DETERMINATION REPORT

PJSC “Lysychanskiy glass factory "Proletary"

DETERMINATION OF THE Implementation of ENERGY SAVING MEASURES AT PJSC “Lysychanskiy glass factory "Proletary”

BUREAU VERITAS CERTIFICATION

REPORT NO. UKRAINE-DET/0292/2011

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DETERMINATION REPORT

Date of first issue: 01/06/2011	Organizational unit: Bureau Veritas Certification Holding SAS
Client: PJSC "Lysychanskiy glass factory "Proletary""	Client ref.: Dymov Valeryi

Summary:
Bureau Veritas Certification has made the determination of the «Implementation of energy saving measu at PJSC "Lysychanskiy glass factory "Proletary"" project of PJSC "Lysychanskiy glass factory "Proleta located in Lysychansk town, Luhansk District, Ukraine on the basis of UNFCCC criteria for the JI, as wel criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refe Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervis Committee, as well as the host country criteria.

The determination scope is defined as an independent and objective review of the project design docum the project's baseline study, monitoring plan and other relevant documents, and consisted of the follov three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follov interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the determination report and opinion. The overall determination, from Contract Review to Determination Repo 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 CAR), presented in Appendix A. Taking into account this output, the project proponent revised its pro design document.

In summary, it is Bureau Veritas Certification's opinion that the project correctly applies Guidance on crit for baseline setting and monitoring and meets the relevant UNFCCC requirements for the JI and the rele host country criteria.

Report No.: UKRAINE-det/0292/2011	Subject Group: JI
Project title: Implementation of energy saving measures at PJSC "Lysychanskiy glass factory "Proletary"	
Work carried out by: Oleg Skoblyk – Team Leader, Lead Verifier Vyacheslav Yeriomin – Team Member, Verifier Denys Pischalov – team member, financial specialist.	
Work reviewed by: Ivan Sokolov - Internal Technical Reviewer	
Work approved by: Flavio Gomes - Operational	
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Indexing terms

Climate change, Joint Implementation, Kyoto Protocol, Determination process

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1 INTRODUCTION

PJSC "Lysychanskiy glass factory "Proletary"" has commissioned Bureau Veritas Certification to determine its JI project «Implementation of energy saving measures at PJSC "Lysychanskiy glass factory "Proletary"" (hereafter called "the project") at Lysychansk town, Luhansk District, Ukraine.

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

1.1 Objective

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

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

1.2 Scope

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

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

1.3 Determination team

The determination team consists of the following personnel:

Oleg Skoblyk
Bureau Veritas Certification Team Leader, Climate Change Verifier

Yeriomin Vyacheslav
Bureau Veritas Certification, Climate Change Verifier

This determination report was reviewed by:

Ivan Sokolov
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 version 01 of the Joint Implementation Determination and Verification Manual, issued by the Joint Implementation Supervisory Committee at its 19 meeting on 04/12/2009. The protocol shows, in a transparent manner, criteria (requirements), means of determination and the results from determining the identified criteria. The determination protocol serves the following purposes:

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

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

2.1 Review of Documents

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

To address Bureau Veritas Certification corrective action and clarification requests, VEMA S.A. revised the PDD and resubmitted it on 01/08/2011.

The determination findings presented in this report relate to the project as described in the PDD version 01 dated 28/04/2011, PDD version 02 dated 14/07/2011.

2.2 Follow-up Interviews

On 15/06/2011 Bureau Veritas Certification performed on-site interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of PJSC "Lysychanskiy glass factory "Proletary"" and VEMA S.A. were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
PJSC "Lysychanskiy glass factory "Proletary""	➢ Project history ➢ Project approach ➢ Project boundary ➢ Implementation schedule ➢ Organizational structure ➢ Responsibilities and authorities ➢ Training of personnel ➢ Quality management procedures and technology ➢ Rehabilitation/Implementation of equipment (records) ➢ Metering equipment control ➢ Metering record keeping system, database ➢ Technical documentation ➢ Monitoring plan and procedures ➢ Permits and licenses ➢ Local stakeholder's response.
VEMA S.A. - CONSULTANT	➢ Applicability of methodology ➢ Baseline and Project scenarios ➢ Barriers analysis ➢ Additionality justification ➢ Common practice analysis ➢ Monitoring plan ➢ Conformity of PDD to JI requirements

2.3 Resolution of Clarification and Corrective Action Requests

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

Corrective Action Request (CAR) is issued, where:

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

(b) The JI requirements have not been met;

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

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

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

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

3 PROJECT DESCRIPTION

Detailed project description is provided in the project design document.
A project activity is divided into the following subprojects:

Subproject No.1. Utilization of furnace effluent gases
The project provides for installation of HRSGs at production 2 (workshop 2-2).
The workshop № 2-2 (production 2) will be equipped with 2 KUV-EM-2,1-0,6 water-heating HRSGs with capacity of 2,1 MW (fume gases after glass furnace are applied). Temperature of heat carrier in the heating system is -85-900 C and 55-650C for hot water supply. Gas with the temperature of 420°C and in the quantity of 20000 m3/hour is extracted to the common retention gas pipe. In HRSGs the water is heated up to the temperature of 105°C for own needs of production. Then the fume gases are extracted by smoke exhauster to the chimney with the height of 80 m. Height of the pipe is calculated based on conditions of harmful emissions dispersion in atmospheric air. The HRSGs are the heat exchangers of pipe-in-pipe type. Quantity of utilized furnace gases depends on production volume. Quantity of generated steam (for production 2 – heat) is measured by the meters.

Subproject No.2. Implementation of up-to-date line of float-glass production (production 2).
The stated below technology will be implemented at new production 2:

Workshop (line) for production of large-size float-glass contains the following areas:
- tunnel for mixture supply and cullet.
- melting area;
- formation area;
- fritting and cutting area;

Technological equipment:
- Glass Furnace with capacity of 350 tons / day.
- Molten pool with the capacity of 350 tons / day.
- Annealing lehr with the capacity of 350 tons / day
- Air cooling of furnace and molten pool
- Glass cutting equipment.
- Protective atmosphere station
- Internal gas supply
- External gas supply

Subproject № 3. Modernization of existing float – glass production (production 1).
The project activity is aimed at increase of energy efficiency of production processes at PJSC«Lysychanskiy glass factory "Proletary". Subproject provides for decrease of electric energy and natural gas consumption due to rehabilitation of existing power capacities:
- It is planned to set the furnace walls again using high-fireproof materials;
- To increase volumes of regenerator filling,
- To install new constructions of burners, to expand port mouths,
- To reinforce isolation, insulation of bottom and decrease of pool depth
- Commercial recording of electric power of the plant using advanced meters with high accuracy of measurement,
- To install ASCME (automated system of commercial metering of electricity) with the meter for differential recording for recording, transfer and storage of the information about electricity;
- To install frequency converters in blow fans of glass furnace of the workshops No. 3, 4, that will make it possible to regulate the performance (add) of the fan;
- Installation of additional electric heating.
Additional electric heating is an effective way for intensifying of glass production process. Required heat is released in the course of direct transmission of electric current through the melt. Electricity is introduced into the melt using molybdenum rod electrodes, which are set both on the bottom and on the side walls of the molten pool. Strong ascending flows are formed around the bottom electrodes making it possible to average glass mass intensively. Additional electric heating can be installed in thermal barrier, under-mixture zone, loading pocket, canal, etc.

Corrective action request 01 (CAR 01)
Please, provide in the section A.2 of the PDD the goal of proposed JI project.
Response
The project's purpose is greenhouse gases emissions reduction due to the use of alternative energy resources in the course of company's production activity and its modernization using up-to-date technologies. Alternative energy resources include effluent furnace gases of glass-melting furnaces that are applied for additional heat generation, which would be generated by old boilers in steam boiler-houses in case of project's absence. In addition the project's purpose is greenhouse gases emissions reduction due to company modernization that provides introduction of up-to-date technologies in production of float glass and lead to decrease in energy sources use by decrease of specific fuel and electric energy consumption for product unit manufacturing. Section A.2 is brought in line with requirements.

Corrective action request 02 (CAR 02)
Please, provide in the section A.2 of the PDD short technical description of the proposed JI project.
Response
Short technical description of the project is provided for each subproject. Section A.2 of the PDD is brought in line with requirements.

Corrective action request 03 (CAR 03)
Please, correct section A.2 of PDD, than it doesn't exceed two pages
Response
Section A.2 of the PDD is brought in line with requirements.

Corrective action request 04 (CAR 04)
Please provide in the sub-section "historical data of the project" the data related to the project equipment installation
Response
Changes were made in Section A.4.2. of the PDD version 02.

Corrective action request 05 (CAR05)
In the PDD is indicated that geographical data obtained by GPS but the coordinates in the PDD have the link to *http://panoramio.com.*
Please, clarify, what source of geographical data used, and make correct reference.
Response
Data on location of the plant was checked by means of GPS. Section A.4.1.4 was corrected

Corrective Action Request 06

Please provide in the PDD data of glass production by production line #1 before and after modernisation (average daily, monthly or yearly data). Also provide data of glass production by production line #2.

Response

Data on glass production at lines № 1 and № 2 is provided in Accompanying document №1 to the PDD.

Corrective action request 07 (CAR07)

Please make explanation to the Figure 6 *Scheme of implementation of additional electric heating*.

Response

Data on glass production at lines № 1 and № 2 is provided in Accompanying document №1 to the PDD.

Corrective action request 08 (CAR08)

Please provide in the Table 2. *Schedule of stated measures implementation* dates in format DD/MM/YYYY if it is possible.

Response

The values of efficiency of electric heating did not mean energy efficiency or efficiency of processes. To prevent further misunderstanding phrase was removed from the project.

Corrective action Request 09 (CAR09)

Please clarify in the PDD why the efficiency of the additional heating system is 100%.

Response

The values of efficiency of electric heating did not mean energy efficiency or efficiency of processes. To prevent further misunderstanding phrase was removed from the project

Corrective action request 10 (CAR10)

Please clear identify in the PDD how emission reductions are to be achieved by each sub-project

Response

Section A.4.3 of the PDD version 02 provides the explanation of how the anthropogenic emissions of greenhouse gases will be reduced by the proposed JI project for each sub-project.

Corrective action request 11 (CAR11)

The start of emission reduction is indicated in 2009 year. In Table 3. *Estimated volume of emissions reduction during the first period of commitments* 2008 year was indicated as beginning of the crediting period.

Please correct length of the first commitment period.

Please, recalculate annual average of estimated emission reductions over the crediting period.

Response

Table 3 in section A.4.3.1. was corrected and provided in the PDD version 02

Corrective Action Request 12 (CAR12)
Please, provide in the PDD correct calculations of annual average of estimated emission reductions after the first period of commitments.
Response
Total emission reductions after the first commitment period and therefore the annual average of CO_{2e} emissions reduction reduction. Corrected data is presented in the PDD version 02.

Clarification Request 01 (CL01)
Please clarify abbreviation HRSG
Response
A heat recovery steam generator or HRSG is an energy recovery heat exchanger that recovers heat from furnace combustion products, gas-turbine installations etc.
Clarification Request 02 (CL02)
Please clarify in the PDD why production line #1 was chosen to the modernisation
Response
Production line # 1 was chosen for modernization due to the significant overrun in energy consumption norms.
Clarification Request 03 (CL03)
Please clarify in the PDD why the additional heating system is most efficient technology in the next 20-30 years
Response
There are no other means of intensification of glass melting process that would not affect the chemical composition of glass. Existing latest chemical and hydrodynamic methods of intensification significantly alter the composition of the glass melt, leading to the changes in composition of the glass itself, and therefore its appearance. Therefore, the probability of replacing electric heating the next 20-30 years is extremely low.

Clarification Request 04 (CL04)
Please clarify in the section A.4.3.1 why 11 years were chosen as the length of crediting period
Response
According to CAR10 changes in section A.4.3.1. were made. The crediting period is 9 years 8 months.

4 DETERMINATION CONCLUSIONS

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

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

The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Determination Protocol in Appendix A. The determination of the Project resulted in 50 Corrective Action Requests and 6 Clarification Requests.

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

4.1 Project approvals by Parties involved (19-20)

The project has already received Letter of Endorsement № No. 1192/23/7 as of on the JI project “Implementation of energy saving measures at PJSC "Lysychanskiy glass factory "Proletary"” dated 16.05.2011, issued by State Environmental Investment Agency of Ukraine.

Bureau Veritas Certification received this letter from the project participants and does not doubt its authenticity

As for the time being no written approvals of the project by Parties involved are available. After receiving Determination Report from the Accredited Independent Entity the project documentation will be submitted to the Ukrainian Designated Focal Point (DFP) which is State Environmental Investment Agency of Ukraine, for receiving a Letter of Approval. The written approval by another Parties involved will be obtained later on.

Corrective Action Request 13 (CAR13)
Please provide in the section A.5 Letter of Endorsement registration number.
Response
Specified in Section A.5. of the PDD version 02.

Corrective Action Request 14 (CAR14)
Please provide Letter of Approval of the Host Party
Response
The project is implemented as a bilateral JI project. The country of the project implementation is Ukraine, and the country-buyer is Switzerland.
To obtain the letter of approval it is necessary to submit a final Determination report to the National Environmental Investment Agency

of Ukraine, including this determination Protocol and a list of reference sources.

4.2 Authorization of project participants by Parties involved (21)

The official authorization of each legal entity listed as project participant in the PDD by Parties involved will be provided in the written project approvals (refer to 4.1 above).

4.3 Baseline setting (22-26)

The PDD explicitly indicates that using a methodology for baseline setting and monitoring developed in accordance with appendix B of the JI guidelines (hereinafter referred to as JI specific approach) was the selected approach for identifying the baseline.
The project applies approved CDM baseline and monitoring methodology ACM0012. This methodology can be applied directly to glass production, but these methodology was thoroughly studied for identification of the basic principles for the approach to baseline setting, additionality and monitoring.
On this basis the approach for baseline and monitoring was developed, which can be applied to JI projects in accordance with Annex B of JI Methodological recommendations and Recommendations.

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

a) Identifying and listing alternatives to the project activity on the basis of conservative assumptions and taking into account uncertainties.

b) Identifying the most plausible alternatives considering relevant sectoral policies and circumstances, such as economic situation in the steel sector in Ukraine and other key factors that may affect the baseline. The baseline is identified by screening of the alternatives based on the technological and economic considerations for the project developer, as well as on the prevailing technologies and practices in Ukrainian steel industry at the time of the investment decision.

The alternatives have been identified based on national practice and reasonable assumptions with regard to the sectoral legislation and reform, economic situation in the country, availability of raw materials and fuel as well as technologies and logistics etc.

Subproject No1 Utilization of effluent furnace gases.

There are only two alternatives.
1. Use of heat generated by steam-boiler house and ventilation of furnace gases into the atmosphere through chimney.
2. Utilization of furnace gases in HRSGs and heat generation for production needs without JI project.

There are no legislation acts requiring utilization of glass furnace gases, however, there are no obstacles for implementation of above-mentioned measures.

There are no obstacles concerning continuation of current practice.
In case of Alternative 2 investment and technological barrier is exist. Also rehabilitation of equipment for efficiency improvement is not customary practice in Ukraine.

Subproject No.2. Implementation of up-to-date line of float-glass production (production 2).
There are only two alternatives.

1. Implementation of minimal repair works against the background of total degradation equipment operation.
2. Implementation of up-to-date line of float-glass production without JI project.

There are no legislation acts requiring implementation of up-to-date technologies in such area.

Subproject No.3. Modernization of existing production of the float-glass (production 1).

There are only two alternatives of baseline scenario discussed before the start of this project.
1. Implementation of minimal repair works against the background of total degradation equipment operation.
2. Implementation of existing float-glass production (production 1) without JI project.

There are no legislation acts requiring implementation of up-to-date technologies in such area.

There are no obstacles concerning continuation of current practice for all subprojects.
In case of Alternatives 2 investment and technological barrier is exist. Also rehabilitation of equipment for efficiency improvement is not customary practice in Ukraine.

All explanations, descriptions and analyses pertaining to the baseline in the PDD were found adequate and the baseline is identified appropriately.

Corrective action request 15 (CAR15)
Please provide in the section B.1 additional alternatives for example step-by-step modernisation of project equipment for sub-projects 1, 3.
Response
Changes were made in section B.1. of the PDD version 02
Corrective Action Request 16 (CAR16)
Please provide in the section B.1 values of data applied (for ex ante calculations/determinations)
Response
Changes were made in section B.1. of the PDD version 02
Corrective Action Request 17 (CAR17)
Please provide in the section B.1 actual performance of project equipment and additional glass production.
Response
Actual performance of project equipment is provided in the PDD
Corrective Action Request 18 (CAR18)
For this project there is used multi-project Carbon Emission Factor, which is assessed by TUV SUD Industrie Service GmbH for JI projects developed in Ukraine.
Please, change value of Carbon Emission Factor on value, which is approved by SEIA.
Response
Changes were made in section B and section D as well as the detailed description is provided in Annex 2 to the PDD version 02.

4.4 Additionality (27-31)

The most recent version of the “Tool for the demonstration and assessment of additionality” approved by the CDM Executive Board was used, in accordance with the JI specific approach, defined in paragraph 2 (c) of the annex I to the “Guidance on criteria for baseline setting and monitoring”. All explanations, descriptions and analyses are made in accordance with the selected tool.

The PDD provides a justification of the applicability of the approach. Due to the fact that there is approved CDM baseline and monitoring methodology ACM0012 which is applicable directly to this project type, but these methodology were thoroughly studied for identification of the basic principles being the basis for the approach to baseline setting, additionality and monitoring.
.

Additionality proofs are provided. Two alternative scenarios to the project activity were identified and proven to be in compliance with mandatory legislation and regulations taking into account the enforcement in the region and Ukraine.

So, the program of reconstruction glass producing lines, planned and partially implemented at PJSC "Lysychanskiy glass factory "Proletariy"" is the program that has no predecessors in Ukraine and could not be considered as a common practice.

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

Corrective Action Request 19 (CAR19)

Please provide in the section of B.2 of PDD justification of the chosen approach with clear and transparent description

Response

Section B.2 was corrected in accordance with the point of criticism. Section B.2 of the PDD version 02 transparently highlights approach applied to assess the additionality of the project.

Corrective Action Request 20

For additionality proof simple cost analysis was used. According to the "Tool for demonstration assessment and additionality" version 05.2 such kind of JI projects needs benchmark and sensitivity analysis

Response

Analysis of comparison with the baseline norm and sensitivity analysis were used. The steps were made in accordance with the "Tool for demonstration assessment and additionality" (version 05.2).

Corrective Action Request 21 (CAR21)

For additionality proof simple cost analysis was used. According to the "Tool for demonstration assessment and additionality" version 05.2 such kind of JI projects needs benchmark and sensitivity analysis.

Response

Corrective Action Request 22 (CAR22)

In evaluation of the project additionality the developer is following the Tool for demonstration and assessment of additionality ver 05.2. On page 31 of the PDD the developer indicates "Therefore, the project used an analysis comparing with the baseline norm". It's assumed it means that the benchmark analysis is applied. Please change the wording accordingly. If this is the case the benchmark analysis is the proper method for the present project. The developer compares project IRR with the benchmark.

Response

Corrections is provided in the PDD

Corrective Action Request 22 (CAR22)
While the actual project start has taken the place in 2005. The developer widely refers to the key data for the later periods of 2006-2009. Please note that the Guidance for the Assessment of Investment analysis (hereinafter referred as the Guidance) requires: Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the project participant. Thereby the forecast shall be based on the data (prices, exchange rates, interest rates, forecasts, legislation norms etc) available prior to the start of the construction/modernization.
Response
Corrections is provided in the PDD

Corrective Action Request 23 (CAR23)
Unfortunately the developer failed to indicate the proper reference to the source of the data used to derive the benchmark value. Also the method of adjustment of the return for the risk factor seems to be wrong. Correct adjustment of the rate shall be made like the sum of the risk-free rate and + risk factor.
For example risk free rate is 4%, the risk factor is 8%. The composite rate is 4+8=12%.
Response
Corrections is provided in the PDD

Corrective Action Request 24 (CAR24)
Please replace the NDR in the text with NPV (net present value) which is the proper term for the value calculated.
Also, remove of the references to the NPV and pay-back period in the PDD text and calculation as they are not used for additionality prove and mislead the reader.
Response
Corrections is provided in the PDD

Corrective Action Request 25 (CAR25)
IRR formula is referring to the period that does not include the final year of the financial model (2018). Please correct
Response
Corrections is provided in the PDD

Corrective Action Request 26 (CAR26)
The financial model accounts only for 8 years of operations after completion of the subproject 3 “The modernization of existing production of float glass”, while the Guidance recommends the period of 10-20 years to be considered. Please justify the selection of the period duration of increase it by 2 years.

Response
Required information is provided in the PDD

Corrective Action Request 27 (CAR27)
Please note that calculation of the liquidating value is based on tax amortization which may be improper measure of the real market value of the assets. The better way would be estimate the liquidating value basing on remaining operational lifetime of the equipment.
Response
Corrections is provided in the PDD

Corrective Action Request 28 (CAR28)
Please clarify whether the monetary inputs such as costs and investments are indicated with/without VAT included.
Response
Clarifications is provided in the PDD

Corrective Action Request 29 (CAR29)
On page 43 the starting date of the project is indicated as 04/12/2008 while construction/design works have started in 2005. Please clarify/correct.
Response
Correct date is provided

Corrective Action Request 30 (CAR30)
Page 32 contains the references to the Annex 3 as the source of financial data. Please note that Annex 3 is Monitoring Plan. Please correct the reference.
Response
Correct reference is provided

Corrective Action Request 31 (CAR31)
Appendix 6 Excel sheets “investments” and “No sales quotas” contain different values for the investments made in 2007. Please correct whichever is wrong.
Response
Corrections is provided

Corrective Action Request 32 (CAR32)
Please provide the files accompanying the PDD text with correct names and headers as now the reference are unclear and confusing.
Response
Corrections is provided

Corrective Action Request 33 (CAR33)

The Excel table contains the reference to the «вартість кредитного ресурсу». Please remove.

Response

Changes are provided in Excel table.

Corrective Action Request 34 (CAR34)

Sensitivity analysis provides reasonable review of possible variations of coal and electrical power costs. Please submit the spreadsheets with calculation of deviation scenarios indicating formulas in order the reader could reproduce and check your results. Unfortunately now the model does not contain the pages with relevant scenarios or they are password protected.

Response

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4.5 Project boundary (32-33)

Project boundaries include the sources of all significant greenhouse gases emissions that are under control of the project participants and connected with project activity, namely heat consumption by heat recovery steam generator, natural gas and electricity consumption by the glass producing lines.

Project boundaries include the industrial facility, where heat in form of steam is being generated using waste energy of glass furnaces waste gases.

Besides, project boundaries include the facilities where the energy efficiency measures were implemented such as glass producing lines No1, 2

Based on the above assessment, the AIE hereby confirms that the identified boundary and the selected sources and gases are justified for the project activity.

Corrective action request 35 (CAR35)

Please, make correct sub-project numeration in section B.3

Response

The correct numeration for sub-projects in section B.3. of the PDD version 02 was made.

Corrective action request 36 (CAR36).

Please, divide the emission sources for three groups, i.e. which are under the control of the JI project participants, reasonably attributable to the project, and significant to the JI project and clarify these information in section B.3 of the PDD

Response

Specified in table 5 of the PDD version 02

Corrective Action Request 37 (CAR37)
Please correct identify project boundaries. Heat power plants, coal mines, power transmission lines aren't under control of the project participants.
Response
Changes were made in section B.3. of the PDD version 02

Corrective Action Request 38 (CAR38)
JISC "Proletariy" doesn't use mine methane as fuel. This fact was been clarified during site-visit.

Please, exclude mine methane from project boundaries.

Response
Methane is excluded from the project boundary due to the use of natural gas as fuel by the company.

Corrective Action Request 39 (CAR39). Please, justify the exclusion of gases indicated in table B.3.1 of the PDD.

Response
Specified in table 5 of the PDD version 02

4.6 Crediting period (34)

The PDD states the starting date of the project as the date on which the implementation or construction or real action of the project began, and the starting date is 04/12/2008, which is after the beginning of 2000.

The PDD states the expected operational lifetime of the project in years and months, which is 9 years and 8 months.

The PDD states the length of the crediting period in years and months, which is 5 years, and its starting date as 01/01/2009, which is after the date the first emission reductions or enhancements of net removals are generated by the project.

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

Clarification Request 05 (CL05)
Please clarify, why expected operational lifetime of the project is 9 years 8 months.
Response
Crediting period consists of two parts: the crediting period (from 01/01/09 to 12/31/12) and the period after the crediting period

(from 01/01/13 to 17/08/18). The final date of the project is caused by the end of the lease agreement.

4.7 Monitoring plan (35-39)

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

The monitoring plan describes all relevant factors and key characteristics that will be monitored, and the period in which they will be monitored, in particular also all decisive factors for the control and reporting of project performance, in particular also all decisive factors for the control and reporting of project performance, such as statistics reporting forms; quality control (QC) and quality assurance (QA) procedures; detailed guidelines regulating the monitoring procedures and responsibilities; the Investment Plan giving a schedule of construction activities; the operational and management structure that will be applied in implementing the monitoring plan.

The monitoring plan specifies the indicators, constants and variables that are reliable (i.e. provide consistent and accurate values), valid (i.e. be clearly connected with the effect to be measured), and that provide a transparent picture of the emission reductions or enhancements of net removals to be monitored such as volume of glass production, quantity of electric energy consumed for glass production, quantity of gas consumed for glass producing, emission factor for electricity consumption, lower heat value of natural gas, glass mass use factor.

The monitoring plan explicitly and clearly distinguishes:

(i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination, such as lower natural gas calorific value, boilers efficiency.

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

(iii) Data and parameters that are monitored throughout the crediting period, such as quantity of produced glass, quantity of consumed natural gas, quantity of consumed electricity, glass mass use factor.

The monitoring plan describes the methods employed for data monitoring (including its frequency) and recording, such as direct measurement with scales; gas, steam and electricity meters; calculations with different recording frequency such as continuously or monthly and electronic or paper recording method.

The monitoring plan elaborates all algorithms and formulae used for the estimation/calculation of baseline emissions and project emissions from the project, leakage, as appropriate.

Baseline Emissions

Subproject No.1. Utilization of furnace effluent gases.

$BE_y = BE_{MR,y} + BE_{Use,y}$

where:

BE_y	Baseline emissions in year y (tCO_2)
$BE_{MR,y}$	Baseline emissions due to combustion of fossil fuel, fume gases of which are utilized in the course of project activities in year y (tCO_2)
$BE_{Use,y}$	Baseline emissions due to heat generation, replacement in the course of project activities in year (tCO_2)

$BE_{MR,y}$ is invariable both in baseline and project scenarios related to glass furnaces operation and will be taken into account in subprojects 3 and 4.

$BE_{Use,\ y} = HEAT_{UG,b} \times EF_{heat,\ y}$

where:

$HEAT_{UG,b}$ – Volume of heat generated under the project due to furnace gases utilization in year i, GJ

$EF_{heat,\ y}$ – emissions factor for heat in baseline scenario in year y (tCO_2/GJ)

Subproject No.2. Implementation of up-to-date line of float-glass production (production 2).

$BE_y = T_i \times (\mathbf{SECb} \times EF + \mathbf{SGCb} \times LHV_b \times EF_{ng})$

where

BEy - Baseline emissions in year y (tCO2) in production (2)

T_i – project volume of production output in year i (t) in production (2)

PPER – pre-project specific emissions (tCO_2/ths. t)

SECb -Specific consumption of electrical energy per tonne of production in the baseline year

SGCb - Total quantity of gas consumed for glass production in baseline year

Subproject No.3. Modernization of existing production of the float-glass (production 1)

$BE_y = T_i \times (\mathbf{SECb} \times EF + \mathbf{SGCb} \times LHV_b \times EF_{ng})$

BEy - Baseline emissions in year y (tCO2) in production (2)
T_i – project volume of production output in year i by rehabilitated furnace (t);
EF - CO_2 emission factor in network (tCO_2/MWh);
LHV_b – lowest heating value of natural gas (GJ/ths.Nm^3);
EF_{ng} - CO_2 emission factor due to natural gas combustion (tCO_2/TJ);
SECb -Specific consumption of electrical energy per tonne of production in the baseline year
SGCb - Total quantity of gas consumed for glass production in baseline year

$BE_y = T_i \times PPER$

where
T_i – project volume of production output in year i by rehabilitated furnace (t);
PPER – pre-project specific emissions (tCO_2/ths.t);

$PPER = (kWh_b \times EF + G^3_b \times LHV_b \times EF_{ng}) / T_b$

Where
kWh_b - total volume of electric energy necessary (kWh) for production output at production 1 in baseline year;
EF - CO_2 emission factor in network (tCO_2/MWh);
G^3_b - total volume of natural gas losses (ths.Nm^3), necessary for production output in baseline year at production 1 before rehabilitation;
LHV_b – lowest heating value of natural gas (GJ/ths.Nm^3);
EF_{ng} - CO_2 emission factor due to natural gas combustion (tCO_2/TJ);
T_b - total volume of production output (t) in baseline year at production 1 before rehabilitation.

Project Emissions

Subproject No.1. Utilization of furnace effluent gases.

Project emissions under the subproject include the emissions due to
(1) combustion of additional fuel in addition to utilized heat,
(2) emissions from electric energy through consumption of electric energy applied for heat generation and other additional needs
$PE_y = PE_{AFy} + PE_{EL\ y}$
PE_y – project emissions due to project implementation
PE_{AFy} – emissions due to combustion of additional fuel in addition to utilized heat
$PE_{EL\ y}$ - emissions due to consumption of electric energy applied for heat generation and other additional needs.

Due to the fact that utilization of effluent furnace gases does require neither additional fuel nor additional electric energy
$PE_y = 0$

Subproject No.2. Implementation of up-to-date line of float-glass production (production 2).

$PE_2 = PE_{elec,y} + PE_{fuel,y}$

where:

PE_y Emissions under the subproject in year y (tCO_2e);

$PE_{elec,y}$ Emissions under the subproject due to electric energy consumption in year y (tCO_2e);

$PE_{fuel,y}$ Emissions under the subproject due to natural gas consumption in year y (tCO_2e).

$PE_{elec,y} = kWh_i \times EF_,$

where

kWh_i – total volume of electric energy necessary for production output at production 2 in year y, kWh;

EF - CO_2 emission factor of network in baseline year *y* (tCO_2/MWh).

$PE_{fuel,y} = M^3_i \times LHV_i \times EF_{ng,}$

Where

LHV_i – lowest heating value of natural gas in project year i ($TJ/ths.m^3$);

EF_{ng} - CO_2 emission factor owing to natural gas burning (tCO_2/TJ);

M^3_i - total volume of natural gas consumption ($ths.m^3$), necessary for production output in project year y at production 2.

Subproject No.3. Modernization of existing production of the float-glass (production 1)

$PE_y = PE_{elec,y} + PE_{fuel,y}$

where:

PE_y Emissions under the subproject in year y (tCO_2e)

$PE_{elec,y}$ Emissions under the subproject due to electric energy consumption (tCO_2e)

$PE_{fuel,y}$ Emissions under the subproject due to natural gas consumption (tCO_2e)

$PE_{elec,y} = kWh_i \times EF$

where kWh_i – total volume of electric energy necessary for production output at production 1 by each furnace in year y, kWh

EF - CO_2 emission factor in network in year *y* (tCO_2/MWh)

$BE_{fuel,y} = M^3_i \times LHV_i \times EF_{ng,}$

Where

LHV_i – lowest heating value of natural gas in project year i ($TJ/ths.Nm^3$)

EF_{ng} - CO_2 emission factor owing to natural gas burning (tCO_2/TJ)

M^3_i - total volume of natural gas consumption ($ths.m^3$), necessary for production output in project year i at production 1 by each furnace.

Emission Reductions

$ER_i = BE_{1,i} + BE_{2,i} + BE_{3,i} - (PE_{1,i} + PE_{2,i} + PE_{3,i})$

where

$BE_{1,i}$ - baseline emissions under the subproject No. 1 in year i, t $CO2_e$.
$BE_{2,i}$ - baseline emissions under the subproject No. 2 in year i, t $CO2_e$.
$BE_{3,i}$ - baseline emissions under the subproject No. 3 in year i, t $CO2_e$.
$PE_{1,i}$ - project emissions under the subproject No. 1 in year i, t $CO2_e$.
$PE_{2,i}$ - project emissions under the subproject No. 2 in year i, t $CO2_e$.
$PE_{3,i}$ - project emissions under the subproject No. 3 in year i, t $CO2_e$.

The monitoring plan presents the quality assurance and control procedures for the monitoring process which is described in section D.2 of the PDD. This includes information on calibration and on how records on data and accuracy are kept and made available on request.

The data required to monitor JI project is routinely collected within the normal operations of the PJSC "Lysychanskyi glass factory “Proletariy”" therefore JI monitoring is integral part of routine monitoring. Data is compiled in (i) day-to-day records, (ii) quarterly records, and (iii) annual records. All records are finally stored in Planning and Economic Department.

The monitoring plan will be implemented by different specialists of the PJSC "Lysychanskyi glass factory “Proletariy”" under supervision of planning and economic department and by the technical director of the Plant. All main production shops and specialists of the plant will be involved into the preparation of monitoring report under coordination of the planning and economic department.

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

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

Corrective Action Request 40 (CAR40)

During the site visit that net calorific value of natural gas was defined by gas supplier's certificates. Laboratory analysis used for crosschecking.
Please correct corresponding table in the plan of monitoring.
Response
Changes in Annex 3 to the PDD version 02 were made.
In calculations data on calorific capacity of natural gas is taken from the national inventory of anthropogenic emissions by sources and removals by sinks of greenhouse gases in Ukraine for 1990 - 2006 due to the fact that data on calorific capacity provided by the gas supplier is not regular and is characterized by low reliability.

Corrective Action Request 41 (CAR41)
Please, specify the procedures to be followed if expected monitoring data are unavailable
Response
Information is provided in Annex 3 to the PDD version 02 .

Corrective Action Request 42 (CAR42).
Please, clearly indicate in the monitoring plan of the PDD division of the parameters into three groups, such as:
(i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination;
(ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination;
(iii) Data and parameters that are monitored throughout the crediting period.
If any group is not applicable to parameters and data of given JI project, please, state so in the PDD.
Response
Data is divided into specified groups and provided in Annex 2 to the PDD version 02

Corrective Action Request 43 (CAR43)
Please provide units for sub-project #1 in section D.1.1.2
Response
Units are provided for the sub-project 1 in section D.1.1.2. of the PDD version 02

Corrective Action Request 44 (CAR44)
Please, provide in the section D of the PDD references to the national environmental legislation in relevant sectors.
Response

Corrective Action Request 44 (CAR44).
Please, provide Calibration plan of JI project measurement equipments.
Response
References to the national environmental legislation in are provided in section D of the PDD version 02.

Corrective Action Request 45
Please, provide Calibration plan of JI project measurement equipments.
Response
Information is provided in Annex 3 to the PDD version 02.

Corrective Action Request 46 (CAR46).
Please identify the responsible departments and persons regarding monitoring activities of the JI project in section D.2 and section D.3 of the PDD.
Response
Information is provided in Annex 3 to the PDD version 02.

Clarification Request 06 (CL06)
Please explain why glass mass use factor is deemed as constant.
Response
Parameter will be monitored. Appropriate amendments were made.

Clarification Request 07 (CL07)
Please indicate in the PDD where total volume of produced glass is accounted after annealing lehr or after glass tape cutting.
Response
Volume of glass production is measured after glass cutting. Volume of glass production is the volume of commercial glass, which goes on sale.

Clarification Request 08 (CL08)
Please clarify in the PDD how efficiency factor of boilers will be cross-checked
Response
Data on efficiency of boilers is taken from the parameter charts at boilers.

4.8 Leakage (40-41)

The PDD appropriately describes an assessment of the potential leakage of the project and appropriately explains which sources of leakage are to be calculated, and which can be neglected, such as leakages CO_2, CH_4, N_2O,

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

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

The PDD provides the ex ante estimates of:

(a) Emissions or net removals for the project scenario (within the project boundary), which are 702801 tons of CO2eq for 01/01/2009 to 31/12/2012, 1397609 tons of CO2eq for 01/01/2013 to 17/09/2018;

(b) Leakage, which are 0 tons of CO2eq;

(c) Emissions or net removals for the baseline scenario (within the project boundary), which are 883153 tons of CO2eq for 01/01/2009 to 31/12/2012, 1814081 tons of CO2eq for 01/01/2013 to 17/09/2018;

(d) Emission reductions or enhancements of net removals adjusted by leakage (based on (a)-(c) above), which are 180 352 tons of CO2eq for 01/01/2009 to 31/12/2012 tons of CO2eq for 01/01/2013 to 17/09/2018.

The estimates referred to above are given:

(a) On a annually basis;

(b) From 01/01/2008 to 18/09/2018, covering the whole crediting period;

(c) On a source-by-source/sink-by-sink basis;

(d) For each GHG gas, which are CO2

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

The formulas used for calculating the estimates referred above are the same as those used for project monitoring and described in the section 4.7 above. All formulas are consistent throughout the PDD.

For calculating the estimates referred to above, key factors, e.g. energy prices and availability, market development influencing the baseline emissions or removals and the activity level of the project

and the emissions or net removals as well as risks associated with the project were taken into account, as appropriate.

Data sources used for calculating the estimates referred to above, such as feasibility studies, production forecasts, actual historical monitored data are clearly identified, reliable and transparent.

Emission factors, such as emission factor for electricity consumption, emission factor for natural gas were selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.

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

The estimates referred to above are consistent throughout the PDD.

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

Corrective Action Request 47 (CAR47)

Please, correct in the PDD table titles according to the JI PDD form.

Response

Changes were made in Section B.3. Information is provided in Annex 3 to the PDD version 02.

Corrective Action Request 48 (CAR48).

Please, revise and correct values in tables 7-12.

Response

Total emission values in tables 7-12 are corrected.

Corrective Action Request 49 (CAR49)

Please, provide in table E.3 and table E.4 the annual average value of CO2 emission reductions.

Response

Annual average values of CO_2e emissions reduction are provided in tables of PDD section E.2-E.4

4.10 Environmental impacts (48)

In accordance with the law “About ecological expertise” of Ukraine, all the projects that may lead to the violation of regulations and/or

negative environmental impacts, should be the subjects of ecological expertise. To satisfy this requirement the project was directed for consideration of the Ministry of environmental protection of Ukraine for state ecological expertise and earned the positive conclusion

According to the current environmental protection legislation the PJSC «Lysychanskiy glass factory "Proletary" shall perform monitoring and produce annual reports on pollution emissions (nitrogen dioxide, sulphur anhydride, carbon monoxide, dust, etc.). Therefore the company introduces and implements the environmental monitoring procedures. Environmental Engineer is responsible for control and collection of relevant data, preparation of quarterly reports. Annual report shall be submitted to the Ministry of Environment. Monitoring the environmental protection effectiveness of the project will be conducted within established procedures. Monitoring data will be included in the annual report of environmental protection measures of PJSC «Lysychanskiy glass factory "Proletary"

Environmental impact assessment was prepared and appropriately approved.

Transboundary effects from project activity according to their definition in the text of the Convention on Transboundary Pollution At Big Distances ratified by Ukraine will not take place.

Besides, natural gas and electricity consumption will be reduced in the technological processes, whichwill also result in air pollution decrease and will have positive influence on environment.

Corrective action request 50 (CAR50)

Accordingly to actual Ukraine legislation projects which are developed by private companies should obtain complex state expert opinions. Environmental Impact Assessment should be provided as a part of complex state expertise.

Please, provide in the PDD reference to the Environmental Impact Assessment documents.

Response

Clarification on the environmental impact assessment was given in Section F.1. EIA was submitted at the site-visit.

4.11 Stakeholder consultation (49)

No stakeholders' comments were received.

Corrective action request 51

Please, provide in the section G list of local stakeholders.

Response

Changes were made in G.1.

4.12 Determination regarding small scale projects (50-57) "Not applicable"

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

"Not applicable"

4.14 Determination regarding programmes of activities (65-73)

"Not applicable"

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

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

6 DETERMINATION OPINION

Bureau Veritas Certification has performed a determination of the «Implementation of energy saving measures at PJSC "Lysychanskiy glass factory "Proletary"" Project in Lisichansk town, Luhansk District, Ukraine. The determination was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

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

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

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

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

02 meets all the relevant UNFCCC requirements for the determination stage and the relevant host Party criteria.

The review of the project design documentation version 02 and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfillment of stated criteria. In our opinion, the project correctly applies and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

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

7 REFERENCES

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

/1/ Project Design Document «Implementation of energy saving measures at PJSC "Lysychanskiy glass factory "Proletary"" version 01 dated 04/05/2011
/2/ Project Design Document «Implementation of energy saving measures at PJSC "Lysychanskiy glass factory "Proletary"" version 02 dated 14/07/2011
/3/ Letter of Endorsement No. 1192/23/7 dated 16.05.2011 issued by State Environmental Investment Agency of Ukraine
/4/ ERUs calculation model Exel-file "Calculations_PDD_02_v02"
/5/ Exel-file "Annex 6 Investment analysis calculations"

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

/1/ Determination and verification manual, version 1.0
/2/ Line 2 gas flow meter
/3/ Line 1 gas flow meter
/4/ Gas pressure meter
/5/ Gas distributing station inside
/6/ Gas logbook on Gas distributing station
/7/ Distributing gear-1 control room
/8/ Commercial electric meters on distributing gear-1
/9/ Electric energy consumption logbook
/10/ Technical electric meters
/11/ Distributing gear-1
/12/ Broken glass
/13/ Melt furnace entrance
/14/ Glass rolling frequency converter box
/15/ Boiler-heat utiliser
/16/ Boiler-utiliser job safety instruction
/17/ Boiler-utiliser exhauster frequency converter job instruction
/18/ Boiler-heat utiliser operator workplace
/19/ Boiler-heat utiliser logbook
/20/ Boiler-heat utilisers control panel
/21/ Glass-melting furnace control panel
/22/ Gas flow indicators, flow 1
/23/ Gas flow indicators, flow 2
/24/ Temperature sensors on glass-melting furnace exit
/25/ Glass-melting furnace gas burner
/26/ Gas hoses
/27/ Annealing furnace
/28/ Monitoring system
/29/ Melting bath control board

/30/ Annealing furnace control board
/31/ Glass tape rate meter
/32/ Glass tape borders cut-off
/33/ Glass tape cut-off
/34/ Output control board
/35/ Produced glass account
/36/ Line 1 produced glass logbook
/37/ Report on water protection for I quarter 2011
/38/ Calibration certificate #19 on measuring complex ОВК-ПГ №108 from 23.03.2011
/39/ Calibration certificate #19 on measuring complex ОВК-ПГ №108 від 23.03.2011
/40/ Measuring complex OVK-PG #108 calibration certificate, dated 23/03/2011
/41/ Differential-transformer scheme devise KSD-3/DM calibration certificate dated 14/06/2011
/42/ Differential-transformer scheme devise KSD-3/DM passport
/43/ Form Ф-7, КСД-3/ДМ calibration
/44/ Passport and calibration certificate on electric power meter SL7000 #53061404
/45/ Passport and calibration certificate on electric power meter SL7000 #53061430
/46/ Passport and calibration certificate on electric power meter SL7000 #53061420
/47/ Passport and calibration certificate on electric power meter SL7000 #53061421
/48/ Passport and calibration certificate on electric power meter ACE6000 #50065285
/49/ Passport and calibration certificate on electric power meter ACE6000 #50065299
/50/ Passport and calibration certificate on electric power meter GEM133.01.2 #747234
/51/ Passport and calibration certificate on electric power meter GEM133.01.2 #747236
/52/ Passport and calibration certificate on electric power meter SL7000 #53061406
/53/ Passport and calibration certificate on electric power meter ACE6000 #50065295
/54/ Passport and calibration certificate on electric power meter SL7000 #53061394
/55/ Passport and calibration certificate on electric power meter SL7000 #53061401
/56/ Passport and calibration certificate on electric power meter GEM133.01.2 #747235
/57/ Permit №4411800000-25 on 01.07.2008 on stationary sources air pollution
/58/ Permit №4411800000-25b on 22.07.2010 on stationary sources air pollution

/59/ Form 2-тп on air protection for I quarter 2011
/60/ Roll frequency converter boxes
/61/ Output control board
/62/ Output control board
/63/ «Kholodyi Kinets» distributing gear control room
/64/ Glass tape borders cut-off
/65/ Entrance to defectoscope system Infra Vision workshop
/66/ Defectoscope system Infra Vision workshop
/67/ Glass plates sorting system
/68/ Infra Vision defectoscope
/69/ Glass tape annealing lehr
/70/ Annealing Lehr distributing gear – 0/4 kV control room
/71/ Melting bath
/72/ Melting Bath distributing gear – 0.4 kV control room
/73/ Control system monitors
/74/ Annealing Lehr control board
/75/ Workshop #2 technological logbook
/76/ Glass melting furnace control sysytem
/77/ Glass melting furnace
/78/ Melting bath
/79/ Glass masses
/80/ “Щит переводу” distributing gear – 0.4 kV control room

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. Dmytro Drozhzhyn – Vice-Head Of Executive Board
2. Yuriy Baranovskiy – Head Engineer
3. Vasyl Voinichenko – Head of Energy Department
4. Halyna Kartamysheva – Head Technologist
5. Ekateryna Zimskaya – Head Ecologist
6. Vasyl Babych – Head of Metrology department
7. Anatoliy Chumak – Head of producing line 2-2
8. Oleksandr Zinchenko – Head of producing line 3
9. Nikolay Yaitskyi – Head of producing line 4

APPENDIX A: COMPANY PROJECT DETERMINATION PROTOCOL

DETERMINATION PROTOCOL

Check list for determination, according JOINT IMPLEMENTATION DETERMINATION AND VERIFICATION MANUAL (Version 01)

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
General description of the project				
Title of the project				
-	Is the title of the project presented?	The title of project is «Implementation of energy saving measures at PJSC "Lysychanskiy glass factory "Proletary"	OK	OK
-	Is the sectoral scope to which the project pertains presented?	The sectoral scopes of the project are: Sector 1. - Energy industries (renewable - / non-renewable sources) Sector 3. - Energy demand Sector 10. Fugitive emissions from fuels (solid, oil and gas)	OK	OK
-	Is the current version number of the document presented?	The current version number of the presented PDD is 01 dated 04/05/2011	OK	OK
-	Is the date when the document was completed presented?	The date when the presented PDD version 01 was completed is 04/05/2011	OK	OK
Description of the project				
-	Is the purpose of the project included with a concise,	The project purpose is used of alternative energy sources in the course of company's		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	summarizing explanation (max. 1-2 pages) of the: a) Situation existing prior to the starting date of the project; b) Baseline scenario; and c) Project scenario (expected outcome, including a technical description)?	activity and its modernization using up-to-date technologies. Corrective action request 01 (CAR 01) Please, provide in the section A.2 of the PDD the goal of proposed JI project. Corrective action request 02 (CAR 02) Please, provide in the section A.2 of the PDD short technical description of the proposed JI project. Corrective action request 03 (CAR 03) Please, correct section A.2 of PDD, than it doesn't exceed two pages	CAR 01 CAR 02 CAR 03	OK OK OK
-	Is the history of the project (incl. its JI component) briefly summarized?	The history of the JI Project component is briefly summarized. Corrective action request 04 (CAR 04) Please provide in the sub-section "historical data of the project" the data related to the project equipment installation	CAR 04	OK
Project participants				
-	Are project participants and Party(ies) involved in the project listed?	The project participants such as PJSC "Lysychanskiy glass factory "Proletary" and "VEMA S.A." and the Parties Involved are listed in the PDD	OK	OK
-	Is the data of the project participants presented in tabular	In the PDD data about project participants presented in tabular format	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	format?			
-	Is contact information provided in Annex 1 of the PDD?	The contact information is provided in Annex 1 of the PDD	OK	OK
-	Is it indicated, if it is the case, if the Party involved is a host Party?	Yes, Ukraine is indicated as a Host Party	OK	OK
Technical description of the project				
Location of the project				
-	Host Party(ies)	Ukraine	OK	OK
-	Region/State/Province etc.	Luhansk Region	OK	OK
-	City/Town/Community etc.	Lisichansk	OK	OK
-	Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page)	PJSC «Lysychanskiy glass factory "Proletary" is located at the address: 1, Michurina Str., city of Lysychansk, Lugansk region, 93110, Ukraine. Corrective action request 05 (CAR05) In the PDD is indicated that geographical data obtained by GPS but the coordinates in the PDD have the link to *http://panoramio.com.* Please, clarify, what source of geographical data used, and make correct reference.	CAR05	OK
Technologies to be employed, or measures, operations or actions to be implemented by the project				
-	Are the technology(ies) to be	Corrective action request 06 (CAR06)	CAR06	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	employed, or measures, operations or actions to be implemented by the project, including all relevant technical data and the implementation schedule described?	Please provide in the PDD data of glass production by production line #1 before and after modernisation (average daily, monthly or yearly data). Also provide data of glass production by production line #2.		
		Corrective action request 07 (CAR07)	CAR07	OK
		Please make explanation to the Figure 6 *Scheme of implementation of additional electric heating*.	CAR08	OK
		Corrective action request 08 (CAR08)		
		Please provide in the Table 2. *Schedule of stated measures implementation* dates in format DD/MM/YYYY if it is possible.		OK
		Corrective action Request 09 (CAR09)	CAR09	
		Please clarify in the PDD why the efficiency of the additional heating system is 100%.		OK
		Clarification Request 01 (CL01)	CL01	
		Please clarify abbreviation HRSG		OK
		Clarification Request 02 (CL02)		
		Please clarify in the PDD why production line #1 was chosen to the modernisation	CL02	
		Clarification Request 03 (CL03)		OK
		Please clarify in the PDD why the additional heating system is most efficient technology in the next 20-30 years	CL03	

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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				
-	Is it stated how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page)	Corrective action request 10 (CAR10) Please clear identify in the PDD how emission reductions are to be achieved by each sub-project	CAR10	OK
-	Is it provided the estimation of emission reductions over the crediting period?	The estimation of emission reductions over the crediting period is provided by developer in the PDD Corrective action request 11 (CAR11) The start of emission reduction is indicated in 2009 year. In Table 3. *Estimated volume of emissions reduction during the first period of commitments* 2008 year was indicated as beginning of the crediting period. Please correct length of the first commitment period. Please, recalculate annual average of estimated emission reductions over the crediting period,	CAR11	OK
-	Is it provided the estimated annual reduction for the chosen credit period in tCO2e?	The estimated annual reduction for the chosen credit period is provided in tCO2	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
-	Are the data from questions above presented in tabular format?	Yes, the data from these questions are presented in tabular format	OK	OK
Estimated amount of emission reductions over the crediting period				
-	Is the length of the crediting period Indicated?	Clarification Request 04 (CL04) Please clarify in the section A.4.3.1 why 11 years were chosen as the length of crediting period	CL04	OK
-	Are estimates of total as well as annual and average annual emission reductions in tonnes of CO2 equivalent provided?	Corrective Action Request 12 (CAR12) Please, provide in the PDD correct calculations of annual average of estimated emission reductions after the first period of commitments.	CAR 12	OK
Project approvals by Parties				
19	Have the DFPs of all Parties listed as “Parties involved” in the PDD provided written project approvals?	Project Idea Note had been submitted for review to the State Environmental Investment Agency (SEIA). SEIA issued Letter of Endorsement dated 04.05.2011 Corrective Action Request 13 (CAR13) Please provide in the section A.5 Letter of Endorsement registration number.	CAR13	OK
19	Does the PDD identify at least the host Party as a “Party involved”?	In the PDD is identified Ukraine as a Host Party and Switzerland as a Party Involved to the considered JI Project	OK	OK
19	Has the DFP of the host Party issued a written project	Corrective Action Request 14 (CAR14) Please provide Letter of Approval of the	CAR14	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	approval?	Host Party		
20	Are all the written project approvals by Parties involved unconditional?	See section 19 of this Protocol	OK	OK
Authorization of project participants by Parties involved				
21	Is each of the legal entities listed as project participants in the PDD authorized by a Party involved, which is also listed in the PDD, through: − A written project approval by a Party involved, explicitly indicating the name of the legal entity? or − Any other form of project participant authorization in writing, explicitly indicating the name of the legal entity?	After finishing of project determination report, the PDD with supporting documents and Determination Report will be presented to National Environmental Agency of Ukraine for receiving the Letter of Approval that will authorized project participants. Also, see section 19 and section 20 of this protocol above.	OK	OK
Baseline setting				
22	Does the PDD explicitly indicate which of the following approaches is used for identifying the baseline? − JI specific approach − Approved CDM methodology approach	In PDD indicated that JI specific approach is used for identifying the baseline, since among the methodologies approved by the CDM Executive Board there is none fully matching the proposed JI project.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
JI specific approach only				
23	Does the PDD provide a detailed theoretical description in a complete and transparent manner?	The PDD provide two plausible future scenarios for sub-projects #1, 2, 3. This information provides in section B.1 of the PDD.	OK	OK
23	Does the PDD provide justification that the baseline is established: (a) By listing and describing plausible future scenarios on the basis of conservative assumptions and selecting the most plausible one? (b) Taking into account relevant national and/or sectoral policies and circumstance? − Are key factors that affect a baseline taken into account? (c) In a transparent manner with regard to the choice of approaches, assumptions, methodologies, parameters, date sources and key factors? (d) Taking into account of uncertainties and using conservative assumptions?	According to the information concerning in the PDD, two plausible future scenarios presented in a complete and transparent manner. First plausible future scenarios were chosen as baseline. Identified possible scenarios were analysed taking into account key factors of national and/or sectoral policies that affect the implementation of the regarded scenarios. Also, in section B.1 all baseline data and parameters are presented in a tabular format with detailed explanation of each ones. <u>Corrective action request 15 (CAR15)</u> Please provide in the section B.1 additional alternatives for example step-by-step modernisation of project equipment for sub-projects 1,3 <u>Corrective Action Request 16 (CAR16)</u> Please provide in the section B.1 values of	CAR 15 CAR16	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(e) In such a way that ERUs cannot be earned for decreases in activity levels outside the project or due to force majeure? (f) By drawing on the list of standard variables contained in appendix B to "Guidance on criteria for baseline setting and monitoring", as appropriate?	data applied (for ex ante calculations/determinations) Corrective Action Request 17 (CAR17) Please provide in the section B.1 actual performance of project equipment and additional glass production	CAR17	OK
24	If selected elements or combinations of approved CDM methodologies or methodological tools for baseline setting are used, are the selected elements or combinations together with the elements supplementary developed by the project participants in line with 23 above?	As indicated in the PDD any CDM methodologies or methodological tools don't used for baseline choice, justification and settings, because among the methodologies approved by the CDM Executive Board there is none fully matching the proposed JI project.	OK	OK
25	If a multi-project emission factor is used, does the PDD provide appropriate justification?	Corrective Action Request 18 (CAR18) For this project there is used multi-project Carbon Emission Factor, which is assessed by TUV SUD Industrie Service GmbH for JI projects developed in Ukraine. Please, change value of Carbon Emission	CAR18	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		Factor on value, which is approved by SEIA.		
Approved CDM methodology approach only				
26 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	Not applicable	Not applicable	Not applicable
26 (a)	Is the approved CDM methodology the most recent valid version when the PDD is submitted for publication? If not, is the methodology still within the grace period (was the methodology revised to a newer version in the past two months)?	Not applicable	Not applicable	Not applicable
26 (b)	Does the PDD provide a description of why the approved CDM methodology is applicable to the project?	Not applicable	Not applicable	Not applicable
26 (c)	Are all explanations, descriptions and analyses pertaining to the baseline in the PDD made in accordance with the referenced approved CDM methodology?	Not applicable	Not applicable	Not applicable
26 (d)	Is the baseline identified appropriately as a result?	Not applicable	Not applicabl	Not applicabl

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
			e	e
Additionality				
JI specific approach only				
28	Does the PDD indicate which of the following approaches for demonstrating additionality is used? (a) Provision of traceable and transparent information showing the baseline was identified on the basis of conservative assumptions, that the project scenario is not part of the identified baseline scenario and that the project will lead to emission reductions or enhancements of removals; (b) Provision of traceable and transparent information that an AIE has already positively determined that a comparable project (to be) implemented under comparable circumstances has additionality; (c) Application of the most recent version of the "Tool for	The PDD indicates that approved "Tool for demonstration assessment and additionality" version 05.2 was used for demonstration additionality. The latest version of the tool was used. Consideration that the project scenario is not part of the identified baseline scenario and that the project will lead to emission reductions were performed by project developer and provided in section B.2 of the PDD.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	the demonstration and assessment of additionality. (allowing for a two-month grace period) or any other method for proving additionality approved by the CDM Executive Board".			
29 (a)	Does the PDD provide a justification of the applicability of the approach with a clear and transparent description?	Corrective Action Request 19 (CAR19) Please provide in the section of B.2 of PDD justification of the chosen approach with clear and transparent description	CAR19	OK
29 (b)	Are additionality proofs provided?	Corrective Action Request 21 (CAR21) For additionality proof simple cost analysis was used. According to the "Tool for demonstration assessment and additionality" version 05.2 such kind of JI projects needs benchmark and sensitivity analysis. Corrective Action Request 22 (CAR22) In evaluation of the project additionality the developer is following the Tool for demonstration and assessment of additionality ver 05.2. On page 31 of the PDD the developer indicates "Therefore, the project used an analysis comparing with the baseline norm". It's assumed it means that the benchmark analysis is	CAR21 CAR22	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		applied. Please change the wording accordingly. If this is the case the benchmark analysis is the proper method for the present project. The developer compares project IRR with the benchmark. Corrective Action Request 22 (CAR22) While the actual project start has taken the place in 2005. The developer widely refers to the key data for the later periods of 2006-2009. Please note that the Guidance for the Assessment of Investment analysis (hereinafter referred as the Guidance) requires: Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the project participant. Thereby the forecast shall be based on the data (prices, exchange rates, interest rates, forecasts, legislation norms etc) available prior to the start of the construction/modernization. Corrective Action Request 23 (CAR23) Unfortunately the developer failed to indicate the proper reference to the source of the data used to derive the benchmark value. Also the method of adjustment of	CAR22 CAR23	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		the return for the risk factor seems to be wrong. Correct adjustment of the rate shall be made like the sum of the risk-free rate and + risk factor. For example risk free rate is 4%, the risk factor is 8%. The composite rate is 4+8=12%.		
		Corrective Action Request 24 (CAR24) Please replace the NDR in the text with NPV (net present value) which is the proper term for the value calculated. Also, remove of the references to the NPV and pay-back period in the PDD text and calculation as they are not used for additionality prove and mislead the reader.	CAR24	OK
		Corrective Action Request 25 (CAR25) IRR formula is referring to the period that does not include the final year of the financial model (2018). Please correct	CAR25	OK
		Corrective Action Request 26 (CAR26) The financial model accounts only for 8 years of operations after completion of the subproject 3 “The modernization of existing production of float glass”, while the Guidance recommends the period of 10-20 years to be considered. Please	CAR26	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		justify the selection of the period duration of increase it by 2 years.		
		Corrective Action Request 27 (CAR27) Please note that calculation of the liquidating value is based on tax amortization which may be improper measure of the real market value of the assets. The better way would be estimate the liquidating value basing on remaining operational lifetime of the equipment.	CAR27	OK
		Corrective Action Request 28 (CAR28) Please clarify whether the monetary inputs such as costs and investments are indicated with/without VAT included.	CAR28	OK
		Corrective Action Request 29 (CAR29) On page 43 the starting date of the project is indicated as 04/12/2008 while construction/design works have started in 2005. Please clarify/correct.	CAR29	OK
		Corrective Action Request 30 (CAR30) Page 32 contains the references to the Annex 3 as the source of financial data. Please note that Annex 3 is Monitoring Plan. Please correct the reference.	CAR30	OK
		Corrective Action Request 31 (CAR31) Appendix 6 Excel sheets “investments”	CAR31	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		and "No sales quotas" contain different values for the investments made in 2007. Please correct whichever is wrong. Corrective Action Request 32 (CAR32) Please provide the files accompanying the PDD text with correct names and headers as now the reference are unclear and confusing. Corrective Action Request 33 (CAR33) The Excel table contains the reference to the «вартість кредитного ресурсу». Please remove. Corrective Action Request 34 (CAR34) Sensitivity analysis provides reasonable review of possible variations of coal and electrical power costs. Please submit the spreadsheets with calculation of deviation scenarios indicating formulas in order the reader could reproduce and check your results. Unfortunately now the model does not contain the pages with relevant scenarios or they are password protected.	CAR32 CAR33 CAR34	OK OK OK
29 (c)	Is the additionality demonstrated appropriately as a result?	See section 29(b) of this protocol	-	-
30	If the approach 28 (c) is chosen, are all explanations, descriptions	See section 29(b) of this protocol	-	-

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	and analyses made in accordance with the selected tool or method?			
Approved CDM methodology approach only				
31 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	Not applicable	Not applicable	Not applicable
31 (b)	Does the PDD provide a description of why and how the referenced approved CDM methodology is applicable to the project?	Not applicable	Not applicable	Not applicable
31 (c)	Are all explanations, descriptions and analyses with regard to additionality made in accordance with the selected methodology?	Not applicable	Not applicable	Not applicable
31 (d)	Are additionality proofs provided?	Not applicable	Not applicable	Not applicable
31 (e)	Is the additionality demonstrated appropriately as a result?	Not applicable	Not applicable	Not applicable
Project boundary (applicable except for JI LULUCF projects				
JI specific approach only				
32 (a)	Does the project boundary	Corrective action request 35 (CAR35)	CAR35	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	defined in the PDD encompass all anthropogenic emissions by sources of GHGs that are: (i) Under the control of the project participants? (ii) Reasonably attributable to the project? (iii) Significant?	Please, make correct sub-project numeration in section B.3 Corrective action request 36 (CAR36). Please, divide the emission sources for three groups, i.e. which are under the control of the JI project participants, reasonably attributable to the project, and significant to the JI project and clarify these information in section B.3 of the PDD	CAR36	OK
32 (b)	Is the project boundary defined on the basis of a case-by-case assessment with regard to the criteria referred to in 32 (a) above?	See section 32(a) of this protocol	-	-
32 (c)	Are the delineation of the project boundary and the gases and sources included appropriately described and justified in the PDD by using a figure or flow chart as appropriate?	The delineation of the project boundary and sources included are described in the PDD by using figure B.1 Emission sources located within the project boundary. Corrective Action Request 37 (CAR37) Please correct identify project boundaries. Heat power plants, coal mines, power transmission lines aren't under control of the project participants. Corrective Action Request 38 (CAR38) JISC "Proletariy" doesn't use mine	CAR37 CAR38	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		methane as fuel. This fact was been clarified during site-visit. Please, exclude mine methane from project boundaries.		
32 (d)	Are all gases and sources included explicitly stated, and the exclusions of any sources related to the baseline or the project are appropriately justified?	In section B.3 of the PDD all gases and sources included are explicitly stated; the information presented in table B.3.1. Corrective Action Request 39 (CAR39). Please, justify the exclusion of gases indicated in table B.3.1 of the PDD.	CAR39	OK
Approved CDM methodology approach only				
33	Is the project boundary defined in accordance with the approved CDM methodology?	Not applicable	Not applicable	Not applicable
Crediting period				
34 (a)	Does the PDD state the starting date of the project as the date on which the implementation or construction or real action of the project will begin or began?	The starting date of the project is 04/12/08. This day is a date of heat-exchanger put into operation. Project start-up and commissioning day is 01/01/2009	OK	OK
34 (a)	Is the starting date after the beginning of 2000?	The starting date of the project is 2008 year	OK	OK
34 (b)	Does the PDD state the expected operational lifetime of the project in years and months?	The expected operational lifetime of the project is 9 years 8 months. Clarification Request 05 (CL05) Please clarify, why expected operational	CL05	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		lifetime of the project is 9 years 8 months.		
34 (c)	Does the PDD state the length of the crediting period in years and months?	The length of crediting period is 4 years (48 month). Also see CAR10	OK	OK
34 (c)	Is the starting date of the crediting period on or after the date of the first emission reductions or enhancements of net removals generated by the project?	In the PDD there is provided information that the starting date of the crediting period is before the date of the first emission reductions generated by the JI project.	OK	OK
34 (d)	Does the PDD state that the crediting period for issuance of ERUs starts only after the beginning of 2008 and does not extend beyond the operational lifetime of the project?	In the PDD stated that crediting period has began after 2008 i.e. 01/01/2009	OK	OK
34 (d)	If the crediting period extends beyond 2012, does the PDD state that the extension is subject to the host Party approval? Are the estimates of emission reductions or enhancements of net removals presented separately for those until 2012 and those after 2012?	The estimation of emission reduction due to the JI project is provided for the period 2009-2018. In the PDD the values of emission reductions during the period 2008-2012 are presented in table A.2. The values of emission reductions for the period 2012-2018 are presented separately in table A.3 of the PDD.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Monitoring plan				
35	Does the PDD explicitly indicate which of the following approaches is used? − JI specific approach − Approved CDM methodology approach	The project developer uses JI specific approach for monitoring plan establishing in accordance with "Guidance on criteria for baseline settings and monitoring". Monitoring plan for sub-project #1 was elaborated by specific approach of JI with application of methodology ACM0012 "Consolidated baseline methodology for GHG emission reductions from waste energy recovery projects" version 3.23. Among approved CDM methodologies for baseline setting and monitoring there is not a single one than would be associated with the proposed sub-project #2,3.	OK	OK
JI specific approach only				
36 (a)	Does the monitoring plan describe: − All relevant factors and key characteristics that will be monitored? − The period in which they will be monitored? − All decisive factors for the control and reporting of project performance?	The Monitoring Plan describes relevant factor and parameters to be monitored, such as emission factor for Ukraine national grid, volume of produced glass, quantity of supplied gas and electricity, etc. Period in which relevant factor and parameters will be monitored is established.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
36 (b)	Does the monitoring plan specify the indicators, constants and variables used that are reliable, valid and provide transparent picture of the emission reductions or enhancements of net removals to be monitored?	There is no constants and indicators used by project developer regarding considered JI project	OK	OK
36 (b)	If default values are used: − Are accuracy and reasonableness carefully balanced in their selection? − Do the default values originate from recognized sources? − Are the default values supported by statistical analyses providing reasonable confidence levels? − Are the default values presented in a transparent manner?	In monitoring plan glass mass use factor is used as default value. The source of this value is clarified in table D.1.2.1, namely, Technical certificates for each furnace and production researches.	OK	OK
36 (b) (i)	For those values that are to be provided by the project participants, does the monitoring plan clearly indicate how the values are to be selected and justified?	Clarification Request 06 (CL06) Please explain why glass mass use factor is deemed as constant.	CL06	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
36 (b) (ii)	For other values, − Does the monitoring plan clearly indicate the precise references from which these values are taken? − Is the conservativeness of the values provided justified?	Clarification Request 07 (CL07) Please indicate in the PDD where total volume of produced glass is accounted after annealing lehr or after glass tape cutting. Clarification Request 08 (CL08) Please clarify in the PDD how efficiency factor of boilers will be cross-checked Corrective Action Request 40 (CAR40) During the site visit that net calorific value of natural gas was defined by gas supplier's certificates. Laboratory analysis used for crosschecking. Please correct corresponding table in the plan of monitoring.	CL07 CL08 CAR38	OK OK OK
36 (b) (iii)	For all data sources, does the monitoring plan specify the procedures to be followed if expected data are unavailable?	Corrective Action Request 41 (CAR41) Please, specify the procedures to be followed if expected monitoring data are unavailable.	CAR39	OK
36 (b) (iv)	Are International System Unit (SI units) used?	International System Units aren't used, but some units are used.	OK	OK
36 (b) (v)	Does the monitoring plan note any parameters, coefficients, variables, etc. that are used to calculate baseline emissions or net removals but are obtained	The monitoring plan doesn't note any parameters, coefficients, variables, etc that are to be obtained though monitoring in order to calculate baseline emissions	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	through monitoring?			
36 (b) (v)	Is the use of parameters, coefficients, variables, etc. consistent between the baseline and monitoring plan?	According to the monitoring plan and the PDD, the use of parameters and variables are consistent between the baseline and monitoring plan.	OK	OK
36 (c)	Does the monitoring plan draw on the list of standard variables contained in appendix B of "Guidance on criteria for baseline setting and monitoring"?	The monitoring plan is established taking into account the list of standard variables contained in appendix B of "Guidance on criteria for baseline setting and monitoring". For instance, Carbon Emission Factor for electricity (EF_{CO2}) is used in given JI project	OK	OK
36 (d)	Does the monitoring plan explicitly and clearly distinguish: (i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination? (ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus	Corrective Action Request 42 (CAR42). Please, clearly indicate in the monitoring plan of the PDD division of the parameters into three groups, such as: (i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination; (ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting	CAR42	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	remain fixed throughout the crediting period), but that are not already available at the stage of determination? (iii) Data and parameters that are monitored throughout the crediting period?	period), but that are not already available at the stage of determination; (iii) Data and parameters that are monitored throughout the crediting period. If any group is not applicable to parameters and data of given JI project, please, state so in the PDD.		
36 (e)	Does the monitoring plan describe the methods employed for data monitoring (including its frequency) and recording?	Methods for data monitoring and establish frequency of the last ones are specified in the monitoring plan described in the PDD. According to the PDD, there is performed direct monitoring of emission reduction from the sub-project #1. For sub-projects #2,3	OK	OK
36 (f)	Does the monitoring plan elaborate all algorithms and formulae used for the estimation/calculation of baseline emissions/removals and project emissions/removals or direct monitoring of emission reductions from the project, leakage, as appropriate?	Monitoring plan elaborates the formulae used for calculation and estimation of baseline emissions and emission reductions due to the JI project implementation. Furthermore, the PDD states for sub-project#1 following: since additional heat generation due to the project realization is not connected with increasing of fossil fuel combustion, the project emissions are equal to zero.	OK	OK
36 (f) (i)	Is the underlying rationale for the algorithms/formulae explained?	The underlying rationale for the formulae is presented	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
36 (f) (ii)	Are consistent variables, equation formats, subscripts etc. used?	All variables and equation formats are consistent and used in appropriately way.	OK	OK
36 (f) (iii)	Are all equations numbered?	Equations needed for calculations described in section D and section E of the PDD. All equations are numbered.	OK	OK
36 (f) (iv)	Are all variables, with units indicated defined?	Corrective Action Request 43 (CAR43) Please provide units for sub-project #1 in section D.1.1.2	CAR43	OK
36 (f) (v)	Is the conservativeness of the algorithms/procedures justified?	The conservativeness of the procedures is justified	OK	OK
36 (f) (v)	To the extent possible, are methods to quantitatively account for uncertainty in key parameters included?	Uncertainty level in key parameters identified as low in table D.2 “Quality control and quality assurance procedures undertaken for data monitored”.	OK	OK
36 (f) (vi)	Is consistency between the elaboration of the baseline scenario and the procedure for calculating the emissions or net removals of the baseline ensured?	There is consistency between the elaboration of the baseline scenario and the procedure for calculating the emissions of the baseline scenario.	OK	OK
36 (f) (vii)	Are any parts of the algorithms or formulae that are not self-evident explained?	Used formulae are explained.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
36 (f) (vii)	Is it justified that the procedure is consistent with standard technical procedures in the relevant sector?	In the PDD project developer describes the monitoring procedure that is in compliance with technical procedure at JSC “Proletariy”.	OK	OK
36 (f) (vii)	Are references provided as necessary?	Corrective Action Request 44 (CAR44) Please, provide in the section D of the PDD references to the national environmental legislation in relevant sectors.	CAR44	OK
36 (f) (vii)	Are implicit and explicit key assumptions explained in a transparent manner?	Key assumptions are explained in the PDD.	OK	OK
36 (f) (vii)	Is it clearly stated which assumptions and procedures have significant uncertainty associated with them, and how such uncertainty is to be addressed?	In the project design document there is not stated any information about significant uncertainty level of assumptions and procedures.	OK	OK
36 (f) (vii)	Is the uncertainty of key parameters described and, where possible, is an uncertainty range at 95% confidence level for key parameters for the calculation of emission reductions or enhancements of net removals provided?	In the PDD project developer described the uncertainty level of key parameters. Uncertainty level of concerned data was assessed as low. Measuring devices for monitoring of key parameters are calibrated/verified in compliance with the state regulation, JSC “Proletariy” standards and approved methodologies in	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		order to assure quality control of monitoring data.		
36 (g)	Does the monitoring plan identify a national or international monitoring standard if such standard has to be and/or is applied to certain aspects of the project? Does the monitoring plan provide a reference as to where a detailed description of the standard can be found?	No national or international monitoring standard are used for monitoring of the JI project implementation.	OK	OK
36 (h)	Does the monitoring plan document statistical techniques, if used for monitoring, and that they are used in a conservative manner?	Not applicable for given JI project.	OK	OK
36 (i)	Does the monitoring plan present the quality assurance and control procedures for the monitoring process, including, as appropriate, information on calibration and on how records on data and/or method validity and accuracy are kept and made available upon request?	In monitoring plan section D.2 and D.3 of the quality assurance and control procedures, including information about calibration and how monitoring data are to be recorded and collected. Corrective Action Request 45 (CAR45). Please, provide Calibration plan of JI project measurement equipments.	CAR45	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
36 (j)	Does the monitoring plan clearly identify the responsibilities and the authority regarding the monitoring activities?	Corrective Action Request 46 (CAR46). Please identify the responsible departments and persons regarding monitoring activities of the JI project in section D.2 and section D.3 of the PDD.	CAR46	OK
36 (k)	Does the monitoring plan, on the whole, reflect good monitoring practices appropriate to the project type? If it is a JI LULUCF project, is the good practice guidance developed by IPCC applied?	According to the section B.2 of the PDD, no similar activity to this project not identified in Ukraine, so good monitoring practice to this type project is unavailable.	OK	OK
36 (l)	Does the monitoring plan provide, in tabular form, a complete compilation of the data that need to be collected for its application, including data that are measured or sampled and data that are collected from other sources but not including data that are calculated with equations?	Presented in the PDD monitoring plan provides a complete compilation of the data that need to be collected for its application, including data that are measured or sampled and data that are collected from other sources. Data connected with baseline scenario and emission reduction calculation are stated in tabular format in section D of the PDD.	OK	OK
36 (m)	Does the monitoring plan indicate that the data monitored and required for verification are to be kept for two years after the	The monitoring plan indicates that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	last transfer of ERUs for the project?			
37	If selected elements or combinations of approved CDM methodologies or methodological tools are used for establishing the monitoring plan, are the selected elements or combination, together with elements supplementary developed by the project participants in line with 36 above?	Not applicable	OK	OK
Approved CDM methodology approach only				
38 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	Not applicable	Not applicable	Not applicable
38 (a)	Is the approved CDM methodology the most recent valid version when the PDD is submitted for publication? If not, is the methodology still within the grace period (was the methodology revised to a newer version in the past two months)?	Not applicable	Not applicable	Not applicable

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
38 (b)	Does the PDD provide a description of why the approved CDM methodology is applicable to the project?	Not applicable	Not applicable	Not applicable
38 (c)	Are all explanations, descriptions and analyses pertaining to monitoring in the PDD made in accordance with the referenced approved CDM methodology?	Not applicable	Not applicable	Not applicable
38 (d)	Is the monitoring plan established appropriately as a result?	Not applicable	Not applicable	Not applicable
Applicable to both JI specific approach and approved CDM methodology approach				
39	If the monitoring plan indicates overlapping monitoring periods during the crediting period: (a) Is the underlying project composed of clearly identifiable components for which emission reductions or enhancements of removals can be calculated independently? (b) Can monitoring be performed independently for each of these components (i.e. the data/parameters monitored for	Not applicable	Not applicable	Not applicable

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	one component are not dependent on/effect data/parameters to be monitored for another component)? (c) Does the monitoring plan ensure that monitoring is performed for all components and that in these cases all the requirements of the JI guidelines and further guidance by the JISC regarding monitoring are met? (d) Does the monitoring plan explicitly provide for overlapping monitoring periods of clearly defined project components, justify its need and state how the conditions mentioned in (a)-(c) are met?			
Leakage				
JI specific approach only				
40 (a)	Does the PDD appropriately describe an assessment of the potential leakage of the project and appropriately explain which sources of leakage are to be calculated and which can be	As developers of project design document regard, the project activity doesn't relate with transportation, firing, or production, so additional amount of fuel is not needed. Thus, project leakage is absent.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	neglected?			
40 (b)	Does the PDD provide a procedure for an ex ante estimate of leakage?	According to the information and justification stated in the PDD, leakage is absent. Please, refer to section B.3 of the PDD.	OK	OK
Approved CDM methodology approach only				
41	Are the leakage and the procedure for its estimation defined in accordance with the approved CDM methodology?	Not applicable	Not applicable	Not applicable
Estimation of emission reductions or enhancements of net removals				
42	Does the PDD indicate which of the following approaches it chooses? (a) Assessment of emissions or net removals in the baseline scenario and in the project scenario (b) Direct assessment of emission reductions	The PDD indicates that assessment of emissions in the baseline scenario and in the project scenario is chosen for sub-projects #2, 3. Direct assessment of emission reduction is chosen for sub-project #1	OK	OK
43	If the approach (a) in 42 is chosen, does the PDD provide ex ante estimates of: (a) Emissions or net removals for the project scenario (within the project boundary)?	The PDD provides ex ante estimates of emissions for the project and baseline scenario. As for leakage, it is considered as absent, because glass producing at the JISC “Proletariy” that does not concern with production, transportation and firing	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(b) Leakage, as applicable? (c) Emissions or net removals for the baseline scenario (within the project boundary)? (d) Emission reductions or enhancements of net removals adjusted by leakage?	of additional amount of fuel at the JISC "Proletariy"		
44	If the approach (b) in 42 is chosen, does the PDD provide ex ante estimates of: (a) Emission reductions or enhancements of net removals (within the project boundary)? (b) Leakage, as applicable? (c) Emission reductions or enhancements of net removals adjusted by leakage?	The PDD provides ex ante estimates of emissions reductions. As for leakage, it is considered as absent, because glass producing at the JISC "Proletariy" that does not concern with production, transportation and firing of additional amount of fuel at the JISC "Proletariy"	OK	OK
45	For both approaches in 42 (a) Are the estimates in 43 or 44 given: (i) On a periodic basis? (ii) At least from the beginning until the end of the crediting period? (iii) On a source-by-source/sink-by-sink	The estimation of baseline emissions and emission reduction are made on a periodic basis from beginning to the end of the crediting period for each year. Estimations of emission reductions are carried out for CO2 as greenhouse gas. Calculations are regarded in t CO_2 equivalent. Formulae used for calculating the		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	basis? (iv) For each GHG? (v) In tones of CO2 equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol? (b) Are the formula used for calculating the estimates in 43 or 44 consistent throughout the PDD? (c) For calculating estimates in 43 or 44, are key factors influencing the baseline emissions or removals and the activity level of the project and the emissions or net removals as well as risks associated with the project taken into account, as appropriate? (d) Are data sources used for calculating the estimates in 43 or 44 clearly identified, reliable and transparent? (e) Are emission factors	estimates concerning in section D and section E are consistent throughout the PDD. Data sources used for calculating the estimates are clearly identified. Among key factors influencing the baseline emissions or the activity level of the project as well as risks associated with the project is taken into account. Conservative assumptions are taken into account while estimating emission reduction. In the PDD there are provided tables with calculation results of CO2 emission reductions. As a fact, estimated total value of CO2 emission reductions for the first crediting period is 180 352 t CO2 equivalent; moreover, estimated total value of CO2 emission reductions for the period 2013-2022 440 965 t CO2 equivalent. Corrective Action Request 47 (CAR47) Please, correct in the PDD table titles according to the JI PDD form. Corrective Action Request 48 (CAR48). Please, revise and correct values in tables	CAR47 CAR48 CAR49	OK OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(including default emission factors) if used for calculating the estimates in 43 or 44 selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice? (f) Is the estimation in 43 or 44 based on conservative assumptions and the most plausible scenarios in a transparent manner? (g) Are the estimates in 43 or 44 consistent throughout the PDD? (h) Is the annual average of estimated emission reductions or enhancements of net removals calculated by dividing the total estimated emission reductions or enhancements of net removals over the crediting period by the total months of the crediting period and multiplying by twelve?	7-12. Corrective Action Request 49 (CAR49) Please, provide in table E.3 and table E.4 the annual average value of CO2 emission reductions.		
46	If the calculation of the baseline emissions or net removals is to be performed ex post, does the	The calculation of baseline emissions is to be performed ex post. In the PDD there are provided ex ante calculation of	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	PDD include an illustrative ex ante emissions or net removals calculation?	emissions. All estimated values are presented in section E of the PDD and Excel spreadsheets.		
Approved CDM methodology approach only				
47 (a)	Is the estimation of emission reductions or enhancements of net removals made in accordance with the approved CDM methodology?	Not applicable	Not applicable	Not applicable
47 (b)	Is the estimation of emission reductions or enhancements of net removals presented in the PDD: − On a periodic basis? − At least from the beginning until the end of the crediting period? − On a source-by-source/sink-by-sink basis? − For each GHG? − In tones of CO2 equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol?	Not applicable	Not applicable	Not applicable

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	− Are the formula used for calculating the estimates consistent throughout the PDD? − Are the estimates consistent throughout the PDD? − Is the annual average of estimated emission reductions or enhancements of net removals calculated by dividing the total estimated emission reductions or enhancements of net removals over the crediting period by the total months of the crediting period and multiplying by twelve?			
Environmental impacts				
48 (a)	Does the PDD list and attach documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party?	Corrective action request 50 (CAR50) Accordingly to actual Ukraine legislation projects which are developed by private companies should obtain complex state expert opinions. Environmental Impact Assessment should be provided as a part of complex state expertise. Please, provide in the PDD reference to the Environmental Impact Assessment documents.	CAR50	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
48 (b)	If the analysis in 48 (a) indicates that the environmental impacts are considered significant by the project participants or the host Party, does the PDD provide conclusion and all references to supporting documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party?	Please, see section F of the PDD and section 48(a) of this protocol	OK	OK
Environmental impacts				
49	If stakeholder consultation was undertaken in accordance with the procedure as required by the host Party, does the PDD provide: (a) A list of stakeholders from whom comments on the projects have been received, if any? (b) The nature of the comments? (c) A description on whether and how the comments have been addressed?	The Host Party doesn't require stakeholder consultation process for the JI project. No stakeholders comments connected with JI project were obtained. Also, stakeholder's comments will be collected during determination procedure Corrective action request 51 (CAR51) Please, provide in the section G list of local stakeholders.	CAR51	OK
Determination regarding small-scale projects (additional elements for assessment)				
Applicable to bundled JI SSC projects only				

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
Applicable to all JI SSC projects				
Determination regarding land use, land-use change and forestry projects (additional/alternative elements for assessment)				
JI specific approach only				
Approved CDM methodology approach only				
Determination regarding programmes of activities (additional/alternative elements for assessment)				

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion

Corrective Action Request 01 Please, provide in the section A.2 of the PDD the goal of proposed JI project.	CAR01	The project's purpose is greenhouse gases emissions reduction due to the use of alternative energy resources in the course of company's production activity and its modernization using up-to-date technologies. Alternative energy resources include effluent furnace gases of glass-melting furnaces that are applied for additional heat generation, which would be generated by old boilers in steam boiler-houses in case of project's absence. In addition the project's purpose is greenhouse gases emissions reduction due to company modernization that provides introduction of up-to-date technologies in production of float glass and lead to decrease in energy sources use by decrease of specific fuel and electric energy consumption for product unit manufacturing. Section A.2 is brought in line with requirements.	OK
Corrective Action Request 02 Please, provide in the section A.2 of the PDD short technical description of the proposed JI project.	CAR02	Short technical description of the project is provided for each subproject . Section A.2 of the PDD is brought in line with requirements.	OK
Corrective Action Request 03 Please, correct section A.2 of PDD, than it doesn't exceed two pages	CAR03	Section A.2 of the PDD is brought in line with requirements.	OK

Corrective Action Request 04 Please provide in the sub-section "historical data of the project" the data related to the project equipment installation	CAR04	Changes were made in Section A.4.2. of the PDD version 02.	OK
Corrective Action Request 05 In the PDD is indicated that geographical data obtained by GPS but the coordinates in the PDD have the link to *http://panoramio.com.* Please, clarify, what source of geographical data used, and make correct reference.	CAR05	Data on location of the plant was checked by means of GPS. Section A.4.1.4 was corrected.	OK
Corrective Action Request 06 Please provide in the PDD data of glass production by production line #1 before and after modernisation (average daily, monthly or yearly data). Also provide data of glass production by production line #2.	CAR06	Data on glass production at lines № 1 and № 2 is provided in Accompanying document №1 to the PDD.	OK
Corrective Action Request 07 Please make explanation to the Figure 6 *Scheme of implementation of additional electric heating*.	CAR07	The short technical description of electric heating and objectives thereof were provided. Section A.4.2 is brought in line with requirements.	OK
Corrective Action Request 08 Please provide in the Table 2. *Schedule of stated measures implementation* dates in format DD/MM/YYYY if it is possible	CAR08	Stages of the implementation schedule may not have a start and end dates of DD / MM / YYYY format due to the lengthy preparation of each of the stages.	OK

Corrective Action Request 09 Please clarify in the PDD why the efficiency of the additional heating system is 100%.	CAR09	The values of efficiency of electric heating did not mean energy efficiency or efficiency of processes. To prevent further misunderstanding phrase was removed from the project.	OK
Corrective Action Request 10 Please clear identify in the PDD how emission reductions are to be achieved by each sub-project	CAR10	Section A.4.3 of the PDD version 02 provides the explanation of how the anthropogenic emissions of greenhouse gases will be reduced by the proposed JI project for each sub-project.	OK
Corrective Action Request 11 The start of emission reduction is indicated in 2009 year. In Table 3. *Estimated volume of emissions reduction during the first period of commitments* 2008 year was indicated as beginning of the crediting period. Please correct length of the first commitment period. Please, recalculate annual average of estimated emission reductions over the crediting period,	CAR11	Table 3 in section A.4.3.1. was corrected and provided in the PDD version 02	OK
Corrective Action Request 12 Please, provide in the PDD correct calculations of annual average of estimated emission reductions after the first period of commitments.	CAR12	Total emission reductions after the first commitment period and therefore the annual average of CO_{2e} emissions reduction reduction. Corrected data is presented in the PDD version 02.	OK

Corrective Action Request 13 Please provide in the section A.5 Letter of Endorsement registration number.	CAR13	Specified in Section A.5. of the PDD version 02.	OK
Corrective Action Request 14 Please provide Letter of Approval of the Host Party	CAR14	The project is implemented as a bilateral JI project. The country of the project implementation is Ukraine, and the country-buyer is Switzerland. To obtain the letter of approval it is necessary to submit a final Determination report to the National Environmental Investment Agency of Ukraine, including this determination Protocol and a list of reference sources.	OK
Corrective Action Request 15 Please provide in the section B.1 additional alternatives for example step-by-step modernisation of project equipment for sub-projects 1,3.	CAR15	Changes were made in section B.1. of the PDD version 02	OK
Corrective Action Request 16 Please provide in the section B.1 values of data applied (for ex ante calculations/determinations)	CAR16	Changes were made in section B.1. of the PDD version 02	OK
Corrective Action Request 17 Please provide in the section B.1 actual performance of project equipment and additional glass production	CAR17	Actual performance of project equipment is provided in the PDD	OK

Corrective action request 18 For this project there is used multi-project Carbon Emission Factor, which is assessed by TUV SUD Industrie Service GmbH for JI projects developed in Ukraine. Please, change value of Carbon Emission Factor on value, which is approved by SEIA.	CAR18	Changes were made in section B and section D as well as the detailed description is provided in Annex 2 to the PDD version 02.	OK
Corrective Action Request 19 Please provide in the section of B.2 of PDD justification of the chosen approach with clear and transparent description	CAR19	Section B.2 was corrected in accordance with the point of criticism. Section B.2 of the PDD version 02 transparently highlights approach applied to assess the additionality of the project.	OK
Corrective Action Request 20 For additionality proof simple cost analysis was used. According to the "Tool for demonstration assessment and additionality" version 05.2 such kind of JI projects needs benchmark and sensitivity analysis	CAR20	Analysis of comparison with the baseline norm and sensitivity analysis were used. The steps were made in accordance with the "Tool for demonstration assessment and additionality" (version 05.2).	OK

Corrective Action Request 21 In evaluation of the project additionality the developer is following the Tool for demonstration and assessment of additionality ver 05.2. On page 31 of the PDD the developer indicates ”Therefore, the project used an analysis comparing with the baseline norm”. It’s assumed it means that the benchmark analysis is applied. Please change the wording accordingly. If this is the case the benchmark analysis is the proper method for the present project. The developer compares project IRR with the benchmark.	CAR21	Corrections is provided in the PDD	OK

Corrective Action Request 22 While the actual project start has taken the place in 2005. The developer widely refers to the key data for the later periods of 2006-2009. Please note that the Guidance for the Assessment of Investment analysis (hereinafter referred as the Guidance) requires: Input values used in all investment analysis should be valid and applicable at the time of the investment decision taken by the project participant. Thereby the forecast shall be based on the data (prices, exchange rates, interest rates, forecasts, legislation norms etc) available prior to the start of the construction/modernization.	CAR22	Corrections is provided in the PDD	OK
Corrective Action Request 23 Please replace the NDR in the text with NPV (net present value) which is the proper term for the value calculated.	CAR23	Corrections is provided in the PDD	OK

Corrective Action Request 24 Unfortunately the developer failed to indicate the proper reference to the source of the data used to derive the benchmark value. Also the method of adjustment of the return for the risk factor seems to be wrong. Correct adjustment of the rate shall be made like the sum of the risk-free rate and + risk factor. For example risk free rate is 4%, the risk factor is 8%. The composite rate is 4+8=12%.	CAR24	Corrections is provided in the PDD	OK
Corrective Action Request 25 IRR formula is referring to the period that does not include the final year of the financial model (2018). Please correct	CAR25	Corrections is provided in the PDD	OK
Corrective Action Request 26 The financial model accounts only for 8 years of operations after completion of the subproject 3 “The modernization of existing production of float glass”, while the Guidance recommends the period of 10-20 years to be considered. Please justify the selection of the period duration of increase it by 2 years.	CAR26	Required information is provided in the PDD	OK

Corrective Action Request 27 Please note that calculation of the liquidating value is based on tax amortization which may be improper measure of the real market value of the assets. The better way would be estimate the liquidating value basing on remaining operational lifetime of the equipment.	CAR27	Corrections is provided in the PDD	OK
Corrective Action Request 28 Please clarify whether the monetary inputs such as costs and investments are indicated with/without VAT included.	CAR28	Clarifications is provided in the PDD	OK
Corrective Action Request 29 On page 43 the starting date of the project is indicated as 04/12/2008 while construction/design works have started in 2005. Please clarify/correct.	CAR29	Correct date is provided	OK
Corrective Action Request 30 Page 32 contains the references to the Annex 3 as the source of financial data. Please note that Annex 3 is Monitoring Plan. Please correct the reference.	CAR30	Correct reference is provided	OK

Corrective Action Request 31 Appendix 6 Excel sheets “investments” and “No sales quotas” contain different values for the investments made in 2007. Please correct whichever is wrong.	CAR31	Corrections is provided	OK
Corrective Action Request 32 Please provide the files accompanying the PDD text with correct names and headers as now the reference are unclear and confusing.	CAR32	Corrections is provided	OK
Corrective Action Request 33 The Excel table contains the reference to the «вартість кредитного ресурсу». Please remove.	CAR33	Changes is provided in Excel table.	OK
Corrective Action Request 34 Sensitivity analysis provides reasonable review of possible variations of coal and electrical power costs. Please submit the spreadsheets with calculation of deviation scenarios indicating formulas in order the reader could reproduce and check your results. Unfortunately now the model does not contain the pages with relevant scenarios or they are password protected.	CAR34		OK

Corrective Action Request 35 Please, make correct sub-project numeration in section B.3	CAR35	The correct numberation for sub-projects in section B.3. of the PDD version 02 was made.	OK
Corrective Action Request 36 Please, divide the emission sources for three groups, i.e. which are under the control of the JI project participants, reasonably attributable to the project, and significant to the JI project and clarify these information in section B.3 of the PDD	CAR36	Specified in table 5 of the PDD version 02	OK
Corrective Action Request 37 Please correct identify project boundaries. Heat power plants, coal mines, power transmission lines aren't under control of the project participants.	CAR37	Changes were made in section B.3. of the PDD version 02	OK
Corrective Action Request 38 JISC "Proletariy" doesn't use mine methane as fuel. This fact was been clarified during site-visit. Please, exclude mine methane from project boundaries.	CAR38	Methane is excluded from the project boundary due to the use of natural gas as fuel by the company.	OK
Corrective Action Request 39 Please, justify the exclusion of gases indicated in table B.3.1 of the PDD.	CAR39	Specified in table 5 of the PDD version 02	OK

Corrective Action Request 40 During the site visit that net calorific value of natural gas was defined by gas supplier's certificates. Laboratory analysis used for crosschecking. Please correct corresponding table in the plan of monitoring.	CAR40	Changes in Annex 3 to the PDD version 02 were made. In calculations data on calorific capacity of natural gas is taken from the national inventory of anthropogenic emissions by sources and removals by sinks of greenhouse gases in Ukraine for 1990 - 2006 due to the fact that data on calorific capacity provided by the gas supplier is not regular and is characterized by low reliability.	OK
Corrective Action Request 41 Please, specify the procedures to be followed if expected monitoring data are unavailable.	CAR41	Information is provided in Annex 3 to the PDD version 02 .	OK

Corrective Action Request 42 Please, clearly indicate in the monitoring plan of the PDD division of the parameters into three groups, such as: (i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination; (ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination; (iii) Data and parameters that are monitored throughout the crediting period. If any group is not applicable to parameters and data of given JI project, please, state so in the PDD.	CAR42	Data is divided into specified groups and provided in Annex 2 to the PDD version 02.	OK
Corrective Action Request 43 Please provide units for sub-project #1 in section D.1.1.2	CAR43	Units are provided for the sub-project 1 in section D.1.1.2. of the PDD version 02	OK

Corrective Action Request 44 Please, provide in the section D of the PDD references to the national environmental legislation in relevant sectors.	CAR44	References to the national environmental legislation in are provided in section D of the PDD version 02 .	OK
Corrective Action Request 45 Please, provide Calibration plan of JI project measurement equipments.	CAR45	Information is provided in Annex 3 to the PDD version 02.	OK
Corrective Action Request 46 Please identify the responsible departments and persons regarding monitoring activities of the JI project in section D.2 and section D.3 of the PDD.	CAR46	Information is provided in Annex 3 to the PDD version 02.	OK
Corrective Action Request 47 Please, correct in the PDD table titles according to the JI PDD form.	CAR47	Changes were made in Section B.3. Information is provided in Annex 3 to the PDD version 02.	OK
Corrective Action Request 48 Please, revise and correct values in tables 7-12.	CAR48	Total emission values in tables 7-12 are corrected.	OK
Corrective Action Request 49 Please, provide in table E.3 and table E.4 the annual average value of CO2 emission reductions.	CAR49	Annual average values of CO_2e emissions reduction are provided in tables of PDD section E.2-E.4	OK

Corrective Action Request 50 Accordingly to actual Ukraine legislation projects which are developed by private companies should obtain complex state expert opinions. Environmental Impact Assessment should be provided as a part of complex state expertise. Please, provide in the PDD reference to the Environmental Impact Assessment documents	CAR50	Clarification on the environmental impact assessment was given in Section F.1. EIA was submitted at the site-visit.	OK
Corrective action request 51 Please, provide in the section G list of local stakeholders.	CAR51	Changes were made in G.1.	OK
Clarification Request 01 Please clarify abbreviation HRSG	CL01	A heat recovery steam generator or HRSG is an energy recovery heat exchanger that recovers heat from furnace combustion products, gas-turbine installations etc.	OK
Clarification Request 02 Please clarify in the PDD why production line #1 was chosen to the modernisation	CL02	Production line # 1 was chosen for modernization due to the significant overrun in energy consumption norms.	OK

Clarification Request 03 Please clarify in the PDD why the additional heating system is most efficient technology in the next 20-30 years	CL03	There are no other means of intensification of glass melting process that would not affect the chemical composition of glass. Existing latest chemical and hydrodynamic methods of intensification significantly alter the composition of the glass melt, leading to the changes in composition of the glass itself, and therefore its appearance. Therefore, the probability of replacing electric heating the next 20-30 years is extremely low.	OK
Clarification Request 04 Please clarify in the section A.4.3.1 why 11 years were chosen as the length of crediting period	CL04	According to CAR10 changes in section A.4.3.1. were made. The crediting period is 9 years 8 months.	OK
Clarification Request 05 Please clarify, why expected operational lifetime of the project is 9 years 8 months.	CL05	Crediting period consists of two parts: the crediting period (from 01/01/09 to 12/31/12) and the period after the crediting period (from 01/01/13 to 17/08/18). The final date of the project is caused by the end of the lease agreement.	OK
Clarification Request 06 Please explain why glass mass use factor is deemed as constant.	CL06	Parameter will be monitored. Appropriate amendments were made.	OK

Clarification Request 07 Please indicate in the PDD where total volume of produced glass is accounted after annealing lehr or after glass tape cutting.	CL07	Volume of glass production is measured after glass cutting. Volume of glass production is the volume of commercial glass, which goes on sale.	OK
Clarification Request 08 Please clarify in the PDD how efficiency factor of boilers will be cross-checked	CL08	Data on efficiency of boilers is taken from the parameter charts at boilers.	OK