VERIFICATION REPORT
THE WORLD BANK

VERIFICATION OF THE UkrHydroEnergo (UHE) Hydropower Rehabilitation Project in Ukraine

(Initial and for the period 01/01/2008 – 31/12/2009)

REPORT NO. UKRAINE-VER/0023/2008

REVISION NO. 02

BUREAU VERITAS CERTIFICATION

Date of first issue:	Organizational unit:
31/03/2011	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
The World Bank	Mr. Kari Hamekoski

Summary:

Bureau Veritas Certification has made the 1st periodic verification of the "UkrHydroEnergo (UHE) Hydropower Rehabilitation Project in Ukraine", project of The World Bank located in Ukraine, and applying the JI specific approach, 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 verification scope is defined as a periodic independent review and ex post determination by the Accredited Independent Entity of the monitored reductions in GHG emissions during defined verification period, 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 verification report and opinion. The overall verification, from Contract Review to Verification Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the verification process is a list of Clarification, Corrective Actions Requests, Forward Actions Requests (CR, CAR and FAR), presented in Appendix A.

In summary, Bureau Veritas Certification confirms that the project is implemented as described in approved project design documents and the determined changes occurred during project implementation. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is ready to generate GHG emission reductions. The GHG emission reduction is calculated without material misstatements, and the ERUs issued totalize 274377 tons of CO_2eq for the monitoring period from 01/01/2008 to 31/12/2009 (112780 tCO_2eq for the period 01/01/2008 - 31/12/2008 and 161597 tCO_2eq for the period 01/01/2009 - 31/12/2009).

Our opinion relates to the project's GHG emissions and resulting GHG emission reductions reported and related to the approved project baseline and monitoring, and its associated documents.

Report No.:	Subject Group:	
UKRAINE/0023/2008	JI	
Project title: UkrHydroEnergo (UHE) Hydropower Rehabilitation Project in Ukraine		
Work carried out by: Igor Kachan - Team Leader, Climate Change Lead Verifier Oleg Skoblyk - Team Member, Climate Change Lead Verifier		
Work reviewed by: Ivan Sokolov - Internal Technical Reviewer		☒ No distribution without permission from the Client or responsible organizational unit
Work approved by: Flavio Gomes – Operational Manager		☐ Limited distribution
Date of this revision: 11/04/2011	Rev. No.: 02	Number of pages: 55
		☐ Unrestricted distribution

Bureau Veritas Certification Holding SAS

Abbreviations

AIE	Accredited Independent Entity
BVCH	Bureau Veritas Certification Holding SAS
CAR	Corrective Action Request
CEF	Carbon Emission Factor
CHP	Combined Heat and Power
CDM	Clean Development Mechanism
CL	Clarification Request
CO_2	Carbon Dioxide
ERU	Emission Reduction Unit
EIA	Environmental Impact Assessment
FAR	Forward Action Request
GHG	Green House Gas(es)
HAPP	Hydro Accumulating Power Plant
HPP	Hydro Power Plant
HPU	Hydro Unit
JI	Joint Implementation
JISC	JI Supervisory Committee
MP	Monitoring Plan
MR	Monitoring Report
NPP	Nuclear Power Plant
PDD	Project Design Document
TPP	Thermal Power Plant
UHE	UkrHydroEnergo
UNFCCC	United Nations Framework Convention on Climate Change

Table of Contents *Page*

1 INTRODUCTION

The World Bank has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project "UkrHydroEnergo (UHE) Hydropower Rehabilitation Project in Ukraine" (hereafter called "the project") in Ukraine.

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

1.1 Objective

Verification is the periodic independent review and ex post determination by the Accredited Independent Entity of the monitored reductions in GHG emissions during defined verification period.

The objective of verification can be divided in Initial Verification and Periodic Verification.

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 verification 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 verification 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 monitoring towards reductions in the GHG emissions.

1.3 Verification Team

The verification team consists of the following personnel:

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

Oleg Skoblyk
Bureau Veritas Certification, Team Member, Climate Change Lead Verifier

This verification report was reviewed by:
Ivan Sokolov
Bureau Veritas Certification, Internal Technical Reviewer

2 METHODOLOGY

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

In order to ensure transparency, a verification protocol was customized for the project, according to the version 01.1 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 verification and the results from verifying the identified criteria. The verification protocol serves the following purposes:

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

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

2.1 Review of Documents

The Monitoring Report (MR) submitted by the World Bank and additional background documents related to the project design and baseline, i.e. country Law, Project Design Document (PDD) and Guidance on criteria for baseline setting and monitoring, Host party criteria, Kyoto Protocol, Clarifications on Verification Requirements to be Checked by an Accredited Independent Entity were reviewed.

The verification findings presented in this report relate to the Monitoring Report versions 1.0, 1.1 (MRs for 2008 and 2009) and project as described in the determined PDD.

2.2 Follow-up Interviews

On 14/10/2009, 12/10/2010, 13/10/2010, 25/10/2010-28/10/2010 Bureau Veritas Certification performed on-site interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of Mitsubishi UFJ Morgan Stanley Securities Co., Ltd. and UkrHydroEnergo were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
UkrHydroEnergo	➢ Organizational structure. ➢ Responsibilities and authorities. ➢ Training of personnel. ➢ Quality management procedures and technology. ➢ Implementation of equipment (records). ➢ Metering equipment control. ➢ Metering record keeping system, database.
Consultant: Mitsubishi UFJ Morgan Stanley Securities Co.	➢ Baseline methodology ➢ Monitoring plan ➢ Monitoring report ➢ Deviations from PDD

2.3 Resolution of Clarification, Corrective and Forward Action Requests

The objective of this phase of verification is to raise the requests for corrective actions and clarification and any other outstanding issues that needed to be clarified for Bureau Veritas Certification positive conclusion on the GHG emission reduction calculation.

If the Verification Team, in assessing the monitoring report and supporting documents, identifies issues that need to be corrected, clarified or improved with regard to the monitoring requirements, it should raise these issues and inform the project participants of these issues in the form of:

(a) Corrective action request (CAR), requesting the project participants to correct a mistake that is not in accordance with the monitoring plan;

(b) Clarification request (CL), requesting the project participants to provide additional information for the AIE to assess compliance with the monitoring plan;

(c) Forward action request (FAR), informing the project participants of an issue, relating to the monitoring that needs to be reviewed during the next verification period.

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

3 VERIFICATION CONCLUSIONS

In the following sections, the conclusions of the verification are stated. The findings from the desk review of the original monitoring documents and the findings from interviews during the follow up visit are described in the Verification Protocol in Appendix A.

The Clarification, Corrective and Forward Action Requests are stated, where applicable, in the following sections and are further documented in the Verification Protocol in Appendix A. The verification of the Project resulted in 9 Corrective Action Requests, 3 Clarification Requests, and 1 Forward Action Request.

The number between brackets at the end of each section corresponds to the Determination and Verification Manual paragraph.

3.1 Project approval by Parties involved (90-91)

The project obtained approval of the Host party (Ukraine) on the 18/05/2007 (Letter of Approval issued by the Ministry for Ecology and Natural Resources of Ukraine) and was submitted to the State Environmental Investment Agency of Ukraine for registration under the Track 1. The Confirmation letter of the Project Registration under JI Track 1 by the State Environmental Investment Agency of Ukraine is provided in the Appendix 6 of the Monitoring Report for 2008.
The written project approval of the Netherlands (sponsor party) has been issued by the NFP of the Party when submitting the first verification report for publication in accordance with paragraph 38 of the JI guidelines, at the latest. The above mentioned written approvals are unconditional.

3.2 Project implementation (92-93)

The Project involves rehabilitation of 43 hydro units which are located on the Dnipro river and the Dnister river. The actual operation of the proposed project includes the replacement of hydraulic power, electro-technical and hydro-mechanical equipment such as gates, turbines, generators, excitation and governor systems, control, protection and automation systems, switchyard equipment and auxiliary equipment. The

Project also includes works on hydraulic structures and installation of computer-aided dam safety monitoring systems.
The Project is not result in an increase in the reservoir area; the rehabilitated hydropower plants generate additional electricity without emitting GHG. This lead to the reduction of anthropogenic GHG emissions by displacing electricity produced by fossil fuel fired power plants.
Since technological equipment directly related to the project will no vary from the old equipment, no special training for the staff is required. New equipment maintenance is performed according to the schedule provided in the operation manuals established by the company in accordance with the sectoral norms. Usually routine maintenance is performed every year, while overhauls of main generating equipment performed every 6-7 years.
In terms of environmental benefits, the Project helps to reduce air pollution caused by the emission of SO_2 and NO_X by outdated thermal plants.
From the start of the Project to December 31, 2009, rehabilitation was completed at seventeen hydro units at the Kyiv HPP, Kaniv HPP, Kremenchuk HPP, Dniprodzerzynsk HPP, Dnipro HPP and Kahovka HPP. The names of the rehabilitated hydro units and the dates of completion of the rehabilitation are provided below.

	Year/Plant Name	2006	2007	2008	2009
		(HPU#-DD/MM)			
1	Kyiv HPP	-	HPU #10 - 29/09	-	HPU #11 - 15/11
		-	HPU #19 -16/12	-	HPU #17 - 15/05
		-	-	-	HPU #20 - 14/11
2	Kaniv HPP	-	HPU # 5 - 01/10	-	HPU #22 - 25/05
		-	HPU # 7 - 15/12	-	HPU #24 – 30/06
3	Kremenchuk HPP	-	-	-	HPU # 2 - 10/07
4	Dniprodzer zhynsk HPP	HPU #4 - 30/11	-	HPU #8 - 31/03	HPU # 7 - 13/10
5	Dnipro HPP	-	-	-	HPU #15 - 23/07
6	Kakhovka HPP	-	HPU # 1 - 01/04	HPU #5 - 28/04	HPU # 6 - 25/12

3.2.1. Changes to the project design during the project implementation

In order to reflect changes to the project design as described in the determined PDD (version 8) the project participants prepared a detailed description of these changes enclosed in the Appendix 7 of the monitoring report for 2008 and submitted it for determination as per "Procedures regarding changes during project implementation", version 1.

The changes to the project design are as described below.
It is stated in the PDD version 8 that the HPP rehabilitation project involves nine sites and seven locations. However, no rehabilitation works are conducted at the Kyiv PSPP and no GHG emission reductions are generated at this plant. Consequently, Kyiv PSPP was excluded from the monitoring plan, although it was a part of the project boundary. The Dnipro HPP-1 and Dnipro HPP-2 are a part of the same Dnipro HPP. Therefore, emission reduction calculations and monitoring are carried out for the following seven locations: Kyiv HPP; Kaniv HPP; Kremenchuk HPP; Dniprodzerzhynsk HPP; Dnipro HPP; Kakhovka HPP; Dnistro HPP.
Therefore, no change in the project location occurred, only project description is clarified as described above. The abovementioned changes are sufficiently reflected in the Appendix 7 of the Monitoring report for 2008:
- Table 3. Commissioning year and rehabilitation schedule for hydro units.
- Table 4. Predicted increased generation by the Project (GWh) in 2007 to 2012.
As per the current rehabilitation plans, only 43 units (compared to 46 ones according to PDD) are going to be a subject to rehabilitation. The detailed list of UHE hydro units to be rehabilitated within the project boundary is presented in the Table 5 "UHE hydro units composition/types" of the Appendix 7 of Monitoring Report.

Some changes regarding the calculation method of the carbon emission factor (CEF) of the Ukrainian Grid were also occurred. According to the PDD, the CEF is determined as the simple Operation Margin, i.e. after excluding the low-cost/must run resources (HPP and NPP as per determined and registered PDD). However, the operation of CHP plants (TETs) will not be influenced by the operation of the project. In line with "The clarification regarding the Method of Determination of the Carbon Emission Factor of the Ukrainian Grid" (Appendix 7 of the Monitoring Report for 2008) and the methodological approach described in the PDD, the content of the of "low-cost/must run" resources group was clarified to further include TETs, in addition to HPP and NPP.

During the determination process Bureau Veritas Certification reviewed the changes to the project design (included in the Monitoring Report for 2008). The project participants provided an appropriate justification for the proposed revision. The changes that have been implemented do not affect conservativeness of the approach to the emission reductions

calculations and procedures of the data collection and archiving. The management and operational systems are eligible for reliable project monitoring according to the existing monitoring plan and the revised project design. Bureau Veritas Certification confirms that the proposed revisions to the project design do not affect conformity with the relevant rules and regulations for the establishment of baseline and monitoring plan. All relevant emission sources are covered by the monitoring plan and the boundaries of the project are defined correctly and transparently. The monitoring methodologies and revised project design were sufficient to enable verification of emission reductions. During the determination process, no significant lacks of evidence were detected.
Specifically, Bureau Veritas Certification confirms that the changes described in the Appendix 7 of the Monitoring Report for 2008 meet all conditions for changing the project design, as follows:
a) The physical location of the project has not changed;
b) The emission sources have not changed and no changes in the original monitoring plan are needed;
c) Baseline scenario has not changed;
d) The changes are consistent with the JI specific approach upon which the determination was prepared for the project.
Bureau Veritas Certification confirms that the conditions defined by paragraph 33 of the JI guidelines are still met for the project, and that the changes do not alter the original determination opinion for the project.

3.3 Compliance of the monitoring plan with the monitoring methodology (94-98)

The monitoring occurred in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed.
Baseline and monitoring methodology follows the elements of the approved CDM Methodology ACM0002 Consolidated methodology for grid-connected electricity generation from renewable sources, ver. 7, as well as Tool to calculate the emission factor for an electricity system, ver. 1.01 (which was active at the time of the start of the project determination), with modifications to make these applicable to the conditions found in Ukraine. The approach also follows the criteria for baseline setting included in Appendix B of Guidelines for the Implementation of Article 6 of the Kyoto Protocol and is in line with the recent guidance provided by the Joint Implementation Supervisory Committee.
The baseline determination and monitoring approach deviates from ACM0002 in the following two points:
Unlike the prescriptions of ACM0002, ver. 7 and the Tool to calculate the emission factor for an electricity system, referred to in the methodology, the grid emission factor for the Ukrainian grid is calculated as the Simple Operational Margin only, as the implementation of the project will have no

effect on the built margin and on the operation of any low-cost/must-run resources (for a more information please refer to Section B.1 of the final version of the PDD). The Operational Margin for each monitoring year was determined ex-post based on the power generation and fuel consumption by TPP for the appropriate year.
Unlike the approach in ACM0002, ver 7, baseline generation in any year is determined based on the ex-ante developed correlation between the total water flow through each hydropower plant and its power generation at a historical efficiency rate. This correlation is based on historical data for the period 2002 - 2005.
For calculating the emission reductions key factors, such as power generation by each rehabilitated hydro unit $EG_{pr,HPP,y}$ and water flow $WF_{HPP,y}$ influencing the baseline emissions as well as risks associated with the project were taken into account. Data sources used for calculating emission reductions or enhancements of net removals are clearly identified, reliable and transparent.
Emission factors and the data from official statistics, including default emission factors (amount of each fossil fuel consumed by grid connected TPPs in 2008 and 2009, carbon emission factor of each fuel type, oxidation factor, electricity generation by grid connected TPPs in 2008 and 2009), are selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.
The calculation of emission reductions is based on conservative assumptions and the most plausible scenarios in a transparent manner.

3.4 Revision of monitoring plan (99-100)

Not applicable.
The monitoring plan of the project was not revised.

3.5 Data management (101)

The monitoring approach in the monitoring plan requires monitoring and measurement of all the variables and parameters necessary to quantify the baseline emissions and project emissions in a conservative and transparent way.
Internal and external data are obtained according to the determined PDD and the monitoring plan included in the MR. Fixed default and baseline values is presented in the section 2.3.1 and 2.3.2 of the MR.
The following items are monitored in order to determine baseline emissions in a conservative and transparent manner:
$EG_{pr,HPP,y}$ amount of generation (MWh/yr) by each project hydropower plant.
$WF_{HPP,y}$ total water flow (m^3/yr) for each project hydropower plant
$EF_{grid,y}$ the Simple OM emission factor of the Ukrainian power grid (tCO_2/MWh)

$FC_{i,y}$ aggregated annual fuel consumption data (tce/yr) for all thermal generation sources connected to the Ukraine grid.
$EF_{C,I}$ carbon emission factor of each fuel type as per the most recent submission of the Ukrainian National GHG Inventory.
F_{oxyd} oxidation factor for each fuel type as per the most recent submission of the Ukrainian National GHG Inventory.
$EG_{BL,FF,y}$ aggregated electricity generation data (MWh/yr) for all generation sources connected to the Ukraine grid.

The historical efficiency factors for the hydro power plants were determined ex ante based on actual data from 2002 to 2005 by utilizing the correlation between the water flow and the electricity generation. The correlation is used to determine the amount of the baseline hydropower generation that would have occurred in the absence of the Project activity, as described in the section 2.2.1 of the MR.

All the internal operational data required for ERUs calculation is collected by UHE as part of routine operations. The data and their sources, provided in the monitoring report, are clearly identified, reliable and transparent. The implementation of data collection procedures is in accordance with the monitoring plan, including the quality control and quality assurance procedures. The function of the monitoring equipment, including its calibration status, is in order.
The evidence and records used for the monitoring are maintained in a traceable manner. The data collection and management system for the project is in accordance with the monitoring plan.

It is evidenced that the whole monitoring system was fully operational during the entire monitoring period. The verification team confirms that the emission reduction calculations have been performed according to the monitoring plan and to the calculation methodology reported in the final MR in accordance with the PDD. The verification team checked the transfer of monitored data, correctness of the formulae versus the PDD as well as calculations of emission reductions. No inaccuracies in calculations were detected by the verifiers. Finally, our own calculations have shown the same results as given in the final Monitoring Report.
At UHE the best available techniques are used in order to minimize uncertainties. Uncertainties are generally low. All monitoring equipment that used for monitoring purposes is in compliance with national legislative requirements and standards; this ensures that uncertainties are accounted in data collected.

3.6 Verification regarding programmes of activities (102-110)

Not applicable.

4 VERIFICATION OPINION

Bureau Veritas Certification has performed the 1st periodic verification of the "UkrHydroEnergo (UHE) Hydropower Rehabilitation Project in Ukraine" in Ukraine, which applies the JI specific approach. The verification 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 verification 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 verification report and opinion.

The management of the World Bank is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions of the project on the basis set out within the project Monitoring Plan indicated in the final PDD version 08. The development and maintenance of records and reporting procedures in accordance with that plan, including the calculation and determination of GHG emission reductions from the project, is the responsibility of the management of the project.

Bureau Veritas Certification verified the Project Monitoring Reports version 1.1 for the reporting period as indicated below. Bureau Veritas Certification confirms that the project is implemented as described in approved project design documents and the determined changes occurred during project implementation. Installed equipment being essential for generating emission reduction runs reliably and is calibrated appropriately. The monitoring system is in place and the project is generating GHG emission reductions.

Bureau Veritas Certification can confirm that the GHG emission reduction is calculated without material misstatements. Our opinion relates to the project's GHG emissions and resulting GHG emissions reductions reported and related to the approved project baseline and monitoring, and its associated documents. Based on the information we have seen and evaluated, we confirm the following statement:

Emission Reductions (from 01/01/2008 to 31/12/2008): 112780 tCO_2 eq
Emission Reductions (from 01/01/2009 to 31/12/2009): 161597 tCO_2 eq

Reporting period: from 01/01/2008 to 31/12/2009
Baseline emissions : 274377 t CO_2 equivalents.
Project emissions : 0 t CO_2 equivalents.
Emission Reductions : 274377t CO_2 equivalents.

5 REFERENCES

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

/1/	Monitoring Report "UkrHydroEnergo (UHE) Hydropower Rehabilitation Project in Ukraine", version 1.0, dated 5 of October 2010 (monitoring period: 01/01/2008 - 31/12/2008)
/2/	Monitoring Report "UkrHydroEnergo (UHE) Hydropower Rehabilitation Project in Ukraine", version 1.0, dated 5 of October 2010 (monitoring period: 01/01/2009 - 31/12/2009)
/3/	Monitoring Report "UkrHydroEnergo (UHE) Hydropower Rehabilitation Project in Ukraine", version 1.1, dated 9 of March 2011 (monitoring period: 01/01/2008 - 31/12/2008)
/4/	Monitoring Report "UkrHydroEnergo (UHE) Hydropower Rehabilitation Project in Ukraine", version 1.1, dated 23 of March 2011 (monitoring period: 01/01/2009 - 31/12/2009)
/5/	Excel file "Ukr Hyd Reh Mon Work (2007,2008,2009) 19 10 2010"
/6/	Excel file "Ukraine Hydro Rehab Monitoring Workbook 28 01 2011"
/7/	Excel file "Ukraine Hydro Rehab Monitoring Workbook v1.2 22 03 2011"
/8/	PDD "UkrHydroEnergo (UHE) hydropower rehabilitation project in Ukraine", version 08, dated 04/02/2010
/9/	Determination Report by SGS United Kingdom Ltd. No. JI.VAL.0040 "UkrHydroEnergo (UHE) hydropower rehabilitation project in Ukraine", dated 14/07/2010
/10/	Letter of Approval # 5633/10/3-10 Issued by the Ministry for Ecology and Natural Resources of Ukraine, dated 18.05.2007
/11/	Declaration of Approval Issued by the Netherlands` Ministry of Economic Affairs, dated 28.06.2007

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

/1/	Statement #1 of electricity generation and output produced by UHE for January of 2009,, dated 3.02.2009
/2/	Statement of electricity generation and output of the coordinated hydroelectric system of Kyiv HPP and HAPP, dated 31.01.09
/3/	Statement of electricity generation and output of the coordinated hydroelectric system of Kyiv HPP and HAPP, dated 31.12.2008
/4/	Statement of electricity generation and output of the coordinated hydroelectric system of Kyiv HPP and HAPP, dated 31.12.2009
/5/	Statement of electricity generation by Dnipro HPP for August 2009
/6/	Statement of electricity generation by Dnipro HPP for December 2009

/7/ Statement of electricity generation by Dnipro HPP for July 2009

/8/ Statement of electricity generation by Dnipro HPP for November 2009

/9/ Statement of electricity generation by Dnipro HPP for October 2009

/10/ Statement of electricity generation by Dnipro HPP for September 2009

/11/ Statement of electricity generation by Dnipro HPP, dated 1.01.2010

/12/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.01.2008

/13/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.01.2009

/14/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.02.2008

/15/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.03.2008

/16/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.03.2009

/17/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.04.2008

/18/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.04.2009

/19/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.05.2008

/20/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.05.2009

/21/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.06.2008

/22/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.06.2009

/23/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.07.2008

/24/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.07.2009

/25/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.08.2008

/26/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.08.2009

/27/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.09.2008

/28/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.09.2009

/29/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.10.2008

/30/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.10.2009

/31/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.11.2008

/32/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.11.2009

/33/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.12.2008

/34/ Statement of electricity generation by Dniprodzerzhynsk HPP, dated 1.12.2009

/35/ Statement of making up the balance of electric power in Kaniv HPP for August 2008

/36/ Statement of making up the balance of electric power in Kaniv HPP for December 2008

/37/ Statement of making up the balance of electric power in Kaniv HPP for July 2008

/38/ Statement of making up the balance of electric power in Kaniv HPP for June 2008

/39/ Statement of making up the balance of electric power in Kaniv HPP for May 2008

/40/ Statement of making up the balance of electric power in Kaniv HPP for March 2008

/41/ Statement of making up the balance of electric power in Kaniv HPP for November 2008

/42/ Statement of making up the balance of electric power in Kaniv HPP for October 2008

/43/ Statement of making up the balance of electric power in Kaniv HPP for the period 18.04.2008-30.04.2008

/44/ Statement of making up the balance of electric power in Kaniv HPP for September 2008

/45/ Statement of making up the balance of electric power in Kaniv HPP for February 2008

/46/ Statement of making up the balance of electric power in Kaniv HPP for January 2008

/47/ Statement of making up the balance of electric power in Kaniv HPP for December 2009

/48/ Statement of making up the balance of electric power in Kaniv HPP for January 2009

/49/ Statement of the electric power balance in Kahovka HPP, dated 1.02.2008

/50/ Statement of the electric power balance in Kahovka HPP, dated 1.04.2008

/51/ Statement of the electric power balance in Kahovka HPP, dated 1.04.2009

/52/ Statement of the electric power balance in Kahovka HPP, dated 1.05.2008

/53/ Statement of the electric power balance in Kahovka HPP, dated 1.05.2009

/54/ Statement of the electric power balance in Kahovka HPP, dated

	1.06.2009
/55/	Statement of the electric power balance in Kahovka HPP, dated 1.07.2008
/56/	Statement of the electric power balance in Kahovka HPP, dated 1.07.2009
/57/	Statement of the electric power balance in Kahovka HPP, dated 1.08.2008
/58/	Statement of the electric power balance in Kahovka HPP, dated 1.09.2008
/59/	Statement of the electric power balance in Kahovka HPP,, dated 1.09.2009
/60/	Statement of the electric power balance in Kahovka HPP, dated 1.10.2008
/61/	Statement of the electric power balance in Kahovka HPP, dated 1.11.2008
/62/	Statement of the electric power balance in Kahovka HPP, dated 1.12.2009
/63/	Statement of the electric power balance in Kahovka HPP, dated 2.01.2008
/64/	Statement of the electric power balance in Kahovka HPP, dated 2.01.2009
/65/	Statement of the electric power balance in Kahovka HPP, dated 2.02.2009
/66/	Statement of the electric power balance in Kahovka HPP, dated 2.03.2009
/67/	Statement of the electric power balance in Kahovka HPP, dated 2.06.2008
/68/	Statement of the electric power balance in Kahovka HPP, dated 2.11.2009
/69/	Statement of the electric power balance in Kahovka HPP, dated 3.03.2008
/70/	Statement of the electric power balance in Kahovka HPP, dated 3.08.2009
/71/	Statement of the electric power balance in Kahovka HPP, dated 3.11.2008
/72/	Statement of the electric power balance in Kremenchuk HPP, dated 1.09.2009
/73/	Statement of the electric power balance in Kremenchuk HPP, dated 1.10.2009
/74/	Statement of the electric power balance in Kremenchuk HPP, dated 1.12.2009
/75/	Statement of the electric power balance in Kremenchuk HPP, dated 2.11.2009
/76/	Statement of the electric power balance in Kremenchuk HPP, dated 2.12.2009
/77/	Statement of the electric power balance in Kremenchuk HPP, dated 3.08.2009

/78/	Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for August 2008
/79/	Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for August 2009
/80/	Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for April 2008
/81/	Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for April 2009
/82/	Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for December 2008
/83/	Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for December 2009
/84/	Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for July 2008
/85/	Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for July 2009
/86/	Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for June 2008
/87/	Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for June 2009
/88/	Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for May 2008
/89/	Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for March 2008
/90/	Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for March 2009
/91/	Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for November 2008
/92/	Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for November 2009
/93/	Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for October 2008
/94/	Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for October 2009
/95/	Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for September 2008
/96/	Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for September 2009
/97/	Data on water discharge through turbines for energy generation

and energy generation by Dniprodzerzhynsk HPP for February 2008

/98/ Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for February 2009

/99/ Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for June 2009

/100/ Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for January of 2008

/101/ Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for January of 2009

/102/ Report on results of water resources using by Kyiv HPP for March 2009

/103/ Report on results of water resources using by Kyiv HPP for September 2009

/104/ Report on results of water resources using by Kyiv HPP for December 2009

/105/ Report on results of water resources using by Kyiv HPP for October 2009

/106/ Report on results of water resources using by Kyiv HPP for April 2009

/107/ Report on results of using water resources by Kyiv HPP for July 2009

/108/ Report on results of water resources using by Kyiv HPP for November 2009

/109/ Report on results of water resources using by Kyiv HPP for February 2009

/110/ Report on results of water resources using by Kyiv HPP for September 2010

/111/ Report on results of water resources using by Kyiv HPP for August 2009

/112/ Report on results of water resources using by Kyiv HPP for January 2009

/113/ Report on results of water resources using by Kyiv HPP for May 2009

/114/ Shift report, OJSC "Urkhydroenergo" dated 25.10.2010

/115/ Balance of the HPP work for August 2009

/116/ Balance of the HPP work for December 2009

/117/ Balance of the HPP work for July 2009

/118/ Balance of the HPP work for November 2009

/119/ Balance of the HPP work for October 2009

/120/ Balance of the HPP work for September 2009

/121/ Data on water discharge through turbines for energy generation and energy generation by Dnipro HPP for September 2008

/122/ Data on water discharge through turbines for energy generation

and energy generation by Dnipro HPP for January 2009

/123/ Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for September 2008

/124/ Data on water discharge through turbines for energy generation and energy generation by Dniprodzerzhynsk HPP for January 2009

/125/ Data on water discharge through turbines for energy generation and energy generation by Kahovka HPP for September 2008

/126/ Data on water discharge through turbines for energy generation and energy generation by Kahovka HPP for January 2009

/127/ Data on water discharge through turbines for energy generation and energy generation by Kremenchuk HPP for September 2008

/128/ Data on water discharge through turbines for energy generation and energy generation by Kremenchuk HPP for January 2009

/129/ Data on water discharge through turbines for energy generation and energy generation by "Kaniv HPP" for September 2008

/130/ Data on water discharge through turbines for energy generation and energy generation by "Kaniv HPP" for January 2009

/131/ Total consumption of water through the turbines of Kaniv HPP for August 2008

/132/ Total consumption of water through the turbines of Kaniv HPP for April 2008

/133/ Total consumption of water through the turbines of Kaniv HPP for July 2008

/134/ Total consumption of water through the turbines of Kaniv HPP for June 2008

/135/ Total consumption of water through the turbines of Kaniv HPP for May 2008

/136/ Total consumption of water through the turbines of Kaniv HPP for March 2008

/137/ Total consumption of water through the turbines of Kaniv HPP for October 2008

/138/ Total consumption of water through the turbines of Kaniv HPP for September 2008

/139/ Total consumption of water through the turbines of Kaniv HPP for February 2008

/140/ Total consumption of water through the turbines of Kaniv HPP for January 2008

/141/ Decade water consumption through turbines for energy generation and energy generation by Kyiv HPP for January 2009

/142/ Electricity meter reading of Dniprodzerzhynsk HPP for 2010

/143/ Protocol #639/05 of verification of watt-hour meter, dated 18.03.2008. Meter model EA05RAL-B-4. Number 01057592.

/144/ Protocol #641/05 of verification of watt-hour meter, dated 18.03.2008. Meter model EA05RAL-B-4. Number 01057602.

/145/ Protocol #642/05 of verification of watt-hour meter, dated

	18.03.2008. Meter model EA05RAL-B-4. Number 01057513.
/146/	Protocol #643/05 of verification of watt-hour meter, dated 18.03.2008. Meter model EA05RAL-B-4. Number 01057581.
/147/	Protocol #644/05 of verification of watt-hour meter, dated 18.03.2008. Meter model EA05RAL-B-4. Number 01057582.
/148/	Protocol #645/05 of verification of watt-hour meter, dated 18.03.2008. Meter model EA05RAL-B-4. Number 01057619.
/149/	Protocol #706/05 of verification of watt-hour meter, dated 02.04.2008. Meter model EA05RAL-B-4. Number 01057605.
/150/	Protocol #709/05 of verification of watt-hour meter, dated 02.04.2008. Meter model EA05RAL-B-4. Number 01057594.
/151/	Protocol #711/05 of verification of watt-hour meter, dated 02.04.2008. Meter model EA05RAL-B-4. Number 01057607.
/152/	Protocol of calibration #10-184, dated 21.09.2010
/153/	Protocol of calibration #10-185, dated 22.09.2010
/154/	The calculation of consumption through the turbines and for technical and water supply of Kremenchuk HPP for September 2009
/155/	The calculation of consumption through the turbines and for technical and water supply of Kremenchuk HPP for December 2009
/156/	The calculation of consumption through the turbines and for technical and water supply of Kremenchuk HPP for October 2009
/157/	The calculation of consumption through the turbines and for technical and water supply of Kremenchuk HPP for July 2009
/158/	The calculation of consumption through the turbines and for technical and water supply of Kremenchuk HPP for November 2009
/159/	The calculation of consumption through the turbines and for technical and water supply of Kremenchuk HPP for 2009
/160/	The certificate #3432 granted for Paschenko Tatyana Vasyl'evna in 2008
/161/	The certificate on acceptance and packaging of the meter #01184666. The model - AI805RAL-P4G-DW-4. The date of verification is 14.07.2008
/162/	The certificate on acceptance and packaging of the meter #01184667. The model - AI805RAL-P4G-DW-4. The date of verification is 11.07.2009
/163/	The certificate on acceptance and packaging of the meter #01184671. The model - AI805RAL-P4G-DW-4. The date of verification is 11.07.2008
/164/	The certificate on acceptance and packaging of the meter #01184673. The model - AI805RAL-P4G-DW-4. The date of verification is 11.07.2008
/165/	The certificate on acceptance and packaging of the meter #01184677. The model - AI805RAL-P4G-DW-4. The date of verification is 11.07.2008

/166/ The certificate on acceptance and packaging of the meter #01184679. The model - AI805RAL-P4G-DW-4. The date of verification is 11.07.2008

/167/ The certificate on acceptance and packaging of the meter #01184684. The model - AI805RAL-P4G-DW-4. The date of verification is 11.07.2008

/168/ The certificate on acceptance and packaging of the meter #01184686. The model - AI805RAL-P4G-DW-4. The date of verification is 11.07.2008

/169/ The certificate on acceptance and packaging of the meter #01184687. The model - AI805RAL-P4G-DW-4. The date of verification is 11.07.2009

/170/ The certificate on acceptance and packaging of the meter #01184688. The model - AI805RAL-P4G-DW-4. The date of verification is 11.07.2008

/171/ The certificate on acceptance and packaging of the meter #01184691. The model - AI805RAL-P4G-DW-4. The date of verification is 14.07.2008

/172/ The certificate on acceptance and packaging of the meter #01184694. The model - AI805RAL-P4G-DW-4. The date of verification is 11.07.2008

/173/ The certificate on acceptance and packaging of the meter #01184754. The model - AI805RAL-P4G-DW-4. The date of verification is 15.07.2008

/174/ The certificate on acceptance and packaging of the meter #01184755. The model - AI805RAL-P4G-DW-4. The date of verification is 15.07.2008

/175/ The certificate #172 of electric power meter verification #1057629, model EA05RAL-B-4, dated 27.06.2008

/176/ The certificate #173 of electric power meter verification #1057617, model EA05RAL-B-4, dated 27.06.2008

/177/ The certificate #174 of electric power meter verification #1088050, model EA05RAL-B-4, dated 27.06.2008

/178/ The certificate #175 of electric power meter verification, dated 27.06.2008

/179/ The certificate #176 of electric power meter verification #1057640, model EA05RAL-B-4, dated 27.06.2008

/180/ The certificate #177 of electric power meter verification #1057597, model EA05RAL-B-4, dated 27.06.2008

/181/ The certificate #178 of electric power meter verification #1057618, model EA05RAL-B-4, dated 27.06.2008

/182/ The certificate #179 of electric power meter verification #1057586, model EA05RAL-B-4, dated 27.06.2008

/183/ The certificate #39-03-0454 of verification of excessive pressure transducer Sapphire-22MT, #503031, dated 25.03.2010

/184/ The certificate #39-03-0455 of verification of

	excessive pressure transducer Sapphire-22MT, #503032, dated 25.03.2010
/185/	The certificate #509 of verification of hydrostatic pressure transducer JUMO D76 #030, dated 14.08.2009
/186/	The certificate #510 of verification of hydrostatic pressure transducer JUMO D76 #031, dated 14.08.2009
/187/	The certificate #511 of verification of hydrostatic pressure transducer JUMO D76 #032, dated 14.08.2009
/188/	The certificate #512 of verification of hydrostatic pressure transducer JUMO D76 #033, dated 14.08.2009
/189/	The certificate of calibration ЗВТ №10-185, dated 22.09.2011
/190/	Training certificate #408753 of Tetiana Paschenko, dated 04.06.2010. Registration number #1436
/191/	Training certificate #524476 of Tetiana Dyadura, dated 27.09.2008. Registration number #793
/192/	Training certificate #620256 of Yevgeniy Ivanushko, dated 12.02.2010. Registration number #129
/193/	Training certificate #631657 of Viktor Vasylenko, dated 04.06.2010. Registration number #49-2НК/10
/194/	Training certificate #442717 of Volodymyr Kosenko, dated 9.02.2008. Registration number #135
/195/	Training certificate #442798 of Valeriy Fursa, dated 1.03.2008. Registration number #215
/196/	Training certificate #538195 of Sergiy Suhomlyn, dated 27.02.2009. Registration number #170
/197/	The certificate of authorities #№ПК 027-2009, dated 17.12.2009
/198/	The certification of participation in the seminar "Measurement assurance of activity of enterprises and organizations of the region" granted Sergiy Shtepura, dated 2010. Registration #25/9983
/199/	Daily record of the main equipment functioning, dated 12.10.2010
/200/	Photo - generator-transformer unit
/201/	Photo - generator of calculation active and reactive energy of Kaniv HPP
/202/	Photo - Kahovka generating unit
/203/	Photo - Kahovka generating unit during reconstruction
/204/	Photo - excitation system
/205/	Photo - meter. Model EA02RAL-B-4. Works number 01057472
/206/	Photo - meter. Model EA02RAL-B-4. Works number 01057538
/207/	Photo - meter. Model EA02RAL-B-4. Works number 01057541
/208/	Photo - meter. Model EA02RAL-B-4. Works number 01057547
/209/	Photo - meter. Model EA02RAL-B-4. Works number 01057548
/210/	Photo - meter. Model EA02RAL-B-4. Works number 01133558
/211/	Photo - meter. Model EA05RAL-B-3. Works number 01042841
/212/	Photo - meter. Model EA05RAL-B-3. Works number 01042844
/213/	Photo - meter. Model EA05RAL-B-3. Works number 01044493
/214/	Photo - meter. Model EA05RAL-B-3. Works number 01044509

/215/ Photo - meter. Model EA05RAL-B-3. Works number 01048643
/216/ Photo - meter. Model EA05RAL-B-3. Works number 01054487
/217/ Photo - meter. Model EA05RAL-B-3. Works number 01054488
/218/ Photo - meter. Model EA05RAL-B-3. Works number 01057659
/219/ Photo - meter. Model EA05RAL-B-3. Works number 01057659
/220/ Photo - meter. Model EA05RAL-B-3. Works number 01057685
/221/ Photo - meter. Model EA05RAL-B-3. Works number 01057718
/222/ Photo - meter. Model EA05RAL-B-3. Works number 01057736
/223/ Photo - meter. Model EA05RAL-B-3. Works number 01057740
/224/ Photo - meter. Model EA05RAL-B-3. Works number 01057743
/225/ Photo - meter. Model EA05RAL-B-4. Works number 01057578
/226/ Photo - meter. Model EA05RAL-B-4. Works number 01057581
/227/ Photo - meter. Model EA05RAL-B-4. Works number 01057582
/228/ Photo - meter. Model EA05RAL-B-4. Works number 01057591
/229/ Photo - meter. Model EA05RAL-B-4. Works number 01057592
/230/ Photo - meter. Model EA05RAL-B-4. Works number 01057594
/231/ Photo - meter. Model EA05RAL-B-4. Works number 01057602
/232/ Photo - meter. Model EA05RAL-B-4. Works number 01057605
/233/ Photo - meter. Model EA05RAL-B-4. Works number 01057607
/234/ Photo - meter. Model EA05RAL-B-4. Works number 01057613
/235/ Photo - meter. Model EA05RAL-B-4. Works number 01057614
/236/ Photo - meter. Model EA05RAL-B-4. Works number 01057619
/237/ Photo - meter. Model EA05RAL-B-4. Works number 01057633
/238/ Photo - meter. Model EA05RAL-B-4. Works number 01057635
/239/ Photo - meter. Model A1802RAL-P4GB-DW-4. Number 01184540
/240/ Photo - meter. Model A1802RAL-P4GB-DW-4. Number 01184542
/241/ Photo - meter. Model A1802RAL-P4GB-DW-4. Number 01184545
/242/ Photo - meter. Model A1802RAL-P4GB-DW-4. Number 01184548
/243/ Photo - meter. Model A1802RAL-P4GB-DW-4. Number 01184568
/244/ Photo - meter. Model A1802RAL-P4GB-DW-4. Number 01184573
/245/ Photo - meter. Model A1802RAL-P4GB-DW-4. Number 01184577
/246/ Photo - meter. Model A1802RAL-P4GB-DW-4. Number 01184584
/247/ Photo - turbine in reconstruction of Kremenchuk HPP
/248/ Photo - excitation system of Kremenchuk HPP
/249/ Photo - turbine #2 of Kremenchuk HPP
/250/ Photo - turbine runner of Kremenchuk HPP
/251/ Photo - turbine of Kyiv HPP
/252/ Photo - excitation system of Kyiv HPP
/253/ Photo - turbine room of Dnipro HPP

Persons interviewed:

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

OJSC “Ukrhydroenergo”

/1/ Zhanna Gutina – First deputy director of Economy & Investments Department, Project Coordinator

/2/ Olga Pavliuk – Economist of Economy & Investments Department
/3/ Yashar Amirov – Lead programming engineer of Generation Department
/4/ Vyacheslav Medvediev – Senior engineer
/5/ Vladimir Sergiyenko – Director, Labour Protection, Operative Management and Technical Supervision Department
/6/ Ivan Zhdanov – Deputy director of Economy & Investments Department, head of Section of investment projects implementation
/7/ Oleksandr Chaika – Head of production and technical division, Generation Department

Kyiv HPP

/8/ Iryna Myslovska – Deputy head of production and technical sector
/9/ Sergiy Nemirovskiy - Chief of the HPP shift
/10/ Igor Khutornoy - Chief of the UHE shift
/11/ Viktor Shevchenko – Deputy chief engineer, head of production and technical sector

Dniprodzerzhynsk HPP

/12/ Vladimir Kosenko - Reconstruction engineer
/13/ Vladislav Kucheryaviy - Chief Engineer HPP
/14/ Sergiy Tkachenko - Electrical shop supervisor
/15/ Larisa Tarnawska - Head of economic sector
/16/ Kanyv HPP
/17/ Vyacheslav Synenko - Head of manufacturing and technical sector

Kremenchuk HPP

/18/ Igor Yakimenko - Head of manufacturing and technical department
/19/ Vasyl Vasylenko - Chief Engineer
/20/ Evgeniy Ivanushko - Reconstruction engineer
/21/ Tetyana Dedura - Engineer of manufacturing and technical sector

Dnipro HPP

/22/ Uriy Savchenko - Head of manufacturing and technical sector
/23/ Kateryna Mudryk - Engineer

Kakhovska HPP

/24/ Roman Voloshyn - Engineer-Metrologist
/25/ Leonid Kyrychenko - the head of shop
/26/ Kominska Nataliya - the head of manufacturing and technical sector

The World Bank

/27/ Yevgen Yesyrkenov – Senior Specialist, World Bank Carbon Finance Unit
/28/ Dmitriy Glazkov – Acting Task Team Leader, Sustainable Development Department

Mitsubishi UFJ Morgan Stanley Securities

/29/ Vladislav Arnaudov – JI and CDM projects Consultant
/30/ Vladimir Laskarevsky – JI and CDM projects Consultant

BUREAU VERITAS CERTIFICATION HOLDING SAS

VERIFICATION PROTOCOL

Check list for verification, according to the JOINT IMPLEMENTATION DETERMINATION AND VERIFICATION MANUAL (Version 01)

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
Project approvals by Parties involved					
90	Has the DFPs of at least one Party involved, other than the host Party, issued a written project approval when submitting the first verification report to the secretariat for publication in accordance with paragraph 38 of the JI guidelines, at the latest?	The information concerning Project approval is missing.	**CAR1** Please, provide documented evidence of the project approval by the Parties involved. Please, include the information concerning the Project approval to the MR.	The Netherlands and Ukraine have already issued letters of approval for the project. Copies of the LoAs have been attached in Appendix 4 to the monitoring report for 2007. The fact that the project has been approved by both parties is reflected in Section 1.2 of the monitoring reports for 2008 and 2009. Additionally, the project was formally confirmed under Track 1 by SEIA on February 25, 2011. The link to the PDD and other project documents is available on the UNFCCC JI website: http://ji.unfccc.int/JIITLProject/DB/QUI36U4PN29LM0ZF8DKHL7KRGYE1U2/details	OK
91	Are all the written project approvals	Pending a response to the	Pending a response to the	N/A	OK

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	by Parties involved unconditional?	CAR form the item above (DVM paragraph 91).	CAR form the item above (DVM paragraph 91).		
Project implementation					
92	Has the project been implemented in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	Rehabilitation of seventeen hydro units at the Kyiv HPP, Kaniv HPP, Kremenchuk HPP, Dniprodzerzynsk HPP, Dnipro HPP and Kahovka HPP completed by 31.12.2009. The names of the rehabilitated hydro units and the dates of completion of the rehabilitation are provided in the Table 1 of the MR. The equipment	**CAR2** Please, correct the section 1.6 of the MR (2009) to make the implementation status of the project consistent with the actual situation.	Section 1.6 of the MR 2009 has been corrected.	The issue was closed based on due amendments made in the MR.

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
		installed and the confirmative documentation were checked onsite.			
93	What is the status of operation of the project during the monitoring period?	It is stated in the MR (p.1, MR for 2008 and p.1, MR for 2009) that the project includes nine different sites. However, only seven HPPs are marked in the maps (pages 3-6 of the MRs). Moreover, Excel model also contains the calculations of ERUs for seven HPPs.	**CL1** Please, make the information concerning the project's location consistent throughout the MR and Excel spreadsheet.	As per Appendix 7 of the Monitoring Report for 2008, project location information has been clarified. The monitoring report and the Excel sheet for 2008 and 2009 are clarified in line of this and the information regarding the project's locations is made consistent, in particular for the following: •The Kyiv HAPP rehabilitation work is not included in the monitoring as no rehabilitation work is conducted there as per Table 18 in the PDD; •The Dnipro HPP-1 and Dnipro HPP-2 are a part of the same Dnipro HPP. Therefore, in the PDD, as well as in the monitoring reports, emission reduction calculations are carried out for the remaining seven locations: • Kyiv HPP,	The determination of the changes to the project design during the project implementation is presented in the section 3.2.1.

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
				• Kaniv HPP, • Kremenchuk HPP, • Dniprodzerzhynsk HPP, • Dnipro HHP, • Kakhovka HHP, and • Dnistro HHP A comment to this extent is added to the monitoring report. The Appendix 7 "Changes to the Project Design as Described in the PDD that Occurred after Determination has been Deemed Final" was added to the Monitoring Report for 2008.	of this VR. The issue is closed.
Compliance with monitoring plan					
94	Did the monitoring occur in accordance with the monitoring plan included in the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI	The algorithm for monitoring is in line with the monitoring plan included in the determined and registered PDD.	No actions are requested.	N/A	OK

<table>
<tr><th>DVM Paragraph</th><th>Check Item</th><th>Initial finding</th><th>Action requested to project participants</th><th>Summary of project owner response</th><th>Conclusion</th></tr>
<tr><td></td><td>website?</td><td></td><td></td><td></td><td></td></tr>
<tr><td>95 (a)</td><td>For calculating the emission reductions or enhancements of net removals, were key factors, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks associated with the project taken into account, as appropriate?</td><td>It was observed during the site-visit that one of the parameters monitored - the amount of electricity generation $EG_{pr,HPP,i,y}$, includes also the amount of electricity used for own needs. The monitoring plan (PDD version 8) presumes that $EG_{pr,HPP,i,y}$ parameter should be double checked by receipt of sale. However, only electricity</td><td>CL2
Please, clarify if the same parameters (electricity generation and water flow) were used to estimate the correlation “historical electricity generation – historical water flow” and to calculate baseline electricity generation for 2008-2009.

Conclusion on response #1:
It was checked that the same parameters of</td><td>At the moment of the project development and PDD preparation, the best available operational and reporting data was used to derive the baseline correlation between water flow and power generation (as assessed during the determination process).
In particular, for the six HPPs covered in the monitoring periods 01/01/2008 to 31/12/2008 and 01/01/2009 to 31/12/2009, the following data vintage was used for power generation and water flow:

<table><tr><th rowspan="2">#</th><th rowspan="2">HPP</th><th colspan="2">Water flow</th></tr><tr><th>Baseline</th><th>Project</th></tr><tr><td>1</td><td>Kyiv HPP</td><td>Total</td><td>Total</td></tr><tr><td>2</td><td>Kaniv HPP</td><td>Total</td><td>Total</td></tr><tr><td>3</td><td>Kremenchuk HPP</td><td>Through HU</td><td>Total</td></tr><tr><td>4</td><td>Dniprodzerzhynsk HPP</td><td>Through HU</td><td>Total</td></tr><tr><td>5</td><td>Dnipro HPP</td><td>Total</td><td>Total</td></tr><tr><td>6</td><td>Kakh HPP</td><td>Through HU</td><td>Through HU</td></tr></table></td><td>OK</td></tr>
</table>

<table>
<tr><th>DVM Paragraph</th><th>Check Item</th><th>Initial finding</th><th>Action requested to project participants</th><th>Summary of project owner response</th><th>Conclusion</th></tr>
<tr><td></td><td></td><td>delivered to the grid is included in the receipts of sale.
It was also observed that the water flow measured includes water for equipment cooling as its part.</td><td>power generation (total or net) were used for monitoring and ex ante baseline establishing.
The parameter ”water flow for own use for turbines cooling” is not considered in the determined PDD and the monitoring plan. The discrepancy in this parameter for baseline and monitored data leads to underestimation of the incremental power generation by the project, and consequently result in</td><td>
<table>
<tr><th rowspan="2">#</th><th rowspan="2">HPP</th><th colspan="2">Electricity generation</th></tr>
<tr><th>Baseline</th><th>Project</th></tr>
<tr><td>1</td><td>Kyiv HPP</td><td>Total generation</td><td>Total generation</td></tr>
<tr><td>2</td><td>Kaniv HPP</td><td>Total generation</td><td>Total generation</td></tr>
<tr><td>3</td><td>Kremenchuk HPP</td><td>Total generation</td><td>Total generation minus excitation</td></tr>
<tr><td>4</td><td>Dniprodzerzhynsk HPP</td><td>Total generation</td><td>Total generation</td></tr>
<tr><td>5</td><td>Dnipro HPP</td><td>Total generation</td><td>Total generation</td></tr>
<tr><td>6</td><td>Kakh HPP</td><td>Total generation minus excitation</td><td>Total generation minus excitation</td></tr>
</table>
Taking into account the small share of own needs for both power and water for HPPs (within 2-3% of the total water flow), the use of different data vintage to establish the correlation between water flow and power generation was considered as acceptable and representative and</td><td></td></tr>
</table>

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
			decreasing of ERUs amounts calculated. This is conservative. This issue is closed based on the clarifications.	was positively determined as part of the methodology approach suggested in the PDD. Baseline versus monitoring data vintages The HPPs provided clarification statements regarding the data vintage used during the monitoring period from 01/01/2008 to 31/12/2008 and 01/01/2009 to 31/12/2009. As indicated in the provided statements, for power generation the Kyiv HPP, Kaniv HPP, Dniprodzerzhynsk HPP, Dnipro HPP and Kahovka HPP are using data vintages which are consistent with the data used for *ex ante* baseline correlation. At the Kremenchuk HPP, the discrepancy in data vintages is identified as power generation in the baseline correlation was based on the gross (total) generation, while the net generation (minus own needs for	

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
				excitation) was monitored during 01/01/2008 to 31/12/2008 and 01/01/2009 to 31/12/2009. However, it can be demonstrated that this approach leads to underestimation of the incremental power generation by the project that is used to calculate the ERUs (please see Step 2 – Determine incremental amount of electricity generation by the Project in the section D.1.1.4. of the PDD, formula 4.) It is further noted that this inconsistency leads to an error of around 1.4% which is below the materiality threshold. For water flow the Kyiv HPP, Kaniv HPP, Dnipro HPP and Kahovka HPP are using data vintages which are consistent with the data used for *ex ante* baseline correlation. At the Dniprodzerzhynsk HPP and Kremenchuk HPP, the discrepancy in data vintages is identified as water flow in the baseline correlation was based on the net water flow ("water	

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
				flow through the hydro unit"), while the total water flow was monitored during 01/01/2008 to 31/12/2008 and 01/01/2009 to 31/12/2009. However, it can be demonstrated that this approach leads to underestimation of the incremental power generation by the project that is used to calculate the ERs (please see Step 2 – Determine incremental amount of electricity generation by the Project in the section D.1.1.4. of the PDD, formula 4.) It is further noted that this inconsistency leads to an error of less than 1% which is below the materiality threshold. References: 01 CL2-ID-Electricity generation and water flow 2009.doc	
95 (b)	Are data sources used for calculating of emission reductions or enhancements of	No, some data sources used to calculate emission reductions should be	**CAR3** Please, specify information concerning data sources for the next parameters	Response to CAR3: The exact data sources are specified in the monitoring reports. Response to CAR4: The type is corrected and it is	OK

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	net removals clearly identified, reliable and transparent?	specified. The type of monitoring devices for power generation and water flow monitoring (indicated in the MR) does not correspond to the actual situation observed onsite.	(p.12-15 of the MRs): - Amount of each fossil fuel consumed by grid connected TPPs in 2008 - Historical power generation data for 2002-2005 for each hydro power plant before rehabilitation - Historical water flow for 2002-2005 (m3/a) for each HPP - Net calorific value of fuel **CAR4** Please, specify the data units for the parameters "electricity generation by the	clarified that the units are "MWh". Response to CAR5: A list of electricity meters and level meters (including their types, year of installation and calibration within the monitoring period) used to monitor power generation is attached in a new Appendix 4 of the monitoring reports. Please also see the attached references. Response to CL3: The values of electricity generation are corrected and it is clarified that the units are "MWh".	

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
			grid connected TPPs in 2008" and "electricity generation by the grid connected TPPs in 2009" (p. 14 of the MRs). **CAR5** Please, supplement the monitoring report with a list of electricity meters and level meters (including their types, date of installation and calibration within the monitoring period) used to monitor power generation. **CL3** Please, clarify the values of		

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
			electricity generation and water flow for Kaniv HPP. Please, make these data consistent in every document.		
95 (c)	Are emission factors, including default emission factors, if used for calculating the emission reductions or enhancements of net removals, selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?	All the emission factors, including default emission factors are used in line with the registered PDD. The most recent submission of the Ukrainian National GHG Inventory (for 2010) is referred to calculate the emissions form each fuel type.	No actions are requested.	-	OK
Applicable to JI SSC projects only					

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
96	Is the relevant threshold to be classified as JI SSC project not exceeded during the monitoring period on an annual average basis? If the threshold is exceeded, is the maximum emission reduction level estimated in the PDD for the JI SSC project or the bundle for the monitoring period determined?	N/A	N/A	N/A	N/A
Applicable to bundled JI SSC projects only					
97 (a)	Has the composition of the bundle not changed from that is stated in F-JI-	N/A	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	SSCBUNDLE?				
97 (b)	If the determination was conducted on the basis of an overall monitoring plan, have the project participants submitted a common monitoring report?	N/A	N/A	N/A	N/A
98	If the monitoring is based on a monitoring plan that provides for overlapping monitoring periods, are the monitoring periods per component of the project clearly specified in the monitoring report? Do the monitoring periods not overlap	N/A	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	with those for which verifications were already deemed final in the past?				
Revision of monitoring plan					
Applicable only if monitoring plan is revised by project participant					
99 (a)	Did the project participants provide an appropriate justification for the proposed revision?	The monitoring is occurred according to the determined and registered monitoring plan. No deviations from the original monitoring plan were detected by the verification team during the site-visit.	No actions are requested.	N/A	OK
99 (b)	Does the proposed revision improve the accuracy and/or applicability of information	N/A	N/A	N/A	OK

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	collected compared to the original monitoring plan without changing conformity with the relevant rules and regulations for the establishment of monitoring plans?				
			Data management		
101 (a)	Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	The detailed description of the data collection procedures is included in the MRs. The data collection occurs in accordance with the monitoring plan from the determined PDD. It is stated in the MRs that the	**CAR6** Please, add the relevant equations used to calculate the baseline electricity production to the MRs to ensure transparency of the data processing.	The information and equations used for calculation of the baseline electricity production is already provided in section 2.2.1, Step 2 of the monitoring report and is based on the description provided in Section D. of the finally determined PDD. Please also refer to Formula 3 in the Section D.1.1.4. of the PDD and to the figures in the Annex 2 of the PDD (page 41) that are providing examples of the correlation between water flow and power generation.	OK

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
		correlation is used to define the baseline electricity production.			
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	The project entity regularly takes the readings of the meters at each individual hydro unit. The procedure of the electricity meters calibration was found satisfactory. Each meter is been calibrated in accordance with the Ukrainian national standards. The documented	**CAR7** Please, supplement the monitoring report with the information concerning the calibration procedures of level meters and provide any documented instruction to confirm this information. Please submit any documented evidence to confirm the calibration status	Level meters at Kyiv HPP, Kaniv HPP, Kremenchuk HPP (upper level) and Dnypro-Dzerzhynsk HPP are calibrated according to the Ukrainian national standards. The instructions regarding the calibration at Kremenchuk HPP (lower level), Dnipro HPP and Kahovka HPP are provided in the references cited below. References: 03 CAR5-CAR7 -ID- List of Water Level Meters 2009.doc	OK

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
		evidences were checked onsite. Level meters are used to monitor the water flow. It was observed during the site-visit that the documented evidences for calibration/verification of the meters at DniproGES and Kakhovka HPP were absent onsite. It was also revealed that several various procedures for calibration of level meters exist at enterprise.	of the level meters at Dnipro HPP and Kahovka HPP.		

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	Well-defined protocols and routine procedures, with good, professional data entry, extraction and reporting procedures are established. Proper management processes and systems records are kept by the operator, UHE, and copies of such records are available to judge compliance with the required management systems.	**FAR1** Please, submit any documented instruction which indicates that the data monitored and required for ERUs calculation (including the historical data for 2002-2005) are to be kept for two years after the crediting period as per *JI determination and verification manual, v.01.*	An instruction on data storage procedures and requirements will be prepared and submitted during the next verification.	This issue must be checked during the next verification.
101 (d)	Is the data collection and	The key parameters	**CAR8** Please,	Response to CAR8: The required information is added to	OK

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	management system for the project in accordance with the monitoring plan?	monitored (electricity generation and water flow) are first recorded by the operational staff of UHE on a hourly basis (electricity generation) or a daily basis (water flow) at each of the sites. It is then delivered to UHE Production Department for calculation on a daily basis. Data records are stored in both hard and soft copies.	supplement the MRs with the information concerning cross checking of monitoring parameters (including indication of job title of the person responsible for cross checking) as it was found during the site-visit that these procedures are different for each parameter. Please clearly define in the MRs who is responsible for initial ERU calculations and clarify if any cross checking is	the monitoring report in Figure 1. The names and job titles of the responsible personnel at each plan is provided in Appendix 5 of the monitoring reports. An example of the documents for cross-checking of water consumption is provided in reference 05. References: 04 CAR8-ID-List of the Personnel Supervising Monitoring Activities 2009.doc 05 CAR8-ID- Example documents concerning cross checking of monitoring parameters (water).doc Response to CAR9: The required information is added to the monitoring reports in Figure 3.	

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
			performed during this stage. **CAR9** Please, highlight in the MRs information/process flow from the raw data (obtained at each HPP) to reported totals (collected at the UHE head-office).		
Verification regarding programs of activities (additional elements for assessment)					
102	Is any JPA that has not been added to the JI PoA not verified?	N/A	N/A	N/A	N/A
103	Is the verification based on the monitoring reports of all JPAs to be verified?	N/A	N/A	N/A	N/A
103	Does the verification ensure	N/A	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	the accuracy and conservativeness of the emission reductions or enhancements of removals generated by each JPA?				
104	Does the monitoring period not overlap with previous monitoring periods?	N/A	N/A	N/A	N/A
105	If the AIE learns of an erroneously included JPA, has the AIE informed the JISC of its findings in writing?	N/A	N/A	N/A	N/A
Applicable to sample-based approach only					
106	Does the sampling plan prepared by the AIE: (a) Describe its	N/A	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	sample selection, taking into account that: (i) For each verification that uses a sample-based approach, the sample selection shall be sufficiently representative of the JPAs in the JI PoA such extrapolation to all JPAs identified for that verification is reasonable, taking into account differences among the characteristics of JPAs, such as: – The types of				

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	JPAs; − The complexity of the applicable technologies and/or measures used; − The geographical location of each JPA; − The amounts of expected emission reductions of the JPAs being verified; − The number of JPAs for which emission reductions are being verified; − The length of monitoring periods of the JPAs being				

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	verified; and − The samples selected for prior verifications, if any?				
107	Is the sampling plan ready for publication through the secretariat along with the verification report and supporting documentation?	N/A	N/A	N/A	N/A
108	Has the AIE made site inspections of at least the square root of the number of total JPAs, rounded to the upper whole number? If the AIE makes no site inspections or fewer site inspections than	N/A	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	the square root of the number of total JPAs, rounded to the upper whole number, then does the AIE provide a reasonable explanation and justification?				
109	Is the sampling plan available for submission to the secretariat for the JISC.s ex ante assessment? (Optional)	N/A	N/A	N/A	N/A
110	If the AIE learns of a fraudulently included JPA, a fraudulently monitored JPA or an inflated number of emission reductions claimed in a JI PoA, has	N/A	N/A	N/A	N/A

DVM Paragraph	Check Item	Initial finding	Action requested to project participants	Summary of project owner response	Conclusion
	the AIE informed the JISC of the fraud in writing?				

ANNEX A: VERIFIERS CV's

Work was carried out by:

Igor Kachan, Ph.D. (chemistry)
Team Leader, Climate Change Lead Verifier
Bureau Veritas Ukraine,
Health, Safety and Environment Department Project Manager
Igor Kachan has graduated from Kyiv National Taras Shevchenko University and defended a PhD thesis in analytical chemistry speciality. He has successfully completed IRCA registered Lead Auditor Training Course for Environment Management Systems and Quality Management Systems. Igor Kachan has undergone a training course on Clean Development Mechanism/Joint Implementation and participated in determination/verification of more then 30 JI projects.

Oleg Skoblyk, Specialist (power management)
Team Member, Climate Change Lead Verifier
Bureau Veritas Ukraine
Health, Safety and Environment Department Project Manager
Oleg Skoblyk has graduated from National Technical University "Kyiv Polytechnic University" with specialty Power Management. He has successfully completed IRCA registered Lead Auditor Training Course for Environment Management Systems and Quality Management Systems. Oleg Skoblyk has undergone intensive training on Clean Development Mechanism /Joint Implementation and he is involved in the determination/verification of 23 JI projects.

The determination report was reviewed by:
Ivan G. Sokolov, Dr. Sci. (biology, microbiology)
Team Leader, Climate Change Lead Verifier
Internal Technical Reviewer, Bureau Veritas Certification Holding SAS Local Climate Change Product Manager

for Ukraine
Bureau Veritas Black Sea District Health, Safety and Environment Department Manager
He has over 25 years of experience in Research Institute in the field of biochemistry, biotechnology, and microbiology. He is a Lead auditor of Bureau Veritas Certification for Environment Management System (IRCA registered), Quality Management System (IRCA registered), Occupational Health and Safety Management System, and Food Safety Management System. He performed over 140 audits since 1999. Also he is Lead Tutor of the IRCA registered ISO 14000 EMS Lead Auditor Training Course, and Lead Tutor of the IRCA registered ISO 9000 QMS Lead Auditor Training Course. He is Lead Tutor of the Clean Development Mechanism /Joint Implementation Lead Verifier Training Course and he was involved in the determination/verification over 50 JI/CDM projects.