DETERMINATION REPORT

GLOBAL CARBON BV

DETERMINATION OF THE INTRODUCTION OF A 12,5MWE CHP WITH A COKE PLANT'S FLUE GASES UTILIZATION AT THE BRANCH OF ISTEK LLC "HORLIVKA COKE PLANT"

REPORT NO. UKRAINE /006/2008

REVISION NO. 03

BUREAU VERITAS CERTIFICATION

DETERMINATION REPORT

Date of first issue:	Organizational unit:
21/09/2009	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
Global Carbon BV	Mr. Lennard de Klerk

Summary:

Bureau Veritas Certification has made the determination of the "Introduction of a 12.5MWe CHP with a coke plant's flue gases utilization at the branch of ISTEK LLC "Horlivka Coke Plant" project of ISTEK LLC. located in Premises of the Horlivka Coke Plant in the Donetsk region 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 12 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Executive Board, as well as the host country criteria. Project is registered under Track 2 procedure.

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

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

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies the baseline and monitoring methodology ACM 0012/Version 03.1 and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

Report No.:	Subject Group:
UKRAINE /006/2008	JI

Project title:
"Introduction of a 12,5MWe CHP with a coke plant's flue gases utilization at the branch of ISTEK LLC "Horlivka Coke Plant"

Work carried out by:
Team leader: Ivan Sokolov
Team member: Nadiya Kaiiun
Team member: Kateryna Zinevych
Financial specialist: Denis Pishchalov

Work verified by:
Ashok Mammen

Date of this revision:	Rev. No.:	Number of pages:
16/03/2010	03	82

Indexing terms

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

Abbreviations change

AIE	Accredited Independent Entity
BVCH	Bureau Veritas Certification Holding SAS
CAR	Corrective Action Request
JI	Joint Implementation
ERU	Emission Reduction Unit
CL	Clarification Request
CO_2	Carbon Dioxide
GHG	Green House Gas(es)
I	Interview
IETA	International Emissions Trading Association
MoV	Means of Verification
NGO	Non Government Organization
PCF	Prototype Carbon Fund
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change

Table of Contents *Page*

1 INTRODUCTION

Global Carbon BV has commissioned Bureau Veritas Certification to determinate its JI project "Introduction of a 12.5MWe CHP with a coke plant's flue gases utilization at the branch of ISTEK LLC "Horlivka Coke Plant" (hereafter called "the project") at Premises of the Horlivka Coke Plant in the Donetsk region.

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 meet the stated requirements and identified criteria. Determination is a requirement for all JI projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emission reduction units (ERUs).

UNFCCC criteria refer to Article 12 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Executive Board, 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

Ukraine is one of the most energy intensive countries in the world. In Ukraine the primary energy consumption has been quite the same during the 2004-2007. About 79% of the total energy consumption in Ukraine in the past few years was produced using fossil fuels like coal, oil and natural gas. Ukraine's self-sufficiency in fossil fuels is less than 50%. In oil consumption, the self-sufficiency is 10 - 15%, in gas 20 - 25%, in coal 80 - 85% and in uranium 100%.

Coke production is an energy intensive process. One tonne of dry blast furnace coke required about 3.7GJ (0.89Gcal) of energy input. On the other hand, coke oven gas producing in the coke battery as a by product is suitable for energy production.

The proposed JI project is planning to be implemented at Horlivka Coke Plant (HCP) owned by ISTEK LLC. The main product of the HCP is metallurgical coke. HCP is one of the oldest coke plants in Ukraine. It was put into operation in 1928 with two coke batteries. During the Second World War the HCP was totally destroyed and rebuilt in the year 1950. HCP was stopped in December 1997 because of lack of raw materials. Only on December 13 of 2005, the coke production was restarted on HCP. The plant is currently operating one coke battery, which is consisting of 57 ovens, and all supply facilities. The design capacity of the coke battery is 466 000 tonnes per year of coke with 6% moister content. HCP has not any own electricity production facilities. Plant consists of the following workshops:

- Coal preparation workshop;
- Coke workshop;
- Coking products trapping workshop;
- Boiler house.

The coking coal comes to HCP's Coal preparation workshop by railway. Then, coals are unloaded and stored at the open-air depot with a volume 8000 tonnes and at closed depots. During winter the railroad cars proceed through the garage-defrosting unit. After the depots, coking coals proceed through the dose and crusher unit. The main purpose of the crusher unit is preparation of coal blend (furnace charge) by coals mixing and crushing.

The coal blend is then charged into the coke battery, which consists of 57 ovens. The coking period is 16 hours. The final temperature of the process is 1050 ± 50^{o}C. The coal blend is transferred into coke, coke oven gas and other by-products. The finished coke is loaded into extinguishing railroad car and directed to the quenching house, where coke quenching is taking place. The finished quenched coke is separated by particle size, loading and supplying to the consumers.

The main by-product of the process is coke oven gas (COG). The NCV of the COG is about 15.42MJ/Nm^3 (3683 kcal/Nm^3). The COG with a temperature of 650 ± 750^{o}C is taking off from the ovens to the gas

collector where temperature decreasing to the 82±85°C. After scavenging, COG is distributed to on-site consumers: coke battery, boiler house, flare unit and garage-defrosting unit. COG is distributed between on-site facilities at the moment, as presented in the following table.

COG consumer	Share of the COG, %
Heating of the coke battery	51.2
Generation of the process steam in the boiler house	13.1
Burning on garage-defrosting unit	1.1
Burning on flare unit	34.6

Table 1: Consumption of COG

The proposed JI project consists of the installation of a steam boiler and a steam turbo generator with all necessary auxiliary equipment. The steam boiler will be able to generate 85 tonnes of steam per hour with pressure 3.82MPa (39kgf/sm^2) and temperature 440°C. The steam turbo generator will have a capacity of 12.5MW$_e$. The combined heat and power production (CHP) will be fuelled by COG available for energy production – namely flared and used in the existing boiler house at the moment. The existing boiler house will be switch to stand-by mode and used during maintenance of the proposed CHP.

1.4 Determination team

The determination team consists of the following personnel:

Ivan Sokolov
Bureau Veritas Certification Team Leader, Climate Change Verifier

Nadiya Kaiiun
Bureau Veritas Certification, Climate Change Verifier

Kateryna Zinevych
Bureau Veritas Certification, Climate Change Specialist

Denis Pishchalov
Financial Specialist

Ashok Mammen
Bureau Veritas Certification, Internal 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) submitted by Global Carbon BV and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for Completing the Project Design Document (JI-PDD), Approved methodology, Kyoto Protocol, Clarifications on Determination Requirements were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests Global Carbon BV revised the PDD and resubmitted it on 22/12/2009.

The determination findings presented in this report relate to the project as described in the PDD version 3.2.

After receiving Letters of Approval from both Parties the PDD was rewieved to the version 3.3 dated 15.03.2010.

2.2 Follow-up Interviews

On 26/03/2009 Bureau Veritas Certification performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of ISTEK LLC were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 2 Interview topics

Interviewed organization	Interview topics
ISTEK LLC, Global Carbon BV	➢ Additionality of the project, ➢ Emission factor of the project, ➢ EIA and its approval, ➢ Project design, ➢ Consulting process for stakeholder's comments , ➢ Approval status by the host country, ➢ Applicability of methodology, ➢ Monitoring Plan, ➢ QA issues, ➢ Baseline calculations.

2.3 Resolution of Clarification and Corrective Action Requests

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

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

3 DETERMINATION FINDINGS

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

1) The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are summarized. A more detailed record of these findings can be found in the Determination Protocol in Appendix A.
2) Where Bureau Veritas Certification had identified issues that needed clarification or that represented a risk to the fulfillment of the project objectives, a Clarification or Corrective Action Request, respectively, have been issued. The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Determination Protocol in Appendix A. The determination of the Project resulted in 7 Corrective Action Requests and 14 Clarification Requests.
3) The conclusions for determination subject are presented.

3.1 Project Design

Bureau Veritas Certification recognizes that ISTEK LLC Project is helping country fulfill its goals of promoting sustainable development. The project is expected to be in line with host-country specific JI requirements because it is supposed to produce energy in the amount enough to meet its own needs.

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

The project design is sound and the geographical and temporal boundaries of the project are clearly defined.

Corrective Action Request (CAR) 1
Please specify the purpose of the project in this particular section A.2.

Response
Purpose of the project is clarified in the Section A.2 of the PDD version 3.2.

Conclusion
Purpose was clarified. Issue is closed.

Corrective Action Request (CAR) 2
Please provide brief information on how the proposed project reduces greenhouse gas emissions.

Response

Requested information provided in the Section A.2 of the PDD version 3.2.

Conclusion

Requested information was provided and found satisfactory. Issue is closed.

Corrective Action Request (CAR) 3

There is no evidence of written project approvals by the Parties involved.

Response

Letter of Approval #42/23/7 from National Agency of Environmental Investments was issued 20th of January 2010. Letter of Approval #2009JI11 from SenterNovem Utrecht was issued 8th of October 2009.

Conclusion

Issue is closed.

Clarification Request (CL) 1

Please provide brief summary if the project design engineering reflects current good practices.

Response

Proposed project is unique and first of its kind in Ukraine and reflects current good practices because of the following reasons:

- It is only one totally greenfield CHP at Ukrainian coke plants;
- Water treatment unit is based on the reverse osmosis;
- Boiler is designed especially for the COG;
- The flue gases of the coke battery will be used in new boiler for the improvement of the CHP efficiency.

Conclusion

Boiler that is used in this project was specially designed for use of coke gas. This boiler is 2nd of such type in a host party. The turbine is appropriate to the technical national requirements of the host party however the technology of its construction is not new and is commonly used. Issue is closed.

Clarification Request (CL) 2

Please clarify in the PDD if initial training for the stuff is required.

Response

Required clarification provided in Section A.4.2.4 of the PDD version 3.2.

Conclusion

The requested information was provided and found satisfactory. Issue is closed.

Clarification Request (CL) 3
Please provide information considering training for the stuff in order to meet maintenance needs.

Response
Start up of the project is planning to be performed in December 2009. So, training program for the staff is not ready at the moment and will be provided to the AIE during initial verification.

Conclusion
The requested information was provided and found satisfactory. Issue is closed.

3.2 Baseline and Additionality

The "Introduction of a Coke Oven Gas fuelled CHP with 12.5MWe capacity at the Horlivka coke plant" project uses the approved consolidated baseline methodology ACM0012 ("Consolidated baseline methodology for GHG emission reductions from waste energy recovery projects", version 03.1).

The proposed methodology (ACM0012) has been chosen because the applicability conditions are passed through:

- Project activity does not use waste pressure. The waste gas (namely COG) that will be used to generate electricity is measurable.
- Electricity that will be generated at the premises of HCP will be supplied to the plant's consumers and exported to the grid as well.
- Electricity that will be generated at the premises of HCP will be supplied to the plant's consumers and exported to the grid as well.
- Electricity that will be generated within the proposed project activity will be generated by the owner of the industrial facility, namely HCP. No third party is involved.
- There are no regulations that constrain the HCP from using the fossil fuels to cover own energy demand.
- The amount of the COG producing at HCP depends on coke production capacity of the coke battery. The configuration of the proposed project's equipment has been selected due to the amount of COG available at the existing HCP's coke battery. Thus, there is not any capacity expansion planned within proposed project activity. The methodology applies to existing capacity.
- The emission reductions will be claimed by HCP – the generator of energy using waste energy

- The part of carbon neutral electricity will be supplied to the national grid. The Ukrainian electricity grid has a certain emission factor (see Annex 2). This emission factor would not change as a result of the proposed project. Thus, any consumer of electricity connected to the grid will not be able to claim the emission reductions generated by the proposed project.
- HCP has no own electricity generation facility on-site, which generated electricity prior to implementation to the project activity. For the electricity generated to the grid from fossil fuels in the baseline scenario, credits will be claimed for the credit period.
- In case of abnormal operation (emergencies, shut down) of the CHP carbon neutral electricity will not be generated, so ERUs will not be generated as well.

The alternatives considered for determination of the baseline scenario in the context of the project activity include the investment analysis, barrier analysis and common practice analysis.

The possible alternative baseline scenarios are the following:

(a) Proposed project activity without JI;
In this scenario a CHP will be constructed on site of the HCP. The main revenue will come from the two sources:

- Export of the electricity to the grid;
- Stopping import of the electricity from the grid.

No additional revenue from the ERUs generating and selling will be earned. This alternative is identical to the proposed JI project activity, however without the JI incentive.

(b) Continuation of the existing situation;
In this scenario electricity will be imported from the grid. COG available for the energy production will be flared into the atmosphere and burnt in the existing boiler house without electricity generation. No additional revenue from the ERUs generating and selling will be earned.
This scenario can continue at least until the end of 2012 as there is no direct need to replace the existing boiler house.

(c) COG is used for heat energy production.

In this scenario electricity will be imported from the grid. The new boiler house with higher capacity will be constructed. COG currently flared into the atmosphere and burnt in the old boiler house will be directed to the new boiler(s). Steam will be used on site (as it is now) and sold to external consumers. In addition to the new boiler house, steam and condensate pipelines to external consumers should be constructed.

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.

The comparison analysis is being provided for the JI project activity and alternative (c) as soon as the only one remaining alternative is the business as usual. Alternative (c) de facto looks more attractive as investment cost is twice less then for the JI project activity due to the high cost of turbo generator and auxiliary equipment needed for electricity generation. The difference is more than Euro 10 million that is significant amount bearing in mind the high cost of borrowed money and lack of long term money opportunities.

Corrective Action Request (CAR) 4
The most recent version of the "Tool for the demonstration and assessment of additionality" is version 05.2. Please provide appropriate correction in PDD.

Response
The explanation is provided in the new version of PDD, which is 3.1.

Conclusion
The difference between the latest version of the "Tool for the demonstration and assessment of additionality" and the one used in the PDD version 3.2 does not have direct impact on the justification of additionality in the given PDD.

Clarification Request (CL) 4
The methodology ACM0012 version 3 used in the PDD is not the latest version of this methodology. Please provide the clarification.

Response
Provided changes in the new revision of the methodology ACM0012 do not influence the emission reductions calculations in the given project.

Conclusion
The explanation provided was found satisfactory. Issue is closed.

Corrective Action Request (CAR) 5
The use of NPV despite being good method in general in this particular case may be not appropriate measure because of substantial difference between amount of investment required for implementation of Alternative 1.1 and 1.3. Alternative 1.1 requires 2.2 times more capital than alternative 1.3 so higher NPV for alternative 1.1 does not necessarily mean that alternative 1.1 is the better option and vice versa. In order to

avoid this trap it is suggested to use of Profitability Index (PI) instead of NPV.
PI = PV of the project benefits / PV of investments.

Response
PI indicator was included into the latest version of the PDD.

Conclusion
Correction was found satisfactory. Issue is closed.

Corrective Action Request (CAR) 6
Financial analyses showed that payback periods in excel investment analysis file are calculated in wrong manner. Please correct the formula.

Response
Corrected. Please, see the latest version of the investment analysis.

Conclusion
Correction was found satisfactory. Issue is closed.

Clarification Request (CL) 7
Calculations provided miss the cost of major overhauls while they shall constitute substantial amount during the lifetime of equipment. It is suggested to add the relevant line in "summary cashflow" table for both scenarios considered.

Response
According to the Guidance (General issues in calculation and presentation, paragraph 3), calculations may include the cost of major maintenance and /or rehabilitation.
Alternative 1.1 includes a set of complex equipment (such as turbine with an auxiliaries) which is not present in the Alternative 1.3. As the result, the cost of major maintenance and /or rehabilitation for the Alternative 1.1 will be much higher then for the Alternative 1.3. So, decision of the project developer to exclude those costs from the summary cashflow is a) in line with the Guidance, b) indicates conservative approach.

Conclusion
Clarification was found satisfactory. Issue is closed

CLs 5,6,8 and 9 were also issued. More detailed record of these findings can be found in the Determination Protocol in Appendix A.

3.3 Monitoring Plan

The Project uses the approved consolidated monitoring methodology ACM 0012 ("Consolidated baseline methodology for GHG emission reductions from waste energy recovery projects", version 03.1).
The applicability of this methodology is described in the section 3.2. of this Determination Report.

The emission factor for the Ukrainian electricity grid, developed by Global Carbon BV and accepted by TUV SUD is used for the baseline emissions calculation.

Project scenario emissions
According to ACM0012, project emissions include emissions due to combustion of auxiliary fuel to supplement waste gas and electricity emissions due to consumption of electricity for cleaning of 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 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, funs, control system, etc.). This electricity is carbon neutral, because CHP will be fuelled by COG, which is flared and burnt in the existing boiler house at the moment. However, auxiliary electricity consumption would not occur in the absence of the proposed project, so it needs to be considered as a projects emissions source.
Also, some electricity will be imported from the grid during maintenance of the CHP.

Baseline scenario emissions
The baseline emissions would occur in the absence of the project from the electricity imported from the grid and would have two sources:

- Electricity consumed by HCP's equipment, which in the absence of the project would have been imported from the grid;
- Electricity supplied to the grid, which in the absence of the project would have been generated by fossil fuels power plants.

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 CHP's auxiliaries is considered as project emissions.
- Electricity generated by the project from the COG and consumed by HCP's auxiliaries apply an EF=0.896 tCO_2/MWh as a project reducing electricity consumption from the grid (see Annex 2);

- Electricity generated by the project from the COG, exported to the grid and consumed by third parties apply an EF=0.807 tCO_2/MWh as a project producing electricity to the grid (see Annex 2).

Clarification Request (CL)10
Please, provide the information in Annex3 and if possible clarify the formulae in the section D.1.1.2. (reference to the methodology) since the names of the parameters are different and it is not very clear where were they taken from.

Response
Provided in section D.1.1.2 of the PDD version 3.2.

Conclusion
The links to the used methodology were provided in order to show the connection between the formulae in the methodology and the formulae used to calculate project emissions. The explanation found satisfactory. Issue is closed.

Clarification Request (CL) 11
Please, provide the information in Annex3 and if possible clarify the formulae in the section D.1.1.4. (reference to the methodology) since the names of the parameters are different and it is not very clear where were they taken from.

Response
Provided in section D.1.1.4 of the PDD version 3.2.

Conclusion
The links to the used methodology were provided in order to show the connection between the formulae in the methodology and the formulae used to calculate baseline emissions. The explanation found satisfactory. Issue is closed.

Clarification Request (CL) 12
Please state that section D.1.3.2. is left blank on purpose.

Response
Stated in the section D.1.3.2 in the PDD version 3.2.

Conclusion
The requested information was provided and found satisfactory. Issue is closed.

Clarification Request (CL) 13
Please state that section D.1.5. is left blank on purpose.

Response
Stated in the section D.1.5 in the PDD version 3.2.

Conclusion
The requested information was provided and found satisfactory. Issue is closed.

3.4 Calculation of GHG Emissions

As per ACM0012, the baseline emission sources considered are electricity consumed by HCP's equipment, which in the absence of the project would have been imported from the grid; electricity supplied to the grid, which in the absence of the project would have been generated by fossil fuels power plants.
As required under ACM0012, the baseline emissions are calculated by the following formulas:

$$BE_y = BE_{En,y} + BE_{flst,y} \quad \text{(Equation 1)}$$

with

$$BE_{En,y} = BE_{Elec,y} + BE_{Ther,y}, \quad \text{(Equation 2)}$$

$$BE_{Elec,y} = f_{cap} \times f_{wcm} \times (EL_{HCP,y} \times EF_{red} + EL_{grid,y} \times EF_{prod}) \quad \text{(Equation 3)}$$

$$f_{cap} = \frac{Q_{COG,BL}}{Q_{COG,y}} \quad \text{(Equation 4)}$$

where:
BE_y = Baseline Emissions in year y (tCO_2);
$BE_{En,y}$ = The baseline emissions from energy generated by project activity during the year y (tCO_2);
$BE_{flst,y}$ = Baseline emissions from steam generation, if any, using fossil fuel that would have been used for flaring the waste gas in absence of the project activity. This is relevant for those project activities where in the baseline steam is used to flare the waste gas. Not applicable*.
$BE_{Elec,y}$ = Baseline emissions due to displacement of electricity during the year y (tCO_2);
$BE_{Ther,y}$ = Baseline emissions from thermal energy (due to heat generation by element process) during the year y. Amount of the thermal energy in the baseline scenario equal to the amount of the thermal energy generation in the project scenario, so it is neglected.

* In the baseline scenario, as well as in a project scenario, steam for the COG flaring is generating by COG combustion. Amount of steam for the flaring purposes in the project scenario is much less then in the baseline, so it is conservative.

f_{cap} = Energy that would have been produced in project year y, using COG generated in base year expressed as a fraction of total energy produced using COG in year y;
$Q_{COG,BL}$ = Amount of COG generated prior to the start of the proposed project (nm^3). More detailed described in Annex 2;
$Q_{COG,y}$ = Amount of COG generated during year y (nm^3);
f_{wcm} = Fraction of total electricity generated by the project activity using waste energy. This fraction is 1 because electricity generation is purely from use of waste energy.
$EL_{HCP,y}$ = Amount of electricity consumed by HCP's equipment, which in the absence of the project would have been imported from the grid (MWh);
$EL_{grid,y}$ = Amount of electricity supplying to the grid, which in the absence of the project would have been generated by fossil fuels power plants (MWh);
EF_{red} = Emission factor of Ukrainian grid for reducing projects (tCO_2/MWh);
EF_{prod} = Emission factor of Ukrainian grid for producing projects (tCO_2/MWh).

As described in ACM0012, the project emissions are calculated by the following formulas:

$$PE_y = PE_{AF,y} + PE_{EL,y} + PE_{EL,\mathrm{Im}\,port,y} \quad \text{(Equation 5)}$$

where:
PE_y = Project Emissions due to project activity in the year y (tCO_2);
$PE_{AF,y}$ = Project activity emissions from on-site consumption of fossil fuels by the co-generation plant(s), in case they are used as supplementary fuels, due to non-availability of waste energy to the project activity or due to any other reason. Not applicable.
$PE_{EL,y}$ = Project activity emissions from on-site consumption of electricity for gas cleaning equipment or other supplementary electricity consumption.
In case of proposed project,
$PE_{EL,y}$ = Project Emissions from electricity consumed by CHP's auxiliary equipment and electricity consumed from the grid during maintenance of the CHP in year y in the year y (tCO_2);
$PE_{EL,Import,y}$ = Project activity emissions from import of electricity replacing captive electricity generated in the absence of the project activity for Type-2 project activities. Not applicable.

$$PE_{EL,y} = EC_{PJ,y} \times EF_{CO2,EL,y} \quad \text{(Equation 6)}$$

With

$$EC_{PJ,y} = \sum_{i=1}^{n} EL\_CHP_{y,i} + EL_{grid,y}, \quad \text{(Equation 7)}$$

$$EF_{CO2,EL,y} = EF_{red} \quad \text{(Equation 8)}$$

where:
$EC_{PJ,y}$ = Additional electricity consumed in year y as a result of the implementation of the project activity (MWh);
$EF_{CO2,EL,y}$ = CO2 emission factor for electricity consumed by the project activity in year y (tCO_2/MWh);
$EL\_CHP_{y,i}$ = Electricity consumed by COG Power Plant's auxiliary equipment i in the year y (MWh);
$EL_{grid,y}$ = Electricity consumed from the grid during maintenance of the CHP in year y (MWh);
EF_{red} = Emission factor of Ukrainian grid for reducing projects (tCO_2/MWh).

With reference to this methodology, project does not lead to any leakage.

The estimated annual average of approximately 58 316 tCO2e over the crediting period of emission reduction represents a reasonable estimation using the assumptions given by the project.

Clarification Request (CL) 14
Please clarify if conservative assumptions have been used to calculate project GHG emissions.

Response
Conservative approach for the project emissions calculations described in the Section D.1. of the PDD version 3.2.

Conclusion
Uncertainty of measurements is taken into account during taking the data from the measuring equipment. Article 10 part 1 of "Law of Ukraine on Metrology and Metrological Activity" states that results of the measurements can be used in the condition if the characteristics of measuring uncertainty are known. This assures correct figures of measured parameters. Issue is closed.

3.5 Environmental Impacts

According to Ukrainian legislation, an Environmental Impact Assessment (EIA), as a part of the project design documents, has been done 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 H_2 and C_mH_m;
- Decreasing of the solid carbonaceous up to 75%.

According to calculations made in EIA, emissions of air pollutants will be reduce up to 1300 tones per year after start up of the CHP. Construction of the proposed CHP will be done at the premises of HCP and does not require any felling of the green plantation.
Extracts of important sections of EIA were available to the AIE by request.

Corrective Action Request (CAR) 7
The information considering transboundary environmental effects is not provided. Please include one into section F of the PDD.

Response
Clarification has been included in the Section F of the PDD version 3.2.

Conclusion
The requested information was provided and found satisfactory. Issue is closed.

3.6 Comments by Local Stakeholders

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

4 COMMENTS BY PARTIES, STAKEHOLDERS AND NGOS

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

5 DETERMINATION OPINION

Bureau Veritas Certification has performed a determination of the "Introduction of a Coke Oven Gas fuelled CHP with 12.5MWe capacity at the Horlivka coke plant" Project in Ukraine. The determination was performed on the basis of UNFCCC criteria and host country criteria and

also on the criteria given to provide for consistent project operations, monitoring and reporting.

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

Project participant/s used the tool for demonstration of the additionality. In line with this tool, the PDD provides analysis of investment, technological and other barriers to determine that the project activity itself is not the baseline scenario. The investment analysis was performed on the basis of data taken from the plant, which is presented in the Supporting Document 1.

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

The review of the project design document version 3.3 and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

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

6 REFERENCES

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

/1/ PDD version 1.0 dated 19.08.2008

/2/ PDD version 1.2. dated 25.02.2009

/3/ PDD version 1.4. dated 02.06.2009

/4/ PDD version 1.5. dated 25.06.2009

/5/ PDD version 3.0. dated 05.08.2009

/6/ PDD version 3.1. dated 18.09.2009

/7/ PDD version 3.2. dated 22.12.2009

/8/ PDD version 3.3. dated 15.03.2010

/9/ Letter of Approval #42/23/7 from National Agency of Environmental Investments dated 20th of January 2010

/10/ Letter of Approval #2009JI11 from SenterNovem Utrecht dated 8th of October 2009.

/11/ Permit on the performance of the constructional works #08/02/1144 from 18.11.2008 issued by the Inspection of the State architect-constructional control in Donetsk Region. Valit till 01.12.2010.

/12/ Second complex expert conclusion #1006/2 issued by Donetsk Regional Office of Ukrainian State Investment Expertise "Donoblinvestexpertisa" on 06.10.2008.

/13/ Conclusion #1896/03.3 of the State Sanitary-Epidemiological Expertise of Donetsk Region issued 02.07.2008.

/14/ Expert conclusion on the compliance of the project documentation of the construction of industrial object to the legal requirements of the fire-prevention.

/15/ Conclusion of the State Environmental Expertise C#08.08.384 on the compliance of the project documentation of the construction of industrial object to the legal requirements in the field of environmental protection.

/16/ Expert conclusion #08 B 07 0025 00.00 0881 II issued by the State energy-saving inspection from 23.05.2008 till 23.05.11.

/17/ Expertise conclusion #63.2-01-3204.08 from the public enterprise "Eastern technical expert centre" from 05.09.2008 which certifies compliance of the project documentation of the construction of industrial object to the legal requirements in the field of labour protection.

/18/ Architect-planning task, which is approved by the Municipal Facilities Division on 03.03.2008 and is valid till 03.2010.

/19/ Decision #235 of Horlivka City Administration Executive Comittee from 20.02.2008 that permits Introduction of a Coke Oven Gas fuelled CHP with 12.5MWe capacity at the Horlivka coke plant.

Category 2 Documents:

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

/1/ Stuff schedule of the CHP.

/2/ The contract between Bureau Veritas Ukraine LLC and ISTEK LLC on the performing of determination activity dated 21.01.2009.

/3/ Order #35 ОД on the project approval dated 07.10.2008.

/4/ The contract #25-9-79 Pr-OKS between ISTEK LLC and JSC "National Technical Company "Kotloenergoprom" dated of the project as 25th September 2007

/5/ Geological Conclusion #2-13 on the area of the CHP unit construction dated 15.01.08.

/6/ Addition #26-09/ИС-2180 to the Contract of the technical conditions of joining of the CHP unit the national electricity grid dated 25.03.2008.

/7/ The state on environmental consequences of the activity caused by the JI project published in the local newspaper "Vechernyaya Gorlovka"

/8/ The state on intentions by the ISTEK LLC published in the local newspaper "Vechernyaya Gorlovka"

/9/ Feasibility study of "Introduction of a 12.5MWe CHP with a coke plant's flue gases utilization at the branch of ISTEK LLC "Horlivka Coke Plant" #018090 dated 2007

/10/ Information on the equipment similar to the one used in the project that is used all over Ukraine (Eastern, Western, Southern Region)

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/ Oleg Bulany, Senior Consultant of Global Carbon BV

/2/ Sergiy Boyko, Deputy Chief Energy Specialist of the HCP ISTEK Ltd.

/3/ Stanislav Bredun, Head of the production department of the HCP ISTE|K Ltd.

/4/ Boris Glushenko, Head of the technical department of the HCP ISTEK Ltd.

/5/ Petr Golovin, Head of the HCP ISTEK Ltd.

/6/ Victor Danilchenko, Head of the КИП and A, Chief Metrologist of the HCP ISTEK Ltd.

/7/ Aleksandr Zatochniy, Chief Energy Specialist

/8/ Petr Zima, Deputy Head of the capital construction of the ISTEK Ltd.

/9/ Vladimir Pilipenko, Head of the economy of the ISTEK Ltd.

/10/ Tatyana Teleginskaya, Deputy Chief Engineer of the HCP ISTEK Ltd.

/11/ Vyacheslav Chernikov, First Deputy of the Head, Chief Engineer of the HCP ISTEK Ltd.

- o0o -

APPENDIX A: COMPANY JI PROJECT DETERMINATION PROTOCOL

JI PROJECT Validation Protocol

Table 1 Mandatory Requirements for Joint Implementation (JI) Projects

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
1. The project shall have the approval of the Parties involved	Kyoto Protocol Article 6.1 (a)	Letter of Approval #42/23/7 from National Agency of Environmental Investments was issued 20th of January 2010. Letter of Approval #2009JI11 from SenterNovem Utrecht was issued 8th of October 2009.	Table 2, Section A.5
2. Emission reductions, or an enhancement of removal by sinks, shall be additional to any that would otherwise occur	Kyoto Protocol Article 6.1 (b)	OK	Table 2, Section B
3. The sponsor Party shall not acquire emission reduction units if it is not in compliance with its obligations under Articles 5 & 7	Kyoto Protocol Article 6.1 (c)	Article 5 requires "…Annex I Parties to having in place, no later than 2007, national systems for the estimation of greenhouse gas emissions by sources and removals by sinks." Article 7 requires "… Annex I	

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

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
		National Environmental Investment Agency of Ukraine 35 Urytsky Str., Kyiv, P.O. 03035 Phone: +380 44 594 91 11 Fax: +380 44 5949115 Email: info.neia@gmail.com National guidelines and procedures for the approval of JI projects are available (www.neia.gov.ua) Contact data in the Netherlands: **Ministry of Economic Affairs** Catharijnesingel 59 P.O. Box 8242 3503 RE Utrecht Netherlands Phone: +31 30 239 3413	

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
		Email: d.de.haan@senternovem.nl National guidelines and procedures for the approving JI projects are available (http://ji.unfccc.int/UserManagement/FileStorage/XQ0CYFTBQDSELQJSZUKHKRMANMD6QD	
6. The host Party shall be a Party to the Kyoto Protocol	Marrakech Accords, JI Modalities, §21(a)/24	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	In the Initial Report submitted by Ukraine on 29. Dec. 2006 the AAUs are quantified with: 925 362 174.39 (x 5) = 4 626 810 872 tCO2-e	
8. The host Party shall have in place a national registry in accordance with Article 7, paragraph 4	Marrakech Accords, JI Modalities, §21(d)/24	The designed system of the national registry has been described in the Initial Report mentioned above	

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
9. Project participants shall submit to the independent entity a project design document that contains all information needed for the determination	Marrakech Accords, JI Modalities, §31	OK	
10. The project design document shall be made publicly available and Parties, stakeholders and UNFCCC accredited observers shall be invited to, within 30 days, provide comments	Marrakech Accords, JI Modalities, §32	The PDD has been made public available via UNFCCC website from 12 July 2009 to 5 August 2009.	
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 B
13. A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances	Marrakech Accords, JI Modalities,	OK	Table 2, Section B

REQUIREMENT	REFERENCE	CONCLUSION	Cross Reference to this protocol
	Appendix B		
14. The baseline methodology shall exclude to earn ERUs for decreases in activity levels outside the project activity or due to force majeure	Marrakech Accords, JI Modalities, Appendix B	OK	Table 2, Section B
15. The project shall have an appropriate monitoring plan	Marrakech Accords, JI Modalities, §33(c)	OK	Table 2, Section D
16. Are project participants authorized by a Party involved	JISC "Modalities of communication of Project Participants with the JISC" Version 01, Clause A.3	See CAR3. Conclusion is pending until Letters of Approval authorizing the project participants by Parties involved will be issued.	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?		DR	The title of the project is indicated correctly. See section A.1.	OK	OK
A.1.2. Is the current version number of the document presented?		DR	The current version of the project of the project is indicated. See section A.1.	OK	OK
A.1.3. Is the date when the document was completed presented?		DR	The date of the project is presented. See section A.1.	OK	OK
A.2. Description of the project					
A.2.1. Is the purpose of the project included?		DR I	The purpose of the project is not stated clearly as separate abstract. Corrective Action Request (CAR)1 Please specify the purpose of the project in this particular section A.2.	CAR1	OK
A.2.2. Is it explained how the proposed project reduces greenhouse gas emissions?		DR	In this particular section the way the proposed project reduces greenhouse gas emissions is not presented. Corrective Action Request (CAR)2 Please provide brief information on how	CAR2	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			the proposed project reduces greenhouse gas emissions.		
A.3. Project participants					
A.3.1. Are project participants and Party(ies) involved in the project listed?		DR	Project participants and parties involved are listed in the Table 2 section A.3. of PDD version 3.2.	OK	OK
A.3.2. Are project participants authorized by a Party involved?		DR	Project participants are authorized by the Parties involved		
A.3.3. The data of the project participants are presented in tabular format?		DR	Project participants and parties involved are listed in the Table 2 section A.3. of PDD version 3.2.	OK	OK
A.3.4. Is contact information provided in annex 1 of the PDD?		DR	Yes, the information is provided in Annex 1 of the PDD version 3.2.	OK	OK
A.3.5. Is it indicated, if it is the case, if the Party involved is a host Party?		DR	Yes, Ukraine as a party involved 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)		DR	Ukraine is a host party.	OK	OK
A.4.1.2. Region/State/Province etc.		DR	Donetsk region.	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
A.4.1.3. City/Town/Community etc.		DR	City of Horlivka.	Ok	OK
A.4.1.4. Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page)		DR	All the information is provided in English 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?		DR	The project design engineering reflects the brief explanation of the technology to be employed. Clarification Request (CL)1 Please provide brief summary if the project design engineering reflect current good practices.	CL1	OK
A.4.2.2. Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?		DR	COG will be supplied to the new boiler by the existing gas transporting system and will be utilized in the boiler by burners developed especially for COG. Steam generated will be directed to new steam turbine 12,5 MWe. Boiler that is used in this project was specially designed for use of coke gas and	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			is state of art technology. This boiler is 2nd of such type in a host party. The turbine is appropriate to the technical national requirements of the host party however the technology of its construction is not new.		
A.4.2.3. Is the project technology likely to be substituted by other or more efficient technologies within the project period?		DR	The project is not likely to be substituted by other or more efficient technology within the project period. Modern boiler is highly efficient and nothing more efficient is not expected in the nearest future.	OK	OK
A.4.2.4. Does the project require extensive initial training and maintenance efforts in order to work as presumed during the project period?		DR	Since the main idea of the project is to build new CHP unit in order to utilize the COG the training for the stuff will probably be required. Clarification Request (CL)2 Please clarify in the PDD if initial training for the stuff is required.	CL 2	OK
A.4.2.5. Does the project make provisions for meeting training and maintenance needs?		DR	The project does not include any information considering training. Clarification Request (CL)3 Please provide information considering training for the stuff in order to meet	CL3	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			maintenance needs.		
A.4.3. Brief explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project, including why the emission reductions would not occur in the absence of the proposed project, taking into account national and/or sectoral policies and circumstances					
A.4.3.1. Is it stated how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page)		DR	As it is stated in the PDD version 3.2. GHG emission will be reduced by two assets: • Carbon neutral electricity produced by the project and delivered to the grid; • Carbon neutral electricity produced by the project and consumed on-site. The section does not exceed one page and complies with all the requirements.	OK	OK
A.4.3.2. Is it provided the estimation of emission reductions over the crediting period?		DR	The estimation of emission reductions over the crediting period is provided in the Table 3 in the Section A.4.3.1. of the PDD version 3.2.	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
A.4.3.3. Is it provided the estimated annual reduction for the chosen credit period in tCO_2e?		DR	The estimation of annual reductions over the crediting period is provided in the Table 3 in the Section A.4.3.1. of the PDD version 3.2.	OK	OK
A.4.3.4. Are the data from questions A.4.3.2 to A.4.3.4 above presented in tabular format?		DR	Yes, see the section A.4.3.2. and A.4.3.3. of this protocol.	OK	OK
A.5. Project approval by the Parties involved					
A.5.1. Are written project approvals by the Parties involved attached?		DR	A Letter of Endorsement # 4913/11/10-08 for the proposed project was issued 15 April 2008. After the project has completed the determination process, the PDD and the Determination Protocol will be presented to the National Environmental Investment Agency of Ukraine to obtain a Letter of Approval. <u>Corrective Action Request (CAR)3</u> There is no evidence of written project approvals by the Parties involved	CAR3	OK
B. Baseline					
B.1. Description and justification of the baseline chosen					
B.1.1. Is the chosen baseline described?		DR	"Continuation of the existing situation" is	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			accepted as the baseline scenario and is properly described.		
B.1.2. Is it justified the choice of the applicable baseline for the project category?		DR	The choice of the applicable baseline scenario is justified with the help of describing existing alternatives and proving the barriers which do not prevent the chosen baseline scenario only.	OK	OK
B.1.3. Is it described how the methodology is applied in the context of the project?		DR	Approved consolidated baseline and monitoring methodology ACM0012 (version 03)"Consolidated baseline methodology for GHG emission reductions from waste energy recovery projects" is used. The table 5 of the PDD version 3.2 shows the applicability conditions that are passed through.		OK
			<u>Clarification Request (CL)4</u>		
			The methodology ACM0012 version 3 used in the PDD is not the latest version of this methodology. Please provide the clarification.	CL4	
B.1.4. Are the basic assumptions of the baseline methodology in the context of the project activity presented (See Annex 2)?		DR	The basic assumptions of the baseline methodology in the context of the project are presented in the section B.1. of the PDD version 3.2.	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
B.1.5. Is all literature and sources clearly referenced?		DR	All literature and sources are clearly presented and referenced.	OK	OK
B.2. Description of how the anthropogenic emissions of greenhouse gases by sources are reduced below those that would have occurred in the absence of the JI project					
B.2.1. Is the proposed project activity additional?		DR	The most recent "Tool for the demonstration and assessment of additionality (version 05.1)" is applied to prove that the anthropogenic emissions are reduced below those that would have occurred in the absence of the JI project. According to application of this tool the project is considered to be additional. PBP and IRR indicators change for JI activity as well as for chosen Alternative 1.3 while energy price to the grid or from the grid increase. As it can clearly be seen from the table 7 of the PDD version 3.2, in all scenarios Alternative 1.3 looks more financially attractive then the JI project activity. As soon as Alternative 1.3 has the entire best IRR indicator the JI project activity can not be considered as more financially attractive. So the project is	CAR4	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			additional. <u>Corrective Action Request (CAR) 4</u> The most recent version of the "Tool for the demonstration and assessment of additionality" is version 05.2. Please provide appropriate correction in PDD.		
B.2.2. Is the baseline scenario described?		DR	The baseline scenario is properly described. <u>Clarification Request (CL) 5</u> Please, specify the reason of the project activity alternative chosen to prove the additionality. <u>Coorective Action Request (CAR) 5</u> The use of NPV despite being good method in general in this particular case may be not appropriate measure because of substantial difference between amount of investment required for implementation of Alternative 1.1 and 1.3. Alternative 1.1 requires 2.2 times more capital than alternative 1.3 so higher NPV for alternative 1.1 does not necessarily mean	CL5 CAR5	OK OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			that alternative 1.1 is the better option and vice versa. In order to avoid this trap it is suggested to use of Profitability Index (PI) instead of NPV. PI = PV of the project benefits / PV of investments.		
			<u>Corrective Action Request (CAR) 6</u> Financial analyses showed that payback periods in excel investment analysis file are calculated in wrong manner. Please correct the formula.	CAR6	OK
			<u>Clarification Request (CL) 6</u> In general Guidance for the Assessment of Investment analysis (hereinafter referred as the Guidance) recommends the maximum period of 20 years. Please clarify the reason of choosing 30 years as technical lifetime.	CL6	OK
			<u>Clarification Request (CL) 7</u> Calculations provided clearly miss the cost of major overhauls while they shall constitute substantial amount during the lifetime of equipment. It is suggested to add the relevant line in "summary	CL7	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			cashflow" table for both scenarios considered. Clarification Request (CL) 8 It appears that calculation for alternative 1.1 (CHP plant) in Excel file does not account for any cash flow generated by the production of heat energy or savings from production of heat energy using new CHP equipment while alternative 1.3. accounts for such savings (line 27 of "summary cashflow" table). This approach violates requirement (9) of the Sub-step 2c of the Methodological Tool: Assumptions and input data for the investment analysis shall not differ across the project activity and its alternatives, unless differences can be well substantiated. Please clarify. Clarification Request (CL) 9 Discrepancy exists between Investment analysis figures appearing in excel spreadsheets and values represented in table 6 (page 14 and table 7 (page 14). Excel file and these two tables show completely different IRR, pay-back period and NPV values. Please clarify the	CL8 CL9	OK OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			difference and correct the figures in tables 6 and 7 in order to eliminate the discrepancy.		
B.2.3. Is the project scenario described?		DR	The project scenario is clearly described and compared to the baseline one with the help of the "Tool for the demonstration and assessment of additionality (version 05.1)". See CAR 4 concerning version of the "Tool for the demonstration and assessment of additionality"	CAR4	OK
B.2.4. Is an analysis showing why the emissions in the baseline scenario would likely exceed the emissions in the project scenario included?		DR	The section B.2. of the PDD version 3.2. contains an analysis that shows why the emissions in the baseine scenario would likely exceed the emissions in the project scenario. Since the project scenario (see A.4.2) comparing with the baseline scenario will lead to reduction of the electricity generation from the fossil fuels, anthropogenic emissions of GHG at Ukrainian energy system will be reduced below those that would have occurred in the absence of the JI project.	OK	OK
B.2.5. Is it demonstrated that the project activity itself is not a likely baseline scenario?		DR	It is clearly demonstrated that the project activity itself is not a likely baseline scenario. Alternative 1.2 "Continuation of	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			existing situation" is considered to be baseline scenario. Barrier analysis was used in order to choose baseline scenario.		
B.2.6. Are national policies and circumstances relevant to the baseline of the proposed project activity summarized?		DR	National policies and circumstances relevant to the baseline of the proposed project activity are summarized in the section A.4.3. of the PDD version 3.2.	OK	OK
B.3. Description of how the definition of the project boundary is applied to the project activity					
B.3.1. Are the project's spatial (geographical) boundaries clearly defined?		DR	The project activities are limited physically by the premises of the HCP. At the same time, the source of GHG emission is indirect - Ukrainian electricity grid, as a result of electricity generation using fossil fuels.	OK	OK
B.4. Further baseline information, including the date of baseline setting and the name(s) of the person(s)/entity(ies) setting the baseline					
B.4.1. Is the date of the baseline setting presented (in DD/MM/YYYY)?		DR	The date of completion of the baseline study is presented in the right format.	OK	OK
B.4.2. Is the contact information provided?		DR	The contact information is provided in the Annex 1 of the PDD version 3.2.	OK	OK
B.4.3. Is the person/entity also a project participant		DR	The entity is the project participant listed in	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
listed in Annex 1 of PDD?			Annex 1 of the PDD version 3.2.		
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?		DR	The project's starting date is clearly defined in the section C.1. of the PDD version 3.2. Feasibility study of "Introduction of a 12.5MWe CHP with a coke plant's flue gases utilization at the branch of ISTEK LLC "Horlivka Coke Plant" #018090 dated 2007, was seen.	OK	OK
C.2. Expected operational lifetime of the project					
C.2.1. Is the project's operational lifetime clearly defined in years and months?		DR	The project's operational lifetime is clearly defined in years and months in the section C.2. of the PDD version 3.2. Determination team conducted the research and found out that equipment similar to the one used in the project has been operating since 1960-s, which shows that operational lifetime as 30 years is reasonable.	OK	OK
C.3. Length of the crediting period					
C.3.1. Is the length of the crediting period specified in years and months?		DR	The length of the crediting period is specified in years and months in the section C.3. of the PDD version 3.2.	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			Emission reductions generated after the crediting period may be used in accordance with an appropriate mechanism under the UNFCCC.		
D. Monitoring Plan					
D.1. Description of monitoring plan chosen					
D.1.1. Is the monitoring plan defined?		DR	Approved consolidated monitoring methodology ACM0012 "Consolidated monitoring methodology for GHG emission reductions for waste gas or waste heat or waste pressure based energy system" is used. The emission factor for the Ukrainian electricity grid, developed by Global Carbon BV and accepted by TUV SUD will be used for the baseline emissions calculation. So the monitoring plan is clearly defined.	OK	OK
D.1.2. Option 1 – Monitoring of the emissions in the project scenario and the baseline scenario.		DR	**Project scenario emissions** According to ACM0012, project emissions include emissions due to combustion of auxiliary fuel to supplement waste gas and electricity emissions due to consumption of electricity for cleaning of gas before being used for generation of	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			heat/energy/electricity. In case of the proposed project there is no auxiliary fuel to supplement COG due to the CHP design. The proposed CHP does not requires 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, funs, control system, etc.). This electricity is carbon neutral, because CHP will be fuelled by COG, which is flared and burnt in the existing boiler house at the moment. However, auxiliary electricity consumption would not occur in the absence of the proposed project, so it needs to be considered as a projects emissions source. Also, some electricity will be imported from the grid during maintenance of the CHP. **Baseline scenario emissions** The baseline emissions would occur in the absence of the project from the electricity		

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			imported from the grid and would have two sources: • Electricity consumed by HCP's equipment, which in the absence of the project would have been imported from the grid; • Electricity supplied to the grid, which in the absence of the project would have been generated by fossil fuels power plants. 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 CHP's auxiliaries is considered as project emissions. • Electricity generated by the project from the COG and consumed by HCP's auxiliaries apply an EF=0.896 tCO_2/MWh as a project reducing electricity consumption		

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			from the grid (approved by TUV SUD); • Electricity generated by the project from the COG, exported to the grid and consumed by third parties apply an EF=0.807 tCO_2/MWh as a project producing electricity to the grid (approved by TUV SUD). Data to be collected in order to monitor emissions from the project are presented in the Table D.1.1.1. in the PDD version 3.2. Relevant data necessary for determining the baseline of anthropogenic emissions of greenhouse gases by sources within the project boundary are presented in the Table D.1.1.3. in the PDD version 3.2.		
D.1.3. Data to be collected in order to monitor emissions from the project, and how these data will be archived.		DR	Data to be collected in order to monitor emissions from the project are presented in the Table D.1.1.1. in the PDD version 3.2. This data will be archived both in electronic and paper way.	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).		DR	See Section D.1.1.2. of the PDD version 3.2. Clarification Request (CL) 10	CL10	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			Please, provide the information in Annex3 and if possible clarify the formulae in the section D.1.1.2. (reference to the methodology) since the names of the parameters are different and it is not very clear where were they taken from.		
D.1.5. Relevant data necessary for determining the baseline of anthropogenic emissions of greenhouse gases by sources within the project boundary, and how such data will be collected and archived.		DR	Relevant data necessary for determining the baseline of anthropogenic emissions of greenhouse gases by sources within the project boundary are presented in the Table D.1.1.3. in the PDD version 3.2. This data will be archived both in electronic and paper way.	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).		DR	See Section D.1.1.4. of the PDD version 3.2. The choice of equatation 4 in the section D.1.1.4 of the PDD version 3.2 is based on the fact that other alternatives in the methodology ACM0012 "Consolidated monitoring methodology for GHG emission reductions for waste gas or waste heat or waste pressure based energy system" are not applicable under chosen conditions. <u>Clarification Request (CL) 11</u> Please, provide the information in Annex3 and if possible clarify the formulae in the	CL11	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			section D.1.1.4. (reference to the methodology) since the names of the parameters are different and it is not very clear where were they taken from.		
D.1.7. Option 2 – Direct monitoring of emissions reductions from the project (values should be consistent with those in section E)		DR	Not applicable. See section D.1.2.	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.		DR	Not applicable. See section D.1.2.1	OK	OK
D.1.9. Description of the formulae used to calculate emission reductions from the project (for each gas, source etc,; emissions/emission reductions in units of CO2 equivalent).		DR	Not applicable. See section D.1.2.2	OK	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.		DR	No leakages are applicable under methodology ACM0012.	OK	OK
D.1.11. Description of the formulae used to estimate leakage (for each gas, source etc,; emissions in units of CO2 equivalent).		DR	Not applicable. See section D.1.3.2 Clarification Request (CL) 12 Please state that section D.1.3.2. is left blank on purpose.	CL12	OK
D.1.12. Description of the formulae used to estimate emission reductions for the project (for		DR	See section D.1.4. of the PDD version 3.2.	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
each gas, source etc,; emissions in units of CO2 equivalent).					
D.1.13. Is information on the collection and archiving of information on the environmental impacts of the project provided?		DR, I	The information on the collection and archiving of information on the environmental impacts of the project is not provided. <u>Clarification Request (CL)13</u> Please state that section D.1.5. is left blank on purpose. The following permitting documents were observed on-site: Architect-planning task, which is approved by the Municipal Facilities Division on 03.03.2008 and is valid till 03.2010. Decision #235 of Horlivka City Administration Executive Comittee from 20.02.2008 that permits Introduction of a Coke Oven Gas fuelled CHP with 12.5MWe capacity at the Horlivka coke plant. Expertise conclusion #63.2-01-3204.08 from the public enterprise "Eastern technical expert centre" from 05.09.2008 which certifies compliance of the project	CL13	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			documentation of the construction of industrial object to the legal requirements in the field of labour protection. Expert conclusion #08 B 07 0025 00.00 0881 II issued by the State energy-saving inspection from 23.05.2008 till 23.05.11. Conclusion of the State Environmental Expertise #08.08.384 on the compliance of the project documentation of the construction of industrial object to the legal requirements in the field of environmental protection. Expert conclusion on the compliance of the project documentation of the construction of industrial object to the legal requirements of the fire-prevention. Conclusion #1896/03.3 of the State Sanitary-Epidemiological Expertise of Donetsk Region issued 02.07.2008. Second complex expert conclusion #1006/2 issued by Donetsk Regional Office of Ukrainian State Investment Expertise "Donoblinvestexpertisa" on 06.10.2008.		

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			Permit on the performance of the constructional works #08/02/1144 from 18.11.2008 issued by the Inspection of the State architect-constructional control in Donetsk Region. Valid till 01.12.2010.		
D.1.14. Is reference to the relevant host Party regulation(s) provided?		DR, I	The reference to the relevant host Party regulations is provided. See CL.14	OK	OK
D.1.15. If not applicable, is it stated so?		DR, I	See section D.1.13 Table 2 of this protocol.	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?		DR	See section D.2. of the PDD version 3.2.	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		DR	For monitoring, collection, registration, visualization, archiving, reporting of the monitored dates and periodical checking of the measurement devices the measurement team from Chief Energy's Department and its Chief Mr Zatochniy are	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			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 on the flow-chart in the section D.3. of the PDD version 3.2.		
D.4. Name of person(s)/entity(ies) establishing the monitoring plan					
D.4.1. Is the contact information provided?		DR	The contact information is provided in the Annex 1 of the PDD version 3.2.	OK	OK
D.4.2. Is the person/entity also a project participant listed in Annex 1 of PDD?		DR	The entity is the project participant listed in Annex 1 of the PDD version 3.2.	OK	OK
E. Estimation of greenhouse gases emission reductions					
E.1.Estimated project emissions					
E.1.1. Are described the formulae used to estimate anthropogenic emissions by source of GHGs due the project?		DR	The formulae used to estimate project emissions is described in the section D.1.1.2 of the PDD version 3.2. The calculation of GHG project emissions is presented in the Table 9 in the section E.1 of the PDD version 3.2.	OK	OK
E.1.2. Is there a description of calculation of GHG project emissions in accordance with the formula specified in for the applicable project category?		DR	Not applicable	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
E.1.3. Have conservative assumptions been used to calculate project GHG emissions?		DR	The information on the fact have conservative assumptions been used or not is not provided. Clarification Request (CL)14 Please clarify if conservative assumptions have been used to calculate project GHG emissions and data uncertainty.	CL14	OK
E.2.Estimated leakage					
E.2.1. Are described the formulae used to estimate leakage due to the project activity where required?		DR	Not applicable. See section D.1.3. of the PDD version 3.2.	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?		DR	See section E.2. of the PDD version 3.2.	OK	OK
E.2.3. Have conservative assumptions been used to calculate leakage?		DR	Not applicable	OK	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 small-scale project activity emissions?		DR	It is a large scale project	OK	OK
E.4.Estimated baseline emissions					
E.4.1. Are described the formulae used to estimate the anthropogenic emissions by source of GHGs in the		DR	The formulae used to estimate project emissions is described in the section	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
baseline using the baseline methodology for the applicable project category?			D.1.1.4 of the PDD version 3.2. The calculation of GHG project emissions is presented in the Table 12 in the section E.4 of the PDD version 3.2.		
E.4.2. Is there a description of calculation of GHG baseline emissions in accordance with the formula specified in for the applicable project category?		DR	Not applicable	OK	OK
E.4.3. Have conservative assumptions been used to calculate baseline GHG emissions?		DR	Not applicable	OK	OK
E.5. Difference between E.4. and E.3. representing the emission reductions of the project					
E.5.1. Does the difference between E.4. and E.3. represent the emission reductions due to the project during a given period?		DR	Difference between E.4. and E.3. represents the emission reductions due to the project during a given period.	OK	OK
E.6. Table providing values obtained when applying formulae above					
E.6.1. Is there a table providing values of total CO_2 abated?		DR	See section E.6. of the PDD version 3.2.	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					

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
F.1.1. Has an analysis of the environmental impacts of the project been sufficiently described?		DR, I	Analysis of Environmental Impact Assessment (EIA) 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 H_2 and C_mH_m; • Decreasing of the solid carbonaceous up to 75%. Construction of the proposed CHP will be done at the premises of HCP and does not require any felling of the green plantation. EIA was seen on-site as well as other permiting documentation, such as: Architect-planning task, which is approved by the Municipal Facilities Division on 03.03.2008 and is valid till 03.2010. Decision #235 of Horlivka City Administration Executive Comittee from 20.02.2008 that permits Introduction of a Coke Oven Gas fuelled CHP with 12.5MWe capacity at the Horlivka coke	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			plant. Expertise conclusion #63.2-01-3204.08 from the public enterprise "Eastern technical expert centre" from 05.09.2008 which certifies compliance of the project documentation of the construction of industrial object to the legal requirements in the field of labour protection. Expert conclusion #08 B 07 0025 00.00 0881 II issued by the State energy-saving inspection from 23.05.2008 till 23.05.11. Conclusion of the State Environmental Expertise C#08.08.384 on the compliance of the project documentation of the construction of industrial object to the legal requirements in the field of environmental protection. Expert conclusion on the compliance of the project documentation of the construction of industrial object to the legal requirements of the fire-prevention. Conclusion #1896/03.3 of the State Sanitary-Epidemiological Expertise of Donetsk Region issued 02.07.2008.		

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			Second complex expert conclusion #1006/2 issued by Donetsk Regional Office of Ukrainian State Investment Expertise "Donoblinvestexpertisa" on 06.10.2008. Permit on the performance of the constructional works #08/02/1144 from 18.11.2008 issued by the Inspection of the State architect-constructional control in Donetsk Region. Valid till 01.12.2010.		
F.1.2. Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is and EIA approved?		DR, I	According to Ukrainian legislation, an Environmental Impact Assessment (EIA), as a part of the project design documents, has been done for the proposed project and approved by local authority (seen onsite).	OK	OK
F.1.3. Are the requirements of the National Focal Point being met?		DR, I	The National Focal Point issued letter of endorsement. Letter of approval need to be received (see CAR3).	CAR3	
F.1.4. Will the project create any adverse environmental effects?		DR, I	Analysis of Environmental Impact Assessment (EIA) shows that introduction of the CHP will not have any adverse environmental effects.	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
F.1.5. Are transboundary environmental considered in the analysis?		DR, I	Corrective Action Request 7 The information considering transboundary environmental effects is not provided. Please include one into section F of the PDD.	CAR7	OK
F.1.6. Have identified environmental impacts been addressed in the project design?		DR, I	Checked on site: The following permitting documents were observed on-site: Architect-planning task, which is approved by the Municipal Facilities Division on 03.03.2008 and is valid till 03.2010. Decision #235 of Horlivka City Administration Executive Comittee from 20.02.2008 that permits Introduction of a Coke Oven Gas fuelled CHP with 12.5MWe capacity at the Horlivka coke plant. Expertise conclusion #63.2-01-3204.08 from the public enterprise "Eastern technical expert centre" from 05.09.2008 which certifies compliance of the project documentation of the construction of industrial object to the legal requirements in the field of labour protection.	OK	OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			Expert conclusion #08 B 07 0025 00.00 0881 II issued by the State energy-saving inspection from 23.05.2008 till 23.05.11. Conclusion of the State Environmental Expertise C#08.08.384 on the compliance of the project documentation of the construction of industrial object to the legal requirements in the field of environmental protection. Expert conclusion on the compliance of the project documentation of the construction of industrial object to the legal requirements of the fire-prevention. Conclusion #1896/03.3 of the State Sanitary-Epidemiological Expertise of Donetsk Region issued 02.07.2008. Second complex expert conclusion #1006/2 issued by Donetsk Regional Office of Ukrainian State Investment Expertise "Donoblinvestexpertisa" on 06.10.2008. Permit on the performance of the constructional works #08/02/1144 from 18.11.2008 issued by the Inspection of the		

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			State architect-constructional control in Donetsk Region. Valid till 01.12.2010.		
***G.* Stakeholders' comments**					
G.1. Information on stakeholders' comments on the project, as appropriate					
G.1.1. Is there a list of stakeholders from whom comments on the project have been received?		DR	In accordance with Ukrainian legislation, HCP has consulted the regional authority to obtain the necessary approvals for construction of the CHP. No stakeholder consultation is required by Host Party for JI project. Stakeholder comments will be gathered during one month after publication of this PDD at UNFCCC website in the frame of determination process.	OK	OK
G.1.2. The nature of comments is provided?		DR	Not applicable	OK	OK
G.1.3. Has due account been taken of any stakeholder comments received?		DR	Not applicable	OK	OK

Table 3 Baseline and Monitoring Methodologies: ACM 00012

CHECKLIST QUESTION	Ref.	Move *	COMMENTS	Draft Concl	Final Concl
1. Baseline Methodology					
1. 1. Applicability					
1.1.1. Does the project utilize waste gas and/or waste heat as an energy source to generate electricity in an industrial facility?	2	DR I	The proposed project idea is to utilize the COG (coke oven gas), now being flared and burned for the steam generation, for combined heat and power generation.	OK	OK
1.1.2. Does the energy generated in the project used within the industrial facility or may be exported to grid?	2	DR I	The energy generated in the project will be used within the industrial facility and may be exported to the national grid.	OK	OK
1. 2. Project boundary					
1.2.1. Did the project participant include the industrial facility where waste gas/heat/pressure is generated?	2	DR	Refer to B.3.	OK	OK
1.2.2. Did the project participant include the equipment providing auxiliary heat to the waste heat	2	DR	Refer to B.3.	OK	OK

CHECKLIST QUESTION	Ref.	Move *	COMMENTS	Draft Concl	Final Concl
recovery process?					
1.2.3. Did the project participant include the facility where the process heat in element process/steam/electricity is used and/or grid where electricity is exported?	2	DR	Refer to B.3.	OK	OK
1.2.4. Does the spatial extent of the project boundary include the project site and all power plants connected physically to the electricity system that the project power plant is connected to?	2	DR	Refer to B.3.	OK	OK
1.3. Identification of alternative baseline scenarios					
1.3.1. Do the baseline scenario alternatives include all possible options that provide or produce electricity for in-house consumption and/or sale to grid and/or other consumers?	2	DR	Yes, according to the options mentioned below **Alternative 1.1** *"Introduction of the Coke Oven Gas CHP without JI incentive".* **Alternative 1.2** *"Continuation of the existing situation".* **Alternative 1.3** *"COG is used for heat energy production".* Alternative 1.1 is the only alternative where it is planned to produce electricity for in-house consumption and for sale to grid while Alternatives 1.2 and 1.3 plan to produce electricity for own use and still buy electricity from the grid.	OK	OK
1.4. Additionality					
1.4.1. Was the additionality of the project demonstrated and assessed using the latest version	3	DR	Refer to item B.2. of PDD version 3.2. See CAR 4	CAR4	OK

CHECKLIST QUESTION	Ref.	Move *	COMMENTS	Draft Concl	Final Concl
of the "Tool for demonstration and assessment of additionality"?					
1.5 Project Emissions					
1.5.1. Are the project emissions determined according to the formula $PE_y = PE_{AF,y} + PE_{EL,y}$?	2	DR	Refer to D.1.1.2 and E.1., see CL5	CL5	OK
1.5.2. Are the project emissions from on-site consumption of fossil fuel by the cogeneration plant determined?	2	DR	Refer to D.1.1.2 not applicable.	OK	OK
1.6. Baseline Emissions					
1.6.1. Did the baseline emissions were determined according to the formula $BE_y = BE_{En,y} + BE_{flst.,y}$?	2	DR	Refer to D.1.1.4 and E.4, see CL12	CL12	OK
1.6.3. Were the Emissions Factor for displaced electricity calculated as in Tool to calculate the emission factor for an electricity system (Version 01)?	2	DR	Refer to Annex 2.	OK	OK
1.7. Leakage					
1.7.1. Are the leakage emissions determined?	2	DR	Not applicable.	OK	OK
1.8. Emission Reduction					
1.8.1. Are the emission reductions determined according to the formula $ER_y = BE_{y-} - PE_y$?	2	DR	Yes, refer to D.1.4. and E.5.	OK	OK
1.8.2. Were all values chosen in a conservative manner and was the choice justified?	2	DR I	Refer to E.5.	OK	OK
2. Monitoring Methodology					
2.1. Applicability					
2.1.1. Does the project utilize waste gas and/or	2	DR	The proposed project idea is to utilize the COG	OK	OK

CHECKLIST QUESTION	Ref.	Move *	COMMENTS	Draft Concl	Final Concl
waste heat as an energy source to generate electricity in an industrial facility?		I	(coke oven gas), now being flared and burned for the steam generation, for combined heat and power generation.		
2.1.2. Does the energy generated in the project used within the industrial facility or may be exported to grid?	2	DR I	The energy generated in the project will be used within the industrial facility and may be exported to the national grid.	OK	OK
2.2. Monitoring Methodology					
2.2.1. Does the methodology require archiving of data collected electronically and be kept at least for 2 years after the end of the last crediting period?	2	DR	Yes, methodology requires archiving of data collected electronically and be kept at least for 2 years after the end of the last crediting period.	OK	OK
2.2.2. Does the methodology require monitoring data for quantity of fossil fuels used as supplementary fuel being monitored?	2	DR	Yes, the methodology requires monitoring data for quantity of fossil fuels used as supplementary fuel being monitored.	OK	OK
2.2.3. Does the methodology require monitoring of data of Net calorific value of fossil fuel?	2	DR	Yes, the methodology requires monitoring of data of Net calorific value of fossil fuel.	OK	OK
2.2.4 Does project require monitoring of measuring volume of waste gas before the project?	2	DR	No.	OK	OK
2.2.5. Does the methodology require monitoring of data needed to calculate the emission factor of fossil fuel?	2	DR	Yes, the methodology requires monitoring of data needed to calculate the emission factor of fossil fuel.	OK	OK
2.2.6. Does the methodology require monitoring of electricity generated?	2	DR	No.	OK	OK
2.2.7. Does the methodology require monitoring of data needed to calculate the emission factor of captive power generation?	2	DR	No.	OK	OK

CHECKLIST QUESTION	Ref.	Move *	COMMENTS	Draft Concl	Final Concl
2.3. Quality Control (QC) and Quality Assurance (QA) Procedures					
2.3.1 Did all measurements use calibrated measurement equipment that is maintained regularly and checked for its functioning?	2	DR	Refer to item D.2. of PDD version 3.2.	OK	OK

Table 4 Legal requirements

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
1. **Legal requirements**					
1.1. Is the project activity environmentally licensed by the competent authority?		DR, I	Yes, the project is licensed by the competent authority. This was checked on-site. Project activity is permitted by: Architect-planning task, which is approved by the Municipal Facilities Division on 03.03.2008 and is valid till 03.2010. Decision #235 of Horlivka City Administration Executive Comittee from 20.02.2008 that permits Introduction of a Coke Oven Gas fuelled CHP with 12.5MWe capacity at the Horlivka coke plant.		OK

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			Expertise conclusion #63.2-01-3204.08 from the public enterprise "Eastern technical expert centre" from 05.09.2008 which certifies compliance of the project documentation of the construction of industrial object to the legal requirements in the field of labour protection. Expert conclusion #08 B 07 0025 00.00 0881 II issued by the State energy-saving inspection from 23.05.2008 till 23.05.11. Conclusion of the State Environmental Expertise C#08.08.384 on the compliance of the project documentation of the construction of industrial object to the legal requirements in the field of environmental protection. Expert conclusion on the compliance of the project documentation of the construction of industrial object to the legal requirements of the fire-prevention. Conclusion #1896/03.3 of the State Sanitary-Epidemiological Expertise of Donetsk Region issued 02.07.2008. Second complex expert conclusion #1006/2		

CHECKLIST QUESTION	Ref.	MoV *	COMMENTS	Draft Concl	Final Concl
			issued by Donetsk Regional Office of Ukrainian State Investment Expertise "Donoblinvestexpertisa" on 06.10.2008. Permit on the performance of the constructional works #08/02/1144 from 18.11.2008 issued by the Inspection of the State architect-constructional control in Donetsk Region. Valit till 01.12.2010.		
1.2. Are there conditions of the environmental permit? In case of yes, are they already being met?		DR, I	Environmental permits are presented, please see section 1.1. table 4.	OK	OK
1.3. Is the project in line with relevant legislation and plans in the host country?		DR, I	Yes, the project is in line with legislation of the host Party	OK	OK

Table 5 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
Corrective Action Request (CAR) 1 Please specify the purpose of the project in this particular section A.2.	A.2.1.	Purpose of the project is clarified in the Section A.2 of the PDD version 3.2.	Purpose was clarified. Issue is closed.
Corrective Action Request (CAR) 2 Please provide brief information on how the proposed project reduces greenhouse gas emissions.	A.2.2.	Requested information provided in the Section A.2 version 3.2.	Requested information was provided and found satisfactory. Issue is closed.
Corrective Action Request (CAR) 3 There is no evidence of written project approvals by the Parties involved	A.5.1.	Letter of Approval #42/23/7 from National Agency of Environmental Investments was issued 20th of January 2010. Letter of Approval #2009JI11 from SenterNovem Utrecht was issued 8th of October 2009.	Issue is closed.
Corrective Action Request (CAR) 4 The most recent version of the "Tool for the demonstration and assessment of additionality" is version 05.2.	B.2.1	Provided through the whole PDD version 3.2.	The difference between the latest version of the "Tool for the demonstration and assessment of additionality" and the one used in the PDD version 3.2 does not

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
Please provide appropriate correction in PDD.			have direct impact on the justification of additionality in the given PDD.
Corrective Action Request (CAR) 5 The use of NPV despite being good method in general in this particular case may be not appropriate measure because of substantial difference between amount of investment required for implementation of Alternative 1.1 and 1.3. Alternative 1.1 requires 2.2 times more capital than alternative 1.3 so higher NPV for alternative 1,1 does not necessarily mean that alternative 1.1 is the better option and vice versa. In order to avoid this trap it is suggested to use of Profitability Index (PI) instead of NPV. PI = PV of the project benefits / PV of investments	B.2.2.	PI indicator was include into the latest version of the PDD	Corrections were found satisfactory. Issue is closed.
Corrective Action Request (CAR) 6 Financial analyses showed that payback periods in excel investment analysis file are calculated in wrong manner, please refer to	B.2.2.	Corrected. Please, see the latest version of the investment analysis	Corrections were found satisfactory. Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
excel file with corrections in formulas marked in red. Correct reference to the discount rate used for calculations (NBU rate) was also added.			
Corrective Action Request (CAR) 7 The information considering transboundary environmental effects is not provided. Please include one into section F of the PDD.	F.1.5.	Clarification has been included in the Section F of the PDD version 3.2.	The requested information was provided and found satisfactory. Issue is closed.
Clarification Request (CL) 1 Please provide brief summary if the project design engineering reflects current good practices.	A.4.2.1	Proposed project is unique and first of its kind in Ukraine and reflects current good practices because of the following reasons: It is only one totally greenfield CHP at ukrainian coke plants; Water treatment unit is based on the reverse osmosis; Boiler is designed espessialy for the COG; The flue gases of the coke battery will be used in new boiler for the improvement of the CHP efficiency.	Boiler that is used in this project was specially designed for use of coke gas. This boiler is 2nd of such type in a host party. The turbine is appropriate to the technical national requirements of the host party however the technology of its construction is not new and is commonly used. Issue is closed.
Clarification Request (CL) 2	A.4.2.4.	Required clarification provided in Section	The requested information was

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
Please clarify in the PDD if initial training for the stuff is required.		A.4.2. of the PDD version 3.2.	provided and found sastisfactory. Issue is closed.
Clarification Request (CL) 3 Please provide information considering training for the stuff in order to meet maintenance needs.	A.4.2.5.	Start up of the project is planning to be performed in December 2009. So, training program for the staff is not ready at the moment and will be provided to the AIE during initial verification.	The requested information was provided and found satisfactory. Issue is closed.
Clarification request (CL) 4 The methodology ACM0012 version 3 used in the PDD is not the latest version of this methodology. Please provide the clarification.	B.1.3.	Provided changes in the new revision of the methodology ACM0012 do not influence the emission reductions calculations in the given project.	The explanation provided was found satisfactory. Issue is closed.
Clarification Request (CL) 5 Please, specify the reason of the project activity alternative chosen to prove the additionality.	B.2.2.	Investment comparison analysis done for two alternatives: • Introduction of the Coke Oven Gas CHP without JI incentive (Alternative 1.1); • COG is used for heat energy production (Alternative 1.3). Alternative 1.2 was excluded from the analysis because of two following reasons:	The explanation provided was found satisfactory. Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
		• Alternative 1.2 (Continuation of the existing situation) does not requires any investment to be done. Thus, investment analysis could not be properly applied. • According to the "Tool for the demonstration and assessment of additionality (version 05.2)", proposed JI project could be considered as passed through Step 2, in case one of the other alternatives has the best indicator (e.g. highest IRR).	
Clarification Request (CL) 6 In general Guidance for the Assessment of Investment analysis (hereinafter referred as the Guidance) recommends the maximum period of 20 years. Please clarify the reason of choosing 30 years as technical lifetime. At the same time calculations provided clearly miss the cost of major overhauls while they shall constitute substantial amount	B.2.2.	As it is stated in the Guidance for the Assessment of Investment analysis (hereinafter referred as the Guidance), financial indicators calculations "shall as a preference reflect the period of expected operation of the underlying project activity (technical lifetime)…". So, 30 years period as a technical lifetime is fully within the requirements of the Guidance.	Clarification was found satisfactory. Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
during the lifetime of equipment. It is suggested to add the relevant line in "summary cashflow" table for both scenarios considered.			
Clarification Request (CL) 7 Calculations provided clearly miss the cost of major overhauls while they shall constitute substantial amount during the lifetime of equipment. It is suggested to add the relevant line in "summary cashflow" table for both scenarios considered.	B.2.2.	According to the Guidance (General issues in calculation and presentation, paragraph 3), calculations **may** include the cost of major maintenance and /or rehabilitation. Alternative 1.1 includes a set of complex equipment (such as turbine with an auxiliaries) which is not present in the Alternative 1.3. As the result, the cost of major maintenance and /or rehabilitation for the Alternative 1.1 will be much higher then for the Alternative 1.3. So, decision of the project developer to exclude those costs from the summary cashflow is a) in line with the Guidance, b) indicates conservative approach.	Clarification was found satisfactory. Issue is closed.
Clarification Request (CL) 8 It appears that calculation for alternative 1.1 (CHP plant) in Excel file does not account for	B.2.2.	Corrected in the latest version of the investment analysis	Clarification was found satisfactory. Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
any cash flow generated by the production of heat energy or savings from production of heat energy using new CHP equipment while alternative 1.3. accounts for such savings (line 27 of "summary cashflow" table). This approach violates requirement (9) of the Sub-step 2c of the Methodological Tool: Assumptions and input data for the investment analysis shall not differ across the project activity and its alternatives, unless differences can be well substantiated. Please clarify.			
Clarification Request (CL) 9 Discrepancy exists between Investment analysis figures appearing in excel spreadsheets and values represented in table 6 (page 14 and table 7 (page 14). Excel file and these two tables show completely different IRR, pay-back period and NPV values. Please clarify the difference and correct the figures in tables 6 and 7 in order to eliminate the discrepancy.	B.2.2.	Corrected in the latest version of the PDD.	Clarification was found satisfactory. Issue is closed.
Clarification Request (CL) 10	D.1.4.	Provided in section D.1.1.2 of the PDD	The links to the used

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
Please, provide the information in Annex3 and if possible clarify the formulae in the section D.1.1.2. (reference to the methodology) since the names of the parameters are different and it is not very clear where were they taken from.		version 3.2.	methodology were provided in order to show the connection between the formulae in the methodology and the formulae used to calculate project emissions. The explanation found satisfactory. Issue is closed.
Clarification Request (CL) 11 Please, provide the information in Annex3 and if possible clarify the formulae in the section D.1.1.4. (reference to the methodology) since the names of the parameters are different and it is not very clear where were they taken from.	D.1.6.	Provided in section D.1.1.4 of the PDD version 3.2.	The links to the used methodology were provided in order to show the connection between the formulae in the methodology and the formulae used to calculate project emissions. The explanation found satisfactory. Issue is closed.
Clarification Request (CL) 12 Please state that section D.1.3.2. is left blank on purpose.	D.1.11.	Stated in the section D.1.3.2. in the PDD version 3.2.	The requested information was provided and found satisfactory. Issue is closed.
Clarification Request (CL) 13 Please state that section D.1.5. is left blank on purpose.	D.1.13.	Stated in the section D.1.5. in the PDD version 3.2.	The requested information was provided and found satisfactory. Issue is closed.

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in tables 2, 3 and 4	Summary of project owner response	Determination team conclusion
Clarification Request (CL) 14 Please clarify if conservative assumptions have been used to calculate project GHG emissions.	E.1.3.	Conservative approach for the project emmisions calculations described in the Section D.1. of the PDD version 3.2.	Uncertainty of measurements is taken into account during taking the data from the measuring equipment. Article 10 part 1 of "Law of Ukraine on Metrology and Metrological Activity" states that results of the measurements can be used in the condition if the characteristics of measuring uncertainty are known. This assures correct figures of measured parameters. Issue is closed.

Appendix B: Verifiers CV's

Ivan G. Sokolov, Dr. Sci. (biology, microbiology)
Team leader

Bureau Veritas Ukraine HSE Department manager.

He has over 25 years of experience in Research Institute in the field of biochemistry, biotechnology, and microbiology. He is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered), Quality Management System (IRCA registered), Occupational Health and Safety Management System, and Food Safety Management System. He performed over 130 audits since 1999. Also he is Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and Lead Tutor of the IRCA registered ISO 9000 QMS Lead Auditor Training Course. He has undergone intensive training on Clean Development Mechanism /Joint Implementation and he is involved in the validation of 6 JI projects.

Nadiya Kaiiun, M. Sci. (environmental science)
Team member

Bureau Veritas Ukraine HSE Department manager.

She has graduated from National University of Kyiv-Mohyla Academy with the Master Degree in Environmental Science. She is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered). She performed over 15 audits since 2008. She has undergone intensive training on Clean Development Mechanism /Joint Implementation and she is involved in the validation of 6 JI projects.

Kateryna Zinevych, M. Sci. (environmental science)
Team member

Bureau Veritas Ukraine HSE Department manager.

She has graduated from National University of Kyiv-Mohyla Academy with the Master Degree in Environmental Science. She is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered). She performed 6 audits since

March of 2009. She has undergone intensive training on Clean Development Mechanism /Joint Implementation and she is involved in the validation of 3 JI projects.

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

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