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Reviewed

Init Akhelet

Date: 19/03/2012

Bureau Veritas Certification
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**BUREAU
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DETERMINATION REPORT

GLOBAL CARBON BV

DETERMINATION OF THE

“INSTALLATION OF THREE GAS TURBINES
SGT-800 TYPE AT GTES “KOLOMENSKOE”,
MOSCOW, RUSSIAN FEDERATION (EX.
INSTALLATION OF THREE COMBINED CYCLE
GAS TURBINE SGT-800 AT GTES
“KOLOMENSKOE”, MOSCOW, RUSSIAN
FEDERATION)”

REPORT No. RUSSIA-DET/0120/2011

REVISION No. 02

BUREAU VERITAS CERTIFICATION



Determination Report on JI project

“Installation of three gas turbines SGT-800 type at GTES “Kolomenskoe”, Moscow, Russian Federation (ex. Installation of three combined cycle gas turbine SGT-800 at GTES “Kolomenskoe”, Moscow, Russian Federation)”

Date of first issue: 15/04/2011	Organizational unit: Bureau Veritas Certification Holding SAS
Client: Global Carbon BV	Client ref.: Mr. Lennard de Klerk

Summary:

Bureau Veritas Certification has made the determination of the project “Installation of three gas turbines SGT-800 type at GTES “Kolomenskoe”, Moscow, Russian Federation (ex. Installation of three combined cycle gas turbine SGT-800 at GTES “Kolomenskoe”, Moscow, Russian Federation)” project of company Global Carbon BV, located in Moscow, Mira av., 36/1 on the basis of UNFCCC criteria for the JI, as well as criteria given to provide for consistent project operations, monitoring and reporting. UNFCCC criteria refer to Article 6 of the Kyoto Protocol, the JI rules and modalities and the subsequent decisions by the JI Supervisory Committee, as well as the host country criteria.

The determination scope is defined as an independent and objective review of the project design document, the project’s baseline study, monitoring plan and other relevant documents, and consisted of the following three phases: i) desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) resolution of outstanding issues and the issuance of the final determination report and opinion. The overall determination, from Contract Review to Determination Report & Opinion, was conducted using Bureau Veritas Certification internal procedures.

The first output of the determination process is a list of Clarification and Corrective Actions Requests (CL and CAR), presented in Appendix A. Taking into account this output, the project proponent revised its project design document.

In summary, it is Bureau Veritas Certification’s opinion that the project applies the appropriate baseline and monitoring methodology and meets the relevant UNFCCC requirements for the JI and the relevant host country criteria.

In the Determination Report rev.01, Bureau Veritas Certification recommended the project for approval by the Host Party. The approval was issued by the Ministry for Economic Development of the Russian Federation by Order No 112 dated 12 March 2012. The Project Participant issued on 16 March 2012 the PDD version 1.4 which refers in Section A.5 to the received project approval. Due to the above, CAR 01 in the Determination Report rev.01 which addressed the absence of the project approval is closed and hence all implications in the Determination Report and Appendix A related to CAR 01 have become irrelevant to the approved project.

Report No.: RUSSIA-det/0120/2011	Subject Group: JI
Project title: “Installation of three gas turbines SGT-800 type at GTES “Kolomenskoe”, Moscow, Russian Federation (ex. Installation of three combined cycle gas turbine SGT-800 at GTES “Kolomenskoe”, Moscow, Russian Federation)”	
Work carried out by: Daniil Ukhanov – Lead verifier	
Work reviewed by: Leonid Yaskin – Internal Technical Reviewer	
Work approved by: Flavio Gomes – Operational Manager	
Date of this revision: 19/03/2012	Rev. No.: 02
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“Installation of three gas turbines SGT-800 type at GTES “Kolomenskoe”, Moscow, Russian Federation (ex. Installation of three combined cycle gas turbine SGT-800 at GTES “Kolomenskoe”, Moscow, Russian Federation)”

Abbreviations

AIE	Accredited Independent Entity
BVC	Bureau Veritas Certification
CAR	Corrective Action Request
CL	Clarification Request
CO2	Carbon Dioxide
DDR	Draft Determination Report
DR	Document Review
EIA	Environmental Impact Assessment
EIAR	Environmental Impact Assessment Report
ERU	Emission Reduction Unit
GHG	Greenhouse House Gas(es)
GTU	Gas Turbine Unit
IE	Independent Entity
IPCC	Intergovernmental Panel on Climate Change
IRR	Internal Rate of Return
JI	Joint Implementation
JISC	Joint Implementation Supervisory Committee
NG	Natural gas
PDD	Project Design Document
PP	Project Participant
RF	Russian Federation
tCO2e	Tonnes CO2 equivalent
UNFCCC	United Nations Framework Convention for Climate Change

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1 INTRODUCTION

Global Carbon BV (hereafter called “Global Carbon”) has commissioned Bureau Veritas Certification to determine JI project “Installation of three gas turbines SGT-800 type at GTES “Kolomenskoe”, Moscow, Russian Federation (ex. Installation of three combined cycle gas turbine SGT-800 at GTES “Kolomenskoe”, Moscow, Russian Federation)” (hereafter called “the project”) located in the city of Moscow, Russian Federation.

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

1.1 Objective

The determination serves as project design verification and is a requirement of all projects. The determination is an independent third party assessment of the project design. In particular, the project's baseline, the monitoring plan (MP), and the project's compliance with relevant UNFCCC and host country criteria are determined in order to confirm that the project design, as documented, is sound and reasonable, and meets the stated requirements and identified criteria. Determination is a requirement for all JI projects and is seen as necessary to provide assurance to stakeholders of the quality of the project and its intended generation of emissions reductions units (ERUs).

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

1.2 Scope

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

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

1.3 Determination team

The determination team consists of the following personnel:



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Daniil Ukhanov

Bureau Veritas Certification Climate Change Lead Verifier

This determination report was reviewed by:

Leonid Yaskin

Bureau Veritas Certification, Internal reviewer

2 METHODOLOGY

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

In order to ensure transparency, a determination protocol was customized for the project, according to the version 01 of the Joint Implementation Determination and Verification Manual, issued by the Joint Implementation Supervisory Committee at its 19 meeting on 04/12/2009. The protocol shows, in a transparent manner, criteria (requirements), means of determination and the results from determining the identified criteria. The determination protocol serves the following purposes:

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

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

2.1 Review of Documents

The Project Design Document (PDD) submitted by Global Carbon and additional background documents related to the project design and baseline, i.e. country Law, Guidelines for users of the joint implementation project design document form, Guidance on criteria for baseline setting and monitoring, Kyoto Protocol to be checked by an Accredited Independent Entity were reviewed.

To address Bureau Veritas Certification corrective action and clarification requests, Global Carbon revised the original PDD v.1.1 dated 25/02/2011 and resubmitted it as v.1.3 dated 11/04/2011.

The first deliverable of the document review was the Determination Protocol Version 01 dated 16/03/2011 which contained 28 CARs and 4 CLs.



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The determination findings presented in this Determination Report Version 01 and Appendix A relate to the project as described in the PDD versions 1.1 (published) and version 1.3 (final) dated 11/04/11.

2.2 Follow-up Interviews

On 30/03/2011 Bureau Veritas Certification lead verifier D.Ukhanov performed a visit to the project site. On-site interviews with the project participant LLC NaftaSib Energy and the PDD developer Global Carbon were conducted to confirm the selected information and to clarify some issues identified in the document review. Representatives of LLC NaftaSib Energy and the PDD Developer Global Carbon were interviewed (see References). The main topics of the interviews are summarized in Table 1.

Table 1 Interview topics

Interviewed organization	Interview topics
LLC NaftaSib Energy	<ul style="list-style-type: none"> ➤ Starting date of the project ➤ Reasoning for project implementation ➤ Project history and Implementation schedule ➤ Baseline scenario ➤ Project scenario ➤ Technologies applied ➤ Investment issues ➤ Commissioning and proven trials ➤ Training of personnel ➤ Environmental permissions ➤ Environmental Impact Assessment ➤ Public hearings
CONSULTANT Global Carbon BV	<ul style="list-style-type: none"> ➤ Baseline scenario ➤ Additionality proofs ➤ Project scenario ➤ Investment issues
Stakeholders	<ul style="list-style-type: none"> ➤ N/A

2.3 Resolution of Clarification and Corrective Action Requests

The objective of this phase of the determination 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 project design.



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Corrective Action Request (CAR) is issued, where:

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

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

The determination team may also issue Forward Action Request (FAR), informing the project participants of an issue that needs to be reviewed during 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 PROJECT DESCRIPTION

Project objective

The project’s purpose is construction of a Gas Turbine Power Plant “Kolomenskoe” (here in after referred as GTES -“Kolomenskoe” with the use of natural gas as a fuel and intended for the combined production of electricity and heat. This project will allow increasing of natural gas combustion efficiency and reducing of CO₂ emissions due to the use of modern equipment and combined heat and electricity generation.

Project concept

- Situation existing prior to the project

Prior to the project implementation electricity to meet residential needs of municipalities Moskvorechye - Saburovo, Nagatino - Sadovniki and Tsaricino of the Southern Administrative District of Moscow was imported from a centralized power system (URES “Centre”). The URES “Centre” is composed of 18 provincial electricity systems (PESs), while these systems have interconnections with the neighboring ones. Supply of heat energy was carried through: district heating station (DHS) Kolomenskoe, DHS Nagatino, DHS Lenino-Dachnoe, Quarter heating station (QHS)-16 and QHS-17.

- Baseline scenario



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The baseline scenario represents Business as Usual (BAU) practice. In the absence of the project activity the current heat generation from the DHSs and QHSs using natural gas and electricity supply from the centralized power system (URES “Centre”) would continue.

- Project scenario

The project includes the construction and operation of the GTES “Kolomenskoe”. The GTES “Kolomenskoe” was commissioned in May 2009. The GTES “Kolomenskoe” has power capacity 136 MW and heat capacity 171 Gcal/h. The project includes construction of 3 gas turbine units (GTU), with capacity 45.3 MW each, while exit gases will be used in the 3 heat-recovery boilers with capacity 57 Gcal/h each. Natural gas will be the main and back-up fuel for the new GTES Kolomenskoe.

Electricity and heat at the GTES “Kolomenskoe” will be generated using more efficient technology. Electricity will replace electricity that otherwise would be generated using less efficient technologies at the power plants connected to the grids of the Russian Federation. Heat generated at GTES Kolomenskoe will replace heat supplied to the consumers by the DHS and QHS. The heat generated by GTES Kolomenskoe is transmitted into the heating network of OJSC “MOEK” (Moscow Joint Energy Company)

History of the project

The decision to construct the GTES was taken in 2006 on the working meeting. Benefits and disadvantages of construction of the new GTES were discussed. The idea to attract Kyoto financing was announced at this meeting. After due discussions and research regarding possibilities to implement this project as a JI project activity the decision to implement this project within the framework of the Kyoto protocol was taken. The project had been started in 2007 and commissioned in May 2009.

4 DETERMINATION CONCLUSIONS

In the following sections, the conclusions of the determination are stated.

The findings from the desk review of the original project design documents and the findings from interviews during the follow up visit are described in the Determination Protocol in Appendix A.

The Clarification and Corrective Action Requests are stated, where applicable, in the following sections and are further documented in the Determination Protocol in Appendix A. The determination of the Project resulted in 28 Corrective Action Requests and 4 Clarification Requests.



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

4.1 Project approvals by Parties involved (19-20)

The project has no approvals by the Host Party, therefore CAR 06 remains pending.

A written project approval by Party B should be provided to the AIE and made available to the secretariat by the AIE when submitting the first verification report for publication in accordance with paragraph 38 of the JI guidelines. It has not been provided to AIE at the determination stage.

4.2 Authorization of project participants by Parties involved (21)

The participation for NaftaSib Energy LLC listed as project participant in the PDD is not authorized by the Host Party because the project approval by the Host Party was not received. Project approval for Party B – Global Carbon BV is received neither.

The authorization is deemed to be carried out through the issuance of the project approvals.

4.3 Baseline setting (22-26)

The PDD explicitly indicates that using a methodology for baseline setting and monitoring developed in accordance with appendix B of the JI guidelines (hereinafter referred to as JI specific approach) was the selected approach for identifying the baseline.

JI specific approach

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

- (a) By listing and describing the following plausible future scenarios on the basis of conservative assumptions and selecting the most plausible one being Alternative1:
 - a. Alternative scenario 1: Continuation of the existing practice, i.e. supply of the heat energy from the nearest boilers of DHS, QHS and electricity from URES “Centre”;
 - b. Alternative scenario 2: The proposed project not developed as a JI project;
 - c. Alternative scenario 3: Construction of the new boiler house for heat energy generation, electricity supplied from the URES “Centre”;



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- d. Alternative scenario 4: Construction of gas turbine unit and autonomous heat boiler for heat supply;
 - e. Alternative scenario 5: Construction of combined cycle gas turbine power plant (CCGT);
 - f. Alternative scenario 6: Construction of the common steam turbine (CHP).
- (b) Taking into account relevant national and/or sectoral policies and circumstances, such as sectoral reform initiatives (orders, regulations), the economic situation in the energy sector, availability of capital, existing heating capacities. In this context, the following key factors that affect a baseline are taken into account:
- a. Sectoral reform policies and legislation in energy industry such as: balances of the CJSC “Agency for Prediction of Balances in Electric Energy, etc.
 - b. Balance of electricity generation and consumption in the URES “Centre”;
 - c. Availability of capital (including investment analysis).
Capital is available; however IRR of the project is less than the set benchmark (refer to Section B.2);

After screening of alternative scenarios the first alternative is left as the most plausible, namely:

Alternative 1: Continuation of the existing practice, i.e. supply of the heat energy from the nearest boilers of DHS, QHS and electricity from URES “Centre”.

All explanations, descriptions and analyses pertaining to the baseline in the PDD are made in accordance with the referenced JI specific approach and the baseline is identified appropriately.

Outstanding issues related to Baseline setting (23), PP’s response and the AIE conclusion are summarized in Appendix A (refer to CARs 07-10).

4.4 Additionality (27-31)

JI specific approach

The most recent version 05.2 of the "Tool for the demonstration and assessment of additionality" approved by the CDM Executive Board is used to demonstrate additionality. All explanations, descriptions and analyses are made in accordance with the selected tool.

The PDD developer provides a justification of the applicability of the approach with a clear and transparent description, as per item 4.3 above.



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PDD developer described and scrutinized plausible alternative scenarios which have been provided in Section B.1.

Justification of additionality has been done in several steps, prescribed by the Tool:

- (a) identification of alternatives to the project activity (refer to Section B.1),
- (b) investment analysis,
- (c) common practice analysis.

The key additionality proofs were the results of the investment analysis and common practice analysis. The investment analysis shows that the project (Alternative scenario 2) with capital investment 187,275 kEuro has less IRR than set benchmark, hence it is not financially attractive. The sensitivity analysis of variations of key parameters (capital investments, natural gas price, electricity price, heat energy price) confirms the conclusion of the basic investment analysis.

The spreadsheet with the investment and sensitivity analyses was made available for the verifier, and Bureau Veritas Certification will submit it to JISC at the final determination as the supporting documentation.

The common practice analysis has reasonably shown that the proposed JI project does not represent a widely observed practice in the geographical area concerned.

The verifier determined that additionality is demonstrated appropriately as a result of the analysis using the approach chosen.

Outstanding issues related to Additioality (29), PP’s response and the AIE conclusion are summarized in Appendix A (refer to CARs 11-17 and CL 02).

4.5 Project boundary (32-33)

JI specific approach

The project boundary defined in the PDD, Section B.3, Table B.3.1 for project and baseline scenario accordingly, encompasses all anthropogenic emissions by sources of greenhouse gases (GHGs) that are:

- (i) Under the control of the project participants such as:
 - On-site natural gas combustion;
- (ii) Reasonably attributable to the project such as:
 - Electricity generation of the URES “Centre”;
 - Natural gas combustion at DHS and QHS;
- (iii) Significant such as:



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- All the sources mentioned above.

The delineation of the project boundary and the gases and sources included are appropriately described and justified in the PDD, Section B.3.

Based on the above assessment, the AIE hereby confirms that the identified boundary and the selected sources and gases are justified for the project activity.

Outstanding issues related to Project boundary (32), PP’s response and the AIE conclusion are summarized in Appendix A (refer to CAR 18 and CL 03-04).

4.6 Crediting period (34)

The PDD states the starting date of the project as the date on which the implementation or construction or real action of the project began, and the starting date is 18/07/2007, which is after the beginning of 2000.

The PDD states the expected operational lifetime of the project in years and months, which is 20 years or 240 months.

The PDD states the length of the crediting period in years and months, which is 3 years or 7 months, and its starting date as 26/05/2009, which is on the date the first emission reductions are generated by the project.

4.7 Monitoring plan (35-39)

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

JI specific approach

The monitoring plan describes all relevant factors and key characteristics that will be monitored, and the period in which they will be monitored, in particular also all decisive factors for the control and reporting of project performance, such as:

- Natural gas consumption;
- Net calorific value of natural gas;
- Emission factor for natural gas;
- Annual electricity supply;
- Baseline emission factor for the electricity generated at the URES “Centre”;



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- Annual heat supply.

Remainder factors and key characteristics are listed in the PDD, Sections D.1, D.1.1.1 for the project, Section D.1.1.3 for the baseline.

The monitoring plan specifies the indicators, constants and variables that are reliable, valid, and that provide a transparent picture of the emission reductions to be monitored such those listed in the PDD, Sections D.1.1.1 and D.1.1.3.

The monitoring plan is developed subject to the list of standard variables contained in appendix B of “Guidance on criteria for baseline setting and monitoring” developed by the JISC.

All categories of data to be collected in order to monitor GHG emissions from the project and determine the baseline of GHG emissions (Option 1) are described in required details.

The monitoring plan explicitly and clearly distinguishes where appropriate:

- (i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination, such as:
 - Emission factor for natural gas;
 - Average efficiency of boilers of central heating workshop DHS
 - Conversion factor.
- (ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination (there are no such parameters);
- (iii) Data and parameters that are monitored throughout the crediting period, such as those presented in Section D.1.1.1 for the project, Section D.1.1.3 for the baseline.

Step-by-step application of the used approach for monitoring is described in PDD Section D including monitoring procedures, formulae, parameters, data sources etc.

The monitoring plan describes the methods employed for data monitoring (including its frequency) and recording; please refer to PDD, Section D.1.1.1 and Section D.1.1.3.

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



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appropriate, such as formula in Section D.1.1.4 for baseline emissions (Formula 3-5) and Section D.1.1.2 for project emissions (Formula 1-2).

The monitoring plan presents the quality assurance and control procedures for the monitoring process, all the QC/QA procedures are specified in PDD Section D.2

The procedures include, as appropriate, information on calibration and on how records on data and/or method validity and accuracy are kept and made available on request.

The monitoring plan clearly identifies the responsibilities and the authority regarding the monitoring activities. The operating and management structure for GHG monitoring is described in PDD Section D.3, Figure D.3.1.

On the whole, the monitoring report reflects good monitoring practices appropriate to the project type.

The monitoring plan provides, in tabular form, a complete compilation of the data that need to be collected for its application, including data that are measured but not including data that are calculated with equations, except baseline emission factor for the URES “Centre” and net calorific value.

The monitoring plan indicates that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project.

Outstanding issues related to Monitoring plan (36), PP’s response and the AIE conclusion are summarized in Appendix A (refer to CARs 19-25).

4.8 Leakage (40-41)

JI specific approach

The PDD appropriately describes an assessment of the potential leakage of the project and appropriately explains that the estimation of leakage is neglected from conservative reasons because the leakage in project scenario is less than in baseline scenario.(see Section B.3)

4.9 Estimation of emission reductions or enhancements of net removals (42-47)

JI specific approach



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

The PDD provides the ex ante estimates of:

- (a) Emissions for the project scenario (within the project boundary), which are 1,311,962 tons of CO₂eq;
- (b) Leakage are considered zero;
- (c) Emissions for the baseline scenario (within the project boundary), which are 1,919,738 tons of CO₂eq;
- (d) Emission reductions adjusted by leakage (based on (a)-(c) above), which are 607,776 tons of CO₂eq.

Reporting period: From 26/05/2009 to 31/12/2012.

The formulae used for calculating the estimates are referred in the PDD, Sections D.1.1.2, D.1.1.4, D.1.4, E.1, E.4, E.5.

For calculating the estimates referred to above, key factors defined in the monitoring plan influencing the project and baseline emissions were taken into account, as appropriate.

The estimation referred to above is based on conservative assumptions and the most plausible scenario in a transparent manner.

The estimates referred to above are consistent throughout the PDD.

The annual average of estimated emission reductions over the crediting period is calculated by dividing the total estimated emission reductions over the crediting period by the number of months of the crediting period, and multiplying by twelve.

The PDD Section E includes an illustrative ex ante emissions calculation.

Outstanding issue related to Estimation (43), PP’s response and the AIE conclusion are summarized in Appendix A (refer to CAR 26-28).

4.10 Environmental impacts (48)

The PDD lists and attaches documentation on the analysis of the environmental impacts of the project (transboundary impacts are not applicable to the project), in accordance with procedures as determined by the host Party, such as the Federal Law “On the Environmental protection #7-FZ”.



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The PDD provides conclusion and all references to supporting documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party.

4.11 Stakeholder consultation (49)

Stakeholder consultation was not undertaken as it is not required by the host party.

4.12 Determination regarding small scale projects (50-57)

Not applicable

4.13 Determination regarding land use, land-use change and forestry (LULUCF) projects (58-64)

Not applicable

4.14 Determination regarding programmes of activities (65-73)

Not applicable

5 SUMMARY AND REPORT OF HOW DUE ACCOUNT WAS TAKEN OF COMMENTS RECEIVED PURSUANT TO PARAGRAPH 32 OF THE JI GUIDELINES

No comments, pursuant to paragraph 32 of the JI Guidelines, were received.

6 DETERMINATION OPINION

Bureau Veritas Certification has performed a determination of the “Installation of three gas turbines SGT-800 type at GTES “Kolomenskoe”, Moscow, Russian Federation (ex. Installation of three combined cycle gas turbine SGT-800 at GTES “Kolomenskoe”, Moscow, Russian Federation)” Project in Russia. The determination was performed on the basis of UNFCCC criteria and host country criteria and also on the criteria given to provide for consistent project operations, monitoring and reporting.

The determination consisted of the following three phases: i) a desk review of the project design and the baseline and monitoring plan; ii) follow-up interviews with project stakeholders; iii) the resolution of outstanding issues and the issuance of the final determination report and opinion.

Project participant used “Tool for the demonstration and assessment of additionality” (Version 05.2). In line with this tool, the PDD provides investment analysis and common practice analysis, to determine that the project activity itself is not the baseline scenario.



Determination Report on JI project

“Installation of three gas turbines SGT-800 type at GTES “Kolomenskoe”, Moscow, Russian Federation (ex. Installation of three combined cycle gas turbine SGT-800 at GTES “Kolomenskoe”, Moscow, Russian Federation)”

Emission reductions attributable to the project are hence additional to any that would occur in the absence of the project activity. Given that the project is implemented and maintained as designed, the project is likely to achieve the estimated amount of emission reductions.

The review of the project design documentation and the subsequent follow-up interviews have provided Bureau Veritas Certification with sufficient evidence to determine the fulfilment of stated criteria.

The determination revealed two pending issues related to the current determination stage of the project: the issue of the written approval of the project and the authorization of the project participant by the host Party. If the written approval and the authorization by the host Party are awarded, it is our opinion that the project as described in the Project Design Document, Version 1.3 dated 11/04/2011 meets all the relevant UNFCCC requirements for the determination stage and the relevant host Party criteria.

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

7 REFERENCES

Category 1 Documents:

Documents provided by NaftaSib Energy LLC and Global carbon BV that relate directly to the GHG components of the project.

- /1/ “Installation of three combined cycle gas turbine SGT-800 at GTES “Kolomenskoe”, Moscow, Russian Federation (ex. Installation of three combined cycle gas turbine SGT-800 at GTES “Kolomenskoe”, Moscow, Russian Federation)”, PDD Version 1.3 dated 11/04/2011.
- /2/ Excel spreadsheet with calculation of emission reduction “20110411_ERU_CF_Kolomenskoe GTPP_v3_en”.
- /3/ Excel spreadsheet with grid emission factor calculation “20110411_EF_GTPP_v2_eng”.

Category 2 Documents:

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

- /1/ Guidelines for Users of the Joint Implementation Project Design Document Form/Version 04, JISC.
- /2/ JISC Guidance on criteria for baseline setting and monitoring. Version 02.



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- /3/ Glossary of Joint Implementation terms. Version 02, JISC.
- /4/ 2006 IPCC Guidelines on National Greenhouse Gas Inventories.
- /5/ Moscow Government’s order dd. 19/09/2006 concerning the tender.
- /6/ Permission on commissioning of the GTHPP.
- /7/ Permission on pollutants emissions #6095 dd. 25.05.2009 from Rostekhnadzor.
- /8/ Training certificate of Ushakov Alexandr from Siemens.
- /9/ Protocol #008 on examination of working health and safety of the plant staff.
- /10/ 6-TP statistical form for 2009.
- /11/ 6-TP statistical form for 2010.
- /12/ Total forecast balance on generation and supply of electricity on 2011.
- /13/ Protocol of working meeting on construction of GTES Kolomenskoe with the use of Kyoto Protocol.
- /14/ Positive conclusion of State Expertise on the project of the plant construction.
- /15/ Permission on construction of the GTPP #RU77161000-001745 from State construction committee.
- /16/ Certificate of conformity #POCC SE.MП12.B01080 for SGT-800.
- /17/ Permission from Rostekhnadzor for SGT-800.

Persons interviewed:

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

- /1/ V. Esipov – Head of Technical Production Department
- /2/ N. Andrianov – Head of the working shift of the plant
- /3/ V. Petrochenkov – JI project consultant, Global Carbon BV

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DETERMINATION PROTOCOL

Table 1

Check list for determination, according JOINT IMPLEMENTATION DETERMINATION AND VERIFICATION MANUAL (Version 01)

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
General description of the project				
Title of the project				
-	Is the title of the project presented?	The title of the project is “Installation of three combined cycle gas turbine SGT-800 at GTES “Kolomenskoe”, Moscow, Russian Federation”. CAR 01. The term “combined cycle“ in the project title is used incorrectly. The plant provides a combined production of electricity and heat. Terminologically, this is a gas turbine cogeneration power plant but not the combined cycle which by definition is the combination of Brayton cycle (gas turbine) and Renkin cycle (steam turbine). In the project, a simple gas turbine cycle is used.	CAR 01	OK
-	Is the sectoral scope to which the project pertains presented?	Sectoral scope: 1. Energy industries (renewable/non-renewable sources).		OK
-	Is the current version number of the document presented?	PDD Version: 1.1.		OK
-	Is the date when the document was completed presented?	The date of PDD completion: February 25, 2011.		OK
Description of the project				
-	Is the purpose of the project included with a concise, summarizing explanation (max. 1-2 pages) of the: a) Situation existing prior to the starting date of the	Requirements a), b), c) to the description of the project are met including its purpose. PDD reads: “The project’s purpose is construction of a Gas Turbine Power Plant “Kolomenskoe” (here		OK

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“Installation of three gas turbines SGT-800 type at GTES “Kolomenskoe”, Moscow, Russian Federation (ex. Installation of three combined cycle gas turbine SGT-800 at GTES “Kolomenskoe”, Moscow, Russian Federation)”

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	project; b) Baseline scenario; and c) Project scenario (expected outcome, including a technical description)?	in after referred as GTES – “Kolomenskoe” with the use of natural gas as a fuel and intended for the combined production of electricity and heat. This project will allow increasing of natural gas combustion efficiency and reducing of CO2 emissions due to the use of modern equipment and combined heat and electricity generation”.		
-	Is the history of the project (incl. its JI component) briefly summarized?	The history of the project including its JI component is briefly summarised as follows: “The decision to construct the GTES was taken in 2006 on the working meeting. Benefits and disadvantages of construction of the new GTES were discussed. The idea to attract Kyoto financing was announced at this meeting. After due discussions and research regarding possibilities to implement this project as a JI project activity the decision to implement this project within the framework of the Kyoto protocol was taken. The project had been started in 2007 and commissioned in May 2009.”		OK
Project participants				
-	Are project participants and Party(ies) involved in the project listed?	Project participants are listed in Section A.3. Party A – The Russian Federation with project participant LLC NaftaSib Energy, Party B – the Netherlands with project participant Global Carbon BV.		OK
-	Is the data of the project participants presented in tabular format?	The data of the project participants is presented in tabular format.		OK
-	Is contact information provided in Annex 1 of the PDD?	Contact information is provided in Annex 1 of the PDD.		OK
-	Is it indicated, if it is the case, if the Party involved is a host Party?	The indicated host party is the Russian Federation.		OK
Technical description of the project				
Location of the project				

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“Installation of three gas turbines SGT-800 type at GTES “Kolomenskoe”, Moscow, Russian Federation (ex. Installation of three combined cycle gas turbine SGT-800 at GTES “Kolomenskoe”, Moscow, Russian Federation)”

DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
-	Host Party(ies)	The Russian Federation.		OK
-	Region/State/Province etc.	Central Federal District.		OK
-	City/Town/Community etc.	City of Moscow.		OK
-	Detail of the physical location, including information allowing the unique identification of the project. (This section should not exceed one page)	Detail of the physical location of the project was provided. CAR 02. Please provide the source of information allowing the unique identification of the project. Please provide the source of coordinates presented in PDD. Are these coordinates of the plant or of Moscow city?	CAR 02	OK
Technologies to be employed, or measures, operations or actions to be implemented by the project				
-	Are the technology(ies) to be employed, or measures, operations or actions to be implemented by the project, including all relevant technical data and the implementation schedule described?	The project envisages installation of three gas turbines, three heat-recovery boilers, and auxiliary equipment. The engine hall contains three gas turbines SGT-800, in the boiler hall three waste-heat boilers KUV 60/150 are installed in order to use exhaust gases from gas turbines for heating network water to a temperature 150 ⁰ C. Delivery water is fed to the city network for heating and hot water supply. The installed power capacity of the plant is 136 MW and heat capacity is 171 Gcal/h. Main and reserve fuel for the plant – natural gas. CL 01. Please clarify, why emission reductions in 2010 and in 2011 differ? Will all the turbines put into operation simultaneously or sequentially?	CL 01	OK
Brief explanation of how the anthropogenic emissions of greenhouse gases by sources are to be reduced by the proposed JI project, including why the emission reductions would not occur in the absence of the proposed project, taking into account national and/or sectoral policies and circumstances				
-	Is it stated how anthropogenic GHG emission reductions are to be achieved? (This section should not exceed one page)	PDD states: “The reduction of CO2 emissions as a result of this project implementation will occur through the replacement of electricity, generated in the of URES “Centre” mainly at the thermal power plant via the conventional technologies and	CAR 03	OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<p>consumed by the region from the grid, with the energy generated by a more efficient method at the GTES Kolomenskoe. The introduction of the combined technology to generate electricity and heat with higher efficiency than the stations within a centralized power system leads to reduction in fossil fuel consumption comparing to the baseline scenario.”</p> <p>CAR 03. Please justify that the proposed type of power plant is more efficient than the power plants of URES “Centre”. Please take note: the use of term “combined technology” is very inaccurate as it embraces a lot of types of plants (CHPPs, GTHPP, CCGT, etc.).</p>		
-	Is it provided the estimation of emission reductions over the crediting period?	<p>The estimation of emission reductions over the crediting period (3 years and 7 months) is provided: 710,127 tonnes of CO2 equivalent.</p> <p>CAR 04. The length of the crediting period indicated in A.4.3.1 (3.7 years) is incorrect.</p> <p>Conclusion is pending a response to CL 01.</p>	CAR 04	OK
-	Is it provided the estimated annual reduction for the chosen credit period in tCO2e?	<p>The estimated annual emission reduction for the chosen credit period is 198,175 tonnes of CO2 equivalent.</p> <p>CAR 05. Annual average of estimated emission reductions indicated in A.4.3.1 is incorrect.</p> <p>Conclusion is pending a response to CL 01.</p>	CAR 05	OK
-	Are the data from questions above presented in tabular format?	<p>The data from the questions above is presented in tabular format. Please refer to Section A.4.3.1.</p>		OK
Estimated amount of emission reductions over the crediting period				
-	Is the length of the crediting period Indicated?	Conclusion is pending a response to CAR 04.		OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
-	Are estimates of total as well as annual and average annual emission reductions in tonnes of CO2 equivalent provided?	Conclusion is pending a response to CAR 05.		OK
Project approvals by Parties				
19	Have the DFPs of all Parties listed as “Parties involved” in the PDD provided written project approvals?	CAR 06. The project has no approval of the Parties.	CAR 06	OK
19	Does the PDD identify at least the host Party as a “Party involved”?	The host Party involved is the Russian Federation.		OK
19	Has the DFP of the host Party issued a written project approval?	No, pending a response to CAR 02.		OK
20	Are all the written project approvals by Parties involved unconditional?	All written approvals by Parties involved are unconditional.		OK
Authorization of project participants by Parties involved				
21	Is each of the legal entities listed as project participants in the PDD authorized by a Party involved, which is also listed in the PDD, through: <ul style="list-style-type: none"> – A written project approval by a Party involved, explicitly indicating the name of the legal entity? or – Any other form of project participant authorization in writing, explicitly indicating the name of the legal entity? 	The authorization of LLC NaftaSib Energy is deemed to be received together with the project approval by the host Party. Conclusion is pending a response to CAR 06.		OK
Baseline setting				
22	Does the PDD explicitly indicate which of the following approaches is used for identifying the baseline? <ul style="list-style-type: none"> – JI specific approach – Approved CDM methodology approach 	It is explicitly indicated that the JI specific approach was applied for identifying the baseline.		OK
JI specific approach only				

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
23	Does the PDD provide a detailed theoretical description in a complete and transparent manner?	A detailed theoretical description of the baseline is provided in Section B.1 in a complete and transparent manner.		OK
23	Does the PDD provide justification that the baseline is established: (a) By listing and describing plausible future scenarios on the basis of conservative assumptions and selecting the most plausible one? (b) Taking into account relevant national and/or sectoral policies and circumstance? – Are key factors that affect a baseline taken into account? (c) In a transparent manner with regard to the choice of approaches, assumptions, methodologies, parameters, data sources and key factors? (d) Taking into account of uncertainties and using conservative assumptions? (e) In such a way that ERUs cannot be earned for decreases in activity levels outside the project or due to force majeure? (f) By drawing on the list of standard variables contained in appendix B to “Guidance on criteria for baseline setting and monitoring”, as appropriate?	<p>The baseline is established basically:</p> <p>(a) By listing and describing plausible alternatives available for the project owner LLC NaftaSib Energy and selecting the most plausible one. Alternative scenarios were listed and described as follows:</p> <p>Alternative scenario 1: Continuation of the existing practice, i.e. supply of the heat energy from the nearest boilers of DHS, OHS and electricity from the URES “Centre”;</p> <p>Alternative scenario 2: The proposed project not developed as a JI project;</p> <p>Alternative scenario 3: Construction of the new boiler house for heat energy generation, electricity supplied from the URES “Centre”.</p> <p>In the corrected version additional scenarios were added:</p> <p>Alternative scenario 4: Construction of gas turbine unit and autonomous heat boiler for heat supply;</p> <p>Alternative scenario 5: Construction of combined cycle gas turbine power plant (CCGT);</p> <p>Alternative scenario 6: Construction of the common steam turbine (CHP).</p> <p>Based on alternatives analysis including results of the investment analysis of Alternative scenario 2, with taking into account the key factors: sectoral reform policies and legislation, economic situation in energy generation industry, capacity balance predictions, a conclusion is made that Alternative scenario 1 is the most realistic</p>	CAR 07 CAR 08 CAR 09 CAR 10	OK OK OK OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<p>and feasible.</p> <p>(b) By taking into account key factors that affect a baseline, such as sectoral reform policies and legislation, socio-economic development, population growth dynamics, structural changes in economy.</p> <p>(c) Generally in a transparent manner with regard to the choice of approaches, assumptions, methodologies, parameters, data sources and key factors.</p> <p>(d) Taking into account of uncertainties and using conservative assumptions was not applied.</p> <p>(e) In such a way that ERUs cannot be earned for decreases in activity levels outside the project or due to force majeure.</p> <p>(f) By drawing of the list of standard variables contained in appendix B to Guidance on criteria for baseline and monitoring.</p> <p>CAR 07. The indication of the Russian Federation in the Table B.1.1 is incorrect.</p> <p>CAR 08. The list of plausible alternatives is incomplete. Alternative scenarios should include installation of common steam turbine, gas turbine with autonomous heat boiler and construction of combined cycle gas turbine power plant (CCGT) with steam turbine. Please take note: alternative scenario 3 has no sense as in the alternative 1 it is justified that heat generation is excessive in the area.</p> <p>CAR 09. Areas of concern as to the tables in Section B.1 with the key data and information used to establish the baseline are as</p>		

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<p>follows:</p> <ul style="list-style-type: none"> (i) please provide the values of data applied, QA/QC procedures (to be) applied for $EG_{PJ,y}$, $HG_{PJ,y}$, $EF_{CO_2,I,y}$, $EG_{m,y}$; (ii) please provide the correct title for the parameter $NCV_{t.c.e.}$ in PDD (Section B.1 and E.1) and in the spreadsheet “20110224_ERU_CF_Kolomenskoe_GTPP_v1_en”. Take note: this is not the “conversion factor”; (iii) please provide the full reference for the source of data for the $EF_{CO_2,i,y}$ including the exact page and table (the same pertains to the tables in Section D); (iv) please justify that the source of net calorific value of coal equivalent is Federal Service of State Statistics (RosStat); (v) please include in the list of key data the conversion factor 4,187 and the average efficiency of boilers of central heating workshop. <p>CAR 10. Please provide calculation of the grid emission factor for the URES “Centre”. Please take note: the used default emission factor for heavy fuel oil is inaccurate and default emission factor for coal is incorrect; the information concerning the commissioning period of the plants listed in the Table 2.6 is incorrect.</p>		
24	If selected elements or combinations of approved CDM methodologies or methodological tools for baseline setting are used, are the selected elements or combinations together with the elements supplementary developed by the project participants in line with 23 above?	N/A		N/A
25	If a multi-project emission factor is used, does the	N/A		N/A

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	PDD provide appropriate justification?			
Approved CDM methodology approach only_Paragraphs 26(a) – 26(d)_Not applicable				
Additionality				
JI specific approach only				
28	Does the PDD indicate which of the following approaches for demonstrating additionality is used? (a) Provision of traceable and transparent information showing the baseline was identified on the basis of conservative assumptions, that the project scenario is not part of the identified baseline scenario and that the project will lead to emission reductions or enhancements of removals; (b) Provision of traceable and transparent information that an AIE has already positively determined that a comparable project (to be) implemented under comparable circumstances has additionality; (c) Application of the most recent version of the “Tool for the demonstration and assessment of additionality. (allowing for a two-month grace period) or any other method for proving additionality approved by the CDM Executive Board”.	It is explicitly indicated that the “Tool for the demonstration and assessment of additionality” (the most recent version 05.2) was used for demonstrating additionality.		OK
29 (a)	Does the PDD provide a justification of the applicability of the approach with a clear and transparent description?	The approach is based on prove that the project activity would not have occurred anyway due to low financial indicator IRR and that this project is not a common practice.		OK
29 (b)	Are additionality proofs provided?	To demonstrate the additionality of the project four steps were implemented: Step 1: Identification of alternatives to the project activity	CAR 11 CAR 12 CAR 13	OK OK OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<p>consistent with current laws and regulations; Step 2: Investment analysis (including the sensitivity analysis); Step 3: Barrier analysis; Step 4: Common practice analysis.</p> <p>Plausible alternatives to the project were identified in Section B.1. The investment analysis was based on calculation of IRR for the Project, taking into account investment costs, operation costs, depreciation and other parameters referring to expenses. Benchmark analysis (with IRR as a benchmark 17.5%) was applied. Investment analysis includes the sensitivity analysis that shows whether the conclusion regarding the financial/economic attractiveness is robust to reasonable variations in the critical assumptions.</p> <p>The common practice analysis has reasonably shown that the project activity is not the common practice in Russian energy sector.</p> <p>CAR 11. Financial indicators used to set the benchmark are measured in percents for different currencies (euros, dollars), however investment analysis was done in Russian rubles. Please make all the indicators in comparable measurement units.</p> <p>CAR 12. Please justify the conservativeness of the used value for Russian interest rate (7.5%) though the range in the source is 2.25 – 7.5 %.</p> <p>CAR 13. Please provide the reference to the source of formula used for real risk-free rate calculation. Please take note: the formula considers inflation though the investment analysis was made in constant prices. Please provide consistency in the</p>	<p>CAR 14 CAR 15 CAR 16 CAR 17 CL 02</p>	<p>OK OK OK OK OK</p>

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<p>approach for benchmark setting and for investment calculations.</p> <p>CAR 14. For the determination of the investment analysis presented in Section B.2 please justify with reference to the source of information, the input data used in investment analysis (average natural gas tariff, electricity price, heat price, property tax, scrap price).</p> <p>CAR 15. Please justify the conservativeness of the assumption of the maximum technical capacity of the plant in investments and emissions calculation. Please be aware: the GTPP in the periods of low heating system water demands (in the absence of heating period) has poorer technical characteristics and doesn't have many advantages in comparison with common combined heat and power stations produced power for URES “Centre”.</p> <p>CAR 16. Please provide the reference to the source of information for the used value of company related risk premium (4%).</p> <p>CAR 17. Capacity of “Lutch” CHPP indicated in the Table B.2.4 is incorrect.</p> <p>CL 02. Please clarify, why in the cash flow value calculation property tax value is positive?</p>		
29 (c)	Is the additionality demonstrated appropriately as a result?	With the unresolved CAR 11 – CAR 17 and CL 02 the additionality of the project is not demonstrated.		OK
30	If the approach 28 (c) is chosen, are all explanations, descriptions and analyses made in accordance with the selected tool or method?	N/A		N/A
Approved CDM methodology approach only_ Paragraphs 31(a) – 31(e)_Not applicable Project boundary (applicable except for JI LULUCF projects)				

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
JI specific approach only				
32 (a)	Does the project boundary defined in the PDD encompass all anthropogenic emissions by sources of GHGs that are: (i) Under the control of the project participants? (ii) Reasonably attributable to the project? (iii) Significant?	The project boundary defined in the PDD encompasses the anthropogenic emissions by sources of GHGs in the baseline scenario (refer to Section B.3): that are CO ₂ from electricity generation by the URES “Centre” and from natural gas combustion at DHS and QHS. Sources of project emissions: CO ₂ from on-site natural gas combustion. Sources of leakage were also assessed and reasonably were not taken into consideration.		OK
32 (b)	Is the project boundary defined on the basis of a case-by-case assessment with regard to the criteria referred to in 32 (a) above?	Project boundary is defined on the basis of case-by-case assessment of different emission sources in the baseline scenario.		OK
32 (c)	Are the delineation of the project boundary and the gases and sources included appropriately described and justified in the PDD by using a figure or flow chart as appropriate?	The delineation of the project boundaries are presented on Figure B.3.1 and Figure B.3.2. CAR 18. The indication of Russian Federation Unified Energy System on the Figure B.3.1 is incorrect. CL 03. Please clarify who are the “other electricity consumers” indicated on the Figures B.3.1 and B.3.2? Are any consumers that receive electricity directly without the use of electricity grid of URES “Centre”?	CAR 18 CL 03	OK OK
32 (d)	Are all gases and sources included explicitly stated, and the exclusions of any sources related to the baseline or the project are appropriately justified?	All the included gases and sources are explicitly stated, and the exclusions of any sources related to the baseline or the project are appropriately justified in Section B.3 and in the Table B.3.1.		OK
Approved CDM methodology approach only_Paragraph 33_ Not applicable				
Crediting period				
34 (a)	Does the PDD state the starting date of the project	The starting date of the project is indicated as: 18/07/2007.	CL 04	OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	as the date on which the implementation or construction or real action of the project will begin or began?	CL 04. Please clarify what kind of implementation or construction or real action of the project began at this date?		
34 (a)	Is the starting date after the beginning of 2000?	Yes, it is.		OK
34 (b)	Does the PDD state the expected operational lifetime of the project in years and months?	The expected operational lifetime of the project is 20 years/240 months.		OK
34 (c)	Does the PDD state the length of the crediting period in years and months?	The length of crediting period is defined as 3 years and 7 months/43 months) 26/05/2009 – 31/12/2012.		OK
34 (c)	Is the starting date of the crediting period on or after the date of the first emission reductions or enhancements of net removals generated by the project?	Starting date of crediting period is on the date when the first emission reductions are generated by the project.		OK
34 (d)	Does the PDD state that the crediting period for issuance of ERUs starts only after the beginning of 2008 and does not extend beyond the operational lifetime of the project?	The start of crediting period is 26/05/2009 – 31/12/2012.		OK
34 (d)	If the crediting period extends beyond 2012, does the PDD state that the extension is subject to the host Party approval? Are the estimates of emission reductions or enhancements of net removals presented separately for those until 2012 and those after 2012?	N/A		N/A
Monitoring plan				
35	Does the PDD explicitly indicate which of the following approaches is used? – JI specific approach – Approved CDM methodology approach	PDD explicitly indicates that for description and justification of the monitoring plan a JI specific approach was used.		OK
JI specific approach only				



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
36 (a)	Does the monitoring plan describe: <ul style="list-style-type: none"> – All relevant factors and key characteristics that will be monitored? – The period in which they will be monitored? – All decisive factors for the control and reporting of project performance? 	The monitoring plan describes: <ul style="list-style-type: none"> - the relevant factors that will be monitored: <ol style="list-style-type: none"> (1) Annual natural gas consumption; (2) Net calorific value of natural gas; (3) Emission factor for natural gas; (4) Annual electricity supply; (5) Baseline emission factor for the electricity generated at the URES “Centre”. (6) Annual heat supply; (7) Emission factor for natural gas; - the periods in which they will be monitored: annually (annual electricity supply, annual heat supply, emission factor for natural gas), continuously (annual natural gas consumption), monthly (net calorific value of natural gas); - all decisive factors for the control and reporting of project performance: ecological reporting, quality control (QC) and quality assurance (QA) procedures; the operational and management structure that will be applied in implementing the monitoring plan. 		OK
36 (b)	Does the monitoring plan specify the indicators, constants and variables used that are reliable, valid and provide transparent picture of the emission reductions or enhancements of net removals to be monitored?	Conclusion is pending a response to CAR 06.		OK
36 (b)	If default values are used: <ul style="list-style-type: none"> – Are accuracy and reasonableness carefully balanced in their selection? – Do the default values originate from recognized sources? – Are the default values supported by statistical 	Default values: net calorific value of coal equivalent, the boiler house efficiency for all DHS and QHS, emission factors for different fuels are taken from RosStat, CDM Tools and 2006 IPCC Guidelines for National Greenhouse Gas Inventories. Conclusion is pending a response to CAR 05 and CAR 06.		OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	analyses providing reasonable confidence levels? – Are the default values presented in a transparent manner?			
36 (b) (i)	For those values that are to be provided by the project participants, does the monitoring plan clearly indicate how the values are to be selected and justified?	Baseline emission factor for the electricity generated at URES “Centre” was calculated with the use of CDM “Tool to calculate the emission factor for an electricity system” (version 02) with some deviations. CAR 19. Please indicate and justify conservativeness of deviations from the applied CDM “Tool to calculate the emission factor for an electricity system” (version 02). Conclusion is pending a response to CAR 05.	CAR 19	OK
36 (b) (ii)	For other values, – Does the monitoring plan clearly indicate the precise references from which these values are taken? – Is the conservativeness of the values provided justified?	Refer to 36 (b).		OK
36 (b) (iii)	For all data sources, does the monitoring plan specify the procedures to be followed if expected data are unavailable?	CAR 20. Please specify the procedures to be followed if the expected data are unavailable, for instance in case of gas flow meter failure or the unavailability of bi-annual data of APG composition.	CAR 20	OK
36 (b) (iv)	Are International System Unit (SI units) used?	CAR 21. In the Tables D.1.1.1 and D.1.1.3 data units for annual heat supply and net calorific value of natural gas are measured in Gcal/year and kcal/m ³ . Please use only the International System Units (SI units) in monitoring plan. CAR 22. With regard to the comment on $NCV_{NG,y}$ in D.1.1.1 please define the method of calculating weighted average value of	CAR 21 CAR 22	OK OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		NCV _{NG,y} . Please take note: the annual natural gas consumption is defined from monitoring.		
36 (b) (v)	Does the monitoring plan note any parameters, coefficients, variables, etc. that are used to calculate baseline emissions or net removals but are obtained through monitoring?	Refer to PDD Section D.1.1.3.		OK
36 (b) (v)	Is the use of parameters, coefficients, variables, etc. consistent between the baseline and monitoring plan?	Yes, they are consistent.		OK
36 (c)	Does the monitoring plan draw on the list of standard variables contained in appendix B of “Guidance on criteria for baseline setting and monitoring”?	Yes.		OK
36 (d)	Does the monitoring plan explicitly and clearly distinguish: (i) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), and that are available already at the stage of determination? (ii) Data and parameters that are not monitored throughout the crediting period, but are determined only once (and thus remain fixed throughout the crediting period), but that are not already available at the stage of determination? (iii) Data and parameters that are monitored throughout the crediting period?	Description of the monitoring plan in Section D.1 explicitly and clearly distinguishes: (i) Refer to 36 (b). (ii) N/A. (iii) Refer to 36 (a): parameters marked (1) - (7).		OK
36 (e)	Does the monitoring plan describe the methods	The monitoring plan describes the methods employed for data		OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	employed for data monitoring (including its frequency) and recording?	monitoring (fuel flow meters, electricity and heat meters) and data collection frequency (continuously – annual natural gas consumption, monthly – net calorific value of natural gas, annually – emission factor for natural gas, annual electricity supply, annual heat supply, emission factor for natural gas). Recording of data is stored electronically.		
36 (f)	Does the monitoring plan elaborate all algorithms and formulae used for the estimation/calculation of baseline emissions/removals and project emissions/removals or direct monitoring of emission reductions from the project, leakage, as appropriate?	Formulae are indicated and numbered in Sections D.1.1.2, and D.1.1.4. CAR 23. In formula (2) dimensions of variables are not compatible. CAR 24. In formula (5) the dimension of the boiler house efficiency for all DHS and QHS (percents) is incorrect. Please take note: the reference 15 doesn't work.	CAR 23 CAR 24	OK OK
36 (f) (i)	Is the underlying rationale for the algorithms/formulae explained?	Yes, it is.		OK
36 (f) (ii)	Are consistent variables, equation formats, subscripts etc. used?	Please refer to 36 (f).		OK
36 (f) (iii)	Are all equations numbered?	Yes, they are numbered.		OK
36 (f) (iv)	Are all variables, with units indicated defined?	Yes, all variables with indicated units are defined.		OK
36 (f) (v)	Is the conservativeness of the algorithms/procedures justified?	N/A		N/A
36 (f) (v)	To the extent possible, are methods to quantitatively account for uncertainty in key parameters included?	N/A		N/A
36 (f) (vi)	Is consistency between the elaboration of the baseline scenario and the procedure for calculating the emissions or net removals of the baseline	N/A		N/A

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	ensured?			
36 (f) (vii)	Are any parts of the algorithms or formulae that are not self-evident explained?	N/A		N/A
36 (f) (vii)	Is it justified that the procedure is consistent with standard technical procedures in the relevant sector?	N/A		N/A
36 (f) (vii)	Are references provided as necessary?	Conclusion is pending a response to CAR 09, CAR 13 and CAR 16.		OK
36 (f) (vii)	Are implicit and explicit key assumptions explained in a transparent manner?	Yes, they are explained in transparent manner.		OK
36 (f) (vii)	Is it clearly stated which assumptions and procedures have significant uncertainty associated with them, and how such uncertainty is to be addressed?	N/A		N/A
36 (f) (vii)	Is the uncertainty of key parameters described and, where possible, is an uncertainty range at 95% confidence level for key parameters for the calculation of emission reductions or enhancements of net removals provided?	The uncertainty level of measured parameters is provided; please refer to D.2. It is in the range at 95% confidence level.		OK
36 (g)	Does the monitoring plan identify a national or international monitoring standard if such standard has to be and/or is applied to certain aspects of the project? Does the monitoring plan provide a reference as to where a detailed description of the standard can be found?	CAR 25. Reference to the pertinent applicable national law “On uniformity of measurements” N 102-Φ3 dated 26/06/2008 is not made.	CAR 25	OK
36 (h)	Does the monitoring plan document statistical techniques, if used for monitoring, and that they are used in a conservative manner?	N/A		N/A

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
36 (i)	Does the monitoring plan present the quality assurance and control procedures for the monitoring process, including, as appropriate, information on calibration and on how records on data and/or method validity and accuracy are kept and made available upon request?	QC/QA procedures are specified in PDD Section D.2. They include basic information about the calibration procedures for gas flow meter, electric meter, heat meter, certificates from the fuel supplier.		OK
36 (j)	Does the monitoring plan clearly identify the responsibilities and the authority regarding the monitoring activities?	The operational and management structure that the project participant(s) will implement in order to monitor emission reduction generated by the project is described in PDD Section D.3. Responsibilities and the authority regarding the monitoring activities are indicated.		OK
36 (k)	Does the monitoring plan, on the whole, reflect good monitoring practices appropriate to the project type? If it is a JI LULUCF project, is the good practice guidance developed by IPCC applied?	Monitoring techniques are in line with current operation routines.		OK
36 (l)	Does the monitoring plan provide, in tabular form, a complete compilation of the data that need to be collected for its application, including data that are measured or sampled and data that are collected from other sources but not including data that are calculated with equations?	The monitoring plan provides, in tabular form, a complete compilation of the data that need to be collected.		OK
36 (m)	Does the monitoring plan indicate that the data monitored and required for verification are to be kept for two years after the last transfer of ERUs for the project?	Yes, it is indicated in Section D.1.		OK
37	If selected elements or combinations of approved CDM methodologies or methodological tools are	N/A		N/A



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	used for establishing the monitoring plan, are the selected elements or combination, together with elements supplementary developed by the project participants in line with 36 above?			
Approved CDM methodology approach only_Paragraphs 38(a) – 38(d)_Not applicable				
Applicable to both JI specific approach and approved CDM methodology approach				
39	<p>If the monitoring plan indicates overlapping monitoring periods during the crediting period:</p> <p>(a) Is the underlying project composed of clearly identifiable components for which emission reductions or enhancements of removals can be calculated independently?</p> <p>(b) Can monitoring be performed independently for each of these components (i.e. the data/parameters monitored for one component are not dependent on/effect data/parameters to be monitored for another component)?</p> <p>(c) Does the monitoring plan ensure that monitoring is performed for all components and that in these cases all the requirements of the JI guidelines and further guidance by the JISC regarding monitoring are met?</p> <p>(d) Does the monitoring plan explicitly provide for overlapping monitoring periods of clearly defined project components, justify its need and state how the conditions mentioned in (a)-(c) are met?</p>	N/A		N/A
Leakage				
JI specific approach only				
40 (a)	Does the PDD appropriately describe an assessment	All the sources of leakage were reasonably neglected.		OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	of the potential leakage of the project and appropriately explain which sources of leakage are to be calculated and which can be neglected?			
40 (b)	Does the PDD provide a procedure for an ex ante estimate of leakage?	Yes. Please refer to the Section B.3		OK
Approved CDM methodology approach only Paragraph 41_Not applicable				
Estimation of emission reductions or enhancements of net removals				
42	Does the PDD indicate which of the following approaches it chooses? (a) Assessment of emissions or net removals in the baseline scenario and in the project scenario (b) Direct assessment of emission reductions	PDD assess emissions in the baseline scenario and in the project scenario. Hence, approach (a) is chosen.		OK
43	If the approach (a) in 42 is chosen, does the PDD provide ex ante estimates of: (a) Emissions or net removals for the project scenario (within the project boundary)? (b) Leakage, as applicable? (c) Emissions or net removals for the baseline scenario (within the project boundary)? (d) Emission reductions or enhancements of net removals adjusted by leakage?	PDD provides ex ante estimates of: (a) Emissions for the project scenario (within the project boundary): 1,528,536 tCO ₂ e; (b) Leakage are considered to be zero; (c) Emissions for the baseline scenario: 2,238,663 tCO ₂ e; (d) Emission reductions adjusted by leakage: 710,127 tCO ₂ e; In the corrected version of PDD ex ante estimates: (a) Emissions for the project scenario (within the project boundary): 1,311,962 tCO ₂ e; (b) Leakage are considered to be zero; (c) Emissions for the baseline scenario: 1,919,738 tCO ₂ e; (d) Emission reductions adjusted by leakage: 607,776 tCO ₂ e; CAR 26. Please take into account the plant “internal needs in heat” in emission reduction calculations.	CAR 26 CAR 27 CAR 28	OK OK OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
		<p>CAR 27. Calculation of fuel consumption (gas) for the project line in 2011 and 2012 is incorrect.</p> <p>CAR 28. Please provide the source of data on fuel consumption (gas) for the project line in 2009 and 2010.</p>		
44	<p>If the approach (b) in 42 is chosen, does the PDD provide ex ante estimates of:</p> <p>(a) Emission reductions or enhancements of net removals (within the project boundary)?</p> <p>(b) Leakage, as applicable?</p> <p>(c) Emission reductions or enhancements of net removals adjusted by leakage?</p>	N/A		N/A
45	<p>For both approaches in 42</p> <p>(a) Are the estimates in 43 or 44 given:</p> <p>(i) On a periodic basis?</p> <p>(ii) At least from the beginning until the end of the crediting period?</p> <p>(iii) On a source-by-source/sink-by-sink basis?</p> <p>(iv) For each GHG?</p> <p>(v) In tones of CO2 equivalent, using global warming potentials defined by decision 2/CP.3 or as subsequently revised in accordance with Article 5 of the Kyoto Protocol?</p> <p>(b) Are the formula used for calculating the estimates in 43 or 44 consistent throughout the PDD?</p> <p>(c) For calculating estimates in 43 or 44, are key factors influencing the baseline emissions or</p>	<p>(a) Estimates in 43 are given on the periodic basis, from the beginning until the end of the crediting period, in tones of CO2 equivalent.</p> <p>(b) The formulae used in PDD are basically consistent throughout PDD (for the formulae refer to Section E). Refer to CAR 26 -28.</p> <p>(c) Key factors influencing the baseline emissions and the activity level of the project and the emissions are taken into account, as appropriate.</p> <p>(d) Data sources used for calculating the estimates are basically clearly identified, reliable and transparent. Refer to CAR 09,13,16.</p> <p>(e) Emission factors (including default emission factors) selected by carefully balancing accuracy.</p> <p>(f) Estimation in 43 is based on the most plausible scenarios in a transparent manner.</p> <p>(g) Estimates in 43 are consistent throughout the PDD.</p> <p>(h) The annual average of estimated emission reductions calculated virtually by dividing the total estimated emission</p>		OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	<p>removals and the activity level of the project and the emissions or net removals as well as risks associated with the project taken into account, as appropriate?</p> <p>(d) Are data sources used for calculating the estimates in 43 or 44 clearly identified, reliable and transparent?</p> <p>(e) Are emission factors (including default emission factors) if used for calculating the estimates in 43 or 44 selected by carefully balancing accuracy and reasonableness, and appropriately justified of the choice?</p> <p>(f) Is the estimation in 43 or 44 based on conservative assumptions and the most plausible scenarios in a transparent manner?</p> <p>(g) Are the estimates in 43 or 44 consistent throughout the PDD?</p> <p>(h) Is the annual average of estimated emission reductions or enhancements of net removals calculated by dividing the total estimated emission reductions or enhancements of net removals over the crediting period by the total months of the crediting period and multiplying by twelve?</p>	<p>reductions over the crediting period by the total months of the crediting period and multiplying by twelve.</p> <p>Conclusion is pending a response to CAR 26 – 28, 09, 13 and 16.</p>		
46	If the calculation of the baseline emissions or net removals is to be performed ex post, does the PDD include an illustrative ex ante emissions or net removals calculation?	<p>Illustrative ex-ante estimation of baseline emissions is presented on the spreadsheet made available to AIE.</p> <p>Conclusion is pending a response to CAR 06.</p>		OK
Approved CDM methodology approach only_Paragraphs 47(a) – 47(b)_Not applicable				
Environmental impacts				
48 (a)	Does the PDD list and attach documentation on the	According to the Federal Law “On the Environmental Expertise”		OK

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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	analysis of the environmental impacts of the project, including transboundary impacts, in accordance with procedures as determined by the host Party?	<p>and to the Law on Amendments to the Construction Code environmental impact assessment was included into the section “Environmental protection” of Design Documentation. The whole Design Documentation including the environmental part is subject to the formal state expertise.</p> <p>Environmental impact assessment (EIA) of the project activity has received positive conclusion from the state expertise #77-1-4-0038-08 dd. 29.01.2008. For GTPP operation a permission #60569 dd. 25.05.2009 from the Moscow interregional territorial administration of technological and ecological supervision on emission of harmful (polluting substances in atmosphere air was received.</p> <p>Transboundary impacts are irrelevant for the project due to the tremendous distance to the nearest border.</p> <p>Please provide the state expertise conclusion to AIE.</p>		
48 (b)	If the analysis in 48 (a) indicates that the environmental impacts are considered significant by the project participants or the host Party, does the PDD provide conclusion and all references to supporting documentation of an environmental impact assessment undertaken in accordance with the procedures as required by the host Party?	Russian legislation does not use the term “significant environmental impacts”. The company is permitted to operate on the basis on permission of air emission issued by the state authority Rostekhnadzor.		OK
Stakeholder consultation				
49	If stakeholder consultation was undertaken in accordance with the procedure as required by the host Party, does the PDD provide: (a) A list of stakeholders from whom comments on the projects have been received, if any?	Stakeholder consultation is not required by the Russian legislation. Hence public hearings were not organized and no pertinent comments were received during the preparation of EIA.		OK



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DVM Paragraph	Check Item	Initial finding	Draft Conclusion	Final Conclusion
	(b) The nature of the comments? (c) A description on whether and how the comments have been addressed?			
Determination regarding small-scale projects (additional elements for assessment) Paragraphs 50 - 57_Not applicable				
Determination regarding land use, land-use change and forestry projects Paragraphs 58 – 64(d)_Not applicable				
Determination regarding programmes of activities Paragraphs 66 – 73_Not applicable				

Table 2 Resolution of Corrective Action and Clarification Requests

Draft report clarifications and corrective action requests by validation team	Ref. to checklist question in table 1	Summary of project participant response	Determination team conclusion
CAR 01. The term “combined cycle“ in the project title is used incorrectly. The plant provides a combined production of electricity and heat. Terminologically, this is a gas turbine cogeneration power plant but not the combined cycle which by definition is the combination of Brayton cycle (gas turbine) and Rankin cycle (steam turbine). In the project, a simple gas turbine cycle is used.	A.1	<u>Response 1 of 17/03/2011</u> The title was changed. Old title was due to mistranslation the project. Please see PDD.	<u>Conclusion on Response 1</u> Correction is accepted by AIE. The title of Determination Protocol is changed in accordance with new version. CAR is closed based on due corrections made to PDD.

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<p>CAR 02. Please provide the source of information allowing the unique identification of the project. Please provide the source of coordinates presented in PDD. Are these coordinates of the plant or of Moscow city?</p>	A.4.1.4	<p><u>Response 1 of 17/03/2011</u></p> <p>The changes were made in the PDD. The source was added to Section A1.4.2 - A1.4.4., p4-5. The plant’s coordinates are indicated the PDD.</p> <p><u>Response 2 of 11/04/2011</u></p> <p>The changes were made, refer to section A.4.1.2 A.4.1.4.</p>	<p><u>Conclusion on Response 1</u></p> <p>CAR is closed based on due corrections made to PDD.</p> <p>Please indicate the right numbers of Section in your response.</p> <p><u>Conclusion on Response 2</u></p> <p>CAR is closed based on due corrections made to PDD.</p>
<p>CAR 03. Please justify that the proposed type of power plant is more efficient than the power plants of URES “Centre”. Please take note: the use of term “combined technology” is very inaccurate as it embraces a lot of types of plants (CHPPs, GTHPP, CCGT, etc.).</p>	A.4.3	<p><u>Response 1 of 17/03/2011</u></p> <p>The changes were made in PDD, section A.4.3. The introduction of the cogeneration to generate electricity and heat leads to reduction in fossil fuel consumption comparing to the baseline scenario.</p> <p><u>Response 2 of 11/04/2011</u></p> <p>The changes were made in the PDD, section A.4.3.</p>	<p><u>Conclusion on Response 1</u></p> <p>The changes made in section A.4.3 are not sufficient as it is not clear why exactly this type of CHPP is better than other cogeneration plants of URES Centre.</p> <p>CAR is not closed.</p> <p><u>Conclusion on Response 2</u></p> <p>CAR is closed based on due corrections made to PDD.</p>
<p>CAR 04. The length of the crediting period indicated in A.4.3.1 (3.7 years) is incorrect.</p>	A.4.3.1	<p><u>Response 1 of 17/03/2011</u></p> <p>According to the http://ji.unfccc.int/Ref/Documents/DVM.pdf The length of the crediting period is 3 years 7 month or 3, 58 The commissioning of the project was in 26 May 2009.</p>	<p><u>Conclusion on Response 1</u></p> <p>CAR is closed based on due corrections made to PDD.</p>



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<p>CAR 05. Annual average of estimated emission reductions indicated in A.4.3.1 is incorrect.</p>	<p>A.4.3.1</p>	<p><u>Response 1 of 17/03/2011</u></p> <p>According to the...<i>The annual average of estimated emission reductions is calculated by dividing the total estimated emission reductions over the crediting period by the total months of the crediting period and multiplying by twelve.</i></p> <p>http://ji.unfccc.int/Ref/Documents/DVM.pdf</p> <p>The annual average of emission reductions was corrected and indicated in PDD, section A.4.3.1. The value is 170 214 tCO₂ per year.</p>	<p><u>Conclusion on Response 1</u></p> <p>CAR is closed based on due corrections made to PDD.</p>
<p>CAR 06. The project has no approval of the Parties.</p>	<p>19</p>	<p><u>Response 1 of 17/03/2011</u></p> <p>According to the Russian legislation, the letter of approval will be issued by the Russian Government based on an expert statement issued by the AIE. Once the Approval is received, both the PDD and the determination report will be updated and the determination will become final.</p> <p>Host country letter of approval was obtained on 12.03.2012.</p>	<p><u>Conclusion on Response 1</u></p> <p>Response is accepted by AIE. CAR is closed.</p>
<p>CAR 07. The indication of the Russian Federation in the Table B.1.1 is incorrect.</p>	<p>23</p>	<p><u>Response 1 of 17/03/2011</u></p> <p>The changes were made. Please see section B1, Table B.1.1.</p>	<p><u>Conclusion on Response 1</u></p> <p>CAR is closed based on due corrections made to PDD.</p>



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<p>CAR 08. The list of plausible alternatives is incomplete. Alternative scenarios should include installation of common steam turbine, gas turbine with autonomous heat boiler and construction of combined cycle gas turbine power plant (CCGT) with steam turbine. Please take note: alternative scenario 3 has no sense as in the alternative 1 it is justified that heat generation is excessive in the area.</p>	<p>23</p>	<p><u>Response 1 of 17/03/2011</u> The changes were made in PDD, section B1.</p> <p><u>Response 2 of 11/04/2011</u> The abbreviation “PO” was deciphered in the PDD, p12.</p>	<p><u>Conclusion on Response 1</u> CAR is closed based on due corrections made to PDD. Please decipher abbreviation “PO” used in PDD.</p> <p><u>Conclusion on Response 2</u> CAR is closed based on due corrections made to PDD.</p>
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<p>CAR 09. Areas of concern as to the tables in Section B.1 with the key data and information used to establish the baseline are as follows:</p> <p>(i) please provide the values of data applied, QA/QC procedures (to be) applied for $EG_{PJ,y}$, $HG_{PJ,y}$, $EF_{CO2,i,y}$, $EG_{m,y}$;</p> <p>(ii) please provide the correct title for the parameter $NCV_{t.c.e.}$ in PDD (Section B.1 and E.1) and in the spreadsheet “20110224_ERU_CF_Kolomenskoe_GTPP_v1_en”. Take note: this is not the “conversion factor”;</p> <p>(iii) please provide the full reference for the source of data for the $EF_{CO2,i,y}$ including the exact page and table (the same pertains to the tables in Section D);</p> <p>(iv) please justify that the source of net calorific value of coal equivalent is Federal Service of State Statistics (RosStat);</p> <p>(v) please include in the list of key data the conversion factor 4,187 and the average efficiency of boilers of central heating workshop.</p>	23	<p><u>Response 1 of 17/03/2011</u></p> <p>(i) The change was made. Please see section B1, in the tabular form “The key data and information used to establish the baseline”.</p> <p>(ii) The change was made in the PDD (Section B1 and E1) and in the spreadsheet. 20110317_ERU_CF_Kolomenskoe_GTPP_v2_en</p> <p>(iii) The change was made in the PDD and in the table section D. source of the $EF_{CO2,i,y}$. 2006 IPCC Guidelines for National Greenhouse Gas Inventories Volume 2 chapter 2, Table 2.2 p2.16-2.17</p> <p>(iv) The net electricity generation and fossil fuels consumed in the project electricity system are received from Rosstat RF. The amount of fossil fuels are expressed in tone of coal equivalent with net calorific value is equal to 7,000 kcal/kg c.e. or 29.33 GJ/t c.e.</p> <p>(v) The indicated values were added to PDD. Please see list of key data.</p> <p><u>Response 2 of 11/04/2011</u></p> <p>The change was made in the PDD. Please see source of “Conversion factor” in the table form. In the calculations used 4,187 according to the round-off method..</p>	<p><u>Conclusion on Response 1</u></p> <p>Responses to i, ii, iii, iv were accepted by AIE.</p> <p>The indicated source of data to be used for “Conversion factor” evaluation, in the table of Section B1, is incorrect (the tool doesn’t contain any data on conversion factor). Please indicate the right source.</p> <p>CAR is not closed.</p> <p><u>Conclusion on Response 2</u></p> <p>CAR is closed based on due corrections made to PDD.</p>
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<p>CAR 10. Please provide calculation of the grid emission factor for the URES “Centre”. Please take note: the used default emission factor for heavy fuel oil is inaccurate and default emission factor for coal is incorrect; the information concerning the commissioning period of the plants listed in the Table 2.6 is incorrect.</p>	<p>23</p>	<p><u>Response 1 of 17/03/2011</u></p> <p>Default emission factors for Oil and coal were corrected. The file with the calculation of emission factor for the URES “Centre” was provided to BV. Please see attached file 20110317_EF_GTPP_v1_en.xl</p> <p><u>Response 2 of 11/04/2011</u></p> <p>Calculation of BM emission factor was provided to BV. Please see attached file 20110411_EF_GTPP_v2_en.xl</p>	<p><u>Conclusion on Response 1</u></p> <p>Calculation of BM emission factor presented in “20110317_EF_GTPP_v1_en.xl” is not transparent (the spreadsheet doesn’t contain way of calculation, but only final result figure).</p> <p>CAR is not closed.</p> <p><u>Conclusion on Response 2</u></p> <p>CAR is closed based on due corrections made to PDD.</p>
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<p>CAR 11. Financial indicators used to set the benchmark are measured in percents for different currencies (euros, dollars), however investment analysis was done in Russian rubles. Please make all the indicators in comparable measurement units.</p>	<p>29 (b)</p>	<p><u>Response 1 of 17/03/2011</u></p> <p>The changes were made to the financial model. Please see file 20110317_ERU_CF_Kolomenskoe GTPP_v2_en”</p> <p><u>Response 2 of 11/04/2011</u></p> <p>Please see file 20110411_ERU_CF_Kolomenskoe GTPP_v3_en” For calculation benchmark we used “Country risk premium” according to the http://www.stern.nyu.edu/~adamodar/pc/archives/cryprem06.xls.</p> <p>The value of Country Risk Premium was cleared of current risk premium for a mature equity market of USA. This value is used as dimensionless quantity, %.</p>	<p><u>Conclusion on Response 1</u></p> <p>Investment analysis was recalculated from rubles to euro. However, benchmark was calculated with the use of data measured in different units (Russian interest rate – % of USD, risk free rate - % of euro, euro inflation - % in euro, refinancing rate of the CB of RF - % in rubles). Hence, calculated value of benchmark is irrelevant.</p> <p>CAR is not closed.</p> <p><u>Conclusion on Response 2</u></p> <p>CAR is closed based on due corrections made to PDD.</p>
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<p>CAR 12. Please justify the conservativeness of the used value for Russian interest rate (7.5%) though the range in the source is 2.25 – 7.5 %.</p>	29 (b)	<p><u>Response 1 of 17/03/2011</u></p> <p>The mentioned range of 2,25-7,5% simply represents the range of coupon yields applied to the underlying bond in various years during the payment schedule. By no means it means that the whole amount of debt represented by these bonds can be borrowed at 2,25% or any arbitrary number in the range indicated above. The bond rate is represented by its coupon and it is clearly indicated that the value of this coupon is 7,5%. Moreover, coupon values lower than 7,5% are applied only during the initial years of the bond's duration and starting 2007 only 7,5% is applied as demonstrated by the payment schedule.</p>	<p><u>Conclusion on Response 1</u></p> <p>CAR is closed based on due justification made to the spreadsheet.</p>
<p>CAR 13. Please provide the reference to the source of formula used for real risk-free rate calculation. Please take note: the formula considers inflation though the investment analysis was made in constant prices. Please provide consistency in the approach for benchmark setting and for investment calculations.</p>	29 (b)	<p><u>Response 1 of 17/03/2011</u></p> <p>Source: http://ru.wikipedia.org/wiki/Процентная_ставка</p> <p>According to the calculation the used formula excludes inflation. <i>(Real interest rate = (1 + Nominal Interest Rate) / (1 + Inflation) - 1)</i> Therefore the financing model was cleared of inflation and IA was made in constant price.</p>	<p><u>Conclusion on Response 1</u></p> <p>CAR is closed based on due justifications made to the spreadsheet.</p>



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<p>CAR 14. For the determination of the investment analysis presented in Section B.2 please justify with reference to the source of information, the input data used in investment analysis (average natural gas tariff, electricity price, heat price, property tax, scrap price).</p>	29 (b)	<p><u>Response 1 of 17/03/2011</u> Please see the data from PO. The letter was presented to BV. Please see 23_The letter of investment data.</p>	<p><u>Conclusion on Response 1</u> CAR is closed based on presented justification.</p>
<p>CAR 15. Please justify the conservativeness of the assumption of the maximum technical capacity of the plant in investments and emissions calculation. Please be aware: the GTPP in the periods of low heating system water demands (in the absence of heating period) has poorer technical characteristics and doesn't have many advantages in comparison with common combined heat and power stations produced power for URES “Centre”.</p>	29 (b)	<p><u>Response 1 of 17/03/2011</u> Considering ERs estimation for 2011-2012 we used the expected balance of production and supply of electricity and heat energy for 2011 from PO. Following the conservative approach this parameters were used also for the next years. Please see 11_Electricity balance.pdf The calculation of the investments was made on the assumption of maximum workload of GTES for conservative reasons</p>	<p><u>Conclusion on Response 1</u> The used values of 2009 and 2010 years were justified by 6-TP statistical forms provided during the site-visit. For 2011-2012 justification heat and electricity generation is accepted by AIE. CAR is closed.</p>
<p>CAR 16. Please provide the reference to the source of information for the used value of company related risk premium (4%).</p>	29 (b)	<p><u>Response 1 of 17/03/2011</u> Please see the data from PO. The letter was presented to BV. Please see 23_The letter of investment data.</p>	<p><u>Conclusion on Response 1</u> CAR is closed based on presented justification.</p>
<p>CAR 17. Capacity of “Lutch” CHPP indicated in the Table B.2.4 is incorrect.</p>	29 (b)	<p><u>Response 1 of 17/03/2011</u> Capacity of “Lutch” CHPP – 60MW. Source: http://www.oducentr.ru/odu/rdu/frameset.html</p>	<p><u>Conclusion on Response 1</u> CAR is closed based on presented justification.</p>



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<p>CAR 18. The indication of Russian Federation Unified Energy System on the Figure B.3.1 is incorrect.</p>	<p>32 (c)</p>	<p><u>Response 1 of 17/03/2011</u> The change was made on PDD, please see Figure B.3.1 - B.3.2</p> <p><u>Response 2 of 11/04/2011</u> The change was made in PDD. Please see Figure B.3.1</p>	<p><u>Conclusion on Response 1</u> Please avoid use of term “baseline boundary” as it is incorrect. Only project has boundaries, in the absence of the project there exists some situation that is called “baseline”.</p> <p>CAR is not closed.</p> <p><u>Conclusion on Response 2</u> CAR is closed based on due corrections made to PDD.</p>
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<p>CAR 19. Please indicate and justify conservativeness of deviations from the applied CDM “Tool to calculate the emission factor for an electricity system” (version 02).</p>	<p>36 (b) (i)</p>	<p><u>Response 1 of 17/03/2011</u></p> <p>The deviation is indicated in the PDD.</p> <p>CHPs produce electricity predominantly in the prescribed heat supply mode. Therefore they can be excluded from OM and BM calculation. However the reports (according to form 6-TP) do not contain any information about fired fuel amount for cogeneration or simple cycles and it is impossible to exclude from calculation the fired fuel amount and electricity generation with cogeneration cycle. Therefore, the parameters of cogeneration energy units were taken into account in OM and BM calculation. It is deviation from the Tool but it is conservative because the cogeneration cycles is more efficient than a simple (or combine) cycle.</p> <p><u>Response 2 of 11/04/2011</u></p> <p>The above mentioned was included in the PDD. Please refer to p.41.</p>	<p><u>Conclusion on Response 1</u></p> <p>Deviation from the applied CDM “Tool to calculate the emission factor for an electricity system” (version 02) is reasonable and accepted by AIE.</p> <p>Please include the description of deviation from the response to PDD Annex 2.</p> <p>CAR is not closed.</p> <p><u>Conclusion on Response 1</u></p> <p>CAR is closed based on due corrections made to PDD.</p>
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<p>CAR 20. Please specify the procedures to be followed if the expected data are unavailable, for instance in case of gas flow meter, heat flow meter failure, etc.</p>	<p>36 (b) (iii)</p>	<p><u>Response 1 of 17/03/2011</u></p> <p>All procedures to obtain unavailable data in cases of emergency situation at the enterprise for instance gas flow meter, heat meter and electricity meter are defective or failed are indicated in contracts. Please see part of contract; 18_Method of calculation heat at the emergency situation</p> <p>19_Method of calculation NG at the emergency situation</p> <p>20_Method of calculation electricity at the emergency situation.</p>	<p><u>Conclusion on Response 1</u></p> <p>CAR is closed based on due corrections made to PDD.</p>
<p>CAR 21. In the Tables D.1.1.1 and D.1.1.3 data units for annual heat supply and net calorific value of natural gas are measured in Gcal/year and kcal/m3. Please use only the International System Units (SI units) in monitoring plan.</p>	<p>36 (b) (iv)</p>	<p><u>Response 1 of 17/03/2011</u></p> <p>PDD was corrected, please see Tables D.1.1.1 and D.1.1.3</p>	<p><u>Conclusion on Response 1</u></p> <p>CAR is closed based on due corrections made to PDD.</p>

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<p>CAR 22. With regard to the comment on $NCV_{NG,y}$ in D.1.1.1 please define the method of calculating weighted average value of $NCV_{NG,y}$. Please take note: the annual natural gas consumption is defined from monitoring.</p>	36 (b) (iv)	<p><u>Response 1 of 17/03/2011</u></p> <p>The calculation annual $NCV_{NG,y}$ is presented below.</p> $NCV_{NG,y} = \frac{\sum (NCV_{NG,y} \times FC_{NG,y})}{\sum FC_{NG,y}}$ <p>Annual value is calculated at the GTES and inserted into the report (statistic form 6TP)</p> <p><u>Response 2 of 11/04/2011</u></p> <p>The change was made on PDD, section D.1.1.1.</p>	<p><u>Conclusion on Response 1</u></p> <p>In the presented formula there exists fuel consumption per month, however in D.1.1.1 parameter $FC_{NG,y}$ is titled “annual natural gas consumption”. Please provide consistency.</p> <p>CAR is not closed.</p> <p><u>Conclusion on Response 2</u></p> <p>CAR is closed based on due corrections made to PDD.</p>
<p>CAR 23. In formula (2) dimensions of variables are not compatible.</p>	36 (f)	<p><u>Response 1 of 17/03/2011</u></p> <p>The change was made in PDD, section D.1.1.2 please see formula 2.</p>	<p><u>Conclusion on Response 1</u></p> <p>CAR is closed based on due corrections made to PDD.</p>
<p>CAR 24. In formula (5) the dimension of the boiler house efficiency for all DHS and QHS (percents) is incorrect. Please take note: the reference 15 doesn’t work.</p>	36 (f)	<p><u>Response 1 of 17/03/2011</u></p> <p>The change was made in PDD, please see equation 5. The reference is correct http://cdm.unfccc.int/methodologies/PAMethodologies/tools/am-tool-09-v1.pdf and is made as a hyperlink in the PDD.</p>	<p><u>Conclusion on Response 1</u></p> <p>CAR is closed based on due corrections made to PDD.</p>
<p>CAR 25. Reference to the pertinent applicable national law “On uniformity of measurements” N 102-Φ3 dated 26/06/2008 is not made.</p>	36 (g)	<p><u>Response 1 of 17/03/2011</u></p> <p>The change was made to PDD, section D3</p>	<p><u>Conclusion on Response 1</u></p> <p>CAR is closed based on due corrections made to PDD.</p>

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<p>CAR 26. Please take into account the plant “internal needs in heat” in emission reduction calculations.</p>	43	<p><u>Response 1 of 17/03/2011</u></p> <p>The heat for ERs calculation was taken from statistic form 6TP. Please see 7_6-TP_2009, 8_6-TP_2010. The number indicates heat supplied outside the plant. “internal needs in heat” is counted in ERs calculations.</p>	<p><u>Conclusion on Response 1</u></p> <p>CAR is closed based on provided justifications.</p>
<p>CAR 27. Calculation of fuel consumption (gas) for the project line in 2011 and 2012 is incorrect.</p>	43	<p><u>Response 1 of 17/03/2011</u></p> <p>The model was changed. Please see 20110317_ERU_CF_Kolomenskoe GTPP_v2_en”.</p>	<p><u>Conclusion on Response 1</u></p> <p>CAR is closed based on due corrections made to PDD.</p>
<p>CAR 28. Please provide the source of data on fuel consumption (gas) for the project line in 2009 and 2010.</p>	43	<p><u>Response 1 of 17/03/2011</u></p> <p>Please see statistic form 6 TP from PO 7_6-TP_2009, 8_6-TP_2010. Also please see 20110317_ERU_CF_Kolomenskoe GTPP_v2_en”.</p>	<p><u>Conclusion on Response 1</u></p> <p>CAR is closed based on due corrections made to PDD.</p>
<p>CL 01. Please clarify, why emission reductions in 2010 and in 2011 differ? Will all the turbines put into operation simultaneously or sequentially?</p>	A.4.2	<p><u>Response 1 of 17/03/2011</u></p> <p>Production of electricity for the 2010 is based on actual data from PO (statistical form 6-TP). Nevertheless considering ERs estimation for 2011 we can use the expected balance of production and supply of electricity and heat energy for 2011 from PO. Please see 11_Electricity balance.pdf. Following the conservative approach this situation was prolonged for the following years</p>	<p><u>Conclusion on Response 1</u></p> <p>CL is closed based on due clarifications made to PDD.</p>



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<p>CL 02. Please clarify, why in the cash flow value calculation property tax value is positive?</p>	29 (b)	<p><u>Response 1 of 17/03/2011</u></p> <p>The change was made in financing model. Please see 20110317_ERU_CF_Kolomenskoe GTPP_v2_en.</p>	<p><u>Conclusion on Response 1</u></p> <p>CL is closed based on due corrections made to the spreadsheet.</p>
<p>CL 03. Please clarify who are the “other electricity consumers” indicated on the Figures B.3.1 and B.3.2? Are any consumers that receive electricity directly without the use of electricity grid of URES “Centre”?</p>	32 (c)	<p><u>Response 1 of 17/03/2011</u></p> <p>The change was made on PDD; please see Figure B.3.1 - B.3.2. Electricity will be received from grid of URES “Centre”</p>	<p><u>Conclusion on Response 1</u></p> <p>CL is closed based on due corrections made to the PDD.</p>
<p>CL 04. Please clarify what kind of implementation or construction or real action of the project began at this date?</p>	34 (a)	<p><u>Response 1 of 17/03/2011</u></p> <p>Starting date of the project is 18/07/2007. In this date construction of the GTES had been started. Please see 17_Order for construction#07050181_18072007</p>	<p><u>Conclusion on Response 1</u></p> <p>CL is closed based on due clarifications made to PDD.</p>