DETERMINATION REPORT
GLOBAL CARBON BV

DETERMINATION OF THE
UTILIZATION OF COKE GAS WITH ELECTRICITY GENERATION BY TWO 6 MWE CHP AT "ZAPOROZHCOX PLANT"

REPORT NO. UKRAINE/0071/2009
REVISION NO. 04

BUREAU VERITAS CERTIFICATION

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DETERMINATION REPORT ON JI PROJECT "UTILIZATION OF COKE GAS WITH ELECTRICITY GENERATION BY TWO 6 MWE CHP AT "ZAPOROZHCOX PLANT"

Date of first issue: 04/03/2010	Organizational unit: Bureau Veritas Certification Holding SAS
Client: Global Carbon BV	Client ref.: Lennard de Klerk

Summary:

Bureau Veritas Certification has made the determination of the "Utilization of coke gas with electricity generation by two 6 MWe CHP at "ZaporozhCox Plant" project of "ZaporozhCox Plant" located in the city of Zaporizhya, 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 the baseline and monitoring methodology and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

Report No.: UKRAINE/0071/2009	Subject Group: JI	
Project title: Utilization of coke gas with electricity generation by two 6 MWe CHP at "ZaporozhCox Plant"		
Work carried out by: Ivan Sokolov - Team Leader, Lead Verifier Oleg Skoblyk - Team Member, Verifier Denis Pishchalov - Team Member, Financial Spesialist		
Work verified by: Leonid Yaskin - Internal Technical Reviewer		
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Indexing terms

Climate Change, Kyoto Protocol, JI, Emission Reductions, Verification

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Abbreviations

AIE	Accredited Independent Entity
BVC	Bureau Veritas Certification
CAR	Corrective Action Request
CL	Clarification Request
CH_4	Methane
CHP	Combined Heat and Power
CO_2	Carbon Dioxide
COG	Coke Oven Gas
DDR	Draft Determination Report
DR	Document Review
EF	Emission Factor
EIA	Environmental Impact Assessment
ERU	Emission Reduction Unit
GHG	Green House Gas(es)
I	Interview
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
MoV	Means of Verification
NGO	Non Government Organization
PDD	Project Design Document
tCO_2e	Tonnes CO2 equivalent
UNFCCC	United Nations Framework Convention for Climate Change
ZCP	ZaporozhCox Plant

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1 INTRODUCTION

The Global Carbon BV Company has commissioned Bureau Veritas Certification to determinate its JI project "Utilization of coke gas with electricity generation by two 6 MWe CHP at "ZaporozhCox Plant" in the city of Zaporizhya, 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 emission reduction units (ERUs).

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

1.2 Scope

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

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

1.3 GHG Project Description

The project proposes to make use of excess coke oven gas (COG) to generate electricity by two new steam turbine generators, replacing power currently being sourced from the national grid. This will be introduced in parallel with improved automated process control systems that will

increase the efficiency of the use of the power, further still reducing that required from the national grid.

Ukraine is one of the most energy intensive countries in the world. In Ukraine the primary energy consumption has been fairly stable from 2004 until 2007, with about 79% of the total energy consumption being produced from fossil fuels such as coal, oil, and natural gas. Ukraine's overall self-sufficiency in fossil fuels is less than 50 %, made up of 10-15% from oil 20 - 25% from gas, and 80 - 85% from coal.

Coke production is an energy intensive process, one tonne of dry blast furnace coke requires about 3.7 GJ (0.89 Gcal) of energy. However, the coke oven gas (COG) produced in the coke battery as a by-product is suitable for energy production. The common practice in the Former Soviet Union (FSU) countries is using COG to produce heat/steam.

From the year 2002, steam was produced at the ZaporozhCox Plant (ZCP) using two boilers, each with a capacity of 75 t/h, Before 2002, the required steam was imported from a neighbouring steel plant, ZaporozhStal, in return for some of the excess COG that could not be consumed by ZCP internally. The excess COG was used by ZaporozhStal as a supplementary fuel (the main fuel being natural gas).

The two ZCP boilers generate steam with a pressure of 35 kgf/sm2 and temperature of approximately 440°C. These parameters are excess for the technological needs of the project. To reduce the pressure and temperature, three PRDS (pressure-reducing and desuperheating stations) units are used. PRDS work by cooling and depressurization of superheated steam by introducing water. The output is steam with a pressure of 5,0-5,5 kgf/sm2 and temperature of 300°C. This is a common practice in FSU countries.

In 2004, the management of ZCP decided to further improve the existing scheme, by implementing units which would generate electricity from the excess temperature and pressure reduced by the PRDS's. This electricity will be used for ZCP's energy consuming equipment and therefore will substitute energy purchased from the Ukrainian distribution network. The design documents were completed by 2004 and after a short consideration in January 2005 the company approved the project.
An initial review of possible sources of "The first stage of power generating capacity" project financing were considered at OJSC "Zaporozhcoke" Plant Technical Council Meeting on January 14, 2005 and documented in the respective Minutes.

The Minutes contain the following: "At this meeting an initial review on possible sources of the project financing including credits and participation in international conventions was performed.
Given that project activities associated with a reduction of pollutant emissions into the atmosphere, including greenhouse gases, and that Ukraine ratified the Kyoto Protocol in February 2004, it is possible in the

future to receive additional revenue through the sale of greenhouse gas emission reductions resulting from implementation of the project under consideration.
Yuriy Chernyshov, Chief of Production and Technical Department, was assigned to explore till July, 2005 the possibility of attracting investment through Kyoto protocol mechanisms."

It should be noted that there are no reasons, financial, legislative, etc. that obliges ZCP to undertake this project, and there is no legislation against the proposed project activity.

The most probable scenario which would have been taken place without the project is a continuation of existing practice. In this scenario electricity will continue to be imported from the grid. The COG available for the energy production would be flared and burnt in the existing boiler house without electricity generation. PRDS would still be used for correction of the steam parameters, with some of the COG being delivered for external consumers (Zaporozhstal) as a fuel, for heat generation.
The proposed technology will cover approximately 70% of ZCP electricity needs, therefore all electricity generated will be consumed onsite.

1.4 Determination team

The determination team consists of the following personnel:

Ivan Sokolov
Bureau Veritas Certification,Team Leader, Climate Change Lead Verifier

Oleg Skoblyk
Bureau Veritas Certification, Team memeber, Climate Change Verifier

Denis Pishchalov
Bureau Veritas Certification, Team member, Financial Spacialist

Leonid Yaskin
Bureau Veritas Certification, Internal Technical Reviewer

2 METHODOLOGY

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

In order to ensure transparency, a determination protocol was customized for the project, according to the Determination and Verification Manual (IETA/PCF). The protocol shows, in a transparent manner, criteria (requirements), means of verification and the results from 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 determinator will document how a particular requirement has been determined and the result of the determination.

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

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

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

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

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

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

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

Figure 1 Determination protocol tables

2.1 Review of Documents

The Project Design Document (PDD) version 0.92 dated 20/11/2009 was submitted by Global Carbon BV on 23/11/2009 together with supporting documentation regarding calculation of GHG emission.

After a site visit of Bureau Veritas Determination team to ZaporozhCox Plant had been performed, a new PDD version 1.1.1.dated 24 December 2009 appeared and was made publicly available for public comments on UNFCCC site from 05 January 2010 to 03 February 2010.

PDD version 1.1.1. and additional background documents related to the project design, baseline, and monitoring plan, such as Kyoto Protocol,

Host Country laws and regulation, JI guidelines, JISC Guideance on criteria for baseline and monitoring, and Guidelines for users of the JI PDD Form were reviewed.

The first deliverable of the document review was the Draft Determination Report dated 11/01/2010 with 24 CAR's and 7 CL's.

To address Bureau Veritas Certification corrective action and clarification requests Global Carbon BV revised the PDD and resubmitted its updated version 2.0 on 03/03 /2010.

The determination findings presented in this Determination Report relate to the project as described in the PDD Version 1.1.1 dated 24 December 2009, PDD Version 2.0 dated 03 March 2010, including PDD Developer responses to CARs and CLs , PDD Version 3.0 dated 12 March 2010, comprising responses to the ITR's requests, and PDD version 5.0 dated 27/10/2010 comprising the responses to the JISC review team.

The Project is approved by the Ministry of Economic Affaires and its complementing Agency "NL Agency" being the Designated Focal Point for Joint Implementation in The Netherlands and by the National Environmental Investment Agency of Ukraine. (Both LoAs are submitted to the AIE and listed among Category 1 Documents in Section 6 References of the present Determination Report).

2.2 Follow-up Interviews

On 25/11/2009 Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of "ZaporozhCox Plant" were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
"ZaporozhCox Plant"	➢ History of the project ➢ Implementation schedule ➢ Project management organisation ➢ Evidence and records on reconstruction and new building and its operation ➢ Environmental Impact Assessment ➢ Project monitoring responsibilities ➢ Monitoring equipments ➢ Quality control and quality assurance procedures
LOCAL Stakeholder Industry and Infrastructure Development Department, Regional State Administration	➢ Environmental impacts affected ➢ Local authorities and public opinion
CONSULTANT Global Carbon BV	➢ Applicability of methodology ➢ Baseline and Project scenarios ➢ Barriers analysis ➢ Additionality justification ➢ Common practice analysis ➢ Monitoring plan ➢ Estimation of the leakage ➢ Conformity of PDD to JI requirements

2.3 Resolution of Clarification and Corrective Action Requests

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

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

Corrective Actions Requests (CAR) are issued, where:

i) there is a clear deviation concerning the implementation of the project as defined in the PDD;
ii) requirements set by the Methodological Procedure or qualifications in a verification opinion have not been met; or
iii) there is a risk that the project would not be able to deliver high quality ERUs.

Clarification Requests (CL) are issued where

iv) additional information is needed to fully clarify an issue.

The Draft Determination Protocol summarising Bureau Veritas Certification's findings was submitted to Global Carbon BV on 11 January 2010. The findings identified have been 24 Corrective Action Requests and 7 Clarification Requests. Based on the findings of the DDP, the PDD developer made necessary amendments to the PDD Version 1.1.1. and eventually the PDD Version 2.0 dated 03 March 2010 was issued and submitted to Bureau Veritas Certification. The amendments and corrections made to the PDD and the additional information and clarifications provided by the PDD developer satisfactorily addressed BV Certifications' concerns and, as a result, the Determination Report Version 01 was issued on 04/03/2010. Determination Report Version 01 and PDD Version 2.0 were sent to Bureau Veritas Certification Internal Technical Reviewer (ITR) for review. As a result of ITR, a new PDD Version 3.0 dated 12 March 2010 appeared.

After the corrections to the PDD based on findings of the review team under the JISC review process had been made, the PPs submitted the revised PDD version 5.0 dated 27/10/2010/ to the AIE for determination.

3 DETERMINATION FINDINGS

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

1) The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Determination Protocol in Appendix A.
2) Where Bureau Veritas Certification had identified issues that needed clarification or that represented a risk to the fulfillment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Determination Protocol in Appendix A. The determination of the Project resulted in 32 Corrective Action Requests and 7Clarification Requests.
3) The conclusions for determination subject are presented.

3.1 Project Design

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

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

The project design is sound and the geographical (the city of Zaporizhya) and temporal (20 years) boundaries of the project are clearly defined.

The identified areas of concern as to Project Design, PP's response and BV Certification's conclusion are described in Appendix A Table 4 (refer to CAR 01, CAR 02, CL 01).

The project has no approvals by the Parties involved, therefore CAR 01 remains pending.

3.2 Baseline and Additionality

The "Utilization of coke gas with electricity generation by two 6 MWe CHP at "ZaporozhCox Plant" project uses the baseline and monitoring approach developed according to the latest version of Guidance on Criteria for Baseline Setting and Monitoring that meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.
In accordance with the Paragraph 9 (a) of the Guidance, project participants decided to use an approach for baseline setting and monitoring developed in accordance with appendix B of the JI guidelines (JI specific approach). The research "Standardized emission factors for the Ukrainian electricity grid" made by Global Carbon B.V. and used in a number of JI projects approved by Ukraine whose determination has been deemed final and accepted by the JISC, was also used for baseline setting.
Justification of the baseline in accordance with the chosen JI specific approach is provided below:

1. Setting of the baseline should be based on real data (project scenario), obtained during the years before and after the project realization.
2. Estimated values of the key parameters under the project activity should be based on the project owner's forecasts.
3. The proposed project should concerns electricity generation only, as a part of combined heat and power production cycle.
4. The proposed project should have no influence on the COG production level. Therefore, amount of COG for the project scenario and for the baseline scenario can be assumed to be the same for each year.
5. All steam produced under the project have to be based on COG combustion only. No other fossil fuel can be used for steam generation.
6. In general, proposed project should have no influence on technological heat/steam demand level. Both turbines under the project can be considered substitutions of the PRDS units that were

used for correction of the steam parameters. However, some differences can be considered in heat generation level due to principle of operation of the condensing turbine, as appropriate.

7. All significant leakages should be taking into consideration.
8. The project implementation can result in an increase in electricity consumption due to the installation of the new equipment or modernization the existing one. However, this electricity can be considered as carbon neutral, because it is generated from the waste heat.
9. The reduction of GHG emissions should be due to additional electricity generated with the same level of heat production with respect to the baseline scenario. Therefore, the amount of emission reduction can be calculated based on the monitoring data of the electricity generated by the project.

The alternatives considered for determination of the baseline scenario in the context of the project activity include the following probable scenarios from which the baseline scenario has been identified as the most plausible one:

1. Alternative "Implementation of the Coke Oven Gas CHP without JI incentive".
2. Alternative "Implementation of the Coke Oven Gas CHP with increase in COG production compared to the baseline scenario with aim to generate more electricity and ERUs"
3. Alternative "Continuation of the existing situation".
4. Alternative "COG is used for heat energy production".

In the course of the desk review by the AIE, as well during the site-visit performed by the BVC determination team, the future plausible scenarios other than the project scenario, were carefully regarded. One of the future plausible scenarios proposes the construction of of a new boiler house with high capacity, as well as the construction of steam and condensate pipelines to deliver steam to external consumers.
Right at the desk review stage the mentioned above scenario was regarded by the determination team as not being the most plausible as which was further confirmed during the on-site visit:

- to bring heat to residential areas would require high-pressure pipes over the distance exceeding 800 m. This is very unprofitable as considerable heat losses will occur. Also high-pressure steam is not used in the district heat supply systems;
- closer to the plant are industrial enterprises which do not require heat as they have their own heat generation and supply facilities;

- transportation of high pressure steam, especially on long distances, is bound to meet heightened safety and networks thermal insulation requirements, which in its turn is connected with the high implementation costs and, as a result, impacts the overall project profitability;
- there is no need to replace the existing boiler houses as they were commissioned in the end of 2002, and their operational lifetime will surely extend beyond the crediting period It was checked by the determination team based on the documentation provided from the plant. These were the Order confirming the date on which boilers were put into operation and the Inventory Cards for steam boilers. (For the more detailed information, please, refer to Section 6 References Category 2 Documents of the present Determination Report).

After the site visit based on the above arguments it was finally concluded by the BVC determination team that this scenario was not the most plausible one (i.e. not realistic).

Thus, the only possible scenario defined as the baseline is Alternative 2 "Continuation of the existing situation".

The baseline options considered do not include those options that:

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

To demonstrate additionality the "Tool for the demonstration and assessment of additionality", Version 05.2 is used. The proposed approach to additionality demonstration and assessment provides traceable and transparent information showing that the baseline was identified on the basis of conservative assumptions, that the project scenario is not part of the identified baseline scenario and that the project will lead to reductions of anthropogenic emissions by sources of GHG.

The identified areas of concern as to Baseline and Additionality, PP's responses and BV Certification's conclusions are described in Appendix A Table 4 (refer to CAR 03, CAR 04, CAR 05, CAR 06, CAR 07, CAR 08, CAR 09, CAR 10, CAR 11, CAR 12, CAR 13, CL02, CL 03).

The identified area of concern as to Project Starting, PP's response and BV Certification's conclusion are described in Appendix A Table 4 (refer to CAR 14, CAR 15).

3.3 Monitoring Plan

A JI specific approach regarding monitoring has been developed in accordance with Appendix B of the JI Guidelines and with the JISC Guidance on criteria for baseline setting and monitoring, version 02.
All categories of data to be collected in order to monitor GHG emissions from the project and determine the baseline of GHG emissions are described in required details. The parameters which are monitored throughout the crediting period include:

- Electricity generation by the backpressure turbine
- Electricity generation by the condensing turbine
- Electricity consumed by the project equipment
- Difference between steam input and steam output amounts in condensing turbine

The baseline grid emission factor for the Ukrainian electricity grid is calculated based on the Global Carbon BV research determined by the JISC (Annex 2). Natural gas emission factor is taken from 2006 IPCC v2 ch1. Formulae for estimation of GHG emissions are clearly described.
It is stated in the Monitoring plan that in case of the proposed project there is no auxiliary fuel to supplement COG due to the CHP design.(Section D.1. of the PDD).It has been checked during the on-site visit and is confirmed by the BVC determination team that there is no technical infrastructure to supply any fuel other than COG to the boiler house. A check whether any non-COG fuel has been supplied during the monitoring periods is a subject of the subsequent verifications for the AIE.

Allocation of responsibilities for Monitoring Plan implementation and Monitoring Report preparation and an operational and management structure that "ZaporozhCox Plant" will implement to monitor emission reduction are clearly described in the PDD. Monitoring related quality control and quality assurance procedures are outlined subject to checking at the verification phase.

The identified areas of concern as to Monitoring Plan, PP's response and BV Certification's conclusion are described in Appendix A Table 4 (refer to CAR 16 - CAR 23. CL 04).

3.4 Calculation of GHG Emissions

As per approach proposed, the baseline emission source is the Ukrainian electricity grid, namely the emissions from the fossil fuels combustion for the electricity generation, i.e. the baseline emissions would occur in the absence of the project from the electricity imported from the grid for all ZCP's needs.

The baseline emissions will be calculated based on the following inputs:

- All electricity generated by the project from the COG is carbon neutral;

- Electricity generated by the project from the COG and consumed by ZCP's auxiliaries apply an Emission Factor (EF) of 0.896 tCO2/MWh as a project reducing electricity consumption from the grid.

It should be noted that no national policies and circumstances can significantly influence the baseline. Therefore, the following technical parameters have to be described:

- Electricity generation by the backpressure turbine
- Electricity generation by the condensing turbine
- Electricity consumed by the project equipment
- Difference between steam input and steam output amounts in condensing turbine
- Emission factor for natural gas
- Emission factor for electricity from the grid

Project emissions can include emissions due to combustion of auxiliary fuel to supplement waste gas and electricity emissions due to consumption of electricity for cleaning gas before being used for generation of heat/energy/electricity. In case of the proposed project there is no auxiliary fuel to supplement COG due to the CHP design. The following conservative approach is used to monitor project scenario emissions.

The proposed CHP does not require any additional COG cleaning before fuelling the boiler, so there is no consumption of electricity for cleaning of COG. Additional electricity will be consumed by new equipment installed within the limits of the proposed CHP during operation (e.g. pumps, fans, control system, etc.). This electricity is carbon neutral, because CHP will be fuelled by COG, which is flared and burnt in the existing boiler houses at the moment. However, auxiliary electricity consumption would not occur in the absence of the proposed project, so it needs to be subtracted from the amount of electricity generated by new CHP.

Due to the principles of work of the condensing turbine the proposed project leads to the leakage connected with additional consumption of steam and correspondingly additional volume of COG combusted in the boiler house.

The estimated annual average of approximately 51452 tCO2e over the crediting period of emission reduction represents a reasonable estimation using the assumptions given by the project.

The identified area of concern as to Calculation of GHG Emissions, PP's response and BV Certification's conclusion is described in Appendix A Table 4 (refer to CAR 24, CL 05 – CL 07).

3.5 Environmental Impacts

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. Analysis of this document shows that introduction of the CHP will have a lot of positive environmental effects. Among others the following:

- Decreasing of the CO concentration in the flue gases of the coke battery;
- Afterburning of the H2 and CmHm;
- Decreasing of the solid carbonaceous.

According to calculations made in EIA, emissions of air pollutants will be reduced after start up of the CHP. Construction of the proposed CHP will be carried out at the premises of ZCP and does not require any felling of the green plantation.
As shown in the EIA, the proposed project will improve the environmental conditions in the region, so it has a positive transboundary effect.

No areas of concern as to Environmental Impacts are identified.

3.6 Comments by Local Stakeholders

The stakeholders viewed "Utilization of coke gas with electricity generation by two 6 MWe CHP at "ZaporozhCox Plant" project as contributing to local environmental benefits and socio-economy. Overall, there was agreement that the project activity was a beneficial project from the local sustainable development. These views were endorsed by the local stakeholders interviewed during the site visit of the determination activity.
The project was positively accepted and supported by the regional and local authorities, deputies of the Krasnodon District City Council, which was widely highlighted in the local media (Newspaper "Press-fact". Environmental capital of Ukraine dated 19.11.2009; Coal and chemical journal #1-2 2009 dated 05.12.20.08., etc).

No areas of concern as to Environmental Impacts are identified.

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

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

Bureau Veritas Certification published the project documents on the UNFCCC JI website (http://JI.unfccc.int) on 05/01/2010 and invited comments within 03/02/2010 by Parties, stakeholders and non-governmental organizations.

No comments from third parties have been received during this period.

5 DETERMINATION OPINION

Bureau Veritas Certification has performed a determination of the "Utilization of coke gas with electricity generation by two 6 MWe CHP at "ZaporozhCox Plant" Project in Ukraine. The determination was performed on the basis of UNFCCC criteria for JI projects, in particular the verification procedures under the JI Supervisory Committee, as well as host country criteria and the criteria given to provide for consistent project operations, monitoring and reporting.

The determination is based on the information made available to us and the engagement conditions detailed in this report. The determination has been performed using a risk-based approach as described above. The only purpose of the report is its use for the formal approval of the project under JI mechanism. Hence, Bureau Veritas Certification cannot be held liable by any party for decisions made or not made based on the determination opinion, which will go beyond that purpose.

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.

The review of the project design documentation, the subsequent follow-up interviews, and the resolution of the Corrective Action Requests have provided Bureau Veritas Certification with the sufficient evidences to determine the fulfillment of the above stated criteria and to demonstrate that the project is additional.

The investment analysis and common practice analysis demonstrate that the proposed project activity is not a likely baseline scenario. Emission

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

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

It is our opinion that the project as described in the Project Design Document, Version 5.0 dated 27/10/2010 meets all the relevant UNFCCC requirements for the determination stage and the relevant host Party criteria.

6 REFERENCES

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

/1/ PDD"Utilization of coke gas with electricity generation by two 6 MWe CHP at "ZaporozhCox Plant" version 0.92 of 20/11/2009 with supporting documentation

/2/ PDD"Utilization of coke gas with electricity generation by two 6 MWe CHP at "ZaporozhCox Plant" version 1.1.1. of 24/12/2009

/3/ PDD"Utilization of coke gas with electricity generation by two 6 MWe CHP at "ZaporozhCox Plant" version 2.0 of 03/03/2010

/4/ PDD"Utilization of coke gas with electricity generation by two 6 MWe CHP at "ZaporozhCox Plant" version 3.0 of 12/03/2010

/5/ PDD"Utilization of coke gas with electricity generation by two 6 MWe CHP at "ZaporozhCox Plant" version 5.0 of 27/10/2010

/6/ Letter of Endorsement for the JI project "Implementation of energy efficiency measures" at the OJSC "Zaporozhkoks" #912/23/7 dated 12.08.2009.

/7/ Guidelines for Users of the Joint Implementation Project Design Document Form,Version 04, JISC.

/8/ JISC Guidance on criteria for baseline setting and monitoring. Version 02.

/9/ Tool for the demonstration and assessment of additionality, Version 05.2.

/10/ Glossary of Joint Implementation Terms, Version 02.

/11/ UKRAINE'S INITIAL REPORT UNDER ARTICLE 7, PARAGRAPH 4, OF THE KYOTO PROTOCOL

/12/ Letter of Approval ref No 2010JI01 issued on 25 February 2010 by the Netherlands NFP

/13/ Letter of Approval ref No 567/23/7 dated 17.05.2010 issued by the National Environmental Investment Agency of Ukraine

Category 2 Documents:

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

/1/ Act of State Admission Committee on taking into operation of finally constructed facility dated 14.02.2008.

/2/ Date of receiving of the recent data on feeders. Technical recordkeeping "Zaporozhkoks".

/3/ Annex 1 to the Act of State Admission Committee on taking into operation of finally constructed facility.

/4/ Permit for construction works performance #206 issued by OJSC "Zaporozhkoks" dated 14.04.2008.

/5/ Job description of the electrican of section of station boiler and turbine shop (КТЦ) ДИ-КТЦ-12. Approved from 07.07.2008.

/6/ Job description of the head of section of station boiler and turbine shop (КТЦ) ДИ-КТЦ-08. Approved from 29.07.2009.

/7/ Consolidated complex conclusion "206|201a SOE "Central Service of Ukrainian investment expertise" concerning the project "Reconstruction of the complex of coke batteries #1-біс". OJSC "Zaporizhkoks" dated 29.11.2006.

/8/ Calculation of theoretical studies. OJSC "Zaporozhkoks", Boiler shop КТЦ, boiler and turbine section.

/9/ Letter of support for the JI project "Implementation of energy efficiency measures" at the OJSC "Zaporozhkoks" #912/23/7 dated 12.08.2009.

/10/ Licence AB #147968 given to OJSC "Zaporozhkoks" on the production of heating energy for CHPs and settings with the use of alternative or renewable energy sources. Validity term: from 27.03.2008 to 26.03.2018.

/11/ Licence AB #345689 given to OJSC "Zaporozhkoks" on the electricity production. Validity term: from 27.03.2008 to 26.03.2018.

/12/ OJSC "ZAPOROZHKOKS". Reconstruction of coke-oven batteries №1-бис. Project. I phase. Environmental impact assessment. Correction. Inv. #111348, 2006.

/13/ OJSC "ZAPOROZHKOKS". Reconstruction of coke-oven batteries №1-бис. Project. I phase. Environmental impact assessment. Correction. Inv. #111349, 2006.

/14/ OJSC "ZAPOROZHKOKS". Reconstruction of coke-oven batteries №1-бис. Project. I phase. Environmental impact assessment. Correction. Inv. #111350, 2006.

/15/ Basic information about the product and technical data. Unit of the excitation system КОСУР-240. 6ФА.360.408. Ser. #184-П dated 21.12.2005.

/16/ Passport 6ФА.360.408 ПС. Unit of the excitation system КОСУР-240.

/17/ Passport #05 002 014. Three-phase electronic electricity meter. Альфа А1140.

/18/ Passport #05 002 014. Three-phase electronic electricity meter №05003560 Альфа А1140.

/19/ Passport. Three-phase electronic electricity meter №05003664 Альфа А1140.

/20/ Passport. ОБГ. 468.390 ПС. Three-phase synchronous generator of ТПС-6-2ЕУ3 type.

/21/ Passport. Current transformer ТЛК-10 - 5, 6, 9 ИБЛТ.671213.019 ПС

/22/ List of executive and other documentation that presented to state and work commission at the time of acceptance in to operation final facility constraction.

/23/ Honorary certificate to the team of OJSC "Zaporozhkoks". Order #161-к dated 01.09.2009

/24/ Acceptance/output active/reactive energy of facility feeder for day dated 01.10.2009. Technical accounting "Zaporozhkoks".

/25/ Acceptance/output active/reactive energy of facility feeder for day dated 31.10.2009. Technical accounting "Zaporozhkoks".

/26/ Hrocessed instruction ПИ-30-01-08 of engineer-inspector of turbine equipment dated 18.01.2008.

/27/ Protocol of state qualification commission meeting of OJSC "Zaporozhkoks", boiler and turbine shop, turbine section.

/28/ Decision #86 Zaporizhia City Council dated 28.02.2008.

/29/ Certificate of acceptance. Meter "Energiya-9" ser. #37017. Verification date 02.2007.

/30/ Certificate of acceptance and packaging. Meter A1140RAL-B-41 ser. #05003560. Verification date 28.07.2008.

/31/ Certificate of acceptance and packaging. Meter A1140RAL-B-41 ser. #05003664. Verification date 31.07.2008.

/32/ Certificate of acceptance and packaging. Electricity three-phase meter Alfa A1140. Meter type A114ORAL-8-41 ser. №05002014. Verification date 14.04.2008.

/33/ Certificate of acceptance, keeping and packaging. Current transformer ТЛК-10 ser. #06211

/34/ Certificate of acceptance, keeping and packaging. Current transformer ТЛК-10 ser. #06472

/35/ Certificate of acceptance, keeping and packaging. Current transformer ТЛК-10 ser. #06563

/36/ Certificate of КТЦ #255-01/08 dated 27.06.2008.

/37/ Certificate of TUF NORD of menegment system according with ISO 14001: 2004 issued OJSC "Zaporozhkoks" for coke and coke product production, reg.#44 104 061329, valid to 11.02.2012.

/38/ Certificate of TUF NORD of menegment system according with OHSAS: 2007 issued OJSC "Zaporozhkoks" for coke and coke product production, reg.#44 116 061329, valid to 11.02.2012.

/39/ Certificate of TUF NORD of menegment system according with ISO 9001: 2008 issued OJSC "Zaporozhkoks" for coke and coke product production, reg.#44 100 061329, valid to 11.07.2012.

/40/ Service note. Calculation of production cost of own energy dated 29.10.2009.

/41/ Service note to head of investment department D.S. Morozov.

/42/ Technical characteristics of meters Alfa A1140.

/43/ Technical passport 106-M-6195. Turbine P6-3,4/1,0-1. Ser. #2416.

/44/ Steam turbines. Technical description and service instruction with Annex #1.

/45/ Photo - meter "Energia - 9" #26711

/46/ Photo - meter A1140 #05002014

/47/ Photo - voltage transformer 1 tire section

/48/ Photo - Turbogenerator #1

/49/ Electricity - input for November 2009

/50/ Protocol of extraordinary meeting of Environment City Council under the Environmental Management Committee with representatives of industrial enterprises from 12.10.2007.

/51/ Letter #01-03/556 of administrative board of Zaporizhia on implementation of Kyoto Protocol mechanisms dated 25.07.2007.

/52/ Newspaper "Press-fact". Environmental capital of Ukraine dated 19.11.2009.

/53/ Coal and chemical journal #1-2 2009 dated 05.12.2008.

/54/ Oreder #233 of 30/12/2002 issued by the OJSC "ZaporozhCox Plant" Chief of the Board on putting the boiler houses into operation.

/55/ Assets accounting inventory card on the steam boiler

/56/ Asset accounting inventory card on the reserved steam boiler

/57/ Minutes of ZaporozhCox Plant Technical Council of 14.01.2005

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/ Valery Rubchevsky - First Deputy General Director on Production, Chief Engineer, ZaporozhCox Plant

/2/ Vladimir Sharagin, Chief Power Engineer, ZaporozhCox Plant

/3/ Andrej Boyko, Deputy Chief Power Engineer, ZaporozhCox Plant

/4/ Dmitry Morozov, Chief of Investment Department, ZaporozhCox Plant

/5/ Sergey Novik, Deputy Chief Engineer on Ecology, Chief of the Environment Protection Laboratory, ZaporozhCox Plant

/6/ Maksim Yakovlev, Deputy Chief of the Boiler and Turbine Shop, ZaporozhCox Plant

/7/ Oleg Morgulin, Chief of the Industry and Infrastructure Development Department, Regional State Administration

/8/ Denis Rzhanov, Global Carbon BV Senior Consultant

/9/

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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)	The project has approvals by the NFPs of the both Parties involved. 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 at (www.neia.gov.ua) Contact data in the Netherlands: **Ministry of Economic Affairs** Catharijnesingel 59 P.O. Box 8242

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
			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 for the accounting of assigned amounts.	Marrakech Accords, JI Modalities, §21(b)/24	OK	In the Initial Report submitted by Ukraine on 29. Dec. 2006 the AAUs are

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
			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	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 1.1.1. dated 24/12/2009 was made publicly available for comments on UNFCCC JI website from 05 January 2010 till 03 February 2010.

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
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.	"Glossary of Joint Implementation Terms", Version 02.	OK	Table 2, Section A

Table 2 Requirements Checklist

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
A. General Description of the project					
A.1 Title of the project					
A.1.1. Is the title of the project presented?	1,2	DR	The title of the project is: “Utilization of coke gas with electricity generation by two 6 MWe CHP at “ZaporozhCox 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 5.0.	OK	OK
A.1.3. Is the date when the document was completed presented?	1,2	DR	The PDD Version 5.0 is dated 27 October 2010. The Sectoral Scope is 1.	OK	OK

A.2. Description of the project					
A.2.1. Is the purpose of the project included?	1,2	DR	This project aims at reducing the streams of emissions by implementing the following project activities: 1. Making use of excess coke oven gas (COG) to generate electricity by two new steam turbine generators, replacing power currently being sourced from the national grid; 2. Improving automated process control systems that will increase the efficiency of the use of the power, further still reducing that required from the national grid.	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, and a brief history of the roject. **CAR 02.** There is no a concise, summarizing explanation of how the proposed project reduces greenhouse gas emissions.	CAR 02	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 "ZaporozhCox Plant". Party B is the Netherlands. Legal entity is	OK	OK

			Global Carbon BV		
A.3.2. The data of the project participants is presented in tabular format?	1,2	DR	The data on 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	Zaporizhya region	OK	OK
A.4.1.3. City/Town/Community etc.	1,2	DR	City of Zaporizhya	OK	OK
A.4.1.4. Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page).	1,2	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 using excess coke oven gas (COG) to generate electricity. It reflects the brief explanation of the technology to be employed, measures and	OK	OK

			actions to be implemented, as well as the provisional implementation schedule.		
A.4.2.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	1, 2	DR	The employed technology intends to use coke oven gas (COG) produced in the coke battery as a by-product for energy production. The produced electricity will be used for ZCP’s energy consuming equipment and therefore will substitute energy purchased from the Ukrainian distribution network. The proposed technology will cover approximately 70% of ZCP electricity needs, therefore all electricity generated will be consumed onsite. The common practice in the Former Soviet Union (FSU) countries is using COG to produce heat/steam.	OK	OK
A.4.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?	1, 2	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 new turbine has necessary permission and has successfully completed relevant training. **CL 01.** Please, provide information on whether the project requires extensive maintenance efforts in order to work as presumed during the project period.	CL 01	OK
A.4.2.5. Does the project make provisions for meeting training and maintenance needs?	1,2	DR I	Please refer to **CL1** of Verifiers’ Note	-	OK

A.4.3. Brief explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project, including why the emission reductions would not occur in the absence of the proposed project, taking into account national and/or sectoral policies and circumstances					
A.4.3.1. Is it stated how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page)	1,2	DR I	The anthropogenic emission of greenhouse gases will be reduced by replacing fossil fuel generated by Ukrainian power plants with power generated from the two turbines using excess temperature and pressure from the steam produced and associated energy efficiency actions. In the absence of this project, the plant will continue to use power from the Ukrainian power plants which is generated from fossil fuels. The section does not exceed one page and complies with all requirements.	OK	OK
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 256,013 tCO_2e over the crediting period starting on 01/02/2008.	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 51,203 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 [2]. Refer to the Table 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	**CAR 01.** Project has no approvals of the Parties involved.	pending	OK
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. "Continuation of the existing situation" is accepted as the baseline scenario. **CAR 03**. Key information and data used to establish the baseline (variables, parameters, data sources etc.) are not provided in the prescribed tabular form.	CAR 03	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	OK	OK

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

			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 baseline scenario has been identified as the most plausible scenario from all realistic and credible alternatives.		
B.1.3. Is it described how the methodology is applied in the context of the project?	1,2,4	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)?	1,2	DR	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. **CAR 04.** The conservative assumption is not clearly explained and justified.	CAR 04	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. **CAR 05.**There is no explanation for the index ***y*** in the formulas presented in Section B.1. Please indicate what it stands for. **CAR 06.** An appropriate reference to the net calorific values used in formulas B.1.6. and B.1.7.of Section B.1. are not provided	CAR 05 CAR 06	OK OK
B.2. Description of how the anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the JI project					

B.2.1. Is the proposed project activity additional?	1,2, 4,	DR	Additionality is demonstrated trough steps 1-4 of the current Tool for the demonstration and assessment of additionality, Version 05.2 [5]. **CAR 07.** The format prescribed by the Tool is not followed to the full extent in the present document. It is highly recommended dividing the steps into proper sub-steps following the pattern provided by the Tool. Please note that justification of the financial analysis approach shall be provided in sub-step 2a, sub-step 2b introduces benchmark value used, sub-step 2c shall contain financial calculations results and comparison with the benchmarks and sub-step provides results of the sensitivity analysis. **CAR 08.** Excel table contains mistake referring to the wrong cell. Please check Excel file attached with corrected formulas. The proper discount value is 2.27%. **CAR 09.** The developer uses the period of 21 years for financial analysis of the project which is in lines with the Guidance recommending the use of the service period of equipment. At the same time Guidance article 4 requires the fair value of the assets at the end of assessment period to be included in the cash flow for the final year. In	CAR 07 CAR 08 CAR 09 CAR 10 CAR 11 CL 02	OK OK OK OK OK OK

			our case the liquidation value of the assets for 2025 is not included in the cash flow. Please add reasonable market value (for example book or scrap value) of the assets to the cash flow for the final year. **CAR 10.** The developer states that the cost of electricity generation is 181,0 than reduced to 140 UAH/MWe. The structure of the operational expenses included in this figures is not provided. Please provide this noting that only cash expenses shall be included in the cost of generation when calculating cash flow (i.e. without depreciation). **CL 02.** Please clarify whether the cost of the major overhauls is or is not included in the expenses. The developer provides the results of sensitivity analysis in comprehensive manner with formulas in Excel tables allowing the reader to reproduce results of the analysis. Please note that the Guidance recommends considering the fluctuations of the variables constituting more than 20% of either total project costs or total project revenues. So it may be reasonable to consider the costs structure in order to check whether fluctuations of some major costs components are to be included to sensitivity analysis as well.		

			Based on the following information: • Common practice in Ukrainian coke production, dictates that about 50% of the coke gas is used for the coke battery coking process, and the remainder is free waste gas, which is available as a secondary energy source. • Using the COG for heat/steam production as well as simple flaring of excess is also a popular practice. • With regards to electricity sources, the most common practice is to use take electricity from a National distribution grid. • There are some previous examples of similar projects in Ukraine, for example, Yasinovskiy Coke Plant, and Horlivka Coke Plant, all of which are being considered under the JI mechanism, with the JI incentive as being deemed necessary for project realization, the project developer concludes that for a standalone Coke Plant using the excess COG as a source of electricity production is not common practice. **CAR 11.** If similar activities are observed, then essential distinctions between the proposed project activity and similar activities shall reasonably be explained.		

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. The project scenario envisages the construction of the CHP (Combined Heat and Power) on the site of the ZCP.	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.** Key factors 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. and Figure B.3.1. The baseline boundary is generally in line with the provisions of paragraph 11 of Guidance on criteria for baseline setting and monitoring [4]. **CL 03.** Please clarify why supplemented electricity consumption will be accounted for	CL 03	OK

			baseline emissions value determination. If it is so, why this amount of electricity consumption is not demonstrated in Baseline scenario section in Table B.3.1. of the PDD		
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	The date of the baseline setting is presented as 20 November 2009. **CAR 14.** Please provide date of baseline setting in DD/MM/YYYY format.	CAR 14	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 Global 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	Starting date of the project is 1 January 2005. **CAR 15.** There is no documentation presented to prove the starting date of the project and thus, to demonstrate its prior consideration as a JI project.	CAR 15	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	DR	4 years 11 months or 59 months. The starting date of the crediting period is 01/02/2008.	OK	OK
D. Monitoring Plan					
D.1. Description of monitoring plan chosen					
D.1.1. Is the monitoring plan defined?	1,2, 4	DR	The monitoring plan is presented in Section D of the PDD. **CAR 16.** It is not explicitly indicated which of the approaches regarding monitoring, defined in the JISC's guidance on criteria for baseline setting and monitoring, is chosen [4]. **CAR 17.** The reference for the emission factor for the Ukrainian electricity grid to be used for the baseline emissions calculation is not provided. **CAR 18.** It is not clear in what way all data in the calculation of the baseline emissions includes corrections regarding measurement uncertainties. **CAR 19.** A detailed description of all key elements of the monitoring plan, which is to be attached in Annex 3, is not provided [2]. **CL 04.** Please explain how auxiliary electricity consumption needs to be divided	CAR 16 CAR 17 CAR 18 CAR 19 CL 04	OK OK OK OK OK

			from the electricity generated by new CHP (Section D.1.)		
D.1.2. Option 1 – Monitoring of the emissions in the project scenario and the baseline scenario.	1,2, 4	DR	Not applicable.	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	Not applicable.	OK	OK
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	Not applicable.	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	Not applicable.	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	Not applicable.	OK	OK
D.1.7. Option 2 – Direct monitoring of emissions reductions from the project (values should be consistent with those in section E)	1,2	DR	Option 2 is used in the project.	OK	OK
D.1.8. Data to be collected in order to monitor emission reductions from the project, and how these data will be archived.	1,2	DR	Monitoring plan will include the following positions to monitor emission reductions from the project: • Amount of electricity, generated by new turbines under the project	OK	OK

			activity • Amount of electricity consumed by project equipment • Amount of COG, which would not be supplied to external consumers due to the project activity. This value can be either monitored or calculated, subject to project conditions. This data will be archived both in electronic and paper way.		
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	See section D.1.2.2.of the PDD **CAR 20.** There is no explanation for the index ***y*** in the presented formula. Please indicate what it stands for.	CAR 20	OK
D.1.10.If applicable, please describe the data and information that will be collected in order to monitor leakage effects of the project.	1,2	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 **CAR 21.** Table D.1.3.1. says that according to the monitoring plan, parameters SG_{input} and SG_{output} are to be measured and calculated. Please provide formulae in accordance with which those parameters are to be calculated. **CAR 22.**The measurement units for the	CAR 21 CAR 22	OK OK

			above mentioned parameters differ throughout the text of the PDD (See Section B.1., D.1.3.1., Annex 2 and the Ecxel Spreadsheet).		
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 Please, refer to section D.1.9. of the present Verifier's Note.	–	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 Please, refer to section D.1.9. of the present Verifier's Note.	–	OK
D.1.13. Is information on the collection and archiving of information on the environmental impacts of the project provided?	1,2	DR	Collection and archiving of the information 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).	OK	OK
D.1.14. Is reference to the relevant host Party regulation(s) provided?	1,2	DR	**CAR 23.** Please provide reference to the relevant host Party regulations. If not applicable, please state so.	CAR 23	OK
D.1.15. If not applicable, is it stated so?	1,2	DR	Refer to D.1.14.	OK	OK
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	DR	Description of quality control and quality assurance procedures are exhaustive.	OK	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	The operational and management structure that the project participants(s) will implement in order to monitor emission reduction generated by the project is briefly described in PDD Section D.3. For monitoring, collection, registration, visualization, archiving, reporting of the monitored data and periodical checking of the measurement devices, the measurement team from Chief Energy's Department is responsible. A detailed structure of the team and team members will be established in the Monitoring Manual prior to initial and first verification. The principle structure is presented the flow-chart in Section D.3.	OK	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	1,2	DR	The formulae used to estimate project emissions is described in Section D.1.2.1. of	OK	OK

due to the project?			the PDD.		
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?	1,2	DR	**CL 05.**Please, explain whether conservative assumptions have been used to calculate project GHG emissions.	CL 05	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 accordance with the formula specified in for the applicable project category?	1,2	DR	A description of calculation of leakage in accordance with the formula specified for the applicable project category is presented in Table 3 Section E.2.of the PDD	OK	OK
E.2.3. Have conservative assumptions been used to calculate leakage?	1,2	DR	**CL 06.** Please clearly demonstrate that the conservative assumptions have been used to calculate leakage.	CL 06	OK
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 represent 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.1.2.2. 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.		
E.4.3. Have conservative assumptions been used to calculate baseline GHG emissions?	1, 2	DR	**CL 07.** Please clarify whether conservative assumptions have been used to calculate leakage.	CL 07	OK
E.5. Difference between E.4. and E.3. representing the emission reductions of the project					
E.5.1. Does the difference between E.4. and E.3. represent the emission reductions due to the project during a given period?	1,2	DR	The estimated values of GHG emission reductions (the difference between E4 and E3) are presented in PDD Section E.5, Table 9.	OK	OK
E.6. Table providing values obtained when applying formulae above					
E.6.1. Is there a table providing values of total CO_2 abated?	1,2	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 24	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	1. 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	To meet the requirements of Regulation [8], the application for the project approval shall include, inter alia, the substantiation of environmental effectiveness of the project. The application will be submitted following the determination of the project.	OK	OK
F.1.4. Will the project create any adverse environmental effects?	1,2	DR I	Analysis of the EIA shows that introduction of the CHP will have a lot of positive environmental effects and will lead to the improvement of the environmental situation in the region	OK	OK
F.1.5. Are transboundary environmental impacts considered in the analysis?	1,2	DR I	The project will have positive transboundary effect	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	DR	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 3 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: Protocol of extraordinary meeting of Environment City Council under the Environmental Management Committee with representatives of industrial enterprises from 12.10.2007. OJSC "ZAPOROZHKOKS". Reconstruction of coke-oven batteries №1-бис. Project. I phase. Environmental impact assessment.	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			Correction. Inv. #111348, 2006. OJSC "ZAPOROZHKOKS". Reconstruction of coke-oven batteries №1-бис. Project. I phase. Environmental impact assessment. Correction. Inv. #111349, 2006. Act of State Admission Committee on taking into operation of finally constructed facility dated 14.02.2008. Annex 1 to the Act of State Admission Committee on taking into operation of finally constructed facility. Permit for construction works performance #206 issued by OJSC "Zaporozhkoks" dated 14.04.2008. Consolidated complex conclusion "206|201a SOE "Central Service of Ukrainian investment expertise" concerning the project "Reconstruction of the complex of coke batteries #1-біс". OJSC "Zaporizhkoks" dated 29.11.2006. Decision #86 Zaporizhia City Council dated 28.02.2008.		
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	OK	OK

CHECKLIST QUESTION	Ref.	MoV*	COMMENTS	Draft Concl	Final Concl
			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.	OK	OK

Table 4 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	N/A	CAR 01 is closed as the Project is approved by the Ministry of Economic Affaires and its complementing Agency “NL Agency” being the Designated Focal Point for Joint Implementation in The Netherlands and by the National Environmental Investment Agency of Ukraine. (Both LoAs are submitted to the AIE and listed among Category 1Documents in Section 6 References of the present Determination Report).

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 02. There is no a concise, summarizing explanation of how the proposed project reduces greenhouse gas emissions	A.2.2.	Section A.4.3 of PDD contains the following information: "*The anthropogenic emission of greenhouse gases will be reduced by replacing fossil fuel generated by Ukrainian power plants with power generated from the two turbines, described above, using excess temperature and pressure from the steam produced and associated energy efficiency actions.* *In the absence of this project, the plant will continue to use power from the Ukrainian power plants which is generated from fossil fuels.*" Therefore, brief information about how the proposed project reduces greenhouse gas emissions has been provided. Nevertheless, PP can clarify this point by placement the following statement: "*In general, electricity generated under the project activity is less carbon intensive than electricity from the grid. Therefore, emissions reduction can be*	The CAR is closed based on the satisfactory explanation provided.

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
		considered." Please see corrected PDD, Section A.4.3, page 5	
CAR 03. Key information and data used to establish the baseline (variables, parameters, data sources etc.) are not provided in the prescribed tabular form.	B.1.1.	Key information and data used to establish the baseline are provided in the prescribed tabular form in section B.1, page 12	Appropriate corrections were made to the PDD. Issue is closed.
CAR 04. The conservative assumption is not clearly explained and justified.	B.1.4.	The following text was added in the PDD: *"Conservative assumptions used can be described the following way:* 1. *All measured data taking part in the calculation of the project emissions included corrections regarding measurement uncertainties. Therefore, the value relevant to the accuracy class index of the corresponding meter will be subtracting from the achieved measurements results;* 2. *As it was mentioned above, it is likely that COG consumption would*	The CAR is closed based on the appropriate reasoning added to the PDD.

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
		be increased in the boiler to produce additional steam for the turbines. In fact, big part of this additional gas will be provided due to the minimizing of flaring. Under the proposed approach, it is assumed that this additional amount of gas would not be supplied to Zaporozhstal and therefore leakages due to the natural gas combustion will appear. *3. Conservative emission factor for electricity from the grid is used to calculate baseline emissions due to electricity consumption."* Please see corrected PDD, Section B.1., page 11	
CAR 05. There is no explanation for the index ***y*** in the formulas presented in Section B.1. Please indicate what it stands for.	B.1.5.	Necessary explanation were added in the formulas description, Section B.1	Required explanation is provided. Issue is closed.
CAR 06. An appropriate reference to the net	B.1.5.	For internal calculations ZaporozhCox	Confirmative documents are

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
calorific values used in formulas B.1.6. and B.1.7.of Section B.1. are not provided		use the value of NCV of COG equal to 3996 kkal/m3. Confirmative statistic document from the plant is attached (please see attached file 20100113_COG_NCV_confirmation.pdf) Necessary changes were made in PDD and Excel spreadsheet. Currently, ZaporozhCox does not consume natural gas. Therefore, reference data can be used to confirm the NCV for natural gas. The main gas pipeline in Ukraine is Urengoy-Uzhgorod. The value equal to 7910 kkal/m3 can be apply with the help of Reference book “Theoretical bases of thermotechnics”, Volume 2 (V.A. Grigor’ev and V.M. Zorin, Moskow 1988). (please see attached file 20100113_NG_NCV_confirmation.pdf)	presented. Necessary changes were made in PDD and Excel spreadsheet. The CAR 06 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
		Anyway, this value do not make a significant influence on calculation results. Necessary changes were made in PDD and Excel spreadsheet. The values of NCV for natural gas and COG are hardly influence on the calculation results. Please see corrected Excel spreadsheet and PDD, Sections B.1, D.1., page 11	
CAR 07. The format prescribed by the Tool is not followed to the full extent in the present document. It is highly recommended dividing the steps into proper sub-steps following the pattern provided by the Tool. Please note that justification of the financial analysis approach shall be provided in sub-step 2a, sub-step 2b introduces benchmark value used, sub-step 2c shall contain financial calculations results and comparison with the benchmarks and sub-step provides results of the sensitivity analysis.	B.2.1.	The format prescribed by the Tool was applied. Please see corrected PDD, Section B.2., page 16	The CAR is closed based on due corrections made to the PDD.

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 08. Excel table contains mistake referring to the wrong cell. Please check Excel file attached with corrected formulas. The proper discount value is 2.27%.	B.2.1.	Necessary corrections were made in the PDD (Section B.2, page 17) and Excel spreadsheet.	This CAR is closed based on the appropriate corrections made to the PDD.
CAR 09. The developer uses the period of 21 years for financial analysis of the project which is in lines with the Guidance recommending the use of the service period of equipment. At the same time Guidance article 4 requires the fair value of the assets at the end of assessment period to be included in the cash flow for the final year. In our case the liquidation value of the assets for 2025 is not included in the cash flow. Please add reasonable market value (for example book or scrap value) of the assets to the cash flow for the final year.	B.2.1.	The liquidation value (scrap value) is based on the following parameters: weight of both turbines is 90.37 t (please see attached file 20100203 Turbines weight confirmation.pdf); market price in 2005 for scrap assumed equal to 250$ per t; exchange rate for €/$ is assumed equal to 1.35 for 2005 year. Similar text with confirmative references was added in PDD, Section B.2, page 17 Necessary changes was made in the Excel spreadsheet, please find corrected version.	The CAR is closed based on the due explanations and adjustments made to the PDD.
CAR 10. The developer states that the cost of electricity generation is 181,0 than reduced to 140 UAH/MWe. The structure of the operational expenses included in this figures	B.2.1.	Response 1 Confirmation of cost for electricity generation equal to 181.0 UAH/MWe	Conclusion on Response 1 Please note that calculation of costs is made using 2008

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
is not provided. Please provide this noting that only cash expenses shall be included in the cost of generation when calculating cash flow (i.e. without depreciation).		was provided by PO (please see file 20100212_Electricity_price_confirmation_2008_ru.pdf). However, this cost also includes depreciation. To exclude this part from the calculation, calculating model in the excel spreadsheet was provided by PO (please see the file 20100212_Electricity_price_calculation_ru.xls). The final value after exclusion of deprecation will be equal to 165.7 UAH/MWe. Necessary changes were made in the Excel spreadsheet and PDD. Confirmation concerning expectation of decreasing the cost for electricity generation in 2010, equal to 140 UAH/MWe was provided by the PO. Please see the file: 20100217_Electricity_price_confirmation_2010_ru.pdf)	statistics while for other financial analysis inputs we use 2005 values. So we shall use the cost as of 2005. In order to obtain reasonable comparison we can deflate 2008 costs for inflation during 2006-2008. The cumulative inflation index for these three years is: 1.223*1,166*1,116=1,591. This index may be used to derive proper cost of electrical generation from 2008 figures. The same applies for expected reduced costs after 2010. Please provide more detailed breakdown of the costs included under «пар среднего давления» item which accounts for more than 90% cash expenses. The response is not accepted. The CAR is nor closed. Conclusion on Response 2

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
		Response 2 As a response to the comments, the following was done: 1) The financial model is recalculated as of November 2004 in preparation for 1.01.05 decision making. 2) Fuel and electricity prices changed to the 2004 values. 3) Cost of electricity production has been deflated from 2008 values to 2004 using the deflation index of 1,252*1,128*1,091*1,135=1,749. (Using inflation data 2008-2005 from http://www.ukrstat.gov.ua/operativ/operativ2008/ct/cn_rik/icsR/iscR_u/isc_tp_rik_u.htm) 4) Nominal discount rate is replaced by the average loan rate in UAH reported by the National Bank of Ukraine on the 5th of November 2004. (17,5 % taken from http://www.bank.gov.ua/Fin_ryn/Pot_tend/2004/2004.zip). This and	The CAR is closed based on the necessary adjustments made to the PDD and supporting confirmative documents presented.

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
		9% expected 2004 inflation combine to a real discount rate of 7,8%. 5) Exchange rate changed to be 6,83 UAH/EUR (Official exchange rate for the 5th of November 2004). The detailed breakdown of the costs included under «average-pressure steam» is provided. Please find attached file 20100301_Steam_price_confirmation_ru.pdf. Please note, that ~60% of the average-pressure steam cost included in the «Coke gas» article. This article mostly consists from coal price and cost of energy for coking. Necessary corrections were made in the PDD (Section B.2) and Excel spreadsheet	
CAR 11. If similar activities are observed, then essential distinctions between the proposed project activity and similar activities shall reasonably be explained.	B.2.1.	"*There are some previous examples of similar projects in Ukraine, for example, Yasinovskiy Coke Plant, and Horlivka Coke Plant, all of which are being considered under the JI*	No changes in the PDD are required. The CAR is closed based on the explanation provided.

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
		mechanism, with the JI incentive as being deemed necessary for project realization". This statement was given in the PDD to describe that all activities that can be considered like similar to the proposed project are also claimed for JI revenue. In other words, there are no activities in Ukraine similar to proposed project have been implemented without JI incentive. On the thoughts of PP, no changes in PDD needed.	
CAR 12. There is no transparent and concise analysis showing why the emissions in the baseline scenario would likely exceed the emissions in the project scenario.	B.2.4.	The following text was added to PDD: "*Two ZCP boilers generate steam with a pressure of 35 kgf/sm2 and temperature of approximately 440°C. These parameters are excess for the technological needs of the project. To reduce the pressure and temperature, three PRDS (pressure-reducing and desuperheating stations) units are*	Transparent and concise analysis showing why the emissions in the baseline scenario would likely exceed the emissions in the project scenario is added to the PDD. The CAR 12 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
		used. PRDS work by cooling and depressurization of superheated steam by introducing water. The output is steam with a pressure of 5,0-5,5 kgf/sm2 and temperature of 300°C. *Therefore, some amount of energy that contained in the superheated steam would be lost without useful utilization, in the absence of this project.* *The concept of the project is an installation of the two turbines to substitute PRDS (pressure-reducing and desuperheating stations) that were used for correction of parameters of steam. Therefore, electricity generated under the project activity can be considered like less carbon intensive than electricity from the grid, because the turbines use waste source.* *The information above showing that emissions in the baseline scenario would likely exceed the emissions in the project scenario.”* Please see corrected PDD, Section B.2., page 15	

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. Key factors that affect a baseline are not taken into account.	B.2.6.	No national policies and circumstances can significantly influence the baseline. Therefore, only some technical parameters have to be described. Relevant changes were added to PDD (section B.1, page 12)	The CAR is closed based on relevant changes added to the PDD Section B.1.
CAR 14. Please provide date of baseline setting in DD/MM/YYYY format.	B.4.1.	Necessary changes were added in the PDD , (section B.4, page 21)	The CAR is closed based on necessary changes made in the PDD.
CAR 15. There is no documentation presented to prove the starting date of the project and thus, to demonstrate its prior consideration as a JI project..	C.1.1.	Minutes of the internal meeting were decision concerning this project have made was provided by the PO. Please see the file: 20100215 Minutes decision making ru.pdf	Documented confirmation of the starting date of the project (Minutes of ZaporozhCox Plant Technical Council of 14.01.2005) is provided. (Please, refer to the document listed under #54 in Section 6 References, Category 2 Documents of the present DR) Issue is closed.
CAR 16. It is not explicitly indicated which of the approaches regarding monitoring, defined in the JISC’s guidance on criteria for baseline setting and monitoring, is chosen [4].	D.1.1.	In accordance with JI Guidance on Criteria for Baseline Setting and Monitoring, Version 02 project participants propose JI specific approach for monitoring. Relevant changes were added to PDD (Section D.1, page 23)	The amended explanation on the approach regarding monitoring is accepted. 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 17. The reference for the emission factor for the Ukrainian electricity grid to be used for the baseline emissions calculation is not provided.	D.1.1.	The reference for Description of the emission factor for the Ukrainian electricity grid (reference on Annex 2) has been provided in all places of mentioning. No changes in PDD needed.	Referential sources are provided. Issue is closed.
CAR 18. It is not clear in what way all data in the calculation of the baseline emissions includes corrections regarding measurement uncertainties.	D.1.1.	The following text was added in the PDD: “*All measured data taking part in the calculation of the project emissions included corrections regarding measurement uncertainties. Therefore, the value relevant to the accuracy class index of the corresponding meter will be subtracting from the achieved measurements results. Information concerning accuracy class indexes for the meters is provided in table D.2.*” Please revise corrected PDD, section D.1, page 24 and Section D.2, page 30	Amendments were checked and found adequate. CAR 18 is closed.
CAR 19. A detailed description of all key elements of the monitoring plan, which is to be attached in Annex 3, is not provided [2].	D.1.1.	Detailed description of all key elements of the monitoring plan was added to Annex 3, PDD.	The response is accepted based on adequate corrections made to the PDD.

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
		Please see corrected PDD, Annex 3, page 47	Issue is closed.
CAR 20. There is no explanation for the index ***y*** in the presented formula. Please indicate what it stands for.	D.1.9.	Necessary explanation were added in the formulas description, Section D	PDD was checked. Necessary explanation for the index ***y*** is added throughout the PDD text. Issue is closed.
CAR 21. Table D.1.3.1. says that according to the monitoring plan, parameters SG_{input} and SG_{output} are to be measured and calculated. Please provide formulae in accordance with which those parameters are to be calculated.	D.1.10.	Special device will measure temperature, pressure and flow of steam. These data will be automated transformed into heat equivalent. To prevent misunderstanding, PP changed the method of data achieving into measurement (m). Necessary changes were added in the PDD, Table D.1.3.	Explanation is checked and accepted. The CAR 21 is closed.
CAR 22. The measurement units for the above mentioned parameters differ throughout the text of the PDD (See Section B.1., D.1.3.1., Annex 2 and the Ecxel Spreadsheet).	D.1.10.	The necessary changes were made in the section B.1 and the Excel Spreadsheet	Changes are checked and accepted. The CAR 22 is closed.
CAR 23. Please provide reference to the relevant host Party regulations. If not	D.1.14.	Collection and archiving of the information on the environmental	The CAR is closed based on the

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
applicable, please state so.		impacts of the project was done based on the approved EIA. The EIA was done in accordance with the Ukrainian legislation. The relevant environmental inspection conclusion for the EIA can confirm this. Therefore, phrase "...in accordance of the host Party legislation" was deleted from PDD to prevent misunderstanding. Please see corrected PDD, Section D.1.5, page 30	due explanations and adjustments made to the PDD.
CAR 24. Please submit the list of the documentation.	F.1.1.	The list of the documentation needed was added to the PDD Please see corrected PDD, Section F	Added list of documents was checked in the corrected PDD. Issue is closed.
CL 01. Please, provide information on whether the project requires extensive maintenance efforts in order to work as presumed during the project period.	A.4.2.4.	The project doesn't require extensive maintenance efforts in order to work as presumed during the project period. Similar text was added in PDD, Section A.4.2, page 4	Amendments were checked and accepted. CL01 is closed.
CL 02. Please clarify whether the cost of the major overhauls is or is not included in the expenses.	B.2.1.	The following text was added in the PDD: *"Costs of major overhauls for both turbines does not included in the*	Clarification provided is accepted. 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
		analyze for simplification, which is conservative;" Sensitivity analyze for electricity generation price (which is also more than 20% of either total project costs or total project revenues) was added in the Excel spreadsheet and PDD. Please revise corrected Excel spreadsheet and PDD (Section B.2, page 16)	
CL 03. Please clarify why supplemented electricity consumption will be accounted for baseline emissions value determination. If it is so, why this amount of electricity consumption is not demonstrated in Baseline scenario section in Table B.3.1. of the PDD	B.3.1.	Response 1 Multiple changes were made in the PDD. The core of these changes is in introducing of the new value "Net electricity generation", which is used for baseline emissions calculation. This value is already includes the amount of electricity consumed by equipment. Therefore, in the table B.3.1 Supplemental electricity consumption can be excluded, because this value is already accounted. Response 2 Explanation for the exclusion of CH_4	Conclusion on Response 1 Please provide explanation for the exclusion of CH_4 and N_2O leakages in Table B 3.1 of the PDD. The response is not accepted. Conclusion on Response 2 Changes made in the PDD were

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
		and N_2O leakages in Table B 3.1 was added in the PDD, Section B.1. Please see modified PDD, sections: B.1, B.3, D1	checked and accepted. Explanation for the exclusion of CH_4 and N_2O leakages are provided in Table B 3.1 of the PDD. The CL 03 is closed.
CL 04. Please explain how auxiliary electricity consumption needs to be divided from the electricity generated by new CHP (Section D.1.)	D.1.1.	Please see answer on CL 03	It was meant subtracted, not divided. Issue is closed.
CL 05. Please, explain whether conservative assumptions have been used to calculate project GHG emissions.	E.1.3.	All conservative assumption was clearly explained and justified in the Section B.1. Please see also answer on CAR 04	A clear and exhaustive demonstration of conservative assumptions was provided in Section B.1 of the PDD. Issue is closed.
CL 06. Please clarify whether conservative assumptions have been used to calculate leakage.	E.2.3.	All conservative assumption was clearly explained and justified in the Section B.1. Please see also answer on CAR 04	The CL 06 is closed base on explanation and justification provided in the PDD.
CL 07. Please clarify whether conservative assumptions have been used to calculate	E.4.3.	All conservative assumption was clearly explained and justified in the	CL 07 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
leakage.		Section B.1. Please see also answer on CAR 04	Refer to the CL 06.

Appendix B: Verifiers CV's

Work carried out by:

Ivan G. Sokolov, Dr. Sci. (biology, microbiology)
Team Leader, Climate Change Lead Verifier
Bureau Veritas Ukraine Health, Safety and Environment Department Manager.
Ivan Sokolov has over 25 years of experience in Research Institute in the field of biochemistry, biotechnology, and microbiology. He is a Lead Auditor of Bureau Veritas Certification for Environment Management Systems (IRCA registered), Quality Management Systems (IRCA registered), Occupational Health and Safety Management Systems, and Food Safety Management Systems. Mr. I.Sokolov has performed over 140 audits since 1999. He is a Lead Tutor of IRCA registered ISO 14000 EMS Lead Auditor Training Course, Lead Tutor of IRCA registered ISO 9000 QMS Lead Auditor Training Course. Ivan Sokolov is also a Tutor of Join Implementation/Clean Development Lead Verifier Training Course and has performed determination/verification of more that 50 JI projects.

Oleg Skoblyk, Specialist (Power Management)
Team Member, Climate Change Verifier
Bureau Veritas Ukraine HSE Department project manager.

He has graduated from National Technical University of Ukraine 'Kyiv Polytechnic University" with specialty Power Management. He is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered). He performed over 10 audits since 2008. He has undergone intensive training on Clean Development Mechanism /Joint Implementation and he is involved in the determination/verification of 9 JI projects.

Denis Pishchalov (specialist in economics)

Team member, Financial Specialist
Bureau Veritas Ukraine, Specialist in economics
Master of foreign trade, he has more than five year of experience in foreign trade and procurement. In particular one year as foreign trade manager in the Engineering Corporation (manufacturer and contractor in the municipal sector) and one year in the NIKO publishing house, one year as sales manager in the ITALCOM srl. In addition Denis has spent four years working as procurement

specialist in Ukrainian Energy Service Company and two years as chief product manager in the Altset JSC. At the moment Denis is deputy director for finance and economy in the SUD of UTEM JSC.

The determination report was reviewed by:

Mr. Leonid Yaskin, PhD (thermal engineering)

Bureau Veritas Certification Rus General Director- Lead Auditor, Lead Tutor, Verifier

He has over 30 years of experience in heat and power R&D, engineering, and management, environmental science and investment analysis of projects. He worked in Krrzhizhanovsky Power Engineering Institute, All-Russian Teploelectroproject Institute, JSC Energoperspectiva. He worked for 8 years on behalf of European Commission as a monitor of Technical Assistance Projects. He is a Lead auditor of Bureau Veritas Certification for Quality Management Systems (IRCA registered), Environmental Management System (IRCA registered), Occupational Health and Safety Management System (IRCA registered). He performed over 250 audits since 2002. Also he is a Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and a Lead Tutor of the IRCA registered OHSAS 18001 Lead Auditor Training Course. He is an Assuror of Social Reports. He has undergone intensive training on Clean Development Mechanism /Joint Implementation and was/is involved in the verification of over 50 JI projects.