DETERMINATION REPORT GLOBAL CARBON BV

DETERMINATION OF THE IMPLEMENTATION OF ENERGY EFFICIENT MEASURES AT "DONETSKSTEEL" – METALLURGICAL PLANT

REPORT NO. UKRAINE-DET/0132/2010

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BUREAU VERITAS CERTIFICATION

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DETERMINATION REPORT

Date of first issue:	Organizational unit:
03/06/2011	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
Global Carbon BV	Lennard de Klerk

Summary:

Bureau Veritas Certification has made the determination of the "Implementation of energy efficient measures at "Donetsksteel" – metallurgical plant" project of Global Carbon BV located in Donetsk, Donetsk region, Ukraine. on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

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

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

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies JI Specific Approach and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

Report No.:	Subject Group:
UKRAINE-det/0132/2010	JI
Project title:	
"Implementation of energy efficient measures at "Donetsksteel" – metallurgical plant"	
Work carried out by:	
Kateryna Zinevych – Team Leader, Lead Verifier Vera Skitina, Team Member, Lead Verifier Olena Manziuk – Team Member, Verifier	
Work reviewed by:	
Ivan Sokolov – Internal Technical Reviewer Igor Alekseenko – technical specialist	
Work approved by:	
Flavio Gomes – Operational Manager	

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Indexing terms

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Table of Contents *Page*

1 INTRODUCTION

Global Carbon BV has commissioned Bureau Veritas Certification to determine its JI project “Implementation of energy efficient measures at "Donetsksteel" – metallurgical plant” (hereafter called “the project”) at Donetsk, Donetsk region, Ukraine.

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

1.1 Objective

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

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

1.2 Scope

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

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

1.3 Determination team

The determination team consists of the following personnel:

Kateryna Zinevych
Bureau Veritas Certification Team Leader, Climate Change Lead Verifier

Vera Skitina
Bureau Veritas Certification, Team Member, Lead Verifier

Olena Manziuk

Team Member, Bureau Veritas Certification Climate Change Verifier

This determination report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification, Internal Technical reviewer

Igor Alekseenko
Bureau Veritas Certification, technical specialist.

2 METHODOLOGY

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

In order to ensure transparency, a determination protocol was customized for the project, according to the version 01 of the Joint Implementation Determination and Verification Manual, issued by the Joint Implementation Supervisory Committee at its 19 meeting on 04/12/2009. The protocol shows, in a transparent manner, criteria (requirements), means of determination and the results from determining the identified criteria. The determination protocol serves the following purposes:

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

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

2.1 Review of Documents

The Project Design Document (PDD) submitted by Global Carbon BV and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for users of the joint implementation project design document form, Approved CDM methodology and/or Guidance on criteria for baseline setting and monitoring, Kyoto Protocol, Clarifications on Determination Requirements to be Checked by an Accredited Independent Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests, Global Carbon BV revised the PDD and resubmitted it on 08/06/2011.

The determination findings presented in this report relate to the project as described in the PDD version(s) 3.2, 3.4 and 3.3.

2.2 Follow-up Interviews

On 15/07/2010 Bureau Veritas Certification performed on-site interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Global Carbon BV and PJSC "Donetsksteel" – Iron and Steel Works" were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
PJSC "Donetsksteel" – Iron and Steel Works"	➢ Project history ➢ Project approach ➢ Project boundary ➢ Implementation schedule ➢ Organizational structure ➢ Responsibilities and authorities ➢ Training of personnel ➢ Quality management procedures and technology ➢ Rehabilitation/Implementation of equipment (records) ➢ Metering equipment control ➢ Metering record keeping system, database ➢ Technical documentation ➢ Monitoring plan and procedures ➢ Permits and licenses ➢ Environmental Impact Assessment ➢ Local stakeholder's response.
LOCAL Stakeholder	➢ Influence of the project implementation on the local community
Global Carbon BV	➢ Baseline methodology. ➢ Monitoring plan. ➢ Investment analysis. ➢ Calculation of emission reduction

2.3 Resolution of Clarification and Corrective Action Requests

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

Corrective Action Request (CAR) is issued, where:

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

(b) The JI requirements have not been met;

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

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

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

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

3 PROJECT DESCRIPTION

PJSC "Donetsksteel" – Iron and Steel Works", further referred to as Donetsksteel is the owner of the emission source where the project is implemented. Donetsksteel is a producer of iron & steel and steel semi-finished products. The plant has several Blast Furnaces for the pig iron production. The technology to produce steel is based on Open Hearth Furnaces.

PJSC "Donetsksteel" – Iron and Steel Works" was established in August of 2002 and was based on blast-furnace and open-hearth shops of Donetsk Metallurgical Plant.

Today this is a modern metallurgical enterprise that specializes in manufacturing of:

- cast iron and steel-making iron;
- more than 100 varieties of carbonic, structural, low-alloyed, alloyed steel grades of commercial quality, fine and high quality;
- church bells of high-quality non-ferrous alloy;
- steel electric-welded straight-line-seam pipes and metal furniture network;
- construction materials, iron-bearing scrap, slag products and lime manufacturing products.

PJSC "Donetsksteel" – Iron and Steel Works" is recognized by English Lloyd's Register as steel and semi-finished steel manufacturer (slabs and

open-hearth process ingots of carbonic and carbonic-manganiferous steel grades of single and increased strength) according to the Register's Rules. Ship constructional steel slabs of single strength of GL-A and GL-B grades are certified by rule of the German Lloyd; NVA grade steel (dead-melted) of open-hearth process – by Det Norske Veritas rules. PJSC "Donetsksteel" – Iron and Steel Works" became the first domestic enterprise of the branch which implemented and certified integrated quality, ecology and labour safety management system in compliance with international standards requirements: ISO 9001:2000, ISO 14001:2004 and OHSAS 18001:1999.

Open Hearth Furnace (OHF) is one of the oldest steelmaking technologies in the world, which is still in use only in countries of the former Soviet Union. Nevertheless there are some advantages of OHFs, among them:

- Possibility to use different kinds of feedstock (from 100% scrap to liquid pig-iron, sinter and other materials);
- High efficiency due to direct usage of all energy sources (75-80 %);
- Applicability for different modern metallurgical technologies (Ladle Furnace, Continuous Casting Machine, etc.);
- High level (and high potential) of heat recovery;
- Low noise level;
- Big potential for implementation of automatic process control systems.

One more reason for continuation of OHFs usage is that their substitution with Electric Arc Furnaces (EAF) or Basic Oxygen Furnaces (BOF) requires significant investments. Therefore, it is reasonable to operate OHFs with implementation of modern technologies.

The aim of this project is to reduce GHG due to modern technologies usage in iron and steel production processes. To meet the aims mentioned above, it was envisaged to implement two energy efficient subprojects:

1. Implementation of Pulverized Coal Injection (PCI) for Blast Furnace 1 (BF 1);
2. Implementation of automatic process control system (APCS) for Open Hearth Furnaces (OHF).

Pulverized coal injection technology was implemented for Blast Furnace 2 at PJSC "Donetsksteel" – Iron and Steel Works" since 80s. In Soviet Union neither economical nor technological difficulties were taken into account during the decision making concerning technology implementation. After the implementation significant difficulties were faced. After Soviet Union disintegration the difficulties still have not been solved, moreover, coke-coal needed for PCI technology became the mostly imported source. In 1998 Blast Furnace 2 was stopped and continued its work only in 2002, after significant repair works and

reconstruction were done. It has to be noted that reconstruction of BF 2 was started in 2000 and was proceeding for 2 years.

Blast Furnace 1 has been in operation since 1975 without overhaul. Actual capacity of BF 1 did not match the nominal one (790 000 t of iron per year). Therefore, it can be considered that equipment was seriously outdated and could not continue its operation without modernization/overhaul. For this purpose on 17 May 2005 BF 1 was stopped in order to be significantly renovated. During the works PCI technology which was implemented for BF 2 was expanded for BF 1. These renovations also allowed increasing the efficiency of the furnace.

As for the 6 existing Open Hearth Furnaces, they were in satisfactory condition and could continue their operation without any modernization. They have already been modernized by implementation of LF and CCM technologies. Therefore, implementation of the APCS is a logical step on the way to reduce negative impact on environment.

Both subprojects have already been implemented. All the necessary documentation was developed and approved by relevant authorities, as well as all permits and licenses were obtained. Due to the project implementation harm to environment was significantly reduced, including reduction of GHG emissions in the amount of ~1 mil t CO_2 (2005-2008).

Implementation of PCI technology was finished in January 2007.
Implementation of APCS was finished in November 2006.

4 DETERMINATION CONCLUSIONS

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

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

The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Determination Protocol in Appendix A. The determination of the Project resulted in 25 Corrective Action Requests and 9 Clarification Requests.

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

For the outstanding issues (CAR 1, CAR 2, CAR 3, CAR 4, CAR 5, CL1, CL2, CL3) related to project design please refer to Appendix A below.

4.1 Project approvals by Parties involved (19-20)

A letter of approval has been received (see Reference) from the Dutch side 2010JI30 dated 7th of October 2010 issued by "NL Agency" Ministry of Economic Affairs.

Bureau Veritas Certification received this letter from the project participants and does not doubt its authenticity since it is issued by the Designated Focal Point of Netherlands, which is indicated in the list of DFPs on UNFCCC website.

Bureau Veritas Certification considers the letter is in accordance with paragraphs 19 - 20 of the DVM.

A letter of approval has been received (see Reference) from the Ukrainian side 3187/23/7 dated 1st of November 2011 issued by State Environmental Investment Agency of Ukraine.

4.2 Authorization of project participants by Parties involved (21)

The participation for Dutch legal entity listed as project participants in the PDD is authorized by a Party involved, which is also listed in the PDD, through letter of approval # 2010JI30 from the Netherlands dated 7th of October 2010 issued by "NL Agency" Ministry of Economic Affairs and .
Authorization of Ukrianian project participant is obtained trough LoA #3187/23/7 dated 1st of November 2011 issued by State Environmental Investment Agency of Ukraine.

4.3 Baseline setting (22-26)

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

JI specific approach

The PDD provides a detailed theoretical description in a complete and transparent manner, as well as justification, that the baseline is established:

(a) By listing and describing the following plausible future scenarios for both sub-projects on the basis of conservative assumptions and selecting the most plausible one:

Implementation of Pulverized Coal Injection (PCI) for Blast Furnace 1 (BF 1)

a. Continuation of existing practise. Pig-iron production in BF 1 without reconstruction and without PCI technology implementation.

b. Reconstruction of BF 1 and implementation of PCI technology without JI incentive. This activity is fully similar to proposed sub-project. The only difference is that no incentive from JI mechanism would be obtained.

c. Reconstruction of BF 1 without PCI technology implementation. Capacity of reconstructed BF 1 assumed to be the same as for the project, but no advantages from PCI technology will be taken into account.

d. Decommissioning of exhausted BF 1. Pig-iron demand will be covered by purchasing the necessary amount from third parties at the Ukrainian market.

Implementation of automatic process control system (APCS) for Open Hearth Furnaces (OHF):

a. Continuation of existing practise. Steel in the OHFs will be produced in the same amount as for the project scenario. Specific consumption of the raw materials will be different.

b. Implementation of automatic process control system for OHFs without JI incentive. This activity is completely similar to the proposed sub-project. The only difference is that no incentive from JI mechanism would be obtained.

c. Implementation of similar technology which have been tested at other plants in Ukraine. Specific consumption of raw materials in OHFs will be reduced with the same steel production level. However, this scenario is absolved from the risks and barriers of the proposed project.

d. Decommissioning of all or some of the OHFs as outdated technology. Steel demand will be covered by purchasing necessary amount from third parties at the Ukrainian market or implementation of new facilities in accordance with BAT and world trends.

(b) Taking into account relevant national and/or sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector. In this context, the following key factors that affect a baseline are taken into account:

a. *Sectoral reform policies and legislation.* State program of industry development until 2017 foresees metallurgical plants modernization, especially implementation of new EAF plants and new range of sizes introduction. It also foresees the shift to deeper and more technological production in the industry sector. However, it is supposed that the enterprises finance those improvements from their own funds or bank loans, which practically means that Ukrainian government is not intervenes in this process and execution of the Program fully depend on market conditions and availability of financial resources. In case of existence of any incitement in accordance with this program, they could alleviate the barriers which prevent the project realization. Nevertheless, no definite mechanisms for stimulation were developed. As well as no mentioning of PCI technology usage exists. Therefore, metallurgical plants in Ukraine have no obligations to implement any energy efficient measures. Taking into account the abovementioned, one can consider that no policies and legislation can influence the baseline;
b. *Economic situation/growth and socio-demographic factors in the relevant sector as well as resulting predicted demand.* It is assumed that the level of iron and steel production and demand is not influenced by the project. The iron and steel industry is a transparent market where standardized types of products exist. Within a certain region or country steel can be transported from the producer to the consumer without constrains. If the facility in question cannot provide the amount of steel or iron that is needed the third party steel producer would have produced the incremental part or it would have produced onsite. In case of the project absence and increased market steel demand, all iron and/or steel needed would be produced onsite at Donetsksteel by increasing the number of run-days, decreasing duration of stops or equipment modernization/reconstruction;
c. *Availability of capital (including investment barriers).* Capital is available but high bank rate and high country investment risk make new equipment introduction in Ukraine unprofitable;
d. *Local availability of technologies/techniques, skills and know-how and availability of the best available technologies/techniques in the future.* The proposed project can be considered to be the first of its kind on the territory of Ukraine. PCI technology was implemented at first in this project as well as APCS for Open Hearth Furnaces, that can be confirmed by relevant patents owned by PJSC “Donetsksteel” – Iron and Steel Works”;

e. *Fuel prices and availability.* Electricity, coke and coal are widely used and available in Ukraine. Natural gas is mostly imported from the Russian Federation under special conditions. Therefore, prices for fuels produced in Ukraine are expected to be lower as compared to the world market price. For the natural gas, its price is set by another country and is similar to European values.

Alternatives (c) and (b) are the only remaining plausible scenario for the subprojects *"Implementation of Pulverized Coal Injection (PCI) for Blast Furnace 1 (BF 1)"* and *"Implementation of automatic process control system (APCS) for Open Hearth Furnaces (OHF)"* respectively. Therefore, combination of these alternatives can be identified as the baseline scenario.

For the outstanding issues (CAR 6, CAR 7, CAR 11, CAR 12, CAR 13, CAR 14, CAR 15, CL4) related to baseline setting please refer to Appendix A below.

4.4 Additionality (27-31)

JI specific approach

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

The PDD provides a justification of the applicability of the approach with a clear and transparent description, as per item 4.3 above.

In order to prove additionality of the sub-projects barrier analysis was used. The following barriers were applied in order to define whether the project activity is additional:

a) Investment barrier
The investment climate of Ukraine is risky and unwelcoming, private capital is not available from domestic or international sources or available at prohibitively high cost due to real and perceived risks of doing business in Ukraine as shown by various sources. Alternative markets, such as Russia, offer similar profile of investment opportunities with lower risk and better business environment. In the concept of the proposed project, needed investment in the amount of ~$95 mil looks like very risky and uncertain.
b) Technological barriers
Both technologies (OHF and BF) are very sensitive to capacity fluctuation. Therefore, improper operation due to untried technology implementation (APCS and PCI) could result in unplanned stops and downtimes. Start and set-up works could take too much

time and therefore, significant loses would be achieved. Taking into account the mentioned above, it can be considered that without additional incentive such risky project would not be realized.

c) Barriers due to prevailing practice

During the renovation works (started 17.05.2005) PCI technology which has been implemented for BF 2 was expanded for BF 1. At this date PCI technology has been implemented only at PJSC "Donetsksteel" – Iron and Steel Works". Therefore, this project can be considered as the first of its kind, which was implemented and still in use on the territory of Ukraine.

The proposed sub-project concerning APCS implementation for OHFs can be also considered as the first of its kind due to the following: APCS system which is used under the project is also a unique technology which has no analogues in Ukraine. This is confirmed by relevant patents (No 35552, 26512, 20930), which are owned by PJSC "Donetsksteel" – Iron and Steel Works" and were presented to the determination team.

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

For the outstanding issues (CAR 8, CAR 9, CAR 10) related to additionality please refer to Appendix A below.

4.5 Project boundary (32-33)

JI specific approach

The project boundary defined in the PDD, which is limited by the territory of PJSC "Donetsksteel" – Iron and Steel Works", encompasses all anthropogenic emissions by sources of greenhouse gases (GHGs) that are:

(i) Under the control of the project participants (Electricity consumption during the process of the compressed air and other gases (oxygen, argon, nitrogen), Electricity consumption during the steelmaking and iron making processes (BF and OHF), Fuel consumption during the steelmaking and iron making processes, Raw materials (iron, lime, coke) consumption during steelmaking and iron making processes, Electricity and raw materials due to the PCI unit operation, Electricity consumption for oxygen production).

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

4.6 Crediting period (34)

The PDD states the starting date of the project as the date on which the implementation or construction or real action of the project will begin or began, and the starting date is 05/04/2006, which is after the beginning of 2000.

The PDD states the expected operational lifetime of the project in years and months, which is 25 years or 240 months.

The PDD states the length of the crediting period in years and months, which is 5 years or 60 months, and its starting date as 01/01/2008, which is on the date the first emission reductions or enhancements of net removals are generated by the project.

The PDD states that the crediting period for the issuance of ERUs starts only after the beginning of 2008 and does not extend beyond the operational lifetime of the project.

The PDD states that the extension of its crediting period beyond 2012 is subject to the host Party approval, and the estimates of emission reductions or enhancements of net removals are presented separately for those until 2012 and those after 2012 in all relevant sections of the PDD.
For the outstanding issues (CAR 16 and CL 5) related to crediting period please refer to Appendix A below.

4.7 Monitoring plan (35-39)

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

JI specific approach

The monitoring plan describes all relevant factors and key characteristics that will be monitored, and the period in which they will be monitored, in particular also all decisive factors for the control and reporting of project performance, such as operational, management, storage and archiving system.

The monitoring plan specifies the indicators, constants and variables that are reliable (i.e. provide consistent and accurate values), valid (i.e. be clearly connected with the effect to be measured), and that provide a transparent picture of the emission reductions or enhancements of net removals to be monitored such as:

1. Pig iron production at BF 1
2. Coke consumption at BF 1
3. Natural gas consumption at BF 1
4. Electricity consumption at BF 1
5. Limestone consumption at BF 1
6. Sinter consumption at BF 1
7. Pellets consumption at BF 1
8. Pulverized coal (PC) production
9. Pulverized coal (PC) consumption by BF 1
10. Natural gas consumption for PC production
11. Electricity consumption for PC production
12. Oxygen consumption by BF 1

13. Electricity consumption for oxygen production
14. Total production of oxygen
15. Steel production at OHFs
16. Pig iron consumption at OHFs
17. Limestone consumption at OHFs
18. Lime consumption at OHFs
19. Dolomite consumption at OHFs
20. Magnesite powder consumption at OHFs
21. Sinter consumption at OHFs
22. Coke consumption at OHFs
23. Coal consumption at OHFs
24. Natural gas consumption at OHFs
25. Electricity consumption at OHFs
26. COG consumption at OHFs

The monitoring plan draws on the list of standard variables contained in appendix B of "Guidance on criteria for baseline setting and monitoring" developed by the JISC, as appropriate BE_Y; PE_Y; $EF_{CO2,el}$; $EF^{BF}_{CO2,\ PJ,y}$; $EF^{PCI}_{CO2,\ PJ,y}$; $EF^{OHF}_{CO2,\ PJ,y}$; $EF^{BF}_{CO2,\ \mathbf{BL},y}$; $EF^{OHF}_{CO2,\ BL,y}$; $P^{OHF}_{steel,\ BL,y}$; $P^{BF}_{iron,\ PJ,y}$; $P^{PCI}_{PC,\ PJ,y}$; $P^{OHF}_{steel,\ PJ,y}$; $P^{BF}_{iron,\ BL,y}$.

The monitoring plan explicitly and clearly distinguishes:

(i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination, such as:

- Emission factor for Natural gas combustion
- Emission factor for COG combustion
- Emission factor for Coke production
- Emission factor for Coal combustion
- Emission factor for Sinter production
- Emission factor for Pellets production
- Emission factor for Lime production
- Emission factor for Limestone consumption
- Emission factor for Dolomite consumption
- Emission factor for Magnesite powder

(ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination, - no such parameters.

(iii) Data and parameters that are monitored throughout the crediting period, such as:

1. Pig iron production at BF 1
2. Coke consumption at BF 1
3. Natural gas consumption at BF 1
4. Electricity consumption at BF 1

5. Limestone consumption at BF 1
6. Sinter consumption at BF 1
7. Pellets consumption at BF 1
8. Pulverized coal (PC) production
9. Pulverized coal (PC) consumption by BF 1
10. Natural gas consumption for PC production
11. Electricity consumption for PC production
12. Oxygen consumption by BF 1
13. Electricity consumption for oxygen production
14. Total production of oxygen
15. Steel production at OHFs
16. Pig iron consumption at OHFs
17. Limestone consumption at OHFs
18. Lime consumption at OHFs
19. Dolomite consumption at OHFs
20. Magnesite powder consumption at OHFs
21. Sinter consumption at OHFs
22. Coke consumption at OHFs
23. Coal consumption at OHFs
24. Natural gas consumption at OHFs
25. Electricity consumption at OHFs
26. COG consumption at OHFs
27. Coke carbon content
28. Emission factor for consumption of electricity from Ukrainian power grid

The monitoring plan describes the methods employed for data monitoring (including its frequency) and recording, such as the data is continuously monitored by relevant meters and then is fixed in the plant statistics documents.

The monitoring plan elaborates all algorithms and formulae used for the estimation/calculation of baseline emissions/removals and project emissions/removals or direct monitoring of emission reductions from the project, leakage, as appropriate, such as:

Project emissions

$$PE_y = PE_y^{BF} + PE_y^{OHF}$$

Where:

PE_y	Project emissions in year *y* (tCO_2);
PE_y^{BF}	Emissions in year *y* due to implementation of PCI for BF 1, tCO_2;
PE_y^{OHF}	Emissions in year *y* due to implementation of APCS for OHFs, tCO_2.

Calculation of PCI emissions

$$PE_y^{BF} = P_{iron,PJ,y}^{BF} \times EF_{CO2,PJ,y}^{BF},$$

Where:

$P^{BF}_{iron,PJ,y}$ - Pig iron production at BF 1, t;
$EF^{BF}_{CO2,PJ,y}$ - Emission factor for pig iron production process under the project, t CO_2 / t iron.

$$EF^{BF}_{CO2,PJ,y} = ((FC^{BF}_{coke,PJ,y} * (EF_{CO2coke} + C_{coke,y} * 44/12)) + (FC^{BF}_{n.gas,PJ,y} * EF_{CO2n.gas}) + (FC^{BF}_{el,PJ,y} * EF_{CO2el}) + (FC^{BF}_{sinter,PJ,y} * EF_{CO2sinter}) + (FC^{BF}_{pellets,PJ,y} * EF_{CO2pellets}) + (FC^{BF}_{PC,PJ,y} * EF_{CO2PC}) + (FC^{OXBF}_{el,PJ,y} * EF_{CO2el}))/P^{BF}_{iron,PJ,y}$$

Where:

$EF_{CO2,PCI,PJ}$ - Emission factor for PC production process under the project, t CO_2 / t PC;
$C_{coke,y} \times \frac{44}{12}$ - carbon content in coke, %;
$\frac{44}{12}$ - ratio between molecular weights of molecules CO_2 and C;

$$EF^{PCI}_{CO2,PJ,y} = \frac{\left(FC^{PCI}_{n.gas,PJ,y} \times EF_{CO2,n.gas}\right) + \left(FC^{PCI}_{el,PJ,y} \times EF_{CO2,el}\right)}{P^{PCI}_{PC,PJ,y}}$$

Where:

$FC^{PCI}_{n.gas,PJ,y}$ - Natural gas consumption for PC production, 1000 m^3;
$FC^{PCI}_{el,PJ,y}$ - Electricity consumption for PC production, MWh;
$P^{PCI}_{PC,PJ,y}$ – Pulverized coal production level at PCI unit, t.

$$FC^{OX\,BF}_{el,PJ,y} = OX^{BF}_{PJ,y} \times \left(\frac{FC^{OX}_{el,PJ,y}}{OX_{PJ,y}}\right)$$

Where:

$FC^{OX\,BF}_{el,PJ,y}$ – Electricity consumption for production of oxygen supplied to BF1 under the project, MWh;
$OX^{BF}_{PJ,y}$ – Amount of oxygen supplied to BF1 under the project;
$OX_{PJ,y}$ – Total oxygen produced under the project;
$FC^{OX}_{el,PJ,y}$ – Total electricity consumed for oxygen production under the project.

Calculation of APCS emissions

$$PE_y^{OHF} = P_{steel,PJ,y}^{OHF} \times EF_{CO2,PJ,y}^{OHF},$$

Where:

$P_{steel,PJ,y}^{OHF}$ - Steel production at all OHFs where APCS were installed, t;
$EF_{CO2,PJ,y}^{OHF}$ - Emission factor for steel production process under the project, t CO_2 / t steel.

$EF^{OHF}_{CO2,PJ,y}$ = (($FC^{OHF}_{iron,PJ,y}$ * $EF_{CO2iron}$) + ($FC^{OHF}_{lmst,PJ,y}$ * $EF_{CO2lmst}$) + ($FC^{OHF}_{lime,PJ,y}$ * $EF_{CO2lime}$) + ($FC^{OHF}_{coke,PJ,y}$ * $EF_{CO2coke}$) + ($FC^{OHF}_{dlmt,PJ,y}$ * $EF_{CO2dlmt}$) + ($FC^{OHF}_{mgst,PJ,y}$ * $EF_{CO2mgst}$) + ($FC^{OHF}_{sinter,PJ,y}$ * $EF_{CO2sinter}$) + ($FC^{OHF}_{coal,PJ,y}$ * $EF_{CO2coal}$) + ($FC^{OHF}_{n.gas,PJ,y}$ * $EF_{CO2n.gas}$) + ($FC^{OHF}_{COG,PJ,y}$ * EF_{CO2COG}) + ($FC^{OHF}_{el,PJ,y}$ * EF_{CO2el}))/$P^{OHF}_{steel,PJ,y}$

Baseline emissions

$$BE_y = BE_y^{BF} + BE_y^{OHF}$$

Where:

BE_y	Baseline emissions in year *y* (tCO_2);
BE_y^{BF}	Emissions in year *y* due to exploiting BF 1 without PCI, tCO_2;
BE_y^{OHF}	Emissions in year *y* due to exploiting OHF without APCS, tCO_2.

Calculation of BF emissions

$$BE_y^{BF} = P_{iron,BL,y}^{BF} \times EF_{CO2,BL,y}^{BF},$$

Where:

$EF_{CO2,BL,y}^{BF}$ - Emission factor for pig iron production process under the baseline, t CO_2 / t iron;
$P_{iron,BL,y}^{BF}$ - Pig iron production at BF 1, t. This value is equal to project level of pig iron production at BF 1.

Therefore:

$$P_{iron,BL,y}^{BF} = P_{iron,PL,y}^{BF}$$

$EF^{BF}_{CO2,BL,y}$ = (($FC^{BF}_{coke,\ BL,y}$ * ($EF_{CO2coke}$ + $C_{coke,y}$ * 44/12)) + ($FC^{BF}_{n.gas,\ BL,y}$ * $EF_{CO2n.gas}$) +

$(FC^{BF}_{el,BL,y} * EF_{CO2el}) + (FC^{BF}_{sinter,PJ,y} * EF_{CO2sinter}) + (FC^{BF}_{pellets,PJ,y} * EF_{CO2pellets}) + (FC^{BF}_{lmst,PJ,y} * EF_{CO2lmst}))/P^{BF}_{iron,BL,y}$

Where:

$\frac{44}{12}$ - ratio between molecular weights of molecules CO_2 and C.

Calculation of APCS emissions

$$BE_y^{OHF} = P_{steel,BL,y}^{OHF} \times EF_{CO2,BL,y}^{OHF}$$

Where:

$EF_{CO2,BL,y}^{OHF}$ - Emission factor for steel production process under the project, t CO_2 / t steel;

$P_{steel,BL,y}^{OHF}$ - Steel production at all OHFs under the baseline, t. This value is equal to project level of steel production.

Therefore:

$$P_{steel,BL,y}^{OHF} = P_{steel,PJ,y}^{OHF}$$

$EF^{OHF}_{CO2,BL,y} = ((FC^{OHF}_{iron,BL,y} * EF_{CO2iron}) + (FC^{OHF}_{lmst,BL,y} * EF_{CO2lmst}) + (FC^{OHF}_{lime,BL,y} * EF_{CO2lime}) + (FC^{OHF}_{coke,BL,y} * EF_{CO2coke}) + (FC^{OHF}_{coal,BL,y} * EF_{CO2coal}) + (FC^{OHF}_{n.gas,BL,y} * EF_{CO2n.gas}) + (FC^{OHF}_{COG,BL,y} * EF_{CO2COG}) + (FC^{OHF}_{el,BL,y} * EF_{CO2el}))/P^{OHF}_{steel,BL,y}$

The monitoring plan presents the quality assurance and control procedures for the monitoring process, which are described in the PDD ver.3.2 section D.2. This includes, as appropriate, information on calibration and on how records on data and/or method validity and accuracy are kept and made available on request.

The monitoring plan clearly identifies the responsibilities and the authority regarding the monitoring activities. Technical department is responsible for monitoring, collection, registration, visualization, archiving, reporting of the data monitored. The measurement team from PJSC "Donetsksteel" – Iron and Steel Works" is responsible for periodical checking of all measurement devices. All data needed for calculation of the

emission reduction is collected at the PJSC "Donetsksteel" – Iron and Steel Works" during the common operation. Primary monitoring data is recorded by operators of measuring devises. The data is filled in operation logs from which it is summed up, results are filled in daily reports, which are then transferred to accounting office of the relevant shop. Primary monitoring data regarding fuel consumption at OFHs is recorded by APCS of OFHs and transferred to accounting office of the relevant shop in electronic format. At shops' accounting offices data are analyzed and imputed into SAR3, where they are accumulated and aggregated into monthly and yearly reports. Those reports, which contain the project monitoring data are copied from SAR3 by the Department for Energy Saving and sent to Global Carbon for emission reduction calculation and preparation of the monitoring reports. More detailed information on people involved in data collection and reporting process will be provided on the monitoring stage to ensure maximal accuracy.

On the whole, the monitoring report reflects good monitoring practices appropriate to the project type.

The monitoring plan provides, in tabular form, a complete compilation of the data that need to be collected for its application, including data that are measured or sampled and data that are collected from other sources (e.g. official statistics, expert judgment, proprietary data, IPCC, commercial and scientific literature etc.) but not including data that are calculated with equations

The monitoring plan indicates that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project.

For the outstanding issues (CAR 17-23, CAR 26-28 and CL 6-9) related to monitoring plan please refer to Appendix A below.

4.8 Leakage (40-41)

JI specific approach

According to the approach chosen estimation of leakage is not foreseen.

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

JI specific approach

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

The PDD provides the ex ante estimates of:

(a) Emissions or net removals for the project scenario (within the project boundary), which are 4 505 690 tons of CO2eq for 2006-2007, 12 516 455 tons of CO2eq for 2008-2012; 33 929 952 tons of CO2eq for 2013-2026.

(b) No leakage is expected during the project activity;

(c) Emissions or net removals for the baseline scenario (within the project boundary), which are 4 870 719 tons of CO2eq for 2006-2007, 13 897 138 tons of CO2eq for 2008-2012; 37 863 980 tons of CO2eq for 2013-2026.

(d) Emission reductions or enhancements of net removals adjusted by leakage (based on (a)-(c) above), which are 365 029 tons of CO2eq for 2006-2007, 1 380 683 tons of CO2eq for 2008-2012; 3 934 028 tons of CO2eq for 2013-2026.

The estimates referred to above are given:

(a) On a periodic basis;

(b) From 05/04/2006 to 31/12/2026, covering the whole crediting period;

(c) On a source-by-source;

(d) For CO_2;

(e) In tonnes of CO2 equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol;

The formula used for calculating the estimates referred above, which is:

$$ER_y = BE_y - PE_y$$

Where:

ER_y	Emission reductions due to the proposed JI project in year *y* (tCO_2);
BE_y	Baseline emissions in year *y* (t CO_2);
PE_y	Project emissions in year *y* (t CO_2).

is consistent throughout the PDD.

For calculating the estimates referred to above, key factors, e.g. influencing the baseline emissions or removals and the activity level of the project and the emissions or net removals as well as risks associated with the project were taken into account, as appropriate.

Data sources used for calculating the estimates referred to above, such as plant statistics data are clearly identified, reliable and transparent.

Emission factors, such as Emission factor for Natural gas combustion, Emission factor for COG combustion, Emission factor for Coke production, Emission factor for Coal combustion, Emission factor for Sinter production, Emission factor for Pellets production, Emission factor for Lime production, Emission factor for Limestone consumption, Emission factor for Dolomite consumption, Emission factor for Magnesite powder, were selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.

The estimation referred to above is based on conservative assumptions and the most plausible scenarios in a transparent manner.

The estimates referred to above are consistent throughout the PDD.

The annual average of estimated emission reductions or enhancements of net removals over the crediting period is calculated by dividing the total estimated emission reductions or enhancements of net removals over the crediting period by the total months of the crediting period, and multiplying by twelve.

4.10 Environmental impacts (48)

The PDD lists and attaches documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party, such as:

- EIA “Blast Furnace No 1 Overhaul”, performed by State Scientific and Research Design Institute for Metallurgical Industry “Giprostal”, 2002
- Declaration of Consequences of Blast Furnace No 1 Overhaul*
- Permit on emissions from stationary sources No 1 410 137 700-43 from 03.06.2009 effective till 03.06.2014.
- EIA “APCS Implementation for open hearth furnaces”, performed by OJSC “Ukrecoaudyt”, 2010.
- Declaration of Intensions for APCS Implementation for open hearth furnaces.
- Declaration of Consequences for APCS Implementation for open hearth furnaces

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

* Declaration of intentions was not required before 2003, when the new State Building Standard on Environmental Impact Assessment was adopted.

For the outstanding issues (CAR 24 and CAR 25) related to environmental impacts please refer to Appendix A below.

4.11 Stakeholder consultation (49)

In accordance with Ukrainian legislation, "Donetskstal" – Iron and Steel Works" has consulted the regional authority to obtain the necessary approvals for construction of the Electrostal plant. No stakeholder consultation is required by Host Party. Nevertheless, the press relations service publishes all significant news items concerning the plant operation on the website of the plant.

For the JI project, stakeholder comments will be gathered during the month following the publication of this PDD on the UNFCCC website in accordance with the determination process.

4.12 Determination regarding small scale projects (50-57)

Not applicable.

4.13 Determination regarding land use, land-use change and forestry (LULUCF) projects (58-64)

Not applicable.

4.14 Determination regarding programmes of activities (65-73)

Not applicable.

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

No comments, pursuant to paragraph 32 of the JI Guidelines, were received.

6 DETERMINATION OPINION

Bureau Veritas Certification has performed a determination of the “Implementation of energy efficient measures at "Donetksteel" – metallurgical plant” Project in Ukraine. The determination was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The determination consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan; ii)

follow-up interviews with project stakeholders; iii) the resolution of outstanding issues and the issuance of the final determination report and opinion.

Project participant/s used the latest tool for demonstration of the additionality. In line with this tool, the PDD provides barrier analysis and common practice analysis, to determine that the project activity itself is not the baseline scenario.

Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

The determination revealed two pending issues related to the current determination stage of the project: the issue of the written approval of the project and the authorization of the project participant by the host Party. If the written approval and the authorization by the host Party are awarded, it is our opinion that the project as described in the Project Design Document, Version 3.4 meets all the relevant UNFCCC requirements for the determination stage and the relevant host Party criteria.

The review of the project design documentation (version 3.4) and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

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

7 REFERENCES

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

1. PDD 'Implementation of energy efficient measures at "Donetsksteel" – metallurgical plant' version 1.0 date 24th of June 2010
2. PDD 'Implementation of energy efficient measures at "Donetsksteel" – metallurgical plant' version 2.0 date 1st of July 2010
3. PDD 'Implementation of energy efficient measures at "Donetsksteel" – metallurgical plant' version 3.0 date 18th of April 2011
4. PDD 'Implementation of energy efficient measures at "Donetsksteel" – metallurgical plant' version 3.1 date 6th of June 2011
5. PDD 'Implementation of energy efficient measures at "Donetsksteel" – metallurgical plant' version 3.2 date 8th of June 2011
6. PDD 'Implementation of energy efficient measures at "Donetsksteel" – metallurgical plant' version 3.3 date 24th of June 2011
7. PDD 'Implementation of energy efficient measures at "Donetsksteel" – metallurgical plant' version 3.4 date 3rd of November 2011
8. Excel spreadsheet 'Implementation of energy efficient measures at "Donetsksteel" – metallurgical plant' version 1.0 date 24th of June 2010
9. Excel spreadsheet 'Implementation of energy efficient measures at "Donetsksteel" – metallurgical plant' version 2.0 date 1st of July 2010
10. Excel spreadsheet 'Implementation of energy efficient measures at "Donetsksteel" – metallurgical plant' version 3.1 date 6th of June 2011
11. Excel spreadsheet 'Implementation of energy efficient measures at "Donetsksteel" – metallurgical plant' version 3.2 date 8th of June 2011
12. Letter of Approval ref No 2010JI30 issued on 7 October 2010 by the Netherlands NFP

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

/1/ Guidelines for Users of the Joint Implementation Project Design Document Form/Version 04, JISC.

/2/ JISC Guidance on criteria for baseline setting and monitoring. Version 02.

/3/ Tool for the demonstration and assessment of additionality, Version 05.2.

/4/ Glossary of Joint Implementation Terms, Version 02.

/5/ UKRAINE'S INITIAL REPORT UNDER ARTICLE 7, PARAGRAPH 4, OF THE KYOTO PROTOCOL

/6/ Explanatory note to the working draft "Installation of APCS open-hearth

furnaces".

/7/ Environmental impact assessment (EIA). Working draft "Installation of APCS at the open-hearth furnaces" dated 2010.

/8/ Letter of intention.

/9/ Permit on the pollutant emmisions into the atmosphere by stationary sources dated 03/06/2009. It is valid for 5 years from 03/06/2009 to 03/06/2014.

/10/ Report of scientific work "Determination of the basic amounts of greenhous gas emissions, analysis of dinamic of emissions measurement during implementation of the plans of enterprise development, calculation of the emissions reduction during modernization of planr production, feasibility study of the joint implementation projects" dated 2008.

/11/ Letter #1888/15/7-15 of the direction approval dated 27/02/2006.

/12/ Order #73 of the approval of Guidelines of development of the methods for the inventory of greenhouse gas emissions from the anthropogenic sources dated 05/10/2009.

/13/ Feasibility study of the investment overhaul of the complex BF #1 TM-106001 PJSC “Donetsksteel” – Iron and Steel Works” dated 2002.

/14/ Environmental impact assessment (EIA) of BF #1 overhaul of PJSC “Donetsksteel” – Iron and Steel Works”. Explanatory note TM-106002 dated 2002.

/15/ Statement of environmental effects of instalation of APCS at open-hearth furnaces #5-8 branch "metallurgical complex" of CJSC "Dotetsksteel" - metallurgical plant".

/16/ Task for development of feasibility study of the complex BF #1 overhaul.

/17/ Opinion #077639 of the state ecological expertise (additional) СN№04.12.090. of the compliance of project documentation with legislations on environmental protection dated 03/12/2004.

/18/ Statement of implementation of scientific and technical activitie: learn APCS of open-hearth furnace #7, Annex #8 to the order #1 dated 10/01/2006.

/19/ Statement of implementation of scientific and technical activitie: develop and introduce APCS of open-hearth furnace #6, Annex #8 to the order #1 dated 10/01/2006.

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/21/ Statement of implementation of scientific and technical activitie: develop and introduce APCS of open-hearth furnace #4, Annex #8 to the order #1 dated 10/01/2006.

/22/ Statement of implementation of scientific and technical activitie: develop and introduce APCS of open-hearth furnace #3, Annex #8 to the order #1 dated 10/01/2006.

/23/ Statement of acceptance-transfering of repaired, reconstructed snd morernized facilities, inv. #04217551.

/24/ Letter #72-39/278 to the deputy chief engineer of energy supply A.V. Dorofeev dated 30.04.2010.

/25/ Passport #17/461of all scales and weights, ser. #050200969/041105278 dated 15/08/2006. Verification date 16/03/2010.

/26/ Passport #142 of all scales and weights, ser. #020805258/030100798 dated 07/12/2006. Verification date 16/12/2009.
/27/ Passport #17 of all scales and weights, ser. #0050200986/050200968 dated 18/01/2007. Verification date 14/01/2010.
/28/ Passport of the platform tensometric scales, ser. #2. Results of tha state calibration dated 26/08/2009.
/29/ Passport of the hopper scales, ser. #04. Results of tha state calibration dated 25/12/2009.
/30/ Passport of the hopper scales, ser. #03. Results of tha state calibration dated 25/12/2009.
/31/ Passport of the scale-measurement complex for car-scale, ser. #3. Results of the state verification dated 16/12/2009.
/32/ Passport of the scale-measurement complex for car-scale, ser. #2. Results of the state verification dated 16/12/2009.
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/45/ Certificate of the management system ISO 9001:2008 dated 23/04/2010. It is valid to 27/03/2013.
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/132/ Passport of the electrical recorder, ser. #2162. Results of verification dated 29/01/2009.
/133/ License АВ #147936 dated 21/11/2006. It is valid from 12/10/2006 to 11/10/2011.
/134/ Indicators of work of the open-hearth furnace shop dated 15/07/2010.
/135/ Indicators of work of the blast furnace #1 dated 15/07/2010.
/136/ Passport of the central quality laboratory of coal and coke products of CJSC "DMP".
/137/ Certificate of attestation #06544-2-4-49 ВЛ dated 19/05/2009. It is valid to 19/05/2012.
/138/ Annex to the certificate of attestation dated 19/05/2009 #06544-2-4-49 ВЛ.
/139/ Statute of PJSC "Donetsksteel" – Iron and Steel Works". Protocol #12 dated 15/04/2008.
/140/ Information letter АБ #039820 of the unified state register of businesses and organizations of Ukraine (ЄДРПОУ) dated 12/05/2008.
/141/ Certificate АОО #301103 on the state registration of legal entity dated 09/08/2002.
/142/ License АБ #110989 dated 24/02/2005. It is valid from 24/02/2005 to 24/02/2010.
/143/ License АА #549662 dated 19/06/2003. It is valid from 19/06/2003 to 19/06/2006.
/144/ License АВ #345642 dated 01/11/2007. It is valid from 01/11/2007 to 31/10/2010.
/145/ License АВ #078808 dated 30/05/2006. It is valid from 20/06/2006 to 20/06/2011.
/146/ Certificate of the specialized metallurgical processing enterprise to the license АА #549662 dated 19/06/2003 #336.
/147/ Certificate of the specialized metallurgical processing enterprise to the license АВ #078808 dated 20/06/2006 #597.
/148/ License АБ #271893 dated 11/06/2008. It is valid from 18/01/2006 to 17/01/2011.
/149/ License АБ #271804 dated 30/01/2006. It is valid from 18/01/2006 to 17/01/2011.
/150/ License АВ #190930 dated 16/11/2006. It is valid from 16/11/2006 to 15/11/2011.

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/ A.V. Dorofeev – deputy chief engineer of energy saving.
/2/ L.V. Karanovich – chief directory specialist of financing of investment projects
/3/ V.A. Trotsai – deputy chief power engineering
/4/ V.F. Mariushchenko – deputy chief of ПКО
/5/ G.I. Levitskaia – chief of standardization and certification department
/6/ V.A. Petrova – acting deputy chief metrologist
/7/ N.N. Astakhov – chief of steel melting production bureau of technical department
/8/ I.V. Volovnenko – chief specialist of blast production of technical department
/9/ G.L. Doroshenko – chief of the bureau ООС
/10/ D.V. Komkov – chief of the team of ТТЛ СЭН
/11/ L.F. Streltsov - chief accountant
/12/ N.G. Shuliashko – chief of materials accounting department
/13/ A.D. Terikh – chief of cost accounting department
/14/ V.S. Kostyrko - chief of УИТ
/15/ G.S. Lysenko – deputy chief of УИТ
/16/ L.T. Semko – engineer I ОМ
/17/ A.A. Furzinov – chief of ЦСП
/18/ O.N. Cherednichenko - Chief Specialist of ЧПРЗ
/19/ L.D. Gumeniuk – chief of БТО ОН

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APPENDIX A: COMPANY JI PROJECT DETERMINATION PROTOCOL

Table 1 Mandatory Requirements for Joint Implementation (JI) Project Activities

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)	**CAR 01**. The project has no approval of the host Party. Verifiers' Note: JISC Glossary of JI terms/Version 02 defines the following: a) At least the written project approval(s) by the host Party(ies) should be provided to the AIE and made available to the secretariat by the AIE when submitting the determination report regarding the PDD for publication in accordance with paragraph 34 of the JI guidelines; (b) At least one written project approval by a Party involved in the JI project, other than the host Party(ies), should be provided to the AIE and made available to the secretariat by	Table 2 Section A.5.

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
		the AIE when submitting the first verification report for publication in accordance with paragraph 38 of the JI guidelines, at the latest. After finishing of project determination report, the PDD and Determination Report will be presented to National Environmental Agency of Ukraine for receiving the Letter of Approval.	
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.2
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)	OK	N/A
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	N/A
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	OK	Both countries have designated their Focal Points. National guidelines and procedures for approving JI projects have been published.

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
			Contact data in Ukraine: **National Environmental Investment Agency of Ukraine** 35 Urytsky Str., Kyiv, P.O. 03035 Phone: +380 44 594 91 11 Fax: +380 44 5949115 Email: info.neia@gmail.com National guidelines and procedures for the approval of JI projects are available (www.neia.gov.ua) Contact data in the Netherlands: **Ministry of Economic Affairs** Catharijnesingel 59

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
			P.O. Box 8242 3503 RE Utrecht Netherlands Phone: +31 30 239 3413 Email: d.de.haan@sentern ovem.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, §21(a)/24	OK	The Ukraine is a Party (Annex I Party) to the Kyoto Protocol and has ratified the Kyoto Protocol at April 12th, 2004.
7. The host Party's assigned amount shall have been calculated and recorded in accordance with the modalities	Marrakech Accords,	OK	In the Initial Report submitted by

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
for the accounting of assigned amounts.	JI Modalities, §21(b)/24		Ukraine on 29. Dec. 2006 the AAUs are quantified with: 925 362 174.39 (x 5) = 4 626 810 872 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	OK	Ukraine national GHG registry has been outlined in the Initial Report. (http://unfccc.int/national_reports_under_the_kyoto_protocol/items/3765.php)
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	(1) OK	Global Carbon BV has submitted the PDD to Bureau Veritas Certification, which contains all information needed for determination.
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	OK	PDD Version 1.0. dated 01/04/2010 was made publicly available for comments on UNFCCC JI website from 02 April 2010

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
			till 01 May 2010.
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 Party shall be carried out.	Marrakech Accords, JI Modalities, §33(d)	OK	Table 2, Section F
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 A.2
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.2
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.2
15. The project shall have an appropriate monitoring plan.	Marrakech Accords, JI Modalities, §33(c)	OK	Table 2, Section D
16. A project participant is a legal entity authorized by a Party involved to participate in the JI project.	JISC "Modalities of communication	Conclusion is pending a follow-up on CAR 01. Refer to	Table 2, Section A

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
	of Project Participants with the JISC" Version 01, Clause A.3	Verifiers' Note in 1 above.	

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 presented?	1,2	DR	Implementation of energy efficient measures at "Donetsksteel" – metallurgical plant"	OK	OK
A.1.2. Is the current version number of the document presented?	1,2	DR	The current version of the PDD is 1.0.	OK	OK
A.1.3. Is the date when the document was completed presented?	1,2	DR	The PDD Version 1.0. is dated 1st of July 2010. The Sectoral Scopes are 4 and 9.	OK	OK
A.2. Description of the project					
A.2.1. Is the purpose of the project included?	(2) ,2	DR	The aim of this project is to reduce GHG emissions due to modern technologies usage in iron and steel production processes with the help of: • Implementation of Pulverized Coal Injection (PCI) for Blast Furnace 1 (BF 1); • Implementation of automatic process control system (APCS) for Open Hearth Furnaces (OHF).	(3) OK	OK

A.2.2. Is it explained how the proposed project reduces greenhouse gas emissions?	1,2	DR	Section A.2 provides an explanation of the: Situation existing prior to the starting date of the project; Baseline scenario; Project scenario; How the proposed project reduces greenhouse gas emissions. **CAR 02**. Please provide evidence that JI incentive was considered on the stage of project realization decisionmaking.	(4) C AR02	OK
A.3. Project participants					
A.3.1. Are project participants and Party(ies) involved in the project listed?	1,2	DR	Party A is Ukraine. Legal entity is PJSC "Donetsksteel" – Iron and Steel Works". Party B is the Netherlands. Legal entity is Global Carbon BV	OK	OK
A.3.2. The data of the project participants is presented in tabular format?	1,2	DR	The data of the project participants is presented in the tabular format.	OK	OK
A.3.3. Is contact information provided in Annex 1 of the PDD?	1,2	DR	The contact information is provided in PDD Annex 1.	OK	OK
A.3.4. Is it indicated, if it is the case, if the Party involved is a host Party?	1,2	DR	Ukraine is indicated as a host Party.	OK	OK
A.4. Technical description of the project					
A.4.1. Location of the project activity					
A.4.1.1. Host Party(ies)	1,2	DR	Ukraine is indicated as the Host Party in the PDD Section A.4.1.1.	OK	OK

A.4.1.2. Region/State/Province etc.	1,2	DR	Donetsk region	OK	OK
A.4.1.3. City/Town/Community etc.	1,2	DR	Donetsk		
A.4.1.4. Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page).	1,2	DR	PDD Section A.4.1.4 defines in detail the physical location, including information allowing the unique identification of the project. Information on the physical location is provided according to the template and does not exceed one page.	OK	OK
A.4.2. Technology(ies) to be employed, or measures, operations or actions to be implemented by the project					
A.4.2.1. Does the project design engineering reflect current good practices?	1, 2	DR	The project design engineering represents current good practices of construction of a steel manufacturing plant based on a modern electric arc furnace. **CL 01.** Please clarify the difference between newly installed system APCS and already existing from 1996 system R-3. **CL02.** Please clarify the years or periods taken for 'before the project' and 'after the project' in the table in the section A.4.2.. **CAR 03.** Please correct the number of the OHF on the Figure 2 in the section A.4.2.	(5) CL 01, CL 02, CAR 03	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?	(6), 2	DR	Implementation of automatic process control system (APCS) for Open Hearth Furnaces (OHF) can be considered as state of the art technology on the territory of Ukraine since it is not very common for metallurgical plants	OK	OK

			to implement such modern technological monitoring and manufacture control systems. That is why implementation of such technology would result in a significantly better performance than any commonly used technologies. At the same time implementation of PCI for BF1 is not state of the art technology even for Ukrainian steel production market. However considering internal and external factors influencing local steel producers implementation of such technology may be chosen as the most plausible and attractive and it will result in a significantly better performance than any commonly used technologies in Ukraine (which are mainly coke consuming).		
A.4.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1, 2	DR	The project technology is unlikely to be substituted by other or more efficient technologies within the project period.	OK	OK
A.4.2.4. Does the project extensive initial training and maintenance efforts in order to work as presumed during the project period?	1,2	DR I	All technical staff working with the EAF has necessary permission and has successfully completed relevant training. **CAR 04.** Please, include in the report information considering training of the staff. **CL 03.** Please clarify, whether the project requires extensive maintenance efforts in order to work as presumed during the project period.	(7) C AR 04 (8) C L 03	OK

A.4.2.5. Does the project make provisions for meeting training and maintenance needs?	(9),2	DRI	Please refer to **CL03** of Verifiers' Note	-	-
A.4.3. Brief explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project, including why the emission reductions would not occur in the absence of the proposed project, taking into account national and/or sectoral policies and circumstances					
A.4.3.1. Is it stated how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page)	1,2	DRI	All source of feedstock consumed due to steelmaking can be considered as a "pollutant". Emission level of this source can be estimated with help of relevant emission factor. Thus, the emission factor for the relevant process (producing of iron and steelmaking process) will be obtained. As it was stated above, coke production is an expensive and energy consuming process. It also envisages high level of emissions into the atmosphere. Production of pulverized coal requires less energy. Thus, one can state that coke is more carbon intensive than coal. Implementation of APCS system resulted in significant resources and energy saving. Therefore, as long as it is possible to substitute coke with coal in the BF 1 and decrease energy and raw material consumption in the OHFs, it leads to reduction in energy consumption	CAR 05	OK

			level and, therefore, to GHG emission reduction. **CAR 05.** Please provide documentation proving the following stages of implementation schedule: preparation works for APCS, OHF5 shutdown, start and setup works for BF1, commissioning of BF1.		
A.4.3.2. Is it provided the estimation of emission reductions over the crediting period?	1,2	DR	The estimation of emission reductions over the crediting period is provided in Table A.4.1. Section A.4.3.1. of the PDD. The estimated total emission reductions equal 1,403,229 tCO_2e over the crediting period starting on 01/01/2008.	OK	OK
A.4.3.3. Is it provided the estimated annual reduction for the chosen credit period in tCO_2e?	1,2	DR	The estimated annual emission reduction over the crediting period equals 280,646 tCO_2e.	OK	OK
A.4.3.4. Is the data from questions A.4.3.2 and A.4.3.3 above presented in tabular format?	1,2	DR	The data is presented in the required tabular format. Refer to the Tables A.4.1. and A.4.2. in PDD Section A.4.3.1.	OK	OK
A.5. Project approval by the Parties involved					
A.5.1.1. Are written project approvals by the Parties involved attached?	1,2	DR	The project approval by the Host Party will be provided after the determination of the PDD. Refer to Verifiers' Note in Table 1 item 1. Conclusion is pending a response to CAR 01.	Pending	-

B. Baseline					
B.1. Description and justification of the baseline chosen					
B.1.1. Is the chosen baseline described?	1,2	DR	In accordance with the paragraph 24 of the "Guidance on criteria for baseline setting and monitoring", Version 02*, the project developer proposes the identification of a baseline scenario by listing and describing plausible future scenarios on the basis of conservative assumptions and selecting the most plausible one. For the first part of the project – PCI imlementation at the BF 1 – the baseline scenario is "Reconstruction of BF 1 without PCI technology implementation", for the second part – Implementation of APCS – the baseline scenario is "Continuation of existing practise".	(10) OK	OK
B.1.2. Is it justified the choice of the applicable baseline for the project category?	1,2, 4,	DR	No approved CDM methodologies are used. In accordance with JI Guidance on Criteria for Baseline Setting and Monitoring, Version 02, the project developer proposes a JI specific approach for the emission reduction calculation and monitoring. The choice of the applicable baseline scenario is justified with the help of describing existing alternatives. The	(11) CAR06, CAR 07	OK

* http://ji.unfccc.int/Ref/Documents/Baseline_setting_and_monitoring.pdf

			baseline scenarios have been identified as the most plausible scenarios from all realistic and credible alternatives. **CAR 06.** Please justify in a more transparent way why Alternative 1.2. is not plausible. Please make more emphasize on the technological barriers. **CAR 07.** For the Alternative 2.3. please find sufficient justification why this alternative is not realistic since there is at least one metallurgical plant, where the similar technology is used.		
B.1.3. Is it described how the methodology is applied in the context of the project?	1,2,4 (12)	DR	This is a JI specific approach. Its application is described in a complete and transparent manner.	OK	OK
B.1.4. Are the basic assumptions of the baseline methodology in the context of the project activity presented (See Annex 2)?	(13) ,2	DR (14)	The basic assumptions of the JI specific approach are based on official forecasts of the project owner as well as on the real historical data for the previous period.	OK	OK
B.1.5. Is all literature and sources clearly referenced?	1,2	DR	Relevant literature and sources are referenced through the text of PDD with some exception. **CL 04.** Please provide information on how the real expectations of the PO are estimated and show the example.	CL 04	OK
B.2. Description of how the anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the JI project					

B.2.1. Is the proposed project activity additional?	1,2, 4,	DR	Additionality is demonstrated trough steps 1-4 of the current Tool for the demonstration and assessment of additionality, Version 05.2. **CAR 08.** Unfortunately it does not serve sufficient evidence for the inability to complete the project without ERU sales as no data regarding the project investment effectiveness is available. Please note that this barrier does not prevent from realization of multi million investment projects in metallurgy undertaken by key players in the industry like Metinvest, ISD and Zaporozhsteel. **CAR 09.** The facts provided by the developer in Step 4 do not represent complete information regarding situation with development of PCI technology in Ukraine. Since "Zaporizhstal" and "Enakievskiy Metalurgicheskiy Zavod" are planning to implement such technology until 2012 the project can not be considered the only one of such kind on the territory of Ukraine. **CAR 10.** Explanation provided in sub-step 3b that Alternative 1.1 does not need any investment is incorrect since the reconstruction of BF1 obviously needs investment. **CAR 11.** Please provide the patents (No	CAR 08, 09, 10, 11	OK

			35552, 26512, 20930) that confirm that APCS system for OHF is first of its kind.		
B.2.2. Is the baseline scenario described?	1,2	DR	The baseline scenario is described in sufficient detail in PDD Sections B.1and B.2.	OK	OK
B.2.3. Is the project scenario described?	1,2	DR	The project scenario is described in sufficient detail in PDD Sections A.4.2, A.4.3 and B.1.	OK	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?	1,2	DR	**CAR 12.** Please, provide in a clear and transparent way a justification why the emissions in the baseline scenario would likely exceed the emissions in the project scenario.	CAR 12	OK
B.2.5. Is it demonstrated that the project activity itself is not a likely baseline scenario?	1,2,4	DR	It is vividly demonstrated that the project activity itself is not a likely baseline scenario	OK	OK
B.2.6. Are national policies and circumstances relevant to the baseline of the proposed project activity summarized?	1,2, 6	DR	**CAR 13.** National policies that affect a baseline are not taken into account.	CAR 13	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?	1,2, 4	DR	The project's spatial (geographical) boundaries are defined. Refer to PDD Section B.3 Table B.3.1., Figures B.3.1. and B.3.2. **CAR 14.** Please clarify why the electricity consumption for APCS are not considered among the emission sources.	(15) CAR 14	OK

B.4. Further baseline information, including the date of baseline setting and the name(s) of the person(s)/entity(ies) setting the baseline					
B.4.1. Is the date of the baseline setting presented (in DD/MM/YYYY)?	1,2	DR	**CAR 15.** Please provide the date of the baseline setting in the DD/MM/YYYY format.	(16) C AR 15	OK
B.4.2. Is the contact information provided?	1,2	DR	The contact information is provided in Annex I of the PDD.	OK	OK
B.4.3. Is the person/entity also a project participant listed in Annex 1 of PDD?	1,2	DR	It is indicated that Clobal Carbon BV is the project participant listed in Annex 1 of PDD.	OK	OK
C. Duration of the project and crediting period					
C.1. Starting date of the project					
C.1.1. Is the project's starting date clearly defined?	1, 2	DR	**CAR 16.** Please choose one date as a start of the project.	CAR 16	OK
C.2. Expected operational lifetime of the project					
C.2.1. Is the project's operational lifetime clearly defined in years and months?	1,2	DR	The operational lifetime of the project is defined in years and months.	OK	OK
C.3. Length of the crediting period					
C.3.1. Is the length of the crediting period specified in years and months?	1,2	(17) R	5 years or 60 months. The starting date of the crediting period is 01/01/2008. **CL 05.** Please clarify if there is supposed to be after crediting period.	CL 05	OK
D. Monitoring Plan					
D.1. Description of monitoring plan chosen					
D.1.1. Is the monitoring plan defined?	1,2,	DR	The monitoring plan is presented in Section	(18) C	OK

	4		D of the PDD. **CAR 17.** There is no proof onsite that the data monitored and required for calculation of the ERUs will be archived and kept for 2 years after the last transfer of ERUs. **CL 06.** Please clarify what is considered under indirect data and evidence, which may be used if the main metering device fails, and there are no reserve metering devices available. **CAR 26.** Please correct references to the IPCC volumes in the Table D.1. p.35 (f.e. coke production emission factor is taken from IPCC Volume 3 not Volume 4, Coal combustion – from Volume 2, Table 2.5 not 1.4 etc). **CAR 28.** Please correct 'sinter production' to 'sinter consumption' in the Table D.1. p.35	AR 17, (19) CL 06, CAR 26, 28 (20)	
D.1.2. Option 1 – Monitoring of the emissions in the project scenario and the baseline scenario.	1,2, 4	DR	See Section D.1.1 of the PDD version 1.0.	OK	OK
D.1.3. Data to be collected in order to monitor emissions from the project, and how these data will be archived.	1,	DR	See Section D.1.1.1 of the PDD version 1.0. Monitoring plan will include the following positions to monitor emission reductions from the project: • Pig iron production at BF 1 • Coke consumption at BF 1 • Natural gas consumption at BF 1	CL 07, 10 CAR 18, 19, 20, 21	OK

			• Electricity consumption at BF 1 • Limestone consumption at BF 1 • Sinter consumption at BF 1 • Pellets consumption at BF 1 • Pulverized coal (PC) production • Pulverized coal (PC) consumption • Natural gas consumption for PC production • Electricity consumption for PC production • Coke carbon content • Steel production at OHFs • Pig iron consumption at OHFs • Limestone consumption at OHFs • Lime consumption at OHFs • Coke consumption at OHFs • Coal consumption at OHFs • Natural gas consumption at OHFs • COG consumption at OHFs • Electricity consumption at OHFs This data will be archived both in electronic and paper way. **CL 07.** Please clarify why oxygen consumption is not included in the calculations and monitoring plan. **CAR 18.** Please include Pulverized coal (PC) consumption into the list of the parameters that have to be continuously monitored. **CAR 19.** Please clarify how PP was able to calculate average specific consumption of		

			pulverized coal by BF 1 using PC consumption by BF 1 while the PDD at the same time states that it is impossible to calculate this parameter since it is not monitored for two BF separately. By the way excel spread sheet contains defined number so it is impossible to trace if it was calculated by the method mentioned in PDD or the data was taken from the plant. **CAR 20.** Please double check the value of average specific consumption of pulverized coal by BF 1 since it is not 0. **CAR 21.** COG consumption at OHFs is not considered to be used during the crediting period why is it being monitored? Please clarify and remove it throughout PDD if necessary. **CL 10.** Please clarify what is the purpose of measuring and monitoring specific electricity consumption in the excel spreadsheet if it is not mentioned in PDD ver. 3.1.		
D.1.4. Description of the formulae used to estimate project emissions (for each gas, source etc.; emissions in units of CO2 equivalent).	1,2	DR	See Section D.1.1.2 of the PDD version 1.0.	OK	OK
D.1.5. Relevant data necessary for determining the baseline of anthropogenic emissions of greenhouse gases by sources within the project boundary, and how such data will be collected and archived.	1,2	DR	See Section D.1.1.3 of the PDD version 1.0. Monitoring plan will include the following positions to monitor emission reductions from the baseline: • Amount of pig iron produced by BF 1 Amount of steel produced in the OHFs	OK	OK

D.1.6. Description of the formulae used to estimate baseline emissions (for each gas, source etc, emissions in units of CO2 equivalent).	1,2	DR	See Section D.1.1.4 of the PDD version 1.0. **CL 08.** Please clarify if the baseline scenario for Subproject 2 is 'Continuation of the current situation' how in equitation (13) baseline emission reductions can be due to implementation of APCS.	CL 08	OK
D.1.7. Option 2 – Direct monitoring of emissions reductions from the project (values should be consistent with those in section E)	1,2	DR	Not applicable	-	-
D.1.8. Data to be collected in order to monitor emission reductions from the project, and how these data will be archived.	1,2	DR	Not applicable	-	-
D.1.9. Description of the formulae used to calculate emission reductions from the project (for each gas, source etc; emissions/emission reductions in units of CO2 equivalent).	1,2	DR	Not applicable	-	-
D.1.10. If applicable, please describe the data and information that will be collected in order to monitor leakage effects of the project.	1,2	DR	Data and information that will be collected in order to monitor leakage effects of the project is presented in Table D.1.3.1. of the PDD	OK	OK
D.1.11. Description of the formulae used to estimate leakage (for each gas, source etc.; emissions in units of CO2 equivalent).	1,2	DR	See Section D.1.3.2. of the 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).	1,2	DR	See Section D.1.4. of the PDD	OK	OK
D.1.13. Is information on the collection and archiving of	1,2	DR	Collection and archiving of the information	OK	OK

information on the environmental impacts of the project provided?			on the environmental impacts of the project was done based on the approved EIA in accordance with the host Party legislation (see Section F.1).		
D.1.14. Is reference to the relevant host Party regulation(s) provided?	1,2	DR	**CAR 22.** Please provide reference to the relevant host Party regulations. If not applicable, please state so.	CAR 22	OK
D.1.15. If not applicable, is it stated so?	1,2	DR	Refer to D.1.14.	Pending	-
D.2. Qualitative control (QC) and quality assurance (QA) procedures undertaken for data monitored					
D.2.1. Are there quality control and quality assurance procedures to be used in the monitoring of the measured data established?	1,2	(21) R	Quality control and quality assurance procedures are exhaustive. **CAR 23.** Please double check equipment mentioned in the section D.2 of the PDD version 1.0 according to the one placed on-site. **CAR 27.** Please provide in PDD information how dolomite and magnesite consumption is metered (insert information into Table D.2)	CAR 23, 27	OK

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	1,2	DR	Technical department is responsible for monitoring, collection, registration, visualization, archiving, reporting of the data monitored. The measurement team from PJSC "Donetsksteel" – Iron and Steel Works" is responsible for periodical checking of all measurement devices. All data needed for calculation of the emission reduction is collected at the PJSC "Donetsksteel" – Iron and Steel Works" during the common operation. Resulting statistics is forwarded to Technical Department for recalculation and summarising in the Monthly Technical Reports. These reports will be the main source of monitoring data.The principle structure is presented the flow-chart in Section D.3. **CL 09.** Please clarify the detailed structure of the team members.	CL 09	OK

D.4. Name of person(s)/entity(ies) establishing the monitoring plan					
D.4.1. Is the contact information provided?	1,2	DR	The contact information is provided in the Annex 1 of the PDD	OK	OK
D.4.2. Is the person/entity also a project participant listed in Annex 1 of PDD?	1,2	DR	The entity is the project participant listed in Annex 1 of the PDD	OK	OK
E. Estimation of greenhouse gases emission reductions					
E.1. Estimated project emissions					
E.1.1. Are described the formulae used to estimate anthropogenic emissions by source of GHGs due to the project?	1,2	DR	The formulae used to estimate project emissions is described in Section D.1.1.2. of the PDD.	OK	OK
E.1.2. Is there a description of calculation of GHG project emissions in accordance with the formula specified in for the applicable project category?	1,2	DR	The estimated values of the project emissions are presented in PDD Section E.1 Table 1. An excel spreadsheet was made available to the verifiers. The calculations were checked and observed to be correct at the assumptions taken and input data used.	OK	OK
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?	(22),2	DR	Yes, conservative assumptions have been taken into account to calculate project GHG emissions.	OK	OK
E.2. Estimated leakage					
E.2.1. Are described the formulae used to estimate leakage due to the project activity where required?	1,2	DR	The formula used to estimate leakage due to the project is described in Section D.1.3.2. of the PDD	OK	OK
E.2.2. Is there a description of calculation of leakage in	1,2	DR	A description of calculation of leakage in	OK	OK

accordance with the formula specified in for the applicable project category?			accordance with the formula specified for the applicable project category is presented in Tables 3 and 4 Section E.2.of the PDD		
E.2.3. Have conservative assumptions been used to calculate leakage?	1,2	DR	N/a	-	-
E.3. The sum of E.1 and E.2.					
E.3.1. Does the sum of E.1. and E.2. represent the project activity emissions?	1,2	DR	Table 5 contains the calculated values of the sum of E.1 and E.2 represents the project emissions.	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?	1,2	DR, I	The formula used to estimate baseline emissions is presented in Section D.1.1.4. of the PDD.	OK	OK
E.4.2. Is there a description of calculation of GHG baseline emissions in accordance with the formula specified for the applicable project category?	1,2	DR, I	The estimated values of the baseline emissions are presented in PDD Section E.4 Table 7. The calculations on excel spreadsheet were checked and observed to be correct at the assumptions taken and input data used.	OK	OK
E.4.3. Have conservative assumptions been used to calculate baseline GHG emissions?	1, 2	DR	Yes, conservative assumptions have been taken into account to calculate baseline GHG emissions.	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	1,2	DR	The estimated values of GHG emission reductions (the difference between E4 and	OK	OK

project during a given period?			E3) are presented in PDD Section E.5, Table 9.		
E.6. Table providing values obtained when applying formulae above					
E.6.1. Is there a table providing values of total CO_2 abated?	1,2	DR	The presented Table E.6 provides the yearly and total values of project emissions, leakages, baseline emissions and emission reductions for the crediting period.	OK	OK
F. Environmental Impacts					
F.1. Documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party					
F.1.1. Has an analysis of the environmental impacts of the project been sufficiently described?	1,2	DR, I	Analysis of the environmental impacts of the project is described in PDD Section F1. **CAR 24.** Please submit the list of the documentation. **CAR 25.** Please clarify and add to PDD who and when has performed EIA for the project.	CAR 24, 25	OK
F.1.2. Are there any host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	1,2, 7	DR I	According to Ukrainian legislation, an Environmental Impact Assessment (EIA), as a part of the project design documents, has been completed for the proposed project and approved by local authority (seen on site).	OK	OK
F.1.3. Are the requirements of the National Focal Point being met?	1,2, 8	DR I	Yes, the requirements of the National Focal Point are being met	OK	OK

F.1.4. Will the project create any adverse environmental effects?	1,2	DR I	As shown in the EIA, the proposed projects will not harm the environmental conditions in the region, so no negative transboundary effects are expected.	OK	OK
F.1.5. Are transboundary environmental impacts considered in the analysis?	1,2	DR I	See section above.	OK	OK
F.1.6. Have identified environmental impacts been addressed in the project design?	1,2	DR	Refer to item F.1.1. of the present Verifiers' Note.	OK	OK
G. Stakeholders' comments					
G.1. Information on stakeholders' comments on the project, as appropriate					
G.1.1. Is there a list of stakeholders from whom comments on the project have been received?	1,2	(23) R	Environmental impacts are not considered significant by the project participants or the host Party	OK	OK
G.1.2. The nature of comments is provided?	1,2	DR	Refer to item G.1.1. of the present Verifiers' Note.	OK	OK
G.1.3. Has due account been taken of any stakeholder comments received?	1,2	DR	Refer to item G.1.1. of the present Verifiers' Note.	OK	OK

Table 4 Legal requirements

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
1 Legal requirements					
1.1. Is the project activity environmentally licensed by the competent authority?	1	DR, I	The project is licensed by the competent authority. This was checked on-site. Project activity is permitted by: • Environmental impact assessment (EIA). Working draft "Installation of APCS at the open-hearth furnaces" dated 2010. • Letter of intention. • Permit on the pollutant emmisions into the atmosphere by stationary sources dated 03/06/2009. It is valid for 5 years from 03/06/2009 to 03/06/2014. • Report of scientific work "Determination of the basic amounts of greenhous gas emissions, analysis of dinamic of emissions measurement during implementation of the plans of enterprise development, calculation of the emissions reduction during modernization of planr production,	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			feasibility study of the joint implementation projects" dated 2008. • Environmental impact assessment (EIA) of BF #1 overhaul of PJSC “Donetsksteel” – Iron and Steel Works” plant". Explanatory note TM-106002 dated 2002. • Statement of environmental effects of instalation of APCS at open-hearth furnaces #5-8 branch "metallurgical complex" of CJSC "Dotetsksteel" - metallurgical plant". • Opinion #077639 of the state ecological expertise (additional) CN№04.12.090. of the compliance of project documentation with legislations on environmental protection dated 03/12/2004.		
1.2. Are there conditions of the environmental permit? In case of yes, are they already being met?	1	DR, I	Environmental permits are presented, please refer to section 1.1. table 4. of the present Verifiers’ Note..		
1.3. Is the project in line with relevant legislation and plans in the host country?	1	DR, I	The project is in line with relevant legislation and plans in the host country.		

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 1, 2, 3	Summary of project owner response	Determination team conclusion
CAR 01. The project has no approval of the host Party.	1 Table 1	Letter of Approval from the Netherlands 2010JI30 was issued on 7th of October 2010. Letter of Approval from Ukraine #3187/23/7 dated 1st of November 2011 was issued by State Environmental Investment Agency of Ukraine	Issue is closed
CAR 02. Please provide evidence that JI incentive was considered on the stage of project realization decision making.	A.2.2.	According to the Answer provided by JISC to DNV on the request of clarification regarding the assessment of prior consideration in JI* "there is no explicit mentioning in the existing JI regulations that prior consideration needs to be demonstrated in JI". Based on this no additional evidence on prior consideration was provided to the AIE.	Evidence and explanation have been found satisfactory. Issue is closed.
A. CL 01. Please clarify the difference between newly installed system APCS and already existing from 1996 system R-3.	A.4.2.1	The difference between the two systems is in their functionality. These are the tools serving different purposes and cannot be a substitute to each other. SAP R/3 is an integrated enterprise resource	Issue is closed.

* http://ji.unfccc.int/Ref/Guida/reqClarifications.html

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		planning software designed to coordinate all the resources, information, and activities needed to complete a business process. Thus, at Donetsksteel SAP R/3 is used to collect and analyze operational data of the entire plant used mainly for management purposes. APCS is designed for automatic control over various parameters of melting (such as temperature, fuel consumption, gas/air ratio etc.) to ensure the best quality of steel produced in OHFs. APCS collects and archives data on technical parameters of melting, fuel consumption, technical characteristics of OHFs, emergency signals etc.	
CL02. Please clarify the years or periods taken for 'before the project' and 'after the project' in the table in the section A.4.2.	A.4.2.1	In the table in the section A.4.2. "before the project" data refer to 2004, "after the project" data is for 2007. Relevant corrections were made in Section A (page 9) of the PDD version 3.0	Issue is closed.
CAR 03. Please correct the number of the OHF on the Figure 2 in the section A.4.2.	A.4.2.1	The number of the OHF on the Figure 2 in the section A.4.2. is correct: 5. The confusion was caused by its title which was corrected to "Scheme of APCS with detailed scheme of APCS at OHF 5 as an example" in Section A	Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		(page 8) of the PDD version 3.0	
CAR 04. Please, include in the report information considering training of the staff.	A.4.2.4	Donetsksteel has a comprehensive system for education and training of staff, licenced by the Ukrainian Ministry of Education (Licence AB No 529180). All of the staff members receive professional education according to the approved educational plans which imply theoretical studies, practical supervised training at worksite and qualification exam. Successful passing of all the stages is prerequisite for acquiring work permit. At worksite all the staff members are periodically instructed to refresh their knowledge of their responsibilities and safety rules. Job descriptions are available at each workplace. The proposed JI project does not require any specific arrangements in terms of training of the staff and monitoring procedures. It fully relies on existing at the Plant system. Emission reduction calculations are performed by JI Consultants of Global Carbon. This information was added to the Section A (page 4) of PDD version 3.0.	Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
CL 03. Please clarify, whether the project requires extensive maintenance efforts in order to work as presumed during the project period.	A.4.2.4.	After the major reconstruction which took place in 2005-2007 the project will not require extensive maintenance efforts during the project period, however, the necessary maintenance efforts are to be taken in order to ensure the proper operation of the project. Existing at Donetsksteel planning system implies annual maintenance plans approved in the end of the previous year. The copy of such plan for 2011 was provided to the AIE. Given the fact that the last overhaul of BF1 was 30 years before the reconstruction works and implementation of the project activity, the next major maintenance efforts of this scale are not expected within at least next 20 years after the commissioning of BF1.	Issue is closed.
CAR 05. Please provide documentation proving the following stages of implementation schedule: preparation works for APCS, OHF5 shutdown, start and setup works for BF1, commissioning of BF1.	A.4.3.1.	As OHF5 was the first furnace with APCS, the preparation works for its installation were done immediately after the shutdown of OHF5. The following documents were provided as evidences for dates of stages of implementation schedule: Schedule of OHF maintenance for 2005 stating that OHF5 was stopped on 29th of November 2004, Order No 184 from 08.06.2005 “On overhaul of BF1” which states that BF1 was	Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		stoped on 17.05.2005. <u>The document about commissioning of BF1 was provided during the site visit and AIE confirmed it.</u> ***KZ:*** please provide explanation, clarification or just simply mark the place at SD 2, where the date of stoppage of OHF 5 is indicated. The documentation for APCS preparation works is still missing (by the way implementation schedule in PDD ver.3.0 states that the preparation works for APCS installation was performed before OHF 5 shut down, also PDD ver.3.0 contains the mistake in APCS spelling Table A.4.2.2: Project implementation schedule raw 10). ***Addition to the response:*** The time when OHF 5 was stopped (29/11/2004 – 31/12/2004) was marked with red circle in the SD2. There is no any remaining document with "preparation works for APCS" clearly separated to be presented as evidence. For accuracy, this stage was removed from Table A.4.2.2 in PDD version 3.1 (page 10, .pdf file) as in fact they were done after the shutdown of OHF 5 being a	

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		part of APCS implementation.	
CAR 06. Please justify in a more transparent way why Alternative 1.2. is not plausible. Please make more emphasize on the technological barriers.	B.1.2.	OHF and BF technologies are very sensitive to capacity fluctuation. Malfunction of newly developed first of its kind technology could lead to unplanned stops and downtimes, dangerous by their ability to severely damage OHFs and BF and cause emergency situation in the centre of the city. Besides, PCI technology has serious safety risks related to explosibility of suspended coal dust. Pulverised coal has high explosion risk during storage or transportation which increases under the following conditions: when content of volatiles in the fuel is in the range 15-40%; oxygen concentration is higher than 16%; humidity level is lower than 0,5%; temperature of the surrounding environment is increasing; there is an abutment with hot surfaces. The main source of inflammation of the pulverised coal is the remaining cinder dust which can cause explosion not only during operation of the installation, but also during its maintenance. This makes PCI technology risky and unreliable one, demanding significant efforts for its maintenance which constitute serious technical barrier for its implementation.	Explanation was found satisfactory. Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		This information was added to Section B (page 17) of PDD version 3.0.	
CAR 07. For the Alternative 2.3. please find sufficient justification why this alternative is not realistic since there is at least one metallurgical plant, where the similar technology is used.	B.1.2.	Alternative 2.3 namely the implementation of similar technology which have been tested at other plants in Ukraine supposes that the other automatic process control system could have been available at the time of the project implementation. In such a case the PO could have purchased the tested and proven one from the market and reduced the risks of failure and malfunctioning during development, fettling and operation of the system. In fact, the absence of APCS suited for operating modernized OHFs of the types installed at Donetsksteel made the PO develop their own *one of its kind* system, which is confirmed by the fact that it was patented with rights reserved by the PO. Therefore, the only metallurgical plant where such a technology is used is PJSC "Donetsksteel" – Iron and Steel Works". Arguments provided in the analysis of Alternative 2.3. in Section B (page 19) were clarified in PDD version 3.0.	Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
CL 04. Please provide information on how the real expectations of the PO are estimated and show the example.	B.1.5.	Production levels at PJSC "Donetsksteel" – Iron and Steel Works" are planned for one year ahead. Based on expected production levels consumption resources are estimated using specific consumption rates. The copies of such plans for 2010 and 2011 were provided to the AIE as an example.	Issue is closed.
CAR 08. Unfortunately it does not serve sufficient evidence for the inability to complete the project without ERU sales as no data regarding the project investment effectiveness is available. Please note that this barrier does not prevent from realization of multi million investment projects in metallurgy undertaken by key players in the industry like Metinvest, ISD and Zaporozhsteel.	B.2.1.	According to the Tool for Demonstration and Assessment of Additionality (Version 05.2) Steps "2. Investment analysis" and "3. Barrier analysis" are alternatives, meaning that these are the independent tools for demonstration of additionality of the project and can be used separately from each other. For proving additionality of Donetsksteel project it was chosen to use barrier analysis because of the following reasons: • Both sub-projects represent first-of-its-kind technology in Ukraine which were implemented as the project activity (first-	Explanation was found sufficient and satisfactory. Issue is closed.

* http://www.economica.com.ua/energy/article/22200.html

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		of-its-kind status was evidenced in the answer to CAR 11). • As none of the similar projects have ever been implemented, there exists no experience, data and knowledge to be used as input parameters for estimating possible costs of losses due to damages caused by malfunctioning of the newly installed systems as well as risks of their occurrence. • Any attempt of monetisation of this barrier for use in investment analysis is a purely theoretical exercise relying on estimated unverifiable data with high uncertainty level. Tool for Demonstration and Assessment of Additionality (Version 05.2) in the requirements to barrier analysis, barrier due to prevailing practice, in particular project activities being "first of its kind", is provided as an example of a realistic and credible barrier that would prevent	

* http://www.ukrrudprom.com/digest/Industrii_ne_do_razvlecheniy_Promishlenniki_prodolgayut_vnedryat_energosberegayushchie_proekti_dage_nesmotrya_na_krizis.html

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		the implementation of the project activity. In fact, this is exactly what happened with the other Ukrainian iron and steel works planning to implement PCI technology: the realisation of similar projects was prevented by technological, financial and prevailing practice barriers. The statement that "this barrier do not prevent from realization of multi million investment projects in metallurgy undertaken by key players in the industry like Metinvest, ISD and Zaporozhsteel" do not correspond to reality. It is true that as early as in 2006 number of Ukrainian metallurgical plants were declaring their plans for implementation of PCI. Among them were Alchevsk Iron and Steel Works, Enakievo Metallurgical Works, Azovstal Iron and Steel Works, Zaporozhsteel etc*. However, in 2009 Donetsksteel remained the only plant where PCI technology was implemented which is confirmed by publication in independent journal "Delovaya Stolica" as of April, 2010*. The article also confirms implementation of PCI technology by Zaporizhsteel saying that its fettling was only planned for April-May 2010, which means the project was realized 4 years later under different economic conditions when	

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		experience and know-how were already available in Ukraine. While considering the mechanisms how the identified barrier was alleviated to allow taking positive decision about implementation of the project it is important to bear in mind two important factors: status benefits of the project realisation and possible damage due to problems during implementation and approbation of "first of its kind" technology. Donetsksteel has always been active in R&D and pioneered implementation of energy efficiency technologies. The most outstanding example of this is installation of the first in Soviet Ukraine continuous casting machine back in 1960. After this, number of the other technologies were developed and approbated at Donetsksteel, including PCI and APCS for OHFs. In modern world innovation is perceived as necessary prerequisite of continuous development and is a key element of competitiveness of an enterprise. Therefore, reinforcing reputation of an innovative business was important for Donetsksteel in order to improve its image among possible investors. Thus, realisation of the project was in general	

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		desirable as a status action. However, it had a serious disadvantage preventing its realisation, namely the high risks of possible malfunction of equipment, which could cause significant damage. The final decision about project realisation depended on the perceived size of the damage which could be caused. As it was stated earlier, certain evaluation of such damage and the risk of its occurrence were not possible as none of the similar projects were realised before. However, when considering alternatives open to the Plant, decision makers could operate the comparative between the alternatives values of a perceived size of the possible compensation for the damage (D) and risk of its occurrence (R). In case of continuation of the current practise D_{BL}= 0 and R_{BL}=0; for project scenario D_{PL}= D and R_{PL}=R; for project scenario with JI damage would be still D and risk would be R, but additional income (I_{ERU}) could be expected, so when the problem is fixed and project continues generating GHG emission reductions, this income could be used for reimbursement of the damage compensation costs. Therefore, for project scenario with JI incentive D_{JI} = D – I_{ERU}.	

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		It is evident that $D_{PL} > D_{JI}$ with the same risk of its occurrence. Taking into account that expected I_{ERU} was accounted in millions Euro it constituted a serious difference for decision making about the project. Thus, proved existence of barrier due to prevailing practice, which is the case of the proposed JI project, and JI incentive which alleviates this identified barrier is a sufficient ground for conclusion that sub-step 3a of the barrier analysis was satisfied, which together with satisfying the rest of the steps of additionality analysis allows concluding that the proposed JI project is additional.	
CAR 09. The facts provided by the developer in Step 4 do not represent complete information regarding situation with development of PCI technology in Ukraine. Since "Zaporizhstal" and "Enakievskiy Metalurgicheskiy Zavod" are planning to implement such technology until 2012 the project can not be considered the only one of such kind on the territory of Ukraine.	B.2.1.	It is true fact that PCI technology was implemented at "Enakievskiy Metalurgicheskiy Zavod". This activity was included to the JI project "Introduction of energy efficiency measures at OJSC "Enakievo Metallurgical Works", PDD available at UNFCCC site: http://ji.unfccc.int/UserManagement/FileStorage/WPHQEOTL2JFDU65MR487XYC1ZB0VN9. The project was positively determined, Determination report available at http://ji.unfccc.int/UserManagement/FileStorage/2HMQWPTFKGZLSIO958VJUB1R3CXD46	Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		Projects implemented as a JI activity are not included to the common practice analysis by the requirements of Tool for Demonstration and Assessment of Additionality (Version 05.2). In the case of "Zaporizhsteel" PCI technology has not been implemented yet so it cannot be considered a part of common practice since declaration of plans is not a guarantee for successful implementation of the project. Besides, "Zaporizhsteel" as an entity with profound experience in JI (there are two registered JI projects working at this plant) is very likely to consider JI incentive for implementation of PCI technology also.	
CAR 10. Explanation provided in sub-step 3b that Alternative 1.1 does not need any investment is incorrect since the reconstruction of BF1 obviously needs investment.	B.2.1.	Alternative 1.1 Continuation of existing practice assumes pig-iron production in BF1 without reconstruction and without PCI technology implementation. However, continuous production of pig-iron would not be possible due to the fact that BF1 could not be operated without an overhaul which is a part of the other alternatives analyzed. Absence of any reconstruction activity would not require investment while still being an alternative. Arguments provided in the analysis of	Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		Alternative 1.1. in Section B (page 17) were clarified in PDD version 3.0.	
CAR 11. Please provide the patents (No 35552, 26512, 20930) that confirm that APCS system for OHF is first of its kind.	B.2.1.	The only patent related to APCS system for OHF is Patent No 20930 on "Method for Control over Thermal Conditions in a Steel-making Furnace". It confirms that there was no other similar method before which allowed reaching the same results; hence, it is first of its kind. The copies of this Patent as well as of the other ones requested were provided to the AIE.	Issue is closed.
CAR 12. Please, provide in a clear and transparent way a justification why the emissions in the baseline scenario would likely exceed the emissions in the project scenario.	B.2.4.	GHG emissions in baseline scenario would have been higher than emissions in project scenario because of: - Consumption of additional energy for coke preparation, the use of which was substituted by pulverized coal; - Higher consumption of natural gas and coke by BF1; - Higher consumption of energy resources by OFHs. This information was added to the Section A (page 10) PDD version 3.0	Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
CAR 13. National policies that affect a baseline are not taken into account.	B.2.6.	Sectoral reform policies and legislation are analyzed among the key factors that affect the baseline in Section B (page 13) of PDD. The key document defining the course of sectoral reforms is State Program of Industry Development until 2017* which aims at improving energy efficiency, but supposes that the enterprises finance those improvements from their own funds or bank loans†. Basically, this means that Ukrainian government is not intervenes in this process and execution of the Program fully depend on market conditions and availability of financial resources which are further described in Section B (page 13) of PDD. Therefore, based on the analysis sectoral reform policies and the corresponding legislation it is concluded that they will not influence the project baseline. This information was added to the Section B (page 14) PDD version 3.0.	Issue is closed.

* http://industry.kmu.gov.ua/control/uk/publish/article?art_id=57967&cat_id=57966

† http://195.78.68.71/industry/document/73193/%D0%97%D0%B0%D1%85%D0%BE%D0%B4%D0%B8%20%D0%93%D0%9C%D0%9A.doc;jsessionid=CFACEBEFDAEAF2D79D38044243590948

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
CAR 14. Please clarify why the electricity consumption for APCS are not considered among the emission sources.	B.3.1.	Electricity consumption for APCS was not taken into account as this emission source was considered insignificant according to paragraph 14 (a) (iii) of Guidance on Criteria for Baseline Setting and Monitoring, Version 02. APCS is run by two computers for each OFH with power intake of 400 W each. Annual consumption of electricity by APCS do not exceed 40 MWh, which causes GHG emissions of 35 tonnes of CO_2 equivalent which are less than 1% of annual average anthropogenic emissions and do not exceed the amount of 2,000 tonnes of CO_2 equivalent. This information was added to the Section B (page 29) PDD version 3.0	Issue is closed.
CAR 15. Please provide the date of the baseline setting in the DD/MM/YYYY format.	B.4.1.	The format of the date of baseline setting was corrected in the Section (page 30) of PDD version 3.0	Issue is closed.
CAR 16. Please choose one date as a start of the project.	C.1.	The starting date for subproject "Implementation of automatic process control system (APCS) for Open Hearth Furnaces" was chosen to be starting date of the project as earlier one: 5th of March, 2006.	Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		Project starting date was corrected in the Section C (page 31) of PDD version 3.0	
CL 05. Please clarify if there is supposed to be after crediting period.	C.3.	The project generated GHG emission reductions before the crediting period (2007), and will produce emission reductions after (2012-2026). The relevant changes were made in the Sections A (page 11) and E (pages 51-52) of PDD version 3.0, and calculation file.	Issue is closed.
CAR 17. There is no proof onsite that the data monitored and required for calculation of the ERUs will be archived and kept for 2 years after the last transfer of ERUs.	D.1.1.	By the Order "On storing the data required for realization of joint implementation projects" #343 from 16th of August 2010 the data monitored and required for calculation is to be archived and kept till 31st of December 2014. The copy of the Order is provided to AIE.	Issue is closed.
CL 06. Please clarify what is considered under indirect data and evidence, which may be used if the main metering device fails, and there are no reserve metering devices available.	D.1.1.	Under indirect data and evidence which is to be used when main metering device fails the data used for cross check is meant. Each measured parameter is cross-checked with the readings of commercial metering devices measuring the overall receipt of the given material or energy resource of the Plant deducted by the sum of	Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		expenditures for individual consumers. If the difference does not correspond to the readings being cross-checked, the reason for it is determined and data are adjusted accordingly taking into account accuracy class of the metering devise. This is performed on the stage of monthly report issuing. Once, it is prepared it is signed by the Head of responsible division and its data is used for official reporting, calculation of specific consumption norms and other purposes of the Plant. The explanation of monitoring and cross-check procedures was extended in Section D (page 32) of PDD version 3.0	
CL 07. Please clarify why oxygen consumption is not included in the calculations and monitoring plan.	D.1.3.	Oxygen consumption by blast furnace No 1 was taken into account in emission reductions calculation and was added to monitoring plan. The relevant changes were made in the Section D (page 39) and Annex 3(page 70) of PDD version 3.0, and calculation file. ***KZ:*** Updated calculation file was not sent to the verifiers' team.	Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		Addition to the response: Updated calculation file was sent to the verifiers' team.	
CAR 18. Please include Pulverized coal (PC) consumption into the list of the parameters that have to be continuously monitored.	D.1.3.	Pulverized coal was included into the list of parameters that have to be continuously monitored. The relevant changes were made in the Section D (page 39) and Annex 3(page 70) of PDD version 3.0. Information about metering devices to be used and applicable reporting procedures was added to Section D (page 49). ***KZ:*** Probably p.37 and 75 were meant. ***Addition to the response:*** These are pages 37 and 75 in the PDD version 3.1 (.pdf file).	Issue is closed.
CAR 19. Please clarify how PP was able to calculate average specific consumption of pulverized coal by BF 1 using PC consumption by BF 1 while the PDD at the same time states that it is impossible to calculate this parameter since it is not monitored for two BF separately. By the way excel spread sheet contains defined number so it is impossible to trace if it was calculated by the method mentioned in PDD or the data	D.1.3	PC consumption by BF1 is measured separately, historic data is available and it is possible to monitor the project activity data. Excel spread shit contains the historic data of direct measurements. This mistake was corrected in PDD version 3.0. The changes were made in the Section D (page 35) PDD version 3.0. ***KZ:*** no change on the p.35. Updated calculation	Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
was taken from the plant.		file was not sent to the verifiers' team. ***Addition to the response:*** This change is on page 41 in PDD version 3.1 (.pdf file). Updated calculation file was sent to the verifiers' team.	
CAR 20. Please double check the value of average specific consumption of pulverized coal by BF 1 since it is not 0.	D.1.3.	The values of PC consumption applied for calculation were checked in accordance with annual technical reports of Blast Shop from the Plant's SAR3 system. The values were corrected in emission reduction calculation file which also influenced the resulting emission reductions which were changed in Sections A (page 11) and E (pages 51-52) of PDD version 3.0. ***KZ:*** Updated calculation file was not sent to the verifiers' team. ***Addition to the response:*** Updated calculation file was sent to the verifiers team	Issue is closed.
CAR 21. COG consumption at OHFs is not considered to be used during the crediting period why is it being monitored? Please clarify and remove it throughout PDD if necessary.	D.1.3.	It is correct that there is no COG consumption at OHFs. This parameter was added to the monitoring plan to make sure that it is not supplied to OHFs to avoid unaccounted project emissions. However, due to the fact that there is no technical possibility of COG supply, because	Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		the COG pipeline to OHF Shop does not exist anymore, this parameter was removed from the monitoring plan. Relevant changes were made in Section D (page 39) and Annex 3 (page 70) of PDD version 3.0	
CL08. Please clarify if the baseline scenario for Subproject 2 is 'Continuation of the current situation' how in equitation (13) baseline emission reductions can be due to implementation of APCS.	D.1.6.	The introduction to the equitation (13) "baseline emissions due to implementation of APCS for OFHs" is incorrect and was changed to "baseline emissions without implementation of APCS for OFHs" at Section D (page 44) of PDD version 3.0 ***KZ:*** Probably p.45 was meant. ***Addition to the response:*** This is page 45 in the PDD version 3.1 (.pdf file).	Issue is closed.
CAR 22. Please provide reference to the relevant host Party regulations. If not applicable, please state so.	D.1.14.	The following text was added to Section F (page 54) of PDD version 3.0: *"Environmental Impact Assessment (EIA) is the part of the Ukrainian project planning and*	Issue is closed.

[*] State Construction Standard DBN A.2.2.-1-2003 :"Structure and Contents of the Environmental Impact Assessment Report (EIR) for Designing and Construction of Production Facilities, Buildings and Structures" State Committee Of Ukraine On Construction And Architecture, 2004

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		permitting procedures. Implementation regulations for EIA are included in the Ukrainian State Construction Standard DBN A.2.2.-1-2003 (Title:"Structure and Contents of the Environmental Impact Assessment Report (EIR) for Designing and Construction of Production Facilities, Buildings and Structures"). Environmental impact assessment of the project was undertaken at the project development stage. All the necessary permissions were obtained in compliance with the existing Ukrainian legislation, namely: the Laws of Ukraine "On Protection of Environment", "On Ecological Expertise", "On Protection of Atmospheric Air", "On Ensuring Sanitary and Epidemic Welfare of the Population", and "On Local Councils and Local Government", as well as the applicable Water Code, Land Code, and Forest Code."*	
CAR 23. Please double check equipment mentioned in the section D.2 of the PDD version 1.0 according to the one placed on-site.	D.2.1.	The equipment was double checked. Metering devises for measuring PC consumption of BF1, and electricity consumption for oxygen production were added.	Issue is closed.
CL 09. Please clarify the detailed structure of the team members.	D.3.1.	Primary monitoring data is recorded by operators of measuring devises. The data is	Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		filled in operation logs from which it is summed up, results are filled in daily reports, which are then transferred to accounting office of the relevant shop. Primary monitoring data regarding fuel consumption at OFHs is recorded by APCS of OFHs and transferred to accounting office of the relevant shop in electronic format. At shops' accounting offices data are analyzed and imputed into SAR3, where they are accumulated and aggregated into monthly and yearly reports. Those reports, which contain the project monitoring data are copied from SAR3 by the Department for Energy Saving and sent to Global Carbon for emission reduction calculation and preparation of the monitoring reports. More detailed information on people involved in data collection and reporting process will be provided on the monitoring stage to ensure maximal accuracy. This explanation was added to Section D (page 50). The monitoring scheme of data collection and reporting was updated in Section D (pages 49) of PDD version 3.0.	

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
CAR 24. Please submit the list of the documentation.	F.1.1.	The list of documentation on environmental impacts of sup-project 1 Implementation of PCI at BF1: 1. EIA "Blast Furnace No 1 Overhaul", performed by State Scientific and Research Design Institute for Metallurgical Industry "Giprostal", 2002 2. Declaration of Consequences of Blast Furnace No 1 Overhaul* 3. Permit on emissions from stationary sources No 1 410 137 700-43 from 03.06.2009 effective till 03.06.2014. The list of documentation on environmental impacts of sup-project 2 Implementation of APCS for OHFs: 1. EIA "APCS Implementation for open hearth furnaces", performed by OJSC "Ukrecoaudyt", 2010. 2. Declaration of Intensions for APCS Implementation for open hearth furnaces. 3. Declaration of Consequences for APCS Implementation for open hearth	Issue is closed.

* Declaration of intentions was not required before 2003, when the new State Building Standard on Environmental Impact Assessment was adopted.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		furnaces. The list of documentation was added to Section F (page 53) of PDD version 3.0.	
CAR 25. Please clarify and add to PDD who and when has performed EIA for the project.	F.1.1.	EIAs for the two subprojects were performed separately. Installation of PCI technology was conducted as a part of overhaul of BF1, complex EIA of which was performed by State Scientific and Research Design Institute for Metallurgical Industry "Giprostal" in 2002. EIA of APCS was done by OJSC "Ukrecoaudyt" in 2010. This information was added to Section F (page 53) of PDD version 3.0. ***KZ:*** Probably p.55 was meant. ***Addition to the response:*** This is page 55 in the PDD version 3.1 (.pdf file).	Issue is closed.
CAR 26. Please correct references to the IPCC volumes in the Table D.1. p.35 (f.e. coke production emission factor is taken from IPCC Volume 3 not Volume 4, Coal combustion – from Volume 2, Table 2.5 not 1.4 etc)	D.1.1	References to the IPCC volumes were corrected in the Table D.1. in PDD version 3.2 (page 35 .pdf file). Reference to Table 1.4 of Volume 2 for coal combustion emission factor was correct. ***KZ:*** References to IPCC for the emission	Issue is closed

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		factors for NG combustion, COG combustion and coal combustion are still incorrect. Probably Table 2.3 is meant instead of 1.4. ***Addition to the response:*** These are the two possible sources of IPCC emission factors for NG combustion, COG combustion and coal combustion. Referencing both is correct. No changes were made in PDD version 3.2.	
CL 10. Please clarify what is the purpose of measuring and monitoring specific electricity consumption in the excel spreadsheet if it is not mentioned in PDD ver. 3.1.	D.1.3	This parameter was used to determine amount of power consumed for production of the oxygen which was supplied to BF1. The data were used for estimation of emission reductions in the excel spreadsheet and the parameter with values applied were mentioned in Annex 3 (page 71) of PDD version 3.1. Specific electricity consumption is calculated as the following part of equation 7: $FC_{eLPJ,y}^{OX}/OX_{PJ,y}$, where $OX_{PJ,y}$ – Total oxygen produced under the project; $FC_{eLPJ,y}^{OX}$ – Total electricity consumed for oxygen production under the project.	Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 1, 2, 3	Summary of project owner response	Determination team conclusion
		Monitoring parameters $FC^{OX}_{sLPJ,y}$ and $OX_{PJ,y}$, as well as $OX^{BF}_{PJ,y}$ (oxygen consumption by BF1) were added to Table D.1.1.1. in PDD version 3.2 (page 37 .pdf file).	
CAR 27. Please provide in PDD information how dolomite and magnesite consumption is metered (insert information into Table D.2)	D.2.1.	Information about metering of dolomite and magnesite consumption was added to Table D.2 in PDD version 3.2 (page 49 .pdf file).	Issue is closed.
CAR 28. Please correct 'sinter production' to 'sinter consumption' in the Table D.1. p.35	D.1.1.	The correction was not made. Table D.1. lists emission factors used for calculation of emission reductions. Emissions associated with sinter consumption are those resulting from sinter production process. Therefore, to determine emissions related to the project activity, amount of sinter consumed under the project is multiplied by emission factor for sinter production. For more information on GHG emissions during sinter production process refer to IPCC, Volume 3, Figure 4.3.	Issue is closed.