulations and barriers facing particular projects. This approach will be used for establishing the baseline.

Alternative scenario was defined for each proposed subproject. For the identification of each scenario it is assumed that the same output of product is produced.

1.1 Reconstruction of thermal and heating furnaces (subproject 1).

There are two alternatives to the reconstruction:

a) Continuation of the existing situation
In this scenario the furnaces will continue to produce steel with high specific consumption of NG, due to the big heat losses of walls, roofs and doors of the furnaces, and also due to the old burners with their low efficiency and incapability to have automated regime of work. The actual specific NG consumption per tone of steel is almost twice bigger than the project's one.

b) Implementation of the proposed intervention without the JI incentive
In this scenario the furnaces will produce steel with low specific consumption of Natural Gas (NG), but no additional income from ERUs will be generated.

1.2 New vacuum system (subproject 2)

There are two alternatives to the installation of the new vacuum system:

a) Continuation of the existing situation
In this scenario EMSS can continue working with the existing vacuum steel degasser. For this EMSS need to purchase steam from Kramatorsk CHPP – 1.16 MWh/ton of steel. This quantity of heat purchased will increase the price of the produced vacuumed steel and decrease the competitiveness of the plant.

b) Implementation of the proposed intervention without the JI incentive
In this scenario EMSS will produce vacuumed steel using only electricity, but no additional income from ERUs will be generated.

1.3 New arc ladle furnace (subproject 3)
There were two alternatives to the implementation of the new ladle furnace system:

a) Continuation of the existing situation
In this scenario EMSS can continue working using the old arc furnaces with specific electric consumption of 1.03 MWh/ton of steel. EMSS will not be in position to increase the quality of the produced electro steel. This will decrease the competitiveness of the plant.

b) Implementation of the proposed intervention without the JI incentive
In this scenario EMSS will produce steel of high quality with specific electricity consumption of 0.713 MWh/ton of steel, but no additional income from ERUs will be generated.

1.4 New pump system for the 15,000 tonnes press (subproject 4)

There were alternatives to the implementation of the new pump system:

a) Continuation of the existing situation
In this scenario EMSS will continue to exploit the big press with the old pumps (24 pumps, 500 kW installed capacity each). This manner of work requires also keeping in good condition the existing pump facilities.

b) Implementation of the proposed intervention without the JI incentive
In this scenario EMSS will implement the new pump equipment (11 pumps, 800 kW installed capacity each), but no additional income from ERUs will be generated.

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

Corrective Action Request 3 (CAR3):
The choice of the applicable baseline for the project is not justified as the PDD is not determined yet.

PP's response: Baseline was established on a project-specific basis, as it is permitted in the Guidance on Criteria for Baseline Setting and Monitoring approved by JISC (Version 01) – http://ji.unfccc.int/Ref/Documents/Baseline_setting_and_monitoring.pdf
Conclusion: The choice of baseline is justified taking into account approach, assumptions, data sources and factors that are clear and transparent, consistency with national regulations and requirements, barrier analysis, discussion of uncertainties and use of conservative assumptions.

Corrective Action Request 4 (CAR4):
There is no evidence of a description of the project scenario.
PP's response: Corrected. Please refer to the section A.4.2.
Conclusion: Description was amended. PDD versio 3.3 was checked and this CAR was closed.

Corrective Action Request 5 (CAR5):
There are no evidences of an analysis showing why the emissions in the baseline scenario would likely exceed the emissions in the project scenario.
PP's response: Corrected. Please refer to the section A.4.3.
Conclusion: PDD versio 3.3 was checked and this CAR was closed.

Corrective Action Request 6 (CAR6):
There is no information in this section concerning relevant host Party regulations.
PP's response: Corrected. Please refer to the next to last paragraph of the section D.1.
"The monitoring process should meet the requirements of the Law of Ukraine on metrology and metrological activities 113/98 – VR."
Conclusion: PDD versio 3.3 was checked and this CAR was closed.

Corrective Action Request (CAR7):
See table D.2 of the PDD. QMS is certified by TUV to ISO 9001. The QMS procedures for control of the measuring equipment are in place. During site visit following deficiencies were observed:

Furnace No 2.
Furnace is equipped with a vortical converter (measurement signal of gas flow is transferred to monitor).
There is a stamp indicating calibration in 3rd quarter of 2006. The calibration is envisaged once per 3 years.
Vortical calculator of gas flow "Irvis K 300" is used. Comment: no evidence of vortical calculator verification.

Mini boiler-house (workshop of machining process).
Meter of electricity consumption No. 070125 is marked with a stamp of calibration in 2006. Readings of indication are performed every morning and data are told to energy service by telephone to introduce into computer. Verification of recorded figures to meter indication is performed monthly. Comment: written procedure is not in place.

Vacuum degasser BOC EDWARDS.
Device is a state of art. Meter 380B is active. Calibration stamp indicates 1st quarter of 2006. Passport of meter is located at the workshop. Readings are performed monthly and compared with another additional meter. Comment: data are not kept.
PP's response: Corrected. The vortical calculator of gas flow "Irvis K 300" was verified – please, see supporting document SD31. The subproject that includes mini boiler-house was deleted from last version of PDD. Starting from 01.01.2008 data are kept electronically and in paper from. Please, see data on electricity consumption of vacuumator for the last three month - supporting document SD32.
Conclusion: Closed

Corrective Action Request 11 (CAR11):
Project activity is permitted by :
SP1
Conclusion No.98 of 05.06.2006 to approve T.C187 Design Documentation on Reconstruction of the Thermal Vertical Furnaces No.9 and 10 issued by the State Sanitary-Epidemiological Expertise of Kramatorsk, valid 4 years.
Conclusion No.3 of 26.12.2006 to approve TC.194 Design Documentation on Reconstruction of the Thermal Vertical Furnaces No.9 and 10 issued by the State Sanitary-Epidemiological Expertise of Kramatorsk, valid 4 years. Permissions available do not cover all furnaces mentioned in the table A.4.2.1.

SP2 not available.

SP3
Conclusion No.226 of 25.06.2007 to approve Design Documentation on Electric Steel Melting Shop. Installation for Steel Vacuuming issued by the State Sanitary-Epidemiological Expertise of Kramatorsk, valid 4 years.

SP5
Conclusion No.644/03.3 of 28.04.2007 to approve Design Documentation on Reconstruction of the Installation RH arc ladle furnace issued by the State Sanitary-Epidemiological Expertise of Donetsk, validity not indicated.

Exceptions of permissions for SP 3, SP 4, SP6 and SP7 are not justified.

PP's response: Corrected. Copies of permissions from state bodies on each subproject are provided (see the following supporting documents - SD 4-7, 9, 10, 12, 13).
Conclusion: Subprojects 2, 4, and 6 were removed from PDD. Permissions for others were presented. See comments for CAR8. Supporting documents were analysed. Closed.

Clarification Request 8 (CL8):
There is no approved methodology with the CDM that would apply to the proposed JI project. The approach for establishing the baseline includes the identification of alternative scenarios, a compliance check with mandatory laws and regulations and

barriers facing particular projects. Please clarify statement on usage of methodology ACM0009 to determine the baseline of the project proposed mentioned in B3 section.
PP's response: The mentioning of ACM0009 methodology was deleted.
Conclusion: PDD versio 3.3 was checked and this CL was closed.

Clarification Request 9 (CL9):
For all proposed measures the lifetime of equipment will be at least 20 years.
There is not defined the operational lifetime of project in months.
PP's response: Clarified. Please refer to the section C.2.
Conclusion: PDD versio 3.3 was checked and this CL was closed.

Clarification Request 10 (CL10):
For the period 1 January 2008 till 31 December 2012 credits will be transferred through Article 6 of the Kyoto Protocol (JI).
There is not defined the length of crediting period in years and months.
PP's response: Clarified. Please refer to the section C.3.
Conclusion: PDD versio 3.3 was checked and this CL was closed.

Clarification Request 11 (CL11):
There is no information about transboundary effects.
PP's response: Clarified. Please refer to the section F.1. Copies of EIAs on each subproject including information about transboundary effects are provided.
Conclusion: Evidences are presented. See comments for CAR8.

Clarification Request 12 (CL12):
No stakeholder consultation is required under JI according to G.1. of PDD. Please clarify with the reference to UNFCCC documents addressing this.
PP's response: Clarified. Please refer to the section G.1.
Conclusion: PDD versio 3.3 was checked and this CL was closed.

In order to validate additionality of the project the following barriers were validated: investment barrier and technological barrier. The validation of investment barrier was performed through analysis of credit market in Ukraine, which was based in particular on analysis of economical articles performed by EBRD considering financing of metallurgical sector in Ukraine. The technological barrier was validated due to the analysis of equipment which was installed. Clear evidence that new installed equipment is the "best available technology" were performed on the basis of Supporting Documents on equipment installed and analysis of modernization with such equipment of machine-building sector in Ukraine on the basis financing such modernization .The source for financing analysis was description of EBRD and World Bank financing in this field (website addresses: www.**ebrd**.com and www.**worldbank**.org*)*.

3.3 Monitoring Plan

After corrections the Project involves four different interventions:
1
2 • SP1 - Reconstruction of thermal and heating furnaces;

3 • SP2 - Installation of a new vacuum system (Vacuum Degasser (VD));
4 • SP3 - Installation of arc ladle furnace;
• SP4 - Modernization of press equipment.

These interventions will involve savings of different energy sources, mainly of electricity and natural gas. The energy consumption at the EMSS depends on the steel production, which could be different from EMSS previsions. In particular there are productions that have to be considered:

1 • The production of electro steel in [tonnes/y];
2 • The production of vacuumed steel in [tonnes/y];
• The production level of each of the 26 reconstructed thermal and heating furnaces in [tonnes/y];

The specific energy consumption can be measured in terms of electricity and natural gas, divided by the production of steel and steel details.

The total energy and total GHG emissions can be evaluated directly from these consumptions, but a comparison with the baseline – and thus a global evaluation of GHG reductions – can not be done without taking into account the production levels.

Data can be collected by means of electric power meters and gas flow meters at each of the plants where improvements will take place; the monitoring plan is depended on direct measurements.

The project emissions are mainly emissions of CO_2 from the burning process of natural gas and emissions lied to electricity generation elsewhere on the Ukrainian electricity system. There is an insignificant quantity of methane emissions (assessed as insignificant and excluded from supervision) and emissions from nitrous oxide released during the natural gas burning process. These quantities are insignificant, because:

1 • the technology employed for the burning process is state-of-art one and there is not unburned quantity of natural gas in the flue gases;
• the quantity of nitrous oxide in the flue gases released during the burning process will be lower than in the existing situation.

Additionally, to the natural gas quantity feed for burning, there is a quantity of emissions from methane, from natural gas leakages during its delivery through the gas pipeline. These indirect greenhouse emissions are assessed by the delivered natural gas parameters through the incorporate gas pipelines and their length, using standard assessments for the specific leakages and emissions factors. These indirect greenhouse emissions are not taken into account. Given the fact the project will lead to lower leakages, the monitored emission reductions are conservative.

Considering the project scope, the following data/parameters need to be monitored:

1 • Natural gas consumed by the reconstructed furnaces, in thousand Nm3;
2 • The production level of each of the 26 reconstructed thermal and heating furnaces, in tonnes;
3 • The production of electro steel, in tonnes;
4 • The production of vacuumed steel, in tonnes;
5 • Electricity consumed by the new vacuum system (VD), in MWh;
6 • Electricity consumed by the ladle furnace, in MWh;
• Electricity consumed by the new pumps of the 15,000 tonnes press, in MWh.

There is a monitoring model, expressing the specific requirements, during the assessments in this PDD. Such model is prepared under MS-Excel and is presented in the PDD annexes. The model requirements are to enter the monitored parameters as an input data, so it will automatically calculates simultaneously the project and the baseline emissions, for each year after the project commissioning. The electronic worksheets should be filled with information by the project manager and also the inspecting personnel, through the whole operational lifetime of the project related to the crediting period.

The monitoring process should meet the requirements of the Law of Ukraine on metrology and metrological activities 113/98 – VR.

The baseline emissions relate to the energy consumption that would have occurred when operating the existing infrastructure (baseline scenario) assuming that the same volume of products would be produces as monitored in the project scenario. The specific energy consumption for each subproject is fixed ex-post by taking the average specific energy consumption of the years 2002- 2006. With the formulae given below the baseline CO_2 emissions were calculated.

3.4 Calculation of GHG Emissions

The baseline emissions relate to the energy consumption that would have occurred when operating the existing infrastructure (baseline scenario) assuming that the same volume of products would be produced as monitored in the project scenario. The specific energy consumption for each subproject is fixed ex-post by taking the average specific energy consumption of the years 2002- 2006. With the formulae given below the baseline CO_2 emissions are calculated.

The annual project emissions are done by the equation:

$$PE_y = \sum_{i=1}^{i=4} PE_{spi} \; ; \qquad \textit{(Equation 1)}$$

Where:

PE_y - are the annual project emissions for the year *y* (ID1), [tCO_2];

PE_{spi} - are the annual project emissions from each subproject, from SP1 to SP4;

The annual project emissions [tCO2/y] from SP1 are:

$$PE_{sp1} = NG_{tf,y} * LCV_{NG} * EF_{NG} \; ; \qquad (Equation\ 2)$$

Where:

PE_{sp1} - is the project emissions of subproject 1 in year y (ID2), [tCO2];

$NG_{tf,y}$ - is the annual quantity of NG, used by the 26 reconstructed furnaces (sum from ID6 to ID31), [1000 nm3];

LCV_{NG} - is the lower calorific value of the NG (ID32), [MWh/1000nm3];

EF_{NG} - is the emission factor of the NG burning process (ID33), [tCO2/MWh].

The annual project emissions [tCO2/y] from SP2 are:

$$PE_{sp2} = EL_{VD} * EF_{el,y} \; ; \qquad (Equation\ 3)$$

Where:

PE_{sp2} - is the project emissions of subproject 2 in year y (ID3), [tCO2];

EL_{VD} - is the annual electrical consumption of the new VD (ID34), [MWh];

$EF_{el,y}$ - is the calculated emission factor of the Ukrainian grid (ID35), [tCO2/MWh].

The annual project emissions [tCO2/y] from SP3 are:

$$PE_{sp3} = (EL_{LF} + EL_{EAF}) * EF_{el,y} \; ; \qquad (Equation\ 4)$$

Where:

PE_{sp3} - is the project emissions of subproject 3 in year *y* (ID4), [tCO_2];

EL_{LF} - is the annual electrical consumption of the new ladle furnace (ID36), [MWh];

EL_{EAF} - is the annual electrical consumption of the electric arc furnace (ID37), [MWh];

The annual project emissions [tCO2/y] from SP4 are:

$$PE_{sp4} = EL_{PR} * EF_{el,y} \; ; \qquad (Equation\ 5)$$

Where:

PE_{sp4} - is the project emissions of subproject 4 in year *y* (ID5), [tCO_2];

EL_{PR} - is the annual electrical consumption of the new pumps of the 15,000 tonnes press (ID38), [MWh].

Equations used are based on recognised principles and are correct.

3.5 Environmental Impacts

The project will improve efficiency of use of natural gas, electricity and heat at the

enterprise and thus lead to decrease of harmful emissions. In accordance with Ukrainian legislation, Environmental Impact Assessments were made by independent consultants on each subproject. After this EMSS have sent applications to the Kramatorsk city authority to obtain the necessary approvals for construction of the individual subprojects.

In Subproject 1 due to combustion of natural gas there will be emissions of CO, CO_2 and NO_X. The impact of CO and NO_X emissions will be only on the territory of EMSS and there will be no harmful impact of these emissions beyond the limits of EMSS sanitary zone.

In Subproject 2 there will be emissions of dust and CO. The impact of these emissions will be only on the territory of EMSS.

In Subproject 3 there will be emissions of CO, dust and NO_2. The impact of these emissions will be only on the territory of EMSS.

In Subproject 4 there will be no harmful emissions due to decrease of electricity consumption.

Generally environmental impact of all subprojects will be not beyond sanitary zone of EMSS and thus there will be no transboundary impacts.

Project participants and host Party considered the environmental impacts of the project as not significant. Therefore this section is not applicable.

There is no CARs and CLs on environmental impact.

3.6 Comments by Local Stakeholders

In accordance with Ukrainian legislation, EMSS has consulted the regional authority to obtain the necessary approvals for construction of the individual subprojects. No stakeholder consultation is required by Host Party for JI project. Stakeholder comments will be gathered during one month after publication of this PDD at UNFCCC website in the frame of determination process.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

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

Bureau Veritas Certification published the project documents on the UNFCCC JI website (www.unfccc.int) on 15/12/2007 and invited comments within 13/01/2008 by Parties, stakeholders and non-governmental organizations.

There are no comments from stakeholders.

5 DETERMINATION OPINION

Bureau Veritas Certification has performed a determination of the Improvement of the energy efficiency at Energomasspetstal, Kramatorsk – Ukraine. The determination was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

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

Project participants used the latest tool for demonstration of the additionality. In line with this tool, the PDD provides sufficient evidences to demonstrate that the project is additional.

By implementing subprojects, the project is likely to result in reductions of GHG emissions partially. An analysis of the investment and technological barriers demonstrates that the proposed project activity is not a likely baseline scenario. Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

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

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

6 REFERENCES

Category 1 Documents:
Documents provided by Global Carbon BV that related directly to the GHG components of the project.

/1/ PDD version 1.2, dated: 28.08.07
/2/ PDD version 2.2, dated: 12.12.07
/3/ PDD version 3.2, dated: 17.01.08
/4/ PDD version 3.3, dated: 12.06.08
/5/ PDD version 3.6, dated: 13.04.09
/6/ PDD version 3.7, dated: 01.06.09
/7/ PDD version 3.8, dated: 04.06.09

/8/ PDD version 3.9, dated: 31.08.09

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

/1/ Letter from Kramatorskteploenergo, LLC 23.05.07 according to heat energy supplying to EMS

/2/ Appendix 5 to the Contract No 22/125-05 “Conditions of personnel training on EMSS”

/3/ Electricity consumption by EAF shop 1986-2006

/4/ Vacuumator statement Expertise. Act of working commission for readiness of finished building for presenting to the state entrance commission.
Complex Expertise Conclusion on project Reconstruction of vacuumed steel workshop No 1490/2, 21.09.2007

/5/ LF statement Expertise. Complex Expertise Conclusion on project Reconstruction of RH-plant to the complex of out-of-furnace steel treatment "arc ladle furnace" No 556/2, 22.05.2007

/6/ EIA TC.194-OVOS.PZ on thermal box furnaces No 1, 2 with roll-out bottom

/7/ Expertise Conclusion No 14-01-6675.05 on project Reconstruction of TC.187 thermal furnaces No 9, 10. Complex Expertise Conclusion No 1111/2, 16.10.2007 on project Reconstruction of TC.187 thermal furnaces No 9, 10. EIA TC.187-OVOS.PZ on thermal vertical furnaces No 9, 10

/8/ Order No 33, 14.02.2007 for registration commission in 2007

/9/ Expertise Conclusion No 14-01-4285.07 on project Reconstruction of TC.197 heating furnace No 8, 9, 10. EIA TC.197-OVOS.PZ on heating furnace No 8, 9, 10 with roll-out bottom

/10/ Expertise Conclusion No 07 B 07 0022 00.00 1156P, 29.08.2007 on project Modernization of press shop

/11/ EIA 92202-ZA.PZ on arc-ladle furnace

/12/ EIA 92202-ZA.PZ on vacuumed steel workshop. EIA press shop.

/13/ The Ukrainian Ministry of Finance Tests the Loan Market .Source: Economic News 18.09.06

/14/ Methodological Recommendation on Evaluation of Investment Projects Efficiency. Approved by Ministry of Economy of the RF, Ministry of Finance of the RF, State Committee of the RF on Construction, Architecture and Housing Policy of the RF 21.06.1999 N BK 477

/15/ Development of suggestions on the improvement of fuel usage in chipping and thermal workshops. By Scientific-engineer center in field.

/16/ Reference on rate of heat and electricity usage, and also time of press working

yc. 15000 т.с. from General Director of Energomashspetsstal, 18.01.2008

/17/ Emission Reductions Calculations and Cash Flow Analysis, excel file

/18/ Letter of endorsement of the JI project "Improvement of the energy efficiency at Energomashspetsstal, Kramatorsk" issued by the Ministry of Environment Protection of Ukraine # 4593/10/3-10 dated 23/04/2007

/19/ Letter of Approval of JI Project "improvement of the Energy efficiency at Energomashspetsstal (EMSS), Kramatorsk, Ukraine" – Ref # 4998

/20/ Approval of Voluntary Participation in a Joint Implementation Project – Ref 2009JI01

Persons interviewed:

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

/1/ Yefimov Maxim Victorovich, General Director of EMSS JSC

/2/ Smirnov Sergey Vladimirovich, Head of metrology unit of EMSS JSC

/3/ Masyuk Aleksander Grigoryevich, Deputy Chief Engineer on labour safety and Environment of EMSS JSC

/4/ Suprun Aleksander Vasilyevich, Head of energy saving service of EMSS JSC

/5/ Chubar Oleg Grigoryevich, Head of environmental protection unit of EMSS JSC

/6/ Valentiy Andrey Dmitriyevich, Head of forge and press shop of EMSS JSC

/7/ Stankov Vitaliy Yuryevich, Head of thermal shop of EMSS JSC

/8/ Dobronos Aleksander Vladimirovich, Head of mechanical and snagging shop of EMSS JSC

/9/ Panchenko Yevgeniy Vladimirovich, Head of arc-furnace shop of EMSS JSC

/10/ Milokhod Vladimir Aleksandrovich, Head of energy shop of EMSS JSC

/11/ Gorkusha Aleksander Petrovich, Deputy Head of arc-furnace shop of EMSS JSC

/12/ Udovichenko Aleksander Nikolayevich, Head of pattern shop of EMSS JSC

/13/ Yesirkenov Yevgeniy, Senior Consultant at Global Carbon

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JI PROJECT DETERMINATION PROTOCOL

Table 1 Mandatory Requirements for Joint Implementation (JI) Projects

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
1. The project shall have the approval of the Parties involved	Kyoto Protocol Article 6.1 (a)	Letters of approval will be issued by the Parties involved upon submission of Determination Report with CARs and CLs clarified except CAR2 and CAR10. Remaining CAR2 and CAR10 were closed after the issuance of the LoA by the Parties involved.	Table 2, Section A.5
2. Emission reductions, or an enhancement of removal by sinks, shall be additional to any that would otherwise occur	Kyoto Protocol Article 6.1 (b)	OK	Table 2, Section B
3. The sponsor Party shall not acquire emission reduction units if it is not in compliance with its obligations under Articles 5 & 7	Kyoto Protocol Article 6.1 (c)	Article 5 requires "…Annex I Parties to having in place, no later than 2007, national systems for the estimation	-

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
		of greenhouse gas emissions by sources and removals by sinks." Article 7 requires "… Annex I Parties to submit annual greenhouse gas inventories, as well as national communications, at regular intervals, both including supplementary information to demonstrate compliance with the Protocol". The Netherlands has submitted its Initial Report on 21 December 2006 (http://unfccc.int/national_reports/initial_reports_under_the_kyoto_protocol/items/3765.php).	
4. The acquisition of emission reduction units shall be supplemental to domestic actions for the purpose of meeting commitments under Article 3	Kyoto Protocol Article 6.1 (d)	OK	-
5. Parties participating in JI shall designate national focal points for approving JI projects and have in place national guidelines and procedures for the approval of JI projects	Marrakech Accords, JI Modalities, §20	Both countries have designated their Focal Points. National guidelines and procedures for approving JI projects have been published. Contact data in Ukraine:. **Ministry of Environmental**	-

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
		Protection 35 Urytsky Str., Kyiv, P.O. 03035 Phone: +380 44 206 3100 Fax: +380 44 206 3107 Email: secr@menr.gov.ua National guidelines and procedures for the approval of JI projects are available (www.menr.gov.ua) Contact data in the Netherlands: T **Ministry of Economic Affairs** Catharijnesingel 59 P.O. Box 8242 3503 RE Utrecht Netherlands Phone: +31 30 239 3413 Email: d.de.haan@senternovem.nl National guidelines and procedures for the approving JI projects are available (http://ji.unfccc.int/UserManagement/FileStorage/XQ0CYFTBQDSELQJSZUKHKRMANMD6QD	
6. The host Party shall be a Party to the Kyoto Protocol	Marrakech Accords, JI Modalities,	The Ukraine is a Party (Annex I Party) to the Kyoto Protocol and has ratified the	-

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
	§21(a)/24	Kyoto Protocol at April 12th, 2004.	
7. The host Party's assigned amount shall have been calculated and recorded in accordance with the modalities for the accounting of assigned amounts	Marrakech Accords, JI Modalities, §21(b)/24	In the Initial Report submitted by Ukraine on 29. Dec. 2006 the AAUs are quantified with: 925 362 174.39 (x 5) = 4 626 810 872 tCO2-e tCO2-e.	-
8. The host Party shall have in place a national registry in accordance with Article 7, paragraph 4	Marrakech Accords, JI Modalities, §21(d)/24	The designed system of the national registry has been described in the Initial Report mentioned above	-
9. Project participants shall submit to the independent entity a project design document that contains all information needed for the determination	Marrakech Accords, JI Modalities, §31	OK	-
10. The project design document shall be made publicly available and Parties, stakeholders and UNFCCC accredited observers shall be invited to, within 30 days, provide comments	Marrakech Accords, JI Modalities, §32	The PDD has been made public available via UNFCCC website from December 15th 2007 to January 13th 2008.	
11. Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, in accordance with procedures as determined by the host Party shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host	Marrakech Accords, JI Modalities, §33(d)	OK	Table 2, Section F

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
Party shall be carried out			
12. The baseline for a JI project shall be the scenario that reasonably represents the GHG emissions or removal by sources that would occur in absence of the proposed project	Marrakech Accords, JI Modalities, Appendix B	OK	Table 2, Section B
13. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances	Marrakech Accords, JI Modalities, Appendix B	OK	Table 2, Section B
14. The baseline methodology shall exclude to earn ERUs for decreases in activity levels outside the project activity or due to force majeure	Marrakech Accords, JI Modalities, Appendix B	OK	Table 2, Section B
15. The project shall have an appropriate monitoring plan	Marrakech Accords, JI Modalities, §33(c)	OK	Table 2, Section D
16. A project participant may be: (a) A Party involved in the JI project; or (b) A legal entity authorized by a Party involved to participate in the JI project.	Glossary of Joint Implementation Terms, Version 01	Refer to CAR2.	Table 2, Section A

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A. General Description of the project					
A.1 Title of the project					
A.1.1. Is the title of the project activity presented?		DR	Improvement of the Energy efficiency at Energomashspetsstal (EMSS), Kramatorsk - Ukraine	OK	OK
A.1.2. Is the current version number of the document presented?		DR	version 2.2	OK	OK
A.1.3. Is the date when the document was completed presented?		DR	29 October 2007	OK	OK
A.2. Description of the project					
A.2.1. Is the purpose of the project activity included?		DR	With the planned modernization at the plant, EMSS wants to increase its production level and quality of steel forms to expand export. The project activity consists of the improvement of the energy efficiency at the premise of EMSS by the implementation of seven subprojects Not clearly specified the purpose of the project.	CL1	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A.2.2. Is it explained how the proposed project activity reduces greenhouse gas emissions?		DR	The way of greenhouse gas emissions reductions is explained for every subproject, but not very clear. Subroject 4 does not consider how purchased CaO is produced because of possible CO2 emission at this stage	CL2	OK
A.3. Project participants					
A.3.1. Are project participants, Party (ies) involved in the project listed?		DR	Ukraine (Host party) - Open Joint Stock Company "Energomashspetsstal" (EMSS) Netherlands - Global Carbon BV Please clarify who the project developer is.	CL3	OK
A.3.2. The data of the project participants are presented in tabular format?		DR	See section A.3. of the PDD	OK	OK
A.3.3. Is contact information provided in annex 1 of the PDD?		DR	See Annex 1 of the PDD	OK	OK
A.3.4. Is it indicated, if it is the case, if the Party involved is a host Party?		DR	Ukraine (Host party)	OK	OK
A.4. Technical description of the project					
A.4.1. Location of the project activity					
A.4.1.1. Host Party(ies)		DR	Ukraine.	OK	OK
A.4.1.2. Region/State/Province etc.		DR	Donetsk region	OK	OK
A.4.1.3. City/Town/Community etc.		DR	City of Kramatorsk	OK	OK
A.4.1.4. Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page).		DR	See section A 4.1.4. of PDD	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A.4.2. Technology(ies) to be employed, or measures, operations or actions to be implemented by the project					
A.4.2.1. Does the project design engineering reflect current good practices?		DR	Please, clarify how the project designation reflects the current practice.	CL4	OK
A.4.2.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?		DR	For Subprojects 2, 5, 7 is not clear the following: 1. Reconstruction of thermal and heating furnaces: • New impulse burners • New thermal insulation • New automated system to control furnaces, Not clear if it is novel, 2. New vacuum system, description contains a repeated sentence before and after table A.4.2.3 3. New slag making technology, no consideration for CO2 emissions during CaO production at supplier. Not clear if it is novel, 4. Replacing the old centralized heating system by a new one multiple small heating systems for the working places, which will use natural gas and biomass like energy sources. New technology for Ukraine, but commonly used	CAR1	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			in the Western countries. Not clear if it is novel for Ukraine.		
A.4.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?		DR	Please, clarify if the project technology is likely to be substituted by other or more efficient technologies within the project period.	CL5	OK
A.4.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?		DR	Please, clarify if the project requires extensive initial training and maintenance efforts in order to work as presumed during the project period.	CL6	OK
A.4.2.5. Does the project make provisions for meeting training and maintenance needs?		DR	Please, clarify if there are provisions made for meeting training and maintenance needs.	CL7	OK
A.4.3. Brief explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project, including why the emission reductions would not occur in the absence of the proposed project, taking into account national and/or sectoral policies and circumstances					
A.4.3.1. Is it stated how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page)		DR	See item A.4.3. The CO2 emissions are reduced by lowering the specific energy consumption at EMSS. As a result the combustion of fossil fuels is reduced leading to less CO2 emission. The energy consumption is reduced through lower natural gas, coal and electricity consumption.	OK	OK
A.4.3.2. Is it provided the estimation of emission		DR	Total estimated emission reductions	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
reductions over the crediting period?			over the period - 1,077,930 tCO_2e		
A.4.3.3. Is it provided the estimated annual reduction for the chosen credit period in tCO_2e?		DR	Annual average of estimated emission reductions - 215,586 tCO_2e	OK	OK
A.4.3.4. Are the data from questions A.4.3.2 to A.4.3.4 above presented in tabular format?		DR	See section A 4.3.	OK	OK
A.5. Project approval by the Parties involved					
A.5.1. Are written project approvals by the Parties involved attached?		DR	A Letter of Endorsement for the proposed project was issued in April 2007. There is no evidence of written project approvals by the Parties involved.	CAR2	OK
B. Baseline					
B.1. Description and justification of the baseline chosen					
B.1.1. Is the chosen baseline described?		DR	There is no approved methodology with the CDM that would apply to the proposed JI project. The approach for establishing the baseline includes the identification of alternative scenarios, a compliance check with mandatory laws and regulations and barriers facing particular projects. Please clarify statement on usage of methodology ACM0009 to determine the baseline of the project proposed mentioned in B3 section.	CL8	OK
B.1.2. Is it justified the choice of the applicable baseline for the project category?		DR	The choice of the applicable baseline for the project is not justified as the PDD is not determined yet.	CAR3	OK
B.1.3. Is it described how the methodology is		DR	As a result of the barrier analysis only the continuation of the existing situation	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
applied in the context of the project?			remains as an alternative scenario and hence constitutes the baseline scenario.		
B.1.4. Are the basic assumptions of the baseline methodology in the context of the project activity presented (See Annex 2)?		DR	Assumptions concern constant product output at alternative scenarios for each subproject. For the carbon emission factor estimation the following assumptions from ACM0002 will be applied: 1) The grid must constitute of all the power plants connected to the grid. This assumption has been met as all power plants have been considered; 2) There should be no significant electricity imports. This assumption has been met in Ukraine as Ukraine is a net exporting country as shown in the document; 3) Electricity exports are not accounted separately and are not excluded from the calculations.	OK	OK
B.1.5. Is all literature and sources clearly referenced?		DR	All literature and sources are clearly referenced (for consumption of natural gas, heat and electricity by the equipment, carbon emission factor for Ukrainian grid, basis economic data etc.).	OK	OK
B.2. Description of how the anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the JI project					
B.2.1. Is the proposed project activity additional?		DR	The investment barrier was analyzed on the basis of EBRD analysis of credit	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			situation in metallurgical sector of Ukraine, which was presented in the article “EBRD and Economist Intelligence Unit”, issue 26 November 2005., article can be found on the EBRD website www.**ebrd**.com. The technological barrier was validated due to the analysis of equipment which was installed. Clear evidence that new installed equipment is the “best available technology” were performed on the basis of SD 4,6,7,9,11,13 on equipment installed and analysis of modernization with such equipment of metallurgical sector in Ukraine. In addition the source for such analysis were overview of installed equipment on various metallurgical plants such as Alchevsk Steel Mill, www.amk.lg.ua/ru/, Azovstal Steel Mill www.azovstal.metinvestholding.com/ru/, Krivorigstal Steel Mill http://www.arcelormittal.com.ua/. The analysis of the financing modernization of equipment by international financial institutions was performed on the basis of overview EBRD and World Bank financing in this field, it can be find on the websites of these financial institutions		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			www.**ebrd**.com and www.**worldbank**.org. Clear evidence of the benchmark used were performed by Project Developer in Supporting Document 18, and 19 considering description of issuing state bonds in order to cover state debt and methodology used for evaluation of investment project efficiency. The fact that project is not a common practice was validated due to the analysis of equipment which was installed. Clear evidence that new installed equipment is the "best available technology" were performed on the basis of Supporting Documents 4,6,7,9,11,13 on equipment installed and analysis of modernization with such equipment of metallurgical sector in Ukraine. In addition the source for such analysis were overview of installed equipment on various metallurgical plants such as Alchevsk Steel Mill, www.amk.lg.ua/ru/, Azovstal Steel Mill www.azovstal.metinvestholding.com/ru/, Krivorigstal Steel Mill http://www.arcelormittal.com.ua/. The proposed JI project is not common practice.		

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			The project is additional to what would have occurred otherwise. See p. B.2 and EMSS cash flow ver. 2.0 31.08.07 – excel file		
B.2.2. Is the baseline scenario described?		DR	Continuation of the existing situation is the baseline scenario for the proposed JI project. See p. B.1	OK	OK
B.2.3. Is the project scenario described?		DR	There is no evidence of a description of the project scenario.	CAR4	OK
B.2.4. Is an analysis showing why the emissions in the baseline scenario would likely exceed the emissions in the project scenario included?		DR	There are no evidences of an analysis showing why the emissions in the baseline scenario would likely exceed the emissions in the project scenario.	CAR5	OK
B.2.5. Is it demonstrated that the project activity itself is not a likely baseline scenario?		DR	Refer to B.1	-	-
B.2.6. Are national policies and circumstances relevant to the baseline of the proposed project activity summarized?		DR	Price fluctuations for coal, natural gas, electricity, costs of steel production are considered in sensitivity analysis in order to calculate IRR and payback period.	OK	OK
B.3. Description of how the definition of the project boundary is applied to the project activity					
B.3.1. Are the project's spatial (geographical) boundaries clearly defined?		DR	The project boundary includes: • Emissions that are related to the direct fuel combustion on the premise of EMSS; • Indirect GHG emissions on the premise of DHC Kramatorsk as result of heat consumption;	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			• Indirect GHG emission in the Ukrainian grid as a result of electricity consumption.		
B.4. Further baseline information, including the date of baseline setting and the name(s) of the person(s)/entity(ies) setting the baseline					
B.4.1. Is the date of the baseline setting presented (in DD/MM/YYYY)?		DR	Date of completion of the baseline study: 1 September 2007	OK	OK
B.4.2. Is the contact information provided?		DR	See item B.4 of PDD.	OK	OK
B.4.3. Is the person/entity also a project participant listed in annex 1 of PDD?		DR	See Annex 1 of PDD.	OK	OK
C. Duration of the project activity and crediting period					
C.1. Starting date of the project					
C.1.1. Is the project's starting date clearly defined?		DR	1 January 2008. But each subproject has its own starting date.	OK	OK
C.2. Expected operational lifetime of the project					
C.2.1. Is the project's operational lifetime clearly defined in years and months?		DR	For all proposed measures the lifetime of equipment will be at least 20 years. There is not defined the operational lifetime of project in months.	CL9	OK
C.3. Length of the crediting period					
C.3.1. Is the length of the crediting period specified in years and months?		DR	For the period 1 January 2008 till 31 December 2012 credits will be transferred through Article 6 of the Kyoto Protocol (JI). There is not defined the length of crediting period in years and months.	CL10	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D. Monitoring Plan					
D.1. Description of monitoring plan chosen					
D.1.1. Is the monitoring plan defined?		DR	It is clearly stated what data are to be collected in order to monitor project emissions, baseline emissions and emissions reductions. See item D.1. Emissions reductions factor are justified by Global Carbon BV Study with EBRD and Netherlands' Ministry of Economic Affairs support.	OK	OK
D.1.2. Option 1 - Monitoring of the emissions in the project scenario and the baseline scenario.		DR	Refer to item D.1.1.	-	-
D.1.3. Data to be collected in order to monitor emissions from the project, and how these data will be archived.		DR	Refer to item D.1.1.	-	-
D.1.4. Description of the formulae used to estimate project emissions (for each gas, source etc,; emissions in units of CO2 equivalent).		DR	Refer to item D.1.1.	-	-
D.1.5. Relevant data necessary for determining the baseline of anthropogenic emissions of greenhouse gases by sources within the project boundary, and how such data will be collected and archived.		DR	Refer to item D.1.1.	-	-
D.1.6. Description of the formulae used to estimate baseline emissions (for each gas, source etc,; emissions in units of CO2 equivalent).		DR	Refer to item D.1.1.	-	-
D.1.7. Option 2 – Direct monitoring of emissions reductions from the project (values should be consistent with those in section E)		DR	Not applicable.	-	-

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.1.8. Data to be collected in order to monitor emission reductions from the project, and how these data will be archived.		DR	Refer to item D.1.7.	-	-
D.1.9. Description of the formulae used to calculate emission reductions from the project (for each gas, source etc,; emissions/emission reductions in units of CO2 equivalent).		DR	Refer to item D.1.7.	-	-
D.1.10. If applicable, please describe the data and information that will be collected in order to monitor leakage effects of the project.		DR	Refer to item D.1.3.	-	-
D.1.11. Description of the formulae used to estimate leakage (for each gas, source etc.; emissions in units of CO2 equivalent).		DR	Not applicable. See item D 1.3.2 of PDD.	OK	OK
D.1.12. Description of the formulae used to estimate emission reductions for the project (for each gas, source etc.; emissions in units of CO2 equivalent).		DR	Refer to item D.1.4.	-	-
D.1.13. Is information on the collection and archiving of information on the environmental impacts of the project provided?		DR	Not applicable. There is no information related to the environmental impacts of this project which will especially be collected. Refer to item D.1.5 of PDD.	OK	OK
D.1.14. Is reference to the relevant host Party regulation(s) provided?		DR	There is no information in this section concerning relevant host Party regulations.	CAR6	OK
D.1.15. If not applicable, is it stated so?		DR	Not applicable. Refer to item D.1.5 of PDD.	OK	OK
D.2. Qualitative control (QC) and quality assurance (QA) procedures undertaken for data monitored					

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
D.2.1. Are there quality control and quality assurance procedures to be used in the monitoring of the measured data established?		DR	See table D.2 of the PDD. QMS is certified by TUV to ISO 9001. The QMS procedures for control of the measuring equipment are in place. During site visit following deficiencies were observed: **Furnace No 2.** Furnace is equipped with a vortical converter (measurement signal of gas flow is transferred to monitor). There is a stamp indicating calibration in 3rd quarter of 2006. The calibration is envisaged once per 3 years. Vortical calculator of gas flow "Irvis K 300" is used. Comment: no evidence of vortical calculator verification. **Mini boiler-house (workshop of machining process).** Meter of electricity consumption No. 070125 is marked with a stamp of calibration in 2006. Readings of indication are performed every morning and data are told to energy service by telephone to introduce into computer. Verification of recorded figures to meter indication is performed monthly. Comment: written procedure is not in place. **Vacuum degasser BOC EDWARDS.** Device is a state of art. Meter 380B is active. Calibration stamp indicates 1st quarter of 2006. Passport of meter is	CAR7	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			located at the workshop. Readings are performed monthly and compared with another additional meter. Comment: data are not kept. **Arc leadle furnace.** Comment: Gas meter is not present.		
D.3. Please describe of the operational and management structure that the project operator will apply in implementing the monitoring plan					
D.3.1. Is it described briefly the operational and management structure that the project participants(s) will implement in order to monitor emission reduction and any leakage effects generated by the project activity?		DR	The actions are the responsibility of the operational and controlling staff. As for personnel who will work with equipment, **Training** is planned, as defined in contract with sub-contractor: • debugging • assembling • running trials	OK	OK
D.4. Name of person(s)/entity(ies) establishing the monitoring plan					
D.4.1. Is the contact information provided?		DR	Lennard de Klerk Phone: +31 70 3142456 Fax: +31 70 8910791 E-mail: deklerk@global-carbon.com	OK	OK
D.4.2. Is the person/entity also a project participant listed in Annex 1 of PDD?		DR	Yes	OK	OK
E. Estimation of greenhouse gases emission reductions					
E.1.Estimated project emissions					
E.1.1. Are described the formulae used to estimate		DR	Refer to item D.1.1 of PDD. In section	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
anthropogenic emissions by source of GHGs due the project?			E.1. there are estimated emissions reductions provided. There are no calculations in this section.		
E.1.2. Is there a description of calculation of GHG project emissions in accordance with the formula specified in for the applicable project category?		DR	Not applicable.	-	-
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?		DR	Not applicable.	-	-
E.2.Estimated leakage					
E.2.1. Are described the formulae used to estimate leakage due to the project activity where required?		DR	Not applicable.	-	-
E.2.2. Is there a description of calculation of leakage in accordance with the formula specified in for the applicable project category?		DR	Not applicable.	-	-
E.2.3. Have conservative assumptions been used to calculate leakage?		DR	Not applicable.	-	-
E.3.The sum of E.1 and E.2					
E.3.1. Does the sum of E.1. and E.2. represent the small-scale project activity emissions?		DR	It is large scale project.	OK	OK
E.4.Estimated baseline emissions					
E.4.1. Are described the formulae used to estimate the anthropogenic emissions by source of GHGs in the baseline using the baseline methodology for the applicable project category?		DR	Refer to D.1.1. of PDD. In section E.4. there are estimated emissions reductions provided. There are no calculations in this section.	OK	OK
E.4.2. Is there a description of calculation of GHG baseline emissions in accordance with the		DR	Not applicable.	-	-

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
formula specified in for the applicable project category?					
E.4.3. Have conservative assumptions been used to calculate baseline GHG emissions?		DR	Refer to the item B.3. of PDD.	OK	OK
E.5. Difference between E.4. and E.3. representing the emission reductions of the project					
E.5.1. Does the difference between E.4. and E.3. represent the emission reductions due to the project during a given period?		DR	Difference between E.4. and E.3. represent the emission reductions due to the project during a given period.	OK	OK
E.6. Table providing values obtained when applying formulae above					
E.6.1. Is there a table providing values of total CO_2 abated?		DR	Table presented in section E.6 of the PDD	OK	OK
F. Environmental Impacts					
F.1. Documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party					
F.1.1. Has an analysis of the environmental impacts of the project been sufficiently described?		DR	Partly the analyses of environmental impacts are reflected in Conclusions (permissions) issued by the State Sanitary-Epidemiological Expertise of the subprojects SP1, SP3, and SP5. These letters are in Russian and the PDD does not provide any summary on them (see point F.1 of PDD). Analyses documents (EIA) are only mentioned as inputs in Conclusions, but description of EIA is not provided within	CAR8	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			PDD. But there is no any approval or conclusion concerning SP2.		
F.1.2. Are there any host party requirements for an Environmental Impact Assessment (EIA), and if yes, is and EIA approved?		DR	Host Party requirements are identified (see F.1). EIA is required for SP1, SP2, SP3, and SP5. Approval of EIA is not mentioned in the PDD. Exclusion of EIA for SP4, SP6 and SP7 needs evidence.	CAR9	OK
F.1.3. Are the requirements of the National Focal Point being met?		DR	The National Focal Point issued letter of endorsement. Letter of approval needs to be received (see CAR2).	CAR10	OK
F.1.4. Will the project create any adverse environmental effects?		DR	According to Conclusions confirmed by lead sanitary inspector of Kramatorsk the project does not lead to any visible impact to technogenic environment, water recourses, condition of soils, and atmosphere, if all measures of construction and environmental protection would be performed.	OK	OK
F.1.5. Are transboundary environmental considered in the analysis?		DR	There is no information about transboundary effects.	CL11	OK
F.1.6. Have identified environmental impacts been addressed in the project design?		DR	Checked on site.	OK	OK
G. Stakeholders' comments					
G.1. Information on stakeholders' comments on the project, as appropriate					
G.1.1. Is there a list of stakeholders from whom comments on the project have been received?		DR	No stakeholder consultation is required under JI according to G.1. of PDD. Please clarify with the reference to	CL12	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			UNFCCC documents addressing this.		
G.1.2. The nature of comments is provided?		DR	Not applicable.	-	-
G.1.3. Has due account been taken of any stakeholder comments received?		DR	Not applicable.	-	-

Table 3 Baseline and Monitoring Methodologies: Own format

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1. Baseline Methodology					
1. 1. General					
1.1.1. Does the baseline cover emissions from all gases, sectors and source categories listed in Annex A, and anthropogenic removals by sinks, within the project boundary?		DR I	Section B.3 of the PDD establishes project boundaries. Only CO2 emissions are taken into account by the project.	OK	OK
1.1.2. Is baseline established on a project-specific basis and/or using a multi-project emission factor?		DR I	A multi-project emission factor is used for baseline establishing.	OK	OK
1.1.3 Is baseline established in a transparent manner with regard to the choice of approaches, assumptions, methodologies, parameters, data sources and key factors?		DR I	The baseline is established in a transparent manner. Choice of approach was described, assumptions, methodologies, parameters, data sources are clearly indicated (Sections B.1. and B.2. of the PDD)	OK	OK
1.1.4 Is baseline established taking into account relevant national and/or sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector?		DR	Applicable local laws and regulations are taken into account. Economic situation in the project sector is taken into account (Sections B.1. and B.2. of the PDD)	OK	OK
1.1.5 Is baseline established in such a way that ERUs cannot be earned for decreases in activity levels outside the project activity or due to *force majeure?*		DR I	Baseline does not envisage earning ERUs for activity level decrease outside the project or due to *force majeure.*	OK	OK
1.1.6 Is baseline established taking account of uncertainties and using conservative assumptions?		DR I	Uncertainties and conservative assumptions are taken into account (Section B of the PDD)	OK	OK
1.2. Additionality					
1.2.1. Was the additionality of the project activity demonstrated and assessed?		DR	Project is additional on the basis of justification and assessment.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
2. Monitoring Methodology					
2.1. Monitoring plan					
2.1.1. Is a monitoring plan included?		DRI	Yes, monitoring plan is included.	OK	OK
2.1.2. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimating or measuring anthropogenic emissions by sources and/or anthropogenic removals by sinks of greenhouse gases occurring within the project boundary during the crediting period?		DRI	Monitoring plan provides for the collection and archiving of all relevant data necessary for estimating or measuring anthropogenic emissions by sources of greenhouse gases occurring within the project boundary during the crediting period (see section D.1.1.1. of the PDD).	OK	OK
2.1.3. Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining the baseline of anthropogenic emissions by sources and/or anthropogenic removals by sinks of greenhouse gases within the project boundary during the crediting period?		DRI	Monitoring plan provides for the collection and archiving of all relevant data necessary for determining the baseline of anthropogenic emissions by sources of greenhouse gases within the project boundary during the crediting period (see section D.1.1.3. of the PDD).	OK	OK
2.1.4. Does the monitoring plan provide for the identification of all potential sources of, and the collection and archiving of data on increased anthropogenic emissions by sources and/or reduced anthropogenic removals by sinks of greenhouse gases outside the project boundary that are significant and reasonably attributable to the project during the crediting period?		DR	Increase of anthropogenic emissions outside the project boundary that are significant and reasonably attributable to the project during the crediting period is not anticipated.	OK	OK
2.1.5. Does the project boundary encompass all anthropogenic emissions by sources and/or removals by sinks of greenhouse gases under the control of the project participants that are significant and reasonably attributable to the JI project?		DR	Significant anthropogenic emissions by sources and/or removals by sinks of greenhouse gases under the control of the project participants are not envisaged by the project. Validated onsite.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
2.1.6. Does the monitoring plan provide for the collection and archiving of information on environmental impacts, in accordance with procedures as required by the host Party, where applicable?		DR	No adverse environmental impacts are foreseen. Validated onsite.	OK	OK
2.1.7. Does the monitoring plan provide for quality assurance and control procedures for the monitoring process?		DR	Quality assurance is planned , see section D.2. of the PDD, that was validated onsite.	OK	OK
2.1.8. Does the monitoring plan provide for procedures for the periodic calculation of the reductions of anthropogenic emissions by sources and/or enhancements of anthropogenic removals by sinks by the proposed JI project, and for leakage effects, if any?		DR I	The monitoring plan provides formulae for the periodic calculation of the reductions of anthropogenic emissions (see section D.1.1.2.). Leakage is not applicable.	OK	OK
2.1.9. Does the monitoring plan provide for documentation of all steps involved in the calculations?		DR I	The monitoring plan provide for documentation of all steps involved in the calculations. See table	OK	OK
2.2. Quality Control (QC) and Quality Assurance (QA) Procedures					
2.2.1. Did all measurements use calibrated measurement equipment that is regularly checked for its functioning?		DR I	Control of the measuring equipment is implemented and followed, that was validated onsite.	OK	OK
2.2.2 Is frequency of monitoring the parameters defined?		DR I	Frequency of monitoring the parameters is defined.	OK	OK

Table 4 Legal requirements

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1. Legal requirements					
1.1. Is the project activity environmentally licensed by the competent authority?		DR, I	Project activity is permitted by : SP1 Conclusion No.98 of 05.06.2006 to approve T.C187 Design Documentation on Reconstruction of the Thermal Vertical Furnaces No.9 and 10 issued by the State Sanitary-Epidemiological Expertise of Kramatorsk , valid 4 years. Conclusion No.3 of 26.12.2006 to approve TC.194 Design Documentation on Reconstruction of the Thermal Vertical Furnaces No.9 and 10 issued by the State Sanitary-Epidemiological Expertise of Kramatorsk , valid 4 years. Permissions available do not cover all furnaces mentioned in the table A.4.2.1. SP2 not available. SP3 Conclusion No.226 of 25.06.2007 to approve Design Documentation on Electric Steel Melting Shop Installation for Steel Vacuuming issued by the State Sanitary-Epidemiological Expertise of Kramatorsk, valid 4 years. SP5 Conclusion No.644/03.3 of 28.04.2007	CAR11	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			to approve Design Documentation on Reconstruction of the Installation RH arc ladle furnace issued by the State Sanitary-Epidemiological Expertise of Donetsk, validity not indicated. Exceptions of permissions for SP 3, SP 4, SP6 and SP7 are not justified.		
1.2. Are there conditions of the environmental permit? In case of yes, are they already being met?		DR, I	Evidences of environmental permit were presented only for some SPs, see CAR 11.	OK	OK
1.3. Is the project in line with relevant legislation and plans in the host country?		DR, I	Yes, the project is in line with legislation of the host Party. In accordance with Ukrainian legislation, EMSS has consulted the regional authority to obtain the necessary approvals for construction of the individual subprojects (see point F.1. of PDD).	OK	OK

Table 5 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
Corrective Action Request 1 (CAR1): For Subprojects 2, 5, 7 is not clear the following: 1. Reconstruction of thermal and heating furnaces: • New impulse burners • New thermal insulation • New automated system to control furnaces, Not clear if it is novel, 2. New vacuum system, description contains a repeated sentence before and after table A.4.2.3 2. New slag making technology, no consideration for CO2 emissions during CaO production at supplier. Not clear if it is novel, 3. Replacing the old centralized heating system by a new one multiple small heating systems for the working places, which will use natural gas and biomass like	Table 2, checklist question A.4.2.2.	Corrected. Please, see supporting documents SD24-SD30.	1. SP 2 was removed from PDD. Still no documental evidences about novelty of New impulse burners, New thermal insulation, New automated system to control furnaces. (reference or anything else) PDD section A.4.2. was corrected. Supporting documents were analysed, list of documents is attached. 2. One sentence was deleted. 3. SP concerning CaO was removed from PDD. 4. This SP was removed from PDD.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
energy sources. New technology for Ukraine, but commonly used in the Western countries. Not clear if it is novel for Ukraine.			IUS: closed.
Corrective Action Request 2 (CAR2): A Letter of Endorsement for the proposed project was issued in April 2007. There is no evidence of written project approvals by the Parties involved.	Table 2, checklist question A.5.1.	The Letter of approval from Ukrainian government will be received after determination report will be accepted by the .	Letters of approval/authorization from The National Environmental Investment Agency of Ukraine and from Senter Novem were presented, evaluated by the Determination Team and this CAR was closed. IUS: Closed.
Corrective Action Request 3 (CAR3): The choice of the applicable baseline for the project is not justified as the PDD is not determined yet.	Table 2, checklist question B.1.2.	Baseline was established on a project-specific basis, as it is permitted in the Guidance on Criteria for Baseline Setting and Monitoring approved by JISC (Version 01) – http://ji.unfccc.int/Ref/Documents/Baseline_setting_and_monitoring.pdf.	The choice of baseline is justified taking into account approach, assumptions, data sources and factors that are clear and transparent, consistency with national regulations and requirements, barrier analysis, discussion of uncertainties and use of conservative assumptions. IUS: Closed
Corrective Action Request 4 (CAR4): There is no evidence of a description of	Table 2, checklist	Corrected. Please refer to the section A.4.2.	PDD version 3.3 was checked Description was amended.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
the project scenario.	question B.2.3.		IUS: Closed
Corrective Action Request 5 (CAR5): There are no evidences of an analysis showing why the emissions in the baseline scenario would likely exceed the emissions in the project scenario.	Table 2, checklist question B.2.4.	Corrected. Please refer to the section A.4.3.	PDD version 3.3 was checked IUS: Closed
Corrective Action Request 6 (CAR6): There is no information in this section concerning relevant host Party regulations.	Table 2, checklist question D.1.14.	Corrected. Please refer to the next to last paragraph of the section D.1. "The monitoring process should meet the requirements of the Law of Ukraine on metrology and metrological activities 113/98 – VR."	PDD version 3.3 was checked IUS: Closed
Corrective Action Request (CAR7): See table D.2 of the PDD. QMS is certified by TUV to ISO 9001. The QMS procedures for control of the measuring equipment are in place. During site visit following deficiencies were observed: **Furnace No 2.** Furnace is equipped with a vortical converter (measurement signal of gas flow is transferred to monitor). There is a stamp indicating calibration in 3rd quarter of 2006. The calibration is	Table 2, checklist question D 2.1	Corrected. The vortical calculator of gas flow “Irvis K 300” was verified – please, see supporting document SD31.	OK

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
envisaged once per 3 years. Vortical calculator of gas flow “Irvis K 300” is used. Comment: no evidence of vortical calculator verification. **Mini boiler-house (workshop of machining process).** Meter of electricity consumption No. 070125 is marked with a stamp of calibration in 2006. Readings of indication are performed every morning and data are told to energy service by telephone to introduce into computer. Verification of recorded figures to meter indication is performed monthly. Comment: written procedure is not in place. **Vacuum degasser BOC EDWARDS.** Device is a state of art. Meter 380B is active. Calibration stamp indicates 1st quarter of 2006. Passport of meter is located at the workshop. Readings are performed monthly and compared with another additional meter. Comment: data are not kept.		The subproject that includes mini boiler-house was deleted from last version of PDD. Starting from 01.01.2008 data are kept electronically and in paper from. Please, see data on electricity consumption of vacuumator for the last three month - supporting document SD32.	OK OK IUS: Closed

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
<u>Corrective Action Request 8 (CAR8):</u> Partly the analyses of environmental impacts are reflected in Conclusions (permissions) issued by the State Sanitary-Epidemiological Expertise of the subprojects SP1, SP2, and SP3. These letters are in Russian and the PDD does not provide any summary on them (see point F.1 of PDD). Analyses documents (EIA) are only mentioned as inputs in Conclusions, but description of EIA is not provided within PDD.	Table 2, checklist question F.1.1.	Corrected. Please refer to the section F.1. Copies of EIAs on each subproject are provided (see the following supporting documents - SD 4-7, 9,10,12,13).	PDD is OK Supported Documents are the following: **SP1:** - EIA TC.194-OVOS.PZ on **thermal box furnaces No 1, 2 with roll-out bottom** - Expertise Conclusion No 14-01-6675.05 on project **Reconstruction of TC.187 thermal furnaces No 9, 10** - Complex Expertise Conclusion No 1111/2, 16.10.2007 on project **Reconstruction of TC.187 thermal furnaces No 9, 10** - EIA TC.187-OVOS.PZ on **thermal vertical furnaces No 9, 10** - Expertise Conclusion No 14-01-4285.07 on project **Reconstruction of TC.197 heating furnace No 8, 9, 10** - EIA TC.197-OVOS.PZ on **heating furnace No 8, 9, 10 with roll-out bottom** **SP2:**

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
			- Complex Expertise Conclusion on project **Reconstruction of vacuumed steel workshop** No 1490/2, 21.09.2007 - EIA 92214-ZA.PZ on **vacuumed steel workshop** **SP3:** - Complex Expertise Conclusion on project **Reconstruction of RH-plant to the complex of out-of-furnace steel treatment "arc ladle furnace"** No 556/2, 22.05.2007 - EIA 92202-ZA.PZ on arc-ladle **furnace** **SP4:** - Expertise Conclusion No 07 B 07 0022 00.00 1156P, 29.08.2007 on project **Modernization of press shop** - EIA **press shop.** IUS: Closed

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
Corrective Action Request 9 (CAR9): Host Party requirements are identified (see F.1). EIA is required for SP1, SP2, SP3. Approval of EIA is not mentioned in the PDD. Exclusion of EIA for SP4 needs evidence.	Table 2, checklist question F.1.2.	Corrected. Please refer to the section F.1.	See comments for CAR8. EIA for SP4 was not excluded, however onsite it was established that pumping equipment does not produce harmful emissions. IUS: Closed
Corrective Action Request 10 (CAR10): The National Focal Point issued letter of endorsement. Letter of approval need to be received (see CAR2).	Table 2, checklist question F.1.3.	The Letter of approval from Ukrainian government will be received after positive determination of the project. By providing this letter, the National Focal Point will confirm that its requirements on environmental impacts were met by project.	Will be closed after report finalizing.
Corrective Action Request 11 (CAR11): Project activity is permitted by : SP1 Conclusion No.98 of 05.06.2006 to approve T.C187 Design Documentation on Reconstruction of the Thermal Vertical Furnaces No.9 and 10 issued by the State Sanitary-Epidemiological Expertise of Kramatorsk , valid 4 years. Conclusion No.3 of 26.12.2006 to approve TC.194 Design Documentation on Reconstruction of the Thermal Vertical	Table 4, checklist question 1.1.	Corrected. Copies of permissions from state bodies on each subproject are provided (see the following supporting documents - SD 4-7, 9,10,12,13).	Subprojects 2, 4, and 6 were removed from PDD. Permissions for others were presented. See comments for CAR8. Supporting documents were analysed, list of documents is attached. IUS: closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
Furnaces No.9 and 10 issued by the State Sanitary-Epidemiological Expertise of Kramatorsk , valid 4 years. Permissions available do not cover all furnaces mentioned in the table A.4.2.1. SP2 not available. SP3 Conclusion No.226 of 25.06.2007 to approve Design Documentation on Electric Steel Melting Shop. Installation for Steel Vacuuming issued by the State Sanitary-Epidemiological Expertise of Kramatorsk, valid 4 years. SP5 Conclusion No.644/03.3 of 28.04.2007 to approve Design Documentation on Reconstruction of the Installation RH arc ladle furnace issued by the State Sanitary-Epidemiological Expertise of Donetsk, validity not indicated. Exceptions of permissions for SP 3, SP 4, SP6 and SP7 are not justified.			
Clarification Request 1 (CL1): With the planned modernization at the plant, EMSS wants to increase its	Table 2, checklist question	Clarified. Please refer to paragraph 5 of the section A.2. "With the planned modernization at the	PDD version 3.3 was checked IUS: Closed

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
production level and quality of steel forms to expand export. The project activity consists of the improvement of the energy efficiency at the premise of EMSS by the implementation of seven subprojects Not clearly specified the purpose of the project.	A.2.1.	plant, EMSS aims to increase energy efficiency of its production and quality of steel forms to expand export."	
Clarification Request 2 (CL2): The way of greenhouse gas emissions reductions is explained for every subproject, but not very clear. Subroject 4 does not consider how purchased CaO is produced because of possible CO2 emission at this stage	Table 2, checklist question A.2.2.	Explained. Please refer to the section A.4.3. Subproject on CaO is dropped.	PDD version 3.3 was checked Subproject was removed from PDD. IUS: Closed
Clarification Request 3 (CL3): Ukraine (Host party) - Open Joint Stock Company “Energomashspetsstal” (EMSS) Netherlands - Global Carbon BV Please clarify who the project developer is.	Table 2, checklist question A.3.1.	Clarified. Please refer to the section A.3. "Global Carbon BV is developer of this JI project and buyer of emission reductions."	PDD version 3.3 was checked IUS: Closed
Clarification Request 4 (CL4): Please, clarify how the project designation reflects the current practice.	Table 2, checklist question A.4.2.1.	Clarified. Please, see supporting documents SD22-SD30, SD33, SD34..	Supporting documents were analysed/ IUS: closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
Clarification Request 5 (CL5): Please, clarify if the project technology is likely to be substituted by other or more efficient technologies within the project period.	Table 2, checklist question A.4.2.3.	Clarified. Please, see supporting document SD8.	Supporting documents were analysed. IUS: closed.
Clarification Request 6 (CL6): Please, clarify if the project requires extensive initial training and maintenance efforts in order to work as presumed during the project period.	Table 2, checklist question A.4.2.4.	Clarified. Please refer to the last paragraph of the section A.4.2. "For mastering of project technologies by employees of EMSS, suppliers of equipment will train the staff of EMSS how to use the supplied equipment in practice and will support EMSS in use of the equipment during trial period (according to agreed contracts)."	PDD version 3.3 was checked IUS: Closed
Clarification Request 7 (CL7): Please, clarify if there are provisions made for meeting training and maintenance needs.	Table 2, checklist question A.4.2.5.	Clarified. Please refer to the last paragraph of the section A.4.2.	Appendix 5 to the Contract No 22/125-05 Conditions of personnel training on EMSS was presented. IUS: Closed
Clarification Request 8 (CL8): There is no approved methodology with the CDM that would apply to the proposed JI project. The approach for establishing the baseline includes the identification of alternative scenarios, a compliance check with mandatory laws and regulations and barriers facing	Table 2, checklist question B.1.1.	The mentioning of ACM0009 methodology was deleted.	PDD version 3.3 was checked IUS: closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
particular projects. Please clarify statement on usage of methodology ACM0009 to determine the baseline of the project proposed mentioned in B3 section.			
Clarification Request 9 (CL9): For all proposed measures the lifetime of equipment will be at least 20 years. There is not defined the operational lifetime of project in months.	Table 2, checklist question C.2.1.	Clarified. Please refer to the section C.2.	PDD version 3.3 was checked IUS: Closed
Clarification Request 10 (CL10): For the period 1 January 2008 till 31 December 2012 credits will be transferred through Article 6 of the Kyoto Protocol (JI). There is not defined the length of crediting period in years and months.	Table 2, checklist question C.3.1.	Clarified. Please refer to the section C.3.	PDD version 3.3 was checked IUS: Closed
Clarification Request 11 (CL11): There is no information about transboundary effects.	Table 2, checklist question F.1.5.	Clarified. Please refer to the section F.1. Copies of EIAs on each subproject including information about transboundary effects are provided (see the following supporting documents - SD 4-7, 9,10,12,13).	Evidences are presented. See comments for CAR8. IUS: Closed
Clarification Request 12 (CL12): No stakeholder consultation is required under JI according to G.1. of PDD. Please clarify with the reference to	Table 2, checklist question G.1.1.	Clarified. Please refer to the section G.1.	IUS: Closed

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
UNFCCC documents addressing this.			

Appendix B: Verifiers' CVs

Flavio Gomes
Lead Verifier
Flavio Gomes is a Chemical and Safety Engineer graduated from «UNICAMP – Universidade Estadual de Campinas», with a MSc title in Civil Engineer (Sanitation). He spent four years at RIPASA Pulp and Paper as Environmental Process Engineer. He is, since 2006 the Global Manager for Climate Change. Previously and since 1997, he was senior consultant for Bureau Veritas Consulting in fields of Environment, Health, Safety, Social Accountability and Sustainability audit and management systems. He also acted as Clean Development Mechanism verifier, and Social/Environmental Report auditor, in the name of Bureau Veritas Certification. Flavio is pursuing this PhD on Energy Management at the Imperial College – London.

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

Bureau Veritas Ukraine HSE Department manager.

He has over 25 years of experience in Research Institute in the field of biochemistry, biotechnology, and microbiology. He is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered), Quality Management System (IRCA registered), Occupational Health and Safety Management System, and Food Safety Management System. He performed over 130 audits since 1999. Also he is Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and Lead Tutor of the IRCA registered ISO 9000 QMS Lead Auditor Training Course. He has undergone intensive training on Clean Development Mechanism /Joint Implementation and he is involved in the validation of 3 JI projects.

Ashok Mammen
Internal Technical Reviewer
Bureau Veritas Certification.

PhD (Oils & Lubricants), over 20 years of experience in chemical and petrochemical field. Dr. Mammen is a lead auditor for environment, safety and quality management systems and lead verifier for GHG projects. He has been involved in the validation and verification processes of more than 60 CDM and other GHG projects.

Denis Pishchalov

Financial Specialist.

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