VERIFICATION REPORT CEP CARBON EMISSIONS PARTNERS S.A.

VERIFICATION OF THE

"Implementation of energy-saving light sources in the public, corporate and private sectors of Ukraine"

2ND PERIODIC
FOR THE PERIOD OF 11/02/2008-30/11/2012

REPORT NO.UKRAINE-ver/0741/1/2012

REVISION NO. 02

BUREAU VERITAS CERTIFICATION

Report No: UKRAINE-ver/0741/1/2012

VERIFICATION REPORT

Date of first issue:	Organizational unit:
13/12/2012	Bureau Veritas Certification Holding SAS
Client:	**Client ref.:**
CEP CARBON EMISSIONS PARTNERS S.A.	Fabian Knodel

Summary:

Bureau Veritas Certification has made the 2nd periodic verification for the period of 11/02/2008–30/11/2012 of the "Implementation of energy-saving light sources in the public, corporate and private sectors of Ukraine", project of CEP Carbon Emissions Partners S.A., 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 Entity of the monitored reductions in GHG emissions during defined verification period, and consisted of the following three phases: i) desk review of the monitoring report against 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 determination, from Contract Review to Determination 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 planned and described in approved project design documents. 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. The GHG emission reduction is calculated accurately and without material errors, omissions, or misstatements, and the ERUs issued totalize 2 702 369 tonnes of CO_2 equivalent for the monitoring period from 11/02/2008 to 30/11/2012.

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-ver/0741/1/2012	JI

Project title:
"Implementation of energy-saving light sources in the public, corporate and private sectors of Ukraine"

Work carried out by:
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Work reviewed by:
Ivan Sokolov - Internal Technical Reviewer

Work approved by:
Ivan Sokolov – Climate Change Operational Manager

Date of this revision:	Revision No.:	Number of pages:
17/12/2012	02	28

Bureau Veritas Certification Holding SAS

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1 INTRODUCTION

CEP CARBON EMISSIONS PARTNERS S.A. has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project "Implementation of energy-saving light sources in the public, corporate and private sectors of Ukraine" (hereafter called "the project") located in Ukraine.

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

Verification encompasses the period from February 11, 2008 to November 30, 2012.

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, monitoring plan and monitoring report, and other relevant documents. The information in these documents meets the Kyoto Protocol requirements, UNFCCC rules and associated interpretation.

The verification is not meant to provide any consulting towards the Client. However, stated requests for clarifications, corrective and/or forward 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:

Viacheslav Yeriomin
Bureau Veritas Certification Team Leader, Climate Change Lead Verifier

Volodymyr Kulish
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 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 CEP Carbon Emissions Partners S.A. and additional background documents related to the project design and baseline, i.e. country Law, Project Design Document (PDD), Approved CDM methodology, Determination Report for the project, issued by Bureau Veritas Certification Holding SAS, No.UKRAINE-DET/0724/2012 dated 04/10/2012, 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 for the period of 11/02/2008 – 30/11/2012, version 01 of 03/12/2012 and version 02 of 07/12/2012, and project as described in the determined PDD.

2.2 Follow-up Interviews

On 04/12/2012 Bureau Veritas Certification performed on-site interviews (at PE "FOSA") with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of PE "FOSA" and CEP Carbon Emissions Partners S.A. were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
PE "FOSA"	➢ Organizational Structure ➢ Responsibility and authority ➢ Roles and responsibilities on data collection and processing ➢ Installation of equipment ➢ Data registering, archiving and reporting ➢ Control of metering equipment ➢ System of measurements record keeping, database ➢ IT management ➢ Personnel training ➢ Procedures and technology of Quality Management ➢ Internal audit and control activities
Consultant: CEP CARBON EMISSIONS PARTNERS S.A.	➢ Baseline methodology ➢ Monitoring plan ➢ Monitoring Report ➢ Deviations from the PDD

2.3 Resolution of Clarification, Corrective and Forward Action Requests

The objective of this phase of the 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 Verification Team 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.

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

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

3 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 3 Corrective Action Requests and 1 Clarification Request.

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

3.1 Remaining issues and FARs from previous verifications

CAR 20 (absence of a written approval by the host party) raised during the determination, closed upon provision of the Letter of Approval to Bureau Veritas Certification Holding SAS.

3.2 Project approval by Parties involved (90-91)

The project has received an approval from the Host Party (Ukraine) - Letter of Approval No.3118/23/7 dated 19/10/2012, issued by the State Environmental Investment Agency of Ukraine, as well as written approval from ERU purchaser (Switzerland) - Letter of Approval No.J294-0485 dated 24/10/2012, issued by the Swiss Federal Office for the Environment (FOEN).
The abovementioned written approvals are unconditional.

3.3 Project implementation (92-93)

The main objective of the Joint Implementation project (hereafter: JIP) “Implementation of energy-saving light sources in the public, corporate and private sectors of Ukraine” is improvement of energy-saving characteristics of Ukraine’s lighting systems as well as improvement of the environmental situation in the country by distributing energy-efficient lighting equipment, namely compact fluorescent and LED lamps, to replace incandescent lamps.

In the framework of the project activities, between 2008 and 2022, PE “FOSA” will distribute within the geographic borders of Ukraine 40 000 000 CFLs and 7 000 000 LEDLs, which will substitute incandescent lamps. Installation of high-efficient light sources, i.e. LED lamps and CFLs, will cause lower electricity consumption, which, in turn, will push down fossil fuel consumption at conventional power plant, thus causing GHG emission reductions. The side effect of the project is saving of consumers’ money due to lower cost of electricity.

The project provides for the distribution of LED lamps and CFLs both among individuals (households) and legal entities (industrial, commercial, organizational and governmental entities). Distribution of project equipment (LED and CFL) will take place among electricity consumers of 2nd category.
The proposed JI project will utilise one of two types of incentives or their combination for LED and CFL distribution:

1) Discount;
The customers receive CFLs free of charge or at a heavily discounted price.
2) Rebate;
The customers pay full price of CFLs upfront and then are reimbursed gradually after certain time periods in several instalments.

The incentives can vary for different types of consumers according to the marketing policies of the project, and can be up to 50% or free of charge. In any case, the average (of all CFLs and LED lamps distributed within the project for any given year) incentive will be no less than 50% of the average market price of a CFL and LED lams for that particular year.

To bridge the cost differential between the market price of the CFLs and the price at which they are distributed to the consumers, the JI mechanisms of Kyoto Protocol are harnessed. The project owner would cover the project cost through sale of GHG emission reductions.

The project implementation started on 11/02/2008, when PE "FOSA" started to implement activities on CFL and LED lamps within the framework of the Joint Implementation Project, as stipulated by the determined PDD version 02. The project implementation status during the reporting period of 11/02/2008-30/11/2012 is provided in Table 2 below.

Table 2 Implementation status of the project over 11/02/2008–30/11/2012

Years	CFL type (by service life in hours)				Total number of CFLs for the reporting period
	6000	10000	12000	15000	
11/02/2008-31/12/2008	0	703 343	245 318	476 712	1 425 373
2009	0	455 596	179 830	265 847	901 273
2010	0	353 594	104 876	199 379	657 849
2011	0	341 923	105 810	197 833	645 566
01/01/2012-30/11/2012	0	19 071	11 380	12 321	42 772
Total over 11/02/2008-30/11/2012	**0**	**1 873 527**	**647 214**	**1 152 092**	**2 520 741**

Implementation of project activities according to the schedule included into the determined PDD version 02.

Starting date of the crediting period remained unchanged and is deemed the date when first emission reductions were generated, namely: 11/02/2008

The monitoring system is existing and functioning.

Monitoring equipment, such as loggers and other metering devices, is in line with the industry standards of Ukraine. All monitoring equipment is included into the detailed verification (calibration) schedule and is calibrated at a frequency set by the manufacturer.

LEDLs, as EIA has shown, have no negative impact on environment. CFLs contain a small amount of mercury inside a glass tubing - 5 mg per bulb on average (corresponds to the size of a pen ballpoint). Mercury is an essential, irreplaceable element of CFLs as it allows the bulb to be an efficient light source. There is no current substitute for mercury in CFLs. However, manufacturers have taken significant steps to reduce mercury levels in fluorescent lighting products over the past decade. In particular, a research has been initiated on possibility of mercury-free CFL production. Despite the fact that CFLs contain a small amount of mercury, it is way less than would be emitted by a coal-fired power plant to light incandescent bulbs for the same amount of time.

The out-of-service CFLs will be collected by the project owner, and then they will be disposed at appropriate landfills or via an appropriate recycling process in cooperation with a registered recycling company operating within applicable environmental norms and accredited according to state standards.

The identified areas of concern as to the project implementation, project participants' responses and conclusions of Bureau Veritas Certification are described in Appendix A to this report (refer to CAR 01, CAR 02).

3.4 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 final and is so listed on the UNFCCC JI website.

To calculate emission reductions such key factors as the Ukrainian environmental legislation and other national legislation, as well as key relevant factors such as availability of funds for implementation of measures envisaged by the project, tariffs that are set by the market mechanisms, modern technology and the ability to implement know-how in lighting equipment sphere, that affect the baseline emissions level, project activity level and level of emissions, as well as risks associated with the project were properly taken into account.

Sources of data that were used for calculation of emission reductions such as documents and archival data of the enterprise, standards and statistical forms, results of periodic logger readings, etc. are clearly defined, credible and transparent.

Emission factors such as carbon dioxide emission factor for electricity consumption by consumers, in monitoring period y of the baseline scenario, ($EF^{y}_{b,CO2,ELEC}$), carbon dioxide emission factor fr electricity consumption by consumers in monitoring period of the project scenario ($EF^{y}_{p,CO2,ELEC}$), were selected by careful balancing between accuracy and feasibility, and justified their choice.

The calculation of emission reductions is based on conservative assumptions and the most plausible scenarios in a transparent manner.

The monitoring periods per component of the project are clearly specified in the monitoring report and do not overlap with those for which verifications were already deemed final in the past.

The identified areas of concern as to the compliance of the monitoring plan with the monitoring methodology, project participants' responses and conclusions of Bureau Veritas Certification are described in Appendix A to this report (refer to CAR 03).

3.5 Revision of monitoring plan (99-100)

Not applicable.

3.6 Data management (101)

The data and their sources, provided in 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.

According to current legislation "On metrology and metrological activity", all metering equipment in Ukraine must meet the specified requirements of relevant standards and is subject to a periodic check. Lighting Logger from Dent Instruments calibration frequency is 5 years .
The project complies with legal requirements to calibration and verification.

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 PDD and the monitoring plan.

The most objective and cumulative factor that provides a clear picture of whether the emission reduction took place is the reduction of electricity and natural gas consumption. Complex modernization of equipment by implementation and application of more efficient production technologies caused GHG emissions reduction.

The monitoring plan provides for the following measures:
1. Identification of all potential sources of emissions within the project boundary.
2. Collection of information on greenhouse gas emissions within the project during the crediting period.
3. Assessment of the project implementation schedule.
4. Collection of information on metering devices, their calibration.
5. Collection and archiving information on the environmental impact of project activities.
6. Data archiving.
7. Determination of the structure of responsibility for project monitoring.
8. Analysis of organization of personnel training.

Data and parameters subject to periodic monitoring, according to the monitoring plan provided in the PDD version 02, as well as the list of constant values used to calculate emission reductions, are provided in Section B.2.1. of the Monitoring Report, as well as in Annex 1.

In order to ensure due fulfillment of the monitoring plan and data collection, CEP Carbon Emissions Partners S.A. and PE "FOSA" have created a single operational structure, whose scheme is shown in Figure 1:

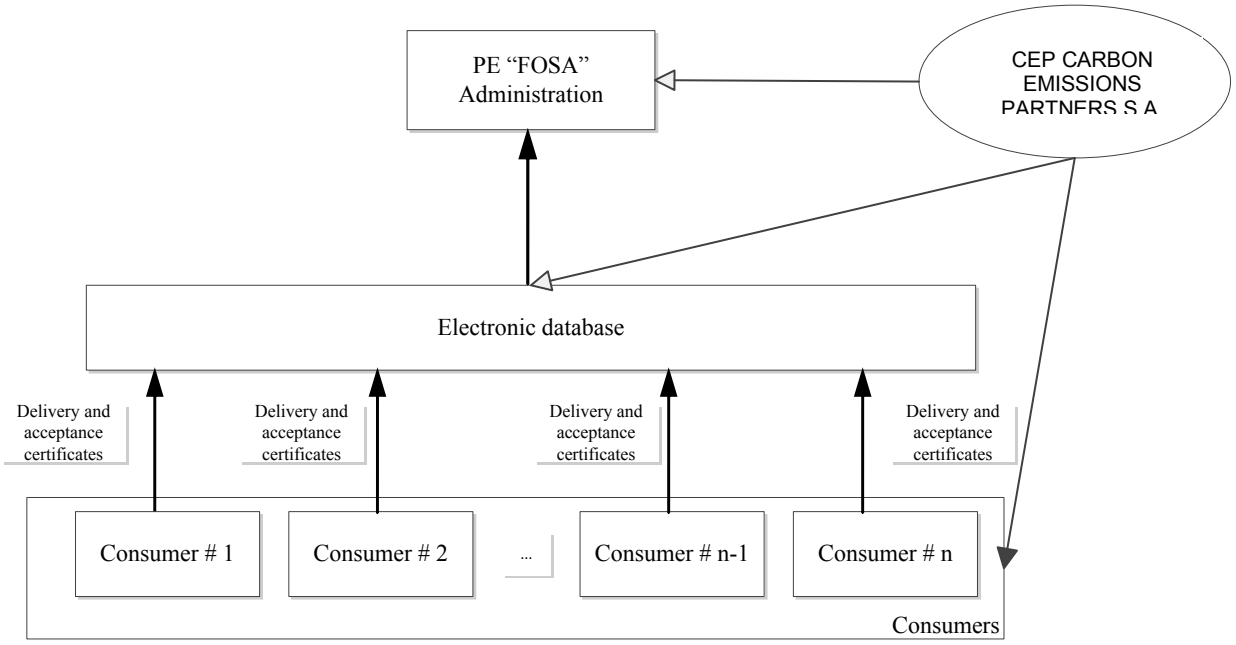

Figure 1. The structure of data collection and processing under the monitoring plan

The operational structure of the company envisages data collection, compilation and cross-verification, as part of monitoring plan preparation.

All necessary information for monitoring of GHGs emission reductions is stored in paper or/and electronic copies and will be stored till the end of the crediting period and for two years since the last ERU transaction.

The Monitoring Report version 02 provides sufficient information on the roles, responsibilities and authorities assigned for implementation and maintenance of monitoring procedures including data management. The verification team confirms effectiveness of the existing management and operational systems and found them eligible for reliable project monitoring.

The identified areas of concern as to the data management, project participants' responses and conclusions of Bureau Veritas Certification are described in Appendix A to this report (refer to CL 01).

3.7 Verification regarding programmes of activities (102-110)

Not applicable.

4 VERIFICATION OPINION

Bureau Veritas Certification has performed the 2nd periodic verification for the period of 11/02/2008–30/11/2012 of the "Implementation of energy-saving light sources in the public, corporate and private sectors of Ukraine" project in Ukraine, which applies 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 monitoring report against 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 PE "FOSA" is responsible for the preparation of the GHG emissions data and the reported GHG emissions reductions of the project. CEP CARBON EMISSIONS PARTNERS S.A. provides consulting support to PE "FOSA" in regards to data collection issues and is responsible for the preparation of the monitoring report on the basis set out within the project Monitoring Plan indicated in the final PDD version 02.

Bureau Veritas Certification verified the Project Monitoring Report version 02 for the reporting period of 11/02/2008–30/11/2012, as indicated below. Bureau Veritas Certification confirms that the project is implemented as planned and described in approved project design documents. 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.

The Monitoring Report for the period of 11/02/2012–30/11/2012 is the second report on this project; the previous monitoring report dated 05/11/2012 for the period of 11/02/2008–31/10/2012 encompassed not all of CFLs installed under the project. Emission reductions achieved under the project in the period of 11/02/2008 - 30/11/2012 slightly differ from the amount stipulated for the same period in the determined PDD and Monitoring Report dated 05/11/2012. For emission reductions stipulated by the determined PDD version 02, MR version 02 dated 05/11/2012 and MR version 02 dated 07/12/2012, see Table 3 below.

Table 3 Emission reductions stipulated by the determined PDD version 02 and MR version 02

Period	Estimated GHG emission reductions from the determined	Ex-post GHG emission reductions from the Monitoring Report	Ex-post GHG emission reductions from

	PDD, in tonnes of CO_2e	dated 05/11/2012, in tonnes of CO_2e	the Monitoring Report dated 07/12/2012, in tonnes of CO_2e
2008	463 725	463 725	220 827
2009	1 219 236	1 219 236	533 530
2010	1 562 140	1 562 139	692 744
2011	1 274 281	1 274 282	689 797
01/01/2012-31/10/2012	1 061 900	756 565	514 064
01/11/2012-30/11/2012	106190	N/a	51 406
Total	**5 687 472**	**5 275 947**	**2 702 368**

This difference is associated with the fact that PE "FOSA" provided ex-ante data for 2012 at the stage of PDD development, whereas at the monitoring stage PE "FOSA" provided final ex-post data, which helped determine the ex-post GHG emission reductions. The Monitoring Report dated 07/12/2012 provides monitoring of energy-saving light bulbs in operation, which were installed under the project but were not included into the previous monitoring report dated 05/11/2012 due to the difficulties with timely processing of large volumes of information associated with project implementation.

Bureau Veritas Certification can confirm that the GHG emission reduction is accurately calculated and is free of material errors, omissions, or 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, with a reasonable level of assurance, the following statement:

Reporting period: from 11/02/2008 to 30/11/2012

In the period of 11/02/2008 - 31/12/2008

Baseline emissions	: 285 844	t CO_2 equivalent.
Project emissions	: 65 017	t CO_2 equivalent.
Leakage	: 0	t CO_2 equivalent.
Emission reductions	: 220 827	t CO_2 equivalent.

In the period of 01/01/2009 - 31/12/2009

Baseline emissions	: 689 734	t CO_2 equivalent.
Project emissions	: 156 204	t CO_2 equivalent.
Leakage	: 0	t CO_2 equivalent.
Emission reduction	: 533 530	t CO_2 equivalent.

In the period of 01/01/2010 - 31/12/2010

Baseline emissions	: 895 253	t CO_2 equivalent.
Project emissions	: 202 509	t CO_2 equivalent.
Leakage	: 0	t CO_2 equivalent.
Emission reductions	: 692 744	t CO_2 equivalent.

In the period of 01/01/2011 - 31/12/2011

Baseline emissions	: 891 414	t CO_2 equivalent.
Project emissions	: 201 617	t CO_2 equivalent.
Leakage	: 0	t CO_2 equivalent.
Emission reductions	: 689 797	t CO_2 equivalent.

In the period of 01/01/2012 - 30/11/2012

Baseline emissions	: 731 169	t CO_2 equivalent.
Project emissions	: 165 699	t CO_2 equivalent.
Leakage	: 0	t CO_2 equivalent.
Emission reductions	: 565 470	t CO_2 equivalent.

Total amount in the period: from 11/02/2008 to 30/11/2012

Baseline emissions	: 3 493 414	t CO_2 equivalent.
Project emissions	: 791 046	t CO_2 equivalent.
Leakage	: 0	t CO_2 equivalent.
Emission reductions	: 2 702 368	t CO_2 equivalent.

5 REFERENCES

Category 1 Documents:

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

/1/	Monitoring Report of JI project "Implementation of energy-saving light sources in the public, corporate and private sectors of Ukraine" for the period of 11/02/2008–30/11/2012, version 01 dated 03/12/2012
/2/	Monitoring Report of JI project "Implementation of energy-saving light sources in the public, corporate and private sectors of Ukraine" for the period of 11/02/2008–30/11/2012, version 02 dated 07/12/2012
/3/	Annex 1: Calculation of GHG emission reductions for the period from 11/02/2008 to 30/11/2012 (Excel file)
/4/	Annex 2: List of contractors which took part in the project representative group of the JI project "Implementation of energy-saving light sources in the public, corporate and private sectors of Ukraine" and information on measuring equipment (Excel file)
/5/	Annex 3: Power of CFLs installed in the course of the project activities and ILs replaced by them
/6/	PDD "Implementation of energy-saving light sources in the public, corporate and private sectors of Ukraine", version 02 dated 28/09/2012
/7/	Bureau Veritas Certification Holding SAS Determination Report № UKRAINE-DET/0724/2012 "Implementation of energy-saving light sources in the public, corporate and private sectors of Ukraine", version 02 dated 04/10/2012
/8/	Letter of Approval of the project "Implementation of energy-saving light sources in the public, corporate and private sectors of Ukraine" No.3118/23/7, issued by the State Environmental Investment Agency of Ukraine on 19/10/2012.
/9/	Letter of Approval of the project under article 6 of the Kyoto Protocol (JI) "Implementation of energy-saving light sources in the public, corporate and private sectors of Ukraine" No.J294-0485, issued by the Federal Office for the Environment (FOEN) of Switzerland on 24/10/2012.

Category 2 Documents:

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

/1/	Agreement No.12-F-08211/1 dated 11/02/2008 on temporary use of energy-saving CFLs
/2/	Certificate of acceptance and delivery of compact fluorescent lights dated 13/05/2008
/3/	Certificate of acceptance and delivery of compact fluorescent lights dated

	26/06/2008
/4/	Certificate of acceptance and delivery of compact fluorescent lights dated 15/09/2008
/5/	Certificate of acceptance and delivery of compact fluorescent lights dated 16/09/2008
/6/	Certificate of acceptance and delivery of compact fluorescent lights dated 30/10/2008
/7/	Certificate of acceptance and delivery of compact fluorescent lights dated 16/12/2008
/8/	Certificate of acceptance and delivery of compact fluorescent lights dated 24/07/2009
/9/	Certificate of acceptance and delivery of compact fluorescent lights dated 16/09/2009
/10/	Certificate of acceptance and delivery of compact fluorescent lights dated 27/10/2009
/11/	Certificate of acceptance and delivery of compact fluorescent lights dated 18/12/2009
/12/	Certificate of acceptance and delivery of compact fluorescent lights dated 23/07/2010
/13/	Certificate of acceptance and delivery of compact fluorescent lights dated 02/09/2010
/14/	Certificate of acceptance and delivery of compact fluorescent lights dated 26/10/2010
/15/	Certificate of acceptance and delivery of compact fluorescent lights dated 14/02/2011
/16/	Certificate of acceptance and delivery of compact fluorescent lights dated 17/02/2011
/17/	Certificate of acceptance and delivery of compact fluorescent lights dated 15/09/2011
/18/	Certificate of acceptance and delivery of compact fluorescent lights dated 08/12/2011
/19/	Certificate of acceptance and delivery of compact fluorescent lights dated 03/01/2012
/20/	Certificate of acceptance and delivery of compact fluorescent lights dated 02/02/2012
/21/	Certificate of acceptance and delivery of compact fluorescent lights dated 06/03/2012
/22/	Certificate of acceptance and delivery of compact fluorescent lights dated 05/04/2012
/23/	Certificate of acceptance and delivery of compact fluorescent lights dated 25/07/2012
/24/	Certificate of acceptance and delivery of compact fluorescent lights dated 03/08/2012
/25/	Certificate of acceptance and delivery of compact fluorescent lights dated 16/06/2010
/26/	Certificate of acceptance and delivery of compact fluorescent lights dated

	21/03/2012
/27/	Certificate of acceptance and delivery of compact fluorescent lights dated 22/03/2012
/28/	Log sheet of lighting equipment operating hours at SI “Zaporizhzhya Medical Academy of Postgraduate Education” dated 26.05.2008
/29/	Log sheet of lighting equipment operating hours at SE “Ukrainian Scientific Pharmacopoeial Center for Quality of Medicines” dated 28/07/2008
/30/	Log sheet of lighting equipment operating hours at Subsidiary Enterprise “Mezhyrichchya Vitamin Plant” dated 28/06/2008
/31/	Log sheet of lighting equipment operating hours at Volnovakha interregional SES dated 04/09/2018
/32/	Log sheet of lighting equipment operating hours at Lviv Art School for Children No. 5 dated 20/05/2008
/33/	Log sheet of lighting equipment operating hours at Pre-School Educational Establishment (Kindergarten/Nursery) No. 28 “ZIROCHKA” dated 14/07/2008
/34/	Logger manual (smart ware 11)
/35/	Photos of measurement works
/36/	Photos of metering devices

Persons interviewed:

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

	Name	Organisation	Title
/1/	S. Novak	PE "FOSA"	Director
/2/	P.Papaian	PE "FOSA"	Deputy Director
/3/	V. Mysh	PE "FOSA"	Chief Engineer
/4/	L. Obukhov	PE "FOSA"	Manager
/5/	M. Tyshchuk	“Resort Perlyna Karpat” LLC	Accountant
/6/	O. Hornostal	State medicine quality control inspection in Vinnytsya region	Head
/5/	S. Repinetskyi	“CEP” LLC	CEP CARBON EMISSIONS PARTNERS S.A. Consultant

APPENDIX A: COMPANY PROJECT VERIFICATION PROTOCOL

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	Draft Conclusion	Final 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 project was approved by both Host Party (Ukraine) and another Party involved (Switzerland). Written approvals for the project were issued by the National Coordinating Entities of the Parties involved. Both Letters of Approval were available as of the start of the first project verification.	OK	OK
91	Are all the written project approvals by Parties involved unconditional?	All the written project approvals by Parties involved are unconditional.	OK	OK
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?	Ex-post total emission reductions in both monitoring reports differ from the estimated emissions provided in the PDD. As of the moment of PDD development, GHG emission reductions were calculated based on data on project implementation available at the	**CAR 01**	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		moment of PDD development, as well as forecasted data on the number of energy-saving lamps planned for distribution under the project. The increase in CFL distribution under the project in the reporting monitoring period does not conflict with the number of CFLs and LED lamps stipulated by the determined PDD version 02, which is 40 mln and 7 mln, respectively. **CAR 01.** In Section A.7. of the MR please provide information on periods of 2012 subject to monitoring (01/01/2012-31/10/2012, 01/11/2012-30/11/2012).		
93	What is the status of operation of the project during the monitoring period?	**CAR 02.** Section A.6. of the MR provides an incorrect monitoring period.	**CAR 02**	OK
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 website?	The monitoring occurred 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 website.	OK	OK
95 (a)	For calculating the emission reductions or enhancements of net removals, were key factors, e.g. those listed in 23 (b) (i)-(vii) above, influencing the baseline emissions or net removals and the activity level of the project and the emissions or removals as well as risks	To calculate emission reductions such key factors as the Ukrainian environmental legislation and other national legislation, as well as key relevant factors such as availability of funds for implementation of measures envisaged by the project, tariffs that	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	associated with the project taken into account, as appropriate?	are set by the market mechanisms, modern technology and the ability to implement know-how in lighting equipment sphere, that affect the baseline emissions level, project activity level and level of emissions, as well as risks associated with the project were properly taken into account.		
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	Yes, data sources used for calculating emission reductions are clearly identified, reliable and transparent. **CAR 03.** Please check approximations in the spreadsheet; GHG emission reductions are not equal to the difference between the baseline and project GHG emissions.	**CAR 03**	OK
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?	Emission factors such as carbon dioxide emission factor for electricity consumption by consumers, in monitoring period y of the baseline scenario, ($EF^{y}_{b,CO2,ELEC}$), carbon dioxide emission factor fr electricity consumption by consumers in monitoring period of the project scenario ($EF^{y}_{p,CO2,ELEC}$), were selected by careful balancing between accuracy and feasibility, and justified their choice.	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
95 (d)	Is the calculation of emission reductions or enhancements of net removals based on conservative assumptions and the most plausible scenarios in a transparent manner?	The calculation of emission reductions is based on conservative assumptions and the most plausible scenarios in a transparent manner.	OK	OK
Applicable to JI SSC projects only				
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
Applicable to bundled JI SSC projects only				
97 (a)	Has the composition of the bundle not changed from that is stated in F-JI-SSCBUNDLE?	N/a	N/a	N/a
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
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	N/a	N/a	N/a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	monitoring report? Do the monitoring periods not overlap 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?	N/a	N/a	N/a
99 (b)	Does the proposed revision improve the accuracy and/or applicability of information collected compared to the original monitoring plan without changing conformity with the relevant rules and regulations for the establishment of monitoring plans?	N/a	N/a	N/a
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?	Yes, the implementation of data collection procedures is in accordance with the monitoring plan, including the quality control and quality assurance procedures.	OK	OK
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	According to current legislation "On metrology and metrological activity", all metering equipment in Ukraine must meet the specified requirements of relevant standards and is subject to	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		a periodic check. Lighting Logger from Dent Instruments calibration frequency is 5 years .		
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	To measure the operating hours of artificial lighting equipment for each relevant consumer category, special metering devices, loggers, were used, specifically Lightning loggers manufactured by Dent Instruments (for details refer to the equipment manufacturer's website). The devices are fitted out with photosensors which register the presence of artificial lighting and transfer the information to the central computer which records in online mode the schedule of operation of lighting equipment at the facility where every particular logger is installed. Loggers can operate in standalone mode without recharge for 5 years, whereafter battery replacement will be needed. The scheme of collection of data on artificial lighting at the enterprises which take part in the PRG is shown in Figure 1 of the MR. **CL 01.** Please provide certificates of acceptance and delivery of CFLs to confirm the validity of counterpart registry.	**CL 01**	OK
101 (d)	Is the data collection and management system for the project in accordance with the monitoring plan?	The data collection and management system for the project is in accordance with the monitoring plan. The verification team confirms	OK	OK

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		effectiveness of the existing management and operational systems and found them eligible for reliable project monitoring.		
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
103	Is the verification based on the monitoring reports of all JPAs to be verified?	N/a	N/a	N/a
103	Does the verification ensure the accuracy and conservativeness of the emission reductions or enhancements of removals generated by each JPA?	N/a	N/a	N/a
104	Does the monitoring period not overlap with previous monitoring periods?	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
Applicable to sample-based approach only				
106	Does the sampling plan prepared by the AIE: (a) Describe its 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	N/a	N/a	N/a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	into account differences among the characteristics of JPAs, such as: − The types of 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 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
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 the square root of the number of total JPAs, rounded to the upper whole number, then does the AIE provide a reasonable explanation and	N/a	N/a	N/a

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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
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 the AIE informed the JISC of the fraud in writing?	N/a	N/a	N/a

TABLE 2 RESOLUTION OF CORRECTIVE ACTION AND CLARIFICATION REQUESTS

Clarification and corrective action requests issued by the verification team	Ref. to checklist question in table 1	Summary of project participants' responses	Verification team conclusion
CAR 01. In Section A.7. of the MR please provide information on periods of 2012 subject to monitoring (01/01/2012-31/10/2012, 01/11/2012-30/11/2012).	92	The relevant information is provided. Ref. to Table 4 of the MR version 02.	The issue is closed as relevant information is provided.
CAR 02. Section A.6. of the MR provides an incorrect monitoring period.	93	Monitoring period is 11/02/2008–30/11/2012. Relevant correcions have been made in the MR version 02.	The issue is closed as corresponding corrections are made.
CAR 03. Please check approximations in the spreadsheet; GHG emission reductions are not equal to the difference between the baseline and project GHG emissions.	95 (b)	The mistake is attributable to the approximation. The mistake has been corrected.	The issue is closed upon recalculation.
CL 01. Please provide certificates of acceptance and delivery of CFLs to confirm the validity of counterpart registry.	101 (c)	Relevant documents have been provided to the verification team.	The issue is closed as relevant documents are provided.