



VERIFICATION REPORT VEMA S.A.

VERIFICATION OF THE MODERNIZATION OF ELECTRIC POWER DISTRIBUTION SYSTEM AT PJSC “KIROVOGRADOBLENERGO”

THE SECOND PERIODIC

FOR THE PERIOD 01/01/2011 – 31/12/2011

REPORT No. UKRAINE-VER/0471/2012

REVISION No. 02

BUREAU VERITAS CERTIFICATION



VERIFICATION REPORT

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| Date of first issue: 30/03/2012 | Organizational unit: Bureau Veritas Certification Holding SAS |
| Client: VEMA S.A. | Client ref.: Fabian Knodel |

Summary:
Bureau Veritas Certification has made the second periodic verification for the period from 01 January 2011 to 31 December 2011 of the “Modernization of electric power distribution system at PJSC “Kirovogradoblenergo” project of VEMA S.A., located in Kirovograd region, Ukraine, and applying 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 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 (CL, 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 emission reductions totalize 626 792 tonnes of CO₂ equivalent for the monitoring period from 01/01/2011 to 31/12/2011.

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.: UKRAINE-ver/0471/2012 | Subject Group: JI |
| Project title: Modernization of electric power distribution system at PJSC “Kirovogradoblenergo” | |
| Work carried out by: Oleg Skoblyk - Team Leader, Lead Verifier Serhii Verteletskiy - Team member, Verifier Trainee Daniil Ukhanov - Technical Specialist | |
| Work reviewed by: Ivan Sokolov - Internal Technical Reviewer Vyacheslav Yeriomin – Technical Expert | |
| Work approved by: Ivan Sokolov – Operational Manager | |
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1 INTRODUCTION

VEMA S.A. has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project “Modernization of electric power distribution system at PJSC “Kirovogradoblenergo” (hereafter called “the project”) located in Kirovograd region, 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.

The verification covers the period from 1st January 2011 to 31st December 2011.

1.1 Objective

Verification is the periodic independent review and ex post determination by the Accredited Independent Entity (AIE) 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 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, 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:

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Team Leader, Bureau Veritas Certification Climate Change Lead Verifier



Serhii Verteletskiy
Team Member, Bureau Veritas Certification Climate Change Verifier
Trainee
Daniil Ukhanov
Team Member, Bureau Veritas Certification Technical Specialist

This verification report was reviewed by:

Ivan Sokolov
Bureau Veritas Certification, Internal Technical Reviewer

Vyacheslav Yeriomin
Bureau Veritas Certification, Technical Expert

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 VEMA S.A. and additional background documents related to the project design, baseline, and monitoring plan, i.e. country Law, Project Design Document (PDD), 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 version 01 of 10 February 2012 and version 02 dated 30 March 2012, and project as described in the determined PDD.

2.2 Follow-up Interviews

On 29/03/2012 Bureau Veritas Certification verification team conducted a visit to the project site, PJSC “Kirovogradoblenergo”, and performed (on-site) interviews with project stakeholders to confirm selected information and to resolve issues identified in the document review. Representatives of VEMA S.A. and PJSC “Kirovogradoblenergo” were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

| Interviewed organization | Interview topics |
|-------------------------------|---|
| PJSC “Kirovogradoblenergo” | Organizational structure Responsibilities and authorities Roles and responsibilities for data collection and processing Installation of equipment Data logging, archiving, and reporting Metering equipment control Metering record keeping system, database IT management Training of personnel Quality management procedures and technology Internal audits and check-ups |
| Consultant: VEMA S.A. | 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 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 documented in the Verification Protocol in Appendix A. The verification of the Project resulted in 05 Corrective Action Requests.

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

3.1 Remaining issues and FARs from previous verifications

No open issues from the previous verification, conducted for the period 01/01/2008 – 31/12/2010 by Bureau Veritas Certification, were identified by the verification team.



3.2 Project approval by Parties involved (90-91)

The project was approved by the host Party, Ukraine, which is confirmed by the Letter of Approval No. 2181/23/7 dated 17/08/2011 issued by State Environmental Investment Agency of Ukraine. The written project approval by Switzerland, the other Party involved, has also been issued by the DFP of that Party (Letter of Approval #J294-0485 issued by the Federal Office for the Environment (FOEN) of Switzerland dated 28/06/2011).

The abovementioned written approvals are unconditional.

The identified areas of concern as to the project approval by Parties involved, project participants response and BVC's conclusion are described in Appendix A, Table 2 (refer to CAR 01).

3.3 Project implementation (92-93)

The project which is being implemented at the Public Joint Stock Company "Kirovogradoblenergo" (hereinafter - PJSC «Kirovogradoblenergo») envisages the implementation of the program on the technical improvement of electrical grids and equipment, advanced technologies implementation, the transition to a higher level of organization of transmission and distribution of electric energy which are aimed at improvement of the reliability and efficiency of electricity transmission in distribution electrical grids of PJSC «Kirovogradoblenergo». This will help to reduce the amount of electricity that is lost during its transportation to the consumers of all forms of ownership, so the production of electricity at power plants will decrease and thus GHG emissions will decrease in comparison to the situation that would exist without the project implementation.

The project scenario provides for implementation of new energy efficient equipment and complex of organizational and technical measures aimed at reduction of process losses of electricity during its transmission; it also provides for implementation of measures on development and improvement of methodological support of reduction of electricity process losses in the course of carrying out of licensed types of activity of electricity supply and transmission. These measures include modernization works in electrical grids; improvement of the reliability of electricity supply to consumers; introduction of automated system of electricity consumption commercial accounting within the framework of the power supply company, consumers and sub-plants etc.

Implementation of project activities started in 2003, as provided for in the determined PDD, version 02. However, emission reductions generated in 2003 were conservatively excluded from the calculation. Therefore, 01/01/2004 was taken as a starting date of the crediting period.

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Project implementation status in the reporting period of 01/01/2011 – 31/12/2011 is provided in the Table 2 below.

Table 2 Status of project implementation during the monitoring period

| № | Measures | Number of units of works done in the period of 01/01/2011 – 31/12/2011 | | | | | |
|---|---|---|-------|--------|------|-------|-------|
| | | 0.38kV | 6kV | 10kV | 35kV | 110kV | 154kV |
| 1 | Implementation of new or reconstruction of existing wires of electricity transmission lines, km | 644.9 | 1.691 | 39.957 | 0 | 0 | 0 |
| 2 | Replacement of insulators of electricity transmission lines, units | 18438 | 203 | 3722 | 4945 | 0 | 474 |
| 3 | Replacement of signal lamps with light emitting diodes, units | 0 | 0 | 0 | 0 | 37 | 0 |
| 4 | Implementation of reactive power compensation devices at consumer's site, kV | 3565 | 3415 | 0 | 0 | 0 | 0 |
| 5 | Replacement of electricity meters, units | 250 | 0 | 0 | 0 | 0 | 0 |
| 6 | Replacement of oil switches with vacuum and sulphur hexafluoride switches, units | 0 | 0 | 154 | 7 | 0 | 1 |



| | | | | | | | |
|---|---|---|----|----|---|---|----|
| 7 | Implementation of new or reconstruction of existing electric motors of power transformers blower cooling, units | 0 | 0 | 0 | 0 | 0 | 12 |
| 8 | Implementation of new or reconstruction of existing branches, km | 0 | 14 | 59 | 0 | 0 | 0 |

Status of project activity implementation during the considered monitoring period complies with the determined PDD version 02.

The verification team can confirm, through the visual inspection and document review that all physical features of the proposed JI project activity including data collecting and storage systems have been implemented according to the PDD.

The identified areas of concern as to the project implementation, project participants response and BVC's conclusion are described in Appendix A, Table 2 (refer to CAR 02, CAR 03).

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

The monitoring occurred in accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website:

<http://ji.unfccc.int/JIITLProject/DB/3Y7QLZPSOPEPD5MWAABGYZ8SSK0ZYB/details>

For calculating the emission reductions, key factors, such as electricity losses due to absence of the introduction of new or reconstruction of existing wires of electricity transmission lines; electricity losses due to absence of the replacement of defected insulators of electricity transmission lines; electricity losses due to absence of the replacement of electricity meters; electricity losses due to absence of the implementation of reactive power compensation devices at consumer's site; electricity losses due to absence of the replacement of oil switches with vacuum and sulphur hexafluoride switches; electricity losses due to absence of the replacement or reconstruction of existing electric motors of power



transformers blower cooling, etc., influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project were taken into account.

Data sources used for calculating emission reductions such as appropriately calibrated measuring devices, passport data of the measuring equipment, sectoral methodologies, data on carbon dioxide emission factors published by the National Environmental Agency of Ukraine, etc., are clearly identified, reliable and transparent.

Emission factors, including default emission factors, 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.

The identified areas of concern as to the compliance of the monitoring plan with the monitoring methodology, project participants response and BVC's conclusion are described in Appendix A, Table 2 (refer to CAR04, CAR05).

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 project monitoring is conducted according to standard operational practices established at PJSC "Kirovogradoblenergo" within the existing system of the data collection, accounting and reporting. Detailed operational and management structure is presented in figure 7 in section C.1 of the Monitoring Report. The scheme of data collection using automated system of electricity consumption commercial accounting within the framework of the energy supply company is provided in figure 8 of the Monitoring Report. Scheme of data collection prior to implementation of the automated system of electricity consumption commercial accounting is shown in figure 9.

The function of the monitoring equipment, including its calibration status, is in order. The measurement equipment used for project monitoring is



serviced, calibrated and maintained in accordance with the original manufacturer's instructions and industry standards; relevant records on measuring devices are kept as required.

The evidence and records used for the monitoring are maintained in a traceable manner. All necessary information for monitoring of GHGs emission reductions are stored in paper or/and electronic formats.

The data collection and management system for the project is in accordance with the monitoring plan.

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

No identified areas of concern as to the data management were identified by the verification team.

3.7 Verification regarding programmes of activities (102-110)

Not applicable.

4 VERIFICATION OPINION

Bureau Veritas Certification has performed the second periodic verification for the period from 01 January 2011 to 31 December 2011 of the "Modernization of electric power distribution system at PJSC "Kirovogradoblenergo" project in Kirovograd region, 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 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 management of VEMA S.A. 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 02. The development and maintenance of records and reporting procedures are 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 Report, version 02, for the reporting period from 01/01/2011 to 31/12/2011 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.

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 01/01/2011 to 31/12/2011

| | | |
|---------------------|-----------|---------------------------------------|
| Baseline emissions | : 985 634 | tonnes of CO ₂ equivalent. |
| Project emissions | : 358 842 | tonnes of CO ₂ equivalent. |
| Emission Reductions | : 626 792 | tonnes of CO ₂ equivalent. |



5 REFERENCES

Category 1 Documents:

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

- /1/ Monitoring Report for the period from 01/01/2011 to 31/12/2011 version 01 dated 10/02/2012
- /2/ Monitoring Report for the period from 01/01/2011 to 31/12/2011 version 02 dated 30/03/2012
- /3/ Annex 1 to the Monitoring Report for the period 01/01/2011-31/12/2011. Information about implementation of new and reconstruction of existing elements of the electrical grid in the monitoring period (Excel file)
- /4/ Annex 2 to the Monitoring Report for the period 01/01/2011-31/12/2011: Data about reconstruction of existing segments of the electrical grid that was executed in the monitoring period (Excel file)
- /5/ Annex 3 to the Monitoring Report for the period 01/01/2011-31/12/2011: List of metering equipment (Excel file)
- /6/ Annex 4 to the Monitoring Report for the period 01/01/2011-31/12/2011: Calculation of GHG emission reductions (Excel file)
- /7/ Project Design Document of the project "Modernization of electric power distribution system at PJSC "Kirovogradoblenergo", version 02 dated 07/07/2011
- /8/ Determination Report "Modernization of electric power distribution system at PJSC "Kirovogradoblenergo" No. UKRAINE-det/0269/2011, rev.02 of 08/07/2011 issued by Bureau Veritas Certification
- /9/ Letter of Approval of the Joint Implementation project "Modernization of electric power distribution system at PJSC "Kirovogradoblenergo" #2181/23/7 of 17/08/2011 issued by the State Environmental Investment Agency of Ukraine
- /10/ Letter of Approval of the project under article 6 of Kyoto protocol (JI) "Modernization of electric power distribution system at PJSC "Kirovogradoblenergo" # J294-0485 issued by the Federal Office for the Environment (FOEN) of Switzerland dated 28/06/2011

Category 2 Documents:

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

- /1/ Order of the National Environmental Investment Agency of Ukraine (NEIA) № 75 of 12/05/2011 on approval of carbon dioxide emission



- factors for 2011
- /2/ Contract №841/18 on calibration and metrological certification of measuring instruments dated 14/10/2010.
 - /3/ Working Committee Statement of commissioning of reconstructed and modernized facilities
Investment program of PJSC "Kirovogradoblenergo" for 2011
 - /4/ Working Committee Statement of commissioning of distribution grid facilities, KTP №727 Teplichna str., Kirovograd city, 03/10/2011
 - /5/ Working Committee Statement of commissioning of distribution grid facilities, TP №10, Kirovograd city, 03/11/2011
 - /6/ Statement of decommissioning of fixed assets of PJSC "Kirovogradoblenergo" dated 30/01/2012
 - /7/ Working Committee Statement of commissioning of reconstructed and modernized facilities, Kompaniivka village, Kirovohrad region. 11/10/2011
 - /8/ Work acceptance statement №1 K/09-P/0000031021 for September dated 23/09/2011
 - /9/ Work acceptance statement № 1K/12-P/0000037450 for December dated 23/12/2011
 - /10/ Working Committee Statement on commissioning of reconstructed and modernized facilities, Oleksandriya city, Kirovohrad region, dated 11/10/2011
 - /11/ Act of acceptance №1K/06-P/0000025305 for June dated 25/06/2011
 - /12/ Certificate of capitalization of the inventory after equipment dismantling to the work acceptance statement №1K/06-P/0000025305 for June dated 25/06/2011
 - /13/ Working Committee Statement of commissioning of distribution grids, Znamyanka city Kirovohrad region, dated 27/09/2011
 - /14/ Work acceptance statement №0000031273 for September dated 23/09/2011
 - /15/ Working Committee Statement of commissioning of power distribution grid facilities, Novomyrhorod city, Kirovohrad region, dated 30/04/2011
 - /16/ Working Committee Statement of commissioning of power distribution grid facilities, Torhovytsia village, Kirovohrad region, 02/11/2011
 - /17/ Working Committee Statement of commissioning of power distribution grid facilities, Torgovytsia village, Kirovohrad region, 09/11/2011
 - /18/ Work acceptance statement № 22/10-KR/0000034170 for October dated 31/10/2011
 - /19/ Work acceptance statement № 60/08-TO/0000029087 for August dated 25/08/2011
 - /20/ Work acceptance statement № 12/09-TO/0000030628 for



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September dated 29/09/2011

- /21/ Work acceptance statement № 1T/06-P/0000025354 for June dated 25/06/2011
- /22/ Work acceptance statement № 19/10-TO/0000033013 for October dated 19/10/2011
- /23/ Form № 1 (waste) Waste Management for 2011. PJSC "Kirovogradoblenergo"
- /24/ Form №2-TP Report on atmospheric air protection for 2011. PJSC "Kirovogradoblenergo"
- /25/ Report on the expenses on the environmental protection and environmental payments for 2011 PJSC "Kirovogradoblenergo"
- /26/ Permission № 22-235 for waste disposal dated 05/04/2011
- /27/ Limits on the formation and disposal of waste in 2011 PJSC "Kirovogradoblenergo" dated 12/04/2011
- /28/ Resolution of nullification of the permission for waste disposal # 49 dated 05/04/2011
- /29/ Limits on the formation and disposal of waste in 2011 PJSC "Kirovogradoblenergo" dated 10/01/2011
- /30/ Permission № 3510136300-57 on emissions of pollutants into the atmosphere by stationary sources of PJSC "Kirovogradoblenergo" dated 05/04/2011
- /31/ Permission № 3510136600-53 on emissions of pollutants into the atmosphere by stationary sources of PJSC "Kirovogradoblenergo" dated 05/04/2011
- /32/ Permission №3510136300-59 on emissions of pollutants into the atmosphere by stationary sources of PJSC "Kirovogradoblenergo" dated 05/04/2011
- /33/ Institutional Reporting Form 1B-TVE for 2011 PJSC "Kirovogradoblenergo"
- /34/ Certificate of electricity purchase and sale between the state enterprise "Energorynok" and PJSC "Kirovogradoblenergo" for December 2011
- /35/ Certificate of electricity purchase and sale between the state enterprise "Energorynok" and PJSC "Kirovogradoblenergo" for November 2011
- /36/ Certificate of electricity purchase and sale between the state enterprise "Energorynok" and PJSC "Kirovogradoblenergo" for October 2011
- /37/ Certificate of electricity purchase and sale between the state enterprise "Energorynok" and PJSC "Kirovogradoblenergo" for September 2011
- /38/ Certificate of electricity purchase and sale between the state enterprise "Energorynok" and PJSC "Kirovogradoblenergo" for August 2011
- /39/ Certificate on the adjustment of purchase and sale of electricity between the state enterprise "Energorynok" and PJSC



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"Kirovogradoblenergo" for July 2011

- /40/ Certificate of electricity purchase and sale between the state enterprise "Energorynok" and PJSC "Kirovogradoblenergo" for July 2011
- /41/ Certificate of electricity purchase and sale between the state enterprise "Energorynok" and PJSC "Kirovogradoblenergo" for June 2011
- /42/ Certificate of electricity purchase and sale between the state enterprise "Energorynok" and PJSC "Kirovogradoblenergo" for May 2011
- /43/ Certificate of electricity purchase and sale between the state enterprise "Energorynok" and PJSC "Kirovogradoblenergo" for April 2011
- /44/ Certificate of electricity purchase and sale between the state enterprise "Energorynok" and PJSC "Kirovogradoblenergo" for March 2011
- /45/ Certificate of electricity purchase and sale between the state enterprise "Energorynok" and PJSC "Kirovogradoblenergo" for February 2011
- /46/ Certificate of electricity purchase and sale between the state enterprise "Energorynok" and PJSC "Kirovogradoblenergo" for January 2011
- /47/ Agreement between the state enterprise "Energorynok" and JSC "Kirovogradoblenergo No. 3599/01 of 28/08/2006
- /48/ Annex 2 to the Agreement between the state enterprise "Energorynok" and JSC "Kirovogradoblenergo No. 3599/01 of 28/08/2006
- /49/ Annex 3 to the Agreement between the state enterprise "Energorynok" and JSC "Kirovogradoblenergo No. 3599/01 of 28/08/2006
- /50/ Additional agreement №6744/02 dated 14/01/2011 to the Agreement between the state enterprise "Energorynok" and JSC "Kirovogradoblenergo" №3599/01 of 28/08/2006.
- /51/ Additional agreement №6745/02 dated 14/01/2011 to the Agreement between the state enterprise "Energorynok" and JSC "Kirovogradoblenergo" №3599/01 of 28/08/2006.
- /52/ Additional agreement №6770/02 dated 28/01/2011 to the Agreement between the state enterprise "Energorynok" and JSC "Kirovogradoblenergo" №3599/01 of 28/08/2006.
- /53/ Additional agreement №6963/02 dated 12/05/2011 to the Agreement between the state enterprise "Energorynok" and JSC "Kirovogradoblenergo" №3599/01 of 28/08/2006.
- /54/ Additional agreement №7102/04 dated 09/06/2011 to the Agreement between the state enterprise "Energorynok" and JSC "Kirovogradoblenergo" №3599/01 of 28/08/2006.
- /55/ Additional agreement №7525/02 dated 19/08/2011 to the



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- Agreement between the state enterprise "Energorynok" and JSC "Kirovogradoblenergo" №3599/01 of 28/08/2006.
- /56/ Additional agreement № 7996/02 dated 03/12/2011 to the Agreement between the state enterprise "Energorynok" and JSC "Kirovogradoblenergo" №3599/01 of 28/08/2006.
 - /57/ Authorized order №306 for performing of works with electrical installations dated 26/03/2012
 - /58/ Authorized order №356 for performing of works with electrical installations dated 26/03/2012
 - /59/ Authorized order №252 for performing of works with electrical installations dated 20/03/2012
 - /60/ Attestation certificate of electrotechnical laboratory № 2444-P dated 15/09/2009
 - /61/ Calibration schedule of measuring equipment in 2011, approved on 30/12/2010
 - /62/ Certificate of working standard calibration for wattmeter №1061 valid till 23/08/2012
 - /63/ Certificate of working standard calibration for voltmeter №1062 valid till 23/08/2012
 - /64/ Certificate of working standard calibration for voltammeter №1066 valid till 23/08/2012
 - /65/ Certificate of working standard calibration for wattmeter №1059 valid till 23/08/2012
 - /66/ Certificate of working standard calibration for resistance box R4073 №1067 valid till 23/08/2012
 - /67/ Certificate of working standard calibration for resistance standard №1074 valid till 23/08/2012
 - /68/ Certificate of state metrological attestation for multifunctional calibrator №25-01/A-225 dated 06/06/2011
 - /69/ Certificate of working standard calibration for microammeter №624 valid till 15/06/2012
 - /70/ Certificate of working standard calibration for voltammeter №621 valid till 15/06/2012
 - /71/ Certificate of state metrological attestation for meter of electrical grid parameters (alternating current) №25-01/A-016 dated 17/02/2011
 - /72/ Certificate of working measuring instrument calibration for the current transformers №243/122 valid till 05/11/2014
 - /73/ Certificate of working measuring instrument calibration for the current transformers №242/121 valid till 05/11/2014
 - /74/ Certificate of working measuring instrument calibration for the current transformers №241/120 valid till 05/11/2014
 - /75/ Certificate of working standard calibration for current transformer I-561 №29-08/2109 valid till December 2012
 - /76/ Certificate of working standard calibration for current transformer I-561 №29-08/2110 valid till December 2012



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- /77/ Certificate of working standard calibration for current transformer I-561 №29-08/0595 valid till May 2012
- /78/ Photo. Transformer substation TP-727
- /79/ Photo. Transmission line support.
- /80/ Register of passport data TP-12
- /81/ Photo. Transformer substation TP-12
- /82/ Photo. Transformer substation TP-10
- /83/ Technical passport of automated circuit breaker LTB 170D1/B.
- /84/ Technical passport of technological blower BOT 400MK.
- /85/ Manual of technological blower BOT 400MK.
- /86/ Instructions on setting and operation of sulphur hexafluoride circuit breaker of LTB – 170D1/B type
- /87/ Instructions on setting and operation of sulphur hexafluoride current transformers of TG ПС 25-1574-2010 type
- /88/ Photo. Technologic blower BOT 400MK.
- /89/ Photo. Distribution substation.

Persons interviewed:

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

- /1/ Oleksii Sheketa – Commercial Director of PJSC «Kirovogradoblenergo»
- /2/ Halyna Kravchenko – Head of the Balance Department of PJSC «Kirovogradoblenergo»
- /3/ Yurii Burkhan – Head of the Substation Service of PJSC «Kirovogradoblenergo»
- /4/ Ihor Shyian – 2nd category Engineer of PJSC «Kirovogradoblenergo» substation
- /5/ Hennadii Vorobiov – Head of the insulation service of PJSC «Kirovogradoblenergo»
- /6/ Dmytro Palamarchuk, "CEP" LLC, consultant of VEMA S.A.



APPENDIX A: JI PROJECT VERIFICATION PROTOCOL

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VERIFICATION PROTOCOL

Table 1. 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? | CAR 01 The number of the Letter of Approval from Switzerland is stated incorrectly. Please, make appropriate corrections in the MR. | CAR 01 | OK |
| 91 | Are all the written project approvals by Parties involved unconditional? | Conclusion is pending a response to CAR 01. | Pending | OK |
| Project implementation | | | | |
| 92 | Has the project been implemented in accordance with the PDD regarding which | The implementation of the measures under the project during the monitoring period was carried out according to the | CAR 02 CAR 03 | OK OK |



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| DVM Paragraph | Check Item | Initial finding | Draft Conclusion | Final Conclusion |
|--|--|---|------------------|------------------|
| | the determination has been deemed final and is so listed on the UNFCCC JI website? | <p>determined PDD version 02. The detailed information about implementation of new and reconstruction of existing elements of the electrical grids in the monitoring period is provided in Annex 1 - supporting Excel file.</p> <p>CAR 02 Please, indicate in the MR if the actual amount of emission reductions, achieved during the monitoring period, differs from the amount foreseen and specified in the determined PDD. If yes, please, indicate the reason for this.</p> <p>CAR 03 The amount of GHG emission reductions, project and baseline emissions, indicated in the MR version 01 is not equal to the one specified in the supporting document (Excel file). Please, make corrections in the MR.</p> | | |
| 93 | What is the status of operation of the project during the monitoring period? | The project measures were implemented without any deviations from the implementation plan included in the determined PDD version 02. | OK | OK |
| Compliance with monitoring plan | | | | |
| 94 | Did the monitoring occur in | The monitoring occurred in accordance | CAR 04 | OK |



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| DVM Paragraph | Check Item | Initial finding | Draft Conclusion | Final Conclusion |
|---------------|--|--|------------------|------------------|
| | 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? | with the monitoring plan included in the determined PDD regarding which the determination has been deemed final. CAR 04 Please, in the section B.2.2 specify the data units for each parameter that is controlled during the whole monitoring period. | | |
| 95 (a) | For calculating the emission reductions or enhancements of net removals, were key factors, e.g. those listed in 23 (b) (i)-(vii) of the DVM, 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? | For calculating the emission reductions, the key factors, influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project were taken into account, such as: - electricity losses due to absence of the introduction of new or reconstruction of existing double-winding transformers; - electricity losses due to absence of the introduction of new or reconstruction of existing three-winding transformers; - electricity losses due to absence of the introduction of new or reconstruction of existing wires of electricity transmission lines; - electricity losses in insulation due to absence of the introduction of new or | OK | OK |



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| DVM Paragraph | Check Item | Initial finding | Draft Conclusion | Final Conclusion |
|---------------|---|--|------------------|------------------|
| | | reconstruction of existing wires of cable electricity transmission lines; - electricity losses due to absence of the replacement of defected insulators of electricity transmission lines; - electricity losses due to absence of the replacement of signalling lamps with light emitting diodes; - electricity losses due to absence of the implementation of reactive power compensation devices at consumer's place; - electricity losses due to absence of the replacement of electricity meters; - electricity losses due to absence of the replacement of oil switches with vacuum and sulphur hexafluoride switches; - electricity losses due to absence of replacement or reconstruction of existing electric motors of power transformers blower cooling; - electricity losses due to absence of the introduction of new or reconstruction of existing branches. | | |
| 95 (b) | Are data sources used for calculating emission reductions | CAR 05 Please, adjust the MR in accordance with | CAR05 | OK |



VERIFICATION REPORT

| DVM Paragraph | Check Item | Initial finding | Draft Conclusion | Final Conclusion |
|---------------|--|---|------------------|------------------|
| | or enhancements of net removals clearly identified, reliable and transparent? | <p>the monitoring plan provided in the PDD version 02. Please, add to the section B the information concerning the actual measuring frequency for the following parameters:</p> <ul style="list-style-type: none"> - Degradation factor of short-circuit losses in a double-winding transformer - Power of a double-winding transformer at the side of high voltage in an hour of maximum load. | | |
| 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 emission factors used for calculating the emission reductions were selected by carefully balancing accuracy and reasonableness; all necessary references are provided correctly. | OK | OK |
| 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? | Yes, the calculation of emission reductions is based on conservative assumptions and the most plausible scenarios in a transparent manner. | OK | OK |



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| DVM Paragraph | Check Item | Initial finding | Draft Conclusion | Final Conclusion |
|---|---|-----------------|------------------|------------------|
| 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? | Not applicable | Not applicable | Not applicable |
| 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? | Not applicable | Not applicable | Not applicable |
| 97 (b) | If the determination was conducted on the basis of an overall monitoring plan, have the project participants submitted a common monitoring report? | Not applicable | Not applicable | Not applicable |
| 98 | If the monitoring is based on a monitoring plan that provides for overlapping monitoring | Not applicable | Not applicable | Not applicable |



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| DVM Paragraph | Check Item | Initial finding | Draft Conclusion | Final Conclusion |
|---|---|---|------------------|------------------|
| | <p>periods, are the monitoring periods per component of the project clearly specified in the monitoring report?</p> <p>Do the monitoring periods not overlap with those for which verifications were already deemed final in the past?</p> | | | |
| 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? | There were no deviations and changes of the approved monitoring plan. | Not applicable | Not applicable |
| 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? | Not applicable | Not applicable | Not applicable |
| Data management | | | | |
| 101 (a) | Is the implementation of data collection procedures in | The implementation of data collection procedures, including the quality control | OK | OK |



VERIFICATION REPORT

| DVM Paragraph | Check Item | Initial finding | Draft Conclusion | Final Conclusion |
|---|--|--|------------------|------------------|
| | accordance with the monitoring plan, including the quality control and quality assurance procedures? | and quality assurance procedures, are in accordance with the PDD and the determined monitoring plan. | | |
| 101 (b) | Is the function of the monitoring equipment, including its calibration status, is in order? | All the equipment, involved in the project monitoring, operated, was calibrated and maintained according to manufacturer's instructions and standards of the industry. | OK | OK |
| 101 (c) | Are the evidence and records used for the monitoring maintained in a traceable manner? | This was checked by the verification team during site-visit. All the information that is necessary for GHG emission reductions monitoring is stored in paper and/or electronic formats. | OK | 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 PDD and the monitoring plan. The verification team confirms the effectiveness of the existing management and operating systems and finds them suitable for reliable monitoring of the project. | OK | OK |
| Verification regarding programs of activities (additional elements for assessment) | | | | |
| 102 | Is any JPA that has not been added to the JI PoA not verified? | Not applicable | Not applicable | Not applicable |



VERIFICATION REPORT

| DVM Paragraph | Check Item | Initial finding | Draft Conclusion | Final Conclusion |
|---|--|-----------------|------------------|------------------|
| 103 | Is the verification based on the monitoring reports of all JPAs to be verified? | Not applicable | Not applicable | Not applicable |
| 103 | Does the verification ensure the accuracy and conservativeness of the emission reductions or enhancements of removals generated by each JPA? | Not applicable | Not applicable | Not applicable |
| 104 | Does the monitoring period not overlap with previous monitoring periods? | Not applicable | Not applicable | Not applicable |
| 105 | If the AIE learns of an erroneously included JPA, has the AIE informed the JISC of its findings in writing? | Not applicable | Not applicable | Not applicable |
| 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 | Not applicable | Not applicable | Not applicable |

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| DVM Paragraph | Check Item | Initial finding | Draft Conclusion | Final Conclusion |
|---------------|--|-----------------|------------------|------------------|
| | <p>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:</p> <ul style="list-style-type: none"> - 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? | | | |



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| DVM Paragraph | Check Item | Initial finding | Draft Conclusion | Final Conclusion |
|---------------|---|-----------------|------------------|------------------|
| 107 | Is the sampling plan ready for publication through the secretariat along with the verification report and supporting documentation? | Not applicable | Not applicable | Not applicable |
| 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 justification? | Not applicable | Not applicable | Not applicable |
| 109 | Is the sampling plan available for submission to the secretariat for the JISC's ex ante assessment? (Optional) | Not applicable | Not applicable | Not applicable |
| 110 | If the AIE learns of a fraudulently included JPA, a fraudulently monitored JPA or an inflated number of emission | Not applicable | Not applicable | Not applicable |



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| DVM Paragraph | Check Item | Initial finding | Draft Conclusion | Final Conclusion |
|---------------|--|-----------------|------------------|------------------|
| | reductions claimed in a JI PoA, has the AIE informed the JISC of the fraud in writing? | | | |

**Table 2. Resolution of Corrective Action and Clarification Requests**

| Draft report clarifications and corrective action requests by verification team | Ref. to checklist question in table 1 | Summary of project participant response | Verification team conclusion |
|--|---------------------------------------|--|---|
| <p><u>CAR 01</u> The number of the Letter of Approval from Switzerland is stated incorrectly. Please, make appropriate corrections in the MR.</p> | 90 | The project was approved by the Party-buyer of GHG emission reductions which is Switzerland. This is confirmed with Letter of Approval № J294-0485, issued by the Federal Office for the Environment (FOEN) dated 28/06/2011. This was indicated in the MR version 02. | The project approval by the sponsor Party was reviewed. The issue is closed on the basis of corresponding corrections made in the MR. |
| <p><u>CAR 02</u> Please, indicate in the MR if the actual amount of emission reductions, achieved during the monitoring period, differs from the amount foreseen and specified in the determined PDD. If yes, please, indicate the reason for this.</p> | 92 | The actual estimated amount of emission reductions for each project year is different from those values that were provided in the PDD. This is because at the stage of the PDD development before the project implementation it was impossible to accurately determine duration of the electrical equipment operation per year and the number of days (of electrical equipment operation) with a temperature below 5°C. So | The issue is closed on the basis of the information provided and the corrections made in the MR version 02. |



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| | | | |
|---|--------|---|--|
| | | <p>predicted values were provided. The difference between predicted and actual values of these parameters also led to differences in the amount of expected and actual emission reductions under the project.</p> <p>This information was also included in the MR version 02.</p> | |
| <p><u>CAR 03</u> The amount of GHG emission reductions, project and baseline emissions, indicated in the MR version 01 is not equal to the one specified in the supporting document (Excel file). Please, make corrections in the MR.</p> | 92 | <p>The values of emission reductions indicated the MR and the supporting documents (Excel files) were checked. The necessary corrections were made in the MR version 02.</p> | <p>The issue is closed taking into account the corrections made in the MR.</p> |
| <p><u>CAR 04</u> Please, in the section B.2.2 specify the data units for each parameter that is controlled during the whole monitoring period.</p> | 94 | <p>The necessary corrections were made in the section B.2.2 of the MR version 02.</p> | <p>The MR version 02 was checked. The issue is closed on the basis of the correction provided.</p> |
| <p><u>CAR 05</u> Please, adjust the MR in accordance with the monitoring plan provided in the PDD version 02. Please, add</p> | 95 (b) | <p>The issue was addressed in the MR version 02. The information concerning actual measuring frequency for each parameter used for baseline and project emission</p> | <p>The MR version 02 was checked. The issue is closed on the basis of the correction made.</p> |



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| | | | |
|---|--|---|--|
| <p>to the section B the information concerning the actual measuring frequency for the following parameters:</p> <ul style="list-style-type: none"> - Degradation factor of short-circuit losses in a double-winding transformer - Power of a double-winding transformer at the side of high voltage in an hour of maximum load. | | <p>calculation, in accordance with the monitoring plan specified in the PDD version 02, was provided.</p> | |
|---|--|---|--|