



VERIFICATION REPORT VEMA S.A.

VERIFICATION OF THE JI PROJECT

REDUCTION OF GREENHOUSE GASES EMISSIONS BY GASIFICATION OF KYIV CITY

Second periodic

for the period 01/01/2008 – 31/12/2011

REPORT No. UKRAINE-VER/0616/2012

REVISION No. 02

BUREAU VERITAS CERTIFICATION



VERIFICATION REPORT

Date of first issue: 06/08/2012	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 January 1, 2008 to December 31, 2011 of the "Reduction of greenhouse gases emissions by gasification of Kyiv city" project of VEMA S.A., located in Kyiv city, 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 (but for the crediting period) 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 (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 that is 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 without material errors and the ERUs issued totalize 2 292 360 tonnes of CO₂ equivalent for the monitoring period from 01/01/2008 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 plan, and its associated documents.

Report No.: UKRAINE-ver/0616/2012	Subject Group: JI
Project title: Reduction of greenhouse gases emissions by gasification of Kyiv city	
Work carried out by: Oleg Skoblyk – Team Leader, Climate Change Lead Verifier Volodymyr Kulish - Team Member, Climate Change Verifier	
Work reviewed by: Ivan Sokolov - Internal Technical Reviewer Oleksandr Kuzmenko – Technical specialist	
Work approved by: Ivan Sokolov – Operational Manager	
Date of this revision: 10/08/2012	Rev. No.: 02
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1 INTRODUCTION

VEMA S.A. has commissioned Bureau Veritas Certification to verify the emissions reductions of its JI project “Reduction of greenhouse gases emissions by gasification of Kyiv city” (hereafter called “the project”) located in Kyiv city, 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 January 1, 2008 to December 31, 2011.

1.1 Objective

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

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

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

1.2 Scope

The verification scope is defined as an independent and objective review of the project design document, the project’s baseline study, and monitoring plan, and 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:

Oleg Skoblyk

Bureau Veritas Certification, Team Leader, Climate Change Lead Verifier

Volodymyr Kulish

Bureau Veritas Certification, Team Member, Climate Change Verifier

This verification report was reviewed by:

Ivan Sokolov

Bureau Veritas Certification, Internal Technical Reviewer

Oleksandr Kuzmenko

Bureau Veritas Certification, Technical Specialist

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 and baseline, i.e. country Law, Project Design Document (PDD), Approved CDM methodology, Determination Report of the project issued by Bureau Veritas Certification Holding SAS No. UKRAINE-det/0442/2012 version 01 as of 06/06/2012, Guidance on criteria for baseline setting and monitoring, Host party criteria, the 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 from 01/01/2008 to 31/12/2011 version 01 of August 4, 2012 and version 02 of August 9, 2012 and the project as described in the determined PDD.

2.2 Follow-up Interviews

On 06/08/2012 Bureau Veritas Certification verification team conducted a visit to the project site (PJSC "Kyivgas") 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 "Kyivgas" were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
PJSC "Kyivgas"	<ul style="list-style-type: none"> ➤ Organizational structure ➤ Responsibilities and authorities ➤ Roles and responsibilities relating to data collection and processing ➤ Equipment installation ➤ Data logging archiving and reporting ➤ Metering equipment control ➤ Metering record keeping system, database ➤ IT management ➤ Personnel training ➤ Quality control procedures and technology ➤ Internal audit and inspections
Consultant: VEMA S.A.	<ul style="list-style-type: none"> ➤ 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 9 Corrective Action Requests and 3 Clarification 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

There aren't any CLs, CARs and FARs from previous verifications.

3.2 Project approval by Parties involved (90-91)

The project was approved by the host Party (Ukraine) - the Letter of Approval No. 2092/23/7 dated 03/08/2012 issued by State Environmental Investment Agency of Ukraine. The project was also approved by the party – buyer of the emission reduction units (Switzerland) - Letter of Approval No.J294-0485 dated 30/05/2012 issued by the Federal Office for the Environment FOEN of Switzerland.

The abovementioned written approvals are unconditional.

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

3.3 Project implementation (92-93)

The main purpose of the project is reduction of greenhouse gas emissions by changing the structure of fuel consumption in industrial, utility, administrative and private sectors of Kyiv city by replacing solid and liquid fuels with natural gas.

The project provides for the construction and expansion of the gas distribution systems (GDS) of Kyiv city, which will also improve the energy efficiency of thermal power generation due to the transition of existing heat-generating systems to natural gas. The project initiated by PJSC "Kyivgas" results in the reduction of greenhouse gas (GHG) emissions into the atmosphere and improves the environmental situation in the region.

The project activities include:



- Ensuring of the supply of natural gas (gasification) to end users by means of the construction and reconstruction of gas distribution networks;
- Replacement of solid and liquid fuels with natural gas;
- Increase in heat energy efficiency;
- Reduction of greenhouse gases under the Joint Implementation (JI) Mechanism.

Implementation of project activities started in late 2006, as stated in the determined PDD version 02. However, emission reductions achieved in 2006 are conservatively excluded from the calculation.

Project implementation status in the reporting period of 01/01/2008 – 31/12/2011 is provided in Table 2 below.

Table 2 Project implementation status during the reporting monitoring period from 01/01/2008 to 31/12/2011

Measures			
Construction of gas distribution networks, km			
2008	2009	2010	2011
17.4146	15.39455	0.4835	0

Status of the project activity implementation complies with the project plan included in the determined PDD version 02.

Details of measures that were implemented, and the number of equipment units installed in the period from January 1, 2008 to December 31, 2011 by departments and offices are provided in Annex 2 to the Monitoring Report.

The starting date of the crediting period has not changed and remains the date when the first emission reductions are expected to be generated, namely: January 1, 2007.

The monitoring system is in place.

Monitoring equipment, such as natural gas meters, meets industry standards of Ukraine. All monitoring equipment is included in the detailed verification (calibration) plan and tested at intervals prescribed by the manufacturers of such equipment.

The impact of the project “Reduction of greenhouse gases emissions by gasification of Kyiv city” on the environment during the construction work can be assessed as tolerable. Project facilities are not included in the list



of activities and facilities of environmental hazard. Completed analysis of the impact of facilities on the environment, which considers all factors, showed that in the normal technical operational mode they will neither cause any negative processes in the environment of the region, nor lead to any negative social and economic consequences and the risk of accidents and their possible impact is minimized.

As part of procedures undertaken at the request of relevant state services, the company reports on environmental performance on a periodical basis. Environmental department of PJSC "Kyivgas" develops quarterly reports in accordance with the Form No.2-TP (air) that is provided to local government statistics.

The project scenario provides for expansion of the territorial gas supply system, which includes construction and reconstruction of the gas distribution networks (GDN) and related equipment. The project provides for modernization of the fuel consumption system of Kyiv city by means of transition of heat-generating systems to natural gas and transferring the consumers from centralized to individual heating and hot water supply systems, which, in turn, leads to the use of more efficient and environmentally friendly fossil fuel (natural gas), improvement of the quality of heating and hot water supply services, reduction of thermal energy consumption due to increased efficiency of individual systems in comparison with the centralized ones.

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

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.

For calculating the emission reductions, key factors, such as volume of natural gas to be supplied to the consumers, existing tariffs for natural gas transportation, public policy in the field of gas supply, experience in implementing activities provided by the project, current practice that exists in this field in Ukraine, financial costs and background, sectoral reform policy in the field of gas supply and legislation, influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project were taken into account, as appropriate.



Data sources used for calculating emission reductions such as appropriately calibrated measuring devices, survey of carbon dioxide emission factors are clearly identified, reliable and transparent.

Carbon dioxide emission factor for natural gas combustion, carbon dioxide emission factor for fossil fuel combustion, default emission factor for methane at technological gas equipment at end consumer's place, default emission factor for methane in the process of natural gas transportation and distribution, reduced GHG emission factor for natural gas transportation to end consumers 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 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 Bureau Veritas Certification's conclusions are described in Appendix A to this report (refer to CAR 04, CAR 05, CAR 06, CAR 07, CL 01).

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 provided in the PDD, including the quality control and quality assurance procedures.

The function of the monitoring equipment, including its calibration status, is in order.

According to the current Law "On metrology and metrological activity", all metering equipment in Ukraine shall meet the specified requirements of relevant standards and is subject to periodic calibration. Intercalibration periods are stated in Section B.1. of the MR.

The project complies with the legislative requirements relating to calibration and verification.



The evidence and records used for the monitoring are maintained in a traceable manner.

Data collection and management system is in accordance with the monitoring plan provided in the PDD.

The most objective and cumulative indicator that provides a clear picture of whether emission reduction took place is natural gas consumption. The substitution of fuel oil and coal with natural gas leads to GHG emission reductions. In addition, systems of energy carrier transportation, preparation and combustion show higher efficiency if a switch to natural gas occurs and this happens irrelevant of external factors.

The monitoring procedure provides for the following measures:

1. Collection of information on greenhouse gas emissions within the project boundary during the crediting period.
2. Assessment of the project implementation schedule.
3. Collection of the information on measurement equipment, its calibration.
4. Collection and archiving of information on the impact of project activities on the environment.
5. Data archiving.
6. 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 Annexes 3.1-3.3.

Monitoring of natural gas consumption by legal entities.

1. Legal entities supply information on gas consumption to the Gas resource department of PJSC «Kyivgas» every month.
2. Gas resource department conducts monthly inspections of meters, executes a certificate signed by the enterprise and transfers it to the Industrial and public-utility department of PJSC «Kyivgas».
3. Industrial and public-utility department of PJSC «Kyivgas» processes information into basic form by «Atlas SYBIL» program.
4. Indices of gas supply volume processed by «Atlas SYBIL» program are delivered to the project developer «VEMA S.A.».

Monitoring of natural gas consumption by individuals.

1. Service of consumer gas consumption control conducts monthly inspections of meters, executes a certificate signed by an individual and transfers it to the Consumers service.
2. Bank institutions deliver the information on gas consumption in the form of paid bills to the Payment settlement and customer department of PJSC «Kyivgas».
3. Consumers service processes received information and bases it into «Atlas Sybil» program.
4. Indices of gas supply volume processed by «Atlas Sybil» program are delivered to the project developer «VEMA S.A.».

Structure of data collection as a part of the project monitoring is shown in Figure 1.

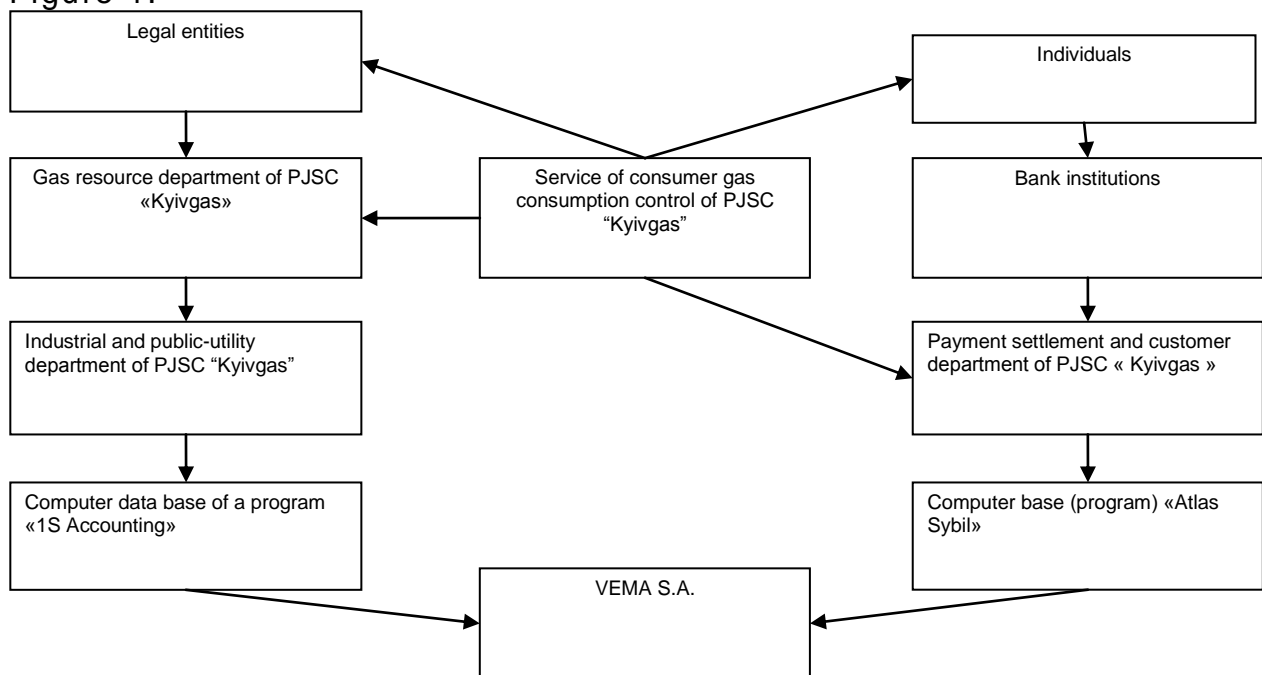


Figure 1 Structure of monitoring data collection

All necessary data concerning GHG emission reduction monitoring is archived in paper and/or electronic form and kept till the end of the crediting period and for two years after the latest transaction with emission reduction units.

The Monitoring Report version 02 provides sufficient information on duties assigned, responsibility and authorities concerning implementation and undertaking of monitoring procedures, including data management. The verification team confirms the efficiency of the existing management and operational systems and considers them appropriate for reliable project monitoring.



The identified areas of concern as to the data management, project participants responses and Bureau Veritas Certification's conclusions are described in Appendix A to this report (refer to CAR 08, CAR 09, CL 02, CL 03).

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 January 1, 2008 to December 31, 2011 of the "Reduction of greenhouse gases emissions by gasification of Kyiv city" 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 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 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 01/01/2008 to 31/12/2011 as indicated below. Bureau Veritas Certification confirms that the project is implemented as per approved PDD version. 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.

Emission reductions achieved by the project for the period from 01/01/2008 to 31/12/2011 do not differ significantly from the amount predicted for the same period in the determined PDD. Emission reductions predicted in the determined PDD version 02 and actual emission



reductions stated in the MR version 02 are provided in Table 3 of this report.

Table 3 Emission reductions predicted in the determined PDD version 02 and actual emission reductions stated in the MR version 02

Period	Estimated GHG emission reductions stated in the determined PDD in tonnes of CO ₂ eq	Ex-post GHG emission reductions stated in the Monitoring report in tonnes of CO ₂ eq
2008	360090	360030
2009	295706	295638
2010	856529	856529
2011	856529	780163
Total	2 368 854	2 292 360

This difference in the emission reductions under the project “Reduction of greenhouse gases emissions by gasification of Kyiv city” in 2008 - 2011 in the determined PDD and the MR is explained by the fact that accurate conservative values were available during MR development but at the PDD development stage assumptions were made in relation to 2011.

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

Reporting period: From 01/01/2008 to 31/12/2011

In the period from 01/01/2008 to 31/12/2008

Baseline emissions : 855 520 tonnes of CO₂ equivalent.
 Project emissions : 452 892 tonnes of CO₂ equivalent.
 Leakage : 42 598 tonnes of CO₂ equivalent.
 Emission Reductions : 360 030 tonnes of CO₂ equivalent.

In the period from 01/01/2009 to 31/12/2009

Baseline emissions : 697 366 tonnes of CO₂ equivalent.
 Project emissions : 369 899 tonnes of CO₂ equivalent.
 Leakage : 31 829 tonnes of CO₂ equivalent.
 Emission Reductions : 295 638 tonnes of CO₂ equivalent.

In the period from 01/01/2010 to 31/12/2010

Baseline emissions : 1 999 824 tonnes of CO₂ equivalent.
 Project emissions : 1 058 659 tonnes of CO₂ equivalent.



Leakage : 84 636 tonnes of CO₂ equivalent.
Emission Reductions : 856 529 tonnes of CO₂ equivalent.

In the period from 01/01/2011 to 31/12/2011

Baseline emissions : 1 818 545 tonnes of CO₂ equivalent.
Project emissions : 962 696 tonnes of CO₂ equivalent.
Leakage : 75 686 tonnes of CO₂ equivalent.
Emission Reductions : 780 163 tonnes of CO₂ equivalent.

Total in the period from 01/01/2008 to 31/12/2011

Baseline emissions : 5 371 255 tonnes of CO₂ equivalent.
Project emissions : 2 844 146 tonnes of CO₂ equivalent.
Leakage : 234 749 tonnes of CO₂ equivalent.
Emission Reductions : 2 292 360 tonnes of CO₂ 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 of the JI project "Reduction of greenhouse gases emissions by gasification of Kyiv city" for the period from 01/01/2008 to 31/12/2011 version 01 dated 04/08/2012
/2/	Monitoring Report of the JI project "Reduction of greenhouse gases emissions by gasification of Kyiv city" for the period from 01/01/2008 to 31/12/2011 version 02 dated 09/08/2012
/3/	Annex 1. Monitoring Parameters for the period of 01/01/2008 - 31/12/2011
/4/	Annex 2. Technical registry of gas networks (Excel spreadsheet)
/5/	Annex 3.1. Calculation of GHG emission reductions under the project "Reduction of greenhouse gases emissions by gasification of Kyiv city" (Excel spreadsheet)
/6/	Annex 3.2. Calculation of GHG emission reductions under the project "Reduction of greenhouse gases emissions by gasification of Kyiv city" (Excel spreadsheet)
/7/	Annex 3.3. Calculation of GHG emission reductions under the project "Reduction of greenhouse gases emissions by gasification of Kyiv city" (Excel spreadsheet)
/8/	Project Design Document of the project "Reduction of greenhouse gases emissions by gasification of Kyiv city", version 02 dated 25/06/2012
/9/	Determination Report of the project "Reduction of greenhouse gases emissions by gasification of Kyiv city" No. UKRAINE-det/0442/2012 version 02 as of 06/06/2012 issued by Bureau Veritas Certification
/10/	Letter of Approval of the Joint Implementation project "Reduction of greenhouse gases emissions by gasification of Kyiv city" #2092/23/7 of 03/08/2012 issued by State Environmental Investment Agency of Ukraine
/11/	Letter of Approval of the JI project "Reduction of greenhouse gases emissions by gasification of Kyiv city" # J294-0485 issued by the Federal Office for the Environment of Switzerland dated 30/05/2012

Category 2 Documents:

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



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/1/	Delivery and acceptance certificate of natural gas and services on its transportaiton by gas distribution pipelines in accordance with agreement № 231459 dated 30/09/2008
/2/	Delivery and acceptance certificate of natural gas and services on its transportaiton by gas distribution pipelines in accordance with agreement № 231438 dated 30/09/2008
/3/	Delivery and acceptance certificate of natural gas and services on its transportaiton by gas distribution pipelines in accordance with agreement № 231433 dated 30/09/2008
/4/	Delivery and acceptance certificate of natural gas and services on its transportaiton by gas distribution pipelines in accordance with agreement № 231384 dated 30/09/2008
/5/	Delivery and acceptance certificate of natural gas and services on its transportaiton by gas distribution pipelines in accordance with agreement № 231460 dated 31/12/2009
/6/	Delivery and acceptance certificate of natural gas and services on its transportaiton by gas distribution pipelines in accordance with agreement № 231461 dated 31/12/2009
/7/	Delivery and acceptance certificate of natural gas and services on its transportaiton by gas distribution pipelines in accordance with agreement № 231470 dated 31/12/2009
/8/	Delivery and acceptance certificate of natural gas and services on its transportaiton by gas distribution pipelines in accordance with agreement № 231473 dated 31/12/2009
/9/	Certificate of gas supply service delivery and acceptance under the Agreement 211446 dated 31/03/2010
/10/	Certificate of gas supply service delivery and acceptance under the Agreement 211466 dated 31/03/2010
/11/	Certificate of gas supply service delivery and acceptance under the Agreement 211593 dated 31/03/2010
/12/	Certificate of gas supply service delivery and acceptance under the Agreement 211533 dated 31/03/2010
/13/	Certificate of gas supply service delivery and acceptance under the Agreement 241501 dated 30/04/2011
/14/	Certificate of gas supply service delivery and acceptance under the Agreement 241499 dated 30/04/2011
/15/	Certificate of gas supply service delivery and acceptance under the Agreement 231470 dated 30/04/2011
/16/	Certificate of gas supply service delivery and acceptance under the Agreement 231461 dated 30/04/2011
/17/	Calibration certificate of measuring instrument of equipment (Gas meter Novator) dated 14/09/2011
/18/	Calibration certificate of measuring instrument of equipment (Gas meter G-6) dated 14/09/2011
/19/	Calibration certificate of measuring instrument of equipment (Gas meter G-25) dated 03/03/2010



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/20/	Calibration certificate of measuring instrument of equipment (Gas meter G-6) dated 20/04/2010
/21/	Calibration certificate of measuring instrument of equipment (Gas meter G-25) dated 04/08/2010
/22/	Calibration certificate of measuring instrument of equipment (Gas meter PREMAGAS G 2.5) dated 25/08/2009
/23/	Calibration certificate of measuring instrument of equipment (Gas meter Oktava 6-4) dated 12/08/2009
/24/	Calibration certificate of measuring instrument of equipment (Gas meter PREMAGAS G 2.5) dated January 2009
/25/	Calibration certificate of measuring instrument of equipment (Gas meter Novator) dated January 2008
/26/	Calibration certificate of measuring instrument of equipment (Gas meter PREMAGAS G 6) dated October 2010
/27/	Photos of a calibration laboratory
/28/	Photos of gas pipeline, which was laid in monitoring period 2008-2011
/29/	Warranty card for gas meter GMS-16-40 dated September 2009
/30/	Warranty card for gas meter EX dated 27/10/2011
/31/	Warranty card for gas meter Delta 2100 dated 12/06/2009
/32/	Commissioning certificate of completed electrical safety device installation dated 05/10/2010
/33/	Commissioning certificate of completed electrical safety device installation dated 20/12/2011
/34/	Commissioning certificate of completed electrical safety device installation dated 23/04/2010
/35/	Certificate of acceptance of completed construction facility of gas supply system dated 20/10/2008
/36/	Certificate of acceptance of completed construction facility of gas supply system dated 12/09/2008
/37/	Statement for the inclusion of gas in apartments

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	Organization	Position
/1/	Bernatskyi B.E.	PJSC "Kyivgas"	Chief Engineer, Working Team Leader
/2/	Shevchuk Ye.Ye.	PJSC "Kyivgas"	Working Team Engineer
/3/	Dovbysh V.Yu.	PJSC "Kyivgas"	Working Team Secretary



/4/	Yuriev D.O.	PJSC "Kyivgas"	Working Team Technical Engineer
/5/	Ovcharuk S.S.	PJSC "Kyivgas"	First Deputy Chairman of the Board
/6/	Palamarchuk D.A.	"CEP" LLC	Consultant of VEMA S.A.



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APPENDIX A: PROJECT VERIFICATION PROTOCOL

BUREAU VERITAS CERTIFICATION HOLDING SAS

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?	The project has been approved by both the Host party (Ukraine) and the other Party involved (Switzerland). The Letters of Approval were issued by NFPs of the Parties involved. Two Letters of Approval were available at the beginning of the first verification of the project. CAR 01. The date when the determination report was issued is incorrect. Please, make necessary corrections. CAR 02. Please, provide information on the number of the Letter of Approval from Switzerland.	CAR 01 CAR 02	OK OK
91	Are all the written project approvals by Parties involved unconditional?	Yes, all the written project approvals by Parties involved are unconditional.	OK	OK
Project implementation				
92	Has the project been implemented in	CAR 03. The monitoring period is incorrect in Section	CAR 03	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	accordance with the PDD regarding which the determination has been deemed final and is so listed on the UNFCCC JI website?	A.6. of the MR.		
93	What is the status of operation of the project during the monitoring period?	<p>Implementation of the project activities started in late 2006, as stated in the determined PDD version 02. However, emission reductions achieved in 2006 are conservatively excluded from the calculation. Thus, 01/01/2007 is the starting date of the crediting period.</p> <p>Project implementation status and project milestones in the reporting period of 01/01/2008 – 31/12/2011 are provided in in Section A.6. of the MR version 02 and Annex 2.</p> <p>In 2008-2011 PE-80, PE-100 polyethylene pipes and steel pipes that conform to SSTU 10704-91 with reinforced bituminous mastic sealing under SSTU B.V.2.5.-29:2006 were used in construction.</p>	OK	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?	There aren't any changes in or deviations from the registered PDD.	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)-	For calculating the emission reductions, key factors, such as volume of natural gas to be supplied to the consumers, existing tariffs for natural gas	OK	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(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?	transportation, public policy in the field of gas supply, experience in implementing activities provided by the project, current practice that exists in this field in Ukraine, financial costs and background, sectoral reform policy in the field of gas supply and legislation, influencing the baseline emissions and the activity level of the project and the emissions as well as risks associated with the project were taken into account, as appropriate.		
95 (b)	Are data sources used for calculating emission reductions or enhancements of net removals clearly identified, reliable and transparent?	<p>Data sources used for calculating emission reductions or enhancements of net removals are clearly identified, reliable and transparent.</p> <p>CL 01. Please, provide a reference to the Guidance on criteria for baseline setting and monitoring in Section B of the MR.</p> <p>CAR 04. Please, state data units for Net calorific value of natural gas in Table 4.</p> <p>CAR 05. The national inventory report of anthropogenic greenhouse gas emissions by sources and removals by sinks in Ukraine for 1990-2009 is stated as the data source for parameters in Tables 4 and 5 of the MR. But the Inventory for 1990-2010 shall be used.</p> <p>CAR 06. A list of supporting documents on the title page of the MR contains a document that doesn't exist. Please, delete the name of this document.</p> <p>CAR 07. An incorrect reference to supporting</p>	<p>CL 01</p> <p>CAR 04</p> <p>CAR 05</p> <p>CAR 06</p> <p>CAR 07</p>	<p>OK</p> <p>OK</p> <p>OK</p> <p>OK</p> <p>OK</p>



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		document is provided after Table 5.		
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?	Carbon dioxide emission factor for natural gas combustion, carbon dioxide emission factor for fossil fuel combustion, default emission factor for methane at technological gas equipment at end consumer's place, default emission factor for methane in the process of natural gas transportation and distribution, reduced GHG emission factor for natural gas transportation to end consumers are selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice.	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?	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?	Not applicable	Not applicable	Not applicable



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
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 periods, are the monitoring periods per component of the project clearly specified in the monitoring report? Do the monitoring periods not overlap with those for which verifications were already deemed final in the past?	Not applicable	Not applicable	Not applicable
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?	Not applicable.	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	Not applicable	Not applicable	Not applicable



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	rules and regulations for the establishment of monitoring plans?			
Data management				
101 (a)	Is the implementation of data collection procedures in accordance with the monitoring plan, including the quality control and quality assurance procedures?	<p>The implementation of data collection procedures, including the quality control and quality assurance procedures, is in accordance with the monitoring plan.</p> <p>CAR 08. The monitoring period is incorrect in Section B.3.</p> <p>CAR 09. Please, provide information on how the length of gas distribution systems, implemented by the project, is determined.</p> <p>CL 02. Please, provide a reference to law of Ukraine "On metrology and metrological activity".</p>	<p>CAR 08</p> <p>CAR 09</p> <p>CL 02</p>	<p>OK</p> <p>OK</p> <p>OK</p>
101 (b)	Is the function of the monitoring equipment, including its calibration status, is in order?	<p>Routine repair of gas networks is carried out once a year; maintenance - once every six months. Repaired gas equipment is regularly examined to ensure that it works properly and is not a source of gas leaks.</p> <p>Means of metering equipment used for monitoring of the project activity are subject to periodic state verification.</p>	OK	OK
101 (c)	Are the evidence and records used for the monitoring maintained in a traceable manner?	<p>Each quarter, representatives of VEMA S.A., project developers, conduct internal audits of the project monitoring system at PJSC "Kyivgas".</p> <p>Internal audit includes measures on verification of consumed gas accounting and record keeping by Gas accounting service, Gas supply regime</p>	OK	OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		department; verification of proper working condition and periodic maintenance of "Gasolina" software; cross-check of data of the program complexes and records of consumed gas, that are kept by the relevant services of the company; checking the timeliness of natural gas meters verification etc.		
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 the effectiveness of the existing management and operating systems and considers them suitable for reliable monitoring of the project. CL 03. Please, check the numbering of Tables and Figures in the MR.	CL 03	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
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	Not applicable	Not applicable	Not applicable



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	JISC of its findings in writing?			
Applicable to sample-based approach only				
106	<p>Does the sampling plan prepared by the AIE:</p> <p>(a) Describe its sample selection, taking into account that:</p> <p>(i) For each verification that uses a sample-based approach, the sample selection shall be sufficiently representative of the JPAs in the JI PoA such extrapolation to all JPAs identified for that verification is reasonable, taking into account differences among the characteristics of JPAs, such as:</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 	Not applicable	Not applicable	Not applicable



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	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?	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	Not applicable	Not applicable	Not applicable



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	JPA or an inflated number of emission reductions claimed in a JI PoA, has the AIE informed the JISC of the fraud in writing?			



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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
CAR 01. The date when the determination report was issued is incorrect. Please, make necessary corrections.	90	Determination report No. UKRAINE-DET /0442/2012 dated 06/06/2012	CAR 01 is closed as necessary corrections were made in the MR version 02.
CAR 02. Please, provide information on the number of the Letter of Approval from Switzerland.	90	The project was also approved by the party – buyer of the emission reduction units (Switzerland) - Letter of Approval No.J294-0485 issued by the Federal Office for the Environment FOEN of Switzerland.	CAR 02 is closed as necessary data were provided in the MR version 02
CAR 03. The monitoring period is incorrect in Section A.6. of the MR.	92	This monitoring report provides information on emission reductions achieved in the monitoring period 01/01/2008-31/12/2011	CAR 03 is closed as necessary changes were made.
CAR 04. Please, state data units for Net calorific value of natural gas in Table 4.	95 (b)	$NCV_{NG,y}$ - Net calorific value of natural gas (GJ/th ³ m ³)..	CAR 04 is closed as necessary data were provided.
CAR 05. The national inventory report of anthropogenic greenhouse gas emissions by sources and removals by sinks in Ukraine for 1990-2009 is stated as the data source for parameters in Tables 4 and 5 of the MR. But	95(b)	The national inventory report of anthropogenic greenhouse gas emissions by sources and removals by sinks in Ukraine for 1990-2010 was used to determine certain parameters. Refer to	CAR 05 is closed as necessary corrections were made.



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the Inventory for 1990-2010 shall be used.		the MR version 02.	
CAR 06. A list of supporting documents on the title page of the MR contains a document that doesn't exist. Please, delete the name of this document.	95(b)	Irrelevant information was deleted from the MR version 02.	CAR 06 is closed as irrelevant information was deleted.
CAR 07. An incorrect reference to supporting document is provided after Table 5.	95(b)	Yearly parameter values used to calculate GHG emissions for the project and the baseline scenarios are shown in Annex 3.1-3.3.: Calculation of GHG emission reductions under the project "Reduction of greenhouse gases emissions by gasification of Kyiv city"	CAR 07 is closed as correct reference was provided.
CAR 08. The monitoring period is incorrect in Section B.3.	101 (a)	There were no emergencies or major malfunctions registered at PJSC "Kyivgas" in the reporting period of 01/01/2008 – 31/12/2011.	CAR 08 is closed as necessary corrections were made.
CAR 09. Please, provide information on how the length of gas distribution systems, implemented by the project, is determined.	101 (a)	The length of gas distribution systems, implemented by the project, is determined by technical and installation service based on GDN commissioning certificates.	CAR 09 is closed as necessary information was provided in the MR version 02.
CL 01. Please, provide a reference to the Guidance on criteria for baseline setting and monitoring in Section B of the MR.	95 (b)	Relevant reference was provided in the MR version 02.	CL 01 is closed as necessary reference was provided.
CL 02. Please, provide a reference to law of Ukraine "On metrology and metrological	101 (a)	Relevant reference was provided in the MR version 02.	CL 02 is closed as necessary



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activity".			reference was provided.
CL 03. Please, check the numbering of Tables and Figures in the MR.	101 (d)	Relevant corrections were made in the MR version 02.	CL 03 is closed as necessary changes were made.