DETERMINATION REPORT
VEMA S.A.

DETERMINATION OF THE RECONSTRUCTION AND MODERNIZATION OF MAIN-LINE ELECTRICAL GRIDS OF NPC "UKRENERGO"

REPORT NO.UKRAINE-DET/0273/2011

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BUREAU VERITAS CERTIFICATION

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Client:	**Client ref.:**
VEMA S.A.	Fabian Knodel

Summary:

Bureau Veritas Certification has made the determination of the "Reconstruction and modernization of main-line electrical grids of NPC "Ukrenergo" project of VEMA S.A. located in 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 Requests, Corrective Actions Requests and Forward Actions Requests (CL, CAR and FAR), 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/0273/2011	JI

Project title:

"Reconstruction and modernization of main-line electrical grids of NPC "Ukrenergo"

Work carried out by:

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Abbreviations

AIE	Accredited Independent Entity
BVC	Bureau Veritas Certification Holding SAS
CAR	Corrective Action Request
CDM	Clean Development Mechanism
CL	Clarification Request
CO_2	Carbon Dioxide
DFP	Designated Focal Point
DVM	Determination and Verification Manual
EIA	Environmental Impact Assessment
ERU	Emission Reduction Unit
FAR	Forward Action Request
GHG	Green House Gas(es)
GWP	Global Warming Potential
IPCC	Intergovernmental Panel on Climate Change
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
MP	Monitoring Plan
NGO	Non Government Organization
NPC “Ukrenergo”	State Enterprise “National Power Company “Ukrenergo”
PDD	Project Design Document
UNFCCC	United Nations Framework Convention for Climate Change

1 INTRODUCTION

VEMA S.A. has commissioned Bureau Veritas Certification to determine its JI project “Reconstruction and modernization of main-line electrical grids of NPC “Ukrenergo” (hereafter called “the project”) located in 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 validated in order to confirm that the project design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria. Determination is a requirement for all JI projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emissions reductions units (ERUs).

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

1.2 Scope

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

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

1.3 Determination team

The determination team consists of the following personnel:

Igor Kachan
Team Leader, Bureau Veritas Certification Climate Change Lead Verifier

Victoria Legka
Team Member, Bureau Veritas Certification Climate Change Verifier

Borys Kostyukovskyy

Team Member, Bureau Veritas Certification Technical Specialist

Denis Pishchalov
Team Member, Bureau Veritas Certification Financial Specialist

This determination report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification Internal Technical Reviewer

Daniil Ukhanov
Bureau Veritas Certification Technical Specialist

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 VEMA S.A. and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for users of the joint implementation project design document form, Guidance on criteria for baseline setting and monitoring, Kyoto Protocol, Clarifications on Determination Requirements to be checked by a Accredited Independent Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests, VEMA S.A. revised the PDD version 1 and resubmitted it as version 2 dated 15/06/2011 which is deemed final.

The determination findings presented in this report relate to the project as described in the PDD versions 1 and 2.

2.2 Follow-up Interviews

On 29/04/2011 Bureau Veritas Certification conducted a visit to the project site (NPC "Ukrenergo") and performed interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of VEMA S.A. and NPC "Ukrenergo" were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
NPC "Ukrenergo"	➢ 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.
CONSULTANT: VEMA S.A.	➢ Baseline methodology ➢ Monitoring plan ➢ Additionality proofs ➢ Calculation of emission reduction.

2.3 Resolution of Clarification, Corrective Actions and Forward Actions Requests

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

Corrective Action Requests (CAR) is issued, where:

(a) The project participants have made mistakes that will influence the ability of the project activity to achieve real, measurable additional emission reductions;
(b) The JI requirements have not been met;
(c) There is a risk that emission reductions cannot be monitored or calculated.

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

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

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

3 PROJECT DESCRIPTION

The project which is being implemented at the National Power Company “Ukrenergo” envisages the implementation of the program on the technical improvement of electrical networks and equipment, advanced technologies implementation, the transition to a higher level of organization of transmission and distribution of electric energy which are aimed at improvement of the reliability and efficiency of electricity transmission main-lines of NPC “Ukrenergo”. This in turn will help to reduce the amount of electricity that is lost during its transportation to the distribution electrical grids, so the production of electricity at power plants will decrease causing the corresponding reduction of fossil fuels used to produce electric power and thus decrease of the GHG emissions in comparison to the situation that would exist without project implementation.

NPC “Ukrenergo” provides the integrity of the united Power System of Ukraine. The proposed project is implemented at 8 electric power systems

of NPC “Ukrenergo” (Dniprovska, Donbaska, Zakhidna, Krymska, Pivdenna, Pivdenno-Zakhidna, Pivnichna and Tsentralna) covering all administrative and territorial units of Ukraine where the main-line electrical grids of NPC “Ukrenergo” are situated. The electrical grids are complex technical systems in terms of their structure, organization of operation and the principles of managing. They include electrical equipment and devices for electricity transmission and distribution.

Most equipment that operated before the project implementation in the grids of NPC “Ukrenergo” was already morally and physically obsolete, but because of insufficient funding and operational reserve of existing equipment, it could further be exploited. In addition, changing of the existing situation was possible on condition of not only changes of the technical provision of the grid, but also improvement of organizational structures, and this also required financial and human resources. Prior to the project (the beginning of 2004) NPC “Ukrenergo” had only carried out measures aimed at maintaining electrical grids in operational state. In most cases, these measures included repairs intended to correct defects arising during the operation of the electrical grids.

In December 2003 the management of NPC “Ukrenergo” made a decision to implement the JI project "Reconstruction and modernization of main-line electrical grids of NPC “Ukrenergo” at the enterprise during a board meeting on 25/12/2003. The proposed project implies modernization and rehabilitation works in electrical grids and installation of new energy efficient equipment; improvement of the reliability of electricity supply to electricity consumers; introduction of automated system of electricity consumption commercial recording within the framework of the power supply company, consumers and sub-plants etc. that aim at reduction of power losses when transporting electric power through main-line electrical grids to the distribution electrical grids. Measures which are implemented under the project, as well as application and implementation of ongoing monitoring of possible sources of loss and preventing from their occurrence allows to reduce significantly energy losses in the electrical grids of NPC “Ukrenergo”.

In the absence of the project activity the existing equipment would be further used with routine repairs and recovery work without significant investment. Losses of electricity in the electrical grids would remain at the same level, leading to greenhouse gases emissions due to burning of fossil fuels at power generating companies at the level of pre-project years. This scenario is considered as a baseline.

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 Requests, Corrective Action Requests and Forward 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 33 Corrective Action Requests, 4 Clarification Requests and 1 Forward Action.

The numbers 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 been supported by the Government of the host Party (Ukraine), namely by the National Environmental Investment Agency of Ukraine, which has issued a Letter of Endorsement for the Project (Letter of Endorsement №1446/23/7 dated 04/06/2011). Bureau Veritas Certification received this letter from the project participants and does not doubt its authenticity.
As for the present moment no written approvals of the project by Parties involved are available. After receiving Determination Report from the Accredited Independent Entity the project documentation will be submitted to the Ukrainian Designated Focal Point (DFP) which is National Environmental Investment Agency of Ukraine, for receiving a Letter of Approval. The written approval by another Party involved, Switzerland, will be obtained later on.

As the project has no approvals by the Parties involved, CAR 09 remains pending (refer to the Appendix A).

4.2 Authorization of project participants by Parties involved (21)

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

4.3 Baseline setting (22-26)

The PDD explicitly indicates that using a methodology for baseline setting and monitoring developed in accordance with appendix B of the JI guidelines (hereinafter referred to as JI specific approach) was the selected approach for identifying the baseline. Due to the fact that there is no approved CDM baseline and monitoring methodology which is

applicable in its totality and without any revisions to the project type, the JI specific approach is applied.

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

(a) By listing and describing the following plausible future scenarios on the basis of conservative assumptions and selecting the most plausible one:

   a. Continuation of the existing situation without implementation of JI Project (business-as-usual);
   b. The proposed project activity without JI component;
   c. Partial implementation of the project activity (implementation of not all project measures and equipment) without using JI incentive.

(b) Taking into account relevant national and sectoral policies and circumstances, such as sectoral reform initiatives, local fuel availability, power sector expansion plans, and the economic situation in the project sector. In this context, the following key factors that affect a baseline are taken into account:

   a. As stated in the Decision "On the market development of energy resources within the Energy Strategy of Ukraine till 2030" issued by National security and defence council of Ukraine of 05/06/2009, within the existing model electricity market could not fully ensure effective competition among manufacturers and suppliers of electricity and formation of prices for electricity that would encourage energy companies to increase efficiency and increase investment in the energy sector. Neither existing market mechanisms, nor direct administrative measures ensured the necessary modernization and renewal of existing production capacities of the power production and power supply companies. A limited number of projects to upgrade and reconstruct power plants and power grids were accepted for execution. The situation is especially critical given the growth in the nearest future of need for shunting capacities, lack of which threatens the safe operation of the united power system of Ukraine. Imperfect tariff policy also leads to increase in credit indebtedness of generating companies, causing their bankruptcy or non-transparent privatization.
   b. The elimination of the negative effect causing electric power losses during its transportation to the customers, such as low technical condition of grids, inconsistency between electrical

grids and existing levels of load, noncompliance of the number of electric power parameters with applicable quality standards, discrepancies in the existing accounting of electricity supplied to the electric grid and electricity consumed, requires considerable investments to modernize electrical systems and change existing monitoring systems of electricity consumed, practical implementation of which will help reduce losses of electricity.

c. The structure of existing tariffs for electric energy is regulated by the state and don't take into consideration amortization and investment needs of electric energy suppliers. This situation leads to a constant shortage of funds and inability to timely complete major repairs, provide equipment operation and invest in modernization and development.
d. Existing legal norms and regulations do not obligate NPC "Ukrenergo" to pursue the modernization of electricity main-line electrical grids. The legislation allows for the losses in the electrical mains. Only the frequency with which energy supplying organizations must carry out calculation of regulatory power losses in the electrical grid is set by the standards.
e. The project scenario requires substantial additional investment and has a very big payback period and high risks, so it is unattractive for investors.
f. The wholesale electricity market faces problems related to debts of its participants and their imbalance.

All explanations, descriptions and analyses pertaining to the baseline in the PDD were found adequate and the baseline is identified appropriately. The baseline scenario assumes a continuation of practice existed prior to the project implementation with the introduction of minimum repairs on the background of the overall deterioration of electricity supply system; the electrical power would still be transported with significant losses in the grid.

The identified areas of concern as to the baseline setting, project participants' response and BVC's conclusion are described in Appendix A, Table 2 (refer to CAR10, CAR11, CAR12, CAR13, CAR14).

4.4 Additionality (27-31)

The most recent version of the "Tool for the demonstration and assessment of additionality" (Additionality Tool) approved by the CDM Executive Board was used, in accordance with the JI specific approach,

defined in paragraph 2(c) of the annex I to the “Guidance on criteria for baseline setting and monitoring”. All explanations, descriptions and analyses are made in accordance with the selected tool.

The PDD provides a justification of the applicability of the approach. Due to the fact that there is no approved CDM baseline and monitoring methodology which is applicable to the project type, the Additionality Tool is applied which is considered as a good practice for additionality justification.

Additionality proofs are provided. Three realistic and credible 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 Ukraine. The investment analysis was used for demonstrating and assessing of the proposed project’s additionality according to the Additionality Tool.
As an analysis method the simple cost analysis was used. This analysis method is applied because to the fact that the proposed project activity generates no financial or economic benefits other than JI related income which is appropriately justified in the PDD. The structure of existing tariffs for electric energy is regulated by the state, and NPC “Ukrenergo” has no right to set prices (tariffs) for services provided: transmission and supply of electricity and due to the existing Procedure for the tariffs for electricity transmission and supply formation, reducing energy losses will not bring any additional income to the enterprise. The project activity requires big amount of investment; without ERU revenue the project will be financially unattractive and would not have been as a potential investment option without the JI component.

Thus, the overall conclusion is that the project activity meets additionality criteria, is not the baseline scenario and is additional.

The PDD provides a justification of the applicability of the approach with a clear and transparent description. Traceable and transparent information showing that the baseline was identified on the basis of conservative assumptions, that the project scenario is not part of the identified baseline scenario and that the project will lead to reductions of anthropogenic emissions by sources of GHGs was also provided. Additionality is demonstrated appropriately as a result of the analysis using the approach chosen.

The identified areas of concern as to the additionality, project participants’ response and BVC’s conclusion are described in Appendix A, Table 2 (refer to CAR15, CAR16, CL02).

4.5 Project boundary (32-33)

Electricity transportation in the main-line electrical grids to the distribution electrical grids is associated with such GHG emissions as CO_2 emissions as a result of electricity losses during transportation that was obtained in the process of fossil fuel combustion at the electricity generating companies. Thus, combustion of the fossil fuel at the heat power plants attributable to the generated electricity, which is transported through electrical main-line grids in baseline and project scenario, is the only emission source in the project. The project boundary defined in the PDD encompasses all anthropogenic emissions by sources of greenhouse gases (GHGs) that are:

(i) Under the control of the project participants;

(ii) Reasonably attributable to the project; and

(iii) Significant, i.e., as a rule of thumb, would by each source account on average per year over the crediting period for more than 1 per cent of the annual average anthropogenic emissions by sources of GHGs, or exceed an amount of 2,000 tonnes of CO_2 equivalent, whichever is lower.

The delineation of the project boundary and the gases and sources included are appropriately described and justified in the PDD. 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 CAR17).

4.6 Crediting period (34)

The PDD states the starting date of the project as the date on which the implementation or construction or real action of the project began, and the starting date is 25/12/2003, which is after the beginning of 2000.

The PDD states the expected operational lifetime of the project in years and months, which is 16 years and 7 months.

The PDD states the length of the crediting period in years and months, which is total 16 years and 0 months: 3 year for the period prior to the 1st commitment period (2005 – 2007), 5 years for the 1st commitment period (2008-2012) and 8 years for the period following the 1st commitment period (2013-2020), and its starting date is 01/01/2005, which is after the

date the first emission reductions 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 PDD states that the extension of its crediting period beyond 2012 is subject to the host Party approval, and the estimates of emission reductions are presented separately for those until 2012 and those after 2012 in all relevant sections of the PDD.

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 CAR18, CAR19, CAR20).

4.7 Monitoring plan (35-39)

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

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

The monitoring plan specifies the indicators, constants and variables that are reliable (i.e. provide consistent and accurate values), valid (i.e. be clearly connected with the effect to be measured), and that provide a transparent picture of the emission reductions to be monitored such as net electricity amount entering the main-line electrical grid in the historical pre-project period and project monitoring period; net electricity amount entering the distribution electrical grid in the historical and project monitoring period; total amount of electricity entering into main-line electrical grid in the pre-project and project periods; total amount of electricity corona losses in the mine-line electricity grid in the in the historical and project periods; CO_2 emission factor for the power grid of Ukraine.

The monitoring plan draws on the list of standard variables contained in appendix B of "Guidance on criteria for baseline setting and monitoring" developed by the JISC, such as BE (baseline emissions), PE (project emissions).

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 net volume of electricity coming into the main-line electrical grid in pre-project period of 2001 – 2003, net volume of electricity coming into the distribution electrical grid in pre-project period, total volume of electricity coming into the main-line electrical grid in pre-project period, volume of electricity corona losses in the main-line electricity grid in pre-project period.

(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 net volume of electricity coming into the main-line electrical grid in the project monitoring period, net volume of electricity coming into the distribution electrical grid in the project period, total volume of electricity coming into the main-line electrical grid in project period, total volume of electricity corona losses in the main-line electricity grid in project period, CO_2 emission factor of the Ukrainian national power grid for the electricity generation.

The monitoring plan describes the methods employed for data monitoring (including its frequency) and recording, such as direct measurement with appropriate metering equipment (power meters), calculations based on officially approved sectoral methodologies, data collection with automated system of electric power accounting, reporting using special state reporting forms, with different recording frequency such as monthly or annually and electronic or paper recording method. The respective information for each monitoring parameter is sufficiently described in the section D and Annex 3 of the PDD.

The main indicator of the project implementation is the reduction of actual loss of electricity during its transmission through main-line electrical grid. This electricity loss is equal to the difference between net electricity entering the main-line electrical grid, and net electricity which is supplied into the distribution electrical grid adjusted to the corona power losses. The electricity losses in project and baseline are compared. The baseline losses are defined by multiplying of average losses in the electricity network in the pre-project period of 2001 – 2003 by the actual net electric power amount entering the main-line grid in the monitoring period.

The monitoring plan elaborates all algorithms and formulae used for the estimation/calculation of baseline emissions and project emissions, such as:

Project emissions:

$$PE_p^y = ((Q_{p,a,s}^y - Q_{p,c,s}^y) - V_{p,s}^y) * CEF$$

Where,

PE_p^y - GHG emissions from burning of fossil fuels for production of electricity that is lost in the main-line electrical grids in period «*y*» under the project scenario, tCO_{2e};

$Q_{p,a,s}^y$ – net volume of electricity coming into the main-line electrical grid in period «*y*», in the project scenario, kWh;

$Q_{p,c,s}^y$ – net volume of electricity coming into the distribution electrical grid in period «*y*», in the project scenario, kWh;

CEF - CO_2 emission factor for the unified power grid of Ukraine for the period "y", tCO_2/MWh;

$V_{p,s}^y$ – net volume of electricity corona losses in the main-line electricity grid in period «*y*», in the project scenario, kWh.

The net volume of electricity corona losses in the project monitoring period, $V_{p,s}^y$, is calculated with the following formula:

$$V_{p,s}^y = \frac{Q_{p,a,s}^y * V_{p,z}^y}{Q_{p,a,z}^y}$$

where,

$Q_{p,a,s}^y$ – net volume of electricity coming into the main-line electrical grid in period «*y*», in the project scenario, kWh;

$Q_{p,a,z}^y$ - total volume of electricity coming into the main-line electrical grid in period «*y*», in the project scenario, kWh;

$V_{p,z}^y$ - total volume of electricity corona losses in the main-line electricity grid in period «*y*», in the project scenario, kWh.

Indices stand for:

$[p]$ - project scenario;
$[y]$ - project period;
$[a]$ - electricity coming into the main-line electrical grid;
$[c]$ - electricity coming into the distribution electrical grid;
$[s]$ - net volume of electricity;
$[z]$ - total volume of electricity.

Baseline emissions:

$$BE_b^y = (Q_{p,a,s}^y * PPER * CEF)$$

Where,

BE_b^y - GHG emissions from burning of fossil fuels for production of electricity that is lost in the main-line electrical grid in period «*y*» under the baseline scenario, tCO_{2e};

$Q_{p,a,s}^y$ - net volume of electricity coming into the main-line electrical grid in period «*y*», in the project scenario, kWh;

$PPER$ - pre-project efficiency ratio of the electricity grid for the period «j» (2001 – 2003), under the baseline scenario;

CEF - CO_2 emission factor for the unified power grid of Ukraine for the period "y", tCO_2/MWh.

The pre-project efficiency ratio of the electricity grid during pre-project period of 2001 – 2003 is calculated with the following formula:

$$PPER = \frac{\sum \left(\frac{((Q_{b,a,s}^j - Q_{b,c,s}^j) - V_{b,s}^j)}{Q_{b,a,s}^j} \right)}{3}$$

Where,

$Q_{b,a,s}^j$ – net volume of electricity coming into the main-line electrical grid in period «*j*» in the baseline scenario, kWh;

$Q_{b,c,s}^j$ – net volume of electricity coming into the distribution electrical grid in period «*j*», in the baseline scenario, kWh;

$V_{b,s}^j$ – net volume of electricity corona losses in the main-line electricity grid in period «*j*», in the baseline scenario, kWh.

The net volume of electricity corona losses in the pre-project period, $V_{b,s}^{j}$, is calculated with the following formula:

$$V_{b,s}^{j} = \frac{Q_{b,a,s}^{j} * V_{b,z}^{j}}{Q_{b,a,z}^{j}}$$

where,

$Q_{b,a,z}^{j}$ - total volume of electricity coming into the main-line electrical grid in period «*j*», in the baseline scenario, kWh;

$V_{b,z}^{j}$ - total volume of electricity corona losses in the main-line electricity grid in period «*j*», in the baseline scenario, kWh;

$Q_{b,a,s}^{j}$ – net volume of electricity coming into the main-line electrical grid in period «*j*» in the baseline scenario, kWh.

Indices stand for:

$[b]$ - baseline scenario;
$[y]$ - project period;
$[j]$ - pre-project period (2001 – 2003);
$[p]$ - project scenario;
$[a]$ - electricity coming into the main-line electrical grid;
$[c]$ - electricity coming into the distribution electrical grid;
$[s]$ - net volume of electricity;
$[z]$ - total volume of electricity.

Emission reductions are calculated using the equation:

$$ER^{y} = BE_{b}^{y} - PE_{p}^{y}$$

where:

ER^{y} – emission reduction due to the project activity during the monitoring period «*y*», tCO2e;

BE_{b}^{y} – GHG emissions from burning fossil fuels for production of electricity that is lost in the main-line electrical grid in period «*y*» under the baseline scenario, tCO_{2e} ;

PE_p^y - GHG emissions from burning fossil fuels for production of electricity that is lost in the main-line electrical grid in period «*y*» under the project scenario, tCO_{2e};

$[y]$ - relates to monitoring period;

$[b]$ - relates to baseline scenario;

$[p]$ - relates to project scenario.

The monitoring plan presents the quality assurance and control procedures for the monitoring process which are described in the section D.2 and Annex 3 of the PDD. This includes information on calibration and on how records on data and method validity and accuracy are kept and made available on request.

The monitoring plan clearly identifies the responsibilities and the authority regarding the monitoring activities. Detailed operational and management structure in presented on the figure 10 in the section D.3 of the PDD. The project monitoring is to be conducted according to standard operational practices established at NPC “Ukrenergo” within the existing system of the data collection, accounting and reporting. The scheme of data collection using automated system of electricity consumption commercial recording within the framework of the energy supply company is provided on the figure 11 in the PDD.

On the whole, the monitoring plan 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, 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 CAR21, CAR22, CAR23, CAR24, CAR25, CAR26, CAR27, CAR28, CL03, FAR1).

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.

Indirect extraneous leakage of CO_2, CH_4, N_2O from fuel extraction and its transportation is the only source of the potential leakage, however it can not be measured and it is impossible to estimate its quantity, thus it can be neglected.

Therefore, leakage emissions are considered zero.

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

4.9 Estimation of emission reductions (42-47)

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

The PDD provides the ex ante estimates of:

(a) Emissions for the project scenario (within the project boundary), which are 9469657 tons of CO2eq for 2005-2007, 20253951 tons of CO2eq for 2008-2012 and 32741520 for 2013-2020;

(b) Leakage, which is considered equal zero tons of CO_2eq;

(c) Emissions for the baseline scenario (within the project boundary), which are 10019327 tons of CO2eq for 2005-2007, 22064828 tons of CO2eq for 2008-2012 and 35592512 for 2013-2020;

(d) Emission reductions adjusted by leakage (based on (a)-(c) above), which are 549670 tons of CO2eq for 2005-2007, 1810877 tons of CO2eq for 2008-2012 and 2850992 for 2013-2020.

The estimates referred to above are given:

(a) On an annual basis;

(b) From 01/01/2005 to 31/12/2020, covering the whole crediting period;

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

(d) For each GHG gas, which is CO_2;

(e) In tonnes of CO_2 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, influencing the baseline emissions and the activity level of the project and the emissions 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 actual historical monitored data, forecasts, national officially approved data on CO_2 emission factor for Ukrainian power grid, ERUPT study of carbon emission factor for Ukraine etc., are clearly identified, reliable and transparent.

Emission factor, such as CO_2 emission factor of power grid of Ukraine for electricity generation, was 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 over the crediting period is calculated by dividing the total estimated emission reductions over the crediting period by the total months of the crediting period, and multiplying by twelve.

The identified areas of concern as to the estimation of emission reductions, project participants' response and BVC's conclusion are described in Appendix A, Table 2 (refer to CAR29, CAR30, CAR31, CAR32, CAR33).

4.10 Environmental impacts (48)

Under the legislative framework of Ukraine, specifically the Law of Ukraine "On Environmental Protection" and DBN A.2.2-1-2003 "Structure

and Content of Environmental Impact Assessment (EIA), when Designing and Constructing Factories, Buildings and Facilities" NPC “Ukrenergo” is not obliged to carry out Environmental Impact Assessment (EIA) for this project type. Therefore, EIA has not been carried out.

The project has no negative effect on the environment. The only environmental impact can be caused by the dismantled equipment. It is envisaged that this equipment will further be used as secondary raw material.

Transboundary impacts from the project activity according to their definition in the text of “Convention on transboundary long-distance pollution”, ratified by Ukraine, will not take place.

NPC “Ukrenergo” has all necessary permits and licences for maintenance and operation of electrical grids.

4.11 Stakeholder consultation (49)

Since the project activities do not imply any negative environmental impact and negative social effect, special public hearings were not necessary. Consultations with stakeholders were held at meetings with local authorities. Moreover, information on the activities under the project is presented in regional media, on television, in numerous publications and on the official website of the NPC “Ukrenergo”.

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 and modernization of main-line electrical grids of NPC “Ukrenergo” 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 participants 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 determination revealed one pending issue related to the current determination stage of the project: the issue of the written approval of the project by the host Party. If the written approval by the host Party is awarded, it is our opinion that the project as described in the Project Design Document, Version 02 meets all the relevant UNFCCC requirements for the determination stage and the relevant host Party criteria.

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

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

7 REFERENCES

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

/1/ PDD “Reconstruction and modernization of main-line electrical grids of NPC “Ukrenergo”, version 1 dated 18/03/2011
/2/ PDD “Reconstruction and modernization of main-line electrical grids of NPC “Ukrenergo”, version 2 dated 15/06/2011
/3/ Calculation of emission reductions, Excel file
/4/ Letter of Endorsement №1446/23/7 on the JI project

"Reconstruction and modernization of main-line electrical grids of NPC "Ukrenergo" dated 04 June, 2011, issued by National Environmental Investment Agency of Ukraine

/5/ Minutes of the NPC "Ukrenergo" board meeting regarding JI project implementation dated 25/12/2003

Category 2 Documents:

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

/1/ Guidelines for Users of the Join Implementation Project Design Document Form, version 04, JISC

/2/ Joint Implementation Project Design Document Form, version 01

/3/ Guidance on Criteria for Baseline Setting and Monitoring, version 02, JISC.

/4/ Glossary of JI terms, version 03, JISC.

/5/ Tool for the demonstration and assessment of additionality, Version 05.2

/6/ JISC "Clarification regarding the public availability of documents under the verification procedure under the Joint Implementation Supervisory Committee." Version 03

/7/ Decree of Cabinet of Ministers of Ukraine #206, dated 22/02/2006

/8/ The Decision of the National Security and Defense Council of Ukraine "On the market development of energy resources within the Energy Strategy of Ukraine till 2030" of 05/06/2009

/9/ Concept of functioning and development of the wholesale electricity market of Ukraine, approved by the Cabinet of Ministers of Ukraine of 16 November 2002

/10/ Order of 25.03.2002, № 289 "On approval of the report on the activities of NERC in 2001"

/11/ Law of Ukraine "On electric power"

/12/ Law of Ukraine "On metrology and metrological activity"

/13/ Order of the Cabinet of Ministers of Ukraine of 15 August 2005 № 745 "On the transition to unified tariffs on electricity sold to consumers"

/14/ Decree № 309 of the National electricity regulatory commission of Ukraine (NERC) of 10.03.1999 "On electricity tariffs, which is released to the population and settlements"

/15/ Decree № 47 the National electricity regulatory commission of Ukraine (NERC) of 22.01.2001 "On approval of the procedure for formation of retail tariff for electricity to consumers (except population and population settlements) by the licensees that supply electricity at regulated rates"

/16/ Decree № 654 of National electricity regulatory commission of Ukraine (NERC) s of 25.05.2006 "On approval of the procedure for filing, determination and approval of economic factors of

standardized technical electricity losses"

/17/ State building norms DBN A.2.2-1-2003 "Structure and Content of Environmental Impact Assessment (EIA) when Designing and Constructing Factories, Buildings and Structures"

/18/ "Methodology for Determination of energy losses in transformers and power lines", approved by Ministry of Energy sector of Ukraine, on February 18, 1998

/19/ Annex 7 (4) to the Agreement between the members of the wholesale electricity market of Ukraine dated 15/11/1996 (revision of 16/02/2007) "General technical requirements to the automated system of commercial accounting of the wholesale electricity market of Ukraine"

/20/ The concept of building automation systems of accounting electric power in energy market, approved by a joint order of Ministry of Energy, NERC, State Committee for State Standard, State Building and State industrial policy of Ukraine # 32/28/28/276/75/54 of 17.04.2006

/21/ Methods of compiling the balance of power structure in electrical networks of 0.38-150 kW, analysis of its components and electricity technological losses rate setting. GND 34.09.104-2003

/22/ Operational Guidelines for Project Design Documents of Joint Implementation Projects, Volume 1: General guidelines, version 2.3, Ministry of Economic Affairs of the Netherlands

/23/ "Ukraine - Assessment of new calculation of CEF", approved by TUV SUD of 17/08/2007

/24/ Order of the National Environmental Investment Agency of Ukraine (NEIA) № 43 of 28/03/2011 on approval of specific carbon dioxide emission indicators for 2010

/25/ Order of the National Environmental Investment Agency of Ukraine (NEIA) № 62 of 15/04/2011 on approval of specific carbon dioxide emission indicators for 2008

/26/ Order of the National Environmental Investment Agency of Ukraine (NEIA) № 63 of 15/04/2011 on approval of specific carbon dioxide emission indicators for 2009

/27/ Order of the National Environmental Investment Agency of Ukraine (NEIA) № 75 of 12/05/2011 on approval of specific carbon dioxide emission indicators for 2011

/28/ List of commissioned measurement equipment to be calibrated in 2010, Tsentralna power system

/29/ Calibration schedule for the current meters installed within the interstate electric grid on the boundary of the Tsentralna power system with power supplying and power generating companies for 2011, approved by the deputy direct of NPC "Ukrenergo" of 23/12/2010

/30/ Certificate #11-П/1333 on calibration of the working standard of a standard three-phase wattmeter SM 3050 valid until December 2011

/31/ Balance structure of electricity and technological electricity losses (TEL) for transmission within electrical networks of the Tsentralna power system for December, 2010

/32/ The balance of revenue, distribution and power losses for 2010

/33/ Statement of Technical Commission on the operating readiness of facilities within SS 330 kW "Grabiv" of Rivnenski MEM completed after reconstruction and modernization, of 11/12/2006, village Grabiv

/34/ Statement of Technical Commission on the operating readiness of facilities completed after reconstruction and modernization, Zaporizzia city, of 21/12/2004

/35/ Statement of Technical Commission on the operating readiness of parts of operating voltage electric networks 220-750 kW, Stakhaniv city, of 02/10/2006

/36/ Statement of Technical Commission on the operating readiness of facilities within SS 750 kW "Zakhidnoukraiinska" completed after reconstruction and modernization, Lviv region, Zhydachivsky district, Zhyrova village, of 29/05/2009

/37/ Statement of Technical Commission on the operating readiness of facilities after reconstruction and modernization, installation of new phase of shunt reactor type RODTS-11000/750 at SS "DN-750" DnMES, Zaporizzia city, of 29/12/2004

/38/ List of gas-insulated switches voltage 110-750 kW at SS 220-750 kW of NPC "Ukrenergo" installed during 2004-2010

/39/ Statement # 10 of Technical Commission on the operating readiness of automated electricity accounting system of 02/07/2007, Artemivsk city

/40/ Statement of Technical Commission on acceptance into permanent (industrial) operation ASCEA systems SS "Lviv-2", SS "Pivdenna" of Zakhidna SS NPC "Ukrenergo" of 01/09/2006

/41/ Statement on the operating readiness of Automated system of commercial accounting of electricity of Krymska SS of 15/07/2009, Simferopol city

/42/ Statement on the operating readiness of Automated system of commercial accounting of electricity (ASCEA) of local level at SS 330 kW Mykolaivska of 19/12/2007, M.Laryno village, SS 330 kW Mykolaivska

/43/ Statement on the operating readiness of Automated system of commercial accounting of electricity (ASCEA) of local level at SS HMEM SS "Losevo" of Northern SS, Kharkiv city, of 20/04/2007

/44/ Statement on the operating readiness of Automated system of commercial accounting of electricity SS "Zhovtneva", exciting facilities of electric networks of Central electric power system of SE

NPC "Ukrenergo", Kyiv city, of 12/12/2006

/45/ Admission State Statement on the operating readiness of Automated system of commercial accounting of electricity of NPC "Ukrenergo" (ASCAE NPC "Ukrenergo") of 05/08/2009, Kyiv city

/46/ Balance structure of electricity and technological electricity expenses (ETE) for transmission within electrical networks 154-0,38 kW Chernihivoblenergo for December 2000

/47/ The balance of revenue, distribution and energy losses in DAEK, Z.S.M. Central RDTS in May 2010

/48/ Balance structure of electricity and technological electricity losses (TEL) for transmission within electrical networks 800-0,38 kW for February, 2009. Tsentralna electric power system

/49/ Statement of electricity output and tempering Tripilska combined heat and power plant, June 2010

/50/ Letter № 04-3033, JSC "State Energy Generating Company "Tsentrenergo" Trypilska combined heat and power plant o Director of Tsentral power system NPC "Ukrenergo", Bondarenko O.M., dated 05/05/2010

/51/ Statement of Technical Commission on the operating readiness of automated control systems of electric energy substation 330 kW quality parameters (ACSEESQP Kotovska) of 21/12/2010, Odesa city

/52/ Statement # 1643 ATS 44 of Technical Commission of 24/12/2007 on the operating readiness of separate facilities (buildings, structures) within existing facilities completed after modernization, Zaporizzia city. Facilities: Modernization of electric energy accounting system of SS 330 kW "Dnipro-Donbas" of Dniprovska power system

/53/ Acceptance certificate # 3 of carried out via economic process concerning current, overhaul repair, reconstruction, modernization for April 2011 of 29/04/2011

/54/ Statement of Technical Commission on the operating readiness of modernized parts of operating facilities of voltage electric networks 220-750 kW, Mariupol city. Facilities: SS "Zoria-330 kW" add. 330 kW, 110 kW

/55/ Statement of Technical Commission on the operating readiness of modernized parts of operating facilities of voltage electric networks 220-750 kW, Luhansk city. Facilities: Luhanski MEM, SS "Cherkaska 220 kW", modernization of accounting chains VRP-kW (installation TS 110 kW type TGFK 110 II) connections Slovianoserbska-1, Slovianoserbska-2, Slovianoserbska-3, Slovianoserbska-4, Raivodoprovod # 1, Raivodoprovod # 2, VL-26, Sovhoz, VL-59 Boiler, VL-75 Selyshche, Rodakovo-Yuriivska, Sboika, Gromovo (installation 8 units, TS 6 kW type TPL-10 M) connections TSN # 1, TSN # 2, TSN # 1 with DGK, TSN # 2 with DGK

/56/ Departmental Reporting Form 1B-TVE DAEK “Balance structure of electricity and technological losses of electricity (TLE) for its transmission via the electrical grids for September 2009”
/57/ Departmental Reporting Form 1B-TVE DAEK “Balance structure of electricity and technological losses of electricity (TLE) for its transmission via the electrical grids for December 2008”
/58/ Departmental Reporting Form 1B-TVE DAEK “Balance structure of electricity and technological losses of electricity (TLE) for its transmission via the electrical grids for July 2006”
/59/ Departmental Reporting Form 1B-TVE DAEK “Balance structure of electricity and technological losses of electricity (TLE) for its transmission via the electrical grids for May 2007”
/60/ Departmental Reporting Form 1B-TVE DAEK “Balance structure of electricity and technological losses of electricity (TLE) for its transmission via the electrical grids for October 2004”
/61/ Departmental Reporting Form 1B-TVE DAEK “Balance structure of electricity and technological losses of electricity (TLE) for its transmission via the electrical grids for January 2011”
/62/ Departmental Reporting Form 1B-TVE DAEK “Balance structure of electricity and technological losses of electricity (TLE) for its transmission via the electrical grids for April 2010”
/63/ Statement of Technical Commission on the operating readiness of electric energy measuring complex at SS 330 kW "Novo-Odeska", Odesa city

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

/1/ Timchenko V. – Acting director of NPC “Ukrenergo”

/2/ Kravchuk V. – Head of the electric technical department of NPC “Ukrenergo”
/3/ Ushchapovskyy K. – Deputy director, chief dispatcher NPC “Ukrenergo”
/4/ Sologub O. – Head of the line service NPC “Ukrenergo”

/5/ Kovalenko I. – Head of the PS 33- kW “Zhovtneva”, Tsentralna power system NPC “Ukrenergo”
/6/ Kulemza S. – First deputy director on capital construction, economics and purchasing of the Tsentralna power system NPC “Ukrenergo”
/7/ Galushka V. – Head of the equipment and accounting system automation department of the Tsentralna power system NPC “Ukrenergo”
/8/ Palamarchuk D. – JI project consultant of VEMA S.A.

/9/ Vorobyov E. – JI project consultant of VEMA S.A.

APPENDIX A: JI PROJECT DETERMINATION PROTOCOL

BUREAU VERITAS CERTIFICATION HOLDING SAS

DETERMINATION PROTOCOL

Table 1. Check list for determination, according JOINT IMPLEMENTATION DETERMINATION AND VERIFICATION MANUAL (Ver. 01)

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
Guidelines for JI PDD Form Users Section A General description of the project				
A.1. Title of the project				
A.1	Is the title of the project presented? Is the sectoral scope to which project pertains presented? Is the current version number of the document presented? Is the date when the document was completed presented?	The title of the project is provided in the section A.1. of the PDD: Reconstruction and modernization of main-line electrical grids of NPC “Ukrenergo” The sectoral scope #2 - “Energy distribution”. The current version number and the date of completion are also presented the in the section A.1. of the PDD.	OK	OK
A.2 Description of the project				

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
A.2	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 date of the project; b) Baseline scenario; and c) Project scenario (expected outcome, including a technical description). Is the history of the project (incl. its JI component) briefly summarized?	No, the information regarding baseline scenario and situation existing prior to the starting date of the project is missing. **CAR01** Please, add to the section A.2. of the PDD the description of baseline scenario and situation existing prior to the starting date of the project as per *Guidelines for users of the JI PDD form (version 04).* **CAR02** Please, provide the interpretation for abbreviations and abridgments in the PDD when first mentioned in the text.	**CAR01** **CAR02**	OK OK
A.3 Project participants				
A.3	Are project participants and Party(ies) involved in the project listed? Is contact information provided in Annex 1 of the PDD?	Yes, project participants, Parties involved and contact information are provided in the corresponding sections of the PDD.	OK	OK
A.4 Technical description of the project				
A.4.1	Location of the project	**CAR03** Please, add the information concerning	**CAR03**	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
		project location to the sections A.4.1.2., A.4.1.3., A.4.1.4.		
A.4.1.1	Host Party(ies)	The project is located in Ukraine.	OK	OK
A.4.1.2	Region/State/Province etc.	See CAR03 in the section A.4.1 above.	Pending	OK
A.4.1.3	City/Town/Community etc.	See CAR03 in the section A.4.1 above.	Pending	OK
A.4.1.4	Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page)	See CAR03 in the section A.4.1 above.	Pending	OK
A.4.2. Technologies to be employed, or measures, operations or actions to be implemented by the project				
A.4.2	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?	**CAR04** Please, add to the PDD information concerning each measure to be implemented according to project (organizational, technical) and explain how they will be implemented. **CAR05** The section A.4.2. contains the comparison of two different types of transformers. Please, indicate which type of transformers is to be installed in the project. Please, explain how this activity will result in reduction of energy	**CAR04** **CAR05** **CAR06** **CAR07** **CL01**	OK OK OK OK OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
		loss. **CAR06** The information concerning glass and polymeric insulators installation must be included in the section A of the PDD. **CAR07** Please, add to PDD the information on implementation schedule for each type of measures foreseen by the project. **CL01** It is stated in the section A.4.2. that the project foresees replacement of the non-working equipment. Taking into account that this activity is mandatory, please, clarify if this activity can be attributable to the project implementation.		
A.4.3. Brief explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project, including why the emission reductions would not occur in the absence of the proposed project, taking into account national and/or sectoral policies and circumstances				
A.4.3	Is it explained briefly how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page.)	The project aims at introducing measures to reduce energy losses in main-line electrical grids of NPC “Ukrenergo”. Correspondingly the use of fossil fuels to produce electricity at	OK	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
		power generating plants will reduce. Fuel savings will reduce GHG emissions.		
A.4.3.1. Estimated amount of emission reductions over the crediting period				
A.4.3.1	Is the length of the crediting period Indicated? Are estimates of total as well as annual and average annual emission reductions in tonnes of CO2 equivalent provided?	**CAR08** Please, correct formatting of the section A.4.3.1. as per *Guidelines for users of the JI PDD form (version 04).*	**CAR08**	OK
A.5. Project approval by the Parties involved				
A.5	Is written project approvals by the Parties involved attached?	**CAR09** The project has no approval of the host Party and the sponsor Parties. Please submit corresponding approvals to AIE.	**CAR09**	Pending
DVM				
Project approvals by Parties				
19	Have the DFPs of all Parties listed as "Parties involved" in the PDD provided written project approvals?	See CAR from the section A.5. above.	Pending	Pending
19	Does the PDD identify at least the host Party as a "Party	Ukraine is identified as the Host Party.	OK	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	involved"?			
19	Has the DFP of the host Party issued a written project approval?	See CAR from the section A.5. above.	Pending	Pending
20	Are all the written project approvals by Parties involved unconditional?	Conclusion is pending a response to CAR in the section A.5. above.	Pending	Pending
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?	Conclusion is pending a response to CAR from the section A.5.	Pending	Pending
Baseline setting				
22	Does the PDD explicitly indicate which of the following	PDD explicitly indicates that JI specific approach based is applied for identifying	**CAR10**	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	approaches is used for identifying the baseline? − JI specific approach − Approved CDM methodology approach	the baseline. **CAR10** According to *Guidance on criteria for baseline setting and monitoring*, the detailed description of each alternative used to establish baseline must be provided in the section B.1. of the PDD.		
JI specific approach only				
23	Does the PDD provide a detailed theoretical description in a complete and transparent manner?	A satisfactory description is provided in the section B.1. of the PDD in complete and transparent manner. **CAR11** Annex 2 shall contain a short description of the key elements in a tabular form. Please, make corresponding corrections.	**CAR11**	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	PDD provides sufficient justification that all key factors that affect a baseline are taken into account. **CAR12** Please, provide all key factors in the section B in a tabular form as per *Guidelines for users of the JI PDD form (version 04).* **CAR13**	**CAR12** **CAR13** **CAR14**	OK OK OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	national and/or sectoral policies and circumstance? − Are key factors that affect a baseline taken into account? (c) In a transparent manner with regard to the choice of approaches, assumptions, methodologies, parameters, date sources and key factors? (d) Taking into account of uncertainties and using conservative assumptions? (e) In such a way that ERUs cannot be earned for decreases in activity levels outside the project or due to force majeur? (f) By drawing on the list of standard variables contained in appendix B to "Guidance on criteria for baseline setting and monitoring", as appropriate?	The information concerning the historical (baseline) period selected (2001-2003) must be clearly indicated in the section B of the PDD. The required justification regarding this period must also be provided in the PDD. **CAR14** Please, add to the section B.1. two of the key baseline parameters: Volume of electricity coming into the main-line electrical grid in the period 2001-2003 (Qb,a) and Volume of electricity coming into the distribution electrical grid in the period 2001-2003 (Qb,c).		
24	If selected elements or combinations of approved CDM methodologies or	The own developed approach is used to establish a baseline.	OK	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	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?			
25	If a multi-project emission factor is used, does the PDD provide appropriate justification?	CO_2 emission factor for the united power system (UPS) of Ukraine is used for baseline establishment. The using of this coefficient appropriately justified and all necessary references are provided.	OK	OK
Approved CDM methodology approach only				
26 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	N/A	N/A	N/A
26 (a)	Is the approved CDM methodology the most recent valid version when the PDD is submitted for publication? If not, is the methodology still within the grace period (was the	N/A	N/A	N/A

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	methodology revised to a newer version in the past two months)?			
26 (b)	Does the PDD provide a description of why the approved CDM methodology is applicable to the project?	N/A	N/A	N/A
26 (c)	Are all explanations, descriptions and analyses pertaining to the baseline in the PDD made in accordance with the referenced approved CDM methodology?	N/A	N/A	N/A
26 (d)	Is the baseline identified appropriately as a result?	N/A	N/A	N/A
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 document states that that the project scenario is not a part of the identified baseline scenario and that the project will lead to emission reductions. *Tool for the demonstration and assessment of additionality* was used for demonstrating of the project	**CAR15** **CAR16** **CL02**	OK OK OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	the basis of conservative assumptions, that the project scenario is not part of the identified baseline scenario and that the project will lead to emission reductions or enhancements of removals; (b) Provision of traceable and transparent information that an AIE has already positively determined that a comparable project (to be) implemented under comparable circumstances has additionality; (c) Application of the most recent version of the "Tool for the 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".	additionality. **CAR15** Please, in the section B.2. provide justification of the project additionality on the basis of the investment analysis. Please, note that the barrier analysis does not provide reasonable evidences that the project is additional. **CAR16** Please, add to the section B.2. the transparent analysis of any other activities similar to the project activity. Please, indicate if such projects were implemented in Ukraine earlier. **CL02** Simple cost analysis was correctly used to justify project's additionality. Please, clarify if the analysis provided considers profit obtained form the implementation of the energy efficient measures during the first year of the project implementation (when the normative losses are approved for the previous year). Please, clarify if the simple cost		

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
		analysis can be applied in this case.		
29 (a)	Does the PDD provide a justification of the applicability of the approach with a clear and transparent description?	The necessary justification is included in the section B.2. of the PDD.	OK	OK
29 (b)	Are additionality proofs provided?	Yes. See section B.2. of the PDD.	OK	OK
29 (c)	Is the additionality demonstrated appropriately as a result?	See CARs and CLs in the section 28 above.	Pending	OK
30	If the approach 28 (c) is chosen, are all explanations, descriptions and analyses made in accordance with the selected tool or method?	Yes, all explanations, descriptions and analysis are made in accordance with the *Tool for demonstration and assessment of additionality (version* 05.2).	OK	OK
Approved CDM methodology approach only				
31 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	N/A	N/A	N/A
31 (b)	Does the PDD provide a description of why and how the referenced approved CDM methodology is applicable to	N/A	N/A	N/A

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	the project?			
31 (c)	Are all explanations, descriptions and analyses with regard to additionality made in accordance with the selected methodology?	N/A	N/A	N/A
31 (d)	Are additionality proofs provided?	N/A	N/A	N/A
31 (e)	Is the additionality demonstrated appropriately as a result?	N/A	N/A	N/A
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 review of emission sources in the project scenario is demonstrated in the PDD. The respective information is provided in the PDD, section B.3.	OK	OK
32 (b)	Is the project boundary defined on the basis of a case-by-case	Yes, the project boundary defined on the basis of a case-by-case assessment with	OK	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	assessment with regard to the criteria referred to in 32 (a) above?	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?	Yes. The project boundary is clearly determined. The corresponding schemes are indicated in the section B.3. of the PDD.	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?	**CAR17** Please, estimate in the PDD the emissions of sulfur hexafluoride as a result of project implementation. Please, indicate if the emission of this gas can be neglected.	**CAR17**	OK
Approved CDM methodology approach only				
33	Is the project boundary defined in accordance with the approved CDM methodology?	N/A	N/A	N/A
Crediting period				
34 (a)	Does the PDD state the starting date of the project as the date on which the implementation or	**CAR18** Please, state in the PDD the actual starting date of the project which is	**CAR18**	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	construction or real action of the project will begin or began?	indicated in the documentation on JI project realization at NPC "Ukrenergo".		
34 (a)	Is the starting date after the beginning of 2000?	Yes. The starting date is after the beginning of 2000.	OK	OK
34 (b)	Does the PDD state the expected operational lifetime of the project in years and months?	**CAR19** Please, compare the expected operational lifetime and the crediting period length and provide corresponding corrections in the PDD.	**CAR19**	OK
34 (c)	Does the PDD state the length of the crediting period in years and months?	**CAR20** Please, correct the length of the crediting period taking into account the project starting date.	**CAR20**	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?	See CAR in the section 34 (c) above.	Pending	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	Yes, the crediting period for issuance of ERUs starts on the 1st of January of 2008 and does not extend beyond the operational lifetime of the project.	OK	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	lifetime of the project?			
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?	Yes. The appropriate information related to emission reduction before 2012 and after 2012 is provided in the PDD.	OK	OK
Monitoring plan				
35	Does the PDD explicitly indicate which of the following approaches is used? −JI specific approach −Approved CDM methodology approach	The own developed JI specific approach was used to establish the monitoring plan. **CAR21** All equations in the section D of the PDD must be numbered as per *Guidance on criteria for baseline setting and monitoring.* Please, make corresponding corrections.	**CAR21**	OK
JI specific approach only				
36 (a)	Does the monitoring plan describe:	**CAR22** Please, in the tables containing	**CAR22**	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	− 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?	monitoring parameters (the row "Justification of the choice of data or description of measurement methods and procedures (to be) applied" in the tables included in the section D.1.1 of the PDD provide information concerning monitoring points and reflect a procedure of total values obtaining.		
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?	**CAR23** The values of the parameters $Q^{y}_{b,a}$ and $Q^{y}_{p,a}$ are the same (actually this is one parameter), please, indicate this in the section D of the PDD and make corresponding corrections in the monitoring plan. **CAR24** The baseline parameters (historical parameters) – the volume of electricity coming into the main-line electrical grid and the volume of electricity coming into the distribution electrical grid – must be included in the monitoring plan as per *Guidelines for users of the JI PDD form (version 04).*	**CAR23** **CAR24**	OK OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
36 (b)	If default values are used: − Are accuracy and reasonableness carefully balanced in their selection? − Do the default values originate from recognized sources? − Are the default values supported by statistical analyses providing reasonable confidence levels? − Are the default values presented in a transparent manner?	**CAR25** Application of emission factor for Ukrainian electricity grid for 2005 referred to "Ukraine - Assessment of new calculation of CEF" approved TUV SUD 17.08.2007" is illegitimate as this coefficient is valid since 2006. Please, make corresponding corrections of the monitoring plan and ERUs calculations.	**CAR25**	OK
36 (b) (i)	For those values that are to be provided by the project participants, does the monitoring plan clearly indicate how the values are to be selected and justified?	Yes. The appropriate information can be found in the section D of the PDD.	OK	OK
36 (b) (ii)	For other values, − Does the monitoring plan clearly indicate the precise references from which these	Yes, all necessary references are presented in the section D of the PDD.	OK	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	values are taken? − Is the conservativeness of the values provided justified?			
36 (b) (iii)	For all data sources, does the monitoring plan specify the procedures to be followed if expected data are unavailable?	Quality assurance and quality control procedures ensuring data availability and credibility are described in the monitoring plan in a proper manner.	OK	OK
36 (b) (iv)	Are International System Unit (SI units) used?	The International System Unit is used for some parameters.	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?	Yes. See sections D.1.1.1-D.1.1.4.	OK	OK
36 (b) (v)	Is the use of parameters, coefficients, variables, etc. consistent between the baseline and monitoring plan?	The use of parameters, coefficients, variables, etc. is 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	Some variables contained in appendix B of "*Guidance on criteria for baseline setting and monitoring*" were included in the monitoring plan.	OK	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	monitoring"?			
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 monitored throughout the crediting period?	Yes, the respective information is stated in the section D of the PDD: (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: - historical data on electricity coming into the main-line electrical grid - historical data on electricity coming into the distribution electrical grid (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: - absent, (iii) Data and parameters that are monitored throughout the crediting period	OK	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
		- the volume of electricity coming into the distribution electrical grid in every year of project scenario.		
36 (e)	Does the monitoring plan describe the methods employed for data monitoring (including its frequency) and recording?	Yes. This information is included in the monitoring plan.	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?	**CAR26** The section D .1.1.2 indicates that PE_p^y - GHG emissions from burning of fossil fuels for production of electricity that is lost in the main-line electrical grids in period «*y*» under the baseline scenario, (tCO_{2e}). However, is stated below that index "p" is applicable to the project scenario. Please, make corresponding corrections.	**CAR26**	OK
36 (f) (i)	Is the underlying rationale for the algorithms/formulae explained?	Yes, all necessary explanations are provided.	OK	OK
36 (f) (ii)	Are consistent variables, equation formats, subscripts etc. used?	**CL03** Formulae 3 and 4, 8 and 9 actually serve for calculating of absolute losses of electricity in the main-line electrical grid.	**CL03**	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
		Please, clearly state which of these formulae will be used to calculate this parameter.		
36 (f) (iii)	Are all equations numbered?	No see CAR from the item 35 above.	Pending	OK
36 (f) (iv)	Are all variables, with units indicated defined?	Yes.	OK	OK
36 (f) (v)	Is the conservativeness of the algorithms/procedures justified?	Used algorithms/procedures are in line with the state norms and used in conservative manner.	OK	OK
36 (f) (v)	To the extent possible, are methods to quantitatively account for uncertainty in key parameters included?	The uncertainties for the parameters used are generally low taking into account monitoring algorithm.	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?	Yes. The consistency between the elaboration of the baseline scenario and the procedure for calculating the emissions or net removals of the baseline is ensured.	OK	OK
36 (f) (vii)	Are any parts of the algorithms or formulae that are not self-evident explained?	All algorithms and formulas are clearly explained.	OK	OK
36 (f) (vii)	Is it justified that the procedure is consistent with standard	The procedure is consistent with standard technical procedures in the	OK	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	technical procedures in the relevant sector?	relevant sector and is well justified.		
36 (f) (vii)	Are references provided as necessary?	All necessary references are provided.	OK	OK
36 (f) (vii)	Are implicit and explicit key assumptions explained in a transparent manner?	All implicit and explicit assumptions are explained in a transparent manner.	OK	OK
36 (f) (vii)	Is it clearly stated which assumptions and procedures have significant uncertainty associated with them, and how such uncertainty is to be addressed?	**CAR27** Please, include all parameters to be monitored in the table D.2. and describe uncertainties associated with them.	**CAR27**	OK
36 (f) (vii)	Is the uncertainty of key parameters described and, where possible, is an uncertainty range at 95% confidence level for key parameters for the calculation of emission reductions or enhancements of net removals provided?	See CAR form the item 36 (f) (vii) above.	Pending	OK
36 (g)	Does the monitoring plan identify a national or	The monitoring plan is in line with the relevant national standards.	OK	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	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?			
36 (h)	Does the monitoring plan document statistical techniques, if used for monitoring, and that they are used in a conservative manner?	N/A	N/A	OK
36 (i)	Does the monitoring plan present the quality assurance and control procedures for the monitoring process, including, as appropriate, information on calibration and on how records on data and/or method validity and accuracy are kept and made available upon request?	See CAR form the item 36 (f) (vii) above.	Pending	OK
36 (j)	Does the monitoring plan clearly identify the	**CAR28** Please, add to the PDD (section D.3.)	**CAR28**	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	responsibilities and the authority regarding the monitoring activities?	clear and transparent scheme identifying the responsibilities and roles establishing.		
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?	The monitoring plan reflects good monitoring practices appropriate to the project type.	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?	Yes. The appropriate information is indicated in the section D of the PDD.	OK	OK
36 (m)	Does the monitoring plan indicate that the data monitored and required for verification are to be kept for two years after	**FAR1** Please, submit any documented instruction indicating that the data monitored are to be kept for two years	**FAR1**	This issue must be checked during

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	the last transfer of ERUs for the project?	after last ERUs transfer as per *JI determination and verification manual.*		verification.
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?	No any selected elements or combinations of approved CDM methodologies or methodological tools are used for establishing the monitoring plan.	OK	OK
Approved CDM methodology approach only				
38 (a)	Does the PDD provide the title, reference number and version of the approved CDM methodology used?	N/A	N/A	N/A
38 (a)	Is the approved CDM methodology the most recent valid version when the PDD is submitted for publication? If not, is the methodology still within the grace period (was the	N/A	N/A	N/A

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	methodology revised to a newer version in the past two months)?			
38 (b)	Does the PDD provide a description of why the approved CDM methodology is applicable to the project?	N/A	N/A	N/A
38 (c)	Are all explanations, descriptions and analyses pertaining to monitoring in the PDD made in accordance with the referenced approved CDM methodology?	N/A	N/A	N/A
38 (d)	Is the monitoring plan established appropriately as a result?	N/A	N/A	N/A
Applicable to both JI specific approach and approved CDM methodology approach				
39	If the monitoring plan indicates overlapping monitoring periods during the crediting period: (a) Is the underlying project composed of clearly identifiable components for which emission reductions or enhancements of	There are no overlapping monitoring periods during the crediting period.	OK	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	removals can be calculated independently? (b) Can monitoring be performed independently for each of these components (i.e. the data/parameters monitored for one component are not dependent on/effect data/parameters to be monitored for another component)? (c) Does the monitoring plan ensure that monitoring is performed for all components and that in these cases all the requirements of the JI guidelines and further guidance by the JISC regarding monitoring are met? (d) Does the monitoring plan explicitly provide for overlapping monitoring periods of clearly defined project components, justify its need			

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	and state how the conditions mentioned in (a)-(c) are met?			
Leakage				
JI specific approach only				
40 (a)	Does the PDD appropriately describe an assessment of the potential leakage of the project and appropriately explain which sources of leakage are to be calculated and which can be neglected?	**CL04** As per *Guidance on criteria for baseline setting and monitoring* project participants must undertake to assess the potential leakage and appropriately explain which sources of leakage are to be calculated and which can be neglected. Please, provide respective assessment, in particular, regarding potential leakage of sulfur hexafluoride.	**CL04**	OK
40 (b)	Does the PDD provide a procedure for an ex ante estimate of leakage?	See CL form the issue 40 (b) above.	Pending	OK
Approved CDM methodology approach only				
41	Are the leakage and the procedure for its estimation defined in accordance with the approved CDM methodology?	N/A	N/A	N/A
Estimation of emission reductions or enhancements of net removals				
42	Does the PDD indicate which of	The assessment of emissions in the	OK	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	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	baseline scenario and in the project scenario was used.		
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 amount of electricity losses is established on the basis of statistical dependence of actual volumes of losses. Calculations are provided in the *Supporting Excel file*. The estimation of GHG emissions for the project, baseline scenario and emission reductions ex ante is provided in the section E of the PDD.	OK	OK
44	If the approach (b) in 42 is chosen, does the PDD provide ex ante estimates of:	N/A	N/A	N/A

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	(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?	**CAR29** Algorithm of project and baseline emissions estimation for each gas and emission source must be clearly indicted in the section E of the PDD. Please, add appropriate information to the PDD. **CAR30** As the estimation of project emissions is based on "Methodological tool for determining of volumes of electricity transfer by the main-line and intergovernmental electrical grids and its losses." Please, provide traceable reference to the document mentioned. **CAR31** The amounts of ERUs for 2004-2007 in the section E.5., p. 45 are not equal to	**CAR29** **CAR30** **CAR31** **CAR32** **CAR33**	OK OK OK OK OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	(b) Are the formula used for calculating the estimates in 43 or 44 consistent throughout the PDD? (c) For calculating estimates in 43 or 44, are key factors influencing the baseline emissions or removals and the activity level of the project and the emissions or net removals as well as risks associated with the project taken into account, as appropriate? (d) Are data sources used for calculating the estimates in 43 or 44 clearly identified, reliable and transparent? (e) Are emission factors (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 difference of emissions of the project and baseline scenario. The ERUs total for 2004-2007 in the section E.5., p. 45 and E.6., p. 46 is not equal to the actual sum of ERUs for the period mentioned. Please, make corresponding corrections. **CAR32** The amounts of ERUs estimates in the Excel file and in the PDD are not equal. Please, make corresponding corrections. **CAR33** Information concerning emission sources in the project is missing in the section E. Please, add the appropriate information to the PDD.		

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	the choice? (f) Is the estimation in 43 or 44 based on conservative assumptions and the most plausible scenarios in a transparent manner? (g) Are the estimates in 43 or 44 consistent throughout the PDD? (h) Is the annual average of estimated emission reductions or enhancements of net removals calculated by dividing the total estimated emission reductions or enhancements of net removals over the crediting period by the total months of the crediting period and multiplying by twelve?			
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	Yes, the illustrative ex ante emission calculations are presented in the PDD.	OK	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	calculation?			
Approved CDM methodology approach only				
47 (a)	Is the estimation of emission reductions or enhancements of net removals made in accordance with the approved CDM methodology?	N/A	N/A	N/A
47 (b)	Is the estimation of emission reductions or enhancements of net removals presented in the PDD: − On a periodic basis? − At least from the beginning until the end of the crediting period? − On a source-by-source/sink-by-sink basis? − For each GHG? − In tones of CO2 equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol?	N/A	N/A	N/A

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	− Are the formula used for calculating the estimates consistent throughout the PDD? − Are the estimates consistent throughout the PDD? − Is the annual average of estimated emission reductions or enhancements of net removals calculated by dividing the total estimated emission reductions or enhancements of net removals over the crediting period by the total months of the crediting period and multiplying by twelve?			
Environmental impacts				
48 (a)	Does the PDD list and attach documentation on the analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party?	Under the legislative framework of Ukraine "On Environmental Protection" and "Structure and Content of Environmental Impact Assessment (EIA) when Designing and Constructiing Factories, Buildings and Structures" "Ukrenergo" is not obliged to carry out	OK	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
		Environmental Impact Assessment for this type of project.		
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?	The information on environmental impact is sufficiently described in the section F.2. of the PDD.	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	Consultations with stakeholders were held at meetings with local authorities. No stakeholders' comments were received.	OK	OK

Guidelines for JI PDD Form Users or DVM Paragraph	Check Item	Initial finding	Draft conclusion	Final conclusion
	comments? (c) A description on whether and how the comments have been addressed?			

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	Verification team conclusion
CAR01 Please, add to the section A.2. of the PDD the description of baseline scenario and situation existing prior to the starting date of the project as per *Guidelines for users of the JI PDD form (version 04).*	A.2	The description of baseline scenario and situation existing prior to the starting date of the project was added to the section A.2 of the PDD version 2.	The issue is closed based on due amendments made in the PDD.

CAR02 Please, provide the interpretation for abbreviations and abridgments in the PDD when first mentioned in the text.	A.2	The corresponding interpretation for abbreviations and abridgments are provided in the PDD version 2.	PDD was checked. The issue is closed.
CAR03 Please, add the information concerning project location to the sections A.4.1.2., A.4.1.3., A.4.1.4.	A.4.1	The respective information was added to the sections A.4.1.2., A.4.1.3., A.4.1.4 of the PDD version 2.	PDD was checked. The issue is closed.
CAR04 Please, add to the PDD information concerning each measure to be implemented according to project (organizational, technical) and explain how they will be implemented.	A.4.2	In the framework of the Project it is provided to form the TLE management system (energy rate setting, energy audit and energy management) in the Company for effective implementation of a number of organizational and technical measures as well as measures on developing and improving the methodological provision of TLE reduction during implementation of licensed activities on electricity transmission and distribution. Lists of these activities are listed below: 1. Organizational measures of methodological support 2. Organizational and technical measures 3. Technical measures	The issue is closed on the basis of the corrections made in the PDD.

		Corresponding corrections were made in the section A.4.2 of the PDD version 2.	
CAR05 The section A.4.2. contains the comparison of two different types of transformers. Please, indicate which type of transformers is to be installed in the project. Please, explain how this activity will result in reduction of energy loss.	A.4.2	Technical characteristics of transformers to be installed in the project were added to the PDD version 2. The corresponding references to producer's web-site were also included in the PDD.	The issue is closed on the basis of the information provided and due corrections made in the PDD.
CAR06 The information concerning glass and polymeric insulators installation must be included in the section A of the PDD.	A.4.2	The necessary information was added to the section A.4.2 of the PDD version 2.	PDD was checked. The issue is closed.
CAR07 Please, add to PDD the information on implementation schedule for each type of measures foreseen by the project.	A.4.2	Project implementation stages were added to the PDD version 2. The schedule of reconstruction and modernization of the main-line electrical grids at NPC "Ukrenergo" in provided in the table 4 of the PDD.	The issue is closed.
CAR08 Please, correct formatting of the section A.4.3.1. as per *Guidelines for users of the JI PDD form (version 04).*	A.4.4.1	Formatting of the Table A.4.3.1 was corrected as per *Guidelines for users of the JI PDD form (version 04).*	PDD was checked. The issue is closed.

CAR09 The project has no approval of the host Party and the sponsor Parties. Please submit corresponding approvals to AIE.	A.5	Ministry of Environmental Protection issued a Letter of Endorsement for the joint implementation project. After analyzing the project, the PDD and Determination report will be submitted to the National Environmental Investment Agency of Ukraine to obtain a Letter of Approval.	The conclusion is pending written approvals by the Parties involved.
CAR10 According to *Guidance on criteria for baseline setting and monitoring*, the detailed description of each alternative used to establish baseline must be provided in the section B.1. of the PDD.	22	Three alternatives were identified to establish baseline: Alternative 1.1: Continuation of the current situation, without JI project implementation. Alternative 1.2: The proposed project activity without the use of Joint Implementation mechanism. Alternative 1.3: Partial project activities (to implement not all project equipment) without the use of the Joint Implementation Mechanism. The detailed description of each alternative was included in the PDD version 2.	The issue is closed on the basis of the information provided and due corrections made in the PDD.
CAR11 Annex 2 shall contain a short description of the key elements in a tabular form. Please, make	23	The Annex 2 to the PDD version 2 contains all the key elements in a tabular form.	PDD was checked. The issue is closed.

corresponding corrections.			
CAR12 Please, provide all key factors in the section B in a tabular form as per *Guidelines for users of the JI PDD form (version 04).*	23	All key factors influencing the baseline emissions were added to the section B in a tabular form as per *Guidelines for users of the JI PDD form (version 04).*	The issue is closed on the basis of the corrections made in the PDD.
CAR13 The information concerning the historical (baseline) period selected (2001-2003) must be clearly indicated in the section B of the PDD. The required justification regarding this period must also be provided in the PDD.	23	The information concerning the historical period 2001-2003 was included in the section B.1. of the PDD version 2.	PDD was checked. The issue is closed.
CAR14 Please, add to the section B.1. two of the key baseline parameters: Volume of electricity coming into the main-line electrical grid in the period 2001-2003 (Qb,a) and Volume of electricity coming into the distribution electrical grid in the period 2001-2003 (Qb,c).	23	The information concerning the volume of electricity coming into the main-line electrical grid in the period 2001-2003 and the volume of electricity coming into the distribution electrical grid in the period 2001-2003 was included in the section B.1.	The issue is closed on the basis of the corrections made in the PDD.
CAR15 Please, in the section B.2. provide justification of the project additionality on the basis of the investment analysis. Please, note	28	In the corrected PDD additionality of the project was proved by using the simple cost analysis only.	PDD was checked. The issue is closed.

that the barrier analysis does not provide reasonable evidences that the project is additional.			
CAR16 Please, add to the section B.2. the transparent analysis of any other activities similar to the project activity. Please, indicate if such projects were implemented in Ukraine earlier.	28	Analysis of project activity similarity demonstrated absence of similar projects in Ukraine. Existing practice of equipment maintenance represented in the variant of baseline chosen for this Project is customary for Ukraine. Due to current practice all losses of electric energy are borne by end consumers; that is why the companies engaged in electricity supply don't have incentives for energy effective projects implementation.	The issue is closed on the basis of the corrections made in the PDD.
CAR17 Please, estimate in the PDD the emissions of sulphur hexafluoride as a result of project implementation. Please, indicate if the emission of this gas can be neglected.	32 (d)	Currently in the energy sector, hexafluoride circuit breakers and current transformers are used to transport electric energy in high voltage main-line electricity grids. They are characterized by high reliability, durability, simplicity of construction and installation as well as safety. A distinquishing feature of hexafluoride circuit breakers and current transformers is the fact that	The issue is closed on the basis of the information provided and due corrections made in the PDD.

		sulfur hexafluoride (electrical and technical gas) fulfils the function of arc control and heat insulating medium. Sulphur hexafluoride (SF_6) is a greenhouse gas whose density under normal conditions is five times higher than density of air. Since this equipment provides for a system of leak-proofness control and equipment manufacturers guarantee its smooth operation for 25 years, we can conclude that leakages of SF_6 are absent and excluded from the project boundaries.	
CAR18 Please, state in the PDD the actual starting date of the project which is indicated in the documentation on JI project realization at NPC "Ukrenergo".	34 (a)	The appropriate corrections were made in the section C.1. of the PDD version 2.	The issue is closed on the basis of the information provided and due corrections made in the PDD.
CAR19 Please, compare the expected operational lifetime and the crediting period length and provide corresponding corrections in the PDD.	34 (b)	The appropriate corrections were made in the sections C.2. and C.3. of the PDD version 2.	PDD was checked. The issue is closed.
CAR20 Please, correct the length of the crediting period taking into	34 (c)	The appropriate corrections were made in the section C.3. of the PDD version 2.	PDD was checked. The issue is closed.

account the project starting date.			
CAR21 All equations in the section D of the PDD must be numbered as per *Guidance on criteria for baseline setting and monitoring.* Please, make corresponding corrections.	35	All equations in the section D of the PDD were numbered as per *Guidance on criteria for baseline setting and monitoring.*	PDD was checked. The issue is closed.
CAR22 Please, in the tables containing monitoring parameters (the row "Justification of the choice of data or description of measurement methods and procedures (to be) applied" in the tables included in the section D.1.1 of the PDD provide information concerning monitoring points and reflect a procedure of total values obtaining.	36 (a)	The corresponding information was provided in the PDD version 2.	PDD was checked. The issue is closed.
CAR23 The values of the parameters $Q^{y}_{b,a}$ and $Q^{y}_{p,a}$ are the same (actually this is one parameter), please, indicate this in the section D of the PDD and make corresponding corrections in the monitoring plan.	36 (b)	The methodology of emission reduction calculation was changed taking into account the observations. The corrected methodology was described in the section D of the PDD version 2.	The issue is closed based on due amendments made in the PDD.
CAR24 The baseline parameters (historical parameters) – the	36 (b)	The monitoring plan in the PDD version 2 contains all necessary data, including historical values.	PDD was checked. The issue is closed.

volume of electricity coming into the main-line electrical grid and the volume of electricity coming into the distribution electrical grid – must be included in the monitoring plan as per *Guidelines for users of the JI PDD form (version 04).*			
CAR25 Application of emission factor for Ukrainian electricity grid for 2005 referred to "Ukraine - Assessment of new calculation of CEF" approved TUV SUD 17.08.2007" is illegitimate as this coefficient is valid since 2006. Please, make corresponding corrections of the monitoring plan and ERUs calculations.	36 (b)	The observation was taken into account in the PDD version 2 and ERUs calculation. Carbon dioxide emission factors for 2005 are taken from the document «Operational Guidelines for Project Design Documents of Joint Implementation Projects Volume 2: General guidelines" (ERUPT) - Carbon dioxide emission factors for 2006-2007 are taken from the document "Carbon dioxide emission factors (for energy consumption according to the methodology "Ukraine - Assessment of new calculation of CEF", approved by TUV SUD 17.08.2007) ; - Carbon dioxide emission factors for 2008 are taken from Order of the National Environmental Investment	The issue is closed on the basis of the information provided and due corrections made in the PDD.

		Agency of Ukraine (hereinafter - NEIAU) № 62 of 15.04.2011 "On approval of specific carbon dioxide emission factors in 2008 "; - Carbon dioxide emission factors for 2009 are taken from the Order of NEIAU # 63 of 15.04.2011 "On approval of specific carbon dioxide emission factors in 2009" ; - Carbon dioxide emission factors for 2010 are taken from the Order of NEIAU # 43 of 28.03.2011. "On approval of specific carbon dioxide emission factors in 2010" ; - Carbon dioxide emission factors for 2011 are taken from the Order of NEIAU # 75 of 12.05.2011. "On approval of specific carbon dioxide emission factors in 2011" ;	
CAR26 The section D .1.1.2 indicates that PE_p^y - GHG emissions from burning of fossil fuels for production of electricity that is lost in the main-line electrical grids in period «*y*» under the baseline scenario, (tCO_{2e}). However, is	36 (f)	Corresponding corrections were made in the PDD version 2: PE_p^y - GHG emissions from burning of fossil fuels for production of electricity that is lost in the main-line electrical grids in period «*y*» under the project scenario, (tCO_{2e}).	The issue is closed based on due amendments made in the PDD.

stated below that index "p" is applicable to the project scenario. Please, make corresponding corrections.			
CAR27 Please, include all parameters to be monitored in the table D.2. and describe uncertainties associated with them.	36 (f) (vii)	All parameters to be monitored including quality control and quality assurance procedures undertaken for data monitored were added to the section D.2. of the PDD.	The issue is closed on the basis of the information provided and due corrections made in the PDD.
CAR28 Please, add to the PDD (section D.3.) clear and transparent scheme identifying the responsibilities and roles establishing.	36 (j)	The detailed information concerning responsibilities and roles distribution was included in the section D.3. of the PDD.	The issue is closed based on due amendments made in the PDD.
CAR29 Algorithm of project and baseline emissions estimation for each gas and emission source must be clearly indicted in the section E of the PDD. Please, add appropriate information to the PDD.	45	During the period of 2005-2010 estimated project emissions are calculated relying on the actual data on the amount of transmitted electricity in the main-line electrical grids of NPC "Ukrenergo", and for the period of 2011-2020 - predicted by the strategic development of the energy industry. During the period of 2005-2010 estimated baseline emissions are calculated relying on the actual data on the amount of transmitted	PDD was checked. The issue is closed.

		electricity in the main-line electrical grids of NPC “Ukrenergo”, and for the period of 2011-2020 - predicted by the strategic development of the energy industry multiplied by the factor of pre-project efficiency of the main-line electrical grids in the historical period. The required information was added to the section E of the PDD.	
CAR30 As the estimation of project emissions is based on “Methodological tool for determining of volumes of electricity transfer by the main-line and intergovernmental electrical grids and its losses.” Please, provide traceable reference to the document mentioned.	45	All required references to normative documentation were added to the sections B and D of the PDD version 2.	PDD was checked. The issue is closed.
CAR31 The amounts of ERUs for 2004-2007 in the section E.5., p. 45 are not equal to the difference of emissions of the project and baseline scenario. The ERUs total for 2004-2007 in the section E.5., p. 45 and E.6., p. 46 is not equal to the actual sum	45	The ERU value was recalculated and the respective corrections were provided in the sections E.5 and E.6 of the PDD.	PDD was checked. The issue is closed.

of ERUs for the period mentioned. Please, make corresponding corrections.			
CAR32 The amounts of ERUs estimates in the Excel file and in the PDD are not equal. Please, make corresponding corrections.	45	The corresponding information was provided in the PDD version 2.	PDD was checked. The issue is closed.
CAR33 Information concerning emission sources in the project is missing in the section E. Please, add the appropriate information to the PDD.	45	The present project covers only one emission source. The respective values of emission are provided in the PDD version 2.	PDD was checked. The issue is closed.
FAR1 Please, submit any documented instruction indicating that the data monitored are to be kept for two years after last ERUs transfer as per *JI determination and verification manual.*	36 (m)	The order on data to be monitored storage during two years after the last transfer of ERUs has been prepared and submitted for approval at the enterprise.	This issue must be checked during the verification process.
CL01 It is stated in the section A.4.2. that the project foresees replacement of the non-working equipment. Taking into account that this activity is mandatory, please, clarify if this activity can be attributable to the project	A.4.2	The section A.4.2 was reworked taking into account the issue raised.	PDD was checked. The issue is closed.

implementation.			
CL02 Simple cost analysis was correctly used to justify project's additionality. Please, clarify if the analysis provided considers profit obtained form the implementation of the energy efficient measures during the first year of the project implementation (when the normative losses are approved for the previous year). Please, clarify if the simple cost analysis can be applied in this case.	28	As the measures foreseen by the project begun started in the end of calendar year (at the end of 2004), the company could not have any profit due to energy efficiency measures implementation. That is why simple cost analysis is properly applied for any project year.	The issue is closed on the basis of the confirmatory documentation and the information provided.
CL03 Formulae 3 and 4, 8 and 9 actually serve for calculating of absolute losses of electricity in the main-line electrical grid. Please, clearly state which of these formulae will be used to calculate this parameter.	36 (f) (ii)	The methodology of baseline and project emissions calculation was changed. All formulae for emissions and ERUs calculation are presented in the section D of the PDD version 2.	The issue is closed based on due amendments made in the PDD.
CL04 As per *Guidance on criteria for baseline setting and monitoring* project participants must undertake to assess the potential leakage and appropriately explain which sources of leakage are to be	40 (a)	Corresponding information concerning the potential leakage was added to the section B.3. of the PDD.	The issue is closed on the basis of the information provided and due corrections made in the PDD.

calculated and which can be neglected. Please, provide respective assessment, in particular, regarding potential leakage of sulphur hexafluoride.			