DETERMINATION REPORT

CMM utilisation on the Joint Stock Company ”Coal Company Krasnoarmeyskaya Zapadnaya №1 Mine” Project in Ukraine

Title of the project in Ukrainian language:
УТИЛІЗАЦІЯ ШАХТНОГО МЕТАНУ НА ВАТ "ВУГІЛЬНА КОМПАНІЯ "ШАХТА "КРАСНОАРМІЙСЬКА - ЗАХІДНА № 1""

REPORT NO. 2008-1279

REVISION NO. 01

DETERMINATION REPORT

DET NORSKE VERITAS
CERTIFICATION AS

Veritasveien 11322 Høvik
NORWAY
http://www.dnv.com

Date of first issue: 2008-02-15	Project No.: 44450013
Approved by: Hendrik W. Brinks	Organisational unit: Climate Change Services
Client: Fraunhofer UMSICHT	Client ref.: Adam Hadulla

Project Name: CMM utilisation on the Joint Stock Company "Coal Company Krasnoarmeyskaya Zapadnaya №1 Mine"
Country: Ukraine
GHG reducing Measure/Technology: Coal mine methane (CMM) capture and utilization
ER estimate: Annual average of 1 570 527 tCO_2e /yr for the crediting period (5 years).
Size
☒ Large Scale
☐ Small Scale
Determination Phases:
☒ Desk Review
☒ Follow up interviews
☒ Resolution of outstanding issues
Determination Status
☐ Corrective Actions Requested
☐ Clarifications Requested
☒ Full Approval and submission of determination report
☐ Rejected

In summary, it is DNV's opinion that the "CMM utilisation on the Joint Stock Company "Coal Company Krasnoarmeyskaya Zapadnaya №1 Mine" project in Ukraine, as described in the PDD of 10 September 2008 (version 4), meets all relevant UNFCCC requirements for the JI and all relevant host Party criteria. The project activity applies the baseline and monitoring methodology ACM0008, version 3, as relevant.

Report No.:	Date of this revision:	Rev. No.
2008-1279	2009-01-30	01

Report title:
CMM utilisation on the Joint Stock Company "Coal Company Krasnoarmeyskaya Zapadnaya №1 Mine" in Ukraine

Work carried out by:
David Creedy, Yulia Zhukova, Ole Andreas Flagstad, Petr Kozel

Work verified by:
Michael Lehmann

Key words:
Climate Change, Kyoto Protocol, Joint Implementation

☒ No distribution without permission from the Client or responsible organisational unit

☐ Limited distribution

☐ Unrestricted distribution

DETERMINATION REPORT

Abbreviations

BM	Build Margin
CAR	Corrective Action Request
CBM	Coal Bed Methane
CDM	Clean Development Mechanism
CEF	Carbon Emission Factor
CER	Certified Emission Reduction
CH_4	Methane
CL	Clarification request
CMM	Coal Mine Methane
CO_2	Carbon dioxide
CO_2e	Carbon dioxide equivalent
DNV	Det Norske Veritas
EIA	Environmental Impact Assessment
GHG	Greenhouse gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
JISC	JI Supervisory Committee
LoA	Letter of Approval
MP	Monitoring Plan
N_2O	Nitrous oxide
NGO	Non-governmental Organisation
NMHC	Non Methane Hydro Carbon
ODA	Official Development Assistance
OM	Operation Margin
PDD	Project Design Document
UNFCCC	United Nations Framework Convention on Climate Change
VAM	Ventilation Air Methane

DETERMINATION REPORT

TABLE OF CONTENTS

DETERMINATION REPORT

1 EXECUTIVE SUMMARY – DETERMINATION OPINION

Det Norske Veritas Certification AS (DNV) has performed a determination of the "CMM utilisation on the Joint Stock Company "Coal Company Krasnoarmeyskaya Zapadnaya No1 Mine"" project in Ukraine. The determination was performed on the basis of UNFCCC criteria for Joint Implementation and host Party criteria, as well as criteria given to provide for consistent project operations, monitoring and reporting.

The review of the project design documentation and the subsequent follow-up interviews have provided DNV with sufficient evidence to determine the fulfilment of stated criteria.

The host Party is Ukraine and the other participating Annex I Party is The Netherlands. Both Parties fulfil the participation criteria and have approved the project and authorized the project participants.

By burning and utilising methane gas instead of passively venting it, the project results in reductions of CH_4/CO_2 emissions that are real, measurable and give long-term benefits to the mitigation of climate change. It is demonstrated that the project 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.

The total emission reductions from the project are estimated to be on the average 1 570 527 tCO_2e per year during 2008 - 2012. The emission reduction forecast has been checked and it is deemed likely that the stated amount is achieved given that the underlying assumptions do not change.

Adequate training and monitoring procedures have been implemented.

In summary, it is DNV's opinion that the "CMM utilisation on the Joint Stock Company "Coal Company Krasnoarmeyskaya Zapadnaya No1 Mine"" project in Ukraine, as described in the PDD of 10 September 2008, meets all relevant UNFCCC requirements for the JI and all relevant host Party criteria.

2 INTRODUCTION

Fraunhofer UMSICHT has commissioned Det Norske Veritas Certification AS (DNV) to perform a determination of the "CMM utilisation on the Joint Stock Company "Coal Company Krasnoarmeyskaya Zapadnaya No1 Mine"" project in Ukraine. This report summarises the findings of the determination of the project, performed on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the Guidelines for the implementation of Article 6 of the Kyoto Protocol, in particular the verification procedure under the Article 6 supervisory committee, and the subsequent decisions by the JI Supervisory Committee (JISC).

2.1 Objective

The purpose of a determination is to have an independent third party assess the project design. In particular, the project's baseline, monitoring plan, and the project's compliance with relevant UNFCCC and host Party criteria are validated in order to confirm that the project design, as documented, is sound and reasonable and meets the 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).

2.2 Scope

The determination scope is defined as an independent and objective review of the project design document and other relevant documents. The information in these documents is reviewed against Kyoto Protocol requirements, UNFCCC rules and associated interpretations. Based on the recommendations in the Validation and Verification Manual /3/, DNV employed a risk-based approach in the determination, focusing on the identification of significant risks for project implementation and the generation of ERUs.

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.

3 METHODOLOGY

The determination consisted of the following three phases:

I a desk review of the project design documents

II follow-up interviews with project stakeholders

III the resolution of outstanding issues and the issuance of the final determination report and opinion.

The following sections outline each step in more detail.

3.1 Desk Review of the Project Design Documentation

The following table outlines the documentation reviewed during the determination:

/1/ Emissions Trader ET Gmbh, PDD for the "CMM utilisation on the Joint Stock Company "Coal Company Krasnoarmeyskaya Zapadnaya No1 Mine" project, version 02 dated 17 December 2007 and version 04 dated 10 September 2008

/2/ CDM Executive Board, ACM0008 - Consolidated baseline methodology for coal bed methane and coal mine methane capture and use for power (electrical or motive) and heat and/or destruction by flaring"), Version 3, 22 December 2006

/3/ International Emission Trading Association (IETA) & the World Bank's Prototype Carbon Fund (PCF): *Determination and Verification Manual*. http://www.vvmanual.info

/4/ Letter of approval by designated focal point of Ukraine, 22 February 2008

/5/ Letter of approval by designated focal point of the Netherlands, 22 April 2008

/6/ CDM Executive Board, Tool for demonstration and assessment of additionality, version 03

/7/ Ukrainian Mining Authorities, Approval for the upgraded CMM burner, 31 March 2003

/8/ Letter of Endorsement № 973/10/3-10 dated 2007-02-02 from Ukrainian Ministry of Environmental Protection

/10/ Bank of Ukraine, http://www.bank.gov.ua. Interest values 2002-2003

Main changes between the version of the PDD (version 02) published for the 30 days stakeholder consultation period and the final version of the PDD (version 03):

- description of the project is more detailed (methane flows, equipment and more).
- financial analysis has been updated.
- issues related to monitoring are described more in detail.

3.2 Follow-up Interviews with Project Stakeholders

Personnell who have been interviewed and/or have provided additional information to the presented documentation is listed below. A site visit was conducted by Petr Kozel on 11 December 2007.

	Date	Name	Organization
/9/	2007-12-11	Demčenko, Anatolij Ivanovič - technical director and deputy director	Mine Krasnoarmejskaja zapadnaja No 1, Krasnoarmejsk
/10/	2007-12-11	Pileckij, Vladimir Georgijevič - deputy director	Doneckstal, Doneck
/7/	2007-12-11	Kasianov, Vladimir V. - director	Eco-Aliance, Kiev
/8/	2007-12-11	Hadulla, Adam	Emissions Trader

3.3 Resolution of Outstanding Issues

The objective of this phase of the determination was to resolve any outstanding issues which needed be clarified prior to DNV's positive conclusion on the project design. In order to ensure transparency a determination protocol was customised for the project. The protocol shows in transparent manner criteria (requirements), means of verification and the results from validating the identified criteria. The determination protocol serves the following purposes:

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

The determination protocol consists of three tables. The different columns in these tables are described in the figure below. The completed determination protocol for the "CMM utilisation on the Joint Stock Company "Coal Company Krasnoarmeyskaya Zapadnaya No1 Mine"" project is enclosed in Appendix A to this report.

Findings established during the determination can either be seen as a non-fulfilment of JI criteria or where a risk to the fulfilment of project objectives is identified. Corrective action requests (CAR) are issued, where:

i) mistakes have been made with a direct influence on project results;
ii) JI and/or methodology specific requirements have not been met; or
iii) there is a risk that the project would not be accepted as a JI project or that emission reductions will not be issued.

DETERMINATION REPORT

A request for clarification (CL) may be used where additional information is needed to fully clarify an issue.

Determination Protocol Table 1: Mandatory Requirements for JI Project Activities		
Requirement	***Reference***	***Conclusion***
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)** of risk or non-compliance with stated requirements or a request for **Clarification (CL)** where further clarifications are needed.*

Determination Protocol Table 2: Requirement checklist				
Checklist Question	***Reference***	***Means of verification (MoV)***	***Comment***	***Draft and/or Final Conclusion***
The various requirements in Table 2 are linked to checklist questions the project should meet. The checklist is organised in different sections, following the logic of the large-scale PDD template, version 01 - in effect as of: 15 June 2006. Each section is then further sub-divided.	*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 c**orrective action request (CAR)** due to non-compliance with the checklist question (See below). A request for clarification (CL) is used when the determination team has identified a need for further clarification.*

Determination Protocol Table 3: Resolution of Corrective Action and Clarification Requests			
Draft report clarifications and corrective action requests	***Ref. to checklist question in table 2***	***Summary of project owner response***	***Determination conclusion***
If the conclusions from the draft Determination are either a CAR or a CL, these should be listed in this section.	*Reference to the checklist question number in Table 2 where the CAR or CL is explained.*	*The responses given by the project participants during the communications with the determination team should be summarised in this section.*	*This section should summarise the determination team's responses and final conclusions. The conclusions should also be included in Table 2, under "Final Conclusion".*

Figure 1: Determination protocol tables

3.4 Internal Quality Control

The draft determination report including the initial determination findings underwent a technical review before being submitted to the project participants. The final determination report underwent another technical review before being forwarded to the Supervisory Committee. The technical review was performed by a technical reviewer qualified in accordance with DNV's qualification scheme for JI determination and verification.

3.5 Determination Team

Role/Qualification	*Last Name*	*First Name*	*Country*
Team leader / JI-validator	Flagstad	Ole Andreas	Norway
GHG auditor	Zhukova	Yulia	Russia
GHG auditor	Kozel	Petr	Czech Republic
Sector expert	Creedy	David	China
Technical Reviewer	Lehmann	Michael	Norway

4 DETERMINATION FINDINGS

The findings of the determination are stated in the following sections. The determination criteria (requirements), the means of verification and the results from validating the identified criteria are documented in more detail in the determination protocol in Appendix A.
The final determination findings relate to the project design as documented and described in the project design document of 8 May 2008.

4.1 Participation Requirements

The project participants are Joint Stock Company ”Coal Company Krasnoarmeyskaya Zapadnaya №1 Mine” and Carbon-TF B.V. The host Party Ukraine and the participating Annex I Party the Netherlands meet the requirements to participate in the JI.

The designated focal point of Ukraine has issued a Letter of Approval (LoA) on 22 February 2008, authorizing Joint-Stock Company ”Coal Company Krasnoarmeyskaya Zapadnaya №1 Mine” as a project participant.

The designated focal point of Netherlands has issued a LoA on 22 April 2008 authorizing Carbon-TF B.V. as a project participant.

The project does not involve public funding.

4.2 Project Design

In this project, CMM from two suction systems of the ”Coal Company Krasnoarmeyskaya Zapadnaya №1 Mine” is utilised for heat and power generation and the remaining CMM is flared. The actual coal production is about 7 million tonnes per year and a steady mining activity of 12 million tonnes is planned. The remaining coal reservoir is about 251 million tonnes.

Prior to the project activity there was no CMM utilisation at the mine and all of the CMM is simply vented to the atmosphere. All heat used by the coal mine facilities is generated by coal-fired boilers. All power is purchased from the Ukrainian grid.

In this project 3 new sets of cogeneration units (totalling approx. 146 MW firing capacity), one upgraded CMM boiler and seven new flares will be installed and will be fired with CMM. The new and the modified units are supposed to displace the main part of the heat generated by the old coal boilers and new cogeneration units will displace part of the power purchased from the grid.

It is planned to utilise up to 100% of the CMM. The utilisation rate mainly depends on the heat demand of the coal mine.

Training in operation of the project technology and provisions for maintenance is deemed reasonable. A specialised service team is trained in Germany and set up for operations in Ukraine.

The project starting date is 18 March 2003, determined by a meeting between Emissions-Trader ET GmbH, Demeta GmbH and Donetsksteel (at that time Energo). This meeting discussed emission trading activities and soon thereafter Donetsksteel signed a contract with a supplier to upgrade the first equipment (CMM-boiler). Donetsksteel then used time to elaborate the details of the complete project, and to decide finally on their partners in the project. This was concluded in 2007 with continued investments planned from early 2008. DNV assesses that the project start

is justified and that the time elapsed from 2003 to 2007 without specific progress in the project is reasonable given the risk and uncertainties in the early phases of the credit carbon market.
The operational lifetime of the project is expected to be at least 10 years. The crediting period will start on 1 January 2008 and continue to 31 December 2012. A further 5 year crediting period (2013-2017) after the end the first commitment period is intended but will need to be formally approved by the DNA of Ukraine. Before the project can enter into the subsequent crediting period, the operational lifetime of the project will need to be defined more precisely as the crediting period shall not extend beyond the operational lifetime of the project.

4.3 Baseline Determination

The project applies the approved CDM baseline methodology ACM0008 "*Consolidated baseline methodology for coal bed methane and coal mine methane capture and use for power (electrical or motive) and heat and/or destruction by flaring*", version 03. However, the PDD does not apply the *Tool to determine project emissions from flaring gases containing methane* as required by ACM0008, version 03, and instead argues that a high combustion efficiency of 99.5% should apply for the flares. The flare is designed to comply with German regulation for landfills which requires a combustion efficiency of 99.9% with a combustion temperature between 850-1200ºC. The requirements of this regulation are described in annex 3 of the PDD. Given that a flare meeting these requirements is installed and given the continuous measurement of the combustion temperature, the deviation of the flaring tool is found acceptable by DNV.

The project involves the extraction of CMM from underground boreholes and gas drainage galleries to capture CMM. The methane is captured and destroyed through utilisation to produce electricity and thermal energy, and through flaring. *Ex-ante* projections have been made for methane extraction and utilisation. The CMM is captured through existing mining activities.

The project meets the applicability criteria of ACM0008 as follows:

- The mine is not an open cast mine
- The mine is not an abandoned/decommissioned coal mine
- There is no capture of virgin coal-bed methane
- There is no usage of CO_2 or any other fluid/gas to enhance CMM drainage (In step 1 below the method of extraction is described in more detail)
- The thermal demand is defined

Hence ACM0008 version 03 is fully applicable to this project.

According to the ACM0008 methodology, all technically feasible options to extract and utilise CMM have to be assessed to determine the correct baseline scenario. The technically feasible options for extracting (step 1a) CMM are:
A. Ventilation air methane
B.1 Pre mining CMM captured by underground boreholes
B.2 Pre mining CMM captured by surface drainage wells
B.1a During mining CMM captured by underground boreholes
B.2a During mining CMM captured by surface drainage wells
C.1 Post mining CMM captured by underground boreholes
C.2 Post mining CMM captured by surface drainage wells
D Possible combinations of options A, B, and C, with the relative shares of gas specified.

DETERMINATION REPORT

D.1 Pre mining, post mining and during mining CMM captured by underground boreholes (the situation for the proposed project activity not implemented as a project activity)

D.2 Pre mining, post mining and during mining CMM captured by surface drainage wells

Option A is not feasible due to the low concentration of methane in the ventilation air (usually less than 1%).

Options B1, B1a, and C1 cannot be used to determine the baseline scenario as the CMM from under-ground boreholes is collected together in the suction systems and transported to the surface with vacuum pumps. It is impossible to determine the shares of the three sources, because numerous drainage branches are connected to the suction systems and every branch collects CMM as long as it is in operation -before, during and after mining.

Options B2, B2a, C2 and D2 are not technically feasible as drainage wells are not in place, nor planned.

D1 is the only option that is technically feasible for utilisation purposes. The situation prior to the project is that the CMM is captured in the same way but only vented without utilisation or flaring.

Treatment (step 1b) options include:

i, venting
ii, Using/destroying ventilation air methane rather than venting it;
iii, Flaring of CBM/CMM;
iv, Use for additional grid power generation;
v, Use for additional captive power generation;
vi, Use for additional heat generation;
vii, Feed into gas pipeline (to be used as fuel for vehicles or heat/power generation);
viii, Possible combinations of options i to vii with the relative shares of gas treated under each option specified. (the situation for the proposed project activity not implemented as a project activity)

Energy production (step 1c) includes options iv –viii from the treatment options. The proposed project activity not implemented as a JI-project is option viii.

Option i, venting, is required due to national safety regulations and it has no barriers.

Option ii, is not feasible, available technology is not proven in Ukraine and will be too expensive.

Option iii, flaring, will require additional investments but no additional income without the proposed JI project. This option is part of project scenario.

Option iv, additional grid power generation, different relevant technologies are explored, all with prohibitive economical and technical barriers.

Option v, addidional captive power generation, is part of project scenario. See viii.

Option vi, additional heat generation. A suitable grid for distribution of additional heat is not in place and will be to expensive to implement.

Option vii, feeding to gas pipeline, require high additional pipeline investments and/or liquefaction investments. In addition the customer base is too limited.

Option viii, combinations of i to vii, describes the project scenario not registered as a project activity. The investment analysis shows that this option is not economically attractive if not registered as a JI project.

Based on the above the baseline is determined to be a continuation of the current situation that includes venting, heating by existing coal fired boilers and purchase of electricity from the grid.

System boundaries:

The installed flares, cogeneration units and upgraded boiler are within the project boundaries. The suction from the shafts provides methane over the project boundaries to this equipment. Heat generation from new equipment and the existing coal burner is also within the project boundary. The Ukrainian grid is defined as part of the system due to the delivery of electricity from the cogeneration units to the grid. The system boundaries are described in tabular format below:

	GHGs involved	*Description*
Baseline emissions	CH_4 CO_2	*Venting* *Grid electricity generation, heat generation from boilers*
Project emissions	CH_4 CO_2	*Fugitive emissions of unburnt methane* *On site fuel consumption, emissions from methane and NMHC destruction*
Leakage	*N.A.*	*N.A*

4.4 Additionality

The additionality of the project is evaluated by using version 3 of the additionality tool /6/ as stipulated by ACM0008.

STEP 1. Please refer to the selection of realistic and credible alternatives in section 4.3.

STEP 2. A benchmark investment analysis was chosen because the project generate income (cost savings) without the JI revenues and the alternative does not involve any investments.

The cashflow analysis shows that the accumulated annual cashflow is negative and that it thus has no meaning to calculate the IRR without ERU income in this case. DNV has assessed the financial analysis and found that the used parameters are correct. The interest rate of 15% is justified as it corresponds to the average interest rate given by the Bank of Ukraine /10/. The O&M costs for flares are somewhat higher than for other flaring projects, DNV finds that this is acceptable as the equipment used require more maintenance to achieve the high efficiencies (according to German regulations). The electricity tariff is in the middle of the range for similar Ukrainian projects and DNV verified the price against electricity bills. The inflation rate of 11% is consistently used both for operational costs and for power and heat income. The sensitivity analysis has tested for increasing the power and heat income with 20% (in addition to inflation), in this case the accumulated income is still lower than the accumulated costs. Hence, it can be concluded that the project activity is not financially attractive without the revenue from sale of ERUs.

STEP3. A barrier analysis is also used. The project developer claims both barriers due to prevailing practice and technology. DNV has found that the prevailing practice is focused on safety issues and that this could hinder CMM utilisation. Technology barriers exist because the CMM utilisation is outside the primary activity of the coal mine and the new technologies will require competence not available with the present staff. DNV considers the presented barriers as reasonable.

STEP4 Common practice analysis. Venting the captured CMM into the atmosphere is the common practice in the coal sector of Ukraine. There are no other major examples of using the CMM for heat or power generation that have been implemented without an additional JI incentive. DNV has assessed the proposed activity not to be common practice.

Given the above, it is DNV's opinion that the project is not a likely baseline scenario and emission reduction resulting from the project thus can be considered as additional to what would have happened without the JI incentive.

4.5 Monitoring

The project applies the approved consolidated baseline methodology for CDM, ACM0008 version 03 "Consolidated baseline and monitoring methodology for coal bed methane and coal mine methane capture and use for power (electrical or motive) and heat and/or destruction by flaring".

The monitoring plan in the PDD provides for the collection and archiving of all relevant data:

Project emissions:

- CO_2 emissions from additional electricity consumption for capture and use of CMM, $CONS_{ELEC,PJ}$
- CO_2 emissions from methane destroyed by CHP, boiler and flaring system
- CH_4 emissions from unburnt methane by CHP, boiler and flaring system

Baseline emissions:

- CO_2 emissions from grid power generation
- CO_2 emissions from heat production through existing coal fired boilers

Leakage:

According to ACM0008, three types of leakage need to be addressed.

- The displacement of baseline thermal energy use
- CBM extraction from out of the de-stressed zone
- Impact of JI (CDM) project activity on coal production
- Impact of JI (CDM) project activity on coal price and market dynamics

For the project, there is no thermal energy use in the baseline outside of the project boundaries. No CBM drainage involved. No impact of the project on coal production is expected as the baseline scenario is not constrained by the ventilation capacity. As the impacts of the project on coal price and market dynamics are currently unknown, it is not to be addressed. Thus the leakage effect needs not be addressed.

The monitoring plan is in line with ACM0008. The flare efficiency of 99.5% is ensured by a continuous measurement of the combustion temperature to ensure that the temperature is above 850°C. Additionally, the emissions of the flare have to be verified every three years.

The sources of data to be monitored to determine the project and baseline emissions are clearly described. The plant manager is keeping an operational journal which includes the following information: compilation and description of all data recorded, all corrective action undertaken, manually logged data and calibration protocols. All data should be continuously checked for consistency, completeness and integrity by Eco-Alliance. A detailed plausibility check should be carried out at least monthly.

Training and maintenance is deemed reasonable. A specialised service team is trained in Germany and set up for operations in Ukraine. Routines are described and technology is in place for safety of the personnel and equipment in case of emergencies.

It is deemed reasonable that the monitoring plan provides for the collection and archiving of all relevant data needed to estimate or measure emissions occurring within the project boundary and to determine the baseline emissions.

4.5.1 Parameters determined ex-ante

The following ex-ante parameters are used in the PDD:

- Carbon emission factor for Ukrainian power grid (will be replaced by national grid factor from Ukrainian authorities if available at the time of verification, in that case the given factors are used only for ex-ante estimates)
- Efficiency of methane destruction in CHP (IPCC)
- Efficiency of methane destruction in heat plant (IPCC)
- Carbon emission factors for CH_4 (IPCC)
- The efficiency of the old coal fired boilers is taken from the manufacturer as 73,5% and this efficiency is higher than actual efficiency of the boiler and thus conservative for the baseline calculation.

Except for the first parameter, all parameters are determined in line with ACM0008.

4.6 Estimate of GHG Emissions

Estimate of GHG emissions are in accordance with the formulae given in the baseline and monitoring methodology ACM0008.

Project emission:

The project emission includes additional electricity used to capture and utilize methane PE_{ME}, the methane destroyed PE_{MD} and un-combusted methane PE_{UM}. The project boundary includes equipment for the collection, utilization in boilers and cogeneration units of the captured CMM.

For the calculation of the project emissions due to additional electricity consumption (auxiliary equipment), the Ukrainian grid has been selected as the grid system boundary. The emissions reductions factor of the Ukrainian grid is taken from the guidelines developed for the ERUPT programme. The project uses the ERUPT factors for generating electricity (695-636 CO_2e /MWh) both in the case of displaced power production and for emissions due to power purchase from grid. The emission factor stipulated by the ERUPT guidelines are not determined in accordance with ACM0002 as required by ACM0008. However, since they are conservative in nature, DNV accepts the use of the ERUPT emission factors. In case grid electricity emission factors are determined by Ukrainian authorities at the time of verification, these grid electricity emission factors will be applied instead of the ERUPT factors.

Baseline emissions

The baseline emissions consist of the CH_4 emissions resulting from release of methane to the atmosphere avoided by the project $BE_{MR,y}$ and the CO_2 emissions $BE_{USE,y}$ displaced by the project's production of heat and power.

The baseline use for CMM is estimated for the project period according to the ACM008.

Since there is no CBM involved in the project, as confirmed during the site visit, all the methane destroyed in the project is included as $BE_{MR,y}$.

Leakage

As stated above in section 4.5, no leakage effects need to be accounted for under the proposed project.

Uncertainty

The PDD has identified four potential risks; lower CMM utilization than expected, malfunctioning of the burner system, lower concentration of methane in extracted gas and lower demand for heat. DNV considers that

- lower CMM utilization than expected is unlikely as an excess of CMM is estimated for the whole project period.
- malfunctioning of the burner. Training of staff and regular maintenance are the mitigation actions to avoid malfunctioning.
- lower concentration of methane. The estimates are built on a variation of concentration in the range of 25-50% which means that substantial variations are already included in the estimates.
- lower demand for heat is unlikely as the estimates build on historical values.

The emission reduction forecast has been verified and is deemed likely that the forecast amount of 7 852 633 tonnes of CO_2e is achieved over the 5 years crediting period of 2008-2012. An additional 8 909 402 tonnes of CO_2e can potentially be achieved over a 5 years post Kyoto crediting period (2013-2017).

4.7 Environmental Impacts

The following legislations are relevant to the project activity:

- Law of Ukraine on Environmental Expertise, signed by the President on 2 September 1995
- The Ukrainian Law on Protection of Ambient Air, 21 June 2001
- The law of Ukraine on Alternative Liquid and Gas Fuels, 14 February 2000
- State Building Standard SBS A.2.2.-1-95, 2003

The adverse environmental impacts created by the project activities are expected to be negligible.

No environmental impact assessment is needed for this project. Beside the positive effect on the global climate protection, no transboundary impacts occur. The upgrade to the CMM-burner system causes no additional sources of waste, sewage or condensate. Indeed the environmental impact is lowered, because the displacement of coal avoids former amounts of ash and slag.

Furthermore, the flue gas from a CMM-Burner includes less air polluting substances than that from a coal burner.

Both combustion units require an approval by the Ukrainian Mining Authorities. The combustion processes are designed to comply for the German emissions limits (German "TA-Luft") which are more rigorous, especially for NOx, CO and hydrocarbons, than the Ukrainian limits. The approval for the ugraded CMM-burner is in place, the approval for the cogeneration unit is in process.

A letter of Endorsement № 973/10/3-10 dated 2 February 2007 has been issued by the Ukrainian Ministry of Environmental Protection for the project. The plant has to fulfil the requirements of the Ukrainian Department of Ecology and Nature Conservation., this will be checked by the authorities with the application for the permission.

4.8 Comments by Local Stakeholders

The project has been introduced to the Ukrainian Government and local authorities. The authorities appreciated the project and a Letter of Endorsement has been issued by the Ukrainian Ministry of Environmental Protection. All comments were positive towards implementation of the project. It was especially noted that utilisation of coal mine methane will increase the safety of the work at the coal mine and create some new working places.

The PIN and the PDD of the project has been published in Ukrainian on the web-site of the Ukrainian Ministry of Environmental Protection.

4.9 Comments by Parties, Stakeholders and Observers

The PDD of 17 September 2007 (version 02) was made publicly available on JI's climate change website (http://ji.unfccc.int/JI_Projects/Verification/PDD/index.html) and Parties, stakeholders and observers were through the JI website invited to provide comments during a 30 days period from 20 December 2007 to 18 January 2008.

No comments were received.

APPENDIX A

JI DETERMINATION PROTOCOL

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

Requirement	Reference	Conclusion
The project shall have the approval of the Parties involved	Kyoto Protocol Article 6.1 (a)	~~CAR1~~ OK
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
The sponsor Party shall not acquire emission reduction units if it is not in compliance with its obligations under Articles 5 & 7	Kyoto Protocol Article 6.1 (c)	OK
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
Parties participating in JI shall designate national focal points for approving JI projects and have in place national guidelines and procedures for the approval of JI projects	Marrakech Accords, JI Modalities, §20	OK
The host Party shall be a Party to the Kyoto Protocol	Marrakech Accords, JI Modalities, §21(a)/24	OK
The host Party's assigned amount shall have been calculated and recorded in accordance with the modalities for the accounting of assigned amounts	Marrakech Accords, JI Modalities, §21(b)/24	OK
The host Party shall have in place a national registry in accordance with Article 7, paragraph 4	Marrakech Accords, JI Modalities, §21(d)/24	OK
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
The project design document shall be made publicly available and Parties, stakeholders and UNFCCC accredited observers shall be invited to, within 30 days, provide comments	Marrakech Accords, JI Modalities, §32	OK
Documentation on the analysis of the environmental impacts of the project activity, including transboundary impacts, in accordance with procedures as determined by the host Party shall be submitted, and, if those impacts are considered significant by the project participants or the Host Party, an environmental impact assessment in accordance with procedures as required by the Host	Marrakech Accords, JI Modalities, §33(d)	OK

Requirement	Reference	Conclusion
Party shall be carried out		
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
A baseline shall be established on a project-specific basis, in a transparent manner and taking into account relevant national and/or sectoral policies and circumstances	Marrakech Accords, JI Modalities, Appendix B	OK
The baseline methodology shall exclude to earn emission reductions for decreases in activity levels outside the project activity or due to force majeure	Marrakech Accords, JI Modalities, Appendix B	OK
The project shall have an appropriate monitoring plan	Marrakech Accords, JI Modalities, §33(c)	OK

Table 2 Requirements Checklist

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
A. General Description of Project Activity *The project design is assessed.*					
Project Boundaries *Project Boundaries are the limits and borders defining the GHG emission reduction project.*					
Are the project's spatial boundaries (geographical) clearly defined?	/1/	DR	The project is located at the coal mine " Krasnoarmeyskaya Zapadnaya №1 Mine " at Krasnoarmeysk (Donetsk Oblast) in the eastern Ukraine. The PDD contains maps to describe the location of the project.	-	OK
Are the project's system boundaries (components and facilities used to mitigate GHGs) clearly defined?	/1/	DR	The utilisation of the CMM will be provided through: - upgrade and fuel switch of 1 coal fired boiler for heat production - installation of 7 flares for methane destruction - installation of 3 sets of cogeneration units for power and heat production (1 set reaching approx 48,75 MW for Central shaft and 2 sets accumulating to approx 97,5 MW for Air Shaft 2.		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
Participation Requirements *Referring to Part A and Annex 1 of the PDD as well as the JI glossary with respect to the terms Party, Letter of Approval, Authorization and Project Participant.*					
Which Parties and project participants are participating in the project?	/1/	DR	The Parties are Ukraine and the Netherlands. Project participants are Joint Stock Company "Coal Company Krasnoarmeyskaya Zapadnaya Nº1 Mine" of Ukraine, and Carbon TF-B.V. of the Netherlands		OK
Have all involved Parties provided a valid and complete letter of approval and have all private/public project participants been authorized by an involved Party?	/4/ /5/	DR	It is not yet approved by Ukraine, nor by the Netherlands	~~CAR1~~	OK
Technology to be employed *Determination of project technology focuses on the project engineering, choice of technology and competence/ maintenance needs. The AIE should ensure that environmentally safe and sound technology and know-how is used.*					
Does the project design engineering reflect current good practices?	/1/	DR, I	Yes. The project design engineering reflects current good practice in Ukraine.		OK
Does the project use state of the art technology or would the technology result in a significantly better performance than any commonly used technologies in the host country?	/1/	DR	OK		OK
Does the project make provisions for meeting training and maintenance needs?	/1/	DR,I	A training and maintenance programme is described. Trained personnel is the basis of a team of engineers, which should establish a specialised service team in the Ukraine and		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			instruct further operating and monitoring personnel, as well for this project.		
B. Project Baseline *The determination of the project baseline establishes whether the selected baseline methodology is appropriate and whether the selected baseline represents a likely baseline scenario.*					
Baseline Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
Is the discussion and selection of the baseline methodology transparent?	/1/	DR	The discussion checks all relevant alternatives in a transparent manner.		OK
Does the baseline methodology specify data sources and assumptions?	/1/	DR	Sources and assumptions are described in table D1.1.3		OK
Does the baseline methodology sufficiently describe the underlying rationale for the algorithm/formulae used to determine baseline emissions (e.g. marginal vs. average, etc.)	/1/	DR	The algorithm and formulae used to determine the baseline emissions are in line with ACM0008.		OK
Does the baseline methodology specify types of variables used (e.g. fuels used, fuel consumption rates, etc)?	/1/	DR, I	OK		OK
Does the baseline methodology specify the spatial level of data (local, regional, national)?	/1/	DR	Described in table D1.1.3		OK
Baseline Scenario Determination *The choice of the baseline scenario will be validated with focus on whether the baseline is a likely scenario, and whether the methodology to define the baseline scenario*					

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
has been followed in a complete and transparent manner.					
What is the baseline scenario?	/1/	DR	The baseline scenario is the continuation of the current situation: venting of the CMM into the atmosphere, heat generation with the existing coal fired boilers, and the full purchase of electricity from the grid. Without additional income from emissions trading, the project is economically not viable and faces a prohibitive barrier.		OK
What other alternative scenarios have been considered and why is the selected scenario the most likely one?	/1/	DR	Other scenarios have been identified and considered following the methodology. There is only one realistic option for the baseline scenario, which is the continuation of the current situation: venting of the CMM into the atmosphere, heat generation with the existing coal fired boilers, and the full purchase of electricity from the grid. Alternatives are either technically not feasible or are facing prohibitive or financial barriers.		OK
Has the baseline scenario been determined according to the methodology?	/1/	DR	The methodology has been followed, discussing alternatives.		OK
Has the baseline scenario been determined using conservative assumptions where possible?	/1/	DR, I	OK		OK
Does the baseline scenario sufficiently take into account relevant national and/or sectoral policies, macro-economic trends and political aspirations?		I	It is confirmed that there is no national mine safety regulations which set a minimum permitted methane concentration for		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			utilisation.		
Is the baseline scenario determination compatible with the available data and are all literature and sources clearly referenced?	/1/	DR	The PDD has relevant references.		OK
Have the major risks to the baseline been identified?	/1/	DR, I	Risks are identified and summarised in table A-3.		OK
Additionality Determination *The assessment of additionality will be validated with focus on whether the project itself is not a likely baseline scenario.*					
What is the methodology selected to demonstrate additionality?	/1/ /6/	DR	In accordance with the chosen methodology, additionality has been demonstrated by applying the "Tool for demonstration and assessment of additionality", (version 03), EB29 [CDM-EB].		OK
Is the project additionality assessed according to the methodology?	/1/ /6/ /7/	DR, I	Yes		OK
Are all assumptions stated in a transparent and conservative manner?	/1/	DR	Reference to prices used for electricity and coal in heat generation. Bank rate of Ukraine can be confirmed through http://www.bank.gov.ua		OK
Is sufficient evidence provided to support the relevance of the arguments made?	/1/	DR	See above		OK
C. Duration of the Project/ Crediting Period *It is assessed whether the temporary boundaries of the project are clearly defined.*					

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
Are the project's starting date and operational lifetime clearly defined and evidenced?	/1/	DR	OK		OK
Is the start of the crediting period clearly defined and reasonable?	/1/	DR	OK		OK
D. Monitoring Methodology *It is assessed whether the project applies an appropriate baseline methodology.*					
Is the monitoring plan documented according to the chosen methodology and in a complete and transparent manner?	/1/	DR	The PDD claims to use ACM0008 version 03 but not apply the flaring tool (the only major difference from version 2) and instead argues that the high efficiency flare default should apply. This reasoning could result in the flaring ERUs being non verifiable. The monitoring plan should be robust at validation and not reliant on the verifier to expose the gaps.	~~CAR2~~	OK
Will all monitored data required for verification and issuance be kept for two years after the end of the crediting period or the last issuance of ERUs, for this project activity, whichever occurs later?	/1/	DR	All stored data will be kept during the whole operation period of the plant and furthermore for at least 5 years.		OK
Monitoring of Project Emissions *It is established whether the monitoring plan provides for reliable and complete project emission data over time.*					
Does the monitoring plan provide for the collection and archiving of all relevant data necessary for estimation or measuring the greenhouse gas emissions within the project boundary during the crediting period?	/1/	DR	Yes		OK
Are the choices of project GHG indicators reasonable and	/1/	DR	The GHG indicators defined to be monitored		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
conservative?			are in line with ACM0008		
Is the measurement *method* clearly stated for each GHG value to be monitored and deemed appropriate?	/1/	DR	Described in table D1.1.3.		OK
Is the measurement *equipment* described and deemed appropriate?	/1/	DR	OK		OK
Is the measurement *accuracy* addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?	/1/	DR	Inspection procedures are in place and calibration will be done in accordance with manufacturers' recommendations.		OK
Is the measurement *interval* identified and deemed appropriate?	/1/	DR	OK		OK
Is the *registration, monitoring, measurement* and *reporting* procedure defined?	/1/	DR	Described in D3.		OK
Are procedures identified for *maintenance* of monitoring equipment and installations? Are the calibration intervals being observed?	/1/	DR	Inspection procedures are in place and calibration will be done in accordance with manufacturers' recommendations.		OK
Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)	/1/	DR	Described in D3		OK
Monitoring of Baseline Emissions *It is established whether the monitoring plan provides for reliable and complete baseline emission data over time.*					
Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining baseline emissions during the crediting period?			See monitoring of project emissions.		OK
Are the choices of baseline GHG indicators reasonable and			See monitoring of project emissions.		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
conservative?					
Is the measurement *method* clearly stated for each baseline indicator to be monitored and also deemed appropriate?			See monitoring of project emissions.		OK
Is the measurement *equipment* described and deemed appropriate?			See monitoring of project emissions.		OK
Is the measurement *accuracy* addressed and deemed appropriate? Are procedures in place on how to deal with erroneous measurements?			See monitoring of project emissions.		OK
Is the measurement *interval* for baseline data identified and deemed appropriate?			See monitoring of project emissions.		OK
Is the *registration, monitoring, measurement* and *reporting* procedure defined?			See monitoring of project emissions.		OK
Are procedures identified for *maintenance* of monitoring equipment and installations? Are the calibration intervals being observed?			See monitoring of project emissions.		OK
Are procedures identified for day-to-day records handling (including what records to keep, storage area of records and how to process performance documentation)			See monitoring of project emissions.		OK
Monitoring of Leakage *It is assessed whether the monitoring plan provides for reliable and complete leakage data over time.*					
Does the monitoring plan provide for the collection and archiving of all relevant data necessary for determining leakage?	/1/	DR	There is no leakage that needs to be considered for the project. The leakage of the project activities are assessed according to ACM0008.		OK
Are the choices of project leakage indicators reasonable and conservative?					Not applica ble

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
Is the measurement *method* clearly stated for each leakage value to be monitored and deemed appropriate?					Not aplicable
Project Management Planning *It is checked that project implementation is properly prepared for and that critical arrangements are addressed.*					
Is the authority and responsibility of overall project management clearly described?	/1/	DR,I	OK		OK
Are procedures identified for training of monitoring personnel?	/1/	DR, I	A team of engineers in the Ukraine is defined to instruct further operating and monitoring personnel.		OK
Are procedures identified for emergency preparedness for cases where emergencies can cause unintended emissions?	/1/	DR	OK		OK
Are procedures identified for review of reported results/data?	/1/	DR	The plant manager is responsible for the preparation of the standardised weekly report. He is also in charge for the preparation of the summarised monthly and yearly reports, which should be revised by the project manager.		OK
Are procedures identified for corrective actions in order to provide for more accurate future monitoring and reporting?			Such procedures are described.		OK
E. Calculation of GHG Emissions by Source *It is assessed whether all material GHG emission sources are addressed and how sensitivities and data uncertainties have been addressed to arrive at conservative estimates of projected emission reductions.*					
Calculation of GHG Emission Reductions – Project					

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
emissions *It is assessed whether the project emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.*					
Are the calculations documented according to the chosen methodology and in a complete and transparent manner?	/1/	DR, I	Annex 3. Justification of flare efficiency assumptions. The EB were aware of such technologies when the flaring tool was introduced. .	~~CAR2~~	OK
Have conservative assumptions been used when calculating the project emissions?	/1/	DR, I	Ukrainian grid factor is taken from another project without being transparent.	~~CL14~~	OK
Are uncertainties in the project emission estimates properly addressed?	/1/	DR, I	For the project to use up to 100% of the gas, the methane concentration must be more than say 25-27% or thereabouts for combustion, flaring or power generation – and in fact may need to be higher for power generation depending on the specification of the engines. Substantial variations are included in the estimates		OK
Calculation of GHG Emission Reductions – Baseline emissions *It is assessed whether the baseline emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.*					
Are the calculations documented according to the chosen	/1/	DR	OK		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
methodology and in a complete and transparent manner?					
Have conservative assumptions been used when calculating the baseline emissions?	/1/	DR			OK
Are uncertainties in the baseline emission estimates properly addressed?	/1/	DR			OK
Calculation of GHG Emission Reductions – Leakage *It is assessed whether leakage emissions are stated according to the methodology and whether the argumentation for the choice of default factors and values – where applicable – is justified.*					
Are the leakage calculations documented according to the chosen methodology and in a complete and transparent manner?	/1/	DR	There is no leakage that needs to be considered for the project. The leakage of the project activities are assessed according to ACM0008.		OK
Have conservative assumptions been used when calculating the leakage emissions?					Not applicable
Are uncertainties in the leakage emission estimates properly addressed?					Not applicable
Emission Reductions *The emission reductions shall be real, measurable and give long-term benefits related to the mitigation of climate change.*					
Are the emission reductions real, measurable and give long-term benefits related to the mitigation of climate change.	/1/	DR	Ukrainian grid factor is taken from another project without being transparent.	~~CL14~~	OK
F. Environmental Impacts					

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
Documentation on the analysis of the environmental impacts will be assessed, and if deemed significant, an EIA should be provided to the AIE.					
Has an analysis of the environmental impacts of the project activity been sufficiently described?	/1/	DR	Both combustion units require an approval by the Ukrainian Mining Authorities. The combustion processes are designed to comply for the German emissions limits (German "TA-Luft") which are more rigorous, especially for NOx, CO and CnHm, than the Ukrainian limits.	~~CL13~~	OK
Are there any Host Party requirements for an Environmental Impact Assessment (EIA), and if yes, is an EIA approved?	/1/	DR	No environmental impact assessment is needed. The plant has to fulfil the requirements of the Ukrainian Department of Ecology and Nature Conservation. The requirements should be checked by the government when the permission of the plant will be applied.	~~CL12~~	OK
Will the project create any adverse environmental effects?	/1/	DR	No.		OK
Are transboundary environmental impacts considered in the analysis?	/1/	DR	Beside the positive effect on the global climate protection, no transboundary impacts occur.		OK
Have identified environmental impacts been addressed in the project design?	/1/	DR	The upgrade to the CMM-burner system causes no additional sources of waste, sewage or condensate. Indeed the environmental impact is lowered, because the displacement of coal avoids former amounts of ash and slag. Furthermore		OK

CHECKLIST QUESTION * MoV = Means of Verification, DR= Document Review, I= Interview	Ref.	MoV*	COMMENTS	Draft Concl.	Final Concl.
			the flue gas from a CMM-Burner includes less air polluting substances then that from a coal burner.		
Does the project comply with environmental legislation in the host country?	/1/	DR	Yes. The plant has to fulfil the requirements of the Ukrainian Department of Ecology and Nature Conservation. Ongoing process	~~CL12~~	OK
G. Stakeholder Comments *If required by the host country, the AIE should ensure that stakeholder comments have been invited with appropriate media and that due account has been taken of any comments received.*					
Have relevant stakeholders been consulted?	/1/	DR	OK		OK
Have appropriate media been used to invite comments by local stakeholders?	/1/	DR	Yes. Through authorities, paper and the website of the coalmine.		OK
If a stakeholder consultation process is required by regulations/laws in the host country, has the stakeholder consultation process been carried out in accordance with such regulations/laws?			Not applicable.		Not applicable
Is a summary of the stakeholder comments received provided?	/1/	DR	OK		OK
Has due account been taken of any stakeholder comments received?	/1/	DR	No comments received		OK

Table 3 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in table 2	Summary of project owner response	Determination team conclusion
CAR.1 Approval document from Ukrainian government is required for the project as JI project. Approval from the Netherlands is also lacking.	A: participation requirements	Letter of approval Ukraine issued 22 February 2008. Letter of approval Netherlands issued 22 April 2008	OK
CAR2 The PDD claims to use ACM0008 version 03 but not apply the flaring tool (the only major difference from version 2) and instead argues that the high efficiency flare default should apply. This reasoning could result in the flaring CERs being non verifiable. The monitoring plan should be robust at validation and not reliant on the verifier to expose the gaps. Annex 3. Justification of flare efficiency assumptions. The EB were aware of such technologies when the flaring tool was introduced. While the arguments are sound the project owner risks compromising verfication	D: monitoring methodology	The combustion is designed to comply with German regulation of landfills with a combustion temperature between 850-1200 to be similar as for German regulations on landfills. With this system the deviation of the flaring tool is acceptable.	OK
CL 1. Based on the PDD, the methane concentration is 25%-50%, and methane project is about 91.3m3/min currently. It is planed that coal	A: project boundaries	The assumption arises from the following materials: 1. Programa razvitija gornych rabot na 2007-2038 g.g. , Projektnyj	OK

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in table 2	Summary of project owner response	Determination team conclusion
production will be expanded from 7Mt/a to 12Mt/a. The PDD states the methane production will be increased up to 191m3/min in April 2008 and 207.3 m3/min in June 2009. It shows that methane production increases faster than that of coal production, evidence should be provided to justify the assumption. In addition, historic data on CMM production and methane concentration should be described.		institute Lugansk Giprošacht, 2005 /Development programme of mining works during the 2007 – 2038 period, Institute of Design "Giprošacht", Lugansk, 2005 2. Programma Děgazacija po OAO Ugolnaja Kompanija Šachta Krasnoarmejskaja-Zapadnaja No.1 na 2008-2015 g.g. /The programme of degassing in Coal Company Mine Krasnoarmejskaja-West No.1, worked out by OAO – Open Stockholders Corporation, 17.11.2007 3. Ocenka perspektiv gazonosnosti uglemeščajuščej tolšči šachty Krasnoarmejskaja-Zapadnaja s clju degazaciji, OOOCHNBP, Charkov, 2004/Prospective gas volume assessment of carboniferous horizons with a view to degassing in mine Krasnoarmejskaja-Zapadnaja, OOOCHNBP, Charkov, 2004 Projekt na strojitelstvo poiskovo-razvedočnych skvažin na svobodnoje skoplenija gazov v strukturalnych lobuškach zony Krivorožsko-Pavlovskogo sbrosach i v predelach polja šachty Krasnoarmejskaja-Zapadnaja, OOOCHNBP, Charkov, 2005/Project on gas collection and distribution in condition of Krivorožsko-Pavlovski disruption and	

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in table 2	Summary of project owner response	Determination team conclusion
		in the condition of Krasnoarmejskaja-Zapadnaja mine, OOOCHNBP, Charkov, 2005.	
CL 2 Justify that JI was crucial for the investment decision to upgrade boiler in 2003.	B: Additionality	The discussion results in conclusion the JI was the main starting pulse for boiler upgrading in 2003	OK
CL3 Provide breakdown on investment costs and available price offers or other price estimates. This concerns both equipment already installed and future installations.	B: Additionality	Detailed info provided	OK
CL 4 Breakdown for costs given for OPEX is requested. Justify why this value is so high.	B: Additionality	The OPEX for the flares / Gas pumps is mainly affected by the transportation costs for the mobile plants from one degassing well to another, the recurring de-installation, re-installation and re-piping of the plants on new boreholes. Further on wages for the maintenance personnel, operating resources, spare parts, insurances, regular acceptance inspections, emission measurements etc. are included. The estimated operation costs for the upgraded boiler include wages for the maintenance personnel, operating resources, spare parts, insurances, regular acceptance inspections, emission measurements etc. The estimated operation costs for the	OK

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in table 2	Summary of project owner response	Determination team conclusion
		gas engines are mainly affected by the regular maintenance of the engines. E. g. oil change has to be done every 800-1200 hours depending on the gas quality, fresh motor oil, disposal of waste oil and regular exchange of sparks and valves etc. is needed. In addition to the wages for the coal mines own maintenance personnel, a specialised gas engine service team has to bee engaged. Further on costs are generated by operating resources, spare parts, insurances, regular acceptance inspections, emission measurements etc. The OPEX for the new pipelines connecting the mobile flares with the two shafts includes wages for the maintenance personnel, operating resources, spare parts, insurances, regular acceptance inspections etc. as mentioned above, and especially regular inspections of the pipes which, are installed in the steppe outside the coal mine boundaries. All OPEX costs are estimated using the experience of the coal mine Kransoarmeyskaya Zapadnaya No. 1, the experience of ECO-Alliance with other similar projects in the Ukraine	

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in table 2	Summary of project owner response	Determination team conclusion
		and the experience of Emissions-Trader Et GmbH with about 50 similar projects in Germany, United Kingdom and Poland (Investment Analysis Krasnoarmeyskaya Zapadnaya No.1.	
CL 5 Operational costs is given in A38 of "Input parameters" excel sheet as euro/kWh. Clarify/justify this.	B: Additionality	Typists' mistake. Correct version is Euro/year.	OK
CL6 Record of training activities for the JI project needs to be provided, it not only includes technical training regarding project operation, but also training on monitoring activities.	D: Project management planning	Two documents related to the monitoring training activities have been presented: 1. Record on training of employees of the ECO ALLIANCE 2. Plan of training of employees of the Mine Krasnoarmejskaja-West No.1	OK
CL7 The schematic map of the monitoring system needs to be prepared in the PDD, with detailed monitoring points and parameters concerned. Selection of monitoring device needs to be proposed.	D: monitoring project emissions	The map of the monitoring system is elaborated. Selection of monitoring devices is prepared by the necessary criterions	OK

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in table 2	Summary of project owner response	Determination team conclusion
CL8 The drift of the methane concentration meter (P25) mentioned in Table D2 is a concern. State the intervals of calibration.	D: monitoring project emissions	Calibration will be provided annually. Organisation will work out calibration regulation with appropriate responsibilities and terms	OK
CL9 Regarding the Alternative ii: using /destroying ventilation air methane rather than venting it, this alternative is technically feasible if the methane concentration is greater than 0.3%, the first VAM power generation demonstration project (5000kW) was put into operation in Australia two months ago. However, this technology is not financially viable due to extra-high capital investment (about US$4,000/kW).		Actually there is no fully developed alternative, which is state of the art, neither the use nor the destruction, due to the low concentration of the methane in the ventilation air. In Australia a first VAM power generation demonstration project (about MWel) has been put into operation in October 2007. This project supplies a completely new technology and should originally have been started in summer 2005. The start of operation has been moved several times due to technical problems. In addition to the unknown risks of this new technology very high capital investment (about US$ 4,000/kW) is need, so that this technology is not financially viable. As already mentioned, there is only one first demonstration project in Australia. This alternative is not financially viable at the time, and a high risk exists due to the implementation of a very new technology, which is not state of the art yet.	OK There are no further available information to substantiate the alternative

Draft report clarifications and corrective action requests by determination team	Ref. to checklist question in table 2	Summary of project owner response	Determination team conclusion
CL10 CMM gas turbine technology is available in China, a 2X2000kW CMM fired gas turbine power generation project is operating in Shanxi, China, the gas turbine used is retired airplane engine. However, due to high maintenance costs and low thermal efficiency, this technology is not popular at Chinese coal mines. Chinese experts suggest that gas turbine technology is more suitable for large gas fueled power generation project.		There have been some tests with used airplane engines, which have been fired with unconditioned CMM (there is still an existing demonstration plant in China). However, due to the high maintenance costs and low thermal efficiency, this technology is financially not viable.	OK
CL11 Provide copy of letter of endorsement.	A: participation requirements	Copy of letter provided at site visit.	OK
CL12 Are the requirements of Ukrainian Department of Ecology and Nature fulfilled?	A: participation requirements	Informed at site visit that this process is ongoing.	OK
CL13 Approval from the Ukrainian Mining Authorities?	A: participation requirements	Copy of existing approval will be provided.	The approval for the ugraded CMM-burner is in place, the approval for the cogeneration unit is in process. OK
CL14 Ukrainian grid factor is taken from another project without being transparent.	E: calculation of GHG emission reductions	Updated with grid factor from the ERUPT programme.	OK

-o0o -