DETERMINATION REPORT
"DNIPROENERGO" JSC

DETERMINATION OF THE

RECONSTRUCTION OF THE POWER UNITS AT THE "ZAPORIZKA TPP" OF THE "DNIPROENERGO" JSC

REPORT NO. UKRAINE-DET/0306/2011

REVISION NO. 04

BUREAU VERITAS CERTIFICATION

DETERMINATION REPORT: "RECONSTRUCTION OF THE POWER UNITS AT THE "ZAPORIZKA TPP" OF THE "DNIPROENERGO" JSC"

Date of first issue:	Organizational unit:
16/08/2011	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
JSC "Dniproenergo"	Yurii Magera

Summary:

Bureau Veritas Certification has made the determination of the "Reconstruction of the power units at the "Zaporizka TPP" of the "Dniproenergo" JSC" project of "Dniproenergo" JSC located in Energodar town, Zaporizhzha region, Ukraine on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

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

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

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

Report No.:	Subject Group:
UKRAINE-det/0306/2011	JI

Project title:
"Reconstruction of the power units at the "Zaporizka TPP" of the "Dniproenergo" JSC"

Work carried out by:
Oleg Skoblyk – Team Leader, Lead Verifier
Vyacheslav Yeriomin – Team Member, Verifier
Denis Pischalov – financial specialist

Work reviewed by:
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Work approved by:
Ivan Sokolov - Operational Manager

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Bureau Veritas Certification Holding SAS

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1 INTRODUCTION

JSC "Dniproenergo" has commissioned Bureau Veritas Certification to determine its JI project "Reconstruction of the power units at the "Zaporizka TPP" of the "Dniproenergo" JSC" (hereafter called "the project") at Energodar town, Zaporizhzha region, Ukraine.

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

1.1 Objective

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

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

1.2 Scope

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

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

1.3 Determination team

The determination team consists of the following personnel:

Oleg Skoblyk
Bureau Veritas Certification Team Leader, Climate Change Verifier

Vyacheslav Yeriomin
Bureau Veritas Certification Climate Change Verifier

Denis Pischalov

Bureau Veritas Certification Financial Specialist

This determination report was reviewed by:

Leonid Yaskin
Bureau Veritas Certification, Internal Technical Reviewer

2 METHODOLOGY

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

In order to ensure transparency, a determination protocol was customized for the project, according to the 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 "ELTA-ECO" LLC 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, "ELTA-ECO" LLC revised the PDD and resubmitted it on 31/01/2012.

The determination findings presented in this report relate to the project as described in the PDD versions 1.0, 1.1, 1.2, 1.3, 1.3.1.

2.2 Follow-up Interviews

On 16/07/2011 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 JSC "Dniproenergo" were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
JSC "Dniproenergo"	• 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.
"ELTA-ECO" LLC	• Baseline methodology • Monitoring plan • Additionality proofs • Calculation of emission reduction.

2.3 Resolution of Clarification and Corrective Action Requests

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

If the determination team, in assessing the PDD and supporting documents, identifies issues that need to be corrected, clarified or improved with regard to JI project requirements, it will raise these issues and inform the project participants of these issues in the form of:

(a) Corrective action request (CAR), requesting the project participants to correct a mistake in the published PDD that is not in accordance with the (technical) process used for the project or relevant JI project requirement or that shows any other logical flaw;

(b) Clarification request (CL), requesting the project participants to provide additional information for the determination team to assess compliance with the JI project requirement in question;

(c) Forward action request (FAR), informing the project participants of an issue, relating to project implementation but not project design, that needs to be reviewed during the first verification of the project.

The determination team will make an objective assessment as to whether the actions taken by the project participants, if any, satisfactorily resolve the issues raised, if any, and should conclude its findings of the determination.

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

3 PROJECT DESCRIPTION

The overall project-installed capacity of Zaporizka TPP is 3600 MW. The TPP has two lanes of power producing units. The generating units #1-4 of the I lane were constructed for the gas and coal combustion. The energy units #5-7 of the II lane were constructed for the heavy fuel oil and natural gas combustion and today they are put into conservation. The proposed project covers only #1-4 of power units. The generating units were constructed for the Ash-type coal combustion with the addition of the natural gas and heavy fuel oil.
Generating units #1-4 have four TGB-300 turbogenerators with capacity 300 MW.
The electricity generated is conveyed to the grid via 330 kV and 150 kV transmission lines. All major equipment was manufactured in the former Soviet Union.
In 1995 the Zaporizka TPP became a part of the Dniproenergo JSC.
In 2006, after the signing of the Contract #7-727-2854-DPO/05 dated 14/12/2006 for the technical and economic assessment of the Unit #1 Rehabilitation, the preparation actions for the TPP Units rehabilitation and the rehabilitation itself were started
The thermal energy delivery in project scenario will remain the same as in the baseline scenario.

The main objective of the Project is to make the existing power equipment of the TPP more efficient and reliable. The increased efficiency will provide a higher output and lower fuel consumption.
The increased capacity of the TPP is due to the better efficiency of the existing equipment. It will reduce the fuel consumption per unit of the energy produced by the station. Thus the GHG emission per the energy unit produced will be lowered.

The detailed description of the rehabilitation:
I. Turbine equipment
1. Steam turbine
- Replacement of the nozzle blocks of the high- and mid-pressure cylinders;
- Working blades replacement in the low-pressure cylinder;
- Barring gear replacement;
- Turbine steam-distribution system modernization;
- Automatic control system installation;
- Overhaul and repair of the defective spots in the high-pressure cylinder pass pipelines, live steam pipelines, evaporation dams;
- Reconstruction of the steam turbine automatic regulation hydraulic system into electro-hydraulic system;
- Condenser pumps replacement;
- Replacement of the feed turbo-pump setting;
- Booster feed-pumps replacement;
- Drainage pump replacement in the turbine building;
- Modernization of the drainage-scavenging system;
- Modernization of the turbine steam-distribution system: replacement of the high pressure cut out valve, high and middle pressure regulative valve, shut-off valves, valve safety devices and drivers, regulating diaphragms, pipelines and fittings;
- Modernization of the oil system: oil cooler repair, oil container and oil-duck replacement, bearing case and oil fittings replacement, overhaul of the working and broken oil pumps of the oil system;
- Turbine water-work system modernization: circulation pumps repair, service water pump replacement, water-jet pumps replacement, circulating flumes repair;
- Overhaul and replacement of the supporting and thrust bearings;
- Overhaul and repair of the cooler generator system: the chiller of the circulating pump gas coolers replacement, gas cooler generator pump replacement.

2. Steam-pipelines
- Overhaul and repairs.

3. Pumping equipment

- Replacement of the inner casing of the feed pump;
- Overhaul and repair of all pumping equipment.

4. Fittings
- Overhaul and in case of need – repair and replacement of the fittings.

5. Insulation
- Overhaul and rehabilitation of the high and middle pressure equipment insulation;
- Repair of the feed-water pipeline insulation.

6. Control system
- Equipping of the turbine with the electronic control, monitor and regulation system.

7. Electric filters
- Replacement of the corona-forming and precipitation electrodes;
- Carriage and bracket girder replacement;
- Bearing insulator and insulator boxes replacement;
- Corona-forming and precipitation electrode jog units replacement;
- Corona-forming and precipitation electrode jog drivers replacement;
- Replacement of the gas distribution grates;
- Replacement of the high-voltage units of the electric field and replacement control regulator of the system;
- High-voltage cables replacement;
- Revision of the thermal insulation and anti-corrosion protection of the cases metal construction renewal;
- Bunkers and cases defects removal;
- Ashes level indicator installation;
- Dusting sensors, gas analysers and smoke fumes sensors installation;
- Fire-warning and fire-fighting system installation.

II. Boiler equipment
- Heating surface modernization of the burners and convection shaft;
- Lower radiation part replacement;
- Boiler collectors replacement;
- Total replacement of the water economizer coils;
- Injection and drainage pipelines replacement;
- Blasting nozzle diaphragms and explosive valve diaphragms replacement;
- Repair of the boxes, air-pipelines, main intercepting valve, steam heat exchangers;
- Replacement of the exiting burners on the swirl powder-gas burners with aerodynamic regulation of separate valves;

- Replacement (repair) oa the slag-removal bunkers and slag duct screw;
- Modernization of the boiler convention shaft setting;
- Dust bunkers replacement;
- Repair of different equipment in the boiler unit: repair of the separator, injection attemperator, reduction-cooler equipment, main safety valves, cyclones, etc.;
- Modernization of the main equipment of the boiler unit powder-gas-air flow track;
- Replacement of the oil system rattle, dust-system separators repair, mill fan and hot blast fans replacement;
- Draft system replacement, cleaning of the regenerative air-heater with oil-stations;
- Replacement of the raw coal and dust feeding device, replacement of the blow fans and of the induced-draught fans with oil-stations;
- Repair of the powder-gas-air flow duct parts and of the separate units;
- Overhaul and repair of the hydraulic ash removal system;
- Replacement of the spray-water and removal-water pipelines;
- Overhaul and repair of the live steam pipelines, cool and hot reheat pipelines;
- Overhead-bearing system replacement.

III. Electric generator and electric equipment
- Replacement of the stator winding;
- Reconstruction or replacement of the rotor;
- Modernization of the cooling system of the generator with the replacement of the gas condensers;
- Modernization of the unit transformer;
- Modernization of the cooling system of the transformer.

In 2008 - 2010 the advanced repairs of the Units #1, 2, 3 and 4 were implemented at the TPP as the Servicing and Preparation for the Reconstruction. The main packages of measures of these repairs are (more detailed explanation will be provided in the Monitoring Report for this period):
- The repairs of the heating surfaces of the boiler units:
- The inspection and repairs of the High-, Mid-, and Low-Pressure Cylinders;
- The control and the replacement of the fittings;
- The inspection and the replacement of the pipelines;
- The repairs and the replacement of the burners at the boiler unit;
- The advanced repairs of the pumping equipment;
- The control and the replacement of the blades of the turbine;
- The repairs of the dust system;
- The repairs of the generator winding.

The identified areas of concern as to the project description, project participants' response and BVC's conclusion are described in Appendix A, Table 2 (refer to CAR01-CAR06, CL01).

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 23 Corrective Action Requests and 4 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 #9/23/7 on the JI project "Reconstruction of the power units at the "Zaporizka TPP" of the "Dniproenergo" JSC" dated 05/01/2011 issued by National Environmental Investment Agency of Ukraine.
Proposed project was approved by both Parties involved
Letter of Approval #2751/23/7 dated 26/09/2012 has been issued by State Environment Investment Agency of Ukraine.
Letter of Approval #2012JI48 dated 18/10/2012 has been issued by Ministry of Economic affairs, Agriculture and Development oft he Kingdom Netherlands

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

4.2 Authorization of project participants by Parties involved (21)

Next legal entities are listed in the PDD version 1.3.1 dated 31/01/2012 as project participants:

- PJSC "Dniproenergo" from Ukraine, the Party Involved;
- ING Bank N.V. from the Netherlands, the Party-buyer of ERU.

Contact information on project participants are listed in the Annex 1 of the PDD.

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

The identified areas of concern as to the authorisation of the project participants, project participants' response and BVC's conclusion are described in Appendix A, Table 2 (refer to CAR07).

4.3 Baseline setting (22-26)

The PDD explicitly indicates that JI specific approach was selected for identifying the baseline. Project will use a baseline in accordance with the "Tool for the demonstration and assessment of additionality" (Version 05.2.1)

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 energetic 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 energy 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.

Alternative #1 Proposed project activity will be implemented without JI registration. Only a JI registration can push the rehabilitation forward and allow the Project to be implemented. It also can stimulate the project owner to provide this kind of projects on the other TPPs

Alternative #2 Reconstruction of boiler equipment without reconstruction of turbines and generators will allow the Project Owner to save financial resources for the Project implementation and the efficiency of the boiler part of the Power-Generating Unit will be improved. But, at the same time, the boiler cannot be rehabilitated without getting the whole Power-Generating Unit off the operation. It means that loses will be the same as for the whole unit rehabilitation. And the efficiency of the unit after this

kind of partial rehabilitation will be significantly lower then after the whole Unit rehabilitation. So, the *Alternative 2* is technically possible, but not reasonable and feasible.

Alternative #3 Reconstruction of steam turbines without reconstruction of boilers and generators. The *Alternative #3* is not feasible for the same reasons as the *Alternatives #2*.

Alternative #4 Rehabilitation of electric generators without reconstruction of boilers and steam turbines. The *Alternative #4* is not feasible for the same reasons as the *Alternatives #2, #3*.

Alternative #5 Servicing of the equipment, optimization of work regimes, fuel parameters optimization without rehabilitation. *Alternative #5* allows saving the finances in the short-term perspective but the effectiveness of these measures without the rehabilitation will be limited. Optimisation of the working regimes is limited by the technical condition of the equipment. Without the rehabilitation, the work at the optimal regime and manoeuvring is possible in a very small range. Consequently, it results in the fuel consumption and GHG emission increase. Thus, the *Alternative 5* is only possible in a short term perspective and is not feasible or reasonable.

Alternative #6 Build new generating units. The cost of the new power generating plant with the same approximate capacity would cost around 1 000 USD/kW10. It means that the construction of the new TPP with the same loading capacity as Zaporizka TPP will cost around1.2 Billion USD. The financial barrier eliminates the *Alternative 6*.

Alternative #7 Continuation of existing situation without working process optimization and any investment in rehabilitation of equipment. The Alternative #1 is the most likely baseline scenario for a number of reasons, for instance the required quantity of electric energy can be produced without costly and large-scale reconstruction as well as change of historical manufacturing practice and logistics. The above suggests that the Alternative #1 would be the most plausible and credible alternative and it represents the baseline scenario for the proposed

All proposed Alternatives are in consistency with mandatory applicable laws and regulations.

The TPP supply electric energy for Ukraine national grid and heat energy that supply to local consumers for household heating. Project developer excludes amount of fuel for heat producing from baseline calculation. Fuel amount division between electricity production and heat supply is a

technical procedure approved by Ukraine Ministry of Fuel and Power. Power plant personnel use this procedure to calculate specific fuel consumption for 1 MW and 1 GCal. Project developer in the Annex 2 of PDD provides detailed description of Specific Fuel Rate calculations.

Project developer uses values of gas, coal and fuel oil emission factors for baseline calculations in accordance with IPCC 1996 Guidelines for National Greenhouse Gas Inventories and the National GHG Inventory Report of Ukraine for 1990 – 2009 years

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

The identified areas of concern as to the baseline settings, project participants' response and BVC's conclusion are described in Appendix A, Table 2 (refer to CAR08, CAR09).

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.

Seven 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. Project developer provides investment analysis and common practice analysis. Continuation of existing situation (alternative 7) was chosen as baseline scenario.

The program of Zaporizka TPP reconstruction 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.

The identified areas of concern as to the project additionality, project participants' response and BVC's conclusion are described in Appendix A, Table 2 (refer to CAR10)

4.5 Project boundary (32-33)

Project boundaries include the sources of all significant greenhouse gas emissions that are under control of the project participants and connected with project activity.
Project boundaries include the power generating equipment (boilers, turbines, generators, relevant auxiliary and measuring equipment).

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.

The identified areas of concern as to the project boundary, project participants' response and BVC's conclusion are described in Appendix A, Table 2 (refer to CAR11, CL02).

4.6 Crediting period (34)

The PDD states the starting date of the project as the date on which the implementation or construction or real action of the project will begin or began, and the starting date is 28/12/2006, which is after the beginning of 2000.

The PDD states the expected operational lifetime of the project in years and months, which is 20 years or 240 months.

The PDD states the length of the crediting period in years and months, which is 3 years or 36 months, and its starting date as 01/01/2010, which is on the date the first emission reductions or enhancements of net removals are generated by the project.

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

The identified areas of concern as to the crediting period, project participants' response and BVC's conclusion are described in Appendix A, Table 2 (refer to CAR12, CAR13, CL03, CL04).

4.7 Monitoring plan (35-39)

The PDD, in its monitoring plan section, explicitly indicates that JI specific approach was the 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, 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. are 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 value of produced electricity, quantity of gas, coal, fuel oil consumed, emission factor for each kind of fuel consumption, oxidation factor for each fuel.

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 oxidation factors for coal, natural gas, fuel oil, emission factors for each fuel, Specific fuel Rate of the power plant in the baseline scenario.

(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, which are absent.

(iii) Data and parameters that are monitored throughout the crediting period, such as Specific Fuel Rate, the share of fuel consumed for energy production, the amount of the electricity supplied to the grid.

The monitoring plan describes the methods employed for data monitoring (including its frequency) and recording, such as direct measurement with scales; gas, water, 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/removals and project emissions/removals or direct monitoring of emission reductions from the project, leakage, as appropriate.

Emission reduction is being calculated as follows:

$ER_y = BE_y - PE_y$

Where:
ER_y – emission reductions achieved by the project activity in year *y,* tonnes of CO2 equivalent;
BE_y – baseline CO2 emission in year *y,* tonnes of CO2 equivalent;
PE_y – project CO2 emission in year *y,* tonnes of CO2 equivalent.

Baseline emission is being calculated as follows

$BE_y = \Sigma\ (SFR_b \times SF_{i,y} \times OXID_{i,y} \times EF_{i,y}) \times AELS_y$

Where:
BE_y – Baseline emission in year *y,* tonnes of CO2 equivalent;
SFR_b – specific fuel rate of the power plant in the Baseline Scenario, MWh/GJ;
$SF_{i,y}$ – share of fuel *i* (coal, natural gas or a heavy fuel oil), consumed by the project activity power plant in year *y* in energy units;
$OXID_{i,y}$ – oxidation factor of the fuel *i* in year *y*;
$EF_{i,y}$ - emission factor of the fuel *i* consumed in year *y,* tonnes of CO2/GJ;
$AELS_y$ – the amount of the electricity supplied to the electricity grid in year *y*, MWh.

$$SFRb = \frac{\sum_{i=1}^{n} SFRyi}{n} \quad ,$$

Where:

SFRb – a specific fuel rate of the power plant in the baseline scenario, GJ/MWh;

SFRy,i – a specific fuel rate of the power plant in years, prior to the Project Implementation, GJ/MWh;

n - number of years

Project emission is being calculated as follows:

$PE_y = \Sigma(SFR_y \times SF_{iy} \times OXID_{iy} \times EF_{iy}) \times AELS_y$**,**

Where:
PE_y – Project emission in year *y*, tonnes of CO2 equivalent;
SFR_y – specific fuel rate of the station in year *y*, GJ/MWh;
$SF_{i,y}$ – share of fuel *i* (coal, natural gas or a heavy fuel oil), consumed in year *y*;

$OXID_{i,y}$ – oxidation factor of the fuel *i* consumed in year *y*;
$EF_{i,y}$ – emission factor of the fuel *i* consumed in year *y*, tonnes of CO2/GJ;

$$SFRy = \frac{\sum (Fiy * NCViy)}{7} / AELSy$$

Where

SFRy – specific fuel rate of the power plant in year *y,* t.e.f./MWh. (GJ/MWh);

Fi,y – the amount of the fuel *i* consumed by the power plant for the electricity production in year *y,* tonnes (th.m3);

$NCV_{i,,y}$ – net caloric value of the fuel *i* in year *y*, GCal/tonnes(th.m3);

7 - the net caloric value of one ton of the equivalent fuel, GCal;

AELSy - annual energy supply of the power plant in year *y,* MWh.

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

The monitoring plan clearly identifies the responsibilities and the authority regarding the monitoring activities. The data required to monitor JI project is routinely collected within the normal operations of the Zaporizka TPP therefore JI monitoring is integral part of routine monitoring.

The monitoring plan will be implemented by different specialists of Zaporizka TPP under supervision of Zaporizka TPPs director. Head of Production-Technical Department has overall project responsibility.
Monitoring information is completed in:

- shift reports, based on workbooks in electricity, boiler-turbine, fuel-transport departments, chemical laboratory
- day reports, completed by heads of departments
- 3-tech month, quarter and yearly forms based on department's day reports. 3-tech forms completed by technical-producing department head.

Existing TPP's equipment isn't principally changed during project implementation. So, special trainings for personnel involved in the project is not needed. Routine professional trainings will be provided to TPPs staff by Health and Safety Department and Environmental Safety Department.

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

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

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

The identified areas of concern as to the monitoring plan, project participants' response and BVC's conclusion are described in Appendix A, Table 2 (refer to CAR14-CAR20).

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 CO_2, CH_4, N_2O leakages.

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

The PDD indicates assessment of emissions or net removals 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 12 935 231 tonnes of CO2eq for period 01/01/2010-31/12/2012 and 97 355 839 tonnes of CO2 for period 01/01/2013 - 31/12/2029;

(b) Leakage is equal to zero;

(c) Emissions or net removals for the baseline scenario (within the project boundary), which are 13 103 431 tonnes of CO2eq for period 01/01/2010-31/12/2012; 102 813 008 tonnes of CO2 for period 01/01/2013 - 31/12/2029

(d) Emission reductions or enhancements of net removals adjusted by leakage (based on (a)-(c) above), which is 168 200 tonnes of CO2eq for period 01/01/2010-31/12/2012; 5 457 169 tonnes of CO2 for period 01/01/2013 - 31/12/2029.

The estimates referred to above are given:

(a) On a annually basis;

(b) From 01/01/2010 to 31/12/2029, covering the whole crediting period;

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

(d) For 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. departmental rules of Energy sector of Ukraine, Ukrainian environmental legislation and other national regulations as well as key appropriate factors, such as such as availability of capital for the project implementation; tariffs, local availability of project technologies and techniques, skills and know-how regarding manure treatment, fuel 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 standards and statistic forms, production forecasts, actual historical monitored data, laboratory analysisare clearly identified, reliable and transparent.

Emission factors, such as emission factor for electricity consumption, emission factors for natural gas, coal, heavy fuel oil 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.

After the ITR request project developer corrected PDD and ERUs calculations. Corrections are summarized in follow items:

- ERUs calculation data was brought into line with the state report form 3-tech.
- Period from 01/01/2006 till 31/12/2009 was chosen for baseline calculation instead of 01/01/2005-31/12/2007.

In result of these changes first ERUs was achieved in 2010 and value of ERUs for first commitment period get lower from 537211 to 168 200 tCO2eq

The identified areas of concern as to the estimation of emission reduction, project participants' response and BVC's conclusion are described in Appendix A, Table 2 (refer to CAR21).

4.10 Environmental impacts (48)

The PDD lists and attaches documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party, such as Technical and Economical Assessment of the Project, Explanatory Note "Environmental impact assessment of the Zaporizka TPP Unit №1 Rehabilitation Project" prepared by the SRI "Teploenergoproekt" of the "Donbassenergo" JSC in 2007

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

The identified areas of concern as to the project environmental impacts, project participants' response and BVC's conclusion are described in Appendix A, Table 2 (refer to CAR22).

4.11 Stakeholder consultation (49)

The Project was presented to the Government of Ukraine and to the Local Authorities as a Project Idea and, later, as the Technical Documentation. The Government and Local Authorities have approved the Project. The Letter of Endorsement has been received from the National Environmental Investments Agency of Ukraine.
The information concerning the Project was published in the local Energodar town newspaper "Zdes Zhivyom" #22 dated 14/06/07.
No comments were obtained.

The identified areas of concern as to the stakeholders consultation, project participants' response and BVC's conclusion are described in Appendix A, Table 2 (refer to CAR23).

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 "Reconstruction of the power units at the "Zaporizka TPP" of the "Dniproenergo" JSC" Project in Ukraine. The determination was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

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

Project participant/s used the latest tool for demonstration of the additionality. In line with this tool, the PDD provides 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 review of the project design documentation version 1.3.1 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 "ELTA-ECO" LLC that relate directly to the GHG components of the project.

/1/ Project Design Document "Reconstruction of the power units at the "Zaporizka TPP" of the "Dniproenergo" JSC" version 1.0 dated 12/05/2011

/2/ Project Design Document "Reconstruction of the power units at the "Zaporizka TPP" of the "Dniproenergo" JSC" version 1.1 dated 12/07/2011

/3/ Project Design Document "Reconstruction of the power units at the "Zaporizka TPP" of the "Dniproenergo" JSC" version 1.2 dated 13/09/2011

/4/ Project Design Document "Reconstruction of the power units at the "Zaporizka TPP" of the "Dniproenergo" JSC" version 1.3 dated 16/11/2011

/5/ Project Design Document "Reconstruction of the power units at the "Zaporizka TPP" of the "Dniproenergo" JSC" version 1.3.1 dated 31/01/2012

/6/ Letter of Endorsement #8/23/7 dated 05/01/2011 issued by National Environmental Investment Agency of Ukraine

/7/ Letter of Approval #2751/23/7 dated 26/09/2012 issued by State Environment Investment Agency of Ukraine.

/8/ Letter of Approval #2012JI48 dated 18/10/2012 issued by Ministry of Economic affairs, Agriculture and Development oft he Kingdom Netherlands

/9/ ERUs calculation Excel file "calculations ZAP(0.961) (Appendix 1)"

/10/ Financial analysis Excel file "fin anal ZpTPP"

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/ Logbook on gas heat capacity at ZaTPP

/3/ Passport of the ZaTPP Central Chemical Laboratory

/4/ Attestation certificate of the ZaTPP Central Chemical Laboratory

/5/ Scope of the attestation of the ZaTPP Central Chemical Laboratory

/6/ Statement dated 18/07/2008 on ZaTPP Central Chemical Laboratory

/7/ Passport on power meter type SL7000

/8/ Fabrication calibration certificate on power meter type SL7000

/9/ Permit #2312500000-14a on pollutants emissions, valid from 21/09/2009 till 20/09/2014

/10/ Permit #2312500000-14a on pollutants emissions, valid from 07/05/2009 till 31/12/2016

/11/ Report on environment protection for the 1st quarter of 2011

/12/ Report on environment protection for the 2nd quarter of 2011

/13/ Report on environment protection for 2010

/14/ Calibration certificate on power meter type SL7000, serial #33003487

/15/ Calibration certificate on power meter type SL7000, serial #33003481

/16/ Calibration certificate on power meter type SL7000, serial #33003496

/17/ Calibration certificate on power meter type SL7000, serial #33003474
/18/ Calibration certificate on power meter type SL7000, serial #33003478
/19/ Calibration certificate on power meter type SL7000, serial #33003484
/20/ Calibration certificate on power meter type SL7000, serial #33001590
/21/ Calibration certificate on power meter type SL7000, serial #33001625
/22/ Calibration certificate on power meter type SL7000, serial #33001582
/23/ Calibration certificate on power meter type SL7000, serial #33001589
/24/ Calibration certificate on power meter type SL7000, serial #33001596
/25/ Calibration certificate on power meter type SL7000, serial #33001606
/26/ Calibration certificate on power meter type SL7000, serial #33001595
/27/ Calibration certificate on power meter type SL7000, serial #33001630
/28/ Calibration certificate on power meter type SL7000, serial #33001619
/29/ Calibration certificate on power meter type SL7000, serial #33001575
/30/ Calibration certificate on power meter type SL7000, serial #33002598
/31/ Calibration certificate on power meter type SL7000, serial #33002619
/32/ Calibration certificate on power meter type SL7000, serial #33002613
/33/ Calibration certificate on power meter type SL7000, serial #33002582
/34/ Calibration certificate on power meter type SL7000, serial #33002611
/35/ Calibration certificate on power meter type SL7000, serial #33002602
/36/ Calibration certificate on power meter type SL7000, serial #33002587
/37/ Calibration certificate on power meter type SL7000, serial #33002628
/38/ Calibration certificate on power meter type SL7000, serial #33001568
/39/ Calibration certificate on power meter type SL7000, serial #53024012
/40/ Calibration certificate on power meter type SL7000, serial #53024037
/41/ Calibration certificate on power meter type SL7000, serial #33001570
/42/ Calibration certificate on power meter type SL7000, serial #33001572
/43/ Calibration certificate on power meter type SL7000, serial #33001567
/44/ Calibration certificate on power meter type SL7000, serial #33001565
/45/ Calibration certificate on power meter type SL7000, serial #36137694
/46/ Photo - Power meters type SL7000, serial #36138545, #53024012
/47/ Photo – rotor panel
/48/ Photo - Power meters type SL7000, serial #33001576
/49/ Calibration certificate on power meters type SL7000, serial #53024014, #36137694
/50/ Photo – Security seals ensuring the meters calibration
/51/ Photo - Power meters type SL7000, serial #33001548
/52/ Power energy control and measurement automatic system server control panel
/53/ Information on block #1 rehabilitation cost
/54/ Positive opinion #233-2009 on the technical and economic assessment of the ZaTPP Unit №1 Rehabilitation
/55/ Report on TPP operation for 2006
/56/ Report on TPP operation for 2007
/57/ Report on TPP operation for 2008
/58/ Report on TPP operation for 2009
/59/ Report on TPP operation for 2010
/60/ Report on TPP operation for 2005
/61/ Report on the results of fuel, heat and electric energy consumption for 2005

/62/ Report on the results of fuel, heat and electric energy consumption for 2006
/63/ Report on the results of fuel, heat and electric energy consumption for 2007
/64/ Report on the results of fuel, heat and electric energy consumption for 2008
/65/ Report on the results of fuel, heat and electric energy consumption for 2009
/66/ Report on the results of fuel, heat and electric energy consumption for 2010
/67/ Report on the results of fuel, heat and electric energy consumption for January-June 2011
/68/ Passports and calibration certificates of belt-conveyer weighers type СВЕДА #132, 133
/69/ Technical and economical parameters of the ZaTPP operation for 2005
/70/ Technical and economical parameters of the ZaTPP operation for 2006
/71/ Technical and economical parameters of the ZaTPP operation for 2007
/72/ Technical and economical parameters of the ZaTPP operation for 2008
/73/ Technical and economical parameters of the ZaTPP operation for 2009
/74/ Technical and economical parameters of the ZaTPP operation for 2010
/75/ Technical and economical parameters of the ZaTPP operation for January 2011
/76/ Technical and economical parameters of the ZaTPP operation for February 2011
/77/ Technical and economical parameters of the ZaTPP operation for March 2011
/78/ Technical and economical parameters of the ZaTPP operation for April 2011
/79/ Technical and economical parameters of the ZaTPP operation for May 2011
/80/ Technical and economical parameters of the ZaTPP operation for June 2011
/81/ Quality characteristics of the coal production supplied to ZaTPP from 01 till 10/07/2011
/82/ Quality characteristics of the coal production supplied to ZaTPP from 06 till 10/07/2011
/83/ Quality characteristics of the coal production supplied to ZaTPP from 26 till 30/06/2011
/84/ Quality characteristics of the coal production supplied to ZaTPP from 01 till 30/06/2011
/85/ Quality characteristics of the coal production supplied to ZaTPP from 01 till 25/06/2011
/86/ Quality characteristics of the coal production supplied to ZaTPP from 21 till 25/06/2011
/87/ Quality characteristics of the coal production supplied to ZaTPP from 16 till 20/06/2011
/88/ Quality characteristics of the coal production supplied to ZaTPP from 01 till 20/06/2011
/89/ Quality characteristics of the coal production supplied to ZaTPP from 11 till 15/06/2011
/90/ Quality characteristics of the coal production supplied to ZaTPP from 01 till 15/06/2011
/91/ Quality characteristics of the coal production supplied to ZaTPP from 01 till 10/06/2011
/92/ Quality characteristics of the coal production supplied to ZaTPP from 06 till 10/06/2011

/93/ Quality characteristics of the coal production supplied to ZaTPP from 01 till 05/06/2011
/94/ Quality characteristics of the coal production supplied to ZaTPP from 26 till 31/05/2011
/95/ Quality characteristics of the coal production supplied to ZaTPP from 01 till 31/05/2011
/96/ Quality characteristics of the coal production supplied to ZaTPP from 01 till 25/05/2011
/97/ Quality characteristics of the coal production supplied to ZaTPP from 21 till 25/05/2011
/98/ Quality characteristics of the coal production supplied to ZaTPP from 16 till 20/05/2011
/99/ Quality characteristics of the coal production supplied to ZaTPP from 01 till 20/05/2011
/100/ Quality characteristics of the coal production supplied to ZaTPP from 16 till 20/05/2011
/101/ Quality characteristics of the coal production supplied to ZaTPP from 01 till 20/05/2011
/102/ Quality characteristics of the coal production supplied to ZaTPP from 01 till 15/05/2011
/103/ Quality characteristics of the coal production supplied to ZaTPP from 11 till 15/05/2011
/104/ Quality characteristics of the coal production supplied to ZaTPP from 01 till 15/05/2011
/105/ Quality characteristics of the coal production supplied to ZaTPP from 06 till 10/05/2011
/106/ Quality characteristics of the coal production supplied to ZaTPP from 01 till 10/05/2011
/107/ Quality characteristics of the coal production supplied to ZaTPP from 01 till 05/05/2011
/108/ Photo – belt-conveyer weighers panel
/109/ Photo - Belt-conveyer weighers platform with pressure sensors
/110/ Photo - Belt-conveyer weighers display
/111/ Photo - Security seal ensuring the belt-conveyer weighers display calibration
/112/ Photo - Belt-conveyer weighers speed sensor
/113/ Renovation plan implementation
/114/ Renovation campaign analysis for 2006
/115/ Information on renovation plan implementation at ZaTPP for 12 months 2007
/116/ Information on renovation plan implementation at ZaTPP in 2009
/117/ Information on renovation plan implementation at ZaTPP as of 08/12/2010
/118/ Information on renovation plan implementation at ZaTPP as of 23/06/2011
/119/ Schedule of the state calibration of commercial measurement meters at ZaTPP for 2008
/120/ Schedule of the internal calibration of commercial measurement meters at ZaTPP for 2011

Persons interviewed:

List persons interviewed during the determination or persons that contributed with other information that are not included in the documents listed above.

/1/ Vasyl Karpov – Deputy Head Engineer
/2/ Serhiy Kondratov – Head of Electric Department
/3/ Volodymyr Latiyk – Head of Technical Automatic and Measuring Department
/4/ Oleg Lovskoi – Head of Fuel Supply Department
/5/ Oksana Samokish – Head of Chemical Department
/6/ Valentyna Turchina – Head of Environmental Safety Department
/7/ Maksym Rogovoi – Representative of "Elta-Eco" LLC

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APPENDIX A: DETERMINATION PROTOCOL

BUREAU VERITAS CERTIFICATION HOLDING SAS

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 "Reconstruction of the power units at the "Zaporizka TPP" of the "Dniproenergo" JSC"	OK	OK
-	Is the sectoral scope to which the project pertains presented?	The sectoral scope of the project is 1. Energy industries (non-renewable sources)	OK	OK
-	Is the current version number of the document presented?	The current number version of the project is 1.1	OK	OK
-	Is the date when the document was completed presented?	The date when the document was completed is 12/06/2011	OK	OK
Description of the project				
-	Is the purpose of the project included with a concise, summarizing explanation (max. 1-2 pages) of the: a) Situation existing prior to the starting	The main goal of the project is to make the existing power equipment of the TPP more efficient and reliable. The increased efficiency will provide a higher output and lower fuel	CAR01	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	date of the project; b) Baseline scenario; and c) Project scenario (expected outcome, including a technical description)?	consumption, which will lead to the GHG emission lowering per the energy produced *Corrective Action Request 01* Please, briefly summarise in the section A.2 the following: a) Situation existing prior to the starting date of the project; b) Baseline scenario; and c) Project scenario		
-	Is the history of the project (incl. its JI component) briefly summarized?	*Corrective Action Request 02* Please, briefly summarise in the section A.2 the history of the project, including its JI component	CAR02	OK
Project participants				
-	Are project participants and Party(ies) involved in the project listed?	*Corrective Action Request 03* Please, indicate in section A.3 second Party involved	CAR03	OK
-	Is the data of the project participants presented in tabular format?	The data on project participants is presented in tabular format	OK	OK
-	Is contact information provided in Annex 1 of the PDD?	The contact information about project participants 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?	The Host Party (Ukraine) is not a Party involved	OK	OK
Technical description of the project				
Location of the project				
-	Host Party(ies)	Ukraine	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
-	Region/State/Province etc.	Zaporizhzhya Region	OK	OK
-	City/Town/Community etc.	Energodar	OK	OK
-	Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page)	The project will be implemented at Zaporizka TPP located in Energodar town, Zaporizska Region. Its coordinates are 47°30'N and 34°37'E. The section of location of the project does not exceed one page *Clarification Request 01* Please clarify the sources of geographical coordinates of the Project	CL01	OK
Technologies to be employed, or measures, operations or actions to be implemented by the project				
-	Are the technology(ies) to be employed, or measures, operations or actions to be implemented by the project, including all relevant technical data and the implementation schedule described?	The measures which will be implemented are clearly and detailed described in section A.4.2 of the PDD. All relevant data were provided. *Corrective Action Request 04* Please transfer units reconstruction schedule to section A.4.2 of the PDD	CAR 04	OK
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 05* Please prove with evidences in section A.4.3 why proposed repair activity is not common practice in Ukraine *Corrective Action Request 06*	CAR 05 CAR 06	OK OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		Please, correct section A.4.3 that it doesn't exceed one page		
-	Is it provided the estimation of emission reductions over the crediting period?	Estimation of emission reduction over the crediting period 2010-2012. Also, estimation of emission reductions over the crediting period 2013-2029	OK	OK
-	Is it provided the estimated annual reduction for the chosen credit period in tCO2e?	The estimated annual reduction for period 2008-2029 is provided in tonnes CO2e	OK	OK
-	Are the data from questions above presented in tabular format?	The estimation of emission reductions is provided in tabular format in section A.4.3.1 of the PDD	OK	OK
Estimated amount of emission reductions over the crediting period				
-	Is the length of the crediting period Indicated?	The length of the crediting period is indicated, i.e. crediting period is from 01/01/2010 till 31/12/2012 or 3 years (36 months). Also, project developer stated the length of the period over the first crediting period for which the estimation of emission reductions was calculated, i.e. 2013-2029 (17 years or 204 month). *Clarification Request 02* Please, clarify why 20 years were chosen as length of the crediting period	CL 02	OK
-	Are estimates of total as well as annual and average annual emission reductions in tonnes of CO2 equivalent provided?	All requested information is provided in section A.4.3.1 of the PDD. Also, refer to sections of the determination protocol above.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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 of the National Environmental Investment Agency of Ukraine (NEIA). NEIA issued Letter of Endorsement #8/23/7 dated 05 January 2011.	OK	OK
19	Does the PDD identify at least the host Party as a "Party involved"?	The PDD identify Ukraine as a Host Party. See also CAR	OK	OK
19	Has the DFP of the host Party issued a written project approval?	Corrective Action Request 07 Please, provide Letter of Approval of the host Party.	CAR07	OK
20	Are all the written project approvals by Parties involved unconditional?	See section 19 above.	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 the 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 authorize project participants. Also, see section 19 and section 20 of this protocol above	OK	OK
Baseline setting				

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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 explicitly 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
JI specific approach only				
23	Does the PDD provide a detailed theoretical description in a complete and transparent manner?	The PDD provide seven plausible future scenarios for project. 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	According to the information stated in the PDD, seven plausible future scenarios are presented in a complete and transparent manner. Seventh 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.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	factors? (d) Taking into account of uncertainties and using conservative assumptions? (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?			
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 no CDM methodology or methodological tool is 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?	Oxidation factor of the fuel and Emission factor of the fuel are used for emission reduction calculations in this project. Oxidation factors for coal, natural gas and heavy fuel oil was chosen in accordance with IPCC	CAR 08	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		guidelines. *Corrective Action Request 08* Multi-project Carbon Emission Factor, which is defined in the IPCC 1996 Guidelines for National Greenhouse Gas Inventories for JI projects developed in Ukraine is used for this project. Please, change value of Carbon Emission Factor on value, which is approved by SEIA.		
Approved CDM methodology approach only_Not applicable				
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	The PDD indicates that approved "Combined tool to identify the baseline scenario and demonstrate additionality" (Version 02.2) was used for demonstration of 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
	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 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 09* Permanent repairs, mid repairs and capital repairs are common practise in Ukraine energy industry. Please, prove that proposed project activity is not common practise at Ukraine TPPs	CAR09	OK
29 (b)	Are additionality proofs provided?	*Corrective Action Request 10* According to the PDD the most important barriers for project activity are financial and technological barriers. Please, provide full financial analysis of the project or clearly describe technological barriers of the project	CAR10	OK
29 (c)	Is the additionality demonstrated appropriately as a result?	See section 29 (b) and 29 (c) of this protocol	-	-

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
30	If the approach 28 (c) is chosen, are all explanations, descriptions and analyses made in accordance with the selected tool or method?	See section 29 (b) and 29 (c) of this protocol	-	-
Approved CDM methodology approach only_Not applicable				
Project boundary (applicable except for JI LULUCF projects				
JI specific approach only				
32 (a)	Does the project boundary 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?	The project boundaries are defined in the PDD. Anthropogenic sources of emissions were determined. Furthermore, emission sources within the project boundary are demonstrated in Figure B.1 of the PDD section B.3. *Corrective Action Request 11* Please, provide in the section B.3 more detailed delineation of project boundaries. Please, include in project boundaries measuring and auxiliary project equipment. *Clarification Request 03* 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.	CAR 11 CL03	OK OK
32 (b)	Is the project boundary defined on the basis of a case-by-case assessment	See section 32(a) of this protocol	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	with regard to the criteria referred to in 32 (a) above?			
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 3 Emission sources located within the project boundary.	OK	OK
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 6	OK	OK
Approved CDM methodology approach only_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 14/12/2006. *Corrective Action Request 12* Please coordinate the project starting date in sections C.1 and C.3 of the PDD Project commissioning and start-up date is 01/01/2010	CAR12	OK
34 (a)	Is the starting date after the beginning of 2000?	Concerned JI project started in 2006	OK	OK
34 (b)	Does the PDD state the expected operational lifetime of the project in years and months?	Expected operational lifetime of the project provided in the PDD is 20 years (240 months) *Clarification Request 05* Please clarify why 20 years were chosen as	CL05	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		project operational lifetime		
34 (c)	Does the PDD state the length of the crediting period in years and months?	The length of the crediting period is provided in years and months, namely 3 years or 36 months (01/01/2010-31/12/2012)	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?	It is provided in the PDD that the starting date of the crediting period is before the date of the first emission reductions generated by the JI project. *Corrective Action Request13* Please provide in the PDD information about starting date of the project	CAR13	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 the crediting period has began after the beginning 2008, i.e. 01/01/2010.	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 2010-2029. As a fact, in the PDD the values of emission reductions during the period 2010-2012 are presented in table 4. In addition, the values of emission reductions for the period 2013-2029 are presented separately in table 5 of the PDD.	OK	OK
Monitoring plan				
35	Does the PDD explicitly indicate which	The PDD explicitly indicates that JI specific		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	of the following approaches is used? − JI specific approach − Approved CDM methodology approach	approach is used for monitoring.		
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 amount of electricity, supplied to grid, quantity of consumed fuel etc. Period in which relevant factor and parameters will be monitored is established.	OK	OK
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?	The monitoring plan specifies the indicators, constants and variables in transparent manner.	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	The monitoring plan specifies that next constants are used for ERUs calculations: - oxidation factor of the fuel - Emission factor of the fuel. Oxidation factors for coal, natural gas and heavy fuel oil was chosen in accordance with IPCC guidelines. For emission factor of the carbon see	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	reasonable confidence levels? − Are the default values presented in a transparent manner?	CAR 08		
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?	The sources of values, provided by the project participants are clearly indicates in the monitoring plan	OK	OK
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?	See section 36 (b) (i) of this protocol	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 14 Please, specify the procedures to be followed if expected monitoring data are unavailable.	CAR 14	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 through monitoring?	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
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 remain fixed throughout the crediting period), but that are not already available at the stage of determination? (iii) Data and parameters that are	*Corrective Action Request 15* 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.	CAR15	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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 establishment of frequency of the last ones are specified in the monitoring plan described in the PDD.	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.	OK	OK
36 (f) (i)	Is the underlying rationale for the algorithms/formulae explained?	The underlying rationale for the formulae is presented	OK	OK
36 (f) (ii)	Are consistent variables, equation formats, subscripts etc. used?	All variables and equation formats are consistent and used in appropriate 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 16 Please provide units for the share of fuel, consumed for energy production section D.1.1.2	CAR 16	OK
36 (f) (v)	Is the conservativeness of the algorithms/procedures justified?	The conservativeness of the procedures is justified	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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
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 Kryvorizhska TPP.	OK	OK
36 (f) (vii)	Are references provided as necessary?	*Corrective Action Request 17* Please, provide in the sub-section D.1.5 of the PDD references to the national environmental legislation in relevant sectors.	CAR 17	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	In the project design document there is no stated information about significant uncertainty level of assumptions and procedures.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	how such uncertainty is to be addressed?			
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, Zaporizhka TPP standards and approved methodologies in order to assure quality control of monitoring data.	OK	OK
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 standards 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	In monitoring plan section D.2 and D.3 of the quality assurance and control procedures,	CAR18	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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?	including information about calibration and how monitoring data are to be recorded and collected. *Corrective Action Request 18* Please, provide Calibration plan of JI project measurement equipment.		
36 (j)	Does the monitoring plan clearly identify the responsibilities and the authority regarding the monitoring activities?	*Corrective Action Request 19* 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.	CAR19	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 is 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

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
36 (m)	Does the monitoring plan indicate 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 20* Please, indicate in the sub-section D.3 of the PDD that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project	CAR20	OK
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?	There is not any selected elements or combinations of approved CDM methodologies	OK	OK
Approved CDM methodology approach only_Not applicable				
Applicable to both JI specific approach and approved CDM methodology approach_Not applicable				
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 neglected?	As project developers regard, as due to the Project implementation the fuel consumption is lowered, so the Leakages due to the fugitive CH4 emission are also lowered. Moreover, this value is vanishingly small and we use the conservative assumption, that the leakage is left	OK	OK
40 (b)	Does the PDD provide a procedure for	According to the information and justification	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	an ex ante estimate of leakage?	stated in the PDD, leakage is absent. Please, refer to section B.3 of the PDD.		
Approved CDM methodology approach only_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	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)? (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?	The PDD provides ex ante estimates of emissions for the project and baseline scenario. As for leakage, it is considered as absent, because electric energy production at the Zaporizka TPP that does not concern with production, transportation and firing of additional amount of fuel at the Zaporizka TPP	OK	OK
44	If the approach (b) in 42 is chosen,	See section 42 of this protocol	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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?			
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 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	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 estimates stated 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.	CAR21	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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 (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	Conservative assumptions are taken into account while estimating emission reduction. The tables with calculation results of CO2 emission reductions are provided in the PDD. As a fact, estimated total value of CO2 emission reductions for the first crediting period 2010-2012 is 168200 t CO2 equivalent; moreover, estimated total value of CO2 emission reductions for the period 2013-2029 is 5 457 169 t CO2 equivalent. *Corrective Action Request 21* Please, provide in table E-5 and table E-6 the annual average value of CO2 emission reductions.		

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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?			
46	If the calculation of the baseline emissions or net removals is to be performed ex post, does the PDD include an illustrative ex ante emissions or net removals calculation?	The calculation of baseline emissions is to be performed ex post. In the PDD there are provided ex ante calculation of emissions. All estimated values are presented in section E of the PDD and Excel spreadsheets.	OK	OK
Approved CDM methodology approach only_Not applicable				
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?	The project design document includes description of the environmental impact assessment of the JI project that is performed in accordance with procedure determined in Ukraine. Referenced environmental documents are listed in section F.1 of the PDD. *Corrective Action Request 22* According to the PDD, reconstruction of all units at Zaporizka TPP will be implemented. Please indicate in the section F.1 documents applied to	CAR22	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		whole TPP		
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
Stakeholder consultation				
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. During the project realization, the local public community was informed via the mass-media. No comments connected with JI project implementation were received. Also, stakeholder's comments will be collected during determination procedure *Corrective Action Request 23* Please provide correct reference to the publications.	CAR 23	OK
Determination regarding small-scale projects (additional elements for assessment)_Not applicable				
Determination regarding land use, land-use change and forestry projects (additional/alternative elements for				

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
assessment)_Not applicable				
Determination regarding programmes of activities (additional/alternative elements for assessment)_Not applicable				

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, briefly summarise in the section A.2 the following: a) Situation existing prior to the starting date of the project; b) Baseline scenario; and c) Project scenario	-	Prior to the starting date of the Project the Zaporizka TPP had been working using it's equipment without any major repairs or reconstructions. That kind of working lead to the continuous working parameters deterioration. The continuation of this situation would have been the Baseline Scenario and the Project Scenario foresees the full-scale reconstruction of all generating equipment, and the all working parameters improvement.	The issue is closed

Corrective Action Request 02 Please, briefly summarise in the section A.2 the history of the project, including its JI component	-	In 2006 the contract for the TEA of the on of the Units' reconstruction was signed for this purpose. That was the first major step under way to the Project implementation and, as Ukraine was the party of the Kyoto Protocol, one of the main arguments in favor of the Project was the possibility of it's registration as the JI Project.	The issue is closed
Corrective Action Request 03 Please, indicate in section A.3 second Party involved	-	The ING Bank N.V. from the Netherlands was indicated as Project Participant and Party Involved	The issue is closed
Corrective Action Request 04 Please transfer units reconstruction schedule to section A.4.2 of the PDD	-	Transfer was done	The issue is closed

Corrective Action Request 05 Please prove with evidences in section A.4.3 why proposed repair activity is not common practice in Ukraine	-	The mandatory list of the measures within the repairs is given in the GKD 34.20.661-2003 "The Rules for the Organization of the Power Plants and the Networks Equipment, Buildings and Constructions Servicing and Repairs" approved by the Ministry of the Fuel and Energy of Ukraine in 2004. The measures outside the list should be taken into account when calculating the Project, Baseline Emission and the Emission Reductions.	The issue is closed
Corrective Action Request 06 Please, correct section A.4.3 that it doesn't exceed one page	-	Correction was provided	The issue is closed
Corrective Action Request 07 Please, provide Letter of Approval of the host Party.	19	Letter of Approval #2751/23/7 dated 26/09/2012 has been issued by State Environment Investment Agency of Ukraine. Letter of Approval #2012JI48 dated 18/10/2012 has been issued by Ministry of Economic affairs, Agriculture and Development oft he Kingdom Netherlands	the issue is closed

Corrective Action Request 08 For this project there is used multi-project Carbon Emission Factor, which is defined in the IPCC 1996 Guidelines for National Greenhouse Gas Inventories for JI projects developed in Ukraine. Please, change value of Carbon Emission Factor on value, which is approved by SEIA.	25	The SEIA uses the IPCC 1996 values (see http://www.neia.gov.ua/nature/doccatalog/document?id=125381 , annex I)	The issue is closed
Corrective Action Request 09 Permanent repairs, mid repairs and capital repairs are common practise in Ukraine energy industry. Please, prove that proposed project activity is not common practise at Ukraine TPPs	29(a)	The mandatory list of the measures within the repairs is given in the GKD 34.20.661-2003 "The Rules for the Organization of the Power Plants and the Networks Equipment, Buildings and Constructions Servicing and Repairs" approved by the Ministry of the Fuel and Energy of Ukraine in 2004. The measures outside the list should be taken into account when calculating the Project, Baseline Emission and the Emission Reductions.	The issue is closed

Corrective Action Request 10 According to the PDD the most important barriers for project activity are financial and technological barriers. Please, provide full financial analysis of the project or clearly describe technological barriers of the project	29(b)	The main goals of the Project are the GHG emission reduction and increased reliability of the equipment. The technical parameters reached by the Project (the fuel consumption lowering) do not allow the Project Owner to get the profit. The NPV of the Project by 2020 is – 1 404 821 000 UAH and the IRR is – 13%. The JI registration raises the NPV to – 1 286 632 000 UAH and the IRR by -10%. (The calculation is presented to the AIE).	The issue is closed
Corrective Action Request 11 Please, provide in the section B.3 more detailed delineation of project boundaries. Please, include in project boundaries measuring and auxiliary project equipment.	32(a)	Thermal Power Plant	Corrections of project boundaries were provided in the section B.3 of PDD. Corrections were carried as adequate and in line with request. The issue is closed
Corrective Action Request 12 Please coordinate the project starting date in sections C.1 and C.3 of the PDD	34(a)	The beginning of the crediting period is 28/12/2006 (Contract for the TEA #7-727-2854-DPO/05 dated 28.12.06).	The issue is closed
Corrective Action Request13 Please provide in the PDD information about starting date of the project	34(c)	The beginning of the crediting period is 01/01/2010 – the first day of the ERUs generation by the Project. The end date is 31/12/2012.	The issue is closed

Corrective Action Request 14 Please, specify the procedures to be followed if expected monitoring data are unavailable.	36(b)(iii)	The relevant explanation were provided in the section D	The issue is closed
Corrective Action Request 15 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.	36(d)	see **Key Parameters used to identify the Baseline Scenario.**	The issue is closed
Corrective Action Request 16 Please provide units for the share of fuel, consumed for energy production section D.1.1.2	36 (f) (iv)	see **Key Parameters used to identify the Baseline Scenario.**	The issue is closed

Corrective Action Request 17 Please, provide in the sub-section D.1.5 of the PDD references to the national environmental legislation in relevant sectors.	36 (f) (vii)	The main legal acts ruling the Project activities are: The Law of Ukraine "For the Environmental Protection" #1264-XII issued 25/06/1991; The Law of Ukraine "For the Atmosphere Air Protection" #2707-XII issued 16.10.1992; International Standart "Environmental Management System" ISO 14001-2004.	The issue is closed
Corrective Action Request 18 Please, provide Calibration plan of JI project measurement equipment.	36(i)	Will be provided at the first verification	The issue is closed
Corrective Action Request 19 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.	36(j)	See section D.3	The issue is closed
Corrective Action Request 20 Please, indicate in the sub-section D.3 of the PDD that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project	36(m)	All the data shall be stored in the paper and electronic form at the TPP and in the data base of the "Elta-Eco" company during all lifetime of the project and for at least two years after the last transfer of ERUs for the Project.	The issue is closed

Corrective Action Request 21 Please, provide in table E-5 and table E-6 the annual average value of CO2 emission reductions.	45	See section E.6	The issue is closed
Corrective Action Request 22 According to the PDD, reconstruction of all units at Zaporizka TPP will be implemented. Please indicate in the section F.1 documents applied to whole TPP	48(a)	The rehabilitation of each Unit of the TPP consists of the description of the Environmental impacts. For today only the Unit #1 has been developed. All the others will also have the description of the Environmental Impact, which is usually the part of the Technical and Economical Assessment of the Project.	The issue is closed
Corrective Action Request 23 Please provide correct reference to the publications.	49	The environmental impacts of the Project are described in the Explanatory Note "Environmental impact assessment of the Zaporizka TPP Unit #1 Rehabilitation Project" prepared by the SRI "Teploenergoproekt" of the "Donbassenergo" JSC in 2007. The information concerning the Project was published in the local Energodar town newspaper "Zdes Zhivyom" #22 dated 14/06/07.	The issue is closed

Clarification Request 01 Please clarify the sources of geographical coordinates of the Project	-	http://google.earth.com	The issue is closed
Clarification Request 02 Please, clarify why 20 years were chosen as length of the crediting period	-	The rehabilitations as according to the Project Scenario provide the operational lifetime increase for 20 years.	The issue is closed
Clarification Request 03 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.	32(a)	For CL see **Key Parameters used to identify the Baseline Scenario.**	The issue is closed
Clarification Request 04 Please clarify why 20 years were chosen as project operational lifetime	34(b)	The rehabilitation as according to the Project Scenario provides the operational lifetime increase for 20 years.	The issue is closed